A.1 Community Profile

A.1.1 Mitigation Planning History and 2019 Process

This annex was created during the development of the 2019 San Luis Obispo County Hazard Mitigation Plan update. This Jurisdictional Annex builds upon the previous version of the Multi-Jurisdictional Local Hazard Mitigation Plan for the Cities of Arroyo Grande, Grover Beach as well as the Lucia Mar Unified School District and South San Luis Obispo County Sanitation District; completed in December 2014 and approved by FEMA in December 2015; that previous mitigation plan was not incorporated into the City's General Plan, as this updated mitigation plan will be. The City has used the previous mitigation plan as a basis for the Emergency Operations Plan. A review of jurisdictional priorities found no significant changes in priorities since the last update.

The City's Local Planning Team (LPT), listed in Table A.1 holds responsibility for implementation and maintenance of the plan. Members are noted below. The Fire Chief for the Five Cities Fire Authority was the City's primary liaison to the County HMPC.

Table A.1 Arroyo Grande Hazard Mitigation Plan Revision Planning Group

Department or Stakeholder	Title
Five Cities Fire Authority	Fire Chief
Community Development - Engineering Division	Program Analyst
Community Development – Planning Division	Planning Manager

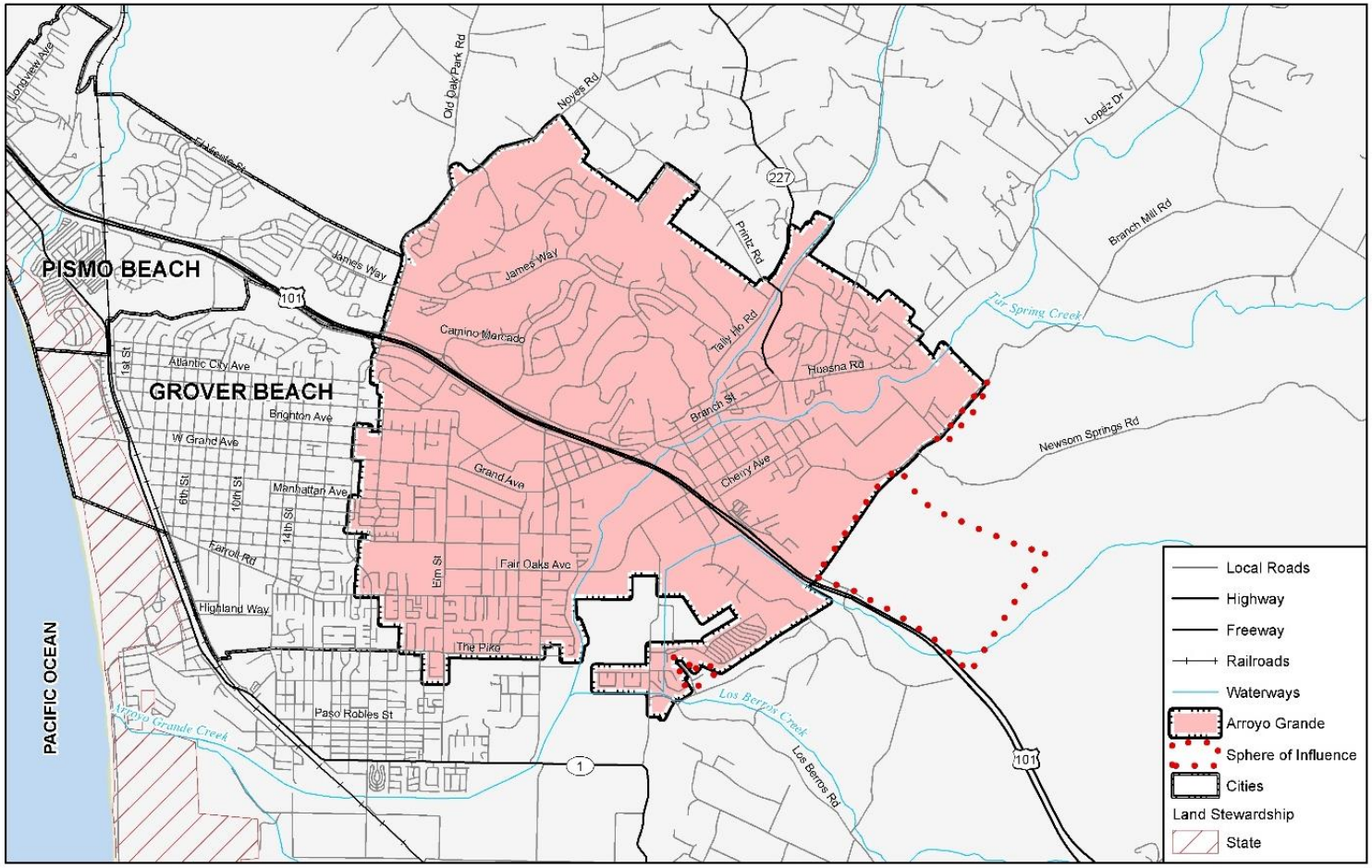
More details on the planning process follow and how the jurisdictions, service districts and stakeholders participated can be found in Chapter 3 Planning Process of the Base Plan, along with how the public was involved during the 2019 update.

A.1.2 Geography and Climate

The City of Arroyo Grande is located in the south county area of San Luis Obispo County. Highway 101 traverses the City, which is located midway between the Cities of Los Angeles and San Francisco. The Cities of Pismo Beach and Grover Beach border Arroyo Grande to the northwest and west. The unincorporated community of Oceano borders on the southwest and agricultural lands border the City on the north, east and south. This area is known as the Five Cities. Arroyo Grande is the largest community in the Five Cities area, encompassing a total of 5.45 square miles. The Arroyo Grande Creek is another dominate feature that runs north-south in the eastern portion of the City and has been a source of flooding issues in the past (refer to the Vulnerability Assessment in Section A.3). Figure A.1 displays a map the Arroyo Grande planning area.

Arroyo Grande has an average high temperature (July) of 72°F and low temperature of 42°F (January). The jurisdiction receives 16.0 inches of rain annually. While the average temperature is relatively temperate, summer and winter months bring unique weather patterns to the region. Refer to the Adverse Weather Section of the HIRA in the Base Plan (Chapter 5) for general details on the climate in this area.

Figure A.1 The City of Arroyo Grande



Map compiled 5/2019;
intended for planning purposes only.
Data Source: San Luis Obispo County, US Census TIGER Database, CA Open Data Portal, BLM/California State Office

A.1.3 History

The Arroyo Grande Valley was first inhabited by the Obispena Chumash Indians. The Obispena Chumash Indians were living in the Arroyo Grande Valley when the first Spanish explorer, Juan Carbillo arrived in the Valley. In 1832, Francisco Zeba Branch purchased 17,000 acres in the Arroyo Grande Valley and started successful cattle ranching business. By 1840, colonial settlement of California led to the Arroyo Grande Valley to be divided into two major ranchos, granted by the Mexican government. In the mid 1860's a severe drought event in the Valley led to Branch's cattle population to diminish drastically. As a result, the two large ranchos were divided into smaller lots and sold to new settlers for agricultural uses. The Village of Arroyo Grande was developed to serve the new population. In 1862 the Arroyo Grande township was established by the San Luis Obispo Board of Supervisors, creating a flourishing community with a farm-based economy. In 1882 a railway depot was built, and businesses began to be established along Branch Street. Residents of the Arroyo Grande township voted on July 10, 1911 to incorporate and become the City of Arroyo Grande.

A.1.4 Economy

The top industries in the City are related to education, services and health as well as arts, entertainment and recreation, and accommodation and food services. The major employers are the Arroyo Grande Community Hospital (412 employees) and Lucia Mar Unified School District (1,000 employees) both of which are also in the top twenty-five (25) employers in the County of San Luis Obispo (San Luis Obispo Chamber of Commerce 2018). In addition to these employers, tourism is also large part of the City's economic base. According the City's 2016 Housing Element of the General Plan, 85% of residents commute out of Arroyo Grande for work.

Estimates of select economic characteristics for the City of Arroyo Grande are shown in Table A.2.

Table A.2 City of Arroyo Grande Economic Characteristics, 2013-2017

Characteristic	City of Arroyo Grande
Families below Poverty Level (%)	3.5%
All People below Poverty Level (%)	6%
Median Family Income	$103,241
Median Household Income	$74,654
Per Capita Income	$38,893
Population in Labor Force	8,869
Population Employed*	8,486
Unemployment	383

Source: CA Department of Finance U.S. Census Bureau American Community Survey 2013-2017 5-Year Estimates, www.census.gov/

*Excludes armed forces

Table A.3 and Table A.4 show how the City of Arroyo Grande's labor force breaks down by occupation and industry based on estimates from the 2013-2017 five-year American Community Survey.

Table A.3 City of Arroyo Grande's Employment by Occupation, 2013-2017

Occupation	# Employed	% Employed
Management, Business, Science, and Arts occupations	3,591	42%
Service occupations	1,482	18%
Sales and Office occupations	1,988	23%

Natural Resources, Construction and Maintenance occupations	789	9%
Production, Transportation and Material Moving occupation	627	7%
Total	**8,486**	**100%**

Source: U.S. Census Bureau American Community Survey 2013-2017 5-Year Estimates, www.census.gov/

*Excludes armed forces

Table A.4 City of Arroyo Grande's Employment by Industry, 2013-2017

Industry	# Employed	% Employed
Educational Services, and Health Care and Social Assistance	1,897	22%
Retail Trade	823	10%
Professional, Scientific, and Mgmt., and Administrative and Waste Mgmt. Services	992	12%
Manufacturing	498	6%
Arts, Entertainment, and Recreation, and Accommodation, and Food Services	1,177	14%
Construction	571	7%
Finance and Insurance, and Real Estate and Rental and Leasing	609	7%
Public Administration	563	7%
Other Services, Except Public Administration	350	4%
Wholesale Trade	164	2%
Transportation and Warehousing, and Utilities	667	8%
Agriculture, Forestry, Fishing and Hunting, and Mining	74	1%
Information	101	1%
Total	**8,486**	**100%**

Source: U.S. Census Bureau American Community Survey 2013-2017 5-Year Estimates, www.census.gov/

A.1.5 Population

In May 2019, the State Department of Finance released preliminary population data for the state to reflect wildfire-driven changes to the local population. According to the report the City of Arroyo Grande has a population of 17,876 persons and lost 4 residents from the previous year, leaving the population statically the same. Select demographic and social characteristics for the City of Arroyo Grande from the 2013-2017 American Community Survey are shown in Table A.5.

Table A.5 City of Arroyo Grande's Demographic and Social Characteristics, 2013-2015

Characteristic	City of Arroyo Grande
Gender/Age	
Male	8,716
Female	9,255
Median age (years)	48
Under 5 years	930
Under 18 years	3,366
65 years and over	4,132
Race/Ethnicity	
White	15,877
Asian	1,022

Black or African American	119
American Indian/Alaska Native	52
Hispanic or Latino (of any race)	2,980
Education	
% High school graduate or higher	95%
Disability Status	
% of Population 5 years and over with a disability	11%

Source: CA Department of Finance, U.S. Census Bureau American Community Survey 2013-2017 5-Year Estimates, www.census.gov/

The following table with information from the American Community Survey 5-year estimates (2013-2017) is related to housing occupancy in the City of Arroyo Grande.

Table A.6 Housing Occupancy and Units

Housing Characteristic	Estimate	Percentage
Housing Occupancy		
Total Housing Units	7,847	100%
Units Occupied	7,192	92%
Vacant	655	8%
Housing Units		
1-unit detached	5,155	66%
1-unit attached	750	10%
2 units	273	4%
3 or 4 units	206	3%
5-9 units	215	3%
10-19 units	271	4%
20 or more units	442	6%
Mobile Home	519	7%
Boat, RV, van etc.	16	0.2%
Housing Tenure		
Owner Occupied	5,023	70%
Renter Occupied	2,169	30%

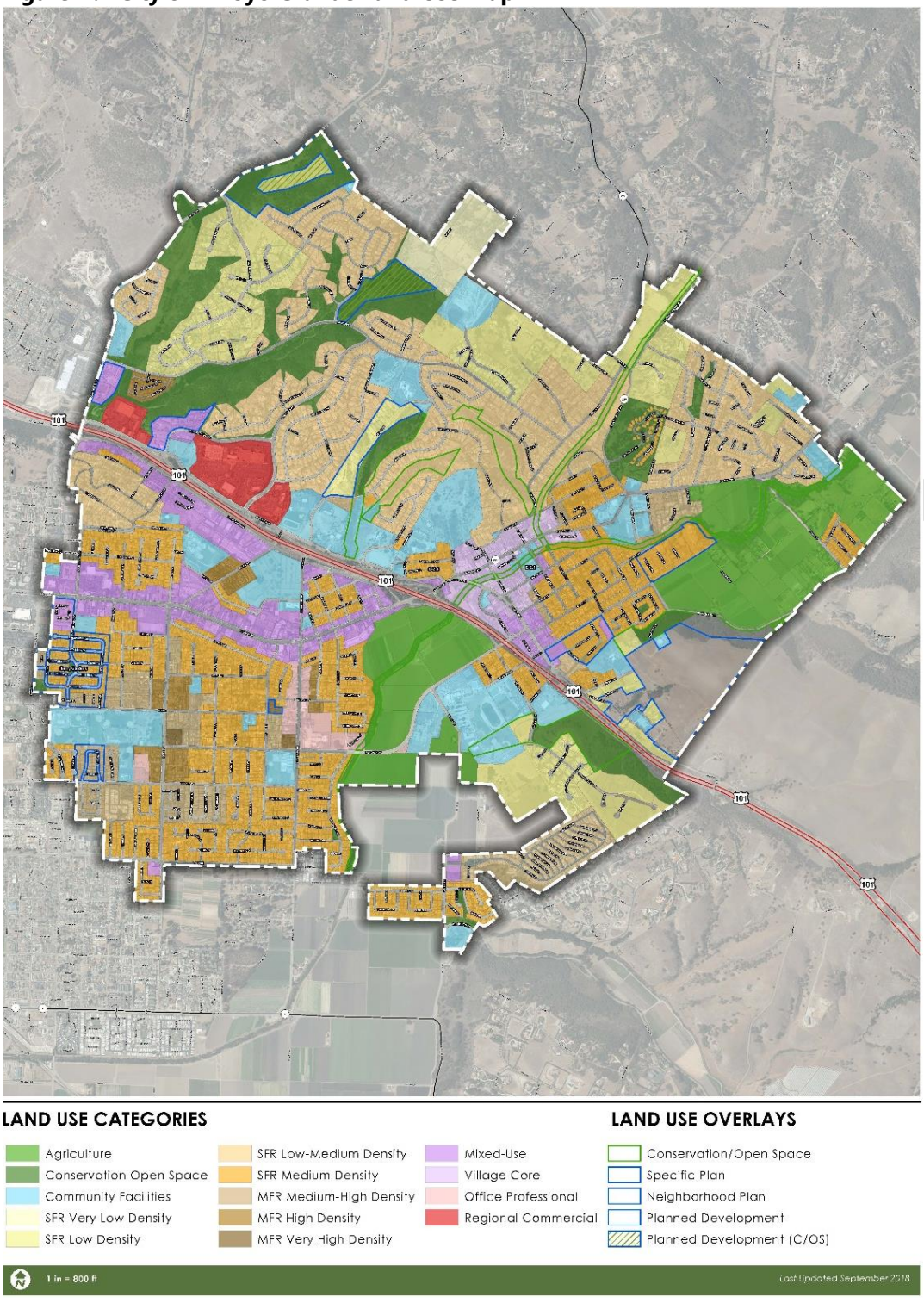
Source: CA Department of Finance, U.S. Census Bureau American Community Survey 2013-2017 5-Year Estimates, www.census.gov/

A.1.6 Development Trends

The dominant land use in the City of Arroyo Grande as shown in Figure A.2 below is residential. As can be seen in the housing table above, a majority of the residential use is single family (1-unit detached) homes that are owner occupied (70%). There are very few vacant parcels within the City's boundaries and due to the community's strong feelings toward the preservation of "prime" agricultural land, it is projected that future development will be infill and revitalization of existing parcels. According to the 2001 General Plan the infill development should be located in the following areas: East Grande Avenue, El Camino Real, and south and east of the Historic Village area. The Sphere of Influence for the City includes a 185-acre agricultural parcel along the City's southeastern boundary.

Between 2000 and 2016, the City's population grew at a similar rate to the County as a whole, adding 1,880 residents or an annual growth rate of 0.74 percent over a 16-year period. Population growth slowed down in between 2010 and 2016 with the addition of 500 residents in a 6-year period. The estimated buildout population for the City of Arroyo Grande is 20,000 by 2040. Due to water availability the City has a population growth cap of 20,000 by 2021 and is estimated to grow its population to 18,288 by 2020 (SLO County Council of Governments 2017). The availability of both the short-term and the long-term water source is the primary limitation of how the City can grow in the future. According to the City's Urban Water Management Plan (2015) the City's projected water supply should exceed its projected water demand through the year 2035.

Figure A.2 City of Arroyo Grande Land Use Map



Source: City of Arroyo Grande September 2018 https://www.arroyogrande.org/142/Planning-Division

A.2 Hazard Identification and Summary

The City of Arroyo Grande Planning Team identified the hazards that affect the City and summarized their frequency of occurrence, spatial extent, potential magnitude, and significance specific to their community (see Table A.7). There are no hazards that are unique to Arroyo Grande. The overall hazard significance takes into account the geographic area, probability and magnitude as a way to identify priority hazards for mitigation purposes. This is discussed further in the Vulnerability Assessment Section.

Table A.7 City of Arroyo Grande – Hazard Summaries

Hazard	Geographic Area	Probability of Future Occurrence	Magnitude/ Severity (Extent)	Overall Significance
Dam Incidents	Extensive	Unlikely	Catastrophic	Medium
Drought and Water Shortage	Significant	Likely	Limited	Medium
Earthquake	Significant	Highly Likely	Critical	High
Flood	Significant	Highly Likely	Limited	Medium
Wildfire	Significant	Occasional	Limited	Medium
Human Caused: Hazardous Materials	Significant	Highly Likely	Negligible	Medium

Geographic Area
Limited: Less than 10% of planning area
Significant: 10-50% of planning area
Extensive: 50-100% of planning area

Probability of Future Occurrences
Highly Likely: Near 100% chance of occurrence in next year or happens every year.
Likely: Between 10 and 100% chance of occurrence in next year or has a recurrence interval of 10 years or less.
Occasional: Between 1 and 10% chance of occurrence in the next year or has a recurrence interval of 11 to 100 years.
Unlikely: Less than 1% chance of occurrence in next 100 years or has a recurrence interval of greater than every 100 years.

Magnitude/Severity (Extent)
Catastrophic—More than 50 percent of property severely damaged; shutdown of facilities for more than 30 days; and/or multiple deaths
Critical—25-50 percent of property severely damaged; shutdown of facilities for at least two weeks; and/or injuries and/or illnesses result in permanent disability
Limited—10-25 percent of property severely damaged; shutdown of facilities for more than a week; and/or injuries/illnesses treatable do not result in permanent disability
Negligible—Less than 10 percent of property severely damaged, shutdown of facilities and services for less than 24 hours; and/or injuries/illnesses treatable with first aid

Significance
Low: minimal potential impact
Medium: moderate potential impact
High: widespread potential impact

A.3 Vulnerability Assessment

The intent of this section is to assess Arroyo Grande's vulnerability separate from that of the planning area as a whole, which has already been assessed in Section 5.3 Risk Assessment in the Base Plan. This vulnerability assessment analyzes the population, property, and other assets at risk to hazards ranked of medium or high significance that may vary from other parts of the planning area.

The information to support the hazard identification and risk assessment was based on a combination of the previous LHMP for the City and County and jurisdiction specific information collected during the 2019 update. A Local Hazard Mitigation Plan Update Guide and associated worksheets was distributed to each participating municipality or special district to complete during update process in 2019. Information collected was analyzed and summarized in order to identify and rank all the hazards that could impact anywhere within the County, as well as to rank the hazards and identify the related vulnerabilities unique to each jurisdiction.

Each participating jurisdiction was in support of the main hazard summary identified in the Base Plan (see Table 5.2). However, the hazard summary rankings for each jurisdictional annex may vary due to specific hazard risk and vulnerabilities unique to that jurisdiction. The information in this annex helps differentiate the jurisdiction's risk and vulnerabilities from that of the overall County.

Note: The hazard "Significance" reflects overall ranking for each hazard and is based on the City of Arroyo Grande's Planning Team member input from the Data Collection Guide and the risk assessment developed during the planning process (see Chapter 5 of the Base Plan), which included a more detailed qualitative and quantitative analysis with best available data.

The hazard summaries in Table A.7 above reflect the hazards that could potentially affect City. The discussion of vulnerability for each of the following hazards is located in Section A.3.2 Estimating Potential Losses. Based on this analysis, the priority hazard (High Significance) for mitigation is earthquake. Those of Medium or High significance for the City of Arroyo Grande are identified below.

- Dam Incidents
- Drought and Water Shortage
- Earthquake
- Flood
- Hazardous Materials Incident
- Wildfire

Other Hazards

Hazards assigned a significance rating of Low and which do not differ significantly from the County ranking (e.g., Low vs. High) are not addressed further in this plan and are not assessed individually for specific vulnerabilities in this section. In the City of Arroyo Grande, those hazards include: land subsidence, agricultural pests and infestation, biological agents, adverse weather and landslides.

Additionally, the City's committee members decided to rate several hazards as Not Applicable (N/A) to the planning area due to a lack of exposure, vulnerability, and no probability of occurrence. Coastal hazards (coastal storm/coastal erosion/sea level rise and tsunami) are Not Applicable (N/A) to the City of Arroyo Grande.

A.3.1 Assets at Risk

This section considers Arroyo Grande's assets at risk, including values at risk, critical facilities and infrastructure, historic assets, economic assets and growth and development trends.

Values at Risk

The following data on property exposure is derived from the San Luis Obispo County 2019 Parcel and Assessor data. This data should only be used as a guideline to overall values in the City as the information has some

limitations. The most significant limitation is created by Proposition 13. Instead of adjusting property values annually, the values are not adjusted or assessed at fair market value until a property transfer occurs. As a result, overall value information is likely low and does not reflect current market value of properties. It is also important to note that in the event of a disaster, it is generally the value of the infrastructure or improvements to the land that is of concern or at risk. Generally, the land itself is not a loss and is not included in the values below. Table A.8 shows the exposure of properties (e.g., the values at risk) broken down by property type for the City of Arroyo Grande.

Table A.8 2019 Property Exposure for the City of Arroyo Grande by Property Types

Property Type	Parcel Count	Improved Value	Content Value	Total Value
Agricultural	4	$95,432	$95,432	$190,864
Commercial	325	$179,293,623	$179,293,623	$358,587,246
Government/Utilities	80	--	--	$0
Other/Exempt/Misc.	185	$49,935,239	--	$49,935,239
Residential	5,225	$1,143,804,006	$571,902,003	$1,715,706,009
Multi-Family Residential	511	$116,469,141	$58,234,571	$174,703,712
Mobile/Manufactured Homes	8	$9,155,399	$4,577,700	$13,733,099
Residential: Other	328	$100,039,459	$50,019,730	$150,059,189
Industrial	4	$1,164,671	$1,747,007	$2,911,678
Vacant	23	$8,695,079	--	$8,695,079
Total	**6,693**	**$1,608,652,049**	**$865,870,066**	**$2,474,522,115**

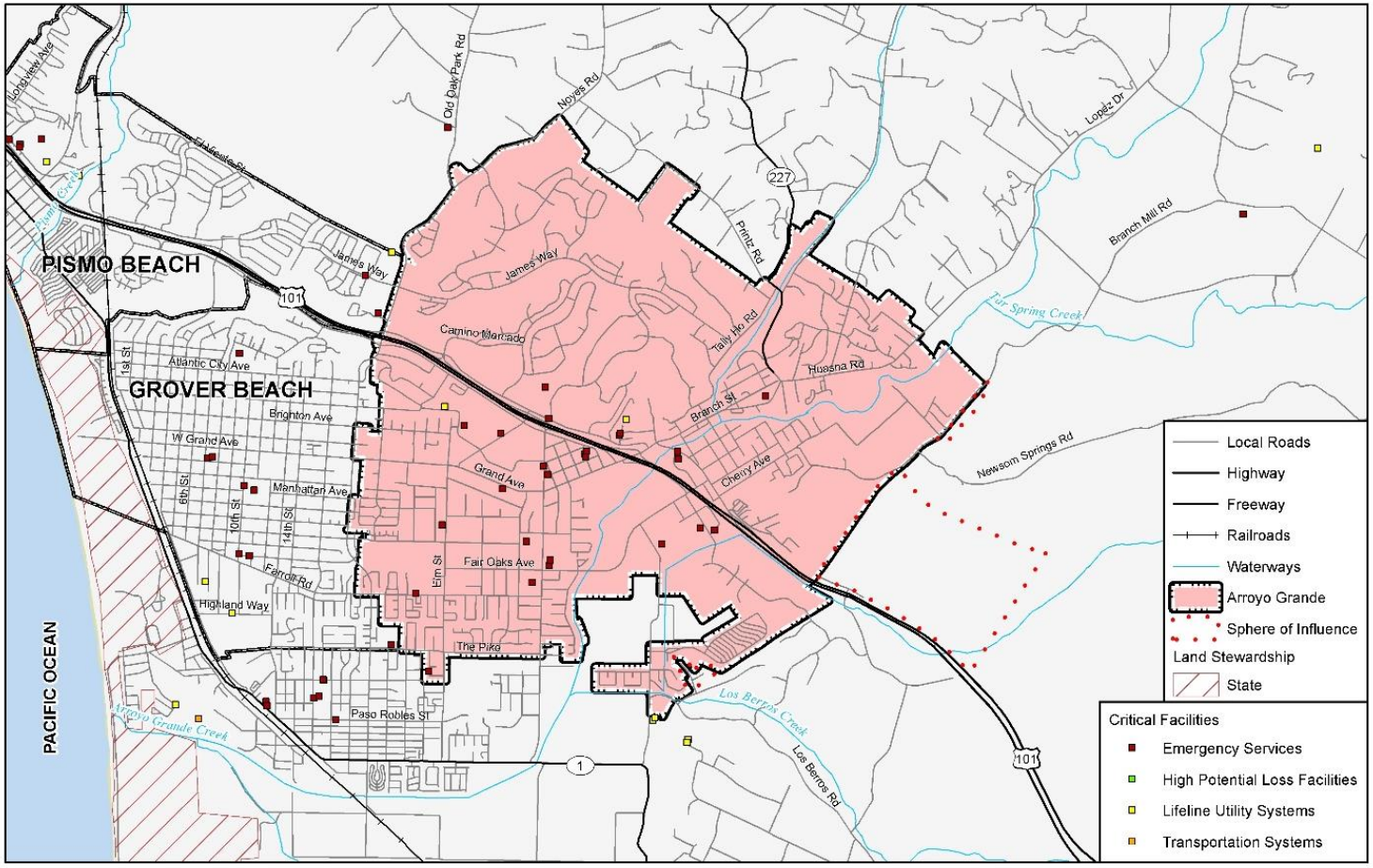
Source: Wood Plc analysis based on ParcelQuest and San Luis Obispo County Assessor's Office data 2019

Critical Facilities and Infrastructure

A critical facility may be defined as one that is essential in providing utility or direction either during the response to an emergency or during the recovery operation. See Section 5 of the Base Plan for more details on the definitions and categories of critical facilities.

An inventory of critical facilities in the City of Arroyo Grande from San Luis Obispo County GIS is illustrated in Figure A.3 and described in Table A.9. A more detailed list of the critical facilities, their location square footage and values from the City's 2015 HMP can be found as an attachment in to this annex.

Figure A.3 City of Arroyo Grande's Critical Facilities



Map compiled 5/2019;
intended for planning purposes only.
Data Source: San Luis Obispo County, US Census TIGER Database, CA Open Data Portal, BLM/California State Office, LAFCO, HIFLD

Table A.9 City of Arroyo Grande's Critical Facilities

Facility Type	Counts
Day Care Facilities	8
Emergency Medical Service Stations	2
Fire Stations	1
Hospitals	2
Local Law Enforcement	1
Nursing Homes	2
Private Schools	4
Public Schools	5
Urgent Care	1
Power Plants	1
FM Transmission Towers	1
Paging Transmission Towers	1
Energy Commission Facilities	3
Airports	1
Total	33

Source: San Luis Obispo County Planning & Building, HIFLD 2017

Transportation and Lifeline Facilities

Other transportation and lifelines include Highway 101 which traverses through the City of Arroyo Grande. Damages to Highway 101 would not only impact the City of Arroyo Grande but the entire region.

Historic and Cultural Resources

Heritage tourism and Arroyo Grande historical sites have been a draw to the area. There have been several informal historical surveys that have identified potential historical sites in the City, much of which is within the Village of Arroyo Grande area. According to the Historical Context Survey completed in 2011, the following are the eleven locally designated historical resources in Arroyo Grande.

- Former City Hall – 214 East Branch Street
- Conrad House – 208 East Branch Street
- Residence – 145 West Branch Street
- Office – 139 West Branch Street
- Santa Manuela School House – Heritage Square/Nelson Green
- Ruby's House – 134 South Mason Street
- Heritage House – 126 South Mason Street
- Swinging Bridge – Short Street, spanning Arroyo Grande Creek
- Bridge Street Bridge – Bridge Street, south of Olohan Alley
- Paulding House – 551 Crown Hill Street (California Register, 2009)
- Independent Order of Odd Fellows Hall (IOOF) – 128 Bridge Street (National Register, 1991)

The local tourism website (Visit Arroyo Grande) lists the following historic landmarks in addition to the ones identified above:

- The Barn Museum
- Rotary Bandstand
- Mason Street Bridge
- C. Loomis Building
- The Paulding History House
- The Pacific Coast Railroad Line
- Brisco Old Hotel – 129 E. Branch Olohan Building
- Hoosegow Park – LePoint Street.

Natural Resources

Natural resources are important to include in benefit-cost analyses for future projects and may be used to leverage additional funding for projects that also contribute to community goals for protecting sensitive natural resources. Awareness of natural assets can lead to opportunities for meeting multiple objectives. For instance, protecting wetlands areas protects sensitive habitat as well as attenuates and stores floodwaters.

The City of Arroyo Grande is part of the Arroyo Grande and Cienga Valleys which is contains "prime" soils for agricultural productions. Despite a majority of the agricultural lands are outside of the City's jurisdiction the Arroyo Grande community understands the importance of agricultural both to the local and the countywide economy, have chosen to protect these lands, through development regulations, that border their community on the north, east, and south.

Economic Assets

Arroyo Grande has two of the largest employers in the County located in the City's jurisdiction. The Arroyo Grande Community Hospital employees over 400 persons and is located in a dam inundation zone which would have devasting impacts not only on the local economy but also the ability for the community to respond and recovery during and after a disaster. As noted above, the Village of Arroyo Grande contains several historic structures and is a draw for tourism, a major contributor to the local economy.

A.3.2 Estimating Potential Losses

Note: This section details vulnerability to specific hazards of high or medium significance, where quantifiable, and/or where (according to LPT member input) it differs from that of the overall County.

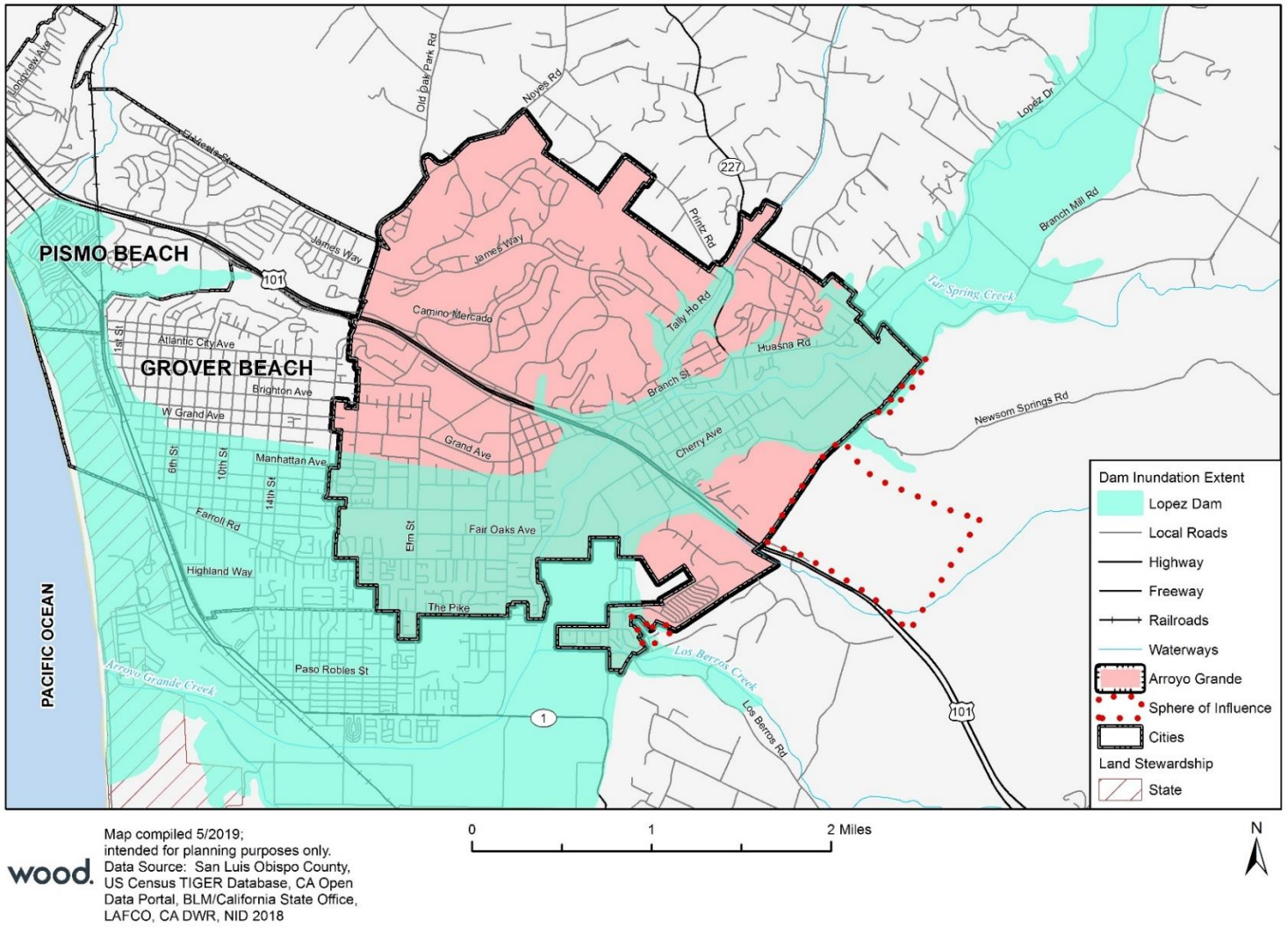
Table A.8 above shows Arroyo Grande's exposure to hazards in terms of number and value of structures. San Luis Obispo County's parcel and assessor data was used to calculate the improved value of parcels. The most vulnerable structures are those in the floodplain (especially those that have been flooded in the past), unreinforced masonry buildings, and buildings built prior to the introduction of modern-day building codes. Impacts of past events and vulnerability to specific hazards are further discussed below (see Section 5.1 Hazard Identification for more detailed information about these hazards and their impacts on San Luis Obipso County as a whole).

Note: The risk and vulnerability related to adverse weather hazards, agricultural pest infestation and disease and biological agents in Arroyo Grande do not differ from those of the County at large. Please refer to Chapter 5 Risk Assessment of the Base Plan for more details on these hazards.

Dam Incidents

While there have been no past dam incidents or failures in the jurisdiction of the City of Arroyo Grande, the City is among the most vulnerable communities in San Luis Obispo to the risk of dam failure. The Lopez Dam, a high hazard earthen dam located upstream from the community, poses the greatest risk to Arroyo Grande if an incident was to occur. A total of 8,273 persons and 3,565 properties could be inundated if the Lopez Dam was to fail. Failure of the Lopez Dam would follow the Arroyo Grande Creek in a westerly direction approximately 3,000 feet in each direction of the centerline of the creek channel. Refer to the Dam Inundation Estimate Losses by Jurisdiction and Dam table in Chapter 5 of the Base Plan for additional details on estimated losses in Arroyo Grande. A majority of properties at risk are residential as shown in the table below. There are also 13 critical facilities within the inundation zone for the Lopez Dam including Fire Station 1, Arroyo Grande Community Hospital and City Hall. Refer to the Critical Facilities in the Lopez Dam Inundation Area, by Type of Facility table in the Base Plan for details on the type of various types of critical facilities at risk A failure of the Lopez Dam would affect Highway 101 impeding or reducing flows of goods, people and resources potentially impacting the entire region. The Lopez Dam is also a major source of water for the City of Arroyo Grande; failure of the dam would not only have immediate impacts to property but also long-term impacts on the community's water supply. Refer to the Dam Incidents Section in Chapter 5 of the Base Plan for additional discussion on the potential impacts of dam incidents in the County.

Figure A.4 Lopez Dam Inundation Zone within City of Arroyo Grande



Map compiled 5/2019;
intended for planning purposes only.
Data Source: San Luis Obispo County, US Census TIGER Database, CA Open Data Portal, BLM/California State Office, LAFCO, CA DWR, NID 2018

Table A.10 Lopez Dam Inundation Estimate Losses by Property Type

Property Type	Parcel Count	Improved Value	Content Value	Total Value	Loss Estimate	Population
Agricultural	3	$85,571	$85,571	$171,142	$85,571	--
Commercial	124	$51,205,571	$51,205,571	$102,411,142	$51,205,571	--
Government/Utilities	43	--	--	$0	$0	--
Other/Exempt/Misc.	90	$17,075,208	--	$17,075,208	$8,537,604	--
Residential	2,899	$494,234,816	$247,117,408	$741,352,224	$370,676,112	7,276
Multi-Family Residential	191	$63,773,355	$31,886,678	$95,660,033	$47,830,016	479
Mobile/Manufactured Homes	4	$3,696,769	$1,848,385	$5,545,154	$2,772,577	10
Residential: Other	202	$47,995,307	$23,997,654	$71,992,961	$35,996,480	507
Vacant	9	$2,985,692	--	$2,985,692	$1,492,846	--
TOTAL	**3,565**	**$681,052,289**	**$356,141,266**	**$1,037,193,555**	**$518,596,777**	**8,273**

Source: San Luis Obispo County Planning and Building Dept., Assessor's Office, ParcelQuest, Wood Plc Parcel Analysis

Drought and Water Shortage

The City of Arroyo Grande has a variety of water sources that support the City's water supply, including groundwater, local surface water, and storm water captured for groundwater recharge, irrigation and construction water. The following figure from the City of Arroyo Grande Urban Water Management Plan (2016) depicts the current and projected water supply through the year 2035. The City is projecting to receive an increased amount of water supply from the Lopez Reservoir and from the Santa Maria Valley and Pismo Formation groundwater basins. The City recognizes the risk of being dependent on groundwater resources, and has considered other supplies such as the State Water Project and recycled water, especially during dry years or drought conditions.

Figure A.5 City of Arroyo Grande Current and Projected Water Supplies

Water Supply Sources		Projected Water Supply (afy)				
Water Source	Wholesale Supplied Volume	2015	2020	2025	2030	2035
Lopez Project	Yes	2,152	2,290	2,290	2,290	2,290
Groundwater-Santa Maria Valley Groundwater Basin	No	43	1,323	1,323	1,323	1,323
Groundwater-Pismo Formation [1]	No	44	200	200	200	200
Transfers In	No	0	0	0	0	0
Exchanges In	No	0	0	0	0	0
Recycled Water	No	0	0	0	0	0
Desalinated Water	No	0	0	0	0	0
Total		**2,239**	**3,813**	**3,813**	**3,813**	**3,813**

[1] Assumes 80 afy of groundwater from Well No. 9, 80 afy from Well No. 10, and 40 afy from Well No. 11 will be available as a reliable source of supply from 2016 through 2030.

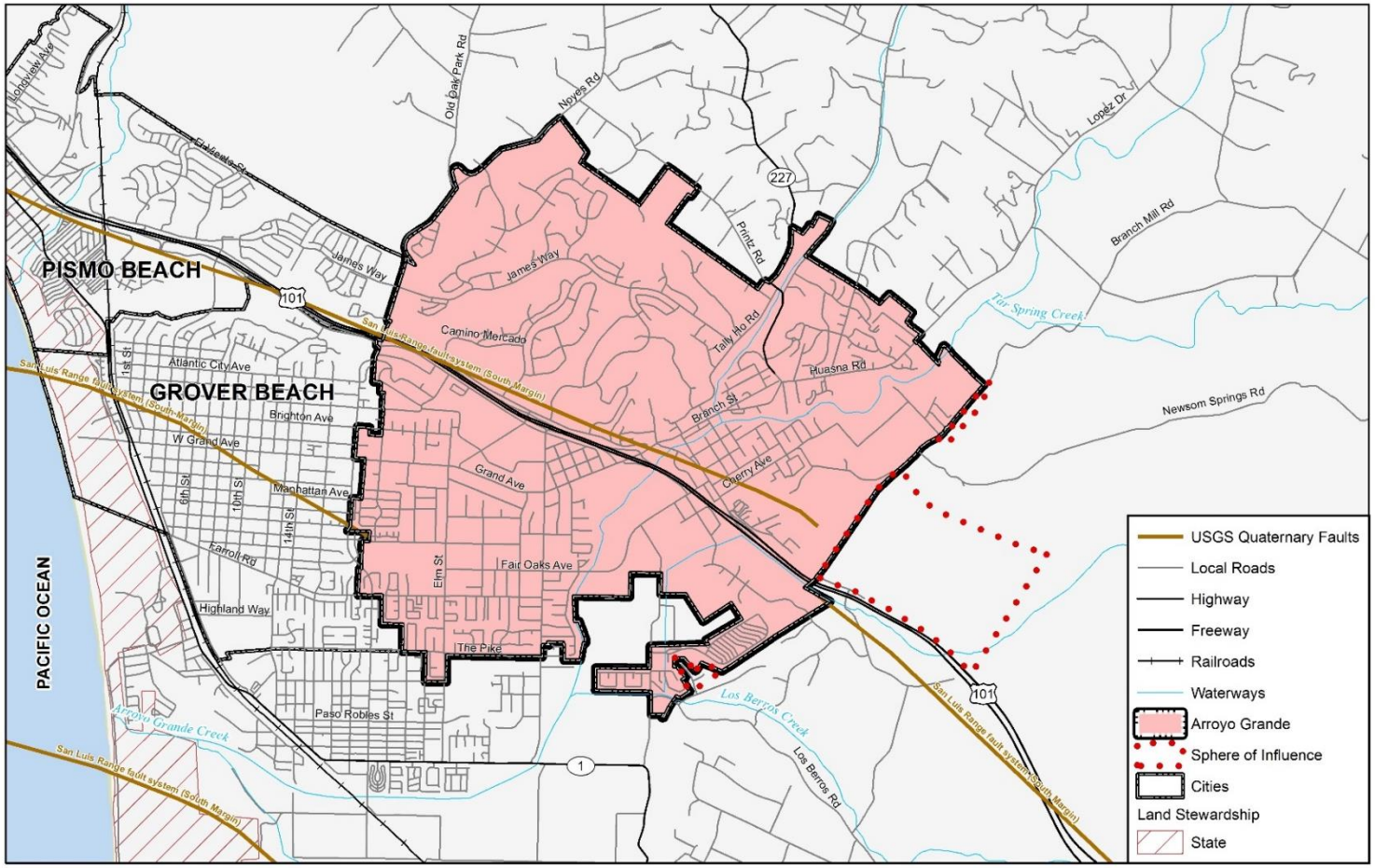
Source: City of Arroyo Grande Urban Water Management Plan, 2016

Severe drought events in recent years have caused concerns on the impact to the City's limited water supply. The City has taken steps to address drought in their community. On November 22, 2016 the City Council adopted Resolution 4766 which provides that if certain specified water supply conditions are determined to exist that additional restrictions for the declared Stage 1 "Water Shortage Emergency" will be implemented. A Drought Team was formed that consists of staff from various City departments to coordinate water use reduction strategies. The returned Data Collection Guide from the City of Arroyo Grande Planning Team noted that due to the region's water supply being served by a mix of reservoir and pumped well water, the state-wide drought in California has led to regional impacts; this includes watering restrictions that according to the Planning Team has led to landscaping on many properties to die, which increases the risk of wildfire for some properties.

Earthquake

Earthquake events have occurred in Arroyo Grande in the past including a number of magnitudes 5.0 to 6.2 earthquakes. There are two mapped faults within the City of Arroyo Grande, the potentially active Wilmar Avenue fault and the inactive Pismo fault; refer to the figure below. The City's downtown business district is at a greater risk from the impacts of a fault rupture compared to other part of the City due the majority of the buildings being Unreinforced Masonry. These types of buildings have shown to be unstable and have collapsed during earthquake events. The loss of buildings in the City's business district would result in loss of commerce and a significant loss in tax revenue for the City. Arroyo Grande's City Hall is one of the unreinforced masonry buildings located in the downtown business district. A magnitude 6.5 earthquake or greater could result in the loss of the building and the relocation of City Hall.

Figure A.6 City of Arroyo Grande Earthquake Faults



Map compiled 8/2019;
intended for planning purposes only.
Data Source: San Luis Obispo County, US Census TIGER Database, CA Open Data Portal, BLM/California State Office, USGS

In addition to being at risk of groundshaking as a result of a fault rupture, the City of Arroyo Grande is also susceptible to the effects of liquefaction. Much of the City has soils with a moderate risk for liquefaction. According to GIS analysis conducted during this planning process, twenty-two (22) critical facilities located in the City are at risk of liquefaction. The map and table below describes in more detail locations and the types of properties at risk of liquefaction.

Figure A.7 Liquefaction Risk in Arroyo Grande

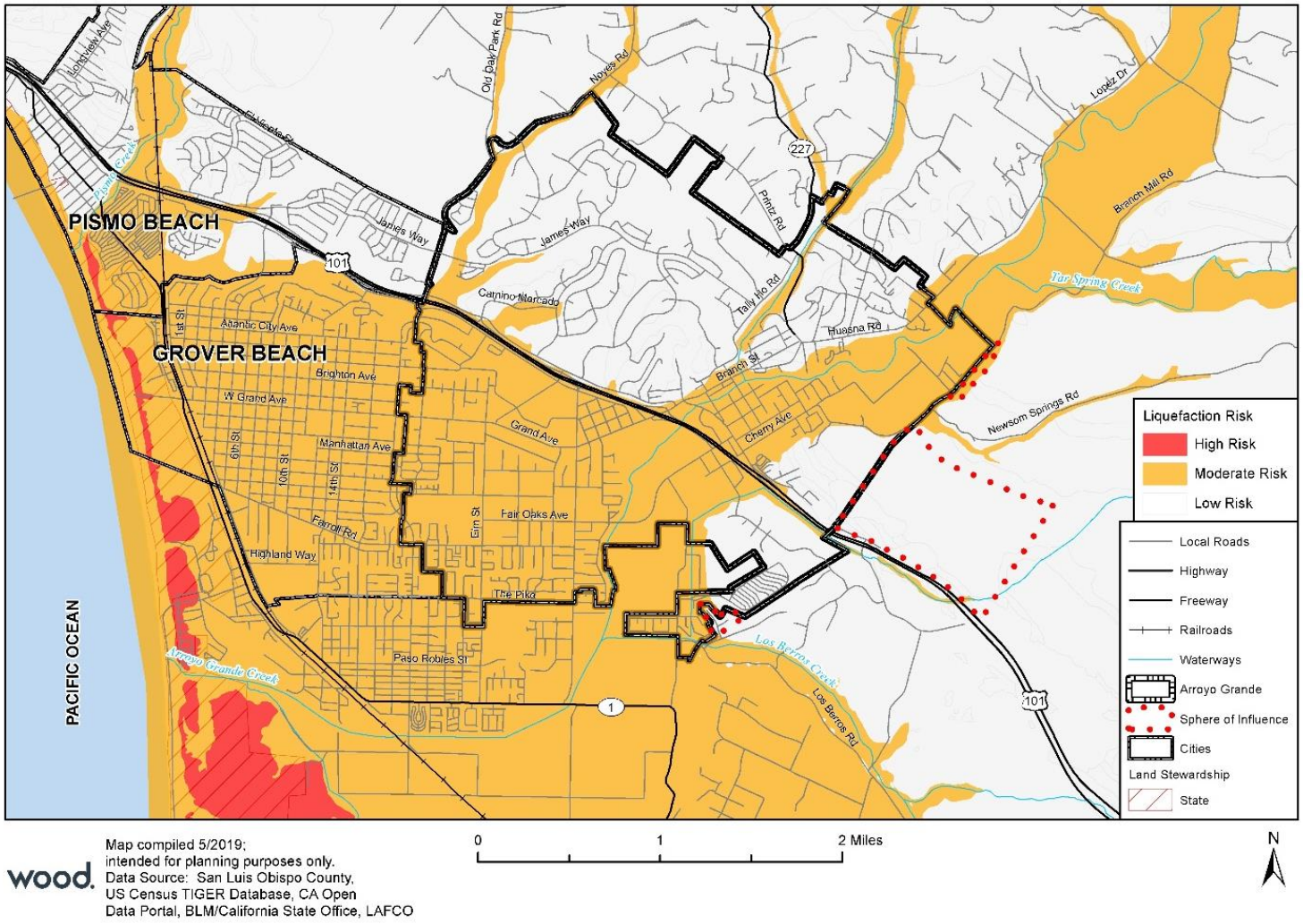


Table A.11 City of Arroyo Grande Moderate Liquefaction Risk by Property Type

Property Type	Parcel Count	Improved Value
Agricultural	3	$85,571
Commercial	277	$145,325,794
Government/Utilities	51	--
Other/Exempt/Misc.	116	$24,911,019
Residential	3,451	$581,945,398
Multi-Family Residential	346	$92,734,024
Mobile/Manufactured Homes	6	$4,058,028
Residential: Other	230	$61,958,301
Industrial	4	$1,164,671
Vacant	13	$5,796,411
TOTAL	**4,497**	**$917,979,217**

Source: San Luis Obispo County Planning and Building Dept., Assessor's Office, ParcelQuest, Wood Plc Parcel Analysis

Flood

There are several creeks that traverse the City of Arroyo Grande: Canyon/Meadow Creek on the west, Corbett Canyon and Arroyo Grande Creeks on the east, and Los Berros Creek in the southeastern portion of City. All of the creeks have areas adjacent to the waterways that have a potential for flooding. The duration of flood events is dependent on the duration of rainfall as well as the tide levels outside of the City limits. Refer to the Flood section of the Base Plan for further information on the areas of that are at risk of flooding as well as past flood events that have impacted the City of Arroyo Grande.

In addition to being at risk of flooding from 100-year and 500-year storms, according FEMA's FIS for the County (2012), Arroyo Grande is subject to sheet flow, shallow (generally less than 3 feet deep) overland flooding characterized by unpredictable flow paths or confined to streets.

Values at Risk

A flood vulnerability assessment was completed during the 2019 update, following the methodology described in Section 5 of the Base Plan. Flood hazards for the City of Arroyo Grande are shown in Figure A.8. Table A.12 and Table A.13 summarize the values at risk in the City's 100-year and 500-year floodplain, respectively. These tables also detail loss estimates for each flood.

Figure A.8 City of Arroyo Grande's 100- and 500-Year Floodplains

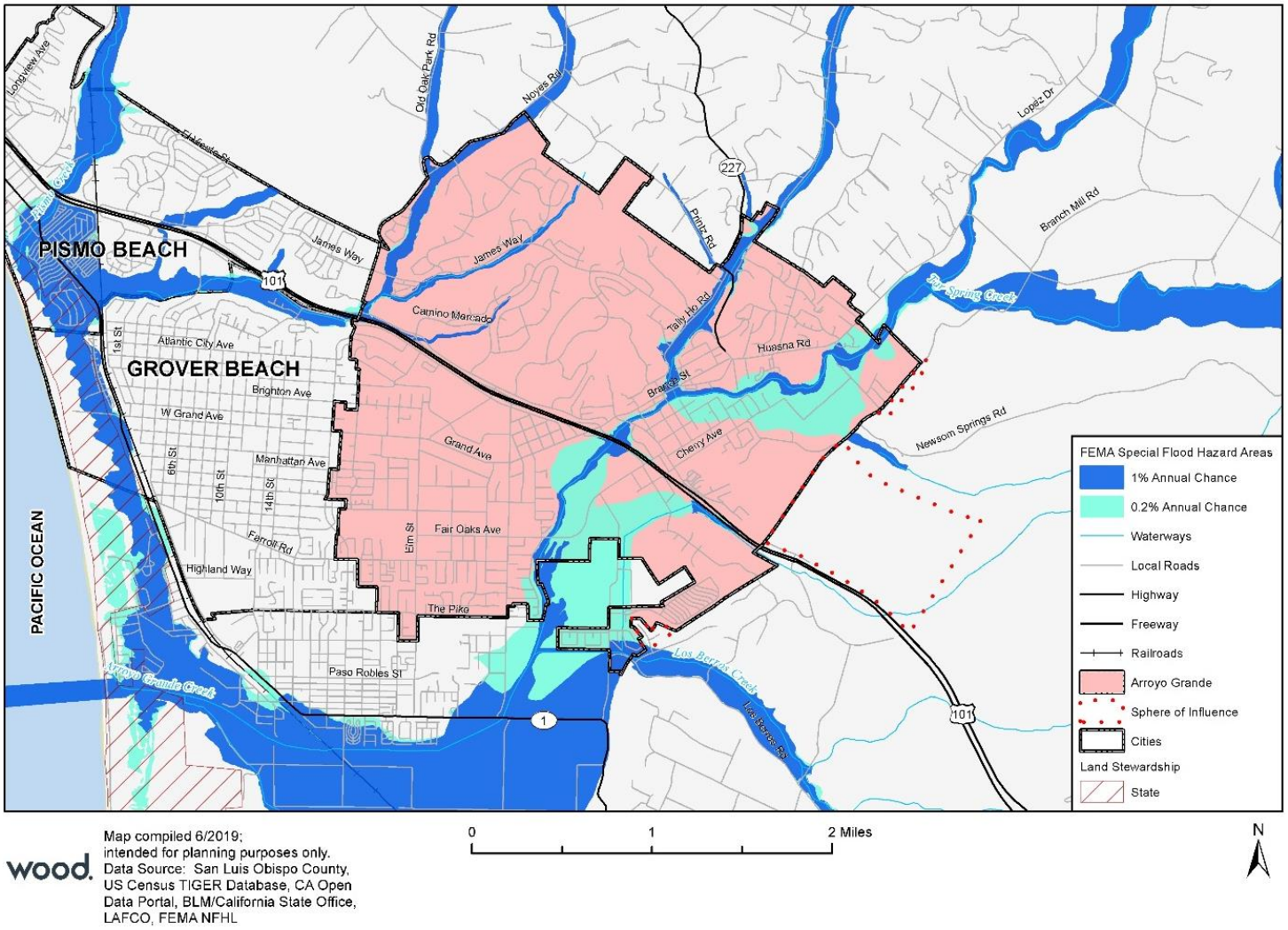


Table A.12 City of Arroyo Grande's FEMA 1% Annual Chance Flood Hazard by Property Type

Property Type	Parcel Count	Improved Value	Content Value	Total Value	Loss Estimate
Commercial	12	$2,703,155	$2,703,155	$5,406,310	$1,351,578
Government/Utilities	14	--	--	$0	$0
Other/Exempt/Misc.	12	$2,088,004	--	$2,088,004	$522,001
Residential	125	$21,076,591	$10,538,296	$31,614,887	$7,903,722
Multi-Family Residential	15	$2,421,310	$1,210,655	$3,631,965	$907,991
Residential: Other	15	$2,495,400	$1,247,700	$3,743,100	$935,775
Vacant	3	$264,167	--	$264,167	$66,042
TOTAL	**196**	**$31,048,627**	**$15,699,806**	**$46,748,433**	**$11,687,108**

Source: San Luis Obispo County Planning and Building Dept., Assessor's Office, ParcelQuest, Wood Plc Parcel Analysis

Table A.13 City of Arroyo Grande's FEMA 0.2% Annual Chance Flood Hazard by Property Type

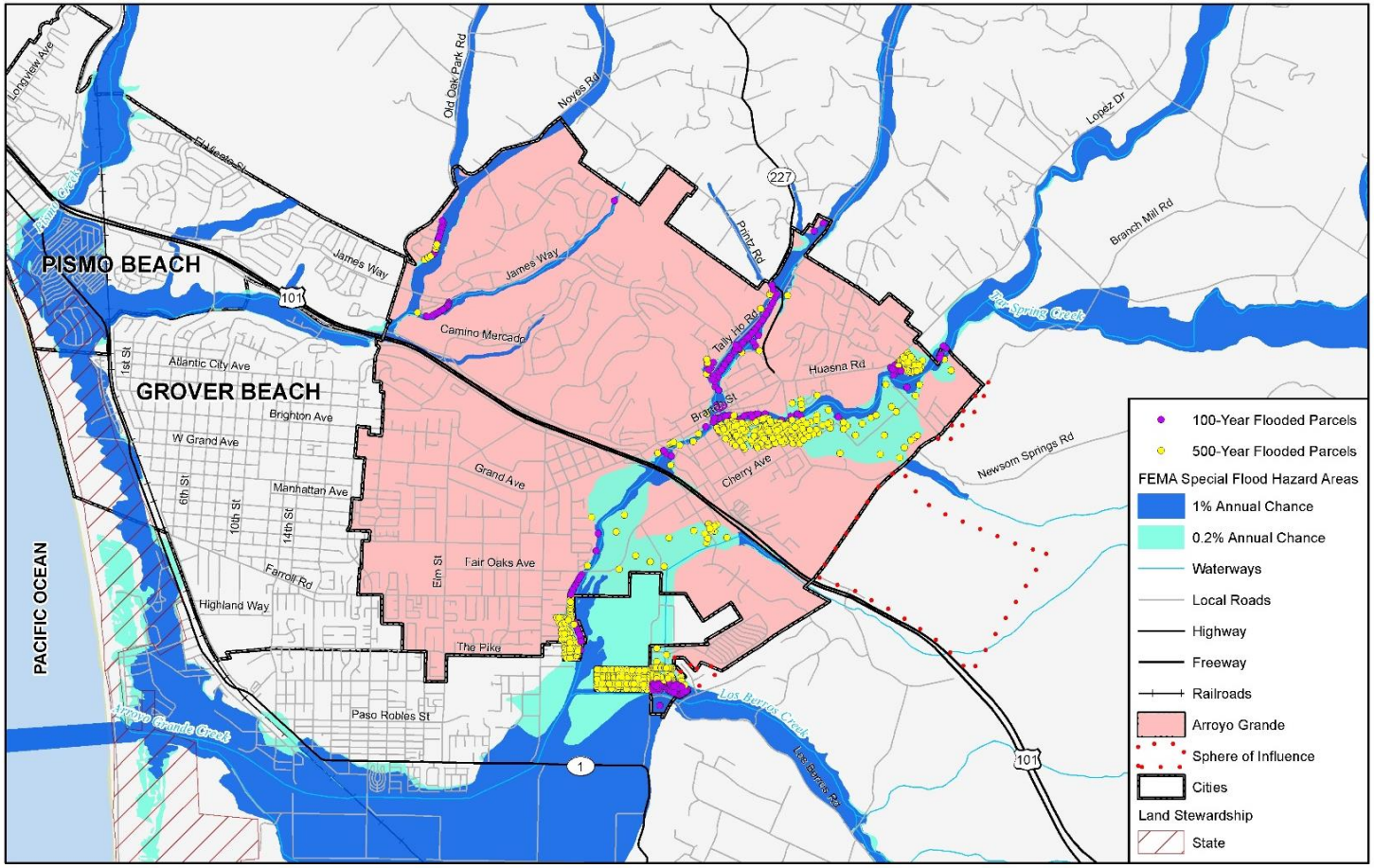
Property Type	Parcel Count	Improved Value	Content Value	Total Value	Loss Estimate
Agricultural	2	$59,896	$59,896	$119,792	$29,948
Commercial	7	$3,728,895	$3,728,895	$7,457,790	$1,864,448
Government/Utilities	16	--	--	$0	$0
Other/Exempt/Misc.	19	$2,937,762	--	$2,937,762	$734,441
Residential	417	$76,542,670	$38,271,335	$114,814,005	$28,703,501
Multi-Family Residential	12	$2,352,869	$1,176,435	$3,529,304	$882,326
Mobile/Manufactured Homes	2	$3,093,854	$1,546,927	$4,640,781	$1,160,195
Residential: Other	1	$460,263	$230,132	$690,395	$172,599
Vacant	1	$972	--	$972	$243
TOTAL	**477**	**$89,177,181**	**$45,013,619**	**$134,190,800**	**$33,547,700**

Source: San Luis Obispo County Planning and Building Dept., Assessor's Office, ParcelQuest, Wood Plc Parcel Analysis

Based on this analysis, the City of Arroyo Grande has significant assets at risk to the 100-year and greater floods. There are 196 improved parcels located within the 100-year floodplain for a total value of over $46 million. An additional 477 improved parcels valued at over $134 million fall within the 500-year floodplain.

Applying the 25 percent damage factor as previously described in Section 5 of the Base Plan, there is a 1 percent chance in any given year of a 100-year flood causing roughly $11 million in damage in the City of Arroyo Grande and a 0.2 percent chance in any given year of a 500-year flood causing roughly $45 million in damage (combined damage from both floods). Figure A.9 shows the properties at risk to flooding in and around the City of Arroyo Grande in relation to the mapped floodplain, based on the parcels that have improvements and parcel centroids that intersect the flood hazard areas.

Figure A.9 Properties at Risk of Flood



Map compiled 6/2019;
intended for planning purposes only.
Data Source: San Luis Obispo County, US Census TIGER Database, CA Open Data Portal, BLM/California State Office, LAFCO, FEMA NFHL, ParcelQuest

Limitations: This model may include structures in the floodplains that are elevated at or above the level of the base-flood elevation, which will likely mitigate flood damage. Also, the assessed values are well below the actual market values. Thus, the actual value of assets at risk may be significantly higher than those included herein.

Population at Risk

Using parcel data from the County and the digital flood insurance rate map, population at risk was calculated for the 100-year and 500-year floods based on the number of residential properties at risk and the average number of persons per household (2.47). The following are at risk to flooding in the City of Arroyo Grande:

- 100-year flood— 389 people
- 500-year flood— 1,084 people
- **Total flood**— 1,473 people

Insurance Coverage, Claims Paid, and Repetitive Losses

The City of Arroyo Grande joined the National Flood Insurance Program (NFIP) on September 19, 1984. NFIP Insurance data indicates that as of April 18, 2019, there were 110 flood insurance policies in force in the City with $30,278,600 of coverage. Of the 110 policies, 105 were residential (101 for single-family homes and 4 for 2-4-unit homes) and 5 were nonresidential. There are 48 polices in A01-30 & AE zone and 2 policies in A zones. The remaining 60 are in B, C, and X zones.

There have been 19 historical claims for flood losses totaling $412,456.68. All claims were for residential properties; 9 were in A zones and 2 were in B, C or X zones; and 10 were pre-FIRM structures (the one post-FIRM structure with a reported loss was in a B, C, or X zone). According to the FEMA Community Information System accessed 4/3/2019, the City has two Repetitive Loss properties and two Severe Repetitive Loss properties, which together are responsible for $203,239 in payments.

Critical Facilities at Risk

Critical facilities are those community components that are most needed to withstand the impacts of disaster as previously described. There are no critical facilities in the City's 100-year floodplain, but according to the risk assessment floods in Arroyo Grande tend to be more severe during a 500-year event. Thus, it is particularly important to note that the critical facilities in the 500-year floodplain are all facilities that serve vulnerable populations and thus should be given special attention. Table A.14 lists the critical facilities in the City's 500-year floodplains. The impact to the community could be great if these facilities are damaged or destroyed during a flood event.

Table A.14 Critical Facilities in the 500-year Floodplain: City of Arroyo Grande

Critical Facility Type	500-Year Floodplain
Day Care Facilities	1
Public Schools	2
TOTAL	**3**

Source: San Luis Obispo County Planning and Building Dept., Assessor's Office, ParcelQuest, Wood Plc Parcel Analysis

Wildfire

The City's mild climate and foggy days and nights typically help to maintain fuel moisture levels to a point that limits the potential for rapid fire spread. Despite the temperate climate, there have been past wildfire events that have put the City at risk. In 1985, the Los Pilitas Fire burned 84,271 acres in the mountains north of the City. The fire spread quickly, resulting in 10 homes being destroyed. Although the threat was short lived, if the correct combination of weather, topography and fuel existed, the potential for a wildfire within the City limit is possible. CAL FIRE has designated the City of Arroyo Grande as being at increased risk from wildfires, based on Fire Hazard Severity Zone mapping. Following the methodology described in the wildfire hazard Section 5 of the Base Plan, a wildfire vulnerability analysis for the City of Arroyo Grande was completed (see Figure A.10).

There are 11 properties in City of Arroyo Grande that are located within the moderate to very high severity zones (5 in the Moderate Severity Zone, 2 in the High Severity Zone, and 4 in the Very High Severity Zone), with a combined value of $3,346,227 and impacting an estimated 18 persons (5 in the Moderate Severity Zone and 6 in the High and Very High Severity Zone). The following table quantifies the potential losses by wildfire severity zones and property type. There are no critical facilities in wildfire threat zones in Arroyo Grande.

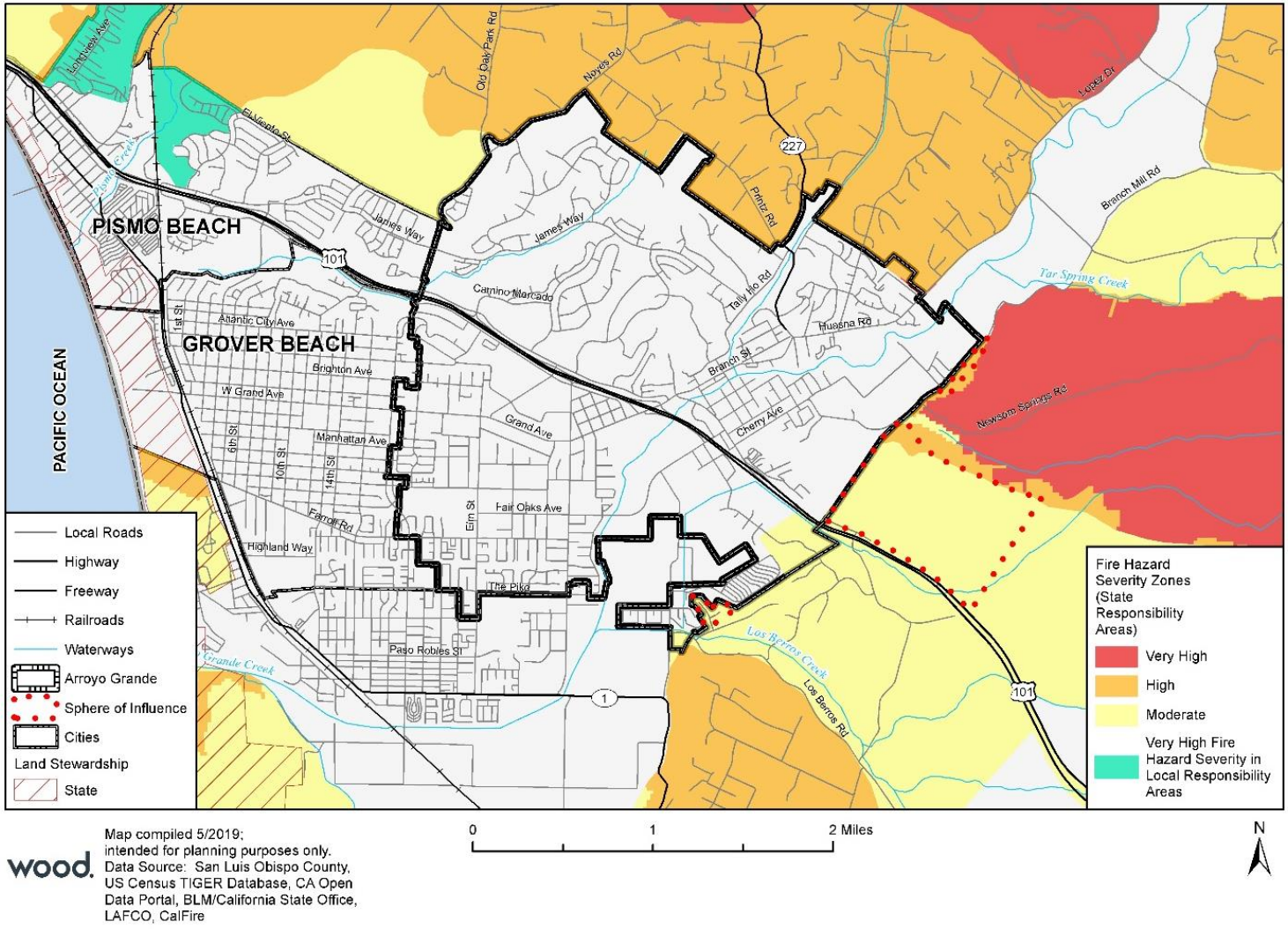
Table A.15 Properties Within Wildfire Severity Zones

Property Type	Parcel Count	Improved Value	Content Value	Total Value	Loss Estimate
Moderate Severity SRA Zone					
Other/Exempt/Misc.	2	$1,686,663	--	$1,686,663	$1,686,663
Residential	3	$434,648	$217,324	$651,972	$651,972
Total	**5**	**$2,121,311**	**$217,324**	**$2,338,635**	**$2,338,635**
High Severity SRA Zone					
Government/Utilities	1	--	--	--	--
Other/Exempt/Misc.	1	--	--	--	--
Total	**2**	$0	$0	$0	$0
Very High Severity SRA Zone					
Residential	4	$671,728	$335,864	$1,007,592	$1,007,592
Total	**4**	$671,728	$335,864	$1,007,596	$1,007,596
Grand Total	**11**	**$2,793,039**	**$553,188**	**$3,346,231**	**$3,346,231**

Source: San Luis Obispo County Planning and Building Dept., Assessor's Office, ParcelQuest, Wood Plc Parcel Analysis

The following map depicts the Fire Hazard Severity Zones in the City of Arroyo Grande.

Figure A.10 City of Arroyo Grande's Fire Hazard Severity Zones



Human Caused: Hazardous Materials

The Cal OES Warning Center reports 161 hazardous materials incidents in the City of Arroyo Grande from 1994 through October 24, 2018; as noted in Section 5 of the County plan, this likely excludes a large number of unreported minor spills. This constitutes 9% of the hazardous materials incidents reported countywide during the same time frame and averages out to roughly 6.4 incidents per year. As noted in Section 5, only around 6% of reported hazardous materials incidents result in injuries, fatalities, or evacuations.

As shown in Figure 5-84 in the Base Plan, there are two EPA Risk Management Plan (RMP) facilities and three CalARP regulated facilities located in the City. Additionally, Arroyo Grande sits within the Emergency Planning Zone for the Diablo Canyon Nuclear Power Plant.

The Five Cities Fire Authority has located all petroleum, natural gas, combustible fuel pipelines and integrated that information into the City of Arroyo Grande Emergency Operations Plan. All personal in the Five Cities Fire Authority have been trained to handle hazardous materials incidents in addition to having three Hazardous Materials Specialists on staff.

A.4 Capability Assessment

Capabilities are the programs and policies currently in use to reduce hazard impacts or that could be used to implement hazard mitigation activities. This capabilities assessment is divided into five sections: regulatory mitigation capabilities, administrative and technical mitigation capabilities, fiscal mitigation capabilities, mitigation outreach and partnerships, and other mitigation efforts. To develop this capability assessment, the jurisdictional planning representatives reviewed a matrix of common mitigation activities to inventory which of these policies or programs, and shared any updates or changes through the Arroyo Grande Data Collection Guide. The team then supplemented this inventory by reviewing additional existing policies, regulations, plans, and programs to determine if they contribute to reducing hazard-related losses.

During the plan update process, this inventory was reviewed by the jurisdictional planning representatives and Wood consultant team staff to update information where applicable and note ways in which these capabilities have improved or expanded. Additionally, in summarizing current capabilities and identifying gaps, the jurisdictional planning representatives also considered their ability to expand or improve upon existing policies and programs as potential new mitigation strategies. The City of Arroyo Grande's capabilities are summarized below.

A.4.1 Regulatory Mitigation Capabilities

Table A.16 City of Arroyo Grande Regulatory Mitigation Capabilities

Regulatory Tool	Yes/No	Comments
General plan	Yes	
Zoning ordinance	Yes	
Subdivision ordinance	Yes	
Growth management ordinance	No	Limited to Sphere of Influence
Floodplain ordinance	Yes	
Other special purpose ordinance (stormwater, water conservation, wildfire)	Yes	Stormwater Ordinance
Building code	Yes	
Fire department ISO rating	Yes	
Erosion or sediment control program	Yes	
Stormwater management program	Yes	
Site plan review requirements		
Capital improvements plan	Yes	
Economic development plan	Yes	
Local emergency operations plan	Yes	Under revision
Other special plans	Yes	Mills Act Ordinance; Climate Action Plan (2014)
Flood Insurance Study or other engineering study for streams	Yes	
Elevation certificates (for floodplain development)	Yes	

A.4.2 Administrative/Technical Mitigation Capabilities

Table A.17 identifies the personnel responsible for activities related to mitigation and loss prevention in Arroyo Grande.

Table A.17 City of Arroyo Grande Administrative/Technical Mitigation Capabilities

Personnel Resources	Yes/ No	Department/Position
Planner/engineer with knowledge of land development/land management practices	Yes	Community Development Department: Assistant Planner, Planning Manager, Community Development Director
Engineer/professional trained in construction practices related to buildings and/or infrastructure	Yes	Community Development Department: City Engineer, Building Official
Planner/engineer/scientist with an understanding of natural hazards	Yes	Community Development Department: Planning Manager
Personnel skilled in GIS	Yes	Community Development Department: Program Analyst
Full time building official	Yes	Community Development Department: Building Official
Floodplain manager	Yes	City Engineer
Emergency manager	Yes	City Manager

Personnel Resources	Yes/ No	Department/Position
Grant writer	No	
GIS Data Resources (Hazard areas, critical facilities, land use, building footprints, etc.)	Yes	Program Analyst
Warning systems/services (Reverse 9-11, outdoor warning signals, social media)	Yes	Police Department, Fire Department, Deputy City Clerk

A.4.3 Fiscal Mitigation Capabilities

Table A.18 identifies financial tools or resources that the City could potentially use to help fund mitigation activities.

Table A.18 City of Arroyo Grande Fiscal Mitigation Capabilities

Financial Resources	Accessible/Eligible to Use (Yes/No)
Community Development Block Grants	Yes
Capital improvements project funding	Yes
Authority to levy taxes for specific purposes	Yes
Fees for water, sewer, gas, or electric services	Yes/No – gas and electric fees
Impact fees for new development	Yes
Incur debt through general obligation bonds	Yes
Incur debt through special tax bonds	Yes
Incur debt through private activities	No
Withhold spending in hazard prone areas	No

A.4.4 Mitigation Outreach and Partnerships

The City is currently working with the Five Cities Fire Authority, County and FireSafe Council to develop a city-specific Community Wildfire Protection Plan (CWPP). Mitigation efforts identified include education/outreach.

A.4.5 Other Mitigation Efforts

Through development of the Cherry Creek Estates, the City improved the Newsom Springs drainage, which now allows drainage through the Cherry Creek Estates development to Arroyo Grande Creek. Additionally, the City has been working with the Clark family on Highway 227 to develop a siltation area to allow easier removal of sediment in Tally Ho Creek and keep sediment from being delivered in Tally Ho Creek.

The City has also conducted fuel reduction projects to reduce wildfire threat.

A.4.6 Opportunities for Enhancement

Based on the capabilities assessment, the City of Arroyo Grande has several existing mechanisms in place that already help to mitigate hazards. In Arroyo Grande's 2015 LHMP the City conducted a "self-assessment of capability" in which they rated (limited to high) the degree of capability they believed the community had. The

City noted having a high degree of capability for planning and regulatory capabilities, administrative and technical capabilities and political capability but a moderate rating for their fiscal capabilities. This may be an opportunity for the City to expand or improve on their fiscal capabilities and further protect the community. Other future improvements may include providing training for staff members related to hazards or hazard mitigation grant funding in partnership with the County and Cal OES. Additional training opportunities will help to inform City staff members on how best to integrate hazard information and mitigation projects into their departments. Continuing to train City staff on mitigation and the hazards that pose a risk to the City of Arroyo Grande will lead to more informed staff members who can better communicate this information to the public.

A.5 Mitigation Strategy

A.5.1 Mitigation Goals and Objectives

The City of Arroyo Grande Planning Team determined the four goals from the 2015 HMP continue to be appropriate for this plan update, with the addition of a fifth goal specific to drought events. The following are the City of Arroyo Grande's 2019 mitigation goals:

- Goal 1 – Minimize the level of damage and losses due to flooding
- Goal 2 - Minimize the level of damage and losses due to earthquakes
- Goal 3 – Minimize the level of damage and losses due to wildland and structure fires
- Goal 4 – Minimize impacts to the community from dam inundation
- Goal 5 – Minimize impacts to the community from prolonged drought events

Continued Compliance with the National Flood Insurance Program

The City has been an NFIP participating community since 1984. In addition to the mitigation actions identified herein the City will continue to comply with the NFIP. Floodplain management is under the purview of the Community Development Department City Engineer. This includes ongoing activities such as enforcing local floodplain development regulations, including issuing permits for appropriate development in Special Flood Hazard Areas and ensuring that this development mitigated in accordance with the regulations. This will also include periodic reviews of the floodplain ordinance to ensure that it is clear and up to date and reflects new or revised flood hazard mapping.

A.5.2 Completed 2015 Mitigation Actions

During the 2019 planning process the City of Arroyo Grande Planning Team reviewed all the mitigation actions from the 2015 plan. During the 2019 planning process the Planning Team identified that of their sixteen (16) mitigation actions from 2015, six (6) of the actions are implemented annually and four (4) were noted as being in progress, demonstrating ongoing progress and building the community's resiliency to disasters.

A.5.3 Mitigation Actions

Table A. 18 below describes all the annual implementation and in progress actions, the actions that were determined should be deferred as well new actions developed by the Planning Team. Actions were prioritized using the process described in Section 7.2.1 of the Base Plan. Actions that mitigate losses to future development are denoted by an '*' in the table.

Table A. 19 City of Arroyo Grande's Mitigation Action Plan

ID	Hazard(s) Mitigated	Description/Background/Benefits	Lead Agency and Partners	Cost Estimate	Potential Funding	Priority	Timeline	Status/ Implementation Notes
AG.1	Flood	Residential-Commercial-Government Flood smart projects Residential: relocate, revise, building codes, and provide mitigation assistance	Recreation Maintenance Services, Community Development, Emergency Preparedness	$100,000 to $500,000	PDM Grant, General Funds, Capital Improvement Funds, Staff Time	High	Annual	Annual Implementation
AG.2	Flood	Residential-Commercial-Government Flood smart projects Commercial: relocate, revise, building codes, and provide mitigation assistance	Recreation Maintenance Services, Community Development, Emergency Preparedness	$100,000 to $500,000	PDM Grant, General Funds, Capital Improvement Funds, Staff Time	High	Annual	Annual Implementation
AG.3*	Flood	Conduct a cost to benefit analysis to consider expanding the capacity of the retention basins at various locations in the City of Arroyo Grande	Recreation Maintenance Services, Community Development, Emergency Preparedness	$100,000 to $500,000	PDM Grant, General Funds, Capital Improvement Funds, Staff Time	High	Deferred	Deferred; Limited availability of land to expand basins has resulted in deferral. Future analysis will focus on increasing depth of existing basins. Staff and fiscal constraints are ongoing.
AG.4*	Flood	Creation of Bio-Swales for water conservation	Recreation Maintenance Services, Community	$10,000 to $50,000	PDM Grant, General Funds, Capital Improvement	High	Annual	Annual Implementation

ID	Hazard(s) Mitigated	Description/Background/Benefits	Lead Agency and Partners	Cost Estimate	Potential Funding	Priority	Timeline	Status/ Implementation Notes
			Development, Emergency Preparedness		Funds, Staff Time			
AG.5	Flood	Determine cost effective mitigation strategies for Newsom Springs area	Recreation Maintenance Services, Community Development, Emergency Preparedness	Little to no cost	PDM Grant, General Funds, Capital Improvement Funds, Staff Time	High	Deferred	Deferred; Limited CIP funding has been allocated to this project. In a catastrophic flood event, this area will be negatively impacted. Staff and fiscal constraints are ongoing.
AG.6	Flood	Conduct a cost to benefit analysis of a flood water diversion system for the City of Arroyo Grande's critical infrastructure and the flood vulnerable Commercial District	Recreation Maintenance Services, Community Development, Emergency Preparedness,	Less than $10,000	PDM Grant, General Funds, Capital Improvement Funds, Staff Time	High	Deferred	Deferred; Limited availability of staff and fiscal resources.
AG.7	Earthquake	Identify and catalog seismically vulnerable structures	Emergency Preparedness	Little to no cost	PDM Grant, General Funds, Capital Improvement Funds, Staff Time	High	Deferred	Deferred; URM Buildings in the Village area should have been completely retrofitted. Unknown cataloging of potentially other structures

ID	Hazard(s) Mitigated	Description/Background/Benefits	Lead Agency and Partners	Cost Estimate	Potential Funding	Priority	Timeline	Status/ Implementation Notes
								throughout the city. Staff and fiscal constraints ongoing.
AG.8*	Earthquake	Notify public of location of earthquake faults	Emergency Preparedness	Little to no cost	PDM Grant, General Funds, Capital Improvement Funds, Staff Time	High	1 year	In progress; Link County of SLO OES Earthquake Plan to Fire Department & City websites.
AG.9	Earthquake	Notify public of location of Seismic vulnerable structures	Emergency Preparedness	Little to no cost	PDM Grant, General Funds, Capital Improvement Funds, Staff Time	High	1 year	In progress; Will be released upon completion of cataloging.
AG.10 *	Fire	Encourage the 100' Defensible Space around structures in the Wildland Urban Interface	Fire Department, Community Development	Little to no cost	California Fire Safe Council, General Fund, Fire Prevention Grant	High	1 year	In progress; Adoption of Countywide Community Wildfire Protection Plan (CWPP). Pursue grant funding to complete city-specific CWPP Limited availability of staff and fiscal resources.

ID	Hazard(s) Mitigated	Description/Background/Benefits	Lead Agency and Partners	Cost Estimate	Potential Funding	Priority	Timeline	Status/ Implementation Notes
AG.11	Fire	Continue weed abatement program	Fire Department, Community Development	Little to no cost	California Fire Safe Council, General Fund, Fire Prevention Grant	High	Annual	Annual implementation
AG.12 *	Fire	Enforce building codes and ordinances that eliminate the use of wood shake roofs	Fire Department, Community Development	Little to no cost	California Fire Safe Council, General Fund, Fire Prevention Grant	High	Annual	Annual implementation
AG.13 *	Fire	Enforce codes and ordinances that require fire sprinkler fire systems in all new structures constructed.	Fire Department, Community Development	Little to no cost	California Fire Safe Council, General Fund, Fire Prevention Grant	High	Annual	Annual implementation
AG.14	Dam Failure	Create a community specific Evacuation Plan	Emergency Preparedness /Arroyo Grande Police Department	Less than $10,000	PDM Grant, General Funds, Capital Improvement Funds, Staff Time	High	3-5 yrs.	In progress; Existing county-wide plans with evacuation components. County Fire Chiefs have identified community-specific evacuation plans as a strategic priority.

ID	Hazard(s) Mitigated	Description/Background/Benefits	Lead Agency and Partners	Cost Estimate	Potential Funding	Priority	Timeline	Status/ Implementation Notes
AG.15	Dam Failure	Exercise Evacuation Plan for effectiveness	Emergency Preparedness /Arroyo Grande Police Department	Less than $10,000	PDM Grant, General Funds, Capital Improvement Funds, Staff Time	High	3-5 yrs.	Deferred; Will be considered upon community-specific evacuation plans.
AG.16	Dam Failure	Revise Evacuation plan as appropriate	Emergency Preparedness /Arroyo Grande Police Department	Less than $10,000	PDM Grant, General Funds, Capital Improvement Funds, Staff Time	High	3-5 yrs.	Deferred; Will be considered upon community-specific evacuation plans.
AG.17	Drought	Mitigate Drought Risk Through Water Availability Insurance. Continue to monitor well levels to prevent seawater intrusion while pursuing opportunities for regional recycled water projects that will result in groundwater injection.	Public Works; Community Development Department	$30 million-$50 million regionally; city's portion currently unknown	PDM Grant, General Funds, Capital Improvement Funds, Staff Time	Medium	Annual	New Benefits: Avoiding seawater intrusion; ensuring adequate water supply of the 5-cities region

A.6 Implementation and Maintenance

Moving forward, the City will use the mitigation action table in the previous section to track progress on implementation of each project. Implementation of the plan overall is discussed in Chapter 8 in the Base Plan.

A.6.1 Incorporation into Existing Planning Mechanisms

The information contained within this plan, including results from the Vulnerability Assessment, and the Mitigation Strategy will be used by the City to help inform updates and the development of local plans, programs and policies. The Engineering Division may utilize the hazard information when implementing the City's Community Investment Program and the Planning and Building Divisions may utilize the hazard information when reviewing a site plan or other type of development applications. The City will also incorporate this LHMP into the Safety Element of their General Plan, as recommended by Assembly Bill (AB) 2140.

As noted in Chapter 7.0 Plan Implementation, the HMPC representatives from Arroyo Grande will report on efforts to integrate the hazard mitigation plan into local plans, programs and policies and will report on these efforts at the annual HMPC plan review meeting.

A.6.2 Monitoring, Evaluation and Updating the Plan

The City will follow the procedures to monitor, review, and update this plan in accordance with San Luis Obispo County as outlined in Chapter 8 of the Base Plan. The City will continue to involve the public in mitigation, as described in Section 8.3 of the Base Plan. The Fire Chief for the Five Cities Fire Authority will be responsible for representing the City in the County HMPC, and for coordination with City staff and departments during plan updates. The City realizes it is important to review the plan regularly and update it every five years in accordance with the Disaster Mitigation Act Requirements as well as other State of California requirements.

B.1 Community Profile

B.1.1 Mitigation Planning History and 2019 Process

This annex was created during the development of the 2019 San Luis Obispo County Hazard Mitigation Plan update. This Jurisdictional Annex builds upon the previous version of the City of Atascadero Local Hazard Mitigation Plan completed in September 2015; that previous mitigation plan was not incorporated into the City's General Plan, as this updated mitigation plan will be. A review of jurisdictional priorities found no significant changes in priorities since the last update.

The City's Local Planning Team (LPT) held responsibility for implementation and maintenance of the plan. The City Fire Chief is responsible for updating the plan.

Table B.1 Atascadero Hazard Mitigation Plan Revision Planning Group

Department or Stakeholder	Title
Atascadero Fire Department	Fire Chief
Atascadero Fire Department	Fire Marshal

More details on the planning process follow and how the jurisdictions, service districts and stakeholders participated, as well as how the public was involved during the 2019 update, can be found in Chapter 3 of the Base Plan.

B.1.2 Geography and Climate

Atascadero is located 17 miles inland from the Pacific coast and lies midway between Los Angeles and San Francisco on U.S. Highway 101 (US 101), about 220 miles from each city. The City is one of seven incorporated communities in San Luis Obispo County. The City consists of 26.15 square miles, is 879' above sea level and is located 40 miles west of the San Andreas Fault.

The City is situated in the southern portion of the Salinas River Valley. The Salinas River flows along the eastern City limits from south to north. Steep hills and canyons border the community on the west, and open rolling hills surround the City center. The City lies within an agricultural area where ranchlands are becoming vineyards to support the growing wine industry. Suburban residential development approved by San Luis Obispo County borders the City on the southern and eastern edges, and lower-density residential development lies to the north and west.

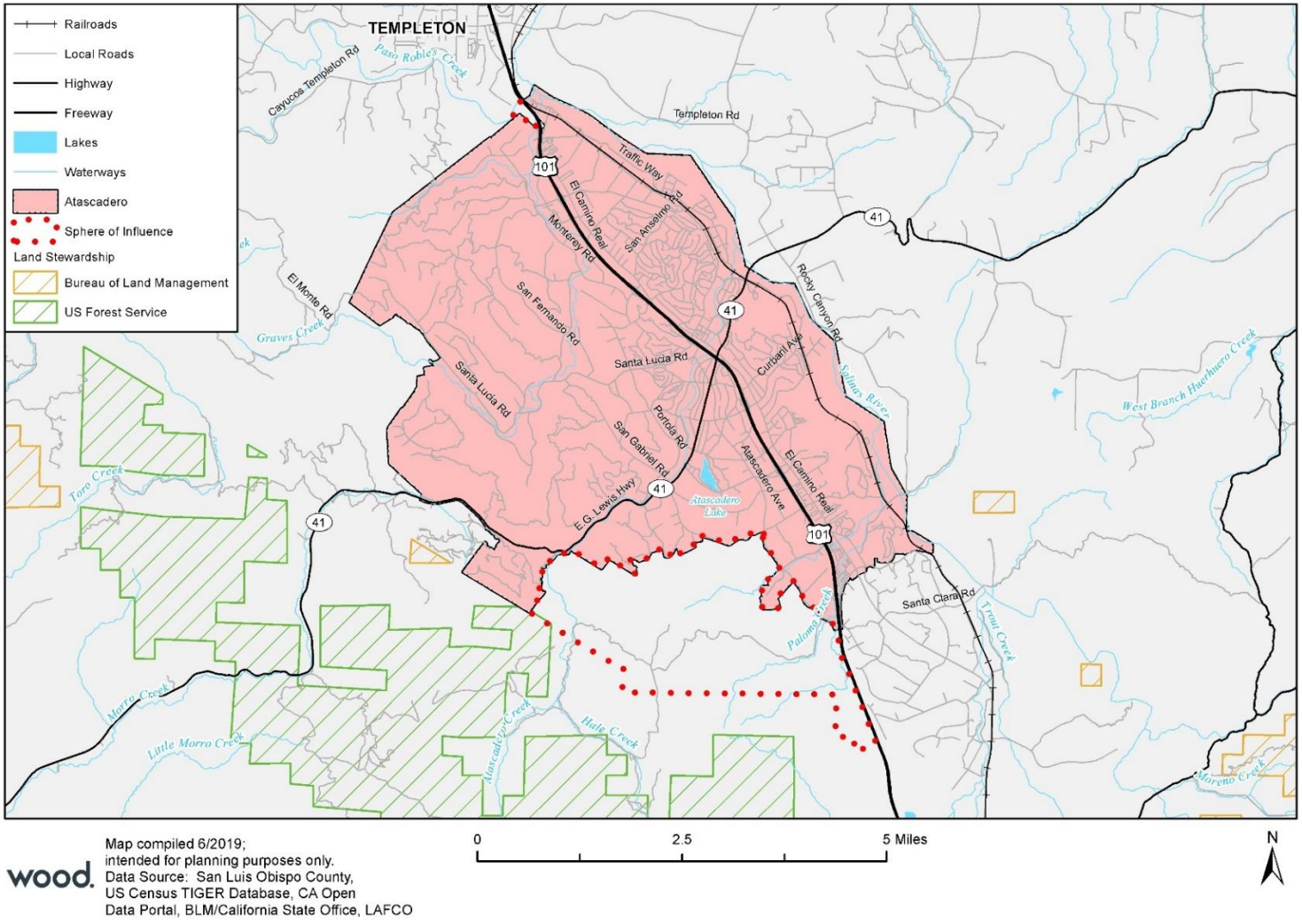
Atascadero is bordered on the west by the rugged mountainous ridges of the Santa Lucia Coastal Range, on the east by the low hills of the La Panza and Temblor Ranges, and on the north by the low hills and flat-topped mesas of the Diablo Range. The highest elevations in the vicinity are within the Santa Lucia Coastal Range, where many peaks are 2,000 to 3,400 feet above mean sea level.

The area has a Mediterranean climate with a wet season from October to early April and a dry summer season with low humidity. The City has an average annual precipitation of 17.31 inches. In winter, the average high temperatures range from the 50s to the 60s, with lows in the 30s. In summer, the average daily highs are in the 90s, with some days exceeding 100. Summertime lows are typically in the 60s and 70s.

Atascadero is a General Law City operating within rules established by the California Legislature. The organizational structure of the local government is of the City Council–City Manager form. The City Manager, hired by the City Council, is responsible for planning, organizing, and directing all administrative activities such as enforcing municipal laws, directing the daily operations of the City, and preparing and observing the municipal budget. The City Council is composed of a Mayor and four City Council members elected at large by the citizens of Atascadero. The City Council acts upon all legislative matters concerning Atascadero, approving and adopting all ordinances, resolutions, contracts, and other matters requiring overall policy decisions and leadership.

Figure B.1 displays a map of the City of Atascadero planning area.

Figure B.1 The City of Atascadero



The U.S. Census Bureau estimated Atascadero's 2017 population as 29,797, a 3.5% increase from 28,792 in 2014. Table B.2 shows an overview of the City's key social and demographic characteristics taken from the California Department of Finance and the U.S. Census Bureau's American Community Survey.

Table B.2 Atascadero Demographic and Social Characteristics, 2014-2017

City of Atascadero	2014	2017	% Change
Population	28,792	29,797	3.5%
Median Age	42.2	38.2	-8.8%
Total Housing Units	11,559	12,106	4.7%
Housing Occupancy Rate	94.4%	96.9%	2.6%
% of Housing Units with no Vehicles Available	4%	3.9%	0%
Median Home Value	$380,000	$433,900	14.2%
Unemployment	3.3%	3.2%	0%
Mean Travel Time to Work (minutes)	22.8	22.9	0%
Median Household Income	$66,342	$72,240	9%
Per Capita Income	$32,602	$36,131	10.8%
% of Individuals Below Poverty Level	8.3%	7.5%	-9.6%
# of Households	11,065	11,431	3.3%
Average Household Size	2.5	2.5	0%
% of Population Over 25 with High School Diploma	92.1%	94.7%	2.8%
% of Population Over 25 with Bachelor's Degree or Higher	28.2%	32.4%	4.2%
% with Disability	15.2%	12.4%	-18%

Source: U.S. Census Bureau American Community Survey 2014-2017 3-Year Estimates, www.census.gov/

Table B.3 shows how Atascadero's labor force breaks down by occupation and industry estimates from the U.S. Census Bureau's 2017 American Community Survey.

Table B.3 Atascadero Employment by Industry (2017)

Industry	# Employed
Population (2017)	29,797
In Labor Force	15,296
Agriculture, forestry, fishing and hunting, and mining	4,576
Armed Forces	1,195
Construction	1,641
Manufacturing	1,312
Wholesale trade	1,306
Retail trade	961
Transportation and warehousing, and utilities	1,024
Information	727
Finance and insurance, and real estate and rental and leasing	492
Professional, scientific, and management, and administrative and waste management services	673
Educational services, and health care and social assistance	563
Arts, entertainment, and recreation, and accommodation and food services	219
Other services, except public administration	305
Public administration	279
Unemployed	23

Source: U.S. Census Bureau American Community Survey 2012-2017 5-Year Estimates, www.census.gov/

B.1.3 History

The area was originally home to the Salinan Indians. In the late 18th Century and early 19th Century, Spanish missionaries established 21 missions along the California coast, including the nearby Mission San Miguel Arcángel, and Mission San Luis Obispo de Tolosa. When Mexico won its independence from Spain, and California became a Mexican province, the Mexican government secularized the mission lands. Rancho Atascadero was granted to Trifon Garcia in 1842, and Rancho Asuncion was granted to Pedro Estrada in 1845.

Toward the end of the 19th century, J.H. Henry consolidated a number of tracts into the 23,770-acre Atascadero Ranch, which included all of the present planning area, except for Baron von Schroeder's Eaglet, now part of Eagle Ranch. In 1913, E.G. Lewis founded Atascadero as California's first planned community, consisting of 26.15 square miles of the original 38 square miles of the historic Atascadero Ranch, later known as the Colony.

The Atascadero Fire Department was first established as an all-volunteer department in 1915. In 1922 the Atascadero Fire Protection District was founded on the heels of a disastrous 5,000-acre wildland fire near the Eagle Ranch property. Originally the District was 7 square miles in area with a population less than 3,000. On February 4, 1926 Atascadero's first paid fire department was established.

In June 1979 the residents of Atascadero voted in favor of incorporation. The Fire District dissolved in 1979 when the department became an official part of the newly incorporated City. The 1980 General Plan became the first major planning document adopted by the newly incorporated City of Atascadero. In 1983, a new zoning ordinance was adopted to implement that plan.

B.1.4 Economy

Based on the 2017 American Community Survey (ACS) Atascadero's labor force is estimated to be 15,297 persons. The City's economic base primarily consists of employees within the educational services, health care and social services, which accounts for 29.9% of jobs. The City's largest employers include the Atascadero State Hospital and the Atascadero Unified School District (AUSD). The second largest type of industry in the City is the retail trade and services sector at 10.7% of employment. Unemployment has dropped from a historic high of 8.5% in 2010 due to the economic recession, to only 3.2% in 2017.

All consumable goods must be transported to the City via trucks utilizing U. S. Highway 101. It should be noted there are two rail spurs located in the undeveloped area of the County adjacent to the City. There is no airport in the City.

Table B.4 shows how Atascadero's labor force breaks down by occupation and industry based on estimates from the U.S. Census Bureau's 2017 American Community Survey.

Table B.4 City of Atascadero Employment by Industry (2017)

Industry	# Employed
Population (2017)	29,797
In Labor Force	15,296
Agriculture, forestry, fishing and hunting, and mining	219
Armed Forces	23
Construction	1,306
Manufacturing	961
Wholesale trade	305
Retail trade	1,641
Transportation and warehousing, and utilities	673
Information	279
Finance and insurance, and real estate and rental and leasing	563
Professional, scientific, and management, and administrative and waste management services	1,312
Educational services, and health care and social assistance	4,576
Arts, entertainment, and recreation, and accommodation and food services	1,195
Other services, except public administration	727
Public administration	1,024
Unemployed	492

Source: U.S. Census Bureau American Community Survey 2012-2017 5-Year Estimates, www.census.gov/

B.1.5 Population

The U.S. Census Bureau estimated the City's 2017 population as 29,797, up from 28,310 at the 2010 census. Table B.3 shows an overview of key social and demographic characteristics of the City taken from the U.S. Census Bureau's American Community Survey.

Table B.5 City of Atascadero Demographic and Social Characteristics, 2012-2017

City of Atascadero	2012	2017	% Change
Population	28,441	29,797	+4.8%
Median Age	41.9	38.2	-8.8%
Total Housing Units	11,559	12,106	4.7%
Housing Occupancy Rate	92.0%	96.9%	+4.9%
% of Housing Units with no Vehicles Available	4.1%	4.2%	+0.1%
Median Home Value	$394,400	$433,900	+10.0%
Unemployment	7.9%	3.2%	-4.7%
Mean Travel Time to Work (minutes)	21.1	22.9	+8.5%
Median Household Income	$66,603	$72,240	+8.5%
Per Capita Income	$31,443	$36,131	+14.9%
% of Individuals Below Poverty Level	10.7%	7.5%	-3.2%
# of Households	11,112	11,431	+2.9%
Average Household Size	2.46	2.57	+4.5%
% of Population Over 25 with High School Diploma	92.0%	94.7%	+2.7%
% of Population Over 25 with Bachelor's Degree or Higher	28.2%	32.4%	+4.2%
% with Disability	12.0%	11.6%	-0.4%
% Speak English less than "Very Well"	3.8%	2.8%	-1.0%

Source: U.S. Census Bureau American Community Survey 2012-2017 5-Year Estimates, www.census.gov/

Note that the City's median household and per capita income are both above average for the County and the State, although the median home price is slightly below average for the County. The percentage of individuals living below the poverty level (7.5%) is almost half that of the County (13.8%), or California as a whole (15.1%). The number of individuals who speak English less than very well is also significantly below the County and State averages (6.8% and 18.4% respectively).

B.1.6 Development Trends

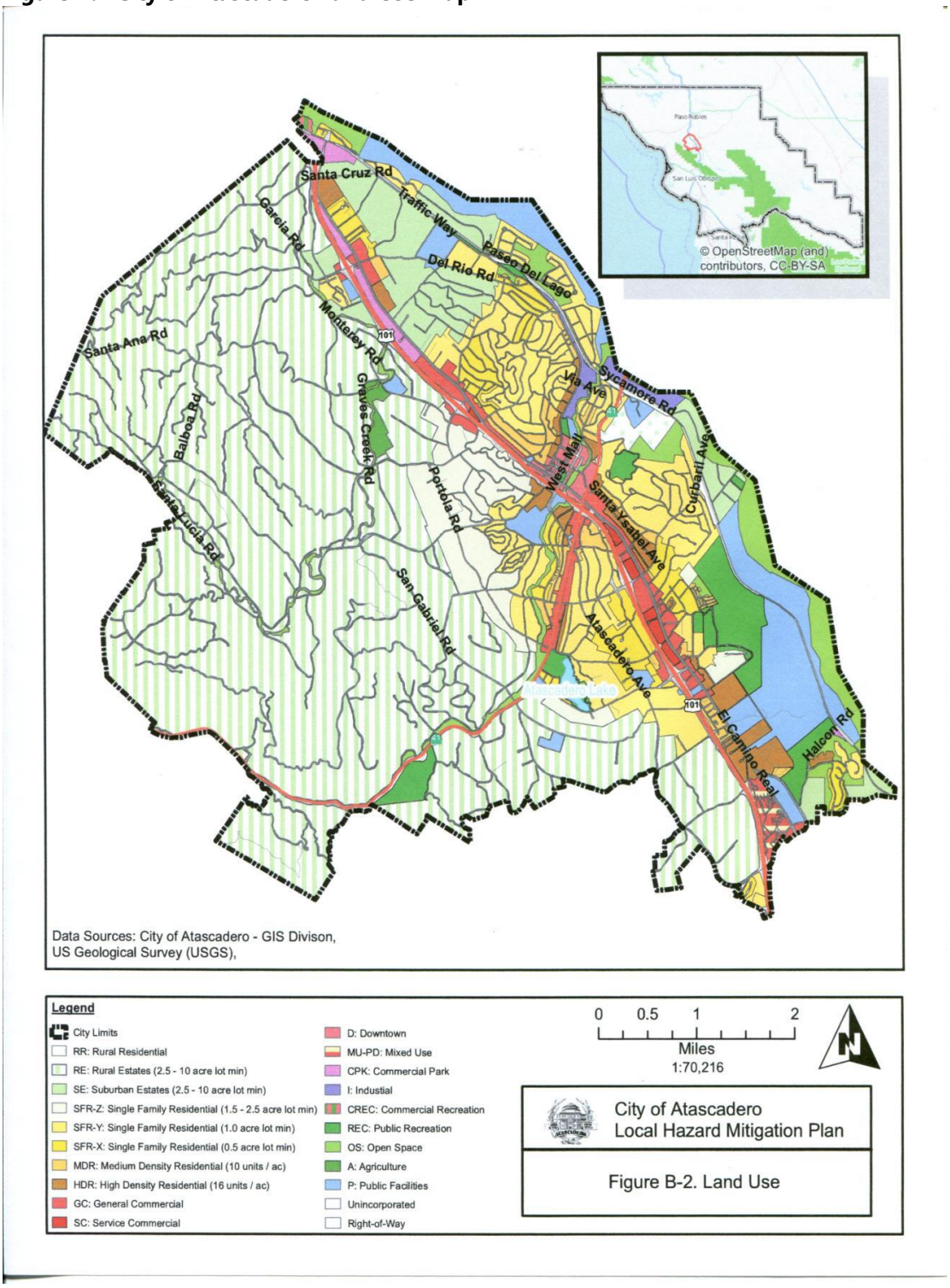
Prior to the City's incorporation, San Luis Obispo County guided growth in the unincorporated County through its General Plan. San Luis Obispo County adopted the General Plan in 1968 and by 1972 developed more stringent growth standards in accordance with State of California (State) planning standards. With the incorporation of Atascadero in 1979, the newly formed Planning Commission adopted the 1980 General Plan and subsequently, in 1983, a new zoning ordinance. The City updated the General Plan in the mid-1980s and adopted a revised version in 1992.

The General Plan 2025, adopted in 2002, is the most recent version of the City's Plan. This version readopted the Guiding Community Goals and introduced the Smart Growth Principles and General Plan Framework Principles. In addition, the Preferred General Plan Land Use Alternatives identified a build-out population of approximately 36,000.

The majority of commercial activity, including 3 million square feet of commercial and industrial buildings, takes place along El Camino Real, Morro Road, and near US 101 interchanges. The historic downtown, located in the City center, is surrounded by residential neighborhoods (with approximately 8,000 dwelling units) that transition into low-density rural areas west of US 101 and open space, public recreation, and public facilities east of US 101 (Figure B-2).

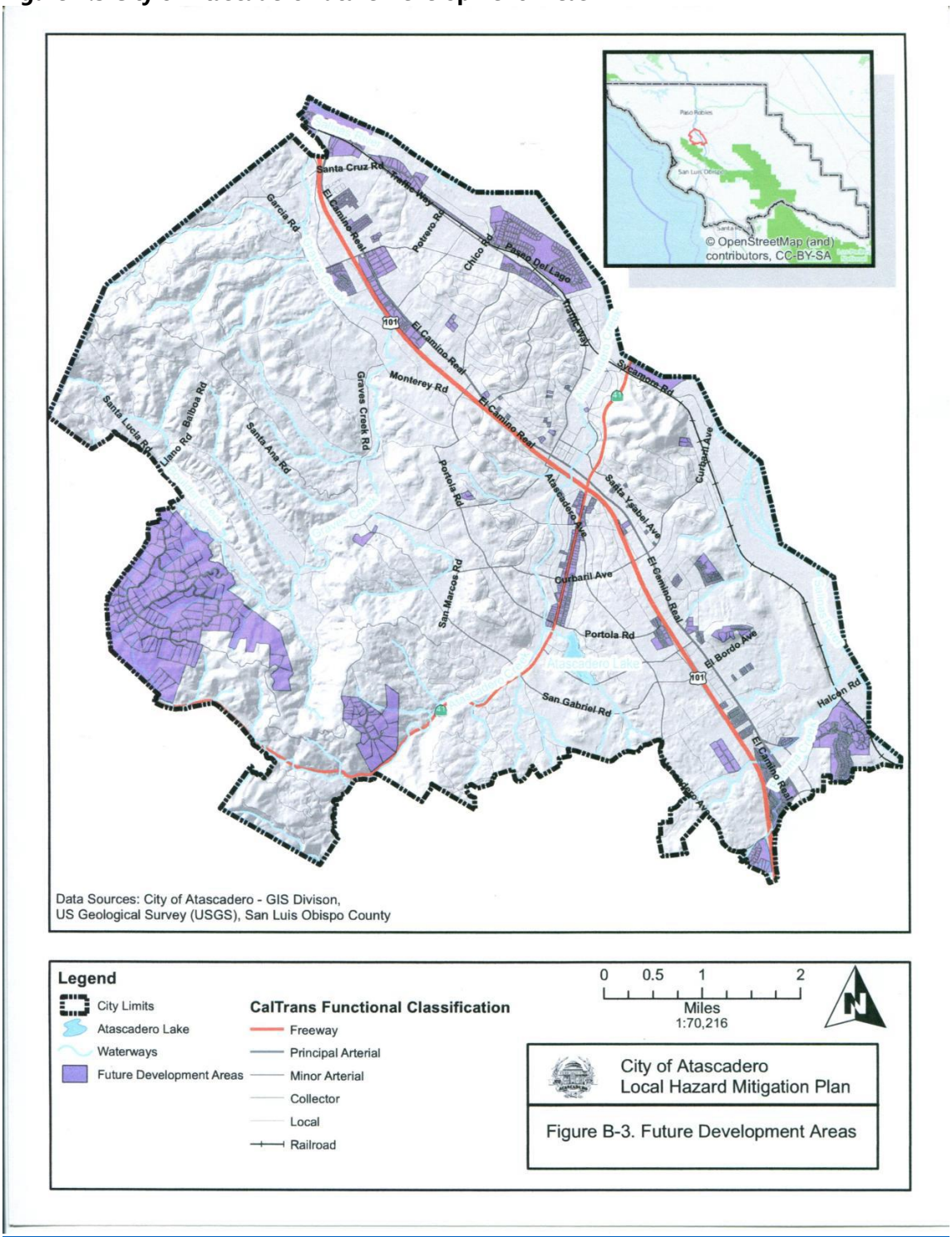
The General Plan 2025 identifies approximately 400 acres of the Eagle Ranch area as the primary area of future growth. The area is located outside of the current City's western boundaries but within the Urban Reserve Line, an area within the Colony boundary that is planned for urban and suburban uses with City services and facilities. In addition to the Eagle Ranch development project, the General Plan 2025 identifies small residential and commercial development projects in the northern and southeastern portions of the City limits (Figure B-3).

Figure B.2 City of Atascadero Land Use Map



Source: City of Atascadero 2014 Local Hazard Mitigation Plan

Figure B.3 City of Atascadero Future Development Areas



Source: City of Atascadero 2014 Local Hazard Mitigation Plan

B.2 Hazard Identification and Summary

The Atascadero planning team identified the hazards that affect the City and summarized their frequency of occurrence, spatial extent, potential magnitude, and significance specific to their community (see Table B.6). There are no hazards that are unique to Atascadero. The overall hazard significance takes into account the geographic area, probability and magnitude as a way to identify priority hazards for mitigation purposes. 'NI' in the table meets not identified. This is discussed further in the Vulnerability Section.

Table B.6 City of Atascadero – Hazard Summaries

Hazard	Geographic Area	Probability of Future Occurrence	Magnitude/ Severity (Extent)	Overall Significance
Adverse Weather: Thunderstorm/Heavy Rain/Hail/Lighting/Dense Fog/Freeze	NI	NI	NI	NI
Adverse Weather: High Wind/Tornado	Extensive	Likely	Limited	Low
Adverse Weather: Extreme Heat	NI	NI	NI	NI
Agricultural Pest Infestation and Disease	Limited	Highly Likely	Negligible	Medium
Biological Agents (naturally occurring)	Extensive	Occasional	Critical	Medium
Coastal Storm/Coastal Erosion/Sea Level Rise	N/A	N/A	N/A	N/A
Dam Incidents	Limited	Unlikely	Limited	Low
Drought and Water Shortage	Extensive	Likely	Limited	Medium
Earthquake	Limited	Unlikely	Limited	Low
Flood	Significant	Occasional	Critical	Medium
Landslides and Debris Flow	Significant	Likely	Significant	Medium
Subsidence	Significant	Likely	Negligible	Low
Tsunami and Seiche	N/A	N/A	N/A	N/A
Wildfire	Extensive	Likely	Critical	High
Human Caused: Hazardous Materials	Significant	Highly Likely	Negligible	Medium
Geographic Area Limited: Less than 10% of planning area Significant: 10-50% of planning area Extensive: 50-100% of planning area Probability of Future Occurrences Highly Likely: Near 100% chance of occurrence in next year or happens every year. Likely: Between 10 and 100% chance of occurrence in next year or has a recurrence interval of 10 years or less.		Magnitude/Severity (Extent) Catastrophic—More than 50 percent of property severely damaged; shutdown of facilities for more than 30 days; and/or multiple deaths Critical—25-50 percent of property severely damaged; shutdown of facilities for at least two weeks; and/or injuries and/or illnesses result in permanent disability Limited—10-25 percent of property severely damaged; shutdown of facilities for more than a		

Occasional: Between 1 and 10% chance of occurrence in the next year or has a recurrence interval of 11 to 100 years. Unlikely: Less than 1% chance of occurrence in next 100 years or has a recurrence interval of greater than every 100 years.	week; and/or injuries/illnesses treatable do not result in permanent disability Negligible—Less than 10 percent of property severely damaged, shutdown of facilities and services for less than 24 hours; and/or injuries/illnesses treatable with first aid Significance Low: minimal potential impact Medium: moderate potential impact High: widespread potential impact

B.3 Vulnerability Assessment

The intent of this section is to assess Atascadero's vulnerability separately from that of the planning area as a whole, which has already been assessed in Section 5.3 Risk Assessment in the main plan. This vulnerability assessment analyzes the population, property, and other assets at risk to hazards ranked of medium or high significance that may vary from other parts of the planning area.

The information to support the hazard identification and risk assessment was based of the City's previous LHMP. A Local Hazard Mitigation Plan Update Guide and associated worksheets was distributed to each participating municipality or special district to complete during update process in 2019. Information collected was analyzed and summarized in order to identify and rank all the hazards that could impact anywhere within the County, as well as to rank the hazards and identify the related vulnerabilities unique to each jurisdiction.

Each participating jurisdiction was in support of the main hazard summary identified in the Base Plan (See Table 5-2). However, the hazard summary rankings for each jurisdictional annex may vary slightly due to specific hazard risk and vulnerabilities unique to that jurisdiction. Identifying these differences helps the reader to differentiate the jurisdiction's risk and vulnerabilities from that of the overall County.

Note: The hazard "Significance" reflects overall ranking for each hazard and is based on the City of Atascadero's HMPC member input from the Data Collection Guide and the risk assessment developed during the planning process (see Section 5.1 of the Base Plan), which included a more detailed qualitative analysis with best available data.

The hazard summaries in Table B.6 above reflect the hazards that could potentially affect the City. The discussion of vulnerability for each of the following hazards is located in Section B.3.2 Estimating Potential Losses. Based on this analysis, the priority hazard (High Significance) for mitigation is wildfire. Those of Medium or High significance for the City of Atascadero are identified below.

- Agricultural Pest Infestation and Disease
- Biological Agents (naturally occurring)
- Drought or Water Shortage
- Flood
- Landslide and Debris Flow
- Human Caused: Hazardous Materials

Other Hazards

Hazards assigned a significance rating of Low and which do not differ significantly from the County ranking (e.g., Low vs. High) are not addressed further in this plan, and are not assessed individually for specific vulnerabilities in this section. In the City of Atascadero, those hazards include dam incidents, earthquakes, and land subsidence.

Additionally, the City's Committee members decided to rate several hazards as Not Applicable (N/A) to the planning area due to a lack of exposure, vulnerability, and/or no probability of occurrence. Those hazards deemed not applicable to the City of Atascadero include coastal storm/coastal erosion/sea level rise, and tsunami/seiche.

B.3.1 Assets at Risk

This section considers Atascadero's assets at risk, including values at risk, critical facilities and infrastructure, historic assets, economic assets and growth and development trends.

Values at Risk

The following data on property exposure is derived from the San Luis Obispo County 2019 Parcel and Assessor data. This data should only be used as a guideline to overall values in the City as the information has some limitations. The most significant limitation is created by Proposition 13. Instead of adjusting property values annually, the values are not adjusted or assessed at fair market value until a property transfer occurs. As a result, overall value information is likely low and does not reflect current market value of properties. It is also important to note that in the event of a disaster, it is generally the value of the infrastructure or improvements to the land that is of concern or at risk. Generally, the land itself is not a loss. Table B.7 shows the exposure of properties (e.g., the values at risk) broken down by property type for the City of Atascadero.

Table B.7 2019 Property Exposure for the City of Atascadero by Property Types

Property Type	Parcel Count	Improved Value	Content Value	Total Value
Commercial	565	$191,651,882	$191,651,882	$383,303,764
Government/Utilities*	152	$840	--	$840
Other/Exempt/Misc.	327	$57,551,872	--	$57,551,872
Residential	7,661	$1,670,488,610	$835,244,305	$2,505,732,915
Multi-Family Residential	1,083	$252,413,520	$126,206,760	$378,620,280
Mobile/Manufactured Homes	131	$13,702,740	$6,851,370	$20,554,110
Residential: Other	264	$96,286,718	$48,143,359	$144,430,077
Industrial	29	$10,189,075	$15,283,613	$25,472,688
Vacant	86	$19,001,171	--	$19,001,171
Total	**10,298**	**$2,311,286,428**	**$1,223,381,289**	**$3,534,667,717**

Source: Wood Plc analysis based on ParcelQuest and San Luis Obispo County Assessor's Office data 2019;

* Improved value is not accurate as these properties are exempt in the assessor's data.

Critical Facilities and Infrastructure

A critical facility may be defined as one that is essential in providing utility or direction either during the response to an emergency or during the recovery operation. See Section 5 of the Base Plan for more details on the definitions and categories of critical facilities.

An inventory of critical facilities in the City of Atascadero from San Luis Obispo County GIS is provided in**Error! Reference source not found.** Table B.8 and illustrated in Figure B3.

Table B.8 City of Atascadero's Critical Facilities

Facility Type	Counts
Day Care Facilities	13
Emergency Medical Service Stations	2
Fire Stations	3
Hospitals	1
Local Law Enforcement	1
Nursing Homes	8
Private Schools	2
Public Schools	9
Supplemental Colleges	1
Urgent Care	1
Power Plants	2
Microwave Service Towers	2
TV Analog Station Transmitters	1
Energy Commission Facilities	1
Total	**47**

Source: San Luis Obispo County Planning & Building, HIFLD 2017

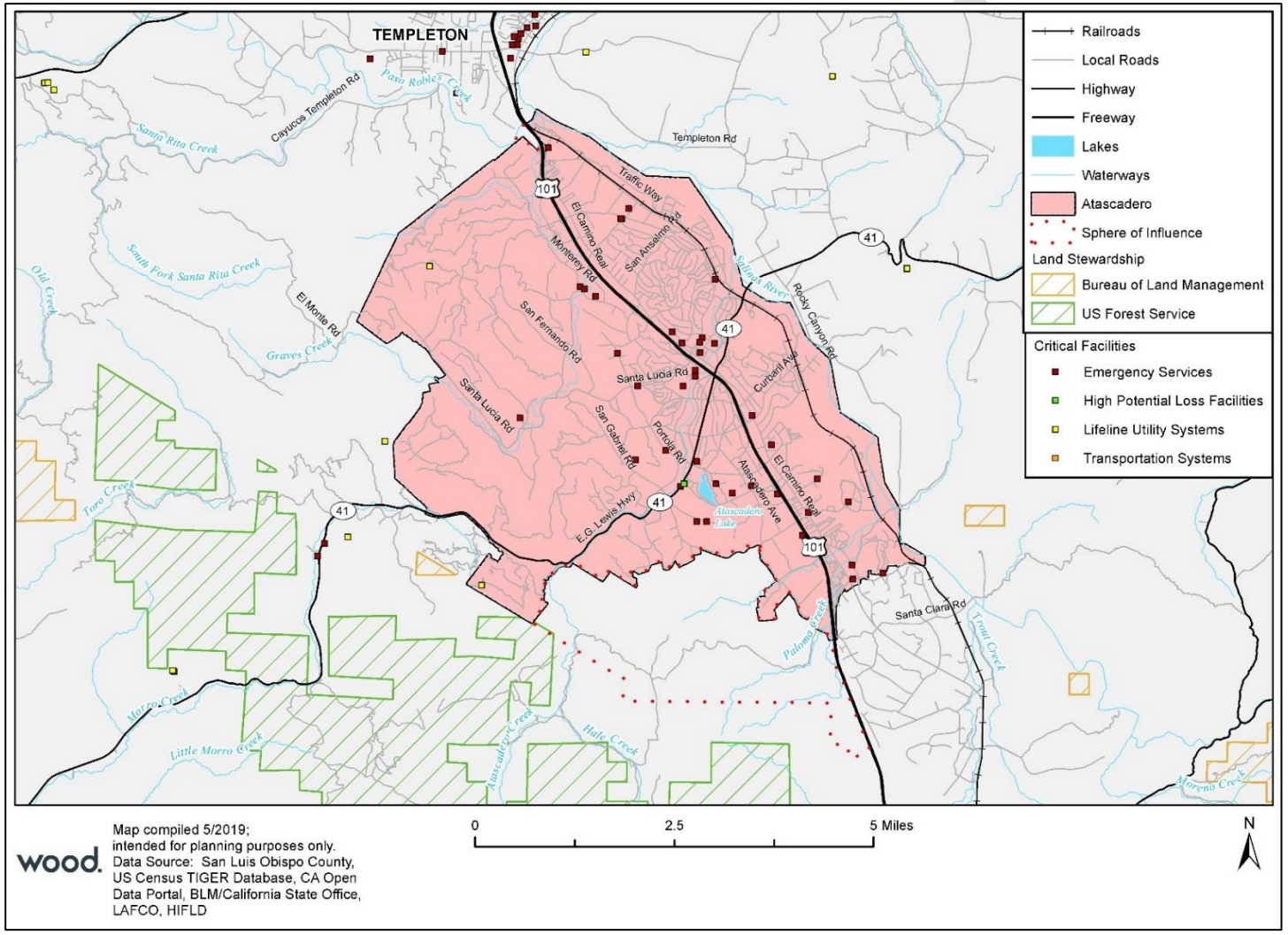
Table B.9 below lists additional critical facilities and infrastructure identified by the planning team.

Table B.9 Critical Facilities and Infrastructure Identified by Atascadero Planning Team

Category	Facility	Number	Estimated Value Per Structure/Mile
City Hall	City Hall	1	$43,400,000
	City Hall Annex (now Successor Agency)	1	$3,393,884 1
Police and Fire Stations	Fire Station #1	1	$1,777,972
	Fire Station #2	1	$1,167,090
	Atascadero Police Department	1	$2,168,594
Other City-Owned Facilities	Lake Pavilion	1	$2,528,924
	Charles Paddock Zoo	1	$2,352,377
	Ranger House	1	$ 91,689
	Youth Center	1	$9,902,817
	Skate Park	1	$ 850,448
	Paloma Creek Park Facilities	4	$ 351,765
	Pine and Chalk Mountain Towers	2	$ 517,423
Potable Water and Wastewater	Wastewater Treatment Plant	1	$2,705,059
	Sewer Lift Stations	12	$ 874,267
	Sewer Lift Station 5 Buildings	4	$1,279,465
Infrastructure	State and Federal Highways (miles)	21.277	$109,967
	Major Arterials (miles)	27.044	$14,279
	Railroads (miles)	7.608	$10,532
	Bridges	14	$5,930,990

Source: City of Atascadero 2014 Local Hazard Mitigation Plan

Figure B.3 Critical Facilities in Atascadero



Transportation and Lifeline Facilities

Major transportation and lifeline facilities are located adjacent to US Highway 101 and State Highway 41, which traverse through Atascadero, as well as the rail line that runs through the eastern edge of the City. Damages to these transportation corridors would not only impact Atascadero but the entire region.

Historic and Cultural Resources

The National Register of Historic Places contains three sites in the City of Atascadero:

- Administration Building, Atascadero Colony, 6500 Palma Ave.
- Archeological Site 4 SLO 834, Address Restricted
- Atascadero Printery, 6351 Olmeda

There are no California State Historical Landmarks and two California Register of Historical Resources properties located in Atascadero: The Printery Building and Historic Administration Building.

Other significant historic or cultural resources identified by the planning team include the Adobe Springs on Traffic Way and numerous homes built during the Atascadero Colony era.

Natural Resources

Natural resources are important to include in benefit-cost analyses for future projects and may be used to leverage additional funding for projects that also contribute to community goals for protecting sensitive natural resources. Awareness of natural assets can lead to opportunities for meeting multiple objectives. For instance, protecting wetlands areas protects sensitive habitat as well as attenuates and stores floodwaters.

Key natural assets in the City include Atascadero, Graves, Paloma, and Boulder creeks in addition to the Salinas River. The city also contains vast areas of native oak woodland.

B.3.2 Estimating Potential Losses

Note: This section details vulnerability to specific hazards of high or medium significance, where quantifiable, and/or where (according to HMPC member input) it differs from that of the overall County.

Table B.7 above shows Atascadero's exposure to hazards in terms of number and value of structures. San Luis Obispo County's parcel and assessor data was used to calculate the improved value of parcels. The most vulnerable structures are those in the floodplain (especially those that have been flooded in the past), unreinforced masonry buildings, and buildings built prior to the introduction of modern-day building codes. Impacts of past events and vulnerability to specific hazards are further discussed below (see Section 4.1 Hazard Identification for more detailed information about these hazards and their impacts on San Luis Obispo County as a whole).

Agricultural Pest Infestation and Disease

The City has 57 properties at risk from tree mortality, as shown in the following table. The City does not have any critical facilities in high tree mortality areas.

Table B.10 Atascadero Properties in High Tree Mortality Areas

Property Type	Parcel Count	Improved Value
Commercial	1	$89,244
Multi-Family Residential	8	$343,621
Residential	48	$14,462,885
TOTAL	**57**	**$14,895,750**

Source: San Luis Obispo County Planning and Building Dept., Assessor's Office, ParcelQuest, Wood Plc Parcel Analysis

Biological Agents (Naturally Occurring)

The City of Atascadero's risk and vulnerability to this hazard does not differ substantially from that of the County overall.

Drought or Water Shortage

The Atascadero Mutual Water Company manages the City's water supply that consists of 17 active wells that pump from the Atascadero sub-basin of the Paso Robles Groundwater Basin and both riparian and appropriated Salinas River underflow. As of 2015, maximum well production is 12.9 million gallons per day. While the primary basin, the Paso Robles Groundwater Basin, is experiencing decline in many areas, the Atascadero Sub-basin is a hydro-geologically distinct sub-basin that is separated from the primary basin by the Rinconada Fault line and has not experienced the level of decline when compared to the Paso Robles Ground Water Basin.

With approval of the Nacimiento Water Project, the AMWC has been allocated an additional 3,000 AFY, with a flow rate of 3.48 million gallons per day (mgd). The Nacimiento Water Project broke ground in 2007 and the construction of the infrastructures needed to deliver water to the Atascadero area is complete. AMWC began taking deliveries of water in the summer of 2012. The City analyzed the capacity of existing water resources and determined that given the existing water supply and that which will result from the Nacimiento Water Project, the existing water supply is not a constraint to growth in the City and is available for all vacant zones within the City to accommodate the City's RHNA. However, as a result of the Nacimiento Water Project connection fees, water rates have increased gradually to help pay for the cost of the additional water source.

Historically, recycled water has not been used as a source of water in Atascadero.

Flood

In Atascadero, the most common type of flooding event is riverine flooding, also known as overbank flooding. Riverine floodplains range from narrow, confined channels in the steep valleys of mountainous and hilly regions, to wide, flat areas in plains and agricultural regions. The amount of water in the floodplain is a function of the size and topography of the contributing watershed, the regional and local climate, and land use characteristics. Flooding in steep, mountainous areas is usually confined, strikes with less warning time, and has a short duration. Larger rivers typically have longer, more predictable flooding sequences and broad floodplains.

In addition to riverine flooding, Atascadero is susceptible to flash flooding in smaller watersheds. Flash flood is a term widely used by experts and the general population, but there is no single definition or clear means of distinguishing flash floods from other riverine floods. Flash floods are generally understood to involve a rapid rise in water level, high velocity, and large amounts of debris, which can lead to significant damage that includes the tearing out of trees, undermining of buildings and bridges, and scouring of new channels. The intensity of

flash flooding is a function of the intensity and duration of rainfall, steepness of the watershed, stream gradients, watershed vegetation, natural and artificial flood storage areas, and configuration of the streambed and floodplain. Dam failure may also lead to flash flooding. Urban areas are increasingly subject to flash flooding due to the removal of vegetation, installation of impermeable surfaces over ground cover, and construction of drainage systems. Wildland fires that strip hillsides of vegetation and alter soil characteristics may also create conditions that lead to flash floods and debris flows.

Finally, localized flooding may occur outside of recognized drainage channels or delineated floodplains due to a combination of locally heavy precipitation, increased surface runoff, and inadequate facilities for drainage and storm water conveyance. Such events frequently occur in flat areas and in urbanized areas with large impermeable surfaces. Local drainage may result in "nuisance flooding," in which streets or parking lots are temporarily closed; and minor property damage. Because the effects are not widespread, and damage is typically minimal, they are not studied in detail as part of the LHMP.

The most serious flood events on record in Atascadero occurred during storms in the early months of 1969, 1993, 1995, and 2001.

Flooding during 1969 was the most damaging. Two floods occurred, one at the end of January and the second at the end of February. During this two-month period, a local rain gage recorded an accumulated precipitation total of 39.79 inches. As a result of these storms, the Salinas River reached a discharge of over 28,000 cubic feet per second and reached a stage of 23.8 feet, almost 5 feet above flood stage. The San Luis Obispo Telegram-Tribune of January 25, 1969, described the Salinas Rive as "on rampage."

During January 1993, winter storms again delivered excessive precipitation; the monthly rainfall total at a local rain gage was nearly 14 inches. During the March 1995 flood, local rain gages recorded a monthly total of 16.48 inches of rain. In the fall of 1996 and the winter of 1997 Atascadero received 7" of rain. As a result of the 1996 Highway 58 Wildland fire the City experiences isolated minor flooding. In early 2001, rain gages recorded a total of 20.2 inches of rain over a three-month period.

Values at Risk

Following the methodology described in Section 5.3.8, a flood map for the City of Atascadero was created (see Figure B.5). Tables B.13 and B.14 summarize the values at risk in the City's 100-year and 500-year floodplain, respectively. These tables also detail loss estimates for each flood. Note that the potential loss increases significantly with the 500-year or 0.2% annual chance flood.

Figure B.4 City of Atascadero 100- and 500-Year Floodplains

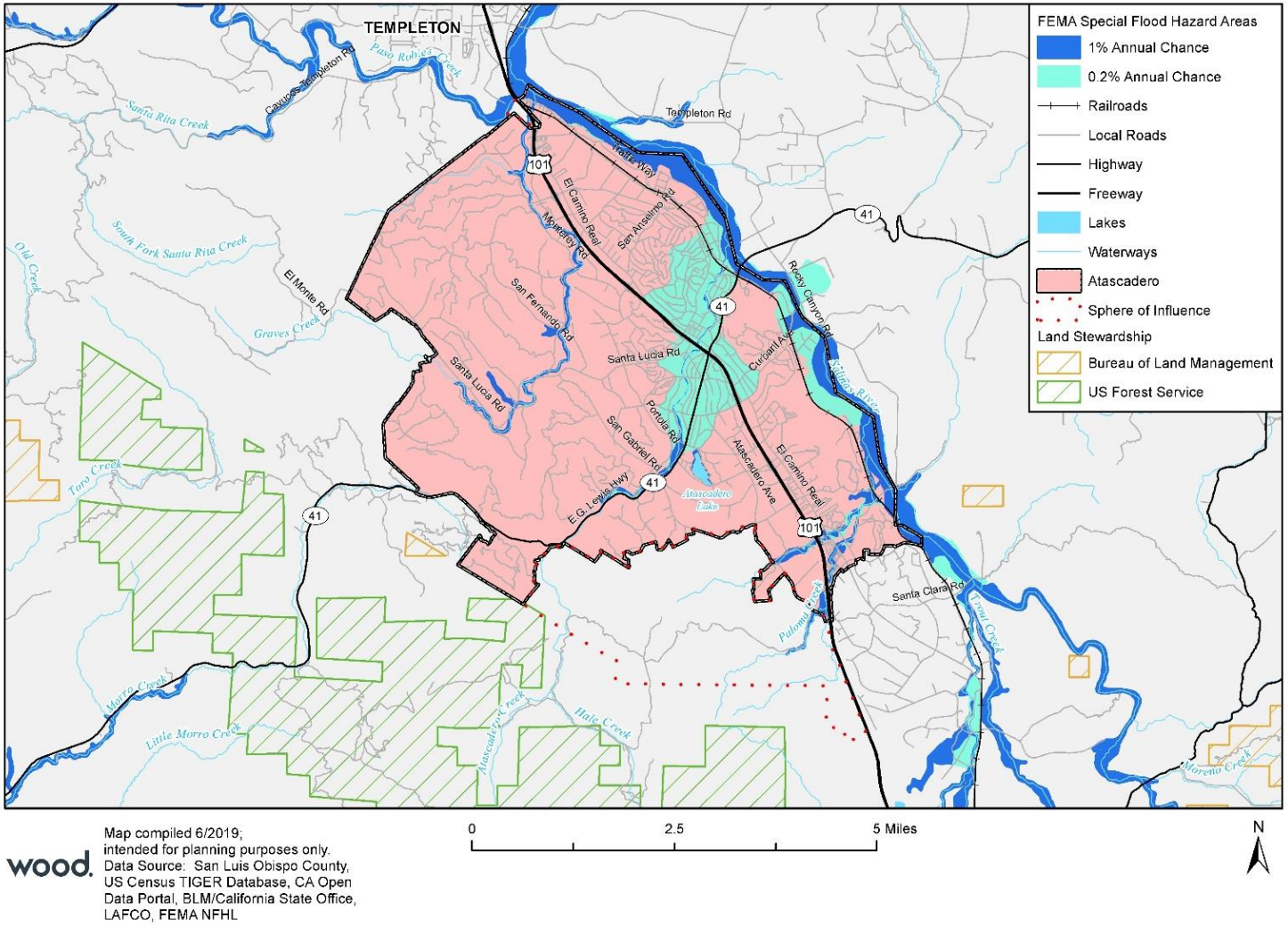
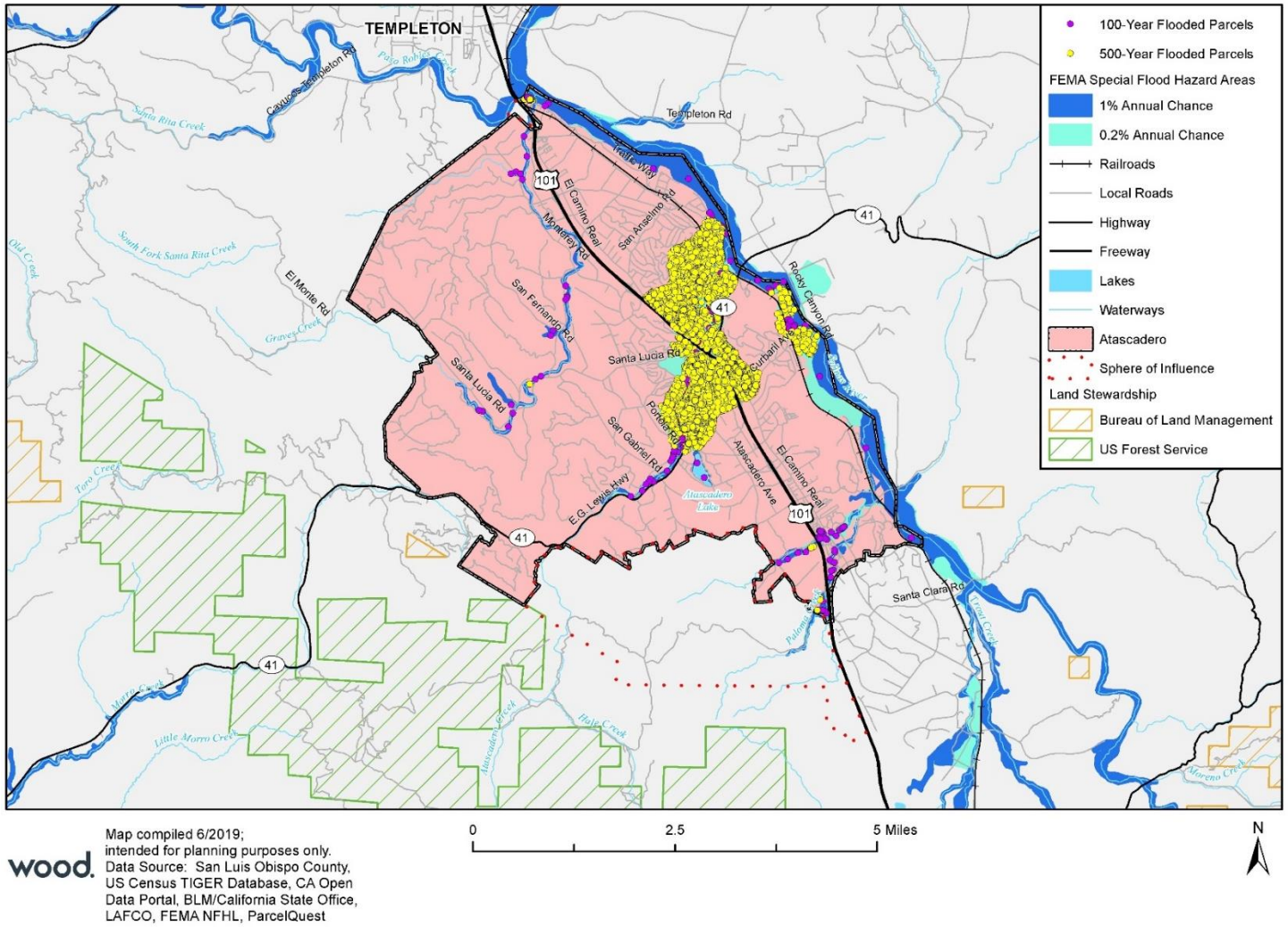


Figure B.5 City of Atascadero Parcels at Risk of Flooding



Population at Risk

Table B.11 City of Atascadero 1% (100 year) Floodplain Risk

Property Type	Parcel Count	Improved Value	Content Value	Total Value	Loss Estimate	Population
Commercial	8	$2,737,870	$2,737,870	$5,475,740	$1,368,935	--
Government/Utilities	21	--	--	$0	$0	--
Other/Exempt/Misc.	19	--	--	$0	$0	--
Residential	65	$16,171,213	$8,085,607	$24,256,820	$6,064,205	163
Multi-Family Residential	25	$2,792,438	$1,396,219	$4,188,657	$1,047,164	63
Industrial	2	$1,298,159	$1,947,239	$3,245,398	$811,349	--
TOTAL	140	$22,999,680	$14,166,934	$37,166,614	$9,291,654	226

Source: San Luis Obispo County Planning and Building Dept., Assessor's Office, ParcelQuest, Wood Plc Parcel Analysis

Table B.12 City of Atascadero 0.2% (500 year) Floodplain Risk

Property Type	Parcel Count	Improved Value	Content Value	Total Value	Loss Estimate	Population
Commercial	345	$92,955,971	$92,955,971	$185,911,942	$46,477,986	--
Government/Utilities	45	--	--	$0	$0	--
Other/Exempt/Misc.	96	$25,780,069	--	$25,780,069	$6,445,017	--
Residential	1,619	$252,691,386	$126,345,693	$379,037,079	$94,759,270	4,064
Multi-Family Residential	545	$103,163,270	$51,581,635	$154,744,905	$38,686,226	1,368
Mobile/Manufactured Homes	4	$676,967	$338,484	$1,015,451	$253,863	10
Residential: Other	128	$29,443,443	$14,721,722	$44,165,165	$11,041,291	321
Industrial	3	$965,221	$1,447,832	$2,413,053	$603,263	--
Vacant	22	$4,602,571	--	$4,602,571	$1,150,643	--
TOTAL	**2,807**	**$510,278,898**	**$287,391,336**	**$797,670,234**	**$199,417,558**	**5,763**

Source: San Luis Obispo County Planning and Building Dept., Assessor's Office, ParcelQuest, Wood Plc Parcel Analysis

Insurance Coverage, Claims Paid, and Repetitive Losses

The City of Atascadero has been a participant in the National Flood Insurance Program since 1982. The Atascadero CID # is 060700. The FIRM panel identification is 06079C0831G. The City of Atascadero will continue to participate and remain in compliance with the National Flood Insurance Program. (NFIP).

Table B.13 City of Atascadero NFIP Insurance Policy Information

Policies	Insurance in Force	No. of Paid Losses	Total Losses Paid
107	$13,507,500	18	$259,834

Source: FEMA National Flood Insurance Program Community Information System

FEMA Community Information System shows that as of April 2019 the City of Atascadero has three Repetitive Loss (RL) properties, which have been responsible for $190,889.43 in NFIP claims. The City does not have any Severe Repetitive Loss (SRL) properties.

Atascadero does not participate in the Community Rating System (CRS).

Critical Facilities at Risk

None of the City's identified critical facilities are located in the 1% Annual (100 year) Floodplain. Critical facilities located in the 0.2% Annual (500-year) Floodplain are shown in the following table.

Table B.14 City of Atascadero Critical Facilities in the 0.2% (500-year) Floodplain

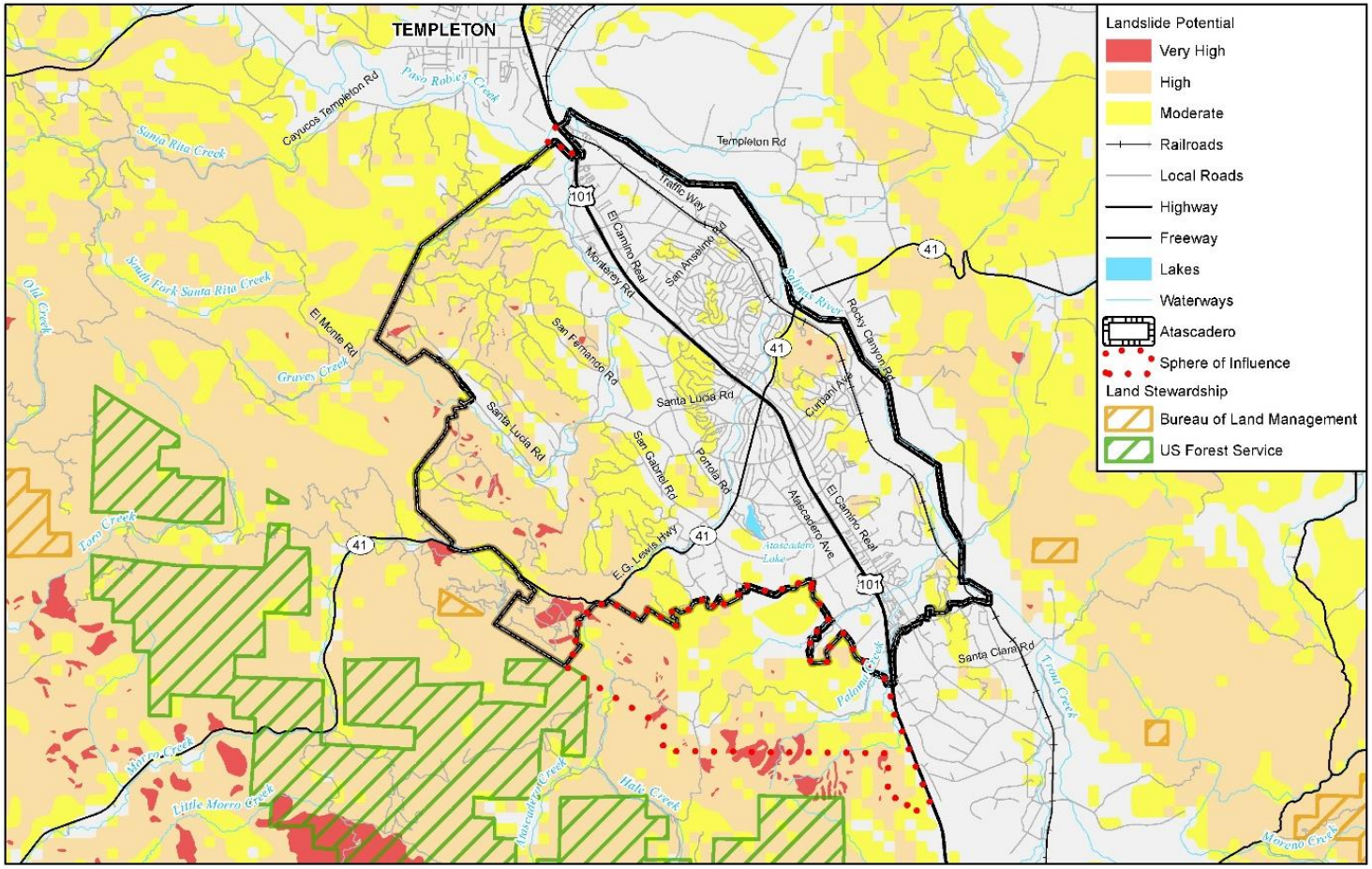
Facility Type	Counts
Day Care Facilities	4
Emergency Medical Service Stations	1
Fire Stations	1
Local Law Enforcement	1
Nursing Homes	1
Private Schools	1
Public Schools	3
Urgent Care	1
Day Care Facilities	4
TOTAL	**13**

Source: San Luis Obispo County Planning & Building, HIFLD 2017

Landslide and Debris Flow

Similar to much of San Luis Obispo County, Atascadero is considered to have a moderate to high potential of landslides in certain areas of the City. Slope instability in the City generally increases with steepness and distance from the Salinas River, with areas of steep terrain that consist of fractured soil or thin layers of clay that are susceptible to erosion and land subsidence. The only areas of the City that are considered to have a very high risk of landslides are small locations in the far southwest end of the City. There are also several high and very high-risk areas outside of the City boundary that have potential to impact the City.

Figure B.6 City of Atascadero Landslide Risk



Atascadero has 2,081 properties and 5 critical facilities at high or moderate risk of landslides, as shown in the following tables.

Table B.15 Atascadero Properties at High Risk of Landslide

Property Type	Property Count	Improved Value
Government/Utilities	11	--
Other/Exempt/Misc.	15	--
Residential	427	$133,187,615
Multi-Family Residential	7	$1,052,734
Mobile/Manufactured Homes	1	$66,235
Vacant	8	$1,799,933
TOTAL	**469**	**$136,106,517**

Source: San Luis Obispo County Planning and Building Dept., Assessor's Office, ParcelQuest, Wood Plc Parcel Analysis

Table B.16 Atascadero Properties at Moderate Risk of Landslide

Property Type	Property Count	Improved Value
Commercial	3	$869,000
Government/Utilities	14	--
Other/Exempt/Misc.	12	$14,559
Residential	1,480	$385,770,153
Multi-Family Residential	41	$14,871,989
Mobile/Manufactured Homes	4	$497,938
Residential: Other	44	$6,983,678
Vacant	14	$1,433,068
TOTAL	**1,612**	**$410,440,385**

Source: San Luis Obispo County Planning and Building Dept., Assessor's Office, ParcelQuest, Wood Plc Parcel Analysis

Table B.17 Atascadero Critical Facilities at Risk from Landslide

Critical Facility Type	Count	Risk
TV Analog Station Transmitters	1	High
Day Care Facilities	1	Moderate
Microwave Service Towers	2	Moderate
Nursing Homes	1	Moderate
TOTAL	**5**	

Source: San Luis Obispo County Planning & Building, HIFLD 2017

Human Caused: Hazardous Materials

The Cal OES Warning Center reports 89 hazardous materials incidents in the City of Atascadero from 1994 through October 24, 2018; as noted in Section 5.3.13 of the County plan, this likely excludes a large number of unreported minor spills. This constitutes 5% of the hazardous materials incidents reported countywide during

the same time frame and averages out to roughly 3.6 incidents per year. As noted in Section 5.3.13, only around 6% of reported hazardous materials incidents result in injuries, fatalities, or evacuations.

B.4 Capability Assessment

Capabilities are the programs and policies currently in use to reduce hazard impacts or that could be used to implement hazard mitigation activities. This capabilities assessment is divided into five sections: regulatory mitigation capabilities, administrative and technical mitigation capabilities, fiscal mitigation capabilities, mitigation outreach and partnerships, and other mitigation efforts.

To develop this capability assessment, the jurisdictional planning representatives used a matrix of common mitigation activities to inventory which of these policies or programs were in place. The team then supplemented this inventory by reviewing additional existing policies, regulations, plans, and programs to determine if they contributed to reducing hazard-related losses.

During the plan update process, this inventory was reviewed by the jurisdictional planning representatives and Wood consultant team staff to update information where applicable and note ways in which these capabilities have improved or expanded. Additionally, in summarizing current capabilities and identifying gaps, the jurisdictional planning representatives also considered their ability to expand or improve upon existing policies and programs as potential new mitigation strategies. The City of Atascadero's capabilities are summarized below.

B.4.1 Regulatory Mitigation Capabilities

Table B.18 City of Atascadero Regulatory Mitigation Capabilities

Regulatory Tool	Yes/No	Comments
General plan	Yes	General Plan 2025 Safety Element Establishes policies, programs, goals and objectives to protect the community from risks associated with seismic, geologic, flood, and fire hazards. The plan was originally adopted in June 2002 and most recently updated in July 2016.
Zoning ordinance	Yes	Title 9 Planning and Zoning
Subdivision ordinance	Yes	Title 11 Subdivisions
Growth management ordinance	No	
Floodplain ordinance	Yes	
Other special purpose ordinance (stormwater, water conservation, wildfire)	Yes	Title 7 Public Works, Chapter 11 Flood Damage Prevention. Addresses NFIP requirements, including methods and provisions for protecting structures against flood damage at the time of initial construction; controlling the alterations of natural floodplains and filling, grading, dredging, and other development that may increase flood damage; and preventing or regulating the construction of flood barriers that will unnaturally divert floodwaters or may increase flood hazards in other areas.

Regulatory Tool	Yes/No	Comments
Building code	Yes	Title 8 Uniform Building Code. Requires minimum standards for structural seismic resistance established primarily to reduce the risk of life loss or injury. Also requires site-specific stability studies for hillside development.
Fire department ISO rating		ISO Rating is a 3 / 3X
Erosion or sediment control program	Yes	Public Works manages the City's MS4 Permit
Stormwater management program	Yes	City Engineering Standard Specifications Section 5 and Regional Water Quality Control Board Resolution No. R-3-2013-0032 contains the regulatory criteria and mitigations applicable to new development and redevelopment
Site plan review requirements	Yes	All development plans are reviewed, at a minimum, through the City's permitting process.
Capital improvements plan	Yes	
Economic development plan	No	
Local emergency operations plan	Yes	Multi-Hazard Emergency Response Plan Basic Plan and Appendices A-F. Adopted in Fall 2003 and Summer 2004.
Other special plans	Yes	Fire Department Master Plan. Identifies areas of the City at higher risk for wildland fires.
Flood Insurance Study or other engineering study for streams	Yes	The City Flood Damage Prevention Regulations and City Engineering Standard Specifications requires detailed hydrology and analysis of projects located within certain flood zones or where it may impact streams
Elevation certificates (for floodplain development)	Yes	FEMA Elevation Certificates are required for new structures and substantially remodeled structures within any Flood Zone A.

The City of Atascadero's Zoning Ordinance, 9-3.600, FH (Flood Hazard) Overlay Zone, identifies areas where terrain would present new developments and their users with potential flood hazards. In addition, Ordinance No. 193, An Ordinance Adding Chapter 5 to Article 7 of the City of Atascadero Municipal Code Relating to Flood Damage Prevention, provides further guidance to reduce flood damage. It is the purpose of this ordinance to promote the public health, safety, and general welfare and to minimize public and private loses due to flood conditions. Also, Ordinance No. 304 amended Title 6, Chapter 13 of the Atascadero Municipal Code to provide a mechanism to allow the Fire Chief to order the removal of weeds, rubbish, and similar material that has the potential to become a flooding hazard.

B.4.2 Administrative/Technical Mitigation Capabilities

Table B.19 identifies the personnel responsible for activities related to mitigation and loss prevention in Atascadero.

Table B.19 City of Atascadero Administrative/Technical Mitigation Capabilities

Personnel Resources	Yes/No	Department/Position
Planner/engineer with knowledge of land development/land management practices	Yes	Community Development, Public Works
Engineer/professional trained in construction practices related to buildings and/or infrastructure	Yes	Community Development, Public Works
Planner/engineer/scientist with an understanding of natural hazards	Yes	Community Development, Public Works, Fire Department
Personnel skilled in GIS	Yes	Information Technology
Full time building official	Yes	Community Development
Floodplain manager	Yes	Public Works
Emergency manager	Yes	City Manager, alt. Police Chief and Fire Chief
Grant writer	Yes	Administrative Services
GIS Data Resources (Hazard areas, critical facilities, land use, building footprints, etc.)	Yes	Information Technology

B.4.3 Fiscal Mitigation Capabilities

Table B.20 identifies financial tools or resources that the City could potentially use to help fund mitigation activities.

Table B.20 City of Atascadero Fiscal Mitigation Capabilities

Financial Resources	Accessible/Eligible to Use (Yes/No)	Comments
Community Development Block Grants	Yes	
Capital improvements project funding	No	
Authority to levy taxes for specific purposes	Yes	Can be used for any hazard mitigation activity; however, it is only eligible for use with voter approval.
Fees for water, sewer, gas, or electric services	No	
Impact fees for new development	Yes	Can be used for both on-site and off-site capital improvements, including seismic hazard repair and maintenance, drainage, and critical facilities.
Incur debt through general obligation bonds	Yes	Can be used for any hazard mitigation activity; however, it is only eligible for use with voter approval.
Incur debt through special tax bonds	Yes	Can be used for any hazard mitigation activity; however, it is only eligible for use with voter approval.
Incur debt through private activities	Yes	Can be used for any hazard mitigation activity; however, it is only eligible for use with voter approval.
Withhold spending in hazard prone areas	No	

B.4.4 Mitigation Outreach and Partnerships

The City has an active wildfire fuel reduction and education program.

B.4.5 Opportunities for Enhancement

Based on the capabilities assessment, the City of Atascadero has several existing mechanisms in place that already help to mitigate hazards. In addition to these existing capabilities, there are also opportunities for the City to expand or improve on these policies and programs to further protect the community. Future improvements may include providing training for staff members related to hazards or hazard mitigation grant funding in partnership with the County and Cal OES. Additional training opportunities will help to inform City staff members on how best to integrate hazard information and mitigation projects into their departments. Continuing to train City staff on mitigation and the hazards that pose a risk to the City of Atascadero will lead to more informed staff members who can better communicate this information to the public.

B.5 Mitigation Strategy

B.5.1 Mitigation Goals and Objectives

The City of Atascadero Planning Team determined the eight goals from the 2014 HMP continue to be appropriate for this plan update. The following are the City of Atascadero 's 2019 mitigation goals and objectives:

Goal 1 – Increase public awareness of current Drought Conditions.

Objective 1 – Promote water conservation.

Objective 2 – Collaborate with the Atascadero Mutual Water Company to develop alternate water supplies via a pipeline from the Nacimiento Reservoir to achieve the maximum water allocation.

Goal 2 – Minimize the loss of property and life as the result of a Windstorm.

Objective 1 – Educate the public as to the effects of a Windstorm.

Goals 3 – Reduce the possibility of damage and losses due to Dam failure.

Objective 1 – Review and identify inundation areas due to dam failure.

Goals 4 – Reduce the possibility of damage and losses due to earthquakes.

Objective 1 – Continue to protect existing assets, as well as any future development, from the effects of earthquakes.

Goal 5 – Minimize property damage as a result of expansive unstable soil conditions.

Objective 1 – Protect future development from the effects of expansive unstable soil conditions.

Goal 6 – Reduce the possibility of damage and losses due to floods.

Objective 1 – Protect new development from floods.

Goal 7 – Reduce the possibility of damage and losses due to Land Subsidence.

Objective 1 – Protect existing assets, as well as new development, from Land Subsidence.

Goal 8 – Reduce the possibility of damage and losses due to wildland fires.

Objective 1 – Maintain and broaden current Wildland Fire protection.

Continued Compliance with the National Flood Insurance Program

The City has been an NFIP participating community since 1982. In addition to the mitigation actions identified herein the City will continue to comply with the NFIP. This includes ongoing activities such as enforcing local floodplain development regulations, including issuing permits for appropriate development in Special Flood Hazard Areas and ensuring that development is mitigated in accordance with the regulations. This will also include periodic reviews of the floodplain ordinance to ensure that it is clear, up to date, and in compliance with the Federal model ordinance (Flood Damage Prevention Regulations).

B.5.2 Completed 2015 Mitigation Actions

During the 2019 planning process the City of Atascadero Grande Planning reviewed all the mitigation actions from the 2015 plan. During the 2019 planning process the Planning Team identified that all of their fourteen (14) mitigation actions from 2015 are ongoing or implemented annually, demonstrating ongoing progress and an effort to build the community's resiliency to disasters. Table B.21 below describes the City of Atascadero 2020 Mitigation Strategy.

B.5.3 Mitigation Actions

The planning team for the City of Atascadero identified and prioritized the following mitigation actions based on the risk assessment. Background information and information on how each action will be implemented and administered, such as ideas for implementation, responsible office, potential funding, estimated cost, and timeline are also included. Actions were prioritized using the process described in Section 7.2.1 of the Base Plan. Actions with an '*' are those that mitigate losses to future development.

Table B.21 City of Atascadero's Mitigation Action Plan

ID	Hazard(s) Mitigated	Description/Background/Benefits	Lead Agency and Partners	Cost Estimate	Potential Funding	Priority	Timeline	Status/ Implementation Notes
AT.1	Dam Failure	Prepare an inundation map and emergency action plan for a dam failure at Atascadero Lake. Benefits: Reduce or eliminate damages and impacts to 100+ homes and city infrastructure due to potential failure	City of Atascadero Public Works	Less than $10,000	FEMA HMA	Medium / Low	2-3 yrs.	New
AT.2	Dam Failure	Minimize development along the Salinas River. Maintain setback and open space ordinances along the River and continue the enforcement of existing land use ordinances	Community Development / Public Works	Little to no cost	Staff Time/Dept. Budget	Medium	Annual	Annual Implementation
AT.3	Wildfire	Wildfire Evacuation Routes. Seek options to improve city road systems to become compliant with Public Resource Code 4290, designed to improve emergency access and egress and emergency evacuation times. Benefits: Improved road widths and clearance; enhanced residence evacuation times in high fire severity zones; elimination or reductions in loss of life	Atascadero Fire & Emergency Services	$500,000 to $1,000,000	FEMA HMA	High	More than 5 yrs.	New
AT.4	Wildfire	Continue to educate public on wildland fire safety	Fire Dept.	Little to no cost	CA Fire Safe Council, General Fund, FEMA HMA	High	Ongoing	In Progress
AT.5	Wildfire	Continue the enforcement on the Weed Abatement Ordinance	Fire Dept.	Little to no cost	CA Fire Safe Council, General Fund, FEMA HMA	High	Ongoing	In Progress
AT.6	Wildfire	Maintain and revise the CWPP	Fire Dept.	Little to no cost	CA Fire Safe Council, General	High	Ongoing	In Progress

ID	Hazard(s) Mitigated	Description/Background/Benefits	Lead Agency and Partners	Cost Estimate	Potential Funding	Priority	Timeline	Status/ Implementation Notes
					Fund, FEMA HMA			
AT.7	Wildfire	Research emerging fuels management programs and implement where appropriate	Fire Dept.	Little to no cost	CA Fire Safe Council, General Fund, FEMA HMA	High	Ongoing	In Progress
AT.8	Wildfire	Continue fuel load reductions program by annual control burns in the WUI impacting the city	Fire Dept.	Little to no cost	CA Fire Safe Council, General Fund, FEMA HMA	High	Ongoing	In Progress
AT.9	Adverse Weather – Wind	Debris Management Plan Development. Develop a debris management plan to handle slash and leaf accumulation produced by a wind or storm event. Benefits: Reduced impacts due to debris accumulation	Public Works; Fire and Emergency Services	$10,000 to $50,000	FEMA HMA	High	3-5 yrs.	New
AT.10	Adverse Weather - Wind	Plan Around Forced Blackouts. Pacific Gas and Electric is implementing a forced power blackout during anticipated or actual wind events which may impact citizens at risk and residential care facilities; identify target hazards and at-risk populations in the event of a forced blackout. Benefits: Reduced impacts to at-risk populations from rolling blackouts	Public Works; Fire and Emergency Services	Little to no cost	Staff Time/Dept. Budget	High	1 yr.	New
AT.11	Earthquake	Continue to enforce Uniform Building Code (UBC) provisions pertaining to grading and construction relative to seismic hazards.	Community Development / Public Works	Little to no cost	General Fund/Staff Time/Dept. Budget	High	Ongoing	In Progress

ID	Hazard(s) Mitigated	Description/Background/Benefits	Lead Agency and Partners	Cost Estimate	Potential Funding	Priority	Timeline	Status/ Implementation Notes
AT.12	Earthquake	Continue to implement an Unreinforced Masonry (URM) building program that determines the structural safety of City owned critical facilities, and retrofit as necessary	Community Development / Public Works	Little to no cost	General Fund/Staff Time/Dept. Budget	High	Ongoing	In Progress
AT.13 *	Expansive Soils	Continue to require a Soils Report for all new building permits	Community Development	Little to no cost	General Fund/Staff Time/Dept. Budget	Medium	Ongoing	In Progress. Required for all buildings over 1000 square feet
AT.14 *	Flood	During the plan check process utilize GIS to ensure the building project meets current Flood Damage Prevention Regulations prior to the issuance of building permits	Community Development / Public Works	Little to no cost	General Fund/Staff Time/Dept. Budget	High	Ongoing	In Progress
AT.15	Landslide	Require construction and maintenance of natural and/or human-made retaining structures that will help control subsidence risk in key residential and/or commercial areas	Community Development / Public Works	Little to no cost	General Fund/Staff Time/Dept. Budget	Medium	Ongoing	In Progress
AT.16	Landslide	Retrofit or implement stabilizing measures for Atascadero hillside developments that predate current best practices and codes	Community Development / Public Works	Little to no cost	General Fund/Staff Time/Dept. Budget	Medium	Ongoing	In Progress
AT.17	Landslide	Located and identify unstable soils through the use of GIS and soil maps	Community Development / Public Works	Little to no cost	General Fund/Staff Time/Dept. Budget	Medium	Ongoing	In Progress
AT.18 *	Landslide	Focus on proposed new developments to determine if soils stabilization is economically feasible. If the soils stabilization is not economically feasible deny, the proposed development or rezone	Community Development / Public Works	Little to no cost	General Fund/Staff Time/Dept. Budget	Medium	Ongoing	In Progress

ID	Hazard(s) Mitigated	Description/Background/Benefits	Lead Agency and Partners	Cost Estimate	Potential Funding	Priority	Timeline	Status/ Implementation Notes
AT.19	Drought and Water Shortage	Implement the water demand management strategies outlined in the Atascadero Mutual Water Company Urban Water Management Plan	Community Development / Public Works/ Atascadero Mutual Water Company	Variable	General Fund/Staff Time/Dept. Budget	Medium	3-5 yrs.	New

B.6 Implementation and Maintenance

Moving forward, the City will use the mitigation action table in the previous section to track progress on implementation of each project. As illustrated in Section 7.3.1 of the County plan, much progress has been made since the plan was originally developed. Implementation of the plan overall is discussed in Chapter 8 of the main plan.

B.6.1 Incorporation into Existing Planning Mechanisms

The information contained within this plan, including results from the Vulnerability Assessment, and the Mitigation Strategy will be used by the City to help inform updates and the development of local plans, programs and policies. The Engineering Division may utilize the hazard information when implementing the City's Community Investment Program and the Planning and Building Divisions may utilize the hazard information when reviewing a site plan or other type of development applications. The City will also incorporate this LHMP into the Safety Element of their General Plan, as recommended by Assembly Bill (AB) 2140.

As noted in Chapter 7.0 Plan Implementation, the HMPC representatives from Atascadero will report on efforts to integrate the hazard mitigation plan into local plans, programs and policies and will report on these efforts at the annual HMPC plan review meeting.

B.6.2 Monitoring, Evaluation and Updating the Plan

The City will follow the procedures to monitor, review, and update this plan in accordance with San Luis Obispo County as outlined in Chapter 8 of the Base Plan. The City will continue to involve the public in mitigation, as described in Section 8.3 of the Base Plan. The Fire Chief will be responsible for representing the City in the County HMPC, and for coordination with City staff and departments during plan updates. The City realizes it is important to review the plan regularly and update it every five years in accordance with the Disaster Mitigation Act Requirements as well as other State of California requirements.

C.1 Community Profile

C.1.1 Mitigation Planning History and 2019 Process

This annex was created during the development of the 2019 San Luis Obispo County Hazard Mitigation Plan update. This Jurisdictional Annex builds upon the previous version of the Multi-Jurisdictional Local Hazard Mitigation Plan for the cities of Grover Beach, Arroyo Grande as well as the Lucia Mar Unified School District and South San Luis Obispo County Sanitation District completed in December 2014 and approved by FEMA in December 2015; that previous mitigation plan was not incorporated into the City's General Plan, as this updated mitigation plan will be. The City has used the previous mitigation plan as a basis for the Emergency Operations Plan. A review of jurisdictional priorities found no significant changes in priorities since the last update.

The City's Local Planning Team (LPT) held responsibility for implementation and maintenance of the plan; members are noted below. The Police Chief for Grover Beach Police is responsible for updating the plan.

Table C.1 Grover Beach Hazard Mitigation Plan Revision Planning Group

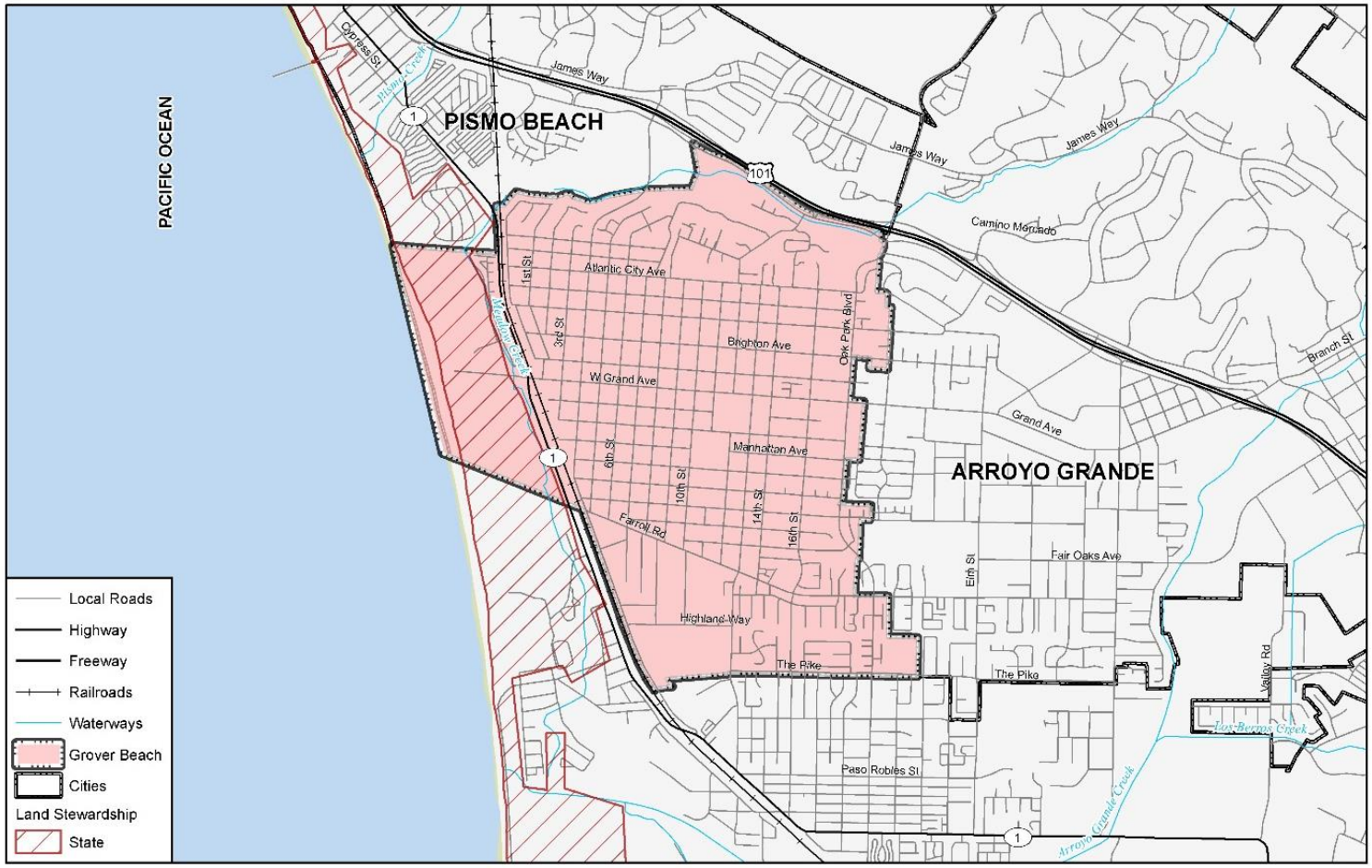
Department or Stakeholder	Title
Police Department	Chief of Police
Public Works	Public Works Director / City Engineer
Community Development	Community Development Director

More details on the planning process followed and how the jurisdictions, service districts and stakeholders participated can be found in Chapter 3 of the Base Plan, as well as how the public was involved during the 2019 update.

C.1.2 Geography and Climate

The City of Grover Beach is a coastal community located in the south county area of San Luis Obispo County. Grover Beach has wide sandy beaches with coastal dunes and is a gateway to Pismo State Beach and Oceano Dunes State Vehicular Recreational Area. According to the City's 2015 LHMP, Grover Beach has an average high temperature (July) of 70°F and low temperature of 62 (January). The jurisdiction receives 17.1 inches of rainfall in an average year. While the average temperature is relatively temperate, summer and winter months bring unique weather patterns to the region. Figure C.1 displays a map and the location within San Luis Obispo County of the City of Grover Beach planning area.

Figure C.1 The City of Grover Beach



C.1.3 History

On August 1, 1887 Dwight William Grover founded the Town of Grover after purchasing the land for $22,982.20 in gold from John Michael Price, the founder of Pismo Beach. Grover promoted his town as "the place where the tide lands and the rails meet" and had a vision of a community that had a hotel and a train station near the beach. Grover and his partner George Gates laid out a street grid pattern and promoted the community as Grover City, the "grandest summer and winter seaside resort on the Pacific Coast."

Development didn't flourish in Grover City until 1935 when Horace V. Bagwell bought 1,100 acres and advertised Grover City as the "home of the average man" with land prices affordable to the working man. People and development began to happen and by the mid-1940's the first stored opened in Grover City followed by the first post office. The Fair Oaks Fire District and the Grover City Water District were formed in 1949 and supported a boom in population throughout the 1950's. On December 21, 1959 the people of Grover City voted to incorporate and become the City of Grover City. In 1992, the City had become more established and the residents of Grover City decided to rename the community to "Grover Beach". By 1996 the train station Dwight William Grover dreamed of became a reality when Amtrak began rail service at a newly constructed Grover Beach Train Station.

C.1.4 Economy

Select estimates of economic characteristics for the City of Grover Beach are shown in Table C.2.

Table C.2 City of Grover Beach Economic Characteristics, 2013-2017

Characteristic	City of Grover Beach
Families below Poverty Level (%)	10%
All People below Poverty Level (%)	14%
Median Family Income	$65,250
Median Household Income	$61,482
Per Capita Income	$30,873
Population in Labor Force	6,613
Population Employed*	6,260
Unemployment	309

Source: CA Department of Finance U.S. Census Bureau American Community Survey 2013-2017 5-Year Estimates, www.census.gov/

*Excludes armed forces

Table C.3 show how the City of Grover Beach's labor force breaks down by industry based on estimates from the 2013-2017 five-year American Community Survey.

Table C.3 City of Grover Beach's Employment by Industry, 2013-2017

Industry	# Employed	% Employed
Educational Services, and Health Care and Social Assistance	1,640	26%
Retail Trade	572	9%
Professional, Scientific, and Mgmt., and Administrative and Waste Mgmt. Services	789	13%
Manufacturing	245	4%
Arts, Entertainment, and Recreation, and Accommodation, and Food Services	786	13%
Construction	520	8%
Finance and Insurance, and Real Estate and Rental and Leasing	286	5%
Public Administration	251	4%
Other Services, Except Public Administration	240	4%
Wholesale Trade	234	4%
Transportation and Warehousing, and Utilities	439	7%
Agriculture, Forestry, Fishing and Hunting, and Mining	57	1%
Information	192	3%
Total	**6,251**	**26%**

Source: U.S. Census Bureau American Community Survey 2013-2017 5-Year Estimates, www.census.gov/

C.1.5 Population

According to data extracted by the California Department of Finance from U.S. Census Bureau's American Community Survey 5-Year Estimates (2013-2017), the total population for the City of Grover Beach was estimated at 13,524 persons. Select demographic and social characteristics for the City of Grover Beach from the 2013-2017American Community Survey are shown in Table C.4.

Table C.4 City of Grover Beach's Demographic and Social Characteristics, 2013-2015

Characteristic	City of Grover Beach
Gender/Age	
Male	6,687
Female	6,837
Median age (years)	36
Under 5 years	1,236
Under 18 years	3,435
65 years and over	1,875
Race/Ethnicity	
White	7,952
Asian	393
Black or African American	316
American Indian/Alaska Native	101
Hispanic or Latino (of any race)	4,279
Native Hawaiian and Other Pacific Islander	126
Education	
% High school graduate or higher	85%
Disability Status	
% of Population 5 years and over with a disability	15%

Source: CA Department of Finance, U.S. Census Bureau American Community Survey 2013-2017 5-Year Estimates, www.census.gov/

C.1.6 Development Trends

The City's General Plan Land Use Element (2010) recognizes that a majority of the City has been developed and future development will be concentrated on vacant properties and redevelopment of underutilized properties. The following figures from the San Luis Obispo County Council of Governments (COG), 2050 Regional Growth Forecast for San Luis Obispo County show the projected population and housing unit growth between 2010 and 2050. According to the COG's document the City's population is projected to increase to over 15,000 residents by 2050.

Figure C.2 City of Grover Beach Population Projections, 2010 to 2050

Jurisdiction	2010	2015	2020	2025	2030	2035	2040	2045	2050
Arroyo Grande	17,252	17,678	18,288	18,956	19,505	19,930	20,158	20,293	20,449
Atascadero	28,310	30,401	31,384	32,240	33,043	33,703	34,063	34,278	34,538
Grover Beach	13,156	13,340	13,751	14,183	14,536	14,804	14,934	15,001	15,091
Morro Bay	10,234	10,640	11,025	11,401	11,715	11,961	12,092	12,169	12,261
Paso Robles	29,793	31,348	32,755	34,314	35,582	36,561	37,130	37,487	37,858
Pismo Beach	7,655	8,068	8,642	9,122	9,486	9,753	9,901	9,989	10,079
San Luis Obispo	45,119	45,950	47,214	48,601	49,759	50,659	51,105	51,347	51,672
Incorporated Cities	*151,519*	*157,425*	*163,059*	*168,817*	*173,626*	*177,371*	*179,383*	*180,564*	*181,948*
Unincorporated Area	118,118	118,950	123,597	128,279	132,066	134,975	136,539	137,461	138,534
Regional Total:	**269,637**	**276,375**	**286,657**	**297,095**	**305,692**	**312,346**	**315,922**	**318,025**	**320,482**

Source: U.S. Census Bureau (2010 Census), State of California, Department of Finance (2015), Beacon Economics (forecast years)

Source: 2050 Regional Growth Forecast for San Luis Obispo County, San Luis Obispo Council of Governments and Beacon Economics, June 2017

Figure C.3 City of Grover Beach Housing Unit Projections, 2010 to 2050

Jurisdiction	2010	2015	2020	2025	2030	2035	2040	2045	2050
Arroyo Grande	7,628	7,740	8,228	8,541	8,767	8,949	9,054	9,122	9,186
Atascadero	11,505	11,875	12,845	13,553	14,077	14,501	14,767	14,995	15,120
Grover Beach	5,748	5,770	6,102	6,274	6,409	6,531	6,610	6,670	6,728
Morro Bay	6,320	6,378	6,785	7,010	7,190	7,325	7,384	7,409	7,433
Paso Robles	11,426	11,706	12,343	12,949	13,452	13,843	14,071	14,215	14,342
Pismo Beach	5,585	5,649	6,089	6,227	6,364	6,517	6,629	6,707	6,768
San Luis Obispo	20,553	20,887	21,786	22,165	22,388	22,534	22,655	22,658	22,816
Incorporated Cities	*68,765*	*70,005*	*74,178*	*76,719*	*78,646*	*80,200*	*81,170*	*81,775*	*82,395*
Unincorporated Area	48,550	49,692	50,672	52,449	53,814	54,929	55,486	55,888	56,244
Regional Total:	**117,315**	**119,697**	**124,850**	**129,168**	**132,460**	**135,129**	**136,657**	**137,664**	**138,640**

Source: U.S. Census Bureau (2010 Census), State of California, Department of Finance (2015), Beacon Economics (forecast years)

Source: 2050 Regional Growth Forecast for San Luis Obispo County, San Luis Obispo Council of Governments and Beacon Economics, June 2017

The California Department of Finance State Demographic Report released on May 1, 2019 indicated the current population of 13,533 and between January 1, 2018 and 2019 the City of Grover Beach lost 0.6 percent of its population. Statewide, California's 2018 population growth rate (0.47%) was the slowest in the State's history.

C.2 Hazard Identification and Summary

The Grover Beach Planning Team identified the hazards that affect the City and summarized their frequency of occurrence, spatial extent, potential magnitude, and significance specific to Grover Beach (see Table C.5). There are no hazards that are unique to Grover Beach. The overall hazard significance takes into account the geographic area, probability and magnitude as a way to identify priority hazards for mitigation purposes. This is discussed further in the Vulnerability Assessment Section.

Table C.5 City of Grover Beach – Hazard Summaries

Hazard	Geographic Area	Probability of Future Occurrence	Magnitude/ Severity (Extent)	Overall Significance
Coastal Storm/Coastal Erosion/Sea Level Rise	Limited	Occasional	Limited	Low
Dam Incidents	Significant	Unlikely	Limited	Low
Drought and Water Shortage	Extensive	Likely	Limited	High
Earthquake	Extensive	Occasional	Critical	High
Flood	Limited	Occasional	Limited	Low
Tsunami and Seiche	Limited	Occasional	Limited	Low
Wildfire	Limited	Occasional	Limited	Low
Human Caused: Hazardous Materials	Limited	Occasional	Negligible	Low

Geographic Area
Limited: Less than 10% of planning area
Significant: 10-50% of planning area
Extensive: 50-100% of planning area

Probability of Future Occurrences
Highly Likely: Near 100% chance of occurrence in next year or happens every year.
Likely: Between 10 and 100% chance of occurrence in next year or has a recurrence interval of 10 years or less.
Occasional: Between 1 and 10% chance of occurrence in the next year or has a recurrence interval of 11 to 100 years.
Unlikely: Less than 1% chance of occurrence in next 100 years or has a recurrence interval of greater than every 100 years.

Magnitude/Severity (Extent)
Catastrophic—More than 50 percent of property severely damaged; shutdown of facilities for more than 30 days; and/or multiple deaths
Critical—25-50 percent of property severely damaged; shutdown of facilities for at least two weeks; and/or injuries and/or illnesses result in permanent disability
Limited—10-25 percent of property severely damaged; shutdown of facilities for more than a week; and/or injuries/illnesses treatable do not result in permanent disability
Negligible—Less than 10 percent of property severely damaged, shutdown of facilities and services for less than 24 hours; and/or injuries/illnesses treatable with first aid

Significance
Low: minimal potential impact
Medium: moderate potential impact
High: widespread potential impact

C.3 Vulnerability Assessment

The intent of this section is to assess Grover Beach's vulnerability separate from that of the County as a whole, which has already been assessed in Section 5.3 Risk Assessment in the Base Plan. This vulnerability assessment analyzes the population, property, and other assets at risk to hazards ranked of medium or high significance that may vary from other parts of the planning area.

The information to support the hazard identification and risk assessment was based of the previous LHMP for the City. A Local Hazard Mitigation Plan Update Guide and associated worksheets was distributed to each participating municipality or special district to complete during the 2019 update process. Information collected was analyzed and summarized in order to identify and rank all the hazards that could impact anywhere within the County, as well as to rank the hazards and identify the related vulnerabilities unique to each jurisdiction.

Each participating jurisdiction was in support of the main hazard summary identified in the Base Plan (See Table 5.2). However, the hazard summary rankings for each jurisdictional annex may vary slightly due to specific hazard risk and vulnerabilities unique to that jurisdiction. Identifying these differences helps the reader to differentiate the jurisdiction's risk and vulnerabilities from that of the overall County.

Note: The hazard "Significance" reflects overall ranking for each hazard and is based on the City of Grover Beach's Planning Team member input from the Data Collection Guide and the risk assessment developed during the planning process (see Chapter 5 of the Base Plan), which included a more detailed qualitative analysis with best available data.

The hazard summaries in Table C.5 reflect the hazards that could potentially affect the City. The discussion of vulnerability for each of the following hazards is located in C.3.2 Estimating Potential Losses. Based on this analysis, the priority hazard (High Significance) for mitigation is earthquake. Those of Medium or High significance for the City of Grover Beach are identified below.

- Drought and Water Shortage
- Earthquake

Other Hazards

Hazards assigned a significance rating of Low or which do not differ significantly from the County ranking (e.g., Low vs. High) are not addressed further in this plan and are not assessed individually for specific vulnerabilities in this section. Those hazards include agricultural hazards, biological agents, adverse weather hazards, wildfires, and landslides.

C.3.1 Assets at Risk

This section considers Grover Beach's assets at risk, including values at risk, critical facilities and infrastructure, historic assets, economic assets, and growth and development trends.

Values at Risk

The following data on property exposure is derived from the San Luis Obispo County 2019 Parcel and Assessor data. This data should only be used as a guideline to overall values in the City as the information has some limitations. The most significant limitation is created by Proposition 13. Instead of adjusting property values annually, the values are not adjusted or assessed at fair market value until a property transfer occurs. As a result, overall value information is likely low and does not reflect current market value of properties. It is also important to note that in the event of a disaster, it is generally the value of the infrastructure or improvements to the land

that is of concern or at risk. Generally, the land itself is not a loss. Table C.6 shows the exposure of properties (e.g., the values at risk) broken down by property type for the City of Grover Beach.

Table C.6 2019 Property Exposure for the City of Grover Beach by Property Types

Property Type	Parcel Count	Improved Value	Content Value	Total Value
Agricultural	1	$3,139	$3,139	$6,278
Commercial	242	$71,707,475	$71,707,475	$143,414,950
Government/Utilities	37	$21,533	--	$21,533
Other/Exempt/Misc.	135	$31,280,820	--	$31,280,820
Residential	3,054	$506,840,814	$253,420,407	$760,261,221
Multi-Family Residential	600	$135,833,108	$67,916,554	$203,749,662
Mobile/Manufactured Homes	39	$2,752,757	$1,376,379	$4,129,136
Residential: Other	550	$102,234,078	$51,117,039	$153,351,117
Industrial	27	$11,177,087	$16,765,631	$27,942,718
Vacant	28	$4,325,265	--	$4,325,265
Total	**4,713**	**$866,176,076**	**$462,306,623**	**$1,328,482,699**

Source: Wood Plc analysis based on ParcelQuest and San Luis Obispo County Assessor's Office data 2019

Critical Facilities and Infrastructure

A critical facility may be defined as one that is essential in providing utility or direction either during the response to an emergency or during the recovery operation. See Section 5 of the Base Plan for more details on the definitions and categories of critical facilities.

An inventory of critical facilities in the City of Grover Beach from San Luis Obispo County GIS is provided in Table C.7 and illustrated in Figure C.4. A more detailed list of the critical facilities, their location square footage and values from the City's 2015 HMP can be found as an attachment to this Annex.

Table C.7 City of Grover Beach's Critical Facilities

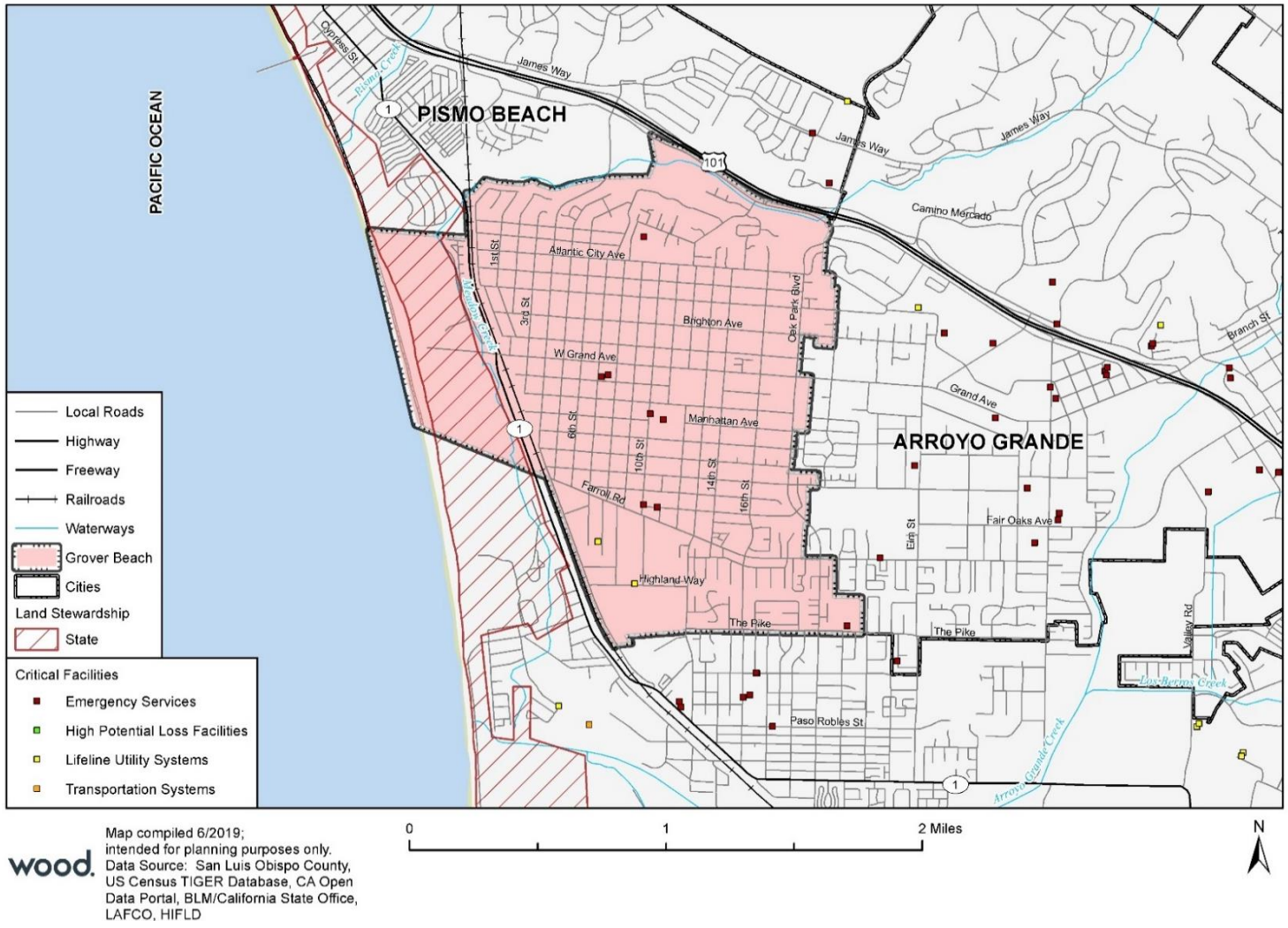
Facility Type	Counts
Multi-modal Center (Amtrak Station)	1
Community Centers (evacuation centers including City Hall)	3
Fire Stations	1
Local Law Enforcement	1
Private Schools	1
Public Schools	3
Emergency Communications Facility	1
Sewer Lift Stations	3
Storm Basin Pump Station	1
Water Booster Pumps	1
Water Reservoirs	3
Water Wells & Treatment Facilities	4
Total	**23**

Source: San Luis Obispo County Planning & Building, HIFLD 2017

Transportation and Lifeline Facilities

State Route 1 and U.S. Highway 101 border the City of Grover Beach on the west and the northeast of the City limits. Route 1 serves as a two-lane arterial for the City and merges with Highway 101 north of the City. In addition to these major transportation routes adjacent to Grover Beach, the City also offers multi-modal transportation options for residents including bike lanes, bus routes and the Grover Beach Train Station. According to the City's 2015 LHMP the Grover Beach Train Station is listed as being vulnerable to earthquakes, flooding, wildfire and tsunami hazards. Other vulnerable City owned transportation and lifeline facilities were noted in the 2015 plan with a combined value of nearly $50 million. The complete list of vulnerable transportation and lifeline facilities can be found in an attachment to this Annex.

Figure C.4 City of Grover Beach Critical Facilities



Map compiled 6/2019;
intended for planning purposes only.
Data Source: San Luis Obispo County, US Census TIGER Database, CA Open Data Portal, BLM/California State Office, LAFCO, HIFLD

Historic and Cultural Resources

While the City of Grover Beach has no registered state or federal historic sites, there are several assets within Grover Beach that define the community and represent the City's history. Many of the historical sites of importance to Grover Beach have been converted into different uses but the historic buildings still stand. In honor of the City's 50th Anniversary a self-guided tour pamphlet was created and lists the following historic sites.

- Grover Beach City Hall – 154 South 8th Street
- Precision Automotive (now Grover Beach Fire Station) – 701 Rockaway Avenue
- Grover City Hall/Fire Department (now Exploration Station) – 967 Ramona Avenue
- Grover City Development (now Spoon Trade Restaurant) – 295 West Grand Avenue
- White's Malt Shop (now Enterprise Rental Car) – 502 West Grand Avenue
- The Keen Agency (now Taco De Mexico) – 791 West Grand Avenue
- Marshall – Spoo Sunsent Funeral Chapel – 1239 Longbranch Avenue
- Yeackel's / Fairlane Department Store (now Ron's Nursery)– 850 West Grand Avenue
- Grover City Shoe – (now South County Sanitary) – 866 West Grand Avenue
- Greg's Restaurant (DarWish Cuisine) – 967 West Grand Avenue
- Grover City Pharmacy (now Green Bargain) – 901 West Grand Avenue
- First Southern Baptist Church (now Beacon Chiropractic) 902 West Grand Avenue
- Grover City Feed Store (now Ben's Computer Outlet) – 983 West Grande Avenue
- Blinking Owl (now Villa Del Mar) – 110 West Grand Avenue
- Pizza Fresh – 1301 West Grand Avenue;
- Mobile Station (now Nan's Bookstore) – 1328 West Grand Avenue
- Spears Residence (now Salon Dee) – 122 North 16th Street This is now Hogge Insurance Services
- A&W Root Beer (now Higher Grounds) – 1754 Grande Avenue this is now Crossroads Cafe

Source: City of Grover Beach Historic Self-Guided Tour http://www.grover.org/DocumentCenter/Home/View/1455

Natural Resources

Natural resources are important to include in benefit-cost analyses for future projects and may be used to leverage additional funding for projects that also contribute to community goals for protecting sensitive natural resources. The City of Grover Beach has designated areas on the coast as Coastal Open Space Zone; according to the City of Grover Beach Local Coastal Program (2014) this zone is designed to protect and preserve sensitive natural areas including but not limited to those containing significant habitat areas, rare or endangered plant and animal species, and erosion-prone lands. Awareness of natural assets and designated natural areas can lead to opportunities for meeting multiple objectives. For instance, protecting wetlands areas protects sensitive habitat as well as attenuates and stores floodwaters.

Economic Assets

Tourism and the industries that support tourists and tourism activities are one of the greatest economic assets in the City of Grover Beach. Additionally, the commercial cannabis industry has taken off and has become a critical economic asset for the City in terms of tax revenue. The City is located close to multiple destinations including Pismo State Beach, Oceano Dunes State Recreation Area, and the Guadalupe-Nipomo Dunes National Wildlife Refuge.

The HMPC reviewed the economic strengths and competitive advantages listed in the City of Grover Beach Final Economic Development Strategy (April 11, 2017), and identified the following:

- Grover Beach is one of the few areas within the Southern SLO County area that has undeveloped industrial land, however these properties are quickly transforming into developed industrial and commercial holdings.
- Growth in commercial cannabis. The commercial cannabis industry has played a major role in the last few years in redeveloping properties, as well as new industrial construction within the undeveloped industrial zone. The City will continue to be a future "synergy" location for commercial cannabis within San Luis Obispo County with testing labs, manufacturing, warehousing, and retail sales of commercial cannabis.
- Transient occupancy tax revenue recovered quickly following the Great Recession. The development of additional lodging facilities including the Grover Beach Lodge, the Northeast Grover Beach Mixed-Use Development, and 950 El Camino Real. Development of these hotels will provide Grover Beach with an opportunity to increase tourism to the community.
- Higher quality retail and food service establishments have entered the market and increased the City's regional draw
- Grover Beach has a reputation as a business-friendly community with a local government that is fairly easy to work with, compared to other communities.

C.3.2 Estimating Potential Losses

Note: This section details vulnerability to specific hazards of high or medium significance, where quantifiable, and/or where (according to Planning Team member input) it differs from that of the overall County.

Table C.6 above shows Grover Beach's exposure to hazards in terms of number and value of structures. San Luis Obispo County's parcel and assessor data was used to calculate the improved value of parcels. The most vulnerable structures are those in the floodplain (especially those that have been flooded in the past), unreinforced masonry buildings, and buildings built prior to the introduction of modern-day building codes. Impacts of past events and vulnerability to specific hazards are further discussed below. (See Section 5.1 for more detailed information about these hazards and their impacts on San Luis Obispo County as a whole.)

Dam Incidents

The Lopez Dam, a high hazard earthen dam located upstream from the community, poses the greatest risk to Grover Beach if an incident was to occur. Failure of the Lopez Dam would follow the Arroyo Grande Creek in a westerly direction approximately 3,000 feet in each direction of the centerline of the creek channel. A total of 5,319 persons and 2,392 properties would be inundated in the City of Grover Beach if the Lopez Dam was to fail. Note that the Lopez Dam inundation mapping used to arrive at this information came from the County of San Luis Obispo's Planning & Building/GIS Departments.

A majority of properties at risk are residential (2,119 properties) and have a combined value of $539,526,282 (refer to Table C.8 below). Refer to the Critical Facilities in the Lopez Dam Inundation Area, by Type of Facility table, in the Base Plan for details on the type of various types of critical facilities at risk. A failure of the Lopez Dam would also affect Highway 101 impeding or reducing flows of goods, people and resources into and out of Grover Beach and potentially impacting the entire region. There have been no past dam incidents or failures in the jurisdiction of the City of Grover Beach. Refer to the Dam Incidents Section in Chapter 5 of the Base Plan for additional discussion on the potential impacts of dam incidents in the County.

This information was derived from the most recent dam inundation mapping, parcel, and critical facility data available to the County of San Luis Obispo. The Grover Beach planning team added the following comments related to dam failure and inundation hazards:

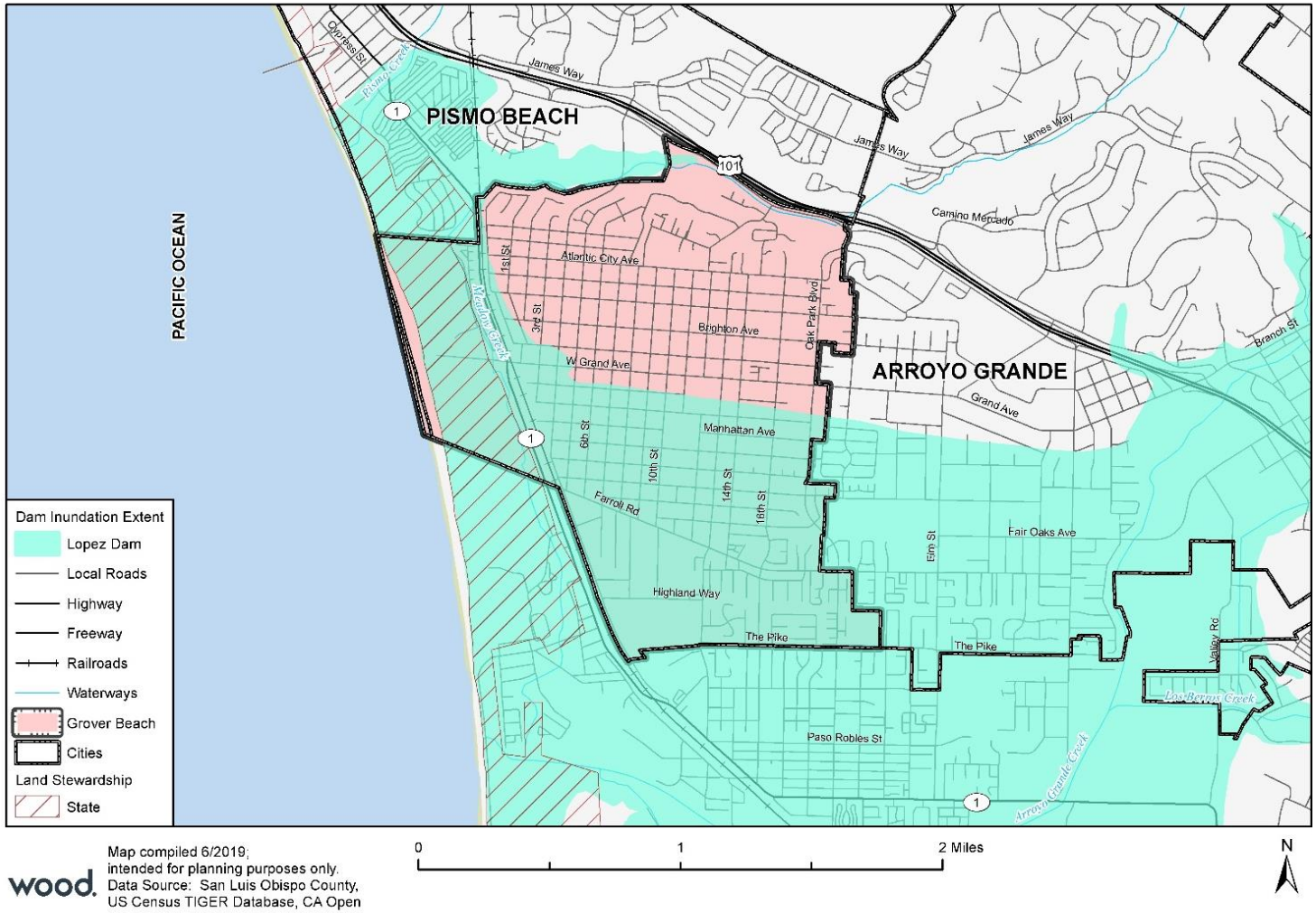
- Lopez Dam failure would result in overtopping of Arroyo Grande Creek which would cause a backwater condition in Meadow Creek, primarily along Highway 1 and the Union Pacific Railroad tracks.
- There are two facilities deemed critical to the City which are at risk from this flooding: The Train Station and the Front Street Sanitary Sewer Lift Station. However, neither of these was originally included in the countywide critical facility dataset and as such were not mapped or included in tables or summary results.
- Grover Beach would be surrounded by flood waters and Highway 101 would be impassible at Oak Park Boulevard if the Lopez Dam were to cause inundation downstream, which would limit ingress/egress to Highway 101 to the northwest and significantly restrict access by emergency services from outside the city.

Table C.8 Lopez Dam Inundation Estimate Losses by Property Type

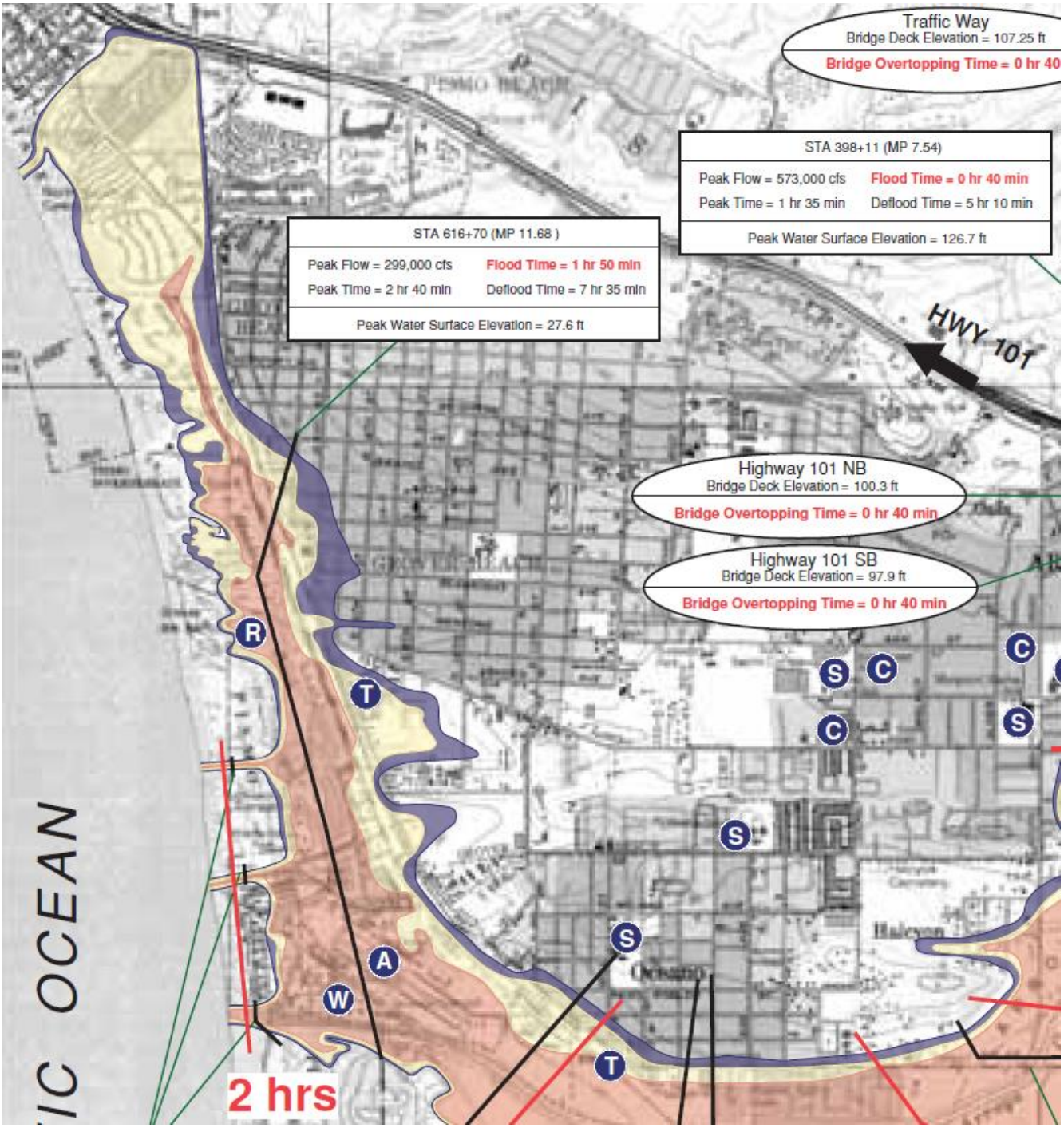
Property Type	Parcel Count	Improved Value	Content Value	Total Value	Loss Estimate	Population
Agricultural	1	$3,139	$3,139	$6,278	$3,139	--
Commercial	120	$24,487,269	$24,487,269	$48,974,538	$24,487,269	--
Government/Utilities	29	--	--	$0	$0	--
Other/Exempt/Misc.	84	$21,487,616	--	$21,487,616	$10,743,808	--
Residential	1,488	$234,335,647	$117,167,824	$351,503,471	$175,751,735	3,735
Multi-Family Residential	316	$74,162,097	$37,081,049	$111,243,146	$55,621,573	793
Mobile/Manufactured Homes	2	$391,213	$195,607	$586,820	$293,410	5
Residential: Other	313	$50,795,230	$25,397,615	$76,192,845	$38,096,423	786
Industrial	21	$8,932,723	$13,399,085	$22,331,808	$11,165,904	--
Vacant	18	$2,764,023	--	$2,764,023	$1,382,012	--
TOTAL	**2,392**	**$417,358,957**	**$217,731,586**	**$635,090,543**	**$317,545,272**	**5,319**

Source: San Luis Obispo County Planning and Building Dept., Assessor's Office, ParcelQuest, Wood Plc Parcel Analysis

Figure C.5 City of Grover Beach Dam Inundation Extent



Map compiled 6/2019;
intended for planning purposes only.
Data Source: San Luis Obispo County, US Census TIGER Database, CA Open Data Portal, BLM/California State Office, LAFCO, CA DWR, NID 2018



Current Dam Inundation Map from CO SLO

Drought and Water Shortage

The City of Grover Beach's main water supplies are from surface water and groundwater. The surface water supply source is Lake Lopez or the Lopez Project, which is also the main supply for the other communities in the Five Cities Area. Grover Beach has an entitlement of 800 acres-feet per year (afy) from the Lopez Project. Grover Beach also receives a portion of its water supply (1,198 afy) from the Arroyo Grande Plain of the Tri-Cities Mesa Subbasin of the Santa Maria Valley Groundwater Basin which also supplies water for the cities of Arroyo Grande, Pismo Beach and the Oceano CSD. A majority of water consumption is by residential properties. According the San Luis Obispo Council of Government (COG) report, 2050 Regional Growth Forecast for San Luis Obispo County (2017), the figure below shows the projected water demand in the City of Grover Beach from 2015 to 2030. The City of Grover Beach's population is not expected to grow dramatically by 2035 and as a result the water demand is not projected to increase over the next 20 to 30 years.

Figure C.6 Projected Water Demand in Grover Beach, 2015 to 2030

Water Supply and Demand and Beacon Projections	2015	2020	2025	2030	2035
Projected Supply Utilization	2,207	2,207	2,207	2,207	2,207
Projected Demand	1,149	1,186	1,223	1,254	1,227
Beacon Demand Projection	1,099	1,153	1,201	1,237	1,209
Supply Less Demand	**1,108**	**1,054**	**1,006**	**970**	**998**

Source: City of Grover Beach, 2010 Urban Water Management Plan, personal communications with Grover Beach staff, Beacon Economics (population projections)

Source: 2050 Regional Growth Forecast for San Luis Obispo County, San Luis Obispo Council of Governments and Beacon Economics, June 2017

Severe drought events in recent years have caused concerns on the impact on the City's limited water supply. In 2006 the City of Grover Beach adopted the Water Shortage Contingency Plan which defines what constitutes a recommendation for a water shortage proclamation, provides specific triggers for actions stages and designated responsibilities of City Council and Departments. The Grover Beach City Council annually reviews rainfall and other information on water amounts, and determines the appropriate actions to take. In 2014, with the below average rainfall and low storage levels in Lopez Lake, City Council determined the City's water supplied were headed towards a condition of severe water shortage. As a result, on June 16, 2014 the City Council declared a Stage III Water Shortage and mandatory water conservation measures. The City had previously been under a Stage II Declaration for two years that placed voluntary prohibitions on water usage. The Declaration required those voluntary prohibitions become mandatory and all customers to reduce their water usage by 10 percent. Stage III also gave the City the authority to impose penalties for failure to comply with water reduction or use prohibitions.

The returned Data Collection Guide from the City of Grover Beach Planning Team noted that due to the region's water supply being served by a mix of reservoir and pumped well water, the state-wide drought in California has led to regional impacts, including watering restrictions that according to the Planning Team has led to landscaping on many properties to die, increasing the risk of wildfire for some properties.

Earthquake

The City of Grover Beach is vulnerable to various types of seismic hazards including fault rupture, groundshaking and liquefaction. The Wilmar Avenue fault is the only mapped fault near the City of Grover Beach. The fault runs along the northern portion of the City limits. The Wilmar Avenue fault is exposed in the sea cliff near Pismo Beach and buried portions are generally aligned along the Highway 101. The fault is considered potentially active and a moderate fault rupture hazard to the City of Grover Beach.

In addition to the Wilmar Avenue fault there are a number of active and potentially active faults in proximity of the Grover Beach that are capable of producing strong groundshaking within the City limits. According to the Technical Background Report of the County Safety Element (1999), the San Andreas fault and the offshore Hosgri fault present the most likely sources of groundshaking for Grover Beach. The following table from the Technical Background Report and recreated for the 2019 Hazard Mitigation Plan, show the potential sources of groundshaking and approximate distance from Grover Beach.

Table C.9 Sources of Groundshaking in the Vicinity of Grover Beach

Fault	Approximate Distance (kilometers)*	Maximum Earthquake	Maximum Probable Earthquake	Anticipated Acceleration Range (g)
Wilmar Avenue	1	6.5	4	0.1-0.7
Blind Thrust Point San Luis	3	7.5	6	0.3-0.7
Los Osos	9	7	5	0.1-0.4
Pecho	6	6.3	3	<0.1-0.3
Casmalia-Orcutt- Little Pine	19	7.5	6	0.1-0.4
Hosgri	21	7.5	6.5	0.2-0.3
Rinconada	23	7.5	6.3	0.1-0.3
Los Alamos- Base Line	27	7	5.8	0.1-0.2
San Andreas	66	8.3	8	0.1-0.2

*Measured from Grand Avenue and North 8th

Source: San Luis Obispo County Safety Element Technical Background Report, December 1999

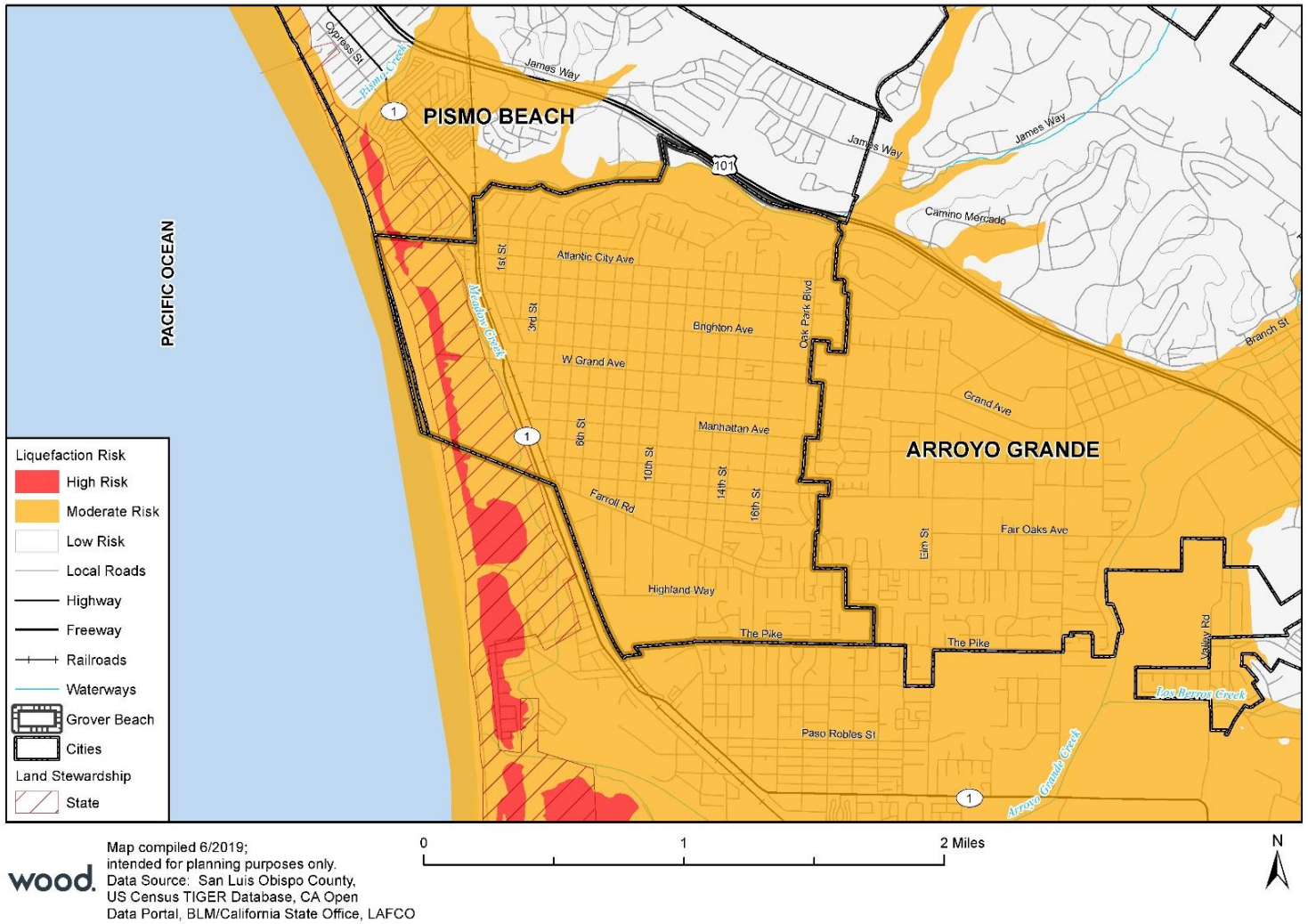
As a coastal community, portions of Grover Beach are underlain by layers of unconsolidated sand and young alluvium which have a high potential to become liquefied during groundshaking events. The following table shows the various property types in the City of Grover Beach at risk of liquefaction. Based on this analysis residential property types, including mobile and manufactured homes, are at the greatest risk of liquefaction in Grover Beach compared to other types of properties in the community. There are 4,243 residential properties at risk with a combined improved value of $747,660,747. Figure C. 6 below depicts the areas of Grover Beach at risk of liquefaction.

Table C.10 City of Grover Beach Moderate Liquefaction Risk by Property Type

Property Type	Parcel Count	Improved Value
Agricultural	1	$3,139
Commercial	242	$71,707,475
Government/Utilities	37	$21,533
Other/Exempt/Misc.	135	$31,280,820
Residential	3,054	$506,840,814
Multi-Family Residential	600	$135,833,108
Mobile/Manufactured Homes	39	$2,752,757
Residential: Other	550	$102,234,078
Industrial	27	$11,177,087
Vacant	27	$4,262,765
Total	**4,712**	**$866,113,576**

Source: San Luis Obispo County Planning and Building Dept., Assessor's Office, ParcelQuest, Wood Plc Parcel Analysis

Figure C.7 Areas of the City of Grover Beach at Risk of Liquefaction



Map compiled 6/2019;
intended for planning purposes only.
Data Source: San Luis Obispo County, US Census TIGER Database, CA Open Data Portal, BLM/California State Office, LAFCO

Flood

The City of Grover Beach suffers from regular flooding in isolated areas. Flooding generally occurs after heavy rainfall events and overtopping of creeks and rivers. The Arroyo Grande Creek poses a risk of overtopping and causes Meadow Creek to flood along the western and northern portions of the City. Flooding along Meadow Creek has caused roads to be blocked by flood waters, causing difficulties in access to and egress from portions of the City. According to the City's Safety Element, northern and western portions of the City adjacent to Meadow Creek are at the greatest risk of being impacted by a 100-year flood. The areas at risk of flooding in the northern portions of the City are isolated to an area south of U.S. 101 and north of Nacimiento Avenue where a mobile home subdivision is located. The South Grover Beach and West Grover Beach neighborhoods are also reported to experience flooding issues. Flooding in the western portion of the City is isolated to areas west of the Union Pacific Railroad tracks and areas just east of the railroad tracks in the southwest corner of the City where drainage is trapped by the railroad grade.

The City's 2015 LHMP notes two properties located below street level that are subject to local flooding issues. One parcel located at South 5th Street and Manhattan Avenue is subject to flooding from a 50-year storm event when sandbags are not used or if cars are parked on the street. The second parcel is located at 6th Street and Mentone Avenue is subject to a 75-100-year storm event, but after an asphalt berm was constructed flooding was alleviated under storms of lesser magnitude. Refer to the Flood Section in the Base Plan for further information on the areas of that are at risk of flooding as well as past flood events that have impacted the City of Grover Beach.

Values at Risk

A flood vulnerability assessment was completed during the 2019 update, following the methodology described in Section 5 of the Base Plan. Table C.11 and Table C.12 summarize the values at risk in the City's 100-year and 500-year floodplain, respectively. These tables also detail loss estimates for each flood.

Table C.11 City of Grover Beach's FEMA 1% Annual Chance Flood Hazard by Property Type

Property Type	Parcel Count	Improved Value	Content Value	Total Value	Loss Estimate
Commercial	1	$751,181	$751,181	$1,502,362	$375,591
Government/Utilities	4	--	--	$0	$0
Other/Exempt/Misc.	1	--	--	$0	$0
Residential	6	$928,659	$464,330	$1,392,989	$348,247
Mobile/Manufactured Homes	21	$1,087,774	$543,887	$1,631,661	$407,915
Total	**33**	**$2,767,614**	**$1,759,398**	**$4,527,012**	**$1,131,753**

Source: San Luis Obispo County Planning and Building Dept., Assessor's Office, ParcelQuest, Wood Plc Parcel Analysis

Table C.12 City of Grover Beach's FEMA 0.2% Annual Chance Flood Hazard by Property Type

Property Type	Parcel Count	Improved Value	Content Value	Total Value	Loss Estimate
Government/Utilities	1	--	--	$0	$0
Other/Exempt/Misc.	1	$137,118	--	$137,118	$34,280
Mobile/Manufactured Homes	1	$116,341	$58,171	$174,512	$43,628
Vacant	1	$62,500	--	$62,500	$15,625
Total	**4**	**$315,959**	**$58,171**	**$374,130**	**$93,532**

Source: San Luis Obispo County Planning and Building Dept., Assessor's Office, ParcelQuest, Wood Plc Parcel Analysis

Based on this analysis, the City of Grover Beach has significant assets at risk to the 100-year and greater floods. There are 33 improved parcels located within the 100-year floodplain for a total value of over $4 million. An additional 4 improved parcels valued at $374,130 fall within the 500-year floodplain.

Applying the 25 percent damage factor as previously described in Section 5 of the Base Plan, there is a 1 percent chance in any given year of a 100-year flood causing roughly $1 million in damage in the City of Grover Beach, and a 0.2 percent chance in any given year of a 500-year flood causing $1,225,285 in damages (combined damage from both floods). The tables above show the properties at risk to flooding in the City of Grover Beach in relation to the mapped floodplain, based on the parcels that have improvements and parcel centroids that intersect the flood hazard areas.

Limitations: This model may include structures in the floodplains that are elevated at or above the level of the base-flood elevation, which will likely mitigate flood damage. Also, the assessed values are well below the actual market values. Thus, the actual value of assets at risk may be significantly higher than those included herein.

Population at Risk

Using parcel data from the County and the digital flood insurance rate map, population at risk was calculated for the 100-year and 500-year floods based on the number of residential properties at risk and the average number of persons per household (2.47). The following are at risk to flooding in the City of Grover Beach:

- 100-year flood— 68 people
- 500-year flood— 3 people
- **Total flood**— 71 people

Insurance Coverage, Claims Paid, and Repetitive Losses

The City of Grover Beach joined the National Flood Insurance Program (NFIP) on August 1, 1984. NFIP Insurance data indicates that as of April 18, 2019, there were 36 flood insurance policies in force in the City with $9,940,700 of coverage. All 36 policies were residential (32 for single-family homes, 2 for 2-4-unit homes and 2 for all other residential). There are 8 polices in A01-30 & AE zones and no policies in A zones. The remaining 28 are in B, C, and X zones.

There have been 2 historical claims for flood losses totaling $14,881.56. Both claims were for residential properties (1 single family and 1 2-4 family) and were in B, C or X zones; According to the FEMA Community Information System accessed 4/18/2019 there are no Repetitive Loss or Severe Repetitive Loss properties located in the jurisdiction.

Critical Facilities at Risk

Critical facilities are those community components that are most needed to withstand the impacts of disaster as previously described. Based on GIS analysis of the provided critical facility dataset by the County of San Luis Obispo combined with the HIFLD dataset, there are no critical facilities at risk of flooding in a 100-year or 500-year storm event. However, the Planning Team notes that the City's Train Station as well as the Nacimiento Sanitary Sewer Lift Station (and possibly other critical facilities not included in the countywide dataset used for analysis) should be at risk of flooding of the 100-year event, as they fall within the AE special flood hazard areas.

Coastal Storm/Coastal Erosion/Sea Level Rise

The City of Grover Beach is characterized by its sandy beaches backed by low sand dunes covered with dense vegetation. The sandy beaches provide structures and development with moderate protection from storm

waves, although active erosion of beaches and dunes currently impacts low-lying coastal recreation uses (i.e. golf course), commercial, and residential (i.e. mobile homes) structures. The City has been impacted by storm wave hazards in the past; during a winter storm in 1983, timber beach access ramps were damaged by storm waves. Refer to Section 5 of the Base Plan for more information on the risk that coastal hazards pose to San Luis Obispo County and the City of Grover Beach.

As part of the 2019 HMP planning effort, a sea level rise risk assessment was completed to determine how sea level rise may affect coastal jurisdictions and critical facilities and how coastal flooding might be exacerbated in the future. Table C.13 and Table C.14 summarize the properties at risk of inundation by sea level rise and sea level rise combined with a FEMA 1% annual chance flood. The area of inundation by sea level rise and sea level rise combined with the 1% flood are shown in Figure C. 8 and Figure C. 9, respectively. No critical facilities were determined to be at risk in the sea-level rise scenarios. See Section 5.3.4 Coastal Storm/Coastal Erosion/Sea Level Rise in the base plan for more details on the scenarios and data sources used for this analysis.

Table C.13 Properties Inundated by Sea Level Rise and Sea Level Rise with 1% Annual Chance Flood

Property Type	25-cm SLR	75-cm SLR	300-cm SLR	25-cm SLR w/ 1% Flood	75-cm SLR w/ 1% Flood	300-cm SLR w/ 1% Flood
Commercial	--	--	6	--	--	6
Government/Utilities	--	--	4	--	--	7
Other/Exempt/Misc.	--	--	4	--	--	9
Residential	--	--	2	--	--	15
Multi-Family Residential	--	--	3	--	--	9
Mobile/Manufactured Homes	--	--	--	--	--	1
Industrial	--	--	1	--	--	3
Total	**--**	**--**	**20**	**--**	**--**	**50**

Source: Wood analysis with USGS CoSMoS 3.1 data

Table C.14 Improved Values of Properties Inundated by Sea Level Rise and Sea Level Rise with 1% Annual Chance Flood

Property Type	25-cm SLR	75-cm SLR	300-cm SLR	25-cm SLR w/ 1% Flood	75-cm SLR w/ 1% Flood	300-cm SLR w/ 1% Flood
Commercial	--	--	$834,388	--	--	$834,388
Government/Utilities	--	--	--	--	--	--
Other/Exempt/Misc.	--	--	$3,181,722	--	--	$3,883,627
Residential	--	--	$198,637	--	--	$1,675,517
Multi-Family Residential	--	--	$971,575	--	--	$3,466,989
Mobile/Manufactured Homes	--	--	--	--	--	$305,343
Industrial	--	--	$62,392	--	--	$107,956
Total	**--**	**--**	**$5,248,714**	**--**	**--**	**$10,273,820**

Source: Wood analysis with USGS CoSMoS 3.1 data

Figure C. 8 Grover Beach Sea Level Rise Scenario Analysis: Tidal Inundation Only

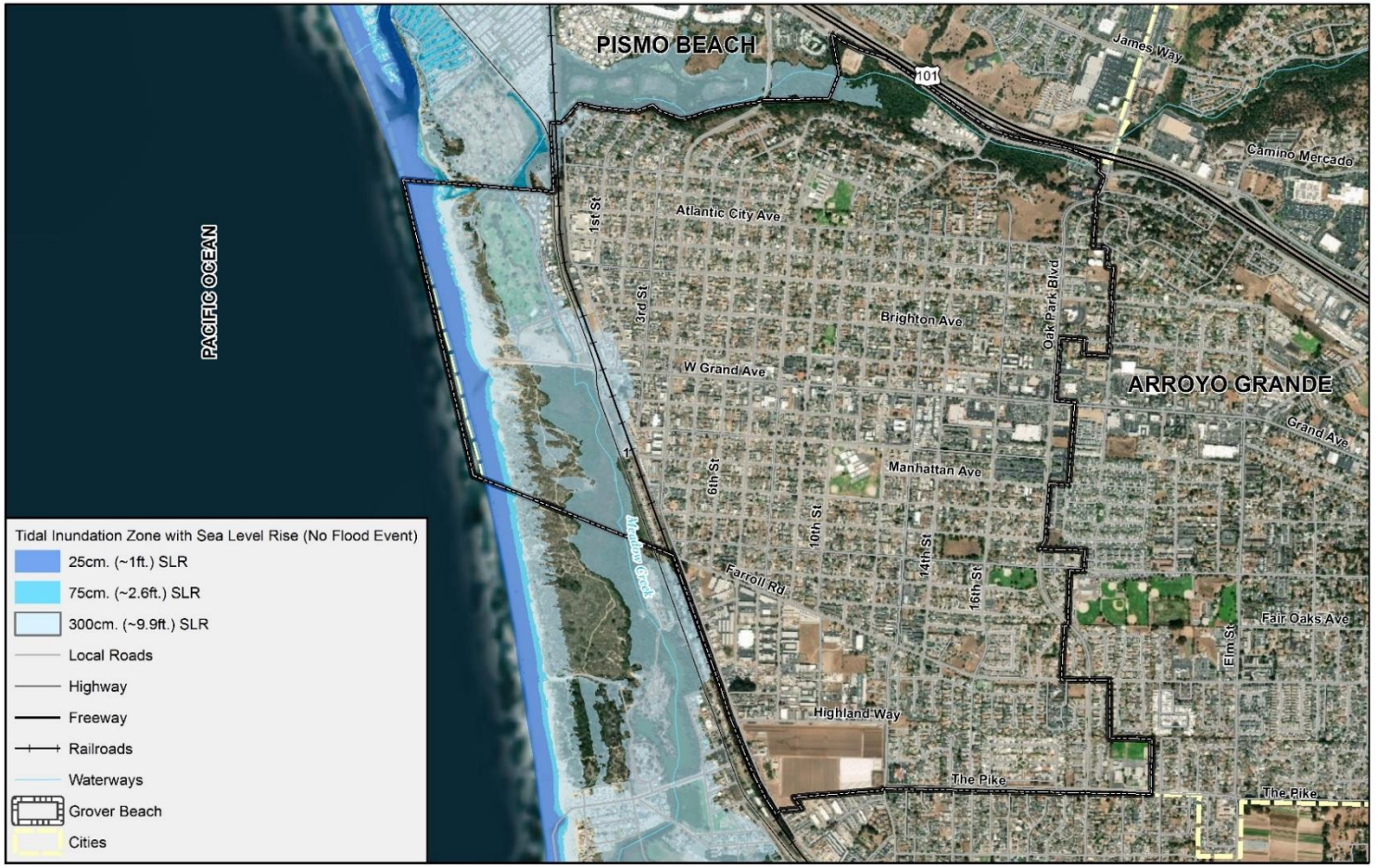
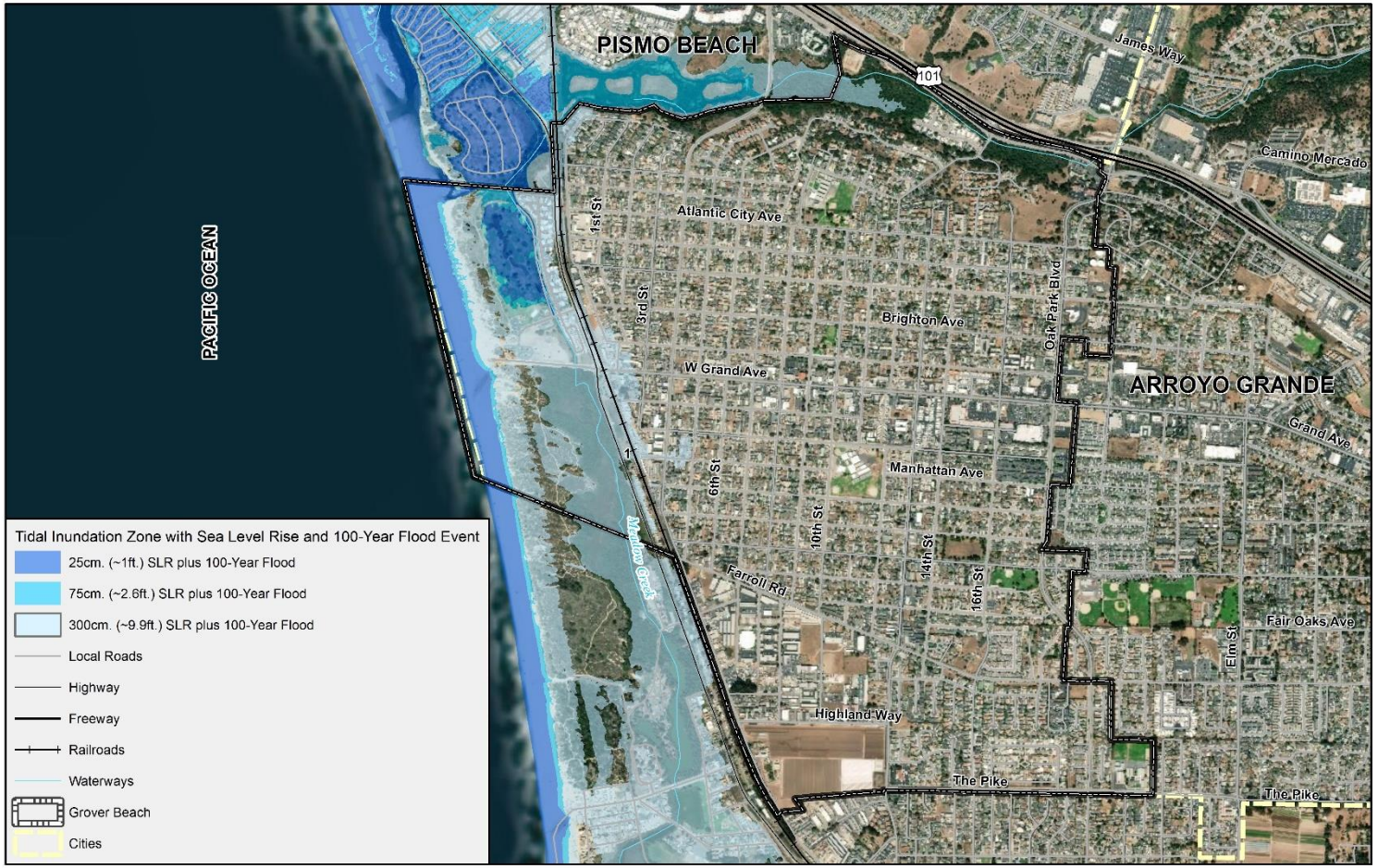


Figure C. 9 Grover Beach Sea Level Rise Scenario Analysis: Tidal Inundation and 1% Annual Chance Flood



Map compiled 8/2019;
intended for planning purposes only.
Data Source: USGS CoSMoS v3.1.
San Luis Obispo County, US Census TIGER Database, CA Open Data Portal, LAFCO.
Note: SLR = Sea Level Rise

Tsunami and Seiche

Tsunami inundation poses a risk to all coastal communities in the County of San Luis Obispo. Offshore faults and related seismic activity could cause a tsunami event off the coast of Grover Beach, even if the faults are thousands of miles away. Grover Beach's wide beaches and coastal dunes in general provide protection from coastal hazards, although the low-lying areas where Meadow Creek meets the ocean is considered to be at moderate risk of tsunami hazards. Based on the GIS analysis there is one critical facility, a water treatment facility, that is at risk of tsunami inundation. According to the City's 2015 LHMP the areas shown on Figure C.8 are vulnerable to tsunami hazards.

Table C.13 below breaks down the tsunami risk in the City of Grover Beach by property type.

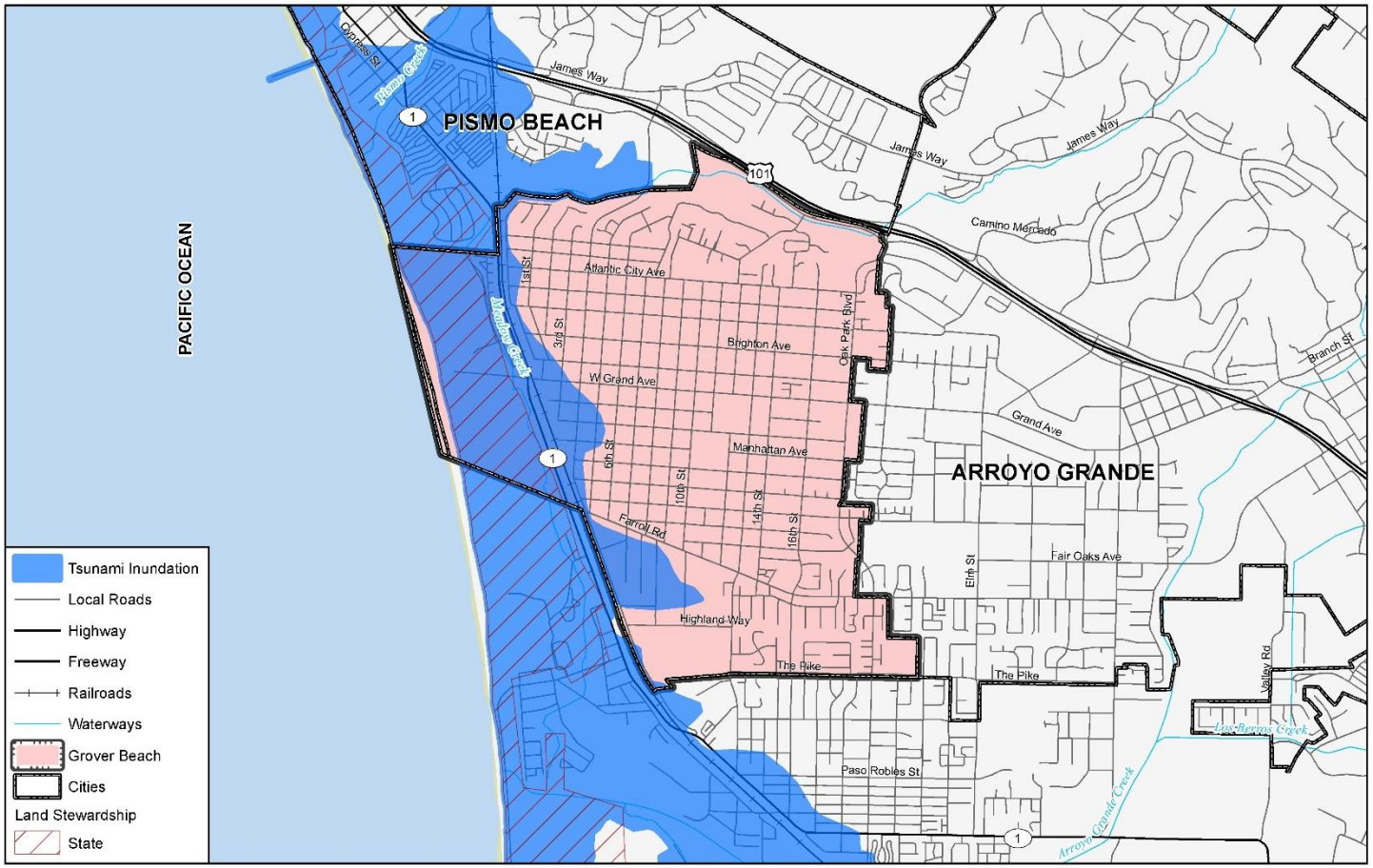
Table C.15 Properties at Risk of Tsunami Inundation

Property Type	Property Count	Improved Value	Content Value	Total Value	Loss Estimate	Population
Commercial	64	$11,703,763	$11,703,763	$23,407,526	$23,407,526	--
Government/Utilities	14	--	--	$0	$0	--
Other/Exempt/Misc.	34	$15,190,469	--	$15,190,469	$15,190,469	--
Residential	59	$6,180,075	$3,090,038	$9,270,113	$9,270,113	148
Multi-Family Residential	31	$8,830,232	$4,415,116	$13,245,348	$13,245,348	78
Mobile/Manufactured Homes	1	$305,343	$152,672	$458,015	$458,015	3
Residential: Other	8	$1,100,411	$550,206	$1,650,617	$1,650,617	20
Industrial	14	$5,461,004	$8,191,506	$13,652,510	$13,652,510	--
Vacant	8	$1,859,350	--	$1,859,350	$1,859,350	--
Total	**233**	**$50,630,647**	**$28,103,300**	**$78,733,947**	**$78,733,947**	**249**

Source: San Luis Obispo County Planning and Building Dept., Assessor's Office, ParcelQuest, Wood Plc Parcel Analysis

Based on this analysis there are 249 properties with a combined value of over $78 million vulnerable to the impacts of a tsunami. Of the properties at risk, 99 are residential properties (including mobile/manufactured homes) and have a combined loss estimate of over $16 million and 64 are commercial properties.

Figure C.10 Areas of City of Grover Beach at Risk to Tsunami Inundation



Map compiled 6/2019;
intended for planning purposes only.
Data Source: San Luis Obispo County, US Census TIGER Database, CA Open Data Portal, BLM/California State Office, LAFCO, CA Dept. of Conservation

The area along Highway 1 is also expected to be in the tsunami inundation zone, which would have cascading impacts on people being able to evacuate. The LPT noted that Grover Beach swells with beachgoing tourists including an estimated 10,000 to 40,000 visitors to the Oceano Dune State Park on a busy summer weekend or holiday; these visitors may not be familiar with the risk posed by tsunamis, leading them to ignore warnings. Refer to Section 5 of the Base Plan for additional information related to the past tsunami events and analysis on future vulnerability.

Human Caused: Hazardous Materials

The Cal OES Warning Center reports 21 hazardous materials incidents in the City of Grover Beach from 1994 through October 24, 2018; as noted in Section 5.3.13 of the county plan, this likely excludes a large number of unreported minor spills. This constitutes 1% of the hazardous materials incidents reported countywide during the same time frame and averages out to roughly 0.8 incidents per year. As noted in Section 5.3.13, only around 6% of reported hazardous materials incidents result in injuries, fatalities, or evacuations. As shown in Base Plan there are no significant hazardous materials facilities located in the City. However, Grover Beach sits within the Emergency Planning Zone for the Diablo Canyon Nuclear Power Plant.

C.4 Capability Assessment

Capabilities are the programs and policies currently in use to reduce hazard impacts or that could be used to implement hazard mitigation activities. This capabilities assessment is divided into five sections: regulatory mitigation capabilities, administrative and technical mitigation capabilities, fiscal mitigation capabilities, mitigation outreach and partnerships, and other mitigation efforts.

To develop this capability assessment, the jurisdictional planning representatives used a matrix of common mitigation activities to inventory which of these policies or programs were in place. The team then supplemented this inventory by reviewing additional existing policies, regulations, plans, and programs to determine if they contributed to reducing hazard-related losses.

During the plan update process, this inventory was reviewed by the jurisdictional planning representatives and Wood consultant team staff to update information where applicable and note ways in which these capabilities have improved or expanded. Additionally, in summarizing current capabilities and identifying gaps, the jurisdictional planning representatives also considered their ability to expand or improve upon existing policies and programs as potential new mitigation strategies. The City of Grover Beach's capabilities are summarized below.

C.4.1 Regulatory Mitigation Capabilities

Table C.16 City of Grover Beach Regulatory Mitigation Capabilities

Regulatory Tool	Yes/No	Comments
General plan	Yes	
Zoning ordinance	Yes	
Subdivision ordinance	Yes	
Growth management ordinance	Yes	
Floodplain ordinance	Yes	Chapter 5 Development Code, 2012
Other special purpose ordinance (stormwater, water conservation, wildfire)	Yes	Stormwater only
Building code	Yes	
Fire department ISO rating	Yes	3
Erosion or sediment control program	Yes	
Stormwater management program	Yes	
Site plan review requirements	Yes	
Capital improvements plan	Yes	
Economic development plan	Yes	City of Grover Beach Final Economic Development Strategy April 11, 2017
Local emergency operations plan	Yes	
Other special plans	Yes	Local Coastal Program (Aug. 15, 2014), Open Space Management Plan, Continuity of Operations Plan; Recovery Plan
Flood Insurance Study or other engineering study for streams	Yes	
Elevation certificates (for floodplain development)	Yes	

C.4.2 Administrative/Technical Mitigation Capabilities

Table C.17 identifies the personnel responsible for activities related to mitigation and loss prevention in Grover Beach

Table C.17 City of Grover Beach Administrative/Technical Mitigation Capabilities

Personnel Resources	Yes/ No	Department/Position
Planner/engineer with knowledge of land development/land management practices	Yes	Community Development, Public Works Director/Engineer
Engineer/professional trained in construction practices related to buildings and/or infrastructure	Yes	Public Works Director/Engineer, Building official (contract)
Planner/engineer/scientist with an understanding of natural hazards	Yes	Public Works Director/Engineer, Building official (contract)
Personnel skilled in GIS	Yes	Community Development
Full time building official	No	Contract
Floodplain manager	Yes	Public Works Director/Engineer (?)
Emergency manager	Yes	
Grant writer	No	
GIS Data Resources (Hazard areas, critical facilities, land use, building footprints, etc.)	Yes	
Warning systems/services (Reverse 9-11, outdoor warning signals)	Yes	

C.4.3 Fiscal Mitigation Capabilities

Table C.18 identifies financial tools or resources that the City could potentially use to help fund mitigation activities.

Table C.18 City of Grover Beach Fiscal Mitigation Capabilities

Financial Resources	Accessible/Eligible to Use (Yes/No)
Community Development Block Grants	Yes
Capital improvements project funding	Yes
Authority to levy taxes for specific purposes	Yes (As needed)
Fees for water, sewer, gas, or electric services	No
Impact fees for new development	Yes
Incur debt through general obligation bonds	Yes
Incur debt through special tax bonds	Yes
Incur debt through private activities	No
Withhold spending in hazard prone areas	No

C.4.4 Opportunities for Enhancement

Based on the capabilities assessment, the City of Grover Beach has several existing mechanisms in place that already help to mitigate hazards. In Grover Beach's 2015 LHMP the City conducted a "self-assessment of capability" in which they rated (limited to high) the degree of capability they believed the community had. The City noted having a high degree of capability for planning and regulatory capabilities and political capability, but a moderate rating for their administrative, technical, and fiscal capabilities. This may be an opportunity for the City to expand or improve on these policies and programs to further protect the community. Future

improvements may include providing training for staff members related to hazards or hazard mitigation grant funding in partnership with the County and Cal OES. Additional training opportunities will help to inform City staff members on how best to integrate hazard information and mitigation projects into their departments. Continuing to train City staff on mitigation and the hazards that pose a risk to the City of Grover Beach will lead to more informed staff members who can better communicate this information to the public.

C.5 Mitigation Strategy

C.5.1 Mitigation Goals and Objectives

During the 2019 Planning Process the Grover Beach Planning Team reviewed the mitigation goals and objectives from the 2015 LHMP and determined the existing number and intent of the goals and objectives continue to be appropriate, and no revisions or additions were necessary. The City of Grover Beach's 2019 hazard mitigation goals and objectives are the following:

Goal 1. Minimize the level of damages and losses due to earthquake.

Objective 1.a - Develop a comprehensive approach to reducing the level of damage and losses due to earthquakes.

Objective 1.b – Perform a safety review of all current City structures and facilities, paying close attention to disaster proofing all facilities. Convene a group of department heads to prioritize the needs and research funding strategies.

Objective 1.c – Develop disaster preparedness caches of supplies, tools, and equipment for use by City employees, so that they may continue to perform their duties during a major emergency.

Goal 2. Minimize the level of damage and losses due to flooding.

Objective 2.a – Research and identify flooding vulnerability within the City of Grover Beach.

Goal 3. Minimize the level of damage and losses to people due to wildland and structure fires.

Objective 3.a – Educate the public about wildland and structure fire danger.

Goal 4. Minimize the level of damage and losses to people and surrounding areas due to tsunami events and increase understanding and response to tsunamis.

Objective 4.a – Increase the understanding and response to tsunamis within the community by working with Federal and State agencies to better understand and prepare for the hazards of tsunamis, and improve the ability to respond to tsunami warnings provided by NOAA's West Coast and Alaska Tsunami Warning Center.

Continued Compliance with the National Flood Insurance Program

The City has been an NFIP participating community since 1984. In addition to the mitigation actions identified herein the City will continue to comply with the NFIP. This includes ongoing activities such as enforcing local floodplain development regulations, including issuing permits for appropriate development in Special Flood Hazard Areas and ensuring that this development is mitigated in accordance with the regulations. This will also include periodic reviews of the floodplain ordinance to ensure that it is clear and up to date and reflects new or revised flood hazard mapping.

C.5.2 Completed 2015 Mitigation Actions

Grover Beach has not completed any of the mitigation actions from the 2015 LHMP, although of Grover Beach's thirteen mitigation actions, nine (9) are implemented annually and two (2) are in progress to be completed. These actions that are implemented annually help to reduce vulnerability to hazards and increase local capability to implement additional mitigation actions.

C.5.3 Mitigation Actions

The planning team for the City of Grover Beach identified and prioritized the following mitigation actions based on the risk assessment. Background information and information on how each action will be implemented and administered, such as ideas for implementation, responsible office, potential funding, estimated cost, and timeline, are also included. Actions were prioritized using the process described in Section 7.2.1 of the Base Plan. Actions with an '*' are those that mitigate losses to future development.

Table C. 19 City of Grover Beach's Mitigation Action Plan

ID	Hazard(s) Mitigated	Description/Background/Benefits	Lead Agency and Partners	Cost Estimate	Potential Funding	Priority	Timeline	Status/ Implementation Notes
GB.1	Adverse Weather: Wind, Rain, Heat	Reduce the negative impact on the community due to weather-related incidents that could include heavy rain, high winds and extreme heat. Benefits: Improved water runoff in low-lying areas, reduced pooling and low impact street flooding; tree trimming, and removal of old trees will reduce falling limbs and trees	Public Works Department	$125,000 - $250,000	PDM grants; general funds; capital improvement funds; staff time	Low	3-5 yrs.	New
GB.2	Agricultural Pest Infestation and Disease	Help reduce the negative impact on the agricultural community due to pest infestation and disease. Benefits: Through community development and planning, work with existing agricultural property owners to develop safeguards to protect against pest infestation and disease	Community Development Department	Little to no Cost	Private funding and staff time	Medium	3-5 yrs.	New
GB.3*	Coastal Storm, Erosion and Sea Level Rise	Work in partnership with the State of California and County of San Luis Obispo to identify community impacts associated with coastal erosion through sea level rise and storms. In coordination with the State and County, map areas of the City that may be affected by sea level rise. Benefits: Lessen the impacts on the community from the effects of sea level rise and coastal erosion	Public Works Department; Community Development; Emergency Preparedness	Less than $10,000	PDM grants; general funds; capital improvement funds; staff time	Medium	More than 5 yrs.	New
GB.4*	Dam Failure	In collaboration with state, county and other local governments, reduce the negative impact on the community as a result of a dam incident or failure through proper planning and infrastructure maintenance and improvement. City Staff will map areas of potential inundation via its Geographic Informational System and continue to implement the San Luis Obispo County Office of Emergency Services (OES) Emergency Plan. Benefits: Lessen the potential	Public Works Department; Community Development; Emergency Preparedness	Less than $10,000	PDM grants; general funds; capital improvement funds; staff time	Medium	3-5 yrs.	New

ID	Hazard(s) Mitigated	Description/Background/Benefits	Lead Agency and Partners	Cost Estimate	Potential Funding	Priority	Timeline	Status/ Implementation Notes
		for dam failure and reduce the likelihood of this hazard occurring						
GB.5*	Drought	In collaboration with state, county and other local governments, reduce the negative impact of drought on the community through proper planning and infrastructure maintenance and improvement; continue to monitor well levels to prevent seawater intrusion while pursuing opportunities for regional recycled water projects that will result in groundwater injection; implement water efficient landscaping. Benefits: Avoid sea water intrusion; lessen potential negative impacts on the community as a result of drought or water shortage	Public Works; Community Development Department	Less than $10,000	PDM grants; general funds; capital improvement funding; staff time	Medium	More than 5 yrs.	New
GB.6	Earthquake	Identify and catalog seismically vulnerable structures	Emergency Preparedness	Less than $10,000	PDM Grant, General Funds, Capital Improvement funds, Staff time	High	More than 5 yrs.	Deferred. Limited URM structures. Limited staff and fiscal resources
GB.7*	Earthquake	Implement policies, procedures and regulations which reduce the exposure to earthquake hazards	Emergency Preparedness	Little to no cost	PDM Grant, General Funds, Capital Improvement funds, Staff time	High	More than 5 yrs.	Annual Implementation. Building and Fire Codes
GB.8	Earthquake	Protect the improved property and infrastructure vulnerable to earthquake hazards	Emergency Preparedness	Less than $10,000	PDM Grant, General Funds, Capital Improvement	High	More than 5 yrs.	Annual Implementation. Building and Fire Codes

ID	Hazard(s) Mitigated	Description/Background/Benefits	Lead Agency and Partners	Cost Estimate	Potential Funding	Priority	Timeline	Status/ Implementation Notes
					funds, Staff time			
GB.9	Fire	Encourage the 100' Defensible Space around structures in the Wildland Urban Interface	Fire Department	Little to no cost	California Fire Safe Council, Fire Prevention Grant Funding, PDM Grant, General Funds, Capital Improvement funds, Staff Time	Medium	Annual	Annual Implementation
GB.10	Fire	Continue weed abatement program	Fire Department	Little to no cost	California Fire Safe Council, Fire Prevention Grant Funding, PDM Grant, General Funds, Capital Improvement funds, Staff Time	Medium	Annual	Annual Implementation
GB.11 *	Fire	Enforce building codes and ordinances that eliminate the use of wood shake roofs	Fire Department	Little to no cost	California Fire Safe Council, Fire Prevention	Medium	Annual	Annual Implementation

ID	Hazard(s) Mitigated	Description/Background/Benefits	Lead Agency and Partners	Cost Estimate	Potential Funding	Priority	Timeline	Status/ Implementation Notes
					Grant Funding, PDM Grant, General Funds, Capital Improvement funds, Staff Time			
GB.12 *	Fire	Enforce codes and ordinances that require fire sprinkler systems in all new structures constructed	Fire Department	Little to no cost	California Fire Safe Council, Fire Prevention Grant Funding, PDM Grant, General Funds, Capital Improvement funds, Staff Time	Medium	Annual	Annual Implementation
GB.13 *	Fire	Create a Fire-Smart Community by developing a comprehensive approach to reducing damage and loss due to fires; encourage the 100' defensible space around structures in the Wildland-Urban Interface (WUI); continue weed abatement program to reduce the threat of fire around open spaces; enforce building codes and ordinances that eliminate the use of wood shake roofs; enforce codes and ordinances that require fire sprinkler systems consistent with the California Building Code	Fire Department; Community Development; Emergency Preparedness	Little to no cost	California Fire Safe Council; Fire Prevention Grants; PDM Grants; FEMA funding; General Funding; Capital Improvement	Medium	More than 5 yrs.	New

ID	Hazard(s) Mitigated	Description/Background/Benefits	Lead Agency and Partners	Cost Estimate	Potential Funding	Priority	Timeline	Status/ Implementation Notes
					Funds; Staff Time			
GB.14 *	Flood	Implement policies procedures and regulations which reduce the exposure to flood hazards; protect the improved property, natural resources and life vulnerable to flood hazards; reduce the vulnerability of community assets, particularly research and identify flooding vulnerability within the city by identifying flood vulnerability within the city by identifying parcels with flood zones; identify funding needs and funding sources; apply for pre-disaster mitigation grants and commence mitigation projects; conclude mitigation projects; evaluate effectiveness of mitigation actions and critical facilities located in the 100-year floodplain	Public Works; Parks and Recreation; Community Development; Emergency Preparedness	Little to no cost	PDM grants; general funds; capital improvement funds; staff time	Medium	More than 5 yrs.	New
GB.15 *	Flood	Implement policies, procedures and regulations which reduce the exposure to flood hazards	Recreation and Maintenance Services, Public Works and Emergency Preparedness	Little to no cost	PDM Grant, General Funds, Capital Improvement funds, Staff time	High	More than 5 yrs.	Annual Implementation
GB.16	Flood	Protect the improved property and infrastructure vulnerable to flood hazards	Recreation and Maintenance Services, Public Works and Emergency Preparedness	$500,000 to $1,000,000	PDM Grant, General Funds, Capital Improvement funds, Staff time	High	More than 5 yrs.	Annual Implementation

ID	Hazard(s) Mitigated	Description/Background/Benefits	Lead Agency and Partners	Cost Estimate	Potential Funding	Priority	Timeline	Status/ Implementation Notes
GB.17	Flood	Reduce the vulnerability of community assets, particularly critical facilities, located in the 100-year floodplain	Recreation and Maintenance Services, Public Works and Emergency Preparedness	$500,000 to $1,000,000	PDM Grant, General Funds, Capital Improvement funds, Staff time	High	More than 5 yrs.	Annual Implementation
GB.18	Hazardous Materials	Require businesses that use, store or transport hazardous materials to ensure that adequate measures are taken to protect public health and safety; coordinate with allied agencies to prepare for hazmat incidents; support training and exercises in response to hazmat incidents; coordinate responses and investigations with the county hazmat team and Five Cities Fire; add gas pipeline mapping to the City's GIS resources; continue to monitor the manufacture, storage, transport of hazardous materials by working with environmental health and public safety agencies to identify effective mitigation actions or requirements that will help reduce the risk of incidents, including the spread of released materials; coordinate with the rail line industries to prepare for train-related hazmat incidents	Fire Department; Community Development; Emergency Preparedness	Less than $10,000	California Fire Safe Council; Fire Prevention Grants; PDM Grants; FEMA funding; General Funding; Capital Improvement Funds; Staff Time	Medium	3-5 yrs.	New
GB.19	Tsunami	Develop a comprehensive action plan to reduce damage from a tsunami; display standardized and easy to read signs alerting community members of tsunami hazard zones, evacuation routes and evacuation sites; review tsunami inundation areas and educational needs; review emergency policies and training needs; review tsunami maps and evacuation plans	Public Works; Community Development; Emergency Services	$10,000 to $50,000	PDM grants; general funds; capital improvement funds; staff time	Medium	3-5yrs.	New

ID	Hazard(s) Mitigated	Description/Background/Benefits	Lead Agency and Partners	Cost Estimate	Potential Funding	Priority	Timeline	Status/ Implementation Notes
GB.20	Tsunami	Review Tsunami inundation areas and educational needs	Police Department	Little to no costs	PDM Grant, General Funds, Capital Improvement funds, Staff time	Medium	3-5 yrs.	In progress. Countywide Tsunami Plan, and identification of local resource needs. Staff and fiscal constraints
GB.21	Tsunami	Review emergency policies and training needs	Police Department	Little to no costs	PDM Grant, General Funds, Capital Improvement funds, Staff time	Medium	Annual	Annual Implementation
GB.22	Tsunami	Review Tsunami plans, maps, and evacuation plans	Police Department	Little to no costs	PDM Grant, General Funds, Capital Improvement funds, Staff time	Medium	3-5 yrs.	In progress. Countywide Tsunami Plan, and identification of local resource needs. County Fire Chiefs identified city-specific evacuation plans as a strategic priority. Staff and fiscal constraints

* mitigates losses to future development

C.6 Implementation and Maintenance

Moving forward, the City will use the mitigation action table in the previous section to track progress on implementation of each project. As illustrated in Section 7.3.1 of the Base Plan, much progress has been made since the plan was originally developed. Implementation of the plan overall is discussed in Section 8 in the Base Plan.

C.6.1 Incorporation into Existing Planning Mechanisms

The information contained within this plan, including results from the Vulnerability Assessment, and the Mitigation Strategy will be used by the City to help inform updates and the development of local plans, programs and policies. The Public Works Department may utilize the hazard information when designing and implementing the City's capital improvement projects, and the Planning and Building Divisions within the Community Development Department may utilize the hazard information when reviewing a site plan or other type of development applications. The City will also incorporate this LHMP into the Safety Element of their General Plan, as recommended by Assembly Bill (AB) 2140.

As described in Section 8 Implementation and Monitoring, the HMPC representatives from Grover Beach will report on efforts to integrate the hazard mitigation plan into local plans, programs and policies and will report on these efforts at the annual HMPC plan review meeting.

C.6.2 Monitoring, Evaluation and Updating the Plan

The City will follow the procedures to monitor, review, and update this plan in accordance with San Luis Obispo County as outlined in Section 8 of the Base Plan. The City will continue to involve the public in mitigation, as described in Section 8.3 of the Base Plan. The Chief of Police will be responsible for representing the City in the County HMPC, and for coordination with City staff and departments during plan updates. The City realizes it is important to review the plan regularly and update it every five years in accordance with the Disaster Mitigation Act Requirements as well as other State of California requirements.

D.1 Community Profile

D.1.1 Mitigation Planning History and 2019 Process

This Annex was created during the development of the 2019 San Luis Obispo County Hazard Mitigation Plan Update. This Jurisdictional Annex builds upon the previous version of the City of Paso Robles Local Hazard Mitigation Plan completed in February 2006; that previous mitigation plan was not incorporated into the City's General Plan, as this updated mitigation plan will be. The Fire Department's staff represented the City of Morro Bay on the County HMPC and took the lead for developing the plan and this annex in coordination with the Morro Bay Local Planning Team (Planning Team). A review of jurisdictional priorities found no significant changes in priorities since the last update.

The Local Planning Team will be responsible for implementation and maintenance of the plan. Table D.1 summarizes the City's planning team for the plan revision process.

Table D.1 Morro Bay Hazard Mitigation Plan Revision Planning Group

Department or Stakeholder	Title
Fire Department	Fire Marshall
Fire Department	Fire Chief
Police Department	Police Chief
Harbor Department	Harbor Director
Community Development	City Engineer

More details on the planning process followed and how the jurisdictions, service districts and stakeholders participated can be found in Chapter 3 of the Base Plan (Planning Process), as well as how the public was involved during the 2019 update.

D.1.2 Geography and Climate

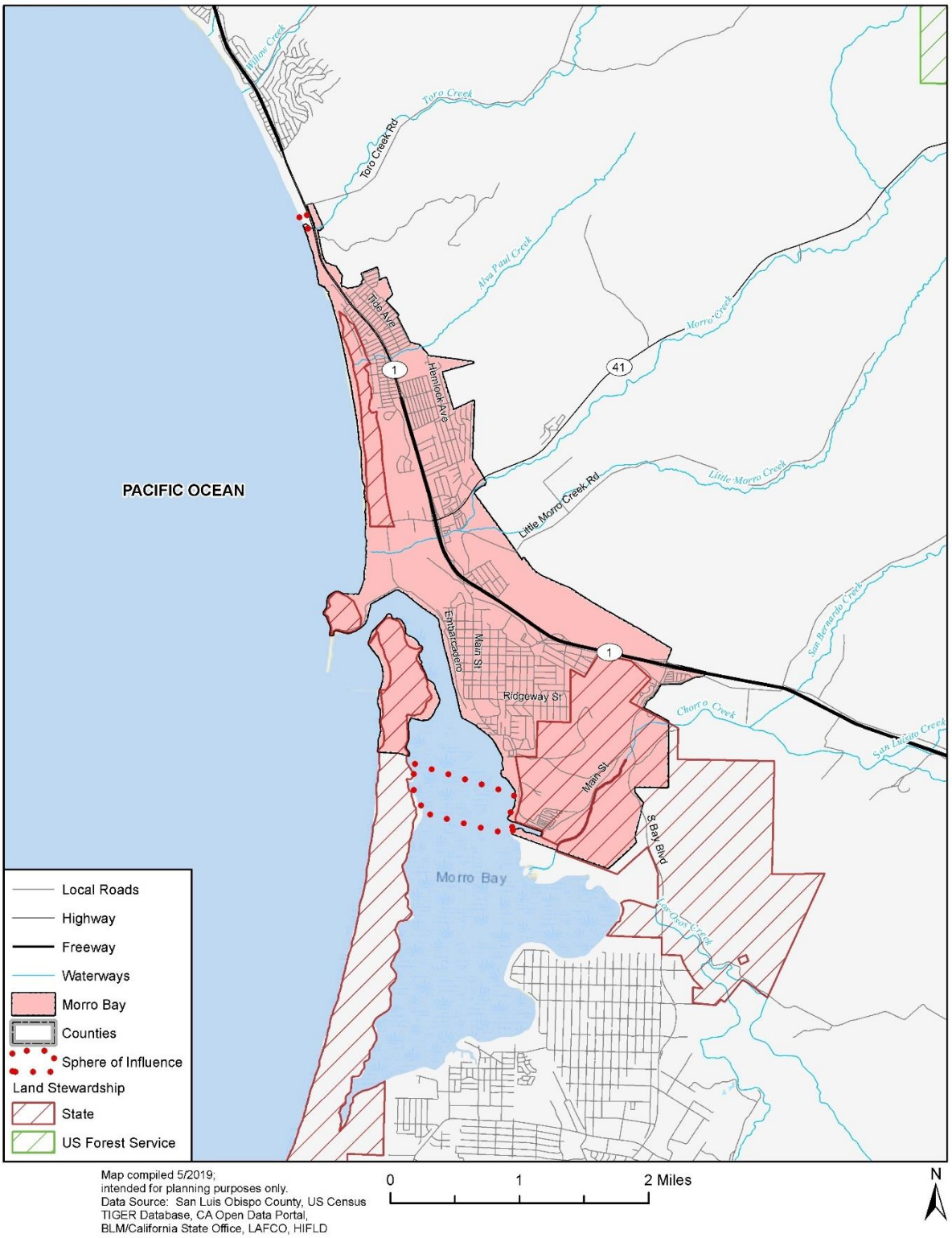
The City of Morro Bay (City) is located on the central coast of California, bordered by the Pacific Ocean to the west, the Los Osos Community Services District to the south, and the Cayucos Community Services District to the north. A shallow agricultural valley extends eastward from the City limits, which is surrounded by the Santa Lucia Coastal Range to the north, the Seven Sisters on the south, and the City of San Luis Obispo to the east. The City's topography varies from level coastal terrain to rolling hills and a few steeper escarpments in the North Atascadero Beach area and Southern portions on Black Mountain. The City's elevations range from sea level to a height of approximately 640 feet on Black Mountain. The highest elevations in the vicinity are located in the Santa Lucia Coastal Range where many peaks are 2,000 to 3,400 feet above mean sea level (MSL). The vegetation throughout the City includes Central California Coastal Community habitats, particularly the coastal wetland habitat with diverse tree species and native chaparral communities.

The City of Morro Bay is a small coastal town in a rural setting. Morro Bay's harbor provides a port of refuge, a working waterfront, commercial fishing and recreational boating facilities, shopping and sightseeing, bird watching, and eco-tourism. In 1994, the Governor established Morro Bay as California's first State Estuary, and in October 1995 it was accepted into the National Estuary Program (NEP).

This portion of the central coast of California generally has cool, foggy summers and low rainfall. The Pacific Ocean exerts a tremendous influence on temperature. The area is characterized by a Coastal climate with a wet season from October to early April. In the City of Morro Bay, the total annual precipitation is approximately 20 to 25 inches. In winter, the average high temperatures range from the 50's to the 60's, with lows seldom reaching into the 30's. In summer, the average daily highs are in the 60's and 70's, while lows are typically in the 50's and 60's.

Figure D.1 below shows the location and geographic context of the City of Morro Bay.

Figure D.1 The City of Morro Bay



The City of Morro Bay 's existing Sphere of Influence is approximately 100+/- acres beyond the City limits and includes two general areas, one within the bay south of town adjacent to the marina and the other north of town along the beach (City of Morro Bay, 2017).

D.1.3 History

The City of Morro Bay is a small coastal town in a rural setting. What makes Morro Bay unique is an image reminiscent of California fishing ports in the 1950's and 1960's, a fishing village nestled in a rural setting around a bay and harbor with Morro Rock towering over the entrance. Morro Bay's harbor provides a port of refuge, a working waterfront, commercial fishing and recreational boating facilities, shopping and sightseeing, bird watching, and eco-tourism, all of which make it a unique tourist and recreation destination.

Archaeological evidence suggests that Native Americans including the Chumash Tribe settled in northern Santa Barbara County and San Luis Obispo County more than 9,000 years ago (City of Morro Bay Local Hazard Mitigation Plan, 2012). Following an annual cycle of hunting, fishing, fowling, and harvesting, the Native American peoples adapted to changing environmental conditions and grew into a large, complex society. In 1542, Juan Rodriguez Cabrillo, a Portuguese navigator, sailed into the bay named "Los Esteros." He is acknowledged as the first European to discover the land of Upper California, including the area now known as Estero Bay and Morro Bay. In 1870, the township of Morro Bay was established with a population of approximately 200.

Until the Second World War, the area was relatively undeveloped. Most of the small community of Morro Bay was built on the bluff tops. In 1942, the Department of the Navy initiated a national defense project to construct an amphibious training base in Morro Bay. From 1942 to 1944, the north and south breakwaters, the two T-Piers, and the inner harbor revetment from Coleman Beach to the sandspit were constructed. In addition, the federal government dredged the current Navy and Morro Channels and deposited the dredge spoils behind the inner harbor revetment to create the current Embarcadero Road area on what had previously been tidal flats.

In 1994, the Governor established Morro Bay as California's first State Estuary. In October 1995 Morro Bay was accepted into the National Estuary Program (NEP) primarily because of long-term grass-roots efforts and because it was the first ever State Estuary. The Morro Bay National Estuary Program (MBNEP) is one of 28 national programs currently working to safeguard the health of some of the nation's most important coastal areas. Like the NEP, the City of Morro Bay desires to protect and conserve the bay that bears its name.

D.1.4 Economy

In 2014, 80.4% of the 4,342 residents of Morro Bay were employed outside of the City limits (Morro Bay Economic Development Roadmap, 2017). Morro Bay is a largely built-out community with limited space for residential, commercial, and industrial growth; only 1.25% of the area is considered undeveloped, which limits the City's potential economic growth. Morro Bay contains four economic activity centers: Downtown, Embarcadero, Quintana, and North Main. Each of these economic centers have the opportunity for renovation and enhancement of space and development. Since Dynegy decommissioned their natural gas-burning power plant facility in 2015, the City's economic base has been driven mainly by commercial fishing and tourism.

The utilities infrastructure in the City includes water provision, and wastewater collection and treatment (City of Morro Bay Local Hazard Mitigation Plan, 2012). The public services infrastructure in the City include fire protection and emergency services, police protection, public schools, libraries, the harbor and its associated infrastructure, and solid waste collection and disposal.

Select estimates of economic characteristics for the City of Morro Bay are shown in Table D.2 below. Table D.3 and Table D.4 show the occupational and industry breakdown of the City of Morro Bay's labor force based on estimates from the 2013-2017 American Community Survey.

Table D.2 City of Morro Bay Economic Characteristics

Characteristic	City of Morro Bay
Population Estimates (as of 2018)	10,581
Population Percent Change (2010-2018 estimates)	3.4%
Persons under 5 Years, Percent	3.8%
Persons over 65 Years, Percent	27.7%
Foreign born Person, Percent (2013-2017)	10.5%
Median Gross Rent (2013-2017)	$1,387
Median value of owner-occupied housing units (2013-2017)	$535,300
High School Graduate or Higher, Percent (2013-2017)	91.4%
Mean Travel to Work in Minutes) (2013-2017)	21.8
Median Household Income (in 2017 dollars, for 2013-2017)	$61,690
Persons in Poverty, Percent	10.1%

Source: U.S. Census Bureau American Community Survey 2018 - https://www.census.gov/quickfacts/morrobaycitycalifornia

Table D.3 City of Morro Bay Employment by Occupation

Occupation	% Employed	# Employed
Sales and Office Occupations	22.6%	1,048
Management, Business, Science, and Arts Occupations	38.6%	1,792
Service Occupations	18.7%	869
Production, Transportation, and Material Moving Occupations	10.8%	501
Natural Resources, Construction, and Maintenance Occupations	9.3%	433
Total		**4,643**

Source: U.S. Census Bureau American Community Survey 2013-2017, 5-Year Estimates www.census.gov

Table D.4 City of Morro Bay Employment by Industry

Industry	% Employed	# Employed
Educational Services, and Health Care and Social Assistance	25.6%	1,187
Retail Trade	13.1%	610
Professional, Scientific, and Mgmt., and Administrative and Waste Mgmt. Services	13.6%	631
Manufacturing	4.5%	208
Arts, Entertainment, and Recreation, and Accommodation, and Food Services	13.5%	626
Construction	8.1%	377
Finance and Insurance, and Real Estate and Rental and Leasing	3.7%	171
Public Administration	3.2%	150
Other Services, Except Public Administration	5.8%	268
Wholesale Trade	2.0%	94
Transportation and Warehousing, and Utilities	3.8%	175
Agriculture, Forestry, Fishing and Hunting, and Mining	1.0%	48

Industry	% Employed	# Employed
Information	2.1%	98
Total		**4,643**

Source: U.S. Census Bureau American Community Survey 2013-2017, 5-Year Estimates www.census.gov

D.1.5 Population

In May 2019, the State Department of Finance released preliminary population data for the State to reflect wildfire-driven changes to local populations. According to the report, the City of Morro Bay had a population of 10,439 persons as of January 2019, which accounts for approximately 26.9% of the County's population. This is slightly less than accounted for in the 2018 U.S. Census Bureau estimates from 2018, possibly due to small migration amounts following the 2018 fires. Table D.5 below summarizes a few key population characteristics for the City of Morro Bay.

Table D.5 City of Morro Bay Demographic and Social Characteristics

Characteristic	City of Morro Bay
Gender/Age	
Male	5,228
Female	5,340,
Median age	49.4
Under 5 years	400
Under 18 years	1,508
65 years and over	2,929
Race/Ethnicity	
White	9,620
Asian	317
Black or African American	140
American Indian/Alaska Native	82
Hispanic or Latino (of any race)	1,362
Education	
High school graduate or higher	7,472
Disability Status	
Population with a disability	1,334

Source: U.S. Census Bureau American Community Survey 2013-2017 5-Year Estimates, www.census.gov

D.1.6 Development Trends

Measure F, a voter initiative imposing a hard population cap of 12,200 to preserve Morrow Bay's small coastal town character, passed in 1984 (City of Morro Bay Local Hazard Mitigation Plan, 2012). Measure F estimated a population of 12,200 would be reached by the year 2000. In actuality, the population of Morro Bay has not reached said predictions and is currently approximated at 10,439 despite the addition of hundreds of housing units in Morro Bay during the period since passage of Measure F.

Despite the addition of many housing units and the lack of significant population pressure, housing prices in Morro Bay increased from $146,000 for a median priced home in 1996 to a median price of over $600,000 back

in 2006. The median housing cost decreased in 2017 to approximately $535,300, based on the U.S. Census Bureau estimates. Increased prices and decreased building opportunities has resulted in impacts to the cost of housing in the City. There are few vacant parcels within the City's boundaries, and due to the community's strong feelings toward the preservation of a small population size it is projected that future development will be infill and revitalization of existing parcels.

D.2 Hazard Identification and Summary

Morro Bay's planning team identified the hazards that affect the City and summarized their frequency of occurrence, spatial extent, potential magnitude, and significance specific to Morro Bay (Table D.6). There are no hazards that are unique to Morro Bay. The overall hazard significance considers the geographic area, probability and magnitude as a way to identify priority hazards for mitigation purposes. This is discussed further in the sections below.

Table D.6 City of Morro Bay – Hazard Summaries

Hazard	Geographic Area	Probability of Future Occurrence	Magnitude/ Severity (Extent)	Overall Significance
Adverse Weather: Thunderstorm/Heavy Rain/Hail/Lightning/Dense Fog/Freeze	Extensive	Highly Likely	Limited	High
Adverse Weather: High Wind/Tornado	Significant	Highly Likely	Limited	Medium
Adverse Weather: Extreme Heat	Significant	Highly Likely	Limited	Medium
Coastal Storm/Coastal Erosion/Sea Level Rise	Extensive	Likely	Critical	High
Earthquake and Liquefaction	Significant	Occasional	Catastrophic	High
Flood	Extensive	Highly Likely	Critical	High
Hazardous Trees	Extensive	Highly Likely	Limited	High
Landslides and Debris Flow	Limited	Occasional	Limited	Medium
Tsunami and Seiche	Extensive	Occasional	Catastrophic	High
Wildfire	Extensive	Highly Likely	Catastrophic	High
Human Caused: Hazardous Materials	Limited	Occasional	Negligible	Medium

Geographic Area
Limited: Less than 10% of planning area
Significant: 10-50% of planning area
Extensive: 50-100% of planning area

Probability of Future Occurrences
Highly Likely: Near 100% chance of occurrence in next year or happens every year.
Likely: Between 10 and 100% chance of occurrence in next year or has a recurrence interval of 10 years or less.

Magnitude/Severity (Extent)
Catastrophic—More than 50 percent of property severely damaged; shutdown of facilities for more than 30 days; and/or multiple deaths
Critical—25-50 percent of property severely damaged; shutdown of facilities for at least two weeks; and/or injuries and/or illnesses result in permanent disability
Limited—10-25 percent of property severely damaged; shutdown of facilities for more than a week; and/or injuries/illnesses treatable do not result in permanent disability

Occasional: Between 1 and 10% chance of occurrence in the next year or has a recurrence interval of 11 to 100 years. Unlikely: Less than 1% chance of occurrence in next 100 years or has a recurrence interval of greater than every 100 years.	Negligible—Less than 10 percent of property severely damaged, shutdown of facilities and services for less than 24 hours; and/or injuries/illnesses treatable with first aid **Significance** Low: minimal potential impact Medium: moderate potential impact High: widespread potential impact

D.3 Vulnerability Assessment

The intent of this section is to assess the City of Morro Bay's vulnerability separately from that of the County, which has already been assessed in Section 5 Hazard Identification and Risk Assessment (HIRA) in the Base Plan. This vulnerability assessment analyzes the population, property, and other assets (e.g. critical facilities) at risk to hazards ranked of medium or high significance that may vary from other parts of the planning area.

The key information to support the HIRA for this Annex was collected through a Data Collection Guide, which was distributed to each participating municipality, community services district, or special district to complete during the planning process. Information collected was analyzed and summarized in order to identify and rank all the hazards that could impact anywhere within the County, as well as to rank the hazards and identify the related vulnerabilities unique to each jurisdiction/district. In addition, the Morro Bay planning team was asked to share information on past hazard events that have affected the district.

Each participating jurisdiction or district was in support of the main hazard summary identified in the Base Plan (See Table 5.1). However, the hazard summary rankings for each jurisdictional annex may vary slightly due to specific hazard risk and vulnerabilities unique to that jurisdiction (see Table D.6). Identifying these differences helps the reader to differentiate the district's risk and vulnerabilities from that of the overall County.

Note: The hazard "Significance" reflects overall ranking for each hazard and is based on the Morro Bay planning team input from the Data Collection Guide and the risk assessment developed during the planning process (see Chapter 5 of the Base Plan), which included more detailed quantitative and qualitative analyses with best available data for all hazards in the County.

The hazard summaries in Table D.6 reflect the hazards that could potentially affect the district in major ways. Based on this analysis, the priority hazards are listed below. The discussion of vulnerability for each of the assessed hazards is in contained in the following sections. Hazards of Medium or High significance for Morro Bay are summarized below.

- Adverse Weather
- Earthquake and Liquefaction
- Flood
- Landslides and Debris Flow
- Coastal Storm/Coastal Erosion/Sea Level Rise
- Tsunami and Seiche
- Wildfire
- Human Caused: Hazardous Materials

Other Hazards

Hazards assigned a significance rating of Low may not be assessed at all within this annex. However, based on quantitative or historic occurrence proof of posing a risk to the community, certain hazards will be addressed for specific vulnerabilities in this annex (though perhaps in a limited capacity due to the Planning Team assigning a lower priority to said hazards). The hazards to the planning area which were rated by the Planning Committee are listed below. The majority were given minimum priority due to a lack of exposure, vulnerability, and/or no probability of occurrence or previous history or losses, though some will still contain a loss estimate discussion based again on potential risk to the district (if noted).

- Agricultural Pests and Plant Diseases
- Dam Incidents
- Drought and Water Shortage
- Land Subsidence

D.3.1 Assets at Risk

This section considers Morro Bay's assets at risk, including values at risk, critical facilities and infrastructure, historic assets, economic assets, and growth and development trends.

Values at Risk

Parcel geometry data was provided by ParcelQuest, a third-party service working alongside the San Luis Obispo County Assessor's Office to compile property information. The overall parcel data provided the baseline for an inventory of the total exposure of developed parcels within the County and helps to ensure that the updated Plan reflects changes in development. This data should only be used as a guideline to overall values in the City as the information has some limitations. It is also important to note that in the event of a disaster, it is generally the value of the infrastructure improvements that is of concern or at risk; generally, the land itself is not a loss. Table D.7 shows the exposure of properties (e.g., the values at risk based on improvement values, content values, and total values which are calculated by adding improvement and content values), broken down by parcel type for the City of Morro Bay

Table D.7 Parcel Exposure Values for the City of Morro Bay, by Parcel Types

Property Type	Parcel Count	Improved Value	Content Value	Total Value
Agricultural	1	$4,833	$4,833	$9,666
Commercial	251	$71,138,657	$71,138,657	$142,277,314
Government/Utilities	80	$374,774	--	$374,774
Other/Exempt/Misc.	131	$19,391,746	--	$19,391,746
Residential	4,060	$799,126,269	$399,563,135	$1,198,689,404
Multi-Family Residential	568	$127,309,679	$63,654,840	$190,964,519
Mobile/Manufactured Homes	16	$2,971,790	$1,485,895	$4,457,685
Residential: Other	164	$84,847,578	$42,423,789	$127,271,367
Industrial	8	$757,564	$1,136,346	$1,893,910
Vacant	41	$7,604,763	--	$7,604,763
Total	**5,320**	**$1,113,527,653**	**$579,407,494**	**$1,692,935,147**

Source: Wood Plc analysis based on ParcelQuest and San Luis Obispo County Assessor's Office data 2019

Critical Facilities and Infrastructure

A critical facility may be defined as one that is essential in providing utility or direction either during the response to an emergency or during the recovery operation.

An inventory of critical facilities in the District based on San Luis Obispo County GIS data as well as structures obtained from the Homeland Infrastructure Foundation-Level Dataset (HIFLD) is provided in Table D.8 as well as illustrated in Figure D.2. The four types of Critical Facilities categorized by San Luis Obispo County and its jurisdictions' and districts' planning teams are: Emergency Services, High Potential Loss Facilities, Lifeline Utility Systems, and Transportation Systems. Refer to Section 5.2 of the Base Plan for more information on the Assets used throughout this annex, including the definitions and categories of critical facilities, and the County-wide analyses.

Table D.8 City of Morro Bay's Critical Facilities

Facility Category	Facility Type	Counts
Emergency Services	Day Care Facilities	4
	Emergency Medical Service Stations	2
	Fire Stations	2
	Local Law Enforcement	1
	Nursing Homes	2
	Public Schools	2
High Potential Loss Facilities	Power Plants	1
Lifeline Utility Systems	Microwave Service Towers	2
	Wastewater Treatment Plants	1
	Energy Commission Facilities	1
Total		**18**

Source: San Luis Obispo County Planning and Building; LAFCO; HIFLD; Wood Plc analysis

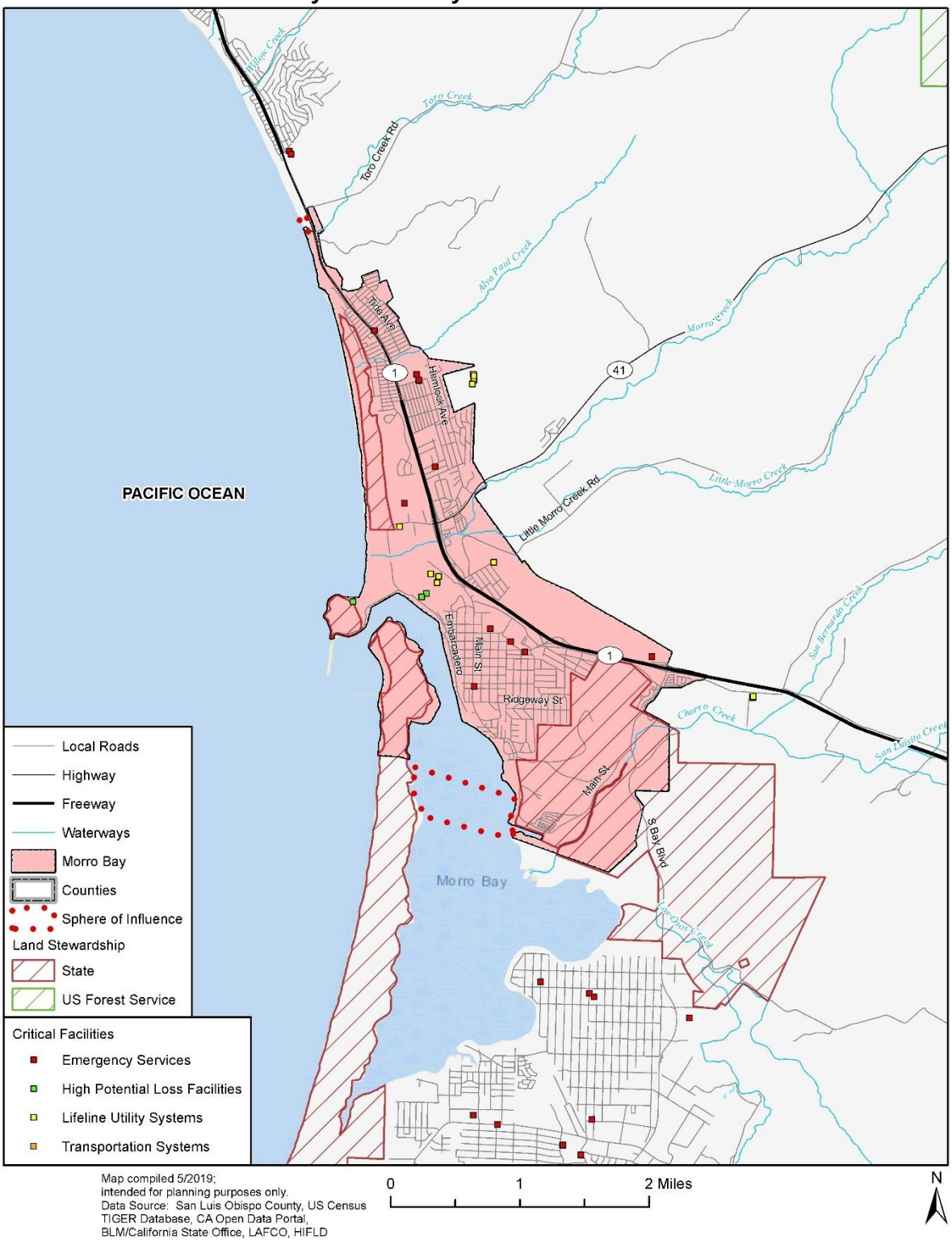
Table D.9 Details on the City of Morro Bay's Critical Facilities

Facility Type	Name
Day Care Facilities	California State Preschool at Del Mar
	Capslo - Sequoia Child Development Center
	Central Coast Montessori
	Morro Bay United Methodist Children's Center
EMS Stations	Morro Bay Fire Department Station 1
	Morro Bay Fire Department Station 2
Fire Stations	Morro Bay Fire Department Station 1
	Morro Bay Fire Department Station 2
Local Law Enforcement	Morro Bay Police Department
Microwave Service Towers	--
Nursing Homes	Casa De Flores/ Bay Side Care Center
	Garden House
Public Schools	Del Mar Elementary
	Morro Bay High School

Facility Type	Name
Wastewater Treatment Plant	Morro Bay/Cayucos Wastewater Treatment Plant
Power Plants	Dynegy, Inc.
Energy Commission Facilities	Morro Bay PG&E
Total	**21**

Source: San Luis Obispo County Planning and Building; LAFCO; HIFLD

Figure D.2 Critical Facilities in the City of Morro Bay



High Potential Loss Facilities

High potential loss facilities are considered critical facilities that present significant risks if damaged and include nuclear power plants, dams, and military installations. The City has one classified high potential loss facility: Dynergy's Morro Bay Power Plant.

Transportation Systems

The City of Morro Bay contains portions of Highway 41 and Highway 1, which are main sources of transportation access for the City and region. However, no critical facilities classified as part of essential/critical transportation systems were noted.

Lifeline Facilities

Lifeline Utility Systems include 2 Microwave Service Towers, 1 Wastewater Treatment Plant, and 1 Energy Commission Facilities for a total of 4 lifeline utility critical facilities.

Emergency Service Facilities

The City contains 13 Emergency Services facilities aimed at providing for the health and welfare of the entire community. These include day care facilities, emergency medical service stations, fire stations, local law enforcement stations, nursing homes, and schools as noted in Table D.8 and Table D.9.

Additional Critical Facilities

Additional Essential Infrastructures and Vulnerable Facilities to the district were noted by the Planning Team, which may or may not have been noted in the previous lists and tables. The 10 are summarized below along with their estimated replacement values (per the planning team input):

- City Hall - $2.5 million
- Police Station - $2.6 million
- Fire Station - $5 million
- Water Treatment Plant - $7.3 million
- Wastewater Treatment Plant - $129 million
- Community Center - $6.2 million
- Corporate Yard - $1.6 million
- Harbor Department - $4.5 million
- Public Works - $1.25 million
- Veterans Hall - $1.1 million

Historic and Cultural Resources

One of the most visually prominent historic natural landmarks immediately vulnerable to coastal hazards and sea level rise is Morro Rock. Morro Rock stands approximately 576 feet tall and was created from a volcanic plug. The area is a significant cultural and religious monument, as it was once the site of Chumash sacred rituals (City of Morro Bay 2018). Morro Rock is a protected State Historic Landmark (#821) that also provides nesting habitat for peregrine falcons, a previously endangered and currently fully protected species (Department of Fish and Wildlife 2019).

The City of Morro Bay has no registered federal historic sites; however, the State registered historical site, Morro Rock, is within the City Limits (State of California Office of Historic Preservation, 2019). Other historical sites of importance to the County of San Luis Obispo in Morro Bay are listed below.

- Filipino Landing - Coleman Park
- Morro Bay State Park - 20 State Park Road
- Morro Rock - Coleman Drive

Natural Resources

Natural resources are important to include in benefit-cost analyses for future projects and may be used to leverage additional funding for projects that also contribute to community goals for protecting sensitive natural resources. Awareness of natural assets can lead to opportunities for meeting multiple objectives. For instance, the Morro Bay coast is fronted by large sand dunes from Atascadero State Beach and continuing south through much of Montaña de Oro State Park that provide protection for developments located on terrace materials behind the sand dunes. The beach has widened about 250 feet near San Jacinto Avenue and almost 500 feet in front of Morro Bay High School in the past 50 years. This sandbar protects development in this region.

One of the most visually prominent historic natural landmarks immediately vulnerable to coastal hazards and sea level rise is Morro Rock. Morro Rock is a protected State Historic Landmark as mentioned above that also provides nesting habitat for peregrine falcons, a previously endangered and currently fully protected species.

Economic Assets

Morro Bay is the home of two of the largest agile manufactures in the Central Valley—PELCO (1,600 employees) and Anlin (350 employees). Loss of either employer would have the net result of almost 2,000 displaced employees and sales tax revenue in the millions of dollars.

D.3.2 Estimating Potential Losses

This section details vulnerability to specific hazards of medium or high significance, where quantifiable, noted by the Planning Team, and/or where it differs significantly from that of the overall County. Impacts of past events and vulnerability to specific hazards are further discussed below, though refer to Section 5 of the Base Plan for more details on the County's HIRA findings and hazard profiles.

Adverse Weather

Heavy rains and adverse storms occur in Morro Bay primarily during the late fall and winter but have a chance of occurring in every month of the year. According to information obtained from the Western Regional Climate Center (WRCC) the majority of precipitation is produced by storms during January and other winter months. Precipitation during the summer months is in the form of rain showers and is rare. Snowstorms, and hailstorms occur infrequently in San Luis Obispo County, and severe occurrences of any of these are very rare. Dense fog in Morro Bay reduces visibility making driving more dangerous during fog events. A fog advisory issued for San Luis Obispo County in October 2011 warned visibility could be as low as a quarter mile and reduce suddenly with denser patches. In March 2012 another fog advisory anticipated less than ¼ of normal visibility. Freeze events are a hazard to human populations as well as economic production. For example, historical records indicate in 1998 a winter cold air mass resulted in $5.4 million in crop damage harming agricultural interests in the City.

Of specific concern for Morro Bay is the combination of high winds, winter storms and the resultant high surf. Coastal communities in the County face increased hazards to high wind and extreme wind storms. The surfing industry of Morro Bay, which attracts visitors and tourists, could be at risk due to the hazard to human safety in the event of increasing unsafe wind events.

The climate of the County is influenced by the effects of the Santa Lucia Range, the Pacific Ocean, and routine climate patterns such as El Niño. Extreme heat events can have severe impacts on human health and mortality, natural ecosystems, the agriculture sector and other economic sectors. Coastal communities including Morro Bay on average have lower temperatures compared to communities in inland areas of the County and may be less at risk to extreme temperatures, although they may be potentially less acclimatized to high temperatures if the event of occurrence.

Loss of life is uncommon but could occur during severe storms depending on secondary effects or impacts. Immobility can occur when roads become impassable due to dense fog, heavy rains causing flooding, and even downed trees (often referred to as hazardous trees due to the threat they pose). Overall, the Morro Bay planning team has rated adverse weather hazards as holding **High Significance**.

Earthquake and Liquefaction

The greatest threat to Morro Bay from a natural hazard is considered to be a significant earthquake (City of Morro Bay, 2012; City Planning Team). The northwest trending Cambria Fault zone is within the City limits of Morro Bay (US Quaternary Fault 2019). Within the surrounding area, the East Hausna, La Panza, Los Osos, Edna, Nacimiento, Rinconada, San Andres, and San Simeon- Hosgri Faults are considered to pose a potential hazard to the City in catastrophic and cascading effects (City of Morro Bay 2012). Earthquake-event associated impacts have occurred in Morro Bay in the past including a number of magnitude 5.0 to 7.7 earthquakes. The City's residential area consists predominantly of framed-type structures, which contain some material flexibility allowing the structures to withstand larger seismicity impacts in earthquake events than masonry buildings. Structure's weak areas are between sill plates and the foundation especially in homes constructed prior to 1950. In any earthquake, the primary consideration is saving lives. Time and effort must also be dedicated to providing for mental health by reuniting families, providing shelter to displaced persons, and restoring basic needs and services. Major efforts will be required to remove debris and clear roadways, demolish unsafe structures, assist in reestablishing public services and utilities, and provide continuing care and temporary housing for affected citizens.

In addition to being at risk of groundshaking as a result of a fault rupture, the City of Morro Bay is also susceptible to the effects of liquefaction. Much of the City has soils with a moderate risk for liquefaction. A majority of the City is underlain by beach and sand dune sediments and alluvial soils. Areas along the Embarcadero are known to have been filled in over the years with a variety of fill materials, and when combined with the high-water table in the area, these areas are of some concern. The number of active or potentially active fault systems throughout the County and historical records of past earthquakes in the area caused a probability of earthquake-related damage to the City of Morro Bay as medium. Table D.10 below summarizes the parcels at risk of liquefaction (moderate and high risk), broken up by parcel type, while Figure D.3 displays the City's liquefaction zones as a map. Overall, the City has over $488 million of parcel improved values at risk from both risk categories, and a total of 4,193 exposed parcels.

A total of 17 critical facilities are found in either moderate or high-risk liquefaction zones in the City. These are listed in Table D.11 by facility type.

Earthquake and liquefaction hazards pose a **High Significance** for the City of Morro Bay.

Table D.10 City of Morro Bay Liquefaction Risk by Parcel Type

Parcel Type	Parcel Count	Improved Value
Moderate Risk		
Agricultural	1	$4,833
Commercial	63	$13,853,498
Government/Utilities	26	--
Other/Exempt/Miscellaneous	32	$4,581,431
Residential	1,660	$302,624,739
Multi-Family Residential	154	$28,317,154
Mobile/Manufactured Homes	4	$736,685
Residential: Other	7	$11,659,175
Industrial	5	$532,904
Vacant	17	$3,839,339
TOTAL	**1,969**	**$366,149,758**
High Risk		
Commercial	175	$43,257,911
Government/Utilities	40	$278,697
Other/Exempt/Misc.	78	$10,658,702
Residential	1,428	$278,017,365
Multi-Family Residential	342	$85,310,401
Mobile/Manufactured Homes	8	$1,605,910
Residential: Other	133	$65,889,513
Industrial	3	$224,660
Vacant	17	$2,864,979
TOTAL	**2,224**	**$488,108,138**
GRAND TOTAL (from both risk categories)	**4,193**	**$854,257,896**

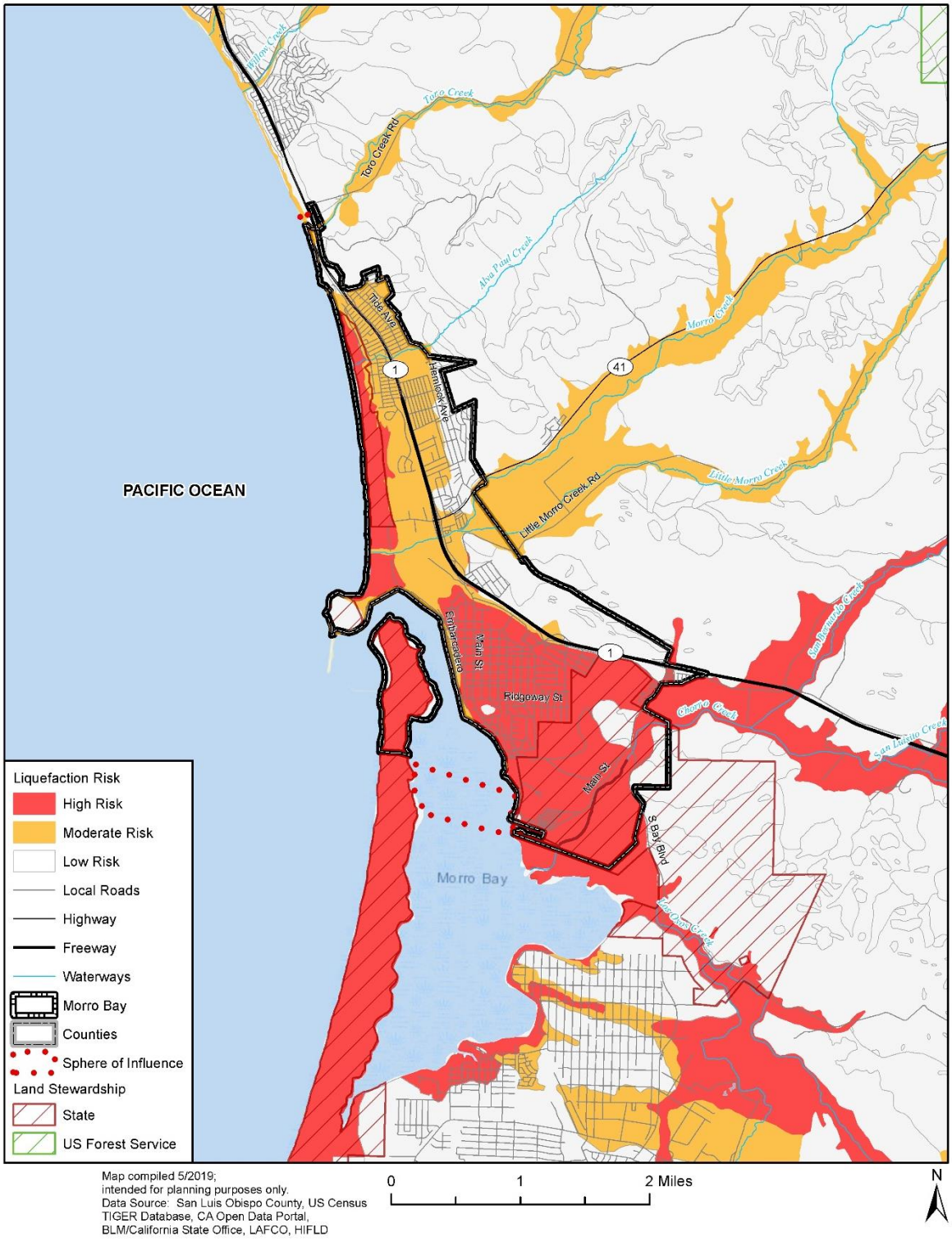
Source: San Luis Obispo County Planning and Building Dept., Assessor's Office, ParcelQuest, Wood Plc Parcel Analysis

Table D.11 Critical Facilities in Liquefaction Risk Areas in Morro Bay

Facility Type	Facility Count
Moderate Risk	
Day Care Facilities	3
Emergency Medical Service Stations	1
Fire Stations	1
Microwave Service Towers	3
Public Schools	2
Wastewater Treatment Plants	1
Power Plants	1
Total	**12**
High Risk	
Day Care Facilities	1
Emergency Medical Service Stations	1
Fire Stations	1

Facility Type	Facility Count
Moderate Risk	
Local Law Enforcement	1
Nursing Homes	1
Day Care Facilities	1
Total	**6**
GRAND TOTAL	**18**

Figure D.3 Liquefaction Risk in the City of Morro Bay



Flood

Historically, the City of Morro Bay has experienced severe flooding events that have resulted in extensive property damage. Areas with a history of flooding have a high probability of future flooding. Areas of concern include the following creek drainage systems: Chorro Creek, the Morro/Little Morro Creek convergence, No-Name Creek, Alva Paul Creek, Toro Creek, and San Bernardo Creek flow into and/or near the City. Chorro Creek is the largest and runs along the southern boundary of the City near two mobile home parks. Morro Creek runs parallel to Highway 41. These creeks present varying hazards and can block access to and egress from the City. When rainfall and surface run-off from a storm exceeds a drainage system's capacity to adequately channel and contain the water, flooding may occur. Potential flood areas include: The South Bay Boulevard area between Highway 1 and State Park Road; the area between Highway 41/Atascadero Road and Radcliff Avenue; low-lying sections of Island Street and Beachcomber; Highway 1, at the northern City limits; and, Highway 1 south of the City limit.

In Morro Bay, the most common type of flooding event is riverine flooding, also known as overbank flooding. Riverine floodplains range from narrow, confined channels in the steep valleys of mountainous and hilly regions, to wide, flat areas in plains and agricultural regions. The amount of water in the floodplain is a function of the size and topography of the contributing watershed, the regional and local climate, and land use characteristics. Flooding in steep, mountainous areas is usually confined, strikes with less warning time, and has a short duration. In addition to riverine flooding, Morro Bay is susceptible to flash flooding in smaller watersheds. Flash flood is a term widely used by experts and the general population, but there is no single definition or clear means of distinguishing flash floods from other riverine floods. Flash floods are generally understood to involve a rapid rise in water level, high velocity, and large amounts of debris, which can lead to significant damage that includes the tearing out of trees, undermining of buildings and bridges, and scouring of new channels. The intensity of flash flooding is a function of the intensity and duration of rainfall, steepness of the watershed, stream gradients, watershed vegetation, natural and artificial flood storage areas, and configuration of the streambed and floodplain. Urban areas are increasingly subject to flash flooding due to the removal of vegetation, installation of impermeable surfaces over ground cover, and construction of drainage systems. Wildland fires that strip hillsides of vegetation and alter soil characteristics may also create conditions that lead to flash floods and debris flows. Debris flows are may also create conditions that lead to flash floods and debris flows. Flood hazards have been determined to pose a **High Significance** risk to the City.

Values at Risk

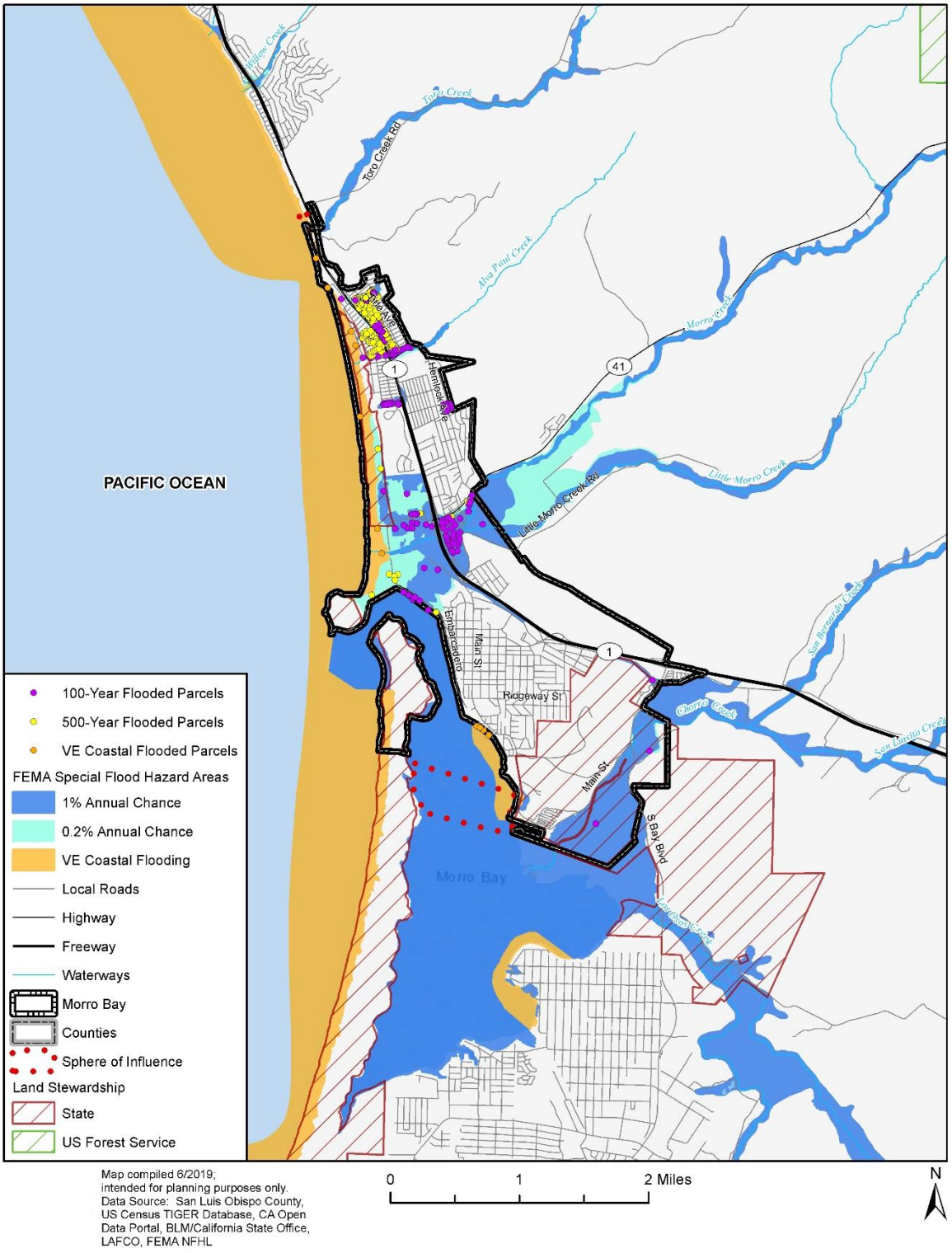
A flood vulnerability assessment was completed during the 2019 update, following the methodology described in Section 5.2 of the Base Plan. Table D.12 summarizes the values at risk in the City's 100-year, 500-year, and coastal (zone VE) floodplains. The table also details total values, loss estimates for each flood, and potential population at risk to each flooding zone. Figure D.4 shows the flooded parcels along with the FEMA flood hazard areas which cross the boundaries of Morro Bay.

Table D.12 City of Morro Bay Parcels in the Floodplains, by Parcel Type

Parcel Type	Parcel Count	Improved Value	Content Value	Total Value	Loss Estimate	Population
100-Year Floodplain						
Agricultural	1	$4,833	$4,833	$9,666	$2,417	--
Commercial	21	$6,671,912	$6,671,912	$13,343,824	$3,335,956	--
Government/Utilities	18	$96,077	--	$96,077	$24,019	--
Other/Exempt/ Miscellaneous	9	$777,341	--	$777,341	$194,335	--
Residential	93	$17,337,391	$8,668,696	$26,006,087	$6,501,522	233
Multi-Family Residential	20	$3,395,985	$1,697,993	$5,093,978	$1,273,494	50
Mobile/Manufactured Homes	2	$552,884	$276,442	$829,326	$207,332	5
Residential: Other	2	$2,881,233	$1,440,617	$4,321,850	$1,080,462	5
Industrial	3	$241,406	$362,109	$603,515	$150,879	--
Vacant	11	$3,456,946	--	$3,456,946	$864,237	--
TOTAL	**180**	**$35,416,008**	**$19,122,601**	**$54,538,609**	**$13,634,652**	**294**
500-Year Floodplain						
Commercial	5	$550,272	$550,272	$1,100,544	$275,136	--
Government/Utilities	4	--	--	$0	$0	--
Other/Exempt/ Miscellaneous	9	$793,698	--	$793,698	$198,425	--
Residential	221	$35,375,902	$17,687,951	$53,063,853	$13,265,963	555
Multi-Family Residential	24	$3,625,452	$1,812,726	$5,438,178	$1,359,545	60
Vacant	1	$7,290	--	$7,290	$1,823	--
TOTAL	**264**	**$40,352,614**	**$20,050,949**	**$60,403,563**	**$15,100,891**	**615**
Coastal (Zone VE) Floodplain						
Government/Utilities	9	--	--	$0	$0	--
Other/Exempt/ Miscellaneous	1	--	--	$0	$0	--
Vacant	1	$5,724	--	$5,724	$2,862	--
TOTAL	**11**	**$5,724**	**$0**	**$5,724**	**$2,862**	**-**
GRAND TOTAL (all floodplains)	**455**	**$75,774,346**	**$39,173,550**	**$114,947,896**	**$28,736,974**	**909**

Source: San Luis Obispo County Planning and Building Dept., Assessor's Office, ParcelQuest, Wood Plc Parcel Analysis, FEMA NFHL

Figure D.4 Flooded Parcels in the FEMA Flood Hazard Areas, City of Morro Bay



Based on this analysis, the City of Morro Bay has significant assets at risk to the 100-year, 500-year, and VE costal floods. There are 180 properties located within the 100-year floodplain for a total value of over $54 million. An additional 264 improved parcels valued at over $60 million fall within the 500-year floodplain, though the estimated losses would be about just over $13.6 million for the 100-year flood and a little over $15 million for the 500-year flood. With regards to coastal flooding, a total of 11 parcels are found to overlap with the VE coastal zone floodplain, for a total value of $5,724 and a loss estimate of $2,862.

The loss estimates for the 100- and 500-year flood events were calculated by taking 25% of the total values of the parcels, which in turn were found by adding up both improvement and content values for the parcels found to overlap with each of the floodplain layers, in GIS. The loss estimates for the costal (VE zone) floodplain were found by taking 50% of the total value from the parcel totals, as it is predicted that coastal flooding may damage properties found within its path more adversely than regular riverine flooding (such as is assumed for the 100- and 500-year flooding events).

For more information on the asset calculations, parcel analysis, and loss estimation curves based on FEMA and Hazus derived standards refer to the Base Plan (e.g. Section 5.2).

Limitations to the analysis performed and results shown: The analysis performed may include structures in the floodplains that are elevated at or above the level of the base-flood elevation, which will likely mitigate flood damage.

Population at Risk

Population at risk was estimated using the average persons per household values for the County of San Luis Obispo, based on the U.S. Census Bureau statistics. This figure is 2.51 persons per household. Then, this number was multiplied by the number of residential parcels found to overlap with the flooding layers in GIS, as it is assumed that no people live in non-residential parcels (e.g. commercial, government entities).

Insurance Coverage, Claims Paid, and Repetitive Losses

The City of Morro Bay joined the National Flood Insurance Program (NFIP) on February 15, 1974. NFIP Insurance data indicates that as of February 28, 2019, there were 175 flood insurance policies in force in the City with $54,027,900 of coverage. Of the 175 policies, 152 were residential (143 for single-family homes, 4 for two to four-unit homes, and 5 for other residential properties) while 23 were nonresidential. There are 67 polices in A01-30 & AE zone and 7 policies in A zones. The remaining 101 are in B, C, and X zones.

There have been 17 historical claims for flood losses totaling $243,005 that have been paid, out of 26 total cases submitted. According to the FEMA Community Information System there are no Repetitive Loss or Severe Repetitive Loss properties located in the jurisdiction.

Critical Facilities at Risk

Critical facilities are those community components that are most needed to withstand the impacts of disaster as previously described. There are seven critical facilities found in the 100-year floodplain in Morro Bay, and one critical facility (a public school) located in the City's 500-year floodplain. No critical facilities in Morro Bay are found to overlap with the coastal VE zone floodplain. It is particularly important to note that the critical facilities in the 500-year floodplain are all facilities that serve vulnerable populations and should be given special attention. Table D.13 below summarizes the critical facilities in the City's 100- and 500-year floodplains. The impact to the community could be great if these facilities are damaged or destroyed during a flood event.

Table D.13 Critical Facilities in the FEMA Flood Hazard Areas, Morro Bay

Floodplain	Critical Facility Type	Facility Count
100-year	Day Care Facilities	1
	Microwave Service Towers	3
	Wastewater Treatment Plant	1
	Energy Commission Facilities	1
	Power Plants	1
500-year	Public Schools	1
TOTAL		**8**

Source: San Luis Obispo County Planning and Building Dept., LAFCO, HIFLD, Wood Plc Parcel Analysis, FEMA NFHL

Landslides and Debris Flow

A well-documented history of landslide activity in the study area is present. Landslides activity is observable all along the Highway 1 corridor from San Luis Obispo, through the community of Morro Bay, and on north to San Simeon. In 1983, and again in 1995, very wet winters led to significant slope movement in the North Morro Bay area, north of Highway 41 and east of Highway 1; a number of slides caused the total destruction of homes, considerable damage to others, and damage to pipelines, driveways, and roadways. Numerous studies have documented unstable, landslide prone slopes in the Morro Bay area generally east of Highway 1 and north of Highway 4. A major landslide along the transportation routes in and out of the City of Morro Bay is a potential hazard to the heavily tourism-reliant economy.

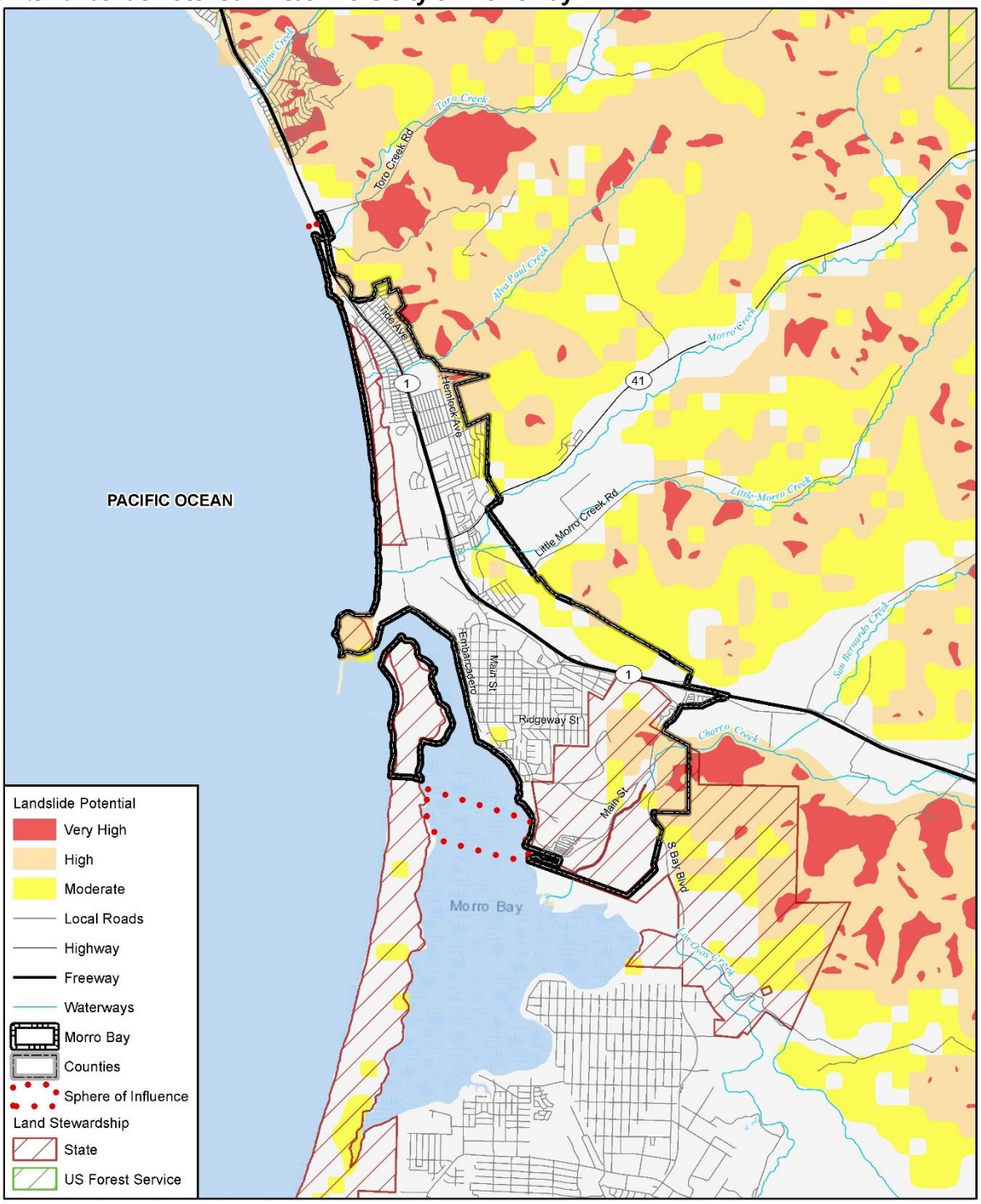
Table D.14 summarizes the parcel counts and values exposed to landslide potential areas in the City. Figure D.5 shows, in map form, where these landslide potential areas are in and near the City. One critical facility, a Microwave Service Tower, is located within the landslide potential areas in Morro Bay. Overall, landslide and debris flow hazards pose a **Medium Significance** risk to the City of Morro Bay.

Table D.14 City of Morro Bay Landslide Potential by Parcel Type

Property Type	Parcel Count	Improved Value
Moderate Landslide Potential		
Government/Utilities	4	--
Other/Exempt/Miscellaneous	1	$10,173
Residential	361	$93,272,094
Multi-Family Residential	5	$1,137,135
Industrial	1	$39,719
Vacant	6	$643,597
TOTAL	**378**	**$95,102,718**
High Landslide Potential		
Government/Utilities	3	--
Other/Exempt/ Miscellaneous	3	$234,780
Residential	299	$59,607,787
Multi-Family Residential	4	$584,147
Vacant	1	$136,000
TOTAL	**310**	**$60,562,714**
GRAND TOTAL	**688**	**$155,665,432**

Source: San Luis Obispo County Planning and Building Dept., LAFCO, Wood Plc Parcel Analysis

Figure D.5 Landslide Potential Areas in the City of Morro Bay



Coastal Storm/Coastal Erosion/Sea Level Rise

The entire 100-mile coastline of San Luis Obispo County and existing urban development and natural resources are potentially exposed to a range of coastal hazards, including coastal storms and coastal erosion. Such hazards are projected to become more severe when combined with sea level rise (see Section 5.3.4 - Coastal Storm and Erosion). The City's State Park, harbor, and developed and undeveloped coastal bluff trails are sources of community enhancement and the tourism-driven economy. Coastal hazards have the potential to harm the economic stability of the City. Additional areas of vulnerabilities include the low-lying development and development on higher elevated terraces in close proximity to beaches and sand dunes. The northern beach portions of Morro Bay are protected from serious erosion by a wide gentle slope, which is backed by a low series of small sand dunes. Erosion may occur each winter with the onslaught of large winter surf, however natural process returns the sand to the beach during the summer months. The infrastructure of the harbor entrance is a different matter. Large winter storms may have serious impacts on the jetties and breakwater that are an integral part of maintaining a safe navigable entrance to the harbor. The southern portions of the City and the Bay itself are protected by a wide beach and large series of tall sand dunes.

Sea level rise (SLR) has the potential to increase the frequency and severity of coastal hazards affecting coastal assets and resources in the City of Morro Bay. The City is susceptible to coastal hazards such as inundation, flooding, and bluff/dune erosion associated with extreme waves and water levels. Exposure of a coastal asset or resource to a hazard may result in varying impacts, depending on its function and its resiliency, which is its ability to withstand and recover from these events as outlined in the 2018 sea level rise adaption strategy report. These coastal storm, coastal erosion, and sea level rise hazards have been rated by the Planning Team as holding **High Significance** in the City.

As part of the 2019 HMP planning effort, a sea level rise risk assessment was completed to determine how sea level rise may affect coastal jurisdictions and critical facilities and how coastal flooding might be exacerbated in the future. Table D.15 lists the critical facilities that would be affected by sea level rise. There is no risk until the 300 cm scenario; facilities identified include the Morro Bay High School, and the Morro Bay/Cayucos wastewater treatment plan, the power plant and an PG&E substation. Table D.16 and Table D.17 summarize the other properties at risk of inundation by sea level rise and sea level rise combined with a FEMA 1% annual chance flood. The area of inundation by sea level rise and sea level rise combined with the 1% flood are shown in Figure D.6 and Figure D.7, respectively. See Section 5.3.4 Coastal Storm/Coastal Erosion/Sea Level Rise in the base plan for more details on the scenarios and data sources used for this analysis.

Table D.15 Critical Facilities Inundated by Sea Level Rise

Sea Level Rise	Critical Facility Type	Facility Count
300-cm	Microwave Service Towers	3
	Wastewater Treatment Plant	1
	Energy Commission Facilities	1
	Power Plants	1
	Schools	1
TOTAL		**7**

Table D.16 Properties Inundated by Sea Level Rise and Sea Level Rise with 1% Annual Chance Flood

Property Type	25-cm SLR	75-cm SLR	300-cm SLR	25-cm SLR w/ 1% Flood	75-cm SLR w/ 1% Flood	300-cm SLR w/ 1% Flood
Commercial	--	--	12	--	1	12
Government/Utilities	1	1	19	1	3	19
Other/Exempt/Misc.	--	--	6	--	--	9
Residential	--	1	12	1	1	76
Residential: Other	--	--	3	--	1	4
Vacant	1	1	3	1	1	4
Total	**2**	**3**	**55**	**3**	**7**	**124**

Source: Wood analysis with USGS CoSMoS 3.1 data

Table D.17 Improved Values of Properties Inundated by Sea Level Rise and Sea Level Rise with 1% Annual Chance Flood

Property Type	25-cm SLR	75-cm SLR	300-cm SLR	25-cm SLR w/ 1% Flood	75-cm SLR w/ 1% Flood	300-cm SLR w/ 1% Flood
Commercial	--	--	$4,441,799	--	$800,000	$4,441,799
Government/Utilities	--	--	--	--	--	--
Other/Exempt/Misc.	--	--	$74,906	--	--	$74,906
Residential	--	$42,463	$3,930,417	$42,463	$42,463	$30,817,911
Residential: Other	--	--	$7,707,961	--	--	$9,981,210
Vacant	$5,724	$5,724	$3,312,145	$5,724	$5,724	$3,337,145
Total	**$5,724**	**$48,187**	**$19,467,228**	**$48,187**	**$4,920,431**	**$48,652,971**

Source: Wood analysis with USGS CoSMoS 3.1 data

Figure D.6 Morro Bay Sea Level Rise Scenario Analysis: Tidal Inundation Only

Figure D.7 Morro Bay Sea Level Rise Scenario Analysis: Tidal Inundation and 1% Annual Chance Flood

Tsunami and Seiche

Tsunami inundation poses a risk to all coastal communities in the County of San Luis Obispo including Morro Bay. Offshore faults and related seismic activity could cause a tsunami event off the coast of Morro Bay, even if the faults are thousands of miles away. Historically, significant tsunamis on the Central Coast of California have been infrequent. Few incidences have been recorded and the historical record is not extensive enough to develop accurate reoccurrence predictions. The potential tsunami hazard for the City's coastal areas is greatest for those communities or portions of communities that are located at or below 50 feet above mean sea level. In general, much of the Coast of Morro Bay is protected from tsunami hazards by wide beaches, coastal dunes, or sea cliffs that provide protection for coastal developments. Coastal developments most vulnerable to the tsunami hazards are those located near mouths of streams that drain into the Pacific Ocean. The potential for damage to coastal structures would likely increase if the tsunami event were to coincide with a high tide, storm related waves, or large winter storm runoff. Tsunami hazards are predicted in the following locations within the City of Morro Bay: Morro Creek, Alva Paul Creek, Chorro Creek, Atascadero Beach, the harbor area, and Embarcadero.

A GIS analysis performed on the parcels and the tsunami inundation layers determined that 332 parcels with an estimated loss value of over $145 million are at risk of this hazard. See Table D.18 for a summary of the parcel count, improved values, content values, total values, loss estimates (which in this case equal the total values), and population at risk of tsunami inundation. Figure D.8 displays these tsunami inundation areas on the coast of the City.

Critical Facilities were also overlaid with the tsunami inundation layers in GIS. This analysis yielded a total of seven facilities found at risk. These are listed in

Table D.19.

Tsunami and Seiche hazards have been rated by the City's planning team as holding **High Significance**.

Table D.18 Parcels in the Tsunami Inundation Zones in the City of Morro Bay

Property Type	Parcel Count	Improved Value	Content Value	Total Value	Loss Estimate	Population
Commercial	19	$5,909,664	$5,909,664	$11,819,328	$11,819,328	--
Government/ Utilities	42	$96,077	--	$96,077	$96,077	--
Other/Exempt/ Miscellaneous	21	$783,694	--	$783,694	$783,694	--
Residential	236	$76,829,089	$38,414,545	$115,243,634	$115,243,634	592
Mobile/ Manufactured Homes	1	$257,130	$128,565	$385,695	$385,695	3
Residential: Other	3	$8,883,394	$4,441,697	$13,325,091	$13,325,091	8
Industrial	3	$241,406	$362,109	$603,515	$603,515	--
Vacant	7	$3,361,253	--	$3,361,253	$3,361,253	--
TOTAL	**332**	**$96,361,707**	**$49,256,580**	**$145,618,287**	**$145,618,287**	**602**

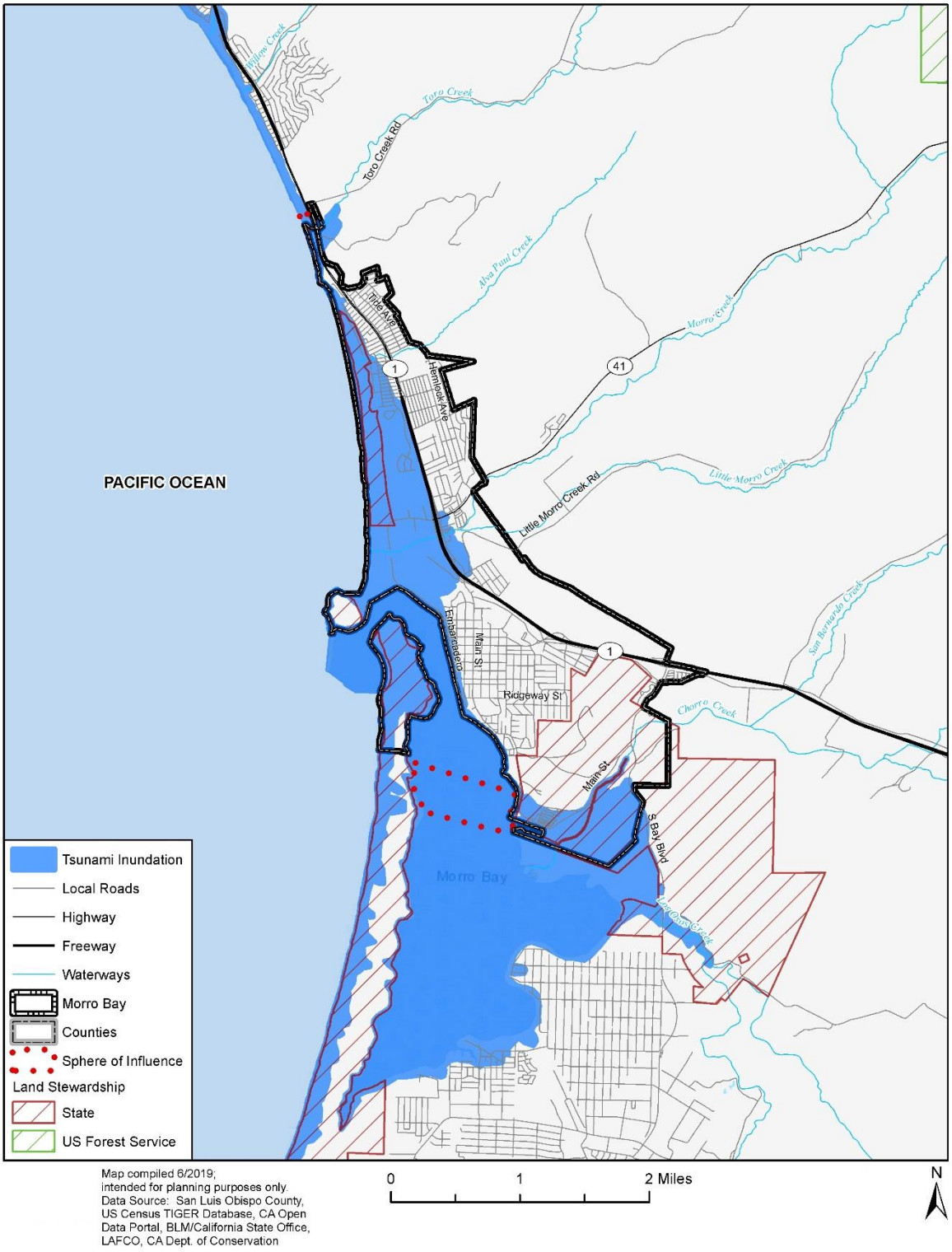
Source: San Luis Obispo County Planning and Building Dept., LAFCO, Wood Plc Parcel Analysis, CA Department of Conservation

Table D.19 Critical Facilities in the Tsunami Inundation Zones, City of Morro Bay

Property Type	Parcel Count
Wastewater Treatment Plant	1
Public Schools	1
Energy Commission Facilities	1
Power Plants	1
Microwave Service Towers	2
TOTAL	**6**

Source: San Luis Obispo County Planning and Building Dept., LAFCO, HIFLD, Wood Plc Parcel Analysis, CA Department of Conservation

Figure D.8 Tsunami Inundation Areas in the City of Morro Bay



Wildfire

Weather plays a key factor in the wildland fire potential in Morro Bay. Rain fall occurs primarily between the months of November and April, and ranges between 20 to 25 inches per year. Summers are typically cool with fog and or high humidity the norm. Wind in the area, a key factor in spread, is quite predictable and is usually moisture laden due to the close proximity of the ocean. Fall season typically shows drier and warmer days, which combine with the lack of rainfall to increase the fire hazard threat. Despite the temperate climate in the City, the lack of rainfall can lead to an increase in fire hazard threat. Fuel sources in the Morro Bay area are diverse, including everything from dead tree leaves, twigs, and branches to dead standing trees, live trees, brush, and cured grasses. The type of prevalent fuel directly influences the behavior of wildfire, and the City's planning team has identified hazardous trees as potentially increasing fuel sources.

Wildland fires can be classified as urban fires, interface or intermix fires, or prescribed fires. The following three factors contribute significantly to wildland fire behavior:

Topography: As slope increases, the rate of wildland fire spread increases. South-facing slopes are also subject to more solar radiation, making them drier and thereby intensifying wildland fire behavior. However, ridge tops may mark the end of wildland fire spread because the speed at which a fire moves downhill is much slower, sometimes resulting in a natural fire barriers.

Fuel: The type and condition of vegetation plays a significant role in the occurrence and spread of wildland fires. Certain types of plants are more susceptible to burning or will burn with greater intensity. Dense or overgrown vegetation increases the amount of combustible material available to fuel the fire (referred to as the "fuel load"). The ratio of living to dead plant matter is also important. The risk of fire is increased significantly during periods of prolonged drought as the moisture content of both living and dead plant matter decreases. The fuel's density, both horizontally and vertically, is also an important factor.

Weather: The most variable factor affecting wildland fire behavior is weather. Temperature, humidity, wind, and lightning can affect chances for ignition and spread of fire. Extreme weather, such as high temperatures and low humidity, can lead to extreme wildland fire activity. By contrast, cooling and higher humidity often signals reduced wildland fire occurrence and easier containment.

The frequency and severity of wildland fires is also dependent upon other hazards, such as lightning, drought, and infestations (such as the 2003 firestorm damage to southern California alpine forests by the pine bark beetle). If not promptly controlled, wildland fires may grow into a large scale emergency or disaster. Even small fires can threaten lives and resources and destroy improved properties. The indirect effects of wildland fires can be catastrophic. In addition to stripping the land of vegetation and destroying forest resources, large, intense fires can harm the soil, waterways, and the land itself. Soil exposed to intense heat may lose its capability to absorb moisture and support life. Exposed soils erode quickly and enhance siltation of rivers and streams, thereby enhancing flood potential, harming aquatic life, and degrading water quality. Lands stripped of vegetation are also subject to increased debris flow hazards, as described above.

Wildland fires are common occurrences in San Luis Obispo County. The most significant wildland fires within the county have been located in the northern division of the Los Padres National Forest. In 1994, a 49,000-acre fire burned forestland from the western portion of Morro Bay to Morro Bay. In 1996, 106,000 acres burned in the Machesna Mountain Wilderness area southeast of the City before the fire was contained. A little over one year later, a 30,000-acre wildland fire burned in forestland in the southern portion of San Luis Obispo County. The

largest historical wildfire in the City limits of Morro Bay was contained to approximately seven acres. The open lands in and adjoining the City have been categorized by the California Department of Forestry and Fire Protection's Fire and Resource Assessment Program (FRAP), as being of a Medium Fire Hazard. The areas that are at risk from a large-scale wildland fire are mostly located on the edge of the City limits. These "fringe" areas are where there is the most potential for a wild fire to cause significant property damage, however most of these lands are grazed by cattle and the fuel loads are kept to a minimum. The neighborhoods bordering the Morro Bay State Park and Black Hill area also constitute wildfire urban interface problem.

Following the methodology described in the wildfire hazard Section 5.3.12 Wildfire of the Base Plan, along with the GIS parcel analysis discussed in more detail under Section 5.2 Asset Summary, a wildfire vulnerability analysis for the City of Morro Bay was completed. The assessment was performed using GIS, and results indicate that there were neither parcels nor critical facilities in wildfire severity hazard zones within the boundaries of the City of Morro Bay. However, wildfire hazards have been rated by the City's planning team as holding **High Significance** based on the community's experience and historical evidence.

Human Caused: Hazardous Materials

The City of Morro Bay is at risk of both hazardous material incidents at fixed facilities as well as materials being transported on Highway 101 which traverse the City's jurisdiction and is considered a major transportation route for shipping hazardous materials. An incident along this Highway would expose a significant portion of the City's population as well as the local economy if Highway 101 was to be shut down for an extended period of time.

The Cal OES Warning Center reports 266 hazardous materials incidents in the City of Morro Bay from 1994 through October 24, 2018; as noted in Section 5.3.13 of the Base Plan, this likely excludes a large number of unreported minor spills. These over two hundred incidents constitute 15% of the hazardous materials incidents reported countywide during the same time frame, which in turn averages to roughly 10.6 incidents per year in or near Morro Bay. As noted in Section 5.3.13, only around 6% of reported hazardous materials incidents result in injuries, fatalities, or evacuations. Although there are no significant hazardous materials facilities located in the City, Morro Bay sits within the Emergency Planning Zone for the Diablo Canyon Nuclear Power Plant. Overall, the planning team has classified Hazardous Materials as holding **Medium Significance** for the jurisdiction.

D.4 Capability Assessment

Capabilities are the programs and policies currently in use to reduce hazard impacts or that could be used to implement hazard mitigation activities. This capability assessment is divided into five sections: regulatory mitigation capabilities, administrative and technical mitigation capabilities, fiscal mitigation capabilities, mitigation outreach and partnerships, and other mitigation efforts.

To develop this capability assessment, the jurisdictional planning representatives used a matrix of common mitigation activities to inventory which of these policies or programs were in place. The team then supplemented this inventory by reviewing additional existing policies, regulations, plans, and programs to determine if they contributed to reducing hazard-related losses.

During the plan update process, this inventory was reviewed by the jurisdictional planning representatives and Wood consultant team staff to update information where applicable and note ways in which these capabilities have improved or expanded. In summarizing current capabilities and identifying gaps, the jurisdictional planning representatives also considered their ability to expand or improve upon existing policies and programs as

potential new mitigation strategies. The City of Morro Bay's updated capabilities are summarized below in Table D.20.

D.4.1 Regulatory Mitigation Capabilities

Table D.20 City of Morro Bay Regulatory Mitigation Capabilities

Regulatory Tool	Yes/No	Comments
General plan	Yes	Land Use Element, Circulation Element, Housing Element, Noise Element, Safety Element, Conservation and Open Space Element, Access and Recreation Element, and Visual Resources and Scenic Highway Element
Zoning ordinance	Yes	Title 17: Zoning Regulations of the City of Morro Bay Code
Subdivision ordinance	Yes	Title 16: Subdivisions
Growth management ordinance	Yes	Ordinance No. 266
Floodplain ordinance	Yes	Chapter 14.72 General Provisions
Other special purpose ordinance (stormwater, water conservation, wildfire)	Yes	Chapter 14.48 Building Regulations: Illicit Discharge and Stormwater Management Control, Chapter 13.04.345 Mandatory Water Conservation Requirements Ordinance under Emergency Water Levels
Building code	Yes	Chapter 14.03
Fire department ISO rating	Yes	Class 5
Erosion or sediment control program	Yes	Erosion and Sediment Control Manual
Stormwater management program	Yes	Chapter 14.48- Illicit Discharge and Stormwater Management Control
Site plan review requirements	Yes	Chapter 17. 40 Planned Development Overlay Zone
Capital improvements plan	No	
Economic development plan	Yes	Morro Bay Economic Development Roadmap
Local emergency operations plan	Yes	Chapter 8.08.080- Emergency Plan, County EOP (2016)
Other special plans	Yes	E.g., Downtown Waterfront Strategic Plan, Local Coastal Plan – More online
Flood Insurance Study or other engineering study for streams	Yes	2017
Elevation certificates (for floodplain development)	Yes	Section 14.72.020- Provisions for Flood Hazard Reduction

D.4.2 Administrative/Technical Mitigation Capabilities

Table D.21 identifies the personnel responsible for activities related to mitigation and loss prevention in Morro Bay.

Table D.21 City of Morro Bay Administrative/Technical Mitigation Capabilities

Personnel Resources	Yes/No	Department/Position
Planner/engineer with knowledge of land development/land management practices	Yes	Community Development
Engineer/professional trained in construction practices related to buildings and/or infrastructure	Yes	Community Development Public Works
Planner/engineer/scientist with an understanding of natural hazards	Yes	Planning/Fire Department
Personnel skilled in GIS	Yes	Technology
Full time building official	Yes	Community Development
Floodplain manager	Yes	Public Works
Emergency manager	Yes	City Manager
Grant writer	Yes	Administration Services
GIS Data Resources (Hazard areas, critical facilities, land use, building footprints, etc.)	Yes	Public Works
Warning systems/services (Reverse 9-11, outdoor warning signals)	Yes	Dispatch

D.4.3 Fiscal Mitigation Capabilities

In order to achieve the goals and objectives of the Mitigation Strategy, one or more of the following funding sources could be utilized: federal and state entitlements and grants, 58 general fund, sales and property taxes, infrastructure user fees, impact fees, and new development impact fees. The City of Morro Bay has the necessary budgetary tools and practices in place to facilitate handling appropriate funds; however, funding sources are very limited. Table A.16 identifies financial tools or resources that the City could potentially use to help fund mitigation activities.

Table D.22 City of Morro Bay Fiscal Mitigation Capabilities

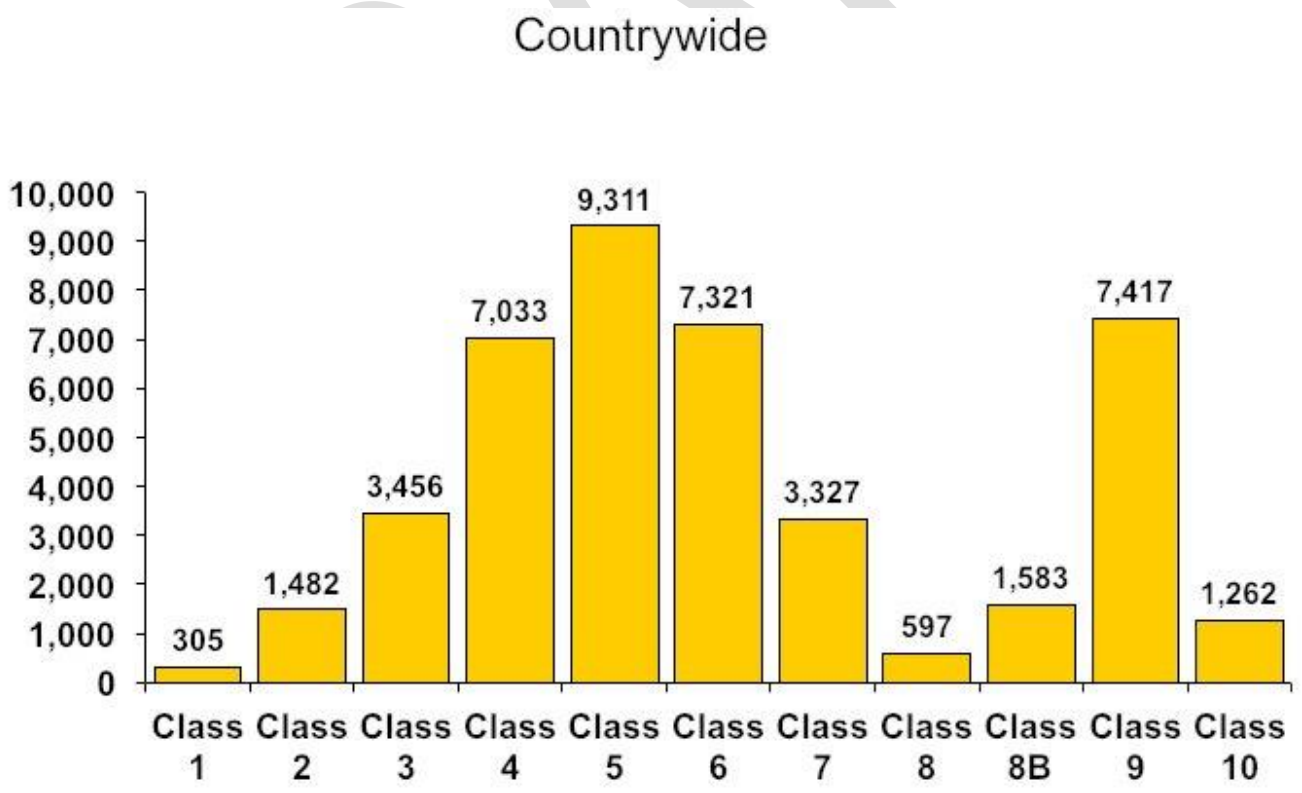
Financial Resources	Accessible/Eligible to Use (Yes/No)
Community Development Block Grants	Yes
Capital improvements project funding	Yes
Authority to levy taxes for specific purposes	Yes
Fees for water, sewer, gas, or electric services	Yes
Impact fees for new development	Yes
Incur debt through general obligation bonds	Yes
Incur debt through special tax bonds	Yes
Incur debt through private activities	No
Withhold spending in hazard prone areas	No

D.4.4 Mitigation Outreach and Partnerships

The County of San Luis Obispo conducted community outreach within the City limits to receive feedback from stakeholders on outlined mitigation strategies within the SLO County Multi-Jurisdictional Hazard Mitigation Plan. The City of Morro Bay maintains partnerships with the local Morro Bay, Fire, Police, and Harbor Departments to provide daily, long-term services required under the LHMP and the SLO County Multi-Jurisdictional Hazard Mitigation Plan. The City's fire prevention and suppression services are provided by the City of Morro Bay Fire Department (MBFD), a fire and emergency service organization. As of June 2019, MBFD is staffed by 11 full time professional firefighters, 16 part time reserve firefighters, and 1 administrative assistant. The City of Morro Bay Police Department (MBPD) provides law enforcement services for the City. As of June 2019, MBPD is staffed at 17 sworn officers including the Chief and Commander and one reserve officer, for a ratio of 1.7 officers per 1,000 residents. The Harbor Department of the City of Morro Bay provides a high level of service in community education (water safety programs), public outreach, and community relations for boaters, beach users, and waterfront visitors. The Harbor Department is also involved with resource management for the City's beaches and natural resources including coordination with state and federal regulatory agencies.

D.4.5 Other Mitigation Efforts

The Morro Bay Fire Department continusely reviews its current Insurance Service Office (ISO) Class 3 rating. The ratings calculate how well-equipped fire departments are to put out fires in that community. The ISO provides this score, often called the "ISO fire score," to homeowners insurance companies. The insurers then use it to help set homeowners insurance rates. The more well-equipped your fire department is to put out a fire, the less likely your house is to burn down. And that makes your home less risky, and therefore less expensive, to insure.



D.4.6 Opportunities for Enhancement

Based on the capability assessment, the City of Morro Bay has several existing mechanisms in place that help to mitigate hazards. There are also opportunities for the City to expand or improve on these policies and programs to further protect the community. Future improvements may include providing training for staff members related to hazards or hazard mitigation grant funding in partnership with the County and Cal OES. Additional training opportunities will help to inform City staff members on how best to integrate hazard information and mitigation projects into their departments. Continuing to train City staff on mitigation and the hazards that pose a risk to the City of Morro Bay will lead to more informed staff members who can better communicate this information to the public.

D.5 Mitigation Strategy

D.5.1 Mitigation Goals and Objectives

The City of Morro Bay's Hazard Mitigation Planning Group determined the goals from the 2012 Local Hazard Mitigation Plan continue to be appropriate for this plan update. The Group coordinated with the Fire Chief and the City Engineer to develop the following set of goals, objectives and mitigation actions for review by the City Council. The following are the City of Morro Bay's 2019 mitigation goals:

Goal 1. Promote disaster-resiliency for future development to help them become less vulnerable to hazards.

Objective 1.1 Facilitate the development (or updating) of the City's Comprehensive Plan, City General Plans, and zoning ordinances to limit (or ensure safe) development in hazard areas.

Objective 1.2: Facilitate the incorporation and adoption of building codes and development regulations that encourage disaster resistant design.

Objective 1.3: Facilitate consistent implementation of plans, zoning ordinances, and building and fire codes.

Goal 2. Enhance hazard mitigation coordination and communication.

Objective 2.1: Address data limitations identified in Hazard Profiling and Risk Assessment. Provide education to key stakeholders and the public to increase awareness of hazards and opportunities for mitigating hazards.

Objective 2.2: Increase awareness and knowledge of hazard mitigation principles and practice among local government officials.

Objective 2.3 : Participate in initiatives that have mutual hazard mitigation benefits for the City.

Objective 2.4: Encourage other organizations, within the public, private, and non-profit sectors, to incorporate hazard mitigation activities into their existing programs and plans.

Goal 3. Build and support local capacity and commitment to minimize the City's vulnerability to potential hazards.

Objective 3.1 Improve existing capabilities to warn the public of emergency situations.

Objective 3.2 Develop programs to enhance the safety of residents, students, and staff within the community.

Objective 3.3 Continue to support the applicable City departments in their ability to respond effectively to major emergencies.

Goal 4. Minimize the level of damage and losses to people as well as existing and future critical facilities and infrastructure due to flooding.

Objective 4.1 Implement policies, procedures, and regulations to reduce the exposure to flood hazards

Objective 4.2 Protect the improved property, natural resources, and life that are vulnerable to flood hazards.

Objective 4.3 Reduce the vulnerability of community assets particularly critical facilities located within the 100-year floodplain.

Objective 4.4 Continue to support and fund creek maintenance activities such as monitoring modifying property owners of hazardous conditions, as well as performing routine creek maintenance as needed and permitted by the California Department of Fish and Game.

Goal 5. Minimize the level of damage and losses to people, existing and future critical facilities and infrastructure to tsunamis.

Objective 5.1 Develop a comprehensive approach to reducing the level of damage and losses resulting from tsunami events.

Objective 5.2 Protect the improved property, natural resources, and life vulnerable to a tsunami event.

Goal 6. Minimize the level of damage and losses to people and existing and future critical facilities and infrastructure due to wildland fires.

Objective 6.1 Develop a comprehensive approach to reducing the level of damage and losses due to wildland fires.

Objective 6.2 Protect the improved property, natural resources, and life vulnerable to the effects of wildland fires.

Objective 6.3 Educate the public about wildland fire dangers and mitigation measures.

Goal 7. Minimize the level of damage and loses to people and existing and future critical facilities and infrastructure due to earthquakes.

Objective 7.1 Develop a comprehensive approach to reducing the level of damage and losses due to earthquakes.

Objective 7.2 Protect the improved property, natural resources, and life vulnerable to the effects of earthquakes.

Goal 8. Minimize the level of damage and losses to people and existing and future critical facilities and infrastructure due to the accidental spills and releases of Hazardous Materials.

Objective 8.1 Support the existing comprehensive approach to reducing the level of damage and losses due to the accidental spills and releases of hazardous materials.

Objective 8.2 Protect the improved property, natural resources, and life vulnerable to the accidental spills and releases of hazardous materials.

Goal 9. Minimize the level of damage and losses to people and existing and future critical facilities and infrastructure due to biological agent threats.

Objective 9.1 Develop a comprehensive approach to minimizing the loss of human life and livestock and agricultural products due to biological agent threats.

Continued Compliance with the National Flood Insurance Program

The City has been an NFIP participating community since 1979. In addition to the mitigation actions identified herein the City will continue to comply with the NFIP. This includes ongoing activities such as enforcing local floodplain development regulations, including issuing permits for appropriate development in Special Flood Hazard Areas, and ensuring that this development mitigated in accordance with the regulations. This will also include periodic reviews of the floodplain ordinance to ensure that it is clear and up to date, and reflects new or revised flood hazard mapping.

D.5.2 Completed 2006 Mitigation Actions

During the 2019 planning process the City of Morro Bay Planning Team reviewed all the mitigation actions from the 2006 LHMP. The review indicated the City has completed eleven mitigation actions since 2006, and has made continued progress in implementing mitigation projects and building the community's resilience to disasters. The completed actions have reduced vulnerability to hazards and increased local capability to implement additional mitigation actions. Table D.23 below show the mitigation actions that have been completed since 2006.

Table D.23 City of Morro Bay Completed Mitigation Actions

Action ID	Corresponding Hazard(s)	Mitigation Action	Lead Agency	Priority	Actions Status Notes
3.B	Multi	Support the development of the County Regional Community Emergency Response Team (CERT) in the local areas.	Fire Department	Medium	completed
3.D	Multi	Task the Disaster Council with developing a Continuity of Operations Plan (COOP) for the City	Fire Department	High	completed
4.B	Flood	Maintain compliance with the National Flood Insurance Program (NFIP) requirements	Community Development/ Public Safety	Medium	continuous
4.C	Flood	Continue to participate and support the San Luis Resource Conservation District (RCD) County Flood Control Zone	Admin/ Community Development	High	continuous
4.D	Flood	Restrict construction of essential service facilities in the 100-year floodplain areas	Community Development	Medium	completed
5.D	Tsunami	Restrict construction of essential service facilities in tsunami inundation zone	Community Development	Medium	completed
6.C	Wildfire	Continue to enforce codes and ordinances that eliminate the use of wood shake roofs	Community Development Fire Department	Medium	continuous
6.D	Wildfire	Develop codes and ordinances that require fire sprinkler systems in all new structures built in the wildland urban interface areas of the City	Community Development Fire Department	Medium	continuous
7.B	Earthquake	Require property owners of URM buildings to post-approved signage on site	Public Safety	High	completed
8.A	Hazardous Materials	Establish a goal of sending one fire department employee every three years through the California Specialized Training Institute Hazardous Materials Specialist program so that they may become a member of the county's hazardous materials response team	Fire Department	Medium	completed
9.D	Biological Agents	Support establishment of a Vector Control District in San Luis Obispo County	Admin/Fire Department	Medium	continuous

D.5.3 Mitigation Actions

The Planning Team for the City of Morro Bay identified and prioritized the following future mitigation actions based on the conducted risk assessment (see Table D.24). Background information and information on how each action will be implemented and administered, such as ideas for implementation, responsible office, potential funding, estimated cost, and timeline are also included. Actions were prioritized using the process described in Section 7.2.1 of the Base Plan. Actions with an asterisk (*) are those that mitigate losses to future development.

Table D.24 City of Morro Bay 's Mitigation Action Plan

ID	Hazard(s) Mitigated	Description/Background/Benefits	Lead Agency and Partners	Cost Estimate	Potential Funding	Priority	Timeline	Status/ Implementation Notes
MB.1	Adverse Weather, Coastal Erosion/Sea Level Rise, Earthquake, Flood, Landslides, Tsunami, Wildfire	Educate the planning staff, City administrative staff and elected officials on the importance of keeping up to date on trends and developments in disaster preparedness. Attendance at seminars and lectures on the specific hazards would enable staff to make appropriate recommendations to the governing bodies as they go about the process of approving new developments.	All	Little to no cost	General Fund	Medium	Annual	Annual implementation
MB.2	Adverse Weather, Coastal Erosion/Sea Level Rise, Earthquake, Flood, Landslides, Tsunami, Wildfire	Through newsletters, advertisements, speaking engagements and other public contacts, educate the general public and key stakeholders on the issues, responsibilities, and current efforts and successes in the area of disaster preparedness	All	Little to no cost	General Fund	Medium	Annual	Annual implementation
MB.3	Adverse Weather, Earthquake, Flood, Landslides, Tsunami, Wildfire	Train the police, harbor and fire department supervisors and officers on the activation of the County's early warning system and additional public notification systems.	Fire Dept/ Police Dept / Harbor Dept	Less than $10,000	General Fund	Medium	Annual	Annual implementation

ID	Hazard(s) Mitigated	Description/Background/Benefits	Lead Agency and Partners	Cost Estimate	Potential Funding	Priority	Timeline	Status/ Implementation Notes
MB.4	Adverse Weather, Coastal Erosion/Sea Level Rise, Earthquake, Flood, Landslides, Tsunami, Wildfire	Survey the applicable department heads as to their perceived disaster preparedness needs. Convene a special meeting of the Disaster Council to prioritize these needs and develop funding strategies	Fire Department	Little to no cost	Staff Time	High	Annual	Annual implementation
MB.5	Biological agents	Participate in the public education process of human and agricultural health related issues as available	Admin/FD	Little to no cost	Staff Time	Medium	2-3 yrs.	In progress
MB.6	Biological agents	Encourage broad participation in County public and agricultural health associated emergency preparedness exercises	Admin/FD	Little to no cost	Staff Time	Medium	1 yr.	In progress
MB.7	Biological agents	Increase involvement of special needs populations (disabled, elderly) in education and disaster preparedness activities	Admin/FD	Little to no cost	Staff Time	Medium	1 yr.	In progress
MB.8	Earthquake	Perform a safety review of all current City structures, infrastructure and facilities paying close attention to disaster proofing of all facilities. Convene the Disaster Council to prioritize the findings of the safety review and research funding strategies	PS / Fire Department	Less than $10,000	Staff Time	High	Annual	Annual Implementation
MB.9	Flood	Continue to work cooperatively with the state and federal flood-related agencies	All	Little to no cost	Staff Time	Medium	Annual	Annual Implementation
MB.10	Tsunami	Review the current City Tsunami Plan and update it as necessary to ensure regional consistency with the SLO County Tsunami Plan	Admin / Fire Department	Little to no cost	Staff Time	Medium	Annual	Annual Implementation

ID	Hazard(s) Mitigated	Description/Background/Benefits	Lead Agency and Partners	Cost Estimate	Potential Funding	Priority	Timeline	Status/ Implementation Notes
MB.11	Tsunami	Educate the public about tsunami dangers and appropriate response actions	Fire Department	Little to no cost	Staff Time	Medium	Annual	Annual Implementation
MB.12	Tsunami	Evaluate the use of route signs, tactical staging areas, tsunami safe zones, and traffic control points as outlined in the County Tsunami Plan	Fire Department / PS	Less than $10,000	FEMA HMA	High	1-2 years	Deferred. Current City Management is re-evaluating the regional plan to implement
MB.13	Wildfire, Hazardous Trees	Work with the California State Parks and San Luis Obispo County Fire Safe Council to initiate fuel thinning and chipping projects in the Black Mountain area within the City limits	Fire Department	Less than $10,000	FEMA HMA	Medium	3-5 yrs.	Annual implementation. State Parks has been a great partner providing great work to improve Black Hill
MB.14	Wildfire	Continue to support the City's weed abatement program	Fire Department	7 to 10% of Fire Marshal	PDM Grant/ Staff Time/ Dept. Budget	Medium	Annual	Annual Implementation
MB.15	Flood	Amend the Municipal Code to require flood risk disclosure and active acknowledgment of expanded flood risk in property purchases/turnovers.	Community Development	Unknown	General Fund	Medium	1-2 years	New
MB.16*	Flood	Require new development in the Sea Level Rise Hazard Overlay Zone to evaluate potential impacts to adjacent or nearby properties from all proposed structural flood protection measures to ensure that these measures will not create adverse direct and/or cumulative on-site or off-site impacts.	Community Development	Unknown	Development Fees	Medium	Annual	New

ID	Hazard(s) Mitigated	Description/Background/Benefits	Lead Agency and Partners	Cost Estimate	Potential Funding	Priority	Timeline	Status/ Implementation Notes
MB.17*	Flood	Continue to adopt and enforce the most up-to-date California Building Standards Code and California Fire Code, with appropriate local amendments.	Community Development; Fire	Unknown	General Fund	Medium	Annual	New
MB.18	Flood	Develop timing triggers for actions to address sea level rise impacts for each character area in Morro Bay based on sea level rise adaptation studies, sea level rise modeling, best available science, and the vision for each character area.	Community Development	Unknown	General Fund	Medium	3-5 yrs.	New
MB.19*	Flood	During Development Review, determine if any structures meant for human habitation are to be constructed within the 100-year floodplain or in the Sea Level Rise Hazard Overlay Zone. If necessary, evaluate each structure's safety from flood and sea level rise related hazards, and recommend remedial actions.	Development Standards/ Community Development	Unknown	General Fund, Development Fees	Medium	Annual	New

*mitigates impacts to new development

D.6 Implementation and Maintenance

Moving forward, the City will use the mitigation action table in the previous section to track progress on implementation of each project. As illustrated in the completed actions table (Table D.23), much progress has been made since the plan was originally developed. Implementation of the plan overall is discussed in Chapter 8 of the Base Plan.

D.6.1 Incorporation into Existing Planning Mechanisms

The information contained within this plan, including results from the Vulnerability Assessment and the Mitigation Strategy, will be used by the City to help inform updates and the development of local plans, programs and policies. The Engineering Division may utilize the hazard information when implementing the City's Community Investment Program and the Planning and Building Divisions may utilize the hazard information when reviewing a site plan or other type of development applications. The City will also incorporate this LHMP into the Safety Element of their General Plan, as recommended by Assembly Bill (AB) 2140.

As noted in Chapter 8 of the Base Plan, the HMPC representatives from Morro Bay will report on efforts to integrate the hazard mitigation plan into local plans, programs and policies and will report on these efforts at the annual HMPC plan review meeting.

D.6.2 Monitoring, Evaluation and Updating the Plan

The City will follow the procedures to monitor, review, and update this plan in accordance with San Luis Obispo County as outlined in Chapter 8 of the Base Plan. The City will continue to involve the public in mitigation, as described in Section 8.3 of the Base Plan. The City of Morro Bay Planning Team will be responsible for representing the City in the County HMPC, and for coordination with City staff and departments during plan updates. The City realizes it is important to review the plan regularly and update it every five years in accordance with the Disaster Mitigation Act Requirements as well as other State of California requirements.

E.1 Community Profile

E.1.1 Mitigation Planning History and 2019 Process

This annex was created during the development of the 2019 San Luis Obispo County Hazard Mitigation Plan update. This Jurisdictional Annex builds upon the previous version of the City of Paso Robles Local Hazard Mitigation Plan completed in February 2016; that previous mitigation plan is referenced several times by the City's General Plan. A review of jurisdictional priorities found no significant changes in priorities since the last update.

The City's Local Planning Team (LPT) held responsibility for implementation and maintenance of the plan. The City Fire Chief is responsible for updating the plan.

Table E.1 Paso Robles Hazard Mitigation Plan Revision Planning Group

Department or Stakeholder	Title
Fire Department	Fire Chief
Finance Department	Senior Accountant
Community Services	Rec. Services Manager
Fire Department	Battalion Chief
Police Department	Commander
Public Works	Water/Street Manager
Community Development	Chief Building Official

More details on the planning process follow and how the jurisdictions, service districts and stakeholders participated, as well as how the public was involved during the 2019 update, can be found in Chapter 3 of the Base Plan.

E.1.2 Geography and Climate

Paso Robles is located in northern San Luis Obispo County, California, approximately halfway between the cities of Los Angeles and San Francisco. It is 19.4 square miles (12,534.7 acres) and 24 miles inland from the Pacific Ocean. Paso Robles is considered to be in the most northern area of Southern California.

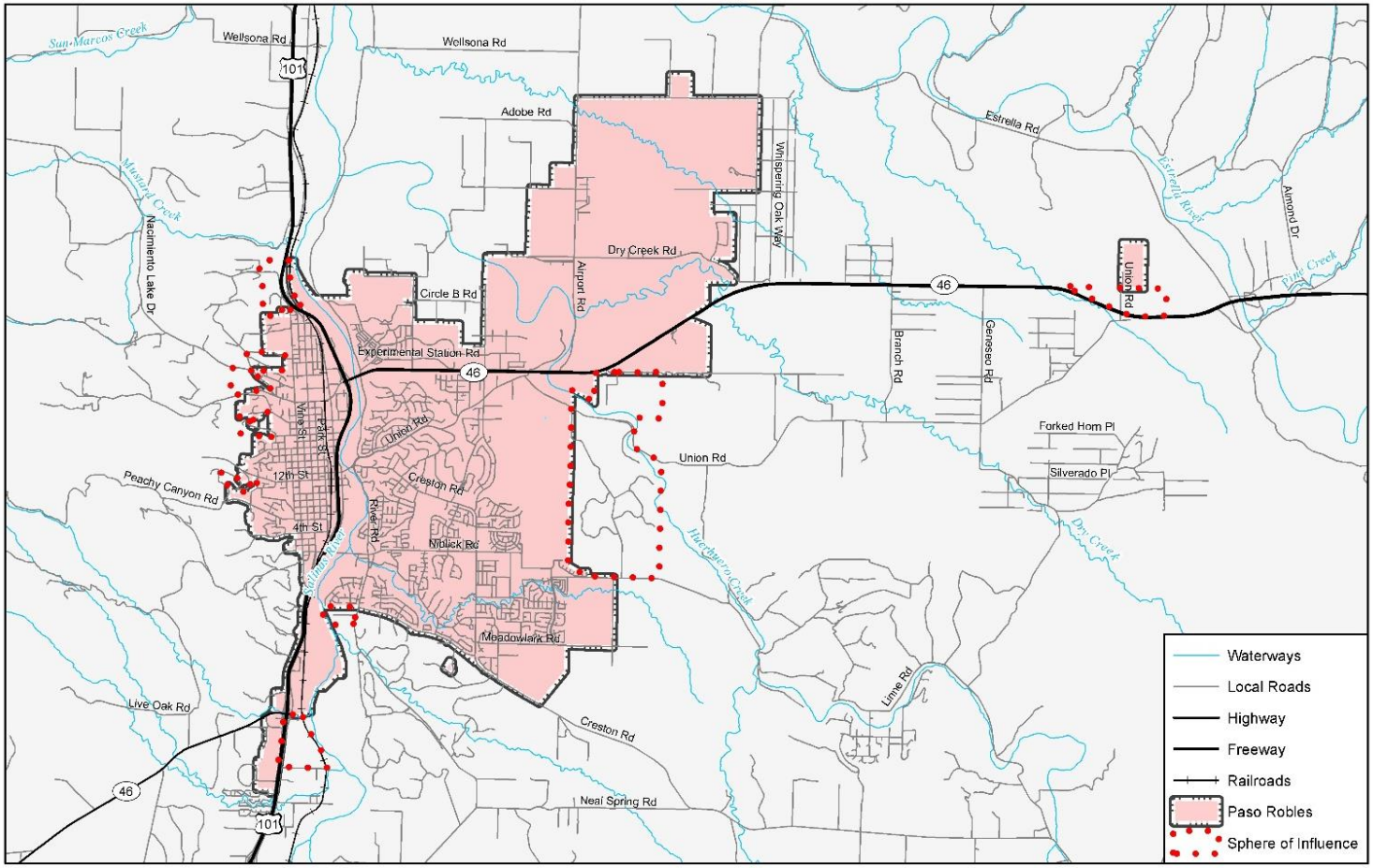
Paso Robles is bordered on the south and west by the rugged mountainous ridges of the Santa Lucia Coastal Range, to the east by the low hills of the La Panza and Temblor Ranges, and to the north by the low hills and flat-topped mesas of the Diablo Range. The highest elevations in the vicinity are located in the Santa Lucia Coastal Range where many peaks are 2,000 to 3,400 feet above mean sea level. Substantial ridgelines are distributed throughout the western, southern, and eastern portions of the City. The Mediterranean climate of the region and coastal influence produce moderate temperatures year round, with rainfall concentrated in the winter months.

Within the City limits, the Salinas River, U.S. Highway 101 and the Union Pacific Railroad divides the City east to west at the center of the City. The City is bounded by steep hills and canyons on the west, and open rolling hills to the east. Suburban residential development frames the City on the southern and eastern edges, with lower density residential development to the north and west of the City. Agricultural uses both north and south of the

City eventually give way to the unincorporated communities of Templeton and San Miguel, approximately 5 miles south and 9 miles north, respectively.

Figure E.1 displays a map of the City of Paso Robles planning area.

Figure E.1 The City of Paso Robles



Map compiled 5/2019;
intended for planning purposes only.
Data Source: San Luis Obispo County,
US Census TIGER Database, CA Open
Data Portal, BLM/California State Office, LAFCO

wood.

E.1.3 History

The Paso Robles area was home to several Native American tribes for thousands of years before the mission era.

In 1857, James and Daniel Blackburn purchased the Rancho Paso de Robles Mexican land grant. The land was a rest-stop for travelers of the Camino Real trail, and was known for its mineral hot springs. In 1864, the first El Paso de Robles Hotel was constructed and featured a hot mineral springs bath house. In 1886, after the coming of the Southern Pacific Railroad, work began on laying out a town site, with the resort as the nucleus.

Paso Robles incorporated as a City in 1889. That same year, construction began on the current El Paso de Robles Hotel, which opened for business in 1891.

For a time, Paso Robles was known as the "Almond City" because the local almond growers created the largest concentration of almond orchards in the world. The ranchers in the outlying areas were very important to the Paso Robles area. On these ranches were cattle and horses, grain crops (primarily wheat and barley), garden produce and fruit and nut orchards. Many of these ranch lands and orchards have become vineyards for the many wineries which currently draw tourists to the area.

Wine grapes were introduced to the Paso Robles soil in 1797 by the Spanish conquistadors and Franciscan missionaries. The first vineyardists in the area were the Padres of the Mission San Miguel, and their old fermentation vats and grapevine artwork can still be seen at the Mission, north of the City of Paso Robles. Commercial winemaking in the Paso Robles region dates back to 1882 when Andrew York, a settler from Indiana, established the Ascension Winery at what is now York Mountain Winery. Paso Robles' reputation as a premier wine region became established in the 1920s and 30s, and continues to this day.

Paso Robles has a "Council-Manager" general law form of government where the City Manager is appointed by the City Council and is the Chief Executive Officer of the Municipal Corporation. The City Council acts as the board of directors of the municipal corporation and meets in a public forum where citizens may participate in the governmental process.

The City Council consists of five members elected at-large, on a non-partisan basis. Residents elect the Mayor and four Council members, making each accountable to the entire citizenry. Council members serve four-year overlapping terms. The mayor is directly elected and serves a two-year term. The City Council establishes City policies, approves ordinances and resolutions, makes land use decisions, approves agreements and contracts, hears appeals on decisions made by City staff or advisory committees, and sets utility rates. The Mayor and City Council members receive a monthly stipend set by resolution.

The City Manager is the Chief Executive Officer of the City. The City Manager is appointed by the City Council to enforce city laws, to direct the operations of city government, to prepare and manage the municipal budget, and to implement the policies and programs initiated by the City Council. The City Manager is responsible to the City Council, and directs departments and operations.

The City Attorney is appointed by the City Council and works under contract to the City. The City Attorney is the legal advisor for the council. He or she provides general legal advice on all aspects of city business and represents the City in legal actions.

The City Clerk is an elected official. The City Clerk is charged with responsibility of maintaining records of council actions, permanent records of all city transactions and documents, and coordinating the city's elections. The Deputy City Clerk is an appointed staff position that assists the City Clerk in carrying out all duties.

The City Treasurer is an elected position responsible for the custody and investment of all city funds. The City Treasurer is also responsible for administrating the City budget.

Boards, commissions and special committees composed of local citizens are frequently appointed by the City Council to advise the City Council in one or more aspects of city government. Typical advisory committees include Parks & Recreation, Streets and Utilities, Airport, and Youth and Senior Citizens. The Planning Commission implements Council development and land use policy, and makes recommendations for policy revisions.

One of the major investments the City makes is the City's work force. City employees perform the day-to-day functions necessary to provide services to the community. Department heads administer specific functions of city government and are responsible to the City Manager. Such positions are Public Works Director, Community Development Director, Library and Recreation Services Director, Administrative Services Director, and Police and Fire Chiefs.

E.1.4 Economy

Based on the 2017 American Community Survey (ACS) Paso Robles' labor force is estimated to be 16,782 persons. The City has a relatively diverse economic, with no single sector or industry making up more than 20% of all jobs. The educational services, health care and social services accounts for 17.8% of jobs, followed by retail trades (12.5%); manufacturing (12.0%); and arts, entertainment and recreation, accommodation, & food services (11.7%). While the City's manufacturing sector has declined some – as recently as 2001 it represented 23.2% of the local economy – Paso Robles is one of the few areas in the region where manufacturing still accounts for a sizable fraction of employment. By comparison, manufacturing in San Luis Obispo County as a whole is approximately 6.0%.

The City's largest employers include Paso Robles School District, Firestone Walker, Walmart, Applied Tech., City of Paso Robles, IQMS, Joslyn-Sunbank, Zurn, Target, Lowes, and Cuesta College. At 4.5%, the City's unemployment rate is half what is was in 2012 in the aftermath of the economic recession. This has been accompanied by a nearly 12% increase in per capita income, from $27,199 in 2012 to $30,446 in 2017.

Table E.2 shows how Paso Robles' labor force breaks down by occupation and industry based on estimates from the U.S. Census Bureau's 2017 American Community Survey.

As the leading agricultural business in the county, the area's wine industry attracts more than half a million visitors to San Luis Obispo County annually. A 2007 study of the Paso Robles and Greater San Luis Obispo County Wine and Wine Grape industries have an annual impact of $1.8 billion on the state and local economy. This has helped the economy enjoy approximately $113 million annually in tourism expenditures.

Table E.2 City of Paso Robles Employment by Industry (2017)

Industry	# Employed
Population (2017)	31,409
In Labor Force	16,782
Agriculture, forestry, fishing and hunting, and mining	834
Armed Forces	70
Construction	1,154
Manufacturing	2,008
Wholesale trade	339

Industry	# Employed
Retail trade	2,091
Transportation and warehousing, and utilities	694
Information	234
Finance and insurance, and real estate and rental and leasing	479
Professional, scientific, and management, and administrative and waste management services	1,070
Educational services, and health care and social assistance	2,980
Arts, entertainment, and recreation, and accommodation and food services	1,969
Other services, except public administration	900
Public administration	1,215
Unemployed	745

Source: U.S. Census Bureau American Community Survey 2012-2017 5-Year Estimates, www.census.gov/

E.1.5 Population

The U.S. Census Bureau estimated the City's 2017 population as 31,409, up from 29,793 at the 2010 census. Table E.3 shows an overview of key social and demographic characteristics of the City taken from the U.S. Census Bureau's American Community Survey.

Table E.3 City of Paso Robles Demographic and Social Characteristics, 2012-2017

City of Paso Robles	2012	2017	% Change
Population	29,770	31,409	+5.5%
Median Age	35.1	36.8	+4.8%
Total Housing Units	11,686	12,391	+6.0%
Housing Occupancy Rate	93.9%	95.2%	+1.3%
% of Housing Units with no Vehicles Available	5.1%	4.2%	-0.9%
Median Home Value	$369,800	$404,700	+9.4%
Unemployment	9.0%	4.5%	-4.5%
Mean Travel Time to Work (minutes)	22.8	23.2	+1.8%
Median Household Income	$57,977	$61,053	+5.3%
Per Capita Income	$27,199	$30,446	+11.9%
% of Individuals Below Poverty Level	12.2%	12.1%	-0.1%
# of Households	10,969	11,802	+7.6%
Average Household Size	2.67	2.65	-0.7%
% of Population Over 25 with High School Diploma	85.0%	84.2%	-0.8%
% of Population Over 25 with Bachelor's Degree or Higher	20.9%	23.8%	+2.9%
% with Disability	11.2%	9.3%	-1.9%
% Speak English less than "Very Well"	12.0%	13.6%	+1.6%

Source: U.S. Census Bureau American Community Survey 2012-2017 5-Year Estimates, www.census.gov/

Despite the economic gains discussed in the previous section, the number of individuals living below the poverty level has stayed relatively constant, although it is still below average for the County (13.8%) and for California as

(15.1%). The percentage of high school graduates and college graduates are below average for the County, State, and Nation as a whole. The number of individuals who speak English less than very well is also significantly above the County averages (6.8%), though still below the State average (18.4%).

E.1.6 Development Trends

According to the 2003 General Plan Land Use Element (revised in April 2014) approximately 78.1 percent (8,639 acres) of the City's total land area is developed as residential, commercial, mixed use and industrial land, and public facilities uses. The remaining land is made up of 2,448 acres of agriculture (7.3 percent) and parks and open space (14.5 percent).

Table E.4 shows the potential land use categories for the 2025 build-out population of 44,000 persons as identified in the City's General Plan. However, as noted in the revised Land Use Element, it is expected that an additional 20 years (2045) or longer will be needed to reach the 44,000 persons build-out population.

Table E.4 General Plan Development Potential (2014 Update)

Land Use Category	Acreage	Percent
Commercial	1,271	10.0%
Business Park/Industrial	1,721	13.5%
Other/Public Facilities	1,947	15.3%
Agriculture & Open Space	2,572	20.0%
Residential	5,228	41.2%
Total	12,739	100%

Source: City of El Paso de Robles General Plan 2003 Land Use Element, as amended April 1, 2014

When the General Plan Update was adopted in 2003, based on the pace of development activity at that time, it was anticipated that residential build-out of the City, resulting in a population of 44,000, would occur by 2025. However, the national economic slowdown that began in 2007, coupled with the history of periodic slowdowns over prior decades, has caused the City to consider that build-out and an attendant population of 44,000 may take more than 20 additional years: to 2045 or longer, to attain.

Updated zoning and land use maps can be found on the City's website.

E.2 Hazard Identification and Summary

The Paso Robles planning team identified the hazards that affect the City and summarized their frequency of occurrence, spatial extent, potential magnitude, and significance specific to their community (see

Table E.5). There are no hazards that are unique to Paso Robles. The overall hazard significance takes into account the geographic area, probability and magnitude as a way to identify priority hazards for mitigation purposes. 'NI' in the table means not identified. This is discussed further in the Vulnerability section.

Table E.5 City of Paso Robles – Hazard Summaries

Hazard	Geographic Area	Probability of Future Occurrence	Magnitude/ Severity (Extent)	Overall Significance
Adverse Weather: Thunderstorm/ Heavy Rain/Hail/Lighting/Dense Fog/Freeze	Significant	Highly Likely	Limited	High
Adverse Weather: High Wind	Significant	Highly Likely	Limited	High
Adverse Weather: Extreme Heat	Extensive	Highly Likely	Limited	High
Agricultural Pest Infestation and Disease	Limited	Limited	Unlikely	Low
Biological Agents (naturally occurring)	Limited	Limited	Unlikely	Low
Dam Incidents	Significant	Occasional	Limited	Low
Drought and Water Shortage	Extensive	Likely	Limited	High
Earthquake	Significant	Likely	Critical	High
Flood	Significant	Likely	Limited	High
Landslides and Debris Flow	Limited	Likely	Limited	High
Subsidence	Likely	Limited	Negligible	High
Wildfire	Extensive	Highly Likely	Critical	High
Human Caused: Hazardous Materials	Extensive	Highly Likely	Negligible	Low

Geographic Area
Limited: Less than 10% of planning area
Significant: 10-50% of planning area
Extensive: 50-100% of planning area

Probability of Future Occurrences
Highly Likely: Near 100% chance of occurrence in next year or happens every year.
Likely: Between 10 and 100% chance of occurrence in next year or has a recurrence interval of 10 years or less.
Occasional: Between 1 and 10% chance of occurrence in the next year or has a recurrence interval of 11 to 100 years.
Unlikely: Less than 1% chance of occurrence in next 100 years or has a recurrence interval of greater than every 100 years.

Magnitude/Severity (Extent)
Catastrophic—More than 50 percent of property severely damaged; shutdown of facilities for more than 30 days; and/or multiple deaths
Critical—25-50 percent of property severely damaged; shutdown of facilities for at least two weeks; and/or injuries and/or illnesses result in permanent disability
Limited—10-25 percent of property severely damaged; shutdown of facilities for more than a week; and/or injuries/illnesses treatable do not result in permanent disability
Negligible—Less than 10 percent of property severely damaged, shutdown of facilities and services for less than 24 hours; and/or injuries/illnesses treatable with first aid

Significance
Low: minimal potential impact
Medium: moderate potential impact
High: widespread potential impact

E.3 Vulnerability Assessment

The intent of this section is to assess Paso Robles's vulnerability separate from that of the planning area as a whole, which has already been assessed in Section 5.3 Risk Assessment in the main plan. This vulnerability assessment analyzes the population, property, and other assets at risk to hazards ranked of medium or high significance that may vary from other parts of the planning area.

The information to support the hazard identification and risk assessment was based on the City's previous LHMP. A Local Hazard Mitigation Plan Update Guide and associated worksheets was distributed to each participating municipality or special district to complete during update process in 2019. Information collected was analyzed and summarized in order to identify and rank all the hazards that could impact anywhere within the County, as well as to rank the hazards and identify the related vulnerabilities unique to each jurisdiction.

Each participating jurisdiction was in support of the main hazard summary identified in the Base Plan (See Table 5-2). However, the hazard summary rankings for each jurisdictional annex may vary slightly due to specific hazard risk and vulnerabilities unique to that jurisdiction. Identifying these differences helps the reader to differentiate the jurisdiction's risk and vulnerabilities from that of the overall County.

Note: The hazard "Significance" reflects overall ranking for each hazard, and is based on the City of Paso Robles's HMPC member input from the Data Collection Guide and the risk assessment developed during the planning process (see Section 5.1 of the Base Plan), which included a more detailed qualitative analysis with best available data.

The hazard summaries in

Table E.5 above reflect the hazards that could potentially affect the City. The discussion of vulnerability for each of the following hazards is located in Section E.3.2 Estimating Potential Losses. Based on this analysis, the priority hazards (High Significance) for mitigation are:

- Adverse Weather: Thunderstorm/Heavy Rain/Hail/Lighting/Dense Fog/Freeze
- Adverse Weather: High Wind
- Adverse Weather: Extreme Heat
- Drought and Water Shortage
- Earthquake
- Flood
- Landslides and Debris Flow
- Subsidence
- Wildfire

Other Hazards

Hazards assigned a significance rating of Low and which do not differ significantly from the County ranking (e.g., Low vs. High) are not addressed further in this plan, and are not assessed individually for specific vulnerabilities in this section. In the City of Paso Robles, those hazards include dam incidents and hazardous materials incidents.

Coastal hazards (coastal storm/coastal erosion/sea level rise and tsunami) are Not Applicable (N/A) to the City of Paso Robles.

E.3.1 Assets at Risk

This section considers Paso Robles's assets at risk, including values at risk, critical facilities and infrastructure, historic assets, economic assets and growth and development trends.

Values at Risk

The following data on property exposure is derived from the San Luis Obispo County 2019 Parcel and Assessor data. This data should only be used as a guideline to overall values in the City as the information has some limitations. The most significant limitation is created by Proposition 13. Instead of adjusting property values annually, the values are not adjusted or assessed at fair market value until a property transfer occurs. As a result, overall value information is likely low and does not reflect current market value of properties. It is also important to note that in the event of a disaster, it is generally the value of the infrastructure or improvements to the land that is of concern or at risk. Generally, the land itself is not a loss. Table E.6 shows the exposure of properties (e.g., the values at risk) broken down by property type for the City of Paso Robles.

Table E.6 2019 Property Exposure for the City of Paso Robles by Property Types

Property Type	Parcel Count	Improved Value	Content Value	Total Value
Agricultural	25	$47,041,880	$47,041,880	$94,083,760
Commercial	552	$347,729,528	$347,729,528	$695,459,056
Government/Utilities	175	$1,520,500	--	$1,520,500
Other/Exempt/Misc.	313	$99,728,929	--	$99,728,929
Residential	8,281	$1,768,587,601	$884,293,801	$2,652,881,402

Multi-Family Residential	728	$223,890,340	$111,945,170	$335,835,510
Mobile/Manufactured Homes	326	$42,447,085	$21,223,543	$63,670,628
Residential: Other	138	$136,086,048	$68,043,024	$204,129,072
Industrial	71	$101,658,828	$152,488,242	$254,147,070
Vacant	105	$53,222,625	--	$53,222,625
TOTAL	**10,714**	**$2,821,913,364**	**$1,632,765,187**	**$4,454,678,551**

Source: Wood Plc analysis based on ParcelQuest and San Luis Obispo County Assessor's Office data 2019

Critical Facilities and Infrastructure

A critical facility may be defined as one that is essential in providing utility or direction either during the response to an emergency or during the recovery operation. See Section 5 of the Base Plan for more details on the definitions and categories of critical facilities.

An inventory of critical facilities in the City of Paso Robles from San Luis Obispo County GIS is provided in Table E.7 and illustrated in Figure E.3. Table E.8 lists additional critical assets identified by the planning team.

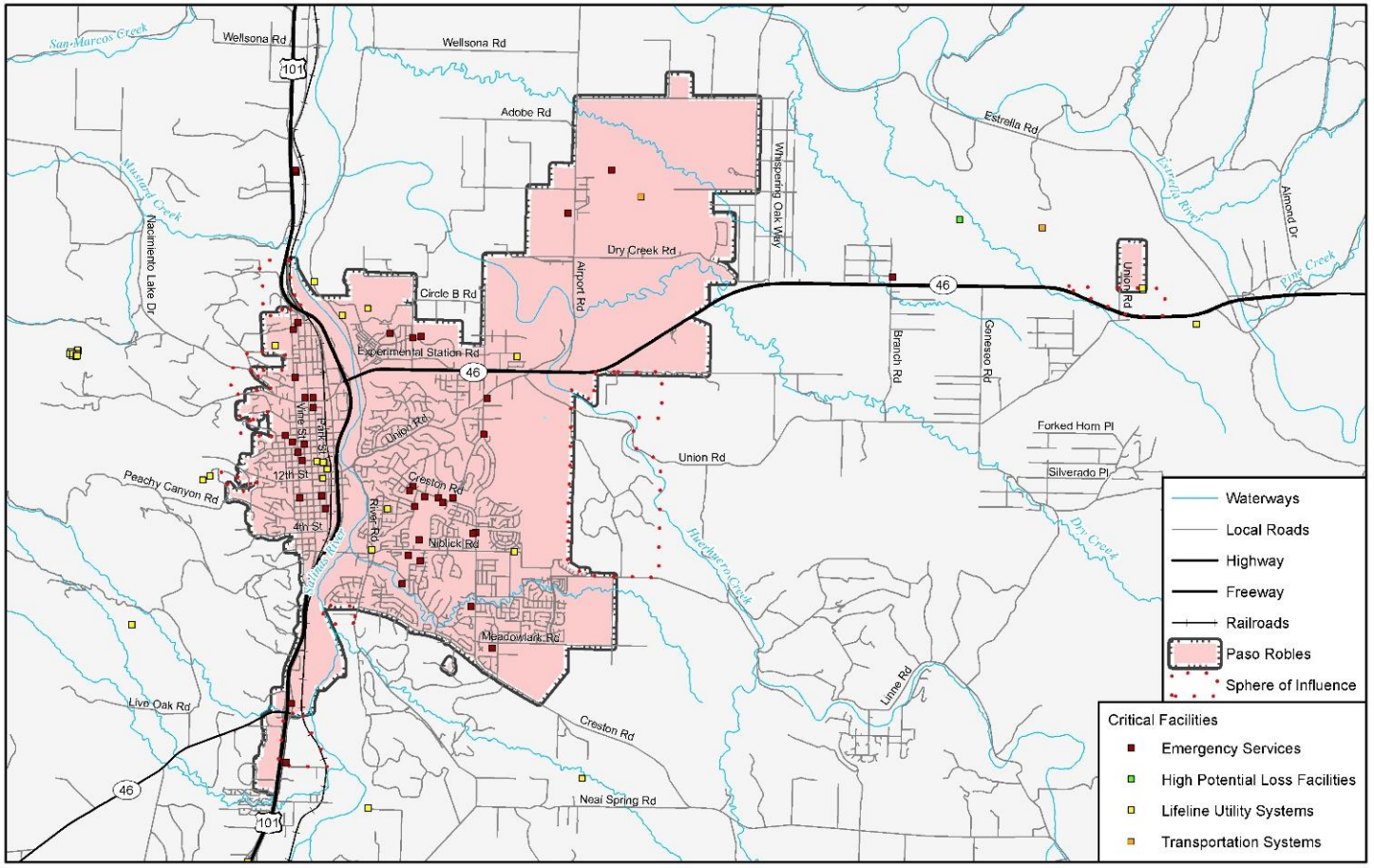
Table E.7 City of Paso Robles's Critical Facilities

Facility Type	Counts
Colleges / Universities	1
Day Care Facilities	14
Emergency Medical Service Stations	1
Fire Stations	3
Local Law Enforcement	1
Nursing Homes	2
Private Schools	3
Public Schools	12
Supplemental Colleges	1
Urgent Care	2
Power Plants	1
AM Transmission Towers	1
FM Transmission Towers	1
Microwave Service Towers	12
Water Treatment Facilities	1
Energy Commission Facilities	2
City Hall	1
Centennial Park	1
Solar Facility	1
Wastewater Treatment Facility	1
Reclaimed Water Facility	1
Senior Center	1

Facility Type	Counts
Airports	1
Total	**64**

Source: San Luis Obispo County Planning & Building, HIFLD 2017

Figure E.2 Critical Facilities in Paso Robles



Map compiled 5/2019;
intended for planning purposes only.
Data Source: San Luis Obispo County, US Census TIGER Database, CA Open Data Portal, BLM/California State Office, LAFCO, HIFLD

Table E.8 Critical Assets Identified by Paso Robles Planning Team

Name of Asset	Type	Replacement Value
Public Safety Center	EI	$26,617,412
Fire Station 2	EI	$2,564,063
Fire Station 3	EI	$569,290
City Hall / Library	EI	$34,939,638
Water Maintenance Yard	EI	$1,162,597
Water yard	EI	$1,260,592
21st Reservoir	EI	$8,135,298
Golden Hill Reservoir	EI	$4,929,794
Merry Hill Reservoir	EI	$849,806
Airport Complex	EI	$9,545,306
Bus / Train Station	EI	$2,953,766
Senior Center	EI	$4,602,493
Veterans Bldg.	EI	$3,234,992
Barney Schwartz Park	VF	$14,041,296
City Park	VF	$5,402,108
Lawrence Moore Park	VF	$379,124
Paso Robles Municipal Pool	VF	$3,708,901
Sherwood Forest	VF	$1,690,419

Source: Paso Robles Planning Team.

EI: Essential Infrastructure. VF: Vulnerable Facility

Transportation and Lifeline Facilities

Major transportation and lifeline facilities are located adjacent to US Highway 101 and the Union Pacific Railroad line that traverse through the City. Damages to these transportation corridors would impact not only Paso Robles but the entire region.

Other lifelines include Niblcik Bridge, 13th Street Bridge, Highway 46E Bridge, Highway 46W and G14.

Historic and Cultural Resources

The National Register of Historic Places contains five sites in the City of Paso Robles:

- Bank of Italy (aka Old Bank of America), 1245 Park St.
- Brewster-Dutra House (aka Moye House), 1803 Vine St.
- Carnegie Library, City Park, 800 12th St.
- Lincoln School (aka Adelaida School), 9000 Chimney Rock Rd. (outside City limits)
- Paso Robles Almond Growers Association Warehouse (aka Farmers' Alliance Building), 525 Riverside Ave.

There is also one California State Historical Landmark located in Paso Robles: the Estrella Adobe Church.

Natural Resources

Natural resources are important to include in benefit-cost analyses for future projects and may be used to leverage additional funding for projects that also contribute to community goals for protecting sensitive natural

resources. Awareness of natural assets can lead to opportunities for meeting multiple objectives. For instance, protecting wetlands areas protects sensitive habitat as well as attenuates and stores floodwaters.

Key natural assets include the riverbed with riverwalk and open space areas throughout the City.

Economic Assets

Key economic assets include: the downtown corridor, car dealerships, Lowe's Plaza, Woodland Plaza, Target Center, Aiport commercial businesses, and Commerce Road businesses.

E.3.2 Estimating Potential Losses

Note: This section details vulnerability to specific hazards of high or medium significance, where quantifiable, and/or where (according to HMPC member input) it differs from that of the overall County.

Table E.6 above shows Paso Robles's exposure to hazards in terms of number and value of structures. San Luis Obispo County's parcel and assessor data was used to calculate the improved value of parcels. The most vulnerable structures are those in the floodplain (especially those that have been flooded in the past), unreinforced masonry buildings, and buildings built prior to the introduction of modern-day building codes. Impacts of past events and vulnerability to specific hazards are further discussed below (see Section 4.1 Hazard Identification for more detailed information about these hazards and their impacts on San Luis Obipso County as a whole).

Adverse Weather: Thunderstorm/Heavy Rain/Hail/Lighting/Dense Fog/Freeze

Paso Robles's risk and vulnerability to this hazard does not differ substantially from that of the County overall. Weather data for the North County Inland Area, Paso Robles Weather Station, can be found in Section 5.3.1 of the Base Plan.

Adverse Weather: High Wind/Tornado

Paso Robles's risk and vulnerability to this hazard does not differ substantially from that of the County overall.

Adverse Weather: Extreme Heat

Paso Robles's risk and vulnerability to this hazard does not differ substantially from that of the County overall. Weather data for the North County Inland Area, Paso Robles Weather Station, can be found in Section 5.3.1 of the Base Plan.

Drought and Water Shortage

The City of Paso Robles gets the majority of its water from the Paso Robles groundwater basin. The Paso Robles basin underlies approximately 640 square miles in northeastern San Luis Obispo County, and is estimated to have over 26 million acre-feet of water in storage. The basin has experienced serious declines over the years due to groundwater pumping, with the largest water use sector being agricultural uses. As a result, the State has identified the Paso Robles basin as the highest priority groundwater basin within San Luis Obispo County. The large volume of the basin means it can continue to supply water through multiple drought years, even though the increased pumping will put additional strain upon the stored groundwater resource. The perennial yield of the Paso Robles Groundwater Basin is estimated to be 89,700 acre-feet per year (AFY). Annual average change in groundwater storage for the period 1981-2011 is estimated at -2,400 AFY.

Until 2015, all water demands in the City were met with groundwater. The City of Paso Robles began using Nacimiento Project Water in 2015. The City holds a right to 6,488 AFY.

Historically, recycled water has not been used as a source of water in Paso Robles. The City is currently upgrading its water treatment system and plans to use its treated wastewater for irrigation and other non-potable uses.

Earthquake

Historically, most of the earthquakes that have occurred near Paso Robles have originated from movement along the San Andreas Fault, which is located approximately 38 miles northeast of the City limits. While no large earthquakes greater than Mw 5.0 have occurred recently within the City limits, a number of relatively large earthquakes outside Paso Robles have caused damage within the County of San Luis Obispo and neighboring counties.

The only known mapped fault within the City of Paso Robles is the Rinconada fault. The potentially active Rinconada fault is mapped through southwestern Paso Robles and crosses Highway 101 just south of Spring Street. A trace of the fault is also identified as running up Spring Street, which corresponds to a line of hot springs that once existed in this area but have since been capped and buried. As a potentially active fault, the Rinconada presents a moderate fault rupture hazard to the City. Further studies to evaluate the activity of the faults are warranted, prior to placing structures near the mapped fault traces.

The northern end of the potentially active La Panza fault is located about 20 kilometers (12.43 miles) southeast of Paso Robles, near the town of Creston. The northwest striking La Panza fault is about 75 kilometers (46.6 miles) long. The Huerhuero fault is a possible extension of the La Panza and is mapped trending northwest along Huerhuero Creek south of Highway 46 but is not within the current City limits.

In addition to being at risk of groundshaking as a result of a fault rupture, the City is also susceptiable to the effects of liquefaction. The areas of Paso Robles that have a high potential to be underlain by potentially liquefiable sediments are those areas underlain by younger alluvium. Portions of the City that are located on recent alluvium in the low-lying areas adjacent to the Salinas River (or its tributaries) appear to have the highest potential for liquefaction. Site specific studies are needed to evaluate if a geologic unit actually contains potentially liquefiable materials, and if they require mitigation for development. Refer to Section 5 of the Base Plan for additional details on the City's risk to liquefaction.

Figure E.3 City of Paso Robles Liquefication Risk

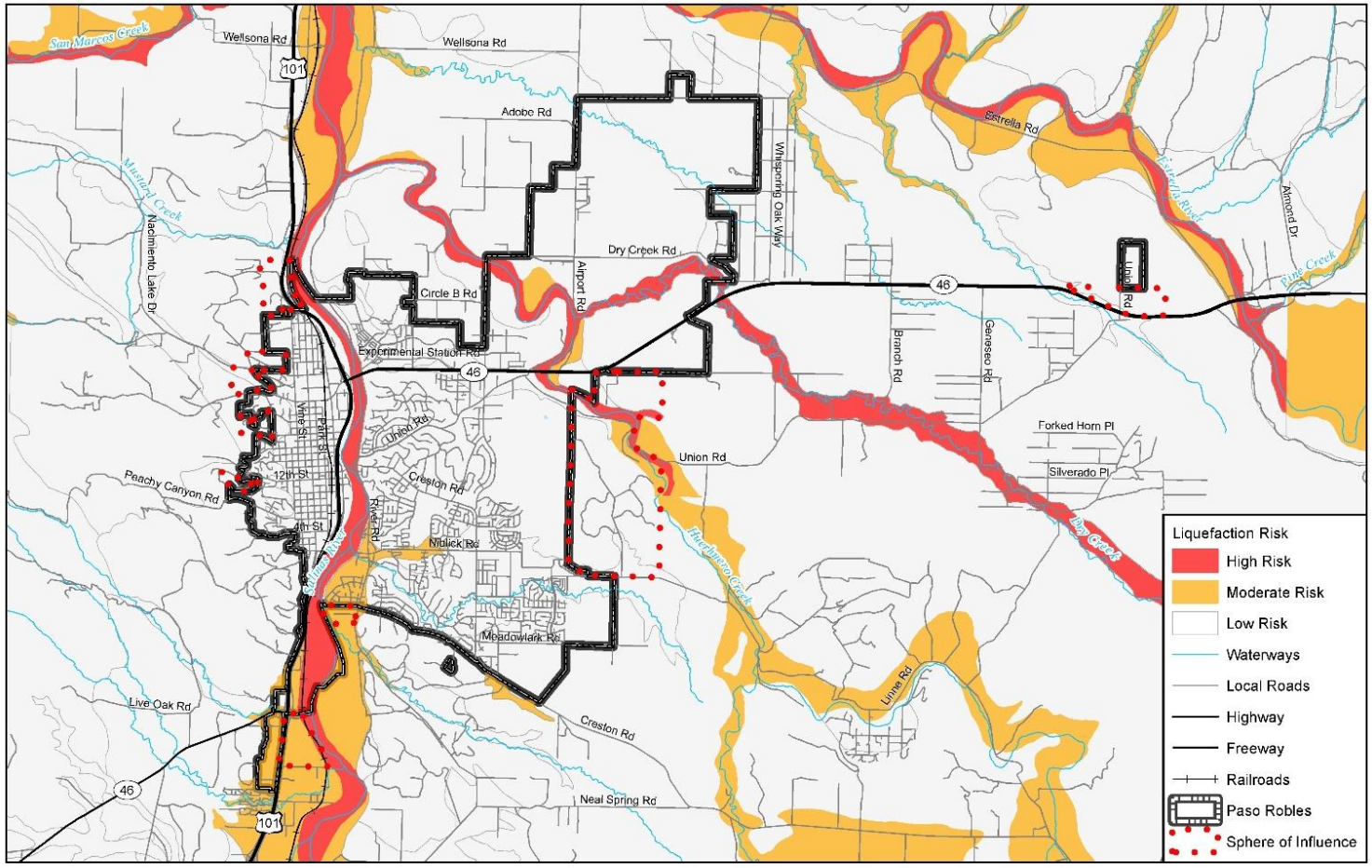


Table E.9 City of Paso Robles High Liquefaction Risk by Property Type

Property Type	Parcel Count	Improved Value
Commercial	7	$16,318,866
Government/Utilities	14	--
Other/Exempt/Misc.	18	$7,183,009
Residential	12	$4,120,150
Multi-Family Residential	2	$10,941,483
Mobile/Manufactured Homes	1	$8,229
Industrial	3	$5,203,845
Vacant	3	$1,262,852
TOTAL	**60**	**$45,038,434**

Source: San Luis Obispo County Planning and Building Dept., Assessor's Office, ParcelQuest, Wood Plc Parcel Analysis

Table E.10 City of Paso Robles Moderate Liquefaction Risk by Property Type

Property Type	Parcel Count	Improved Value
Commercial	47	$79,980,028
Government/Utilities	7	--
Other/Exempt/Misc.	8	$14,634,770
Residential	375	$75,137,054
Mobile/Manufactured Homes	1	$619,485
Residential: Other	2	$12,124,284
Industrial	5	$16,516,884
Vacant	12	$11,398,932
TOTAL	**457**	**$210,411,437**

Source: San Luis Obispo County Planning and Building Dept., Assessor's Office, ParcelQuest, Wood Plc Parcel Analysis

Table E.11 City of Paso Robles Critical Facilities at Risk from Liquefaction

Critical Facility Type	Count	Risk
Public Schools	1	Moderate
Urgent Care	1	Moderate
TOTAL	**2**	

Source: San Luis Obispo County Planning & Building, HIFLD 2017

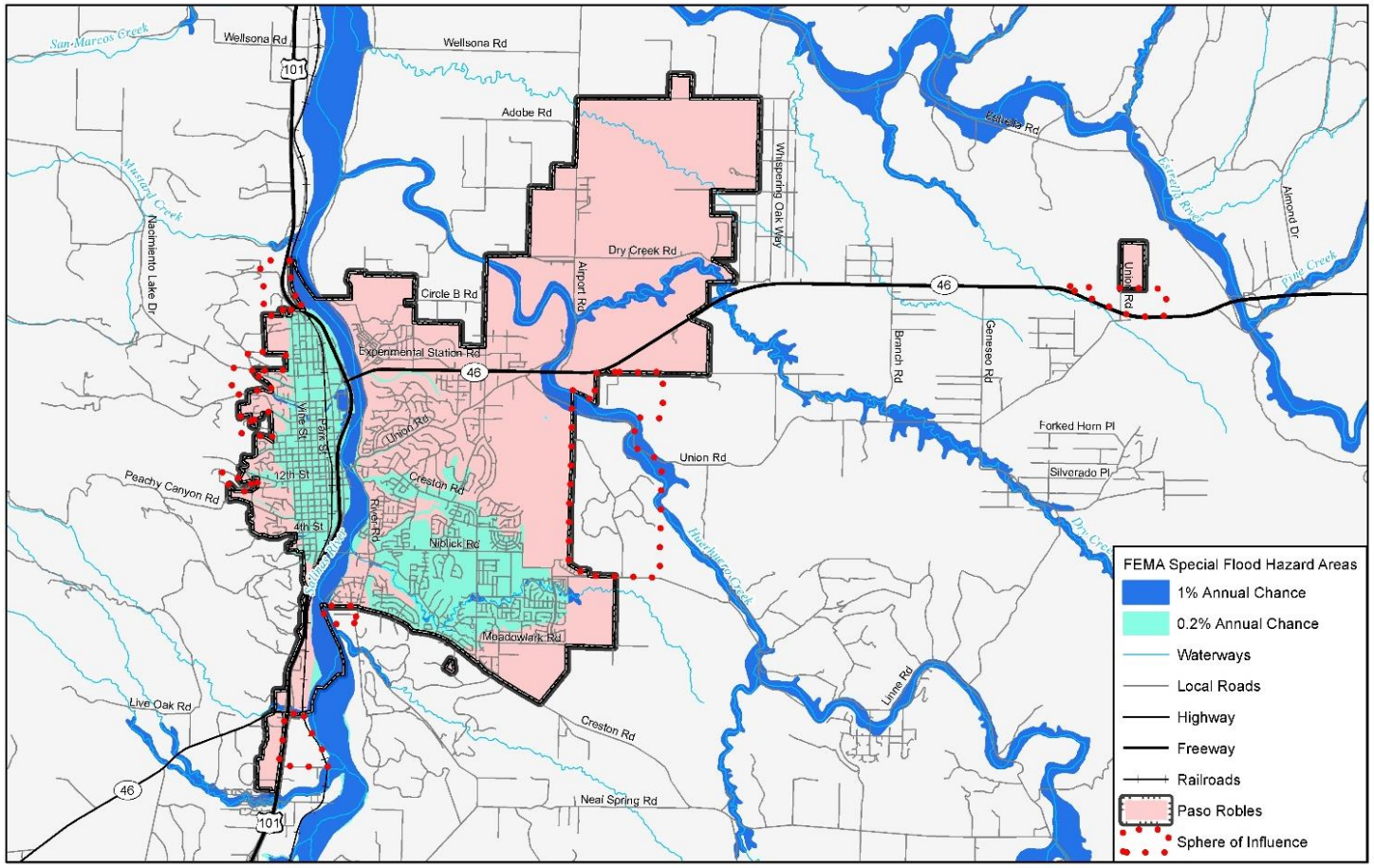
Flood and Levee Failure

In Paso Robles, the two most common types of flooding are riverine flooding, and localized flooding. The most serious flood events on record for Paso Robles occurred during storms in the early months of 1969, 1973, 1978, 1995, 2001, 2004-2005, 2005-2006, and 2010-2011.

Values at Risk

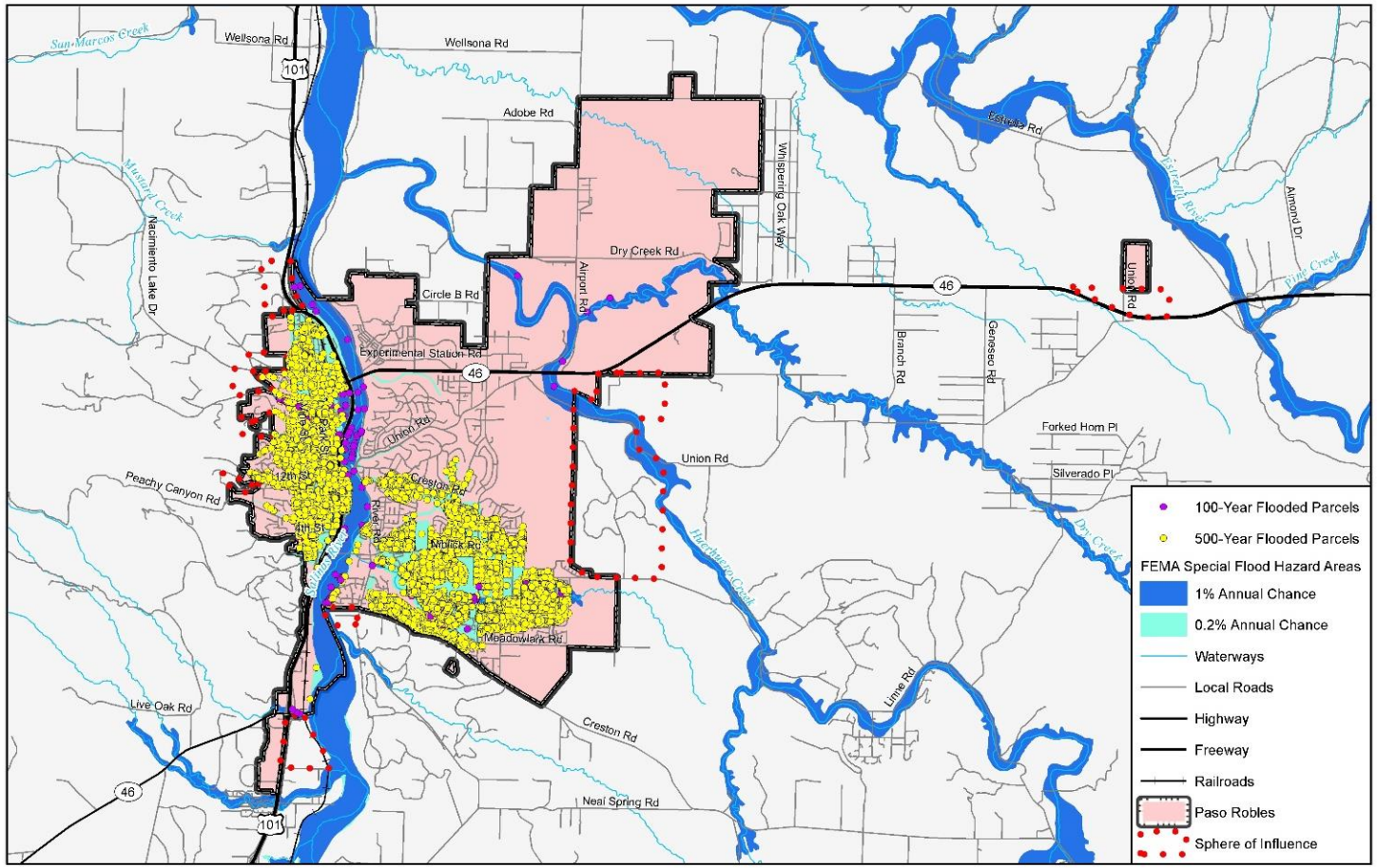
Following the methodology described in Section 5.3.8, a flood map for the City of Paso Robles was created (see Figures E.4 and E.5). Tables E.11 and E.12 summarize the values at risk in the City's 100-year and 500-year floodplain, respectively. These tables also detail loss estimates for each flood. Note that the potential loss increases significantly with the 500-year or 0.2% annual chance flood.

Figure E.4 City of Paso Robles' 100- and 500-Year Floodplains



Map compiled 5/2019;
intended for planning purposes only.
Data Source: San Luis Obispo County, US Census TIGER Database, CA Open Data Portal, BLM/California State Office, LAFCO, FEMA NFHL

Figure E.5 City of Paso Robles' Parcels at Risk of Flooding



Map compiled 5/2019;
intended for planning purposes only.
Data Source: San Luis Obispo County, US Census TIGER Database, CA Open Data Portal, BLM/California State Office, LAFCO, FEMA NFHL, ParcelQuest

Population at Risk

Table E.12 City of Paso Robles 1% (100 year) Floodplain Risk

Property Type	Parcel Count	Improved Value	Content Value	Total Value	Loss Estimate	Population
Commercial	7	$6,685,871	$6,685,871	$13,371,742	$3,342,936	--
Government/Utilities	27	--	--	$0	$0	--
Other/Exempt/Misc.	25	$7,438,009	--	$7,438,009	$1,859,502	--
Residential	31	$6,036,122	$3,018,061	$9,054,183	$2,263,546	78
Multi-Family Residential	31	$25,115,004	$12,557,502	$37,672,506	$9,418,127	78
Mobile/Manufactured Homes	1	$440,283	$220,142	$660,425	$165,106	3
Industrial	1	$139,934	$209,901	$349,835	$87,459	--
Vacant	3	$43,711	--	$43,711	$10,928	--
TOTAL	**126**	**$45,898,934**	**$22,691,477**	**$68,590,411**	**$17,147,603**	**158**

Source: San Luis Obispo County Planning and Building Dept., Assessor's Office, ParcelQuest, Wood Plc Parcel Analysis

Table E.13 City of Paso Robles 0.2% (500 year) Floodplain Risk

Property Type	Parcel Count	Improved Value	Content Value	Total Value	Loss Estimate	Population
Agricultural	1	$4,994,987	$4,994,987	$9,989,974	$2,497,494	--
Commercial	413	$188,376,646	$188,376,646	$376,753,292	$94,188,323	--
Government/Utilities	95	$1,500,073	--	$1,500,073	$375,018	--
Other/Exempt/Misc.	160	$42,498,954	--	$42,498,954	$10,624,739	--
Residential	4,049	$679,611,889	$339,805,945	$1,019,417,834	$254,854,458	10,163
Multi-Family Residential	603	$172,240,571	$86,120,286	$258,360,857	$64,590,214	1,514
Mobile/Manufactured Homes	264	$29,355,209	$14,677,605	$44,032,814	$11,008,203	663
Residential: Other	113	$71,386,480	$35,693,240	$107,079,720	$26,769,930	284
Industrial	43	$46,126,123	$69,189,185	$115,315,308	$28,828,827	--
Vacant	34	$7,909,348	--	$7,909,348	$1,977,337	--
TOTAL	**5,775**	**$1,244,000,280**	**$738,857,892**	**$1,982,858,172**	**$495,714,543**	**12,623**

Source: San Luis Obispo County Planning and Building Dept., Assessor's Office, ParcelQuest, Wood Plc Parcel Analysis

Insurance Coverage, Claims Paid, and Repetitive Losses

The City of Paso Robles has been a participant in the National Flood Insurance Program since 1981, and will continue to participate and remain in compliance with the National Flood Insurance Program (NFIP).

Table E.14 City of Paso Robles NFIP Insurance Policy Information

Policies	Insurance in Force	No. of Paid Losses	Total Losses Paid
65	$18,517,800	5	$50,642

Source: FEMA National Flood Insurance Program Community Information System

FEMA Community Information System shows that as of April 2019 the City of Paso Robles does not have any Repetitive Loss (RL) or Severe Repetitive Loss (SRL) properties.

Paso Robles does not participate in the Community Rating Systm (CRS).

Critical Facilities at Risk

None of the City's identified critical facilities are located in the 1% Annual (100 year) Floodplain. Critical facilities located in the 0.2% Annual (500-year) Floodplain are shown in the following table.

Table E.15 City of Paso Robles Critical Facilities in the 0.2% (500-year) Floodplain

Facility Type	Counts
Colleges / Universities	1
Day Care Facilities	11
Emergency Medical Service Stations	1
Fire Stations	1
Local Law Enforcement	1
Microwave Service Towers	6
Nursing Homes	2
Private Schools	3
Public Schools	9
Energy Commission Facilities	1
Water Treatment Facilities	1
TOTAL	**37**

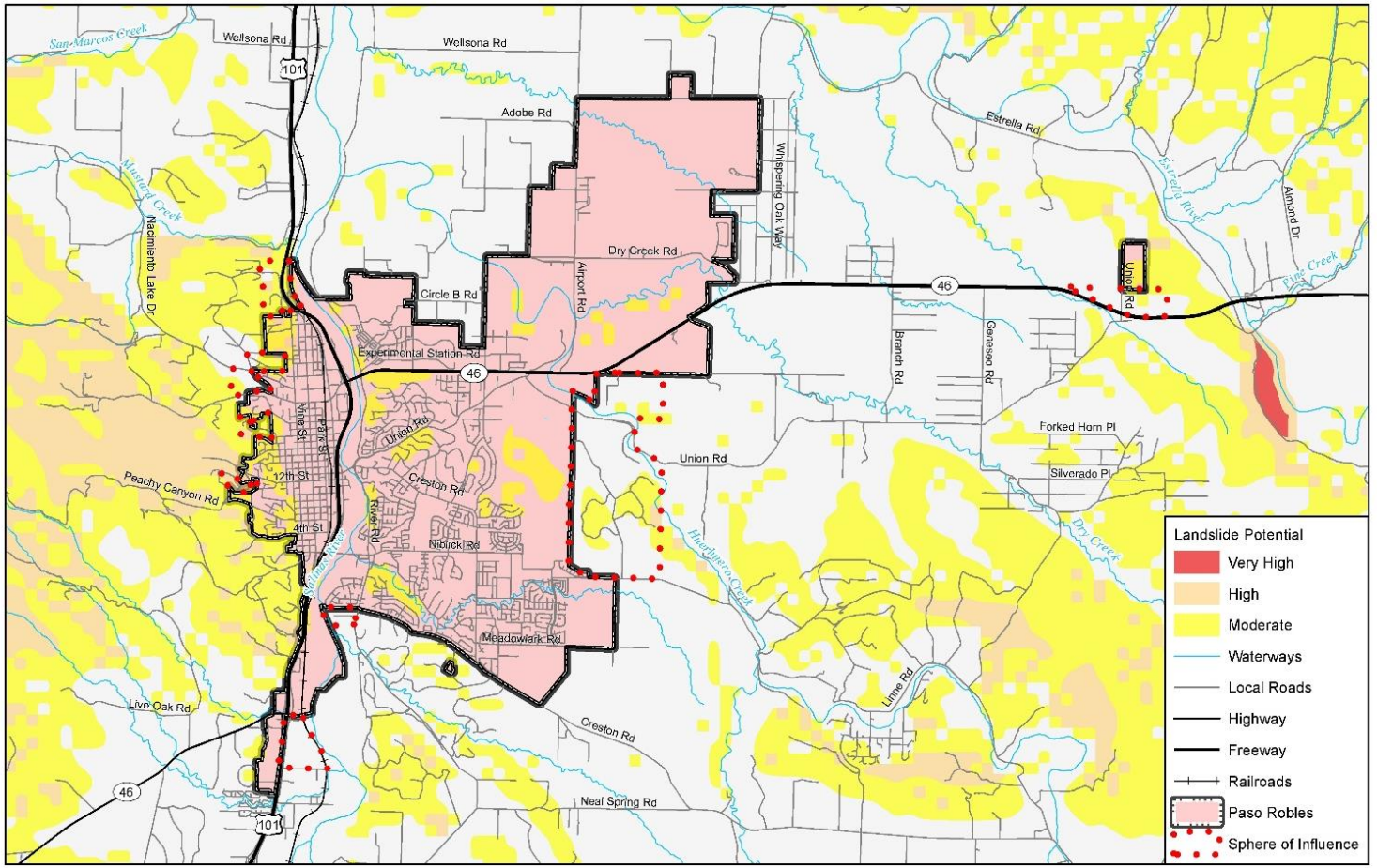
Source: San Luis Obispo County Planning & Building, HIFLD 2017

Landslides and Debris Flow

In the past twenty-five years, there have been two notable landslide events in Paso Robles. In 1995 a landslide on a hillside west of Olive Street (just north of Hilltop Drive) slid into the back of two homes after a series of winter storms. The hillside area that slid was approximately 150 wide by 40 feet high, and the slope of the hillside was about 30 percent.

December 22, 2003, numerous small landslides occurred as a result of the San Simeon Earthquake. Particularly noticeable, was a landslide along State Routes 46 and 41, east and west of downtown. The larger surficial slides were observed in the Franciscan Formation along State Route 46. Surficial slides were also observed along River Road in Paso Robles.

Figure E.6 City of Paso Robles Landslide Risk



Paso Robles has 861 properties and 11 critical facilities at high or moderate risk of landslides, as shown in the following tables.

Table E.16 Paso Robles Properties at High Risk of Landslide

Property Type	Property Count	Improved Value
Residential	7	$2,327,397
Multi-Family Residential	4	$805,413
Vacant	1	$38,500
TOTAL	**12**	**$3,171,310**

Source: San Luis Obispo County Planning and Building Dept., Assessor's Office, ParcelQuest, Wood Plc Parcel Analysis

Table E.17 Paso Robles Properties at Moderate Risk of Landslide

Property Type	Property Count	Improved Value
Agricultural	1	$17,828,970
Commercial	4	$10,816,442
Government/Utilities	23	--
Other/Exempt/Misc.	23	$8,370,189
Residential	755	$181,139,095
Multi-Family Residential	35	$6,912,732
Vacant	8	$1,218,988
TOTAL	**849**	**$226,286,416**

Source: San Luis Obispo County Planning and Building Dept., Assessor's Office, ParcelQuest, Wood Plc Parcel Analysis

Table E.18 Paso Robles Critical Facilities at Risk from Landslide

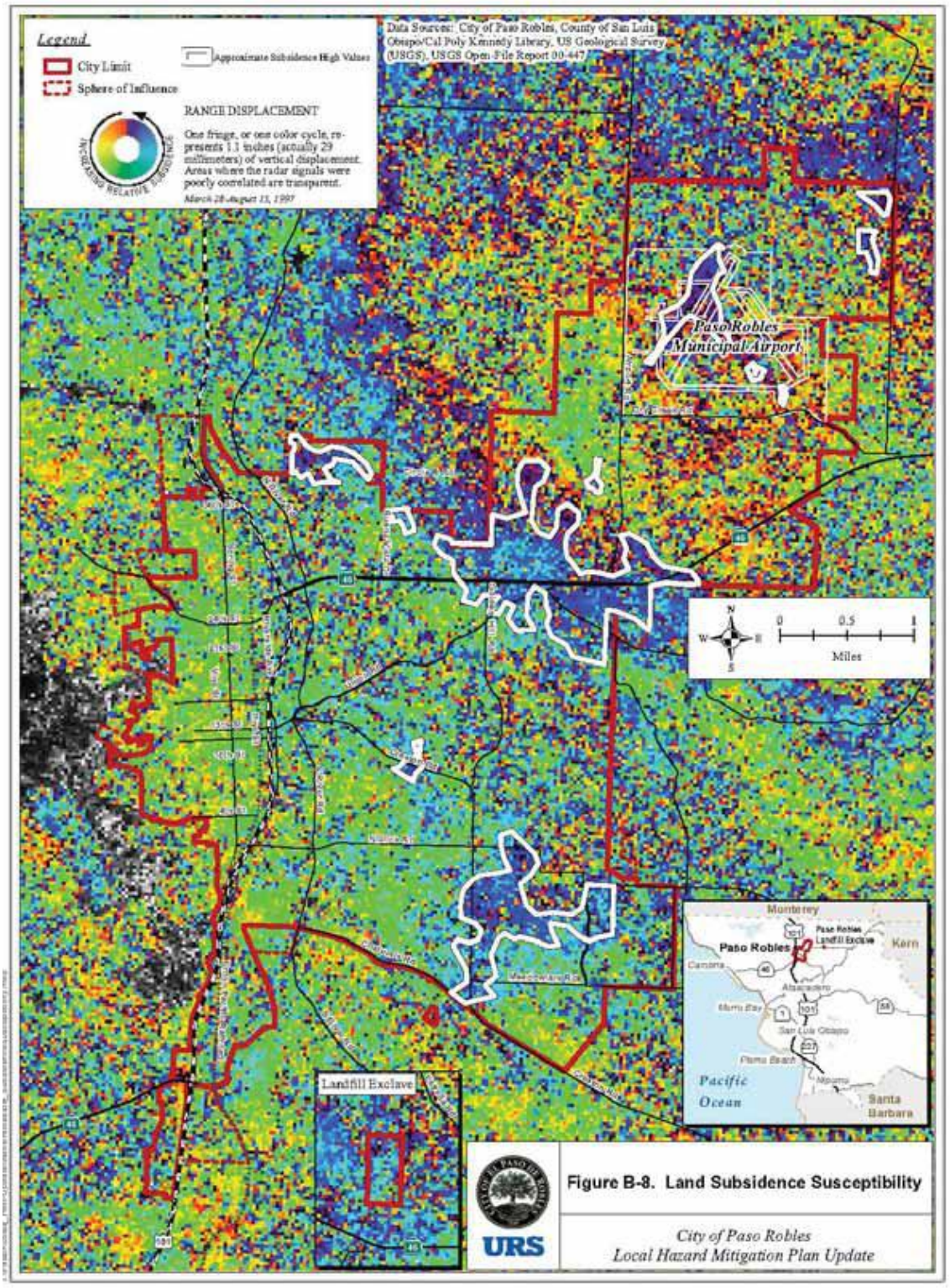
Critical Facility Type	Count	Risk
Microwave Service Towers	2	Moderate
Public Schools	9	Moderate
TOTAL	**11**	

Source: San Luis Obispo County Planning & Building, HIFLD 2017

Subsidence

As shown in Figure E.5, Paso Robles has 1.90 square miles of subsidence-prone areas along the Salinas River and Huerhuero Creek, as well as in the east and especially, southeast portions of the City.

Figure E.7 City of Paso Robles' Land Subsidence Susceptibility



Wildfire

Wildfire is a high significance hazard for the City of Paso Robles. Paso Robles has three properties and two critical facilities located in High Severity SRA Zones, as shown in Table E.11. The City does not have any parcels in Very High or Moderate Severity zones. While the number of properties in the City itself is relatively low, the City is almost completely surrounded by high and very high severity zones, as shown in the following map.

Fire seasons have grown longer and more intense in recent years, testing the City's firefighting resources and community resilience. Using weather factors such as wind, humidity and temperature, severe fire weather occurs greater than 46 days per year, in and around the City of Paso Robles.

Many areas throughout the City are highly succeptible to large conflagarations. One area of high concern is the Salinas Riverbed corridor. The riverbed corridor encompasses over 680 acres, much of it heavily forested. The brush and dead fuels provide a significant source of fuel not able to be addressed by annual weed abatement activities, due to restrictive regulations.

Emergency Response personnel responded to 115 fires in the riverbed corridor in 2018. From January 1-June 30, 2019, Emergency Response personnel responded to 63 fires. Thus, the risk of fire in the riverbed jumping out of the bed and racing through the rest of the community is unacceptably high. Fires in the riverbed corridor threaten critical City infrastructure, nearby residential and commercial properties, and the health and safety of all residents and visitors in the area. On July 16, 2019, the City of Paso Robles proclaimed a local emergency related to the riverbed fires.

High density of wildland fire ignitions are observable within and adjacent to the City of Paso Robles. These notable concentrations are illustrated in Figure E.8.

Figure E.8 Ignition Density in the Paso Robles Area

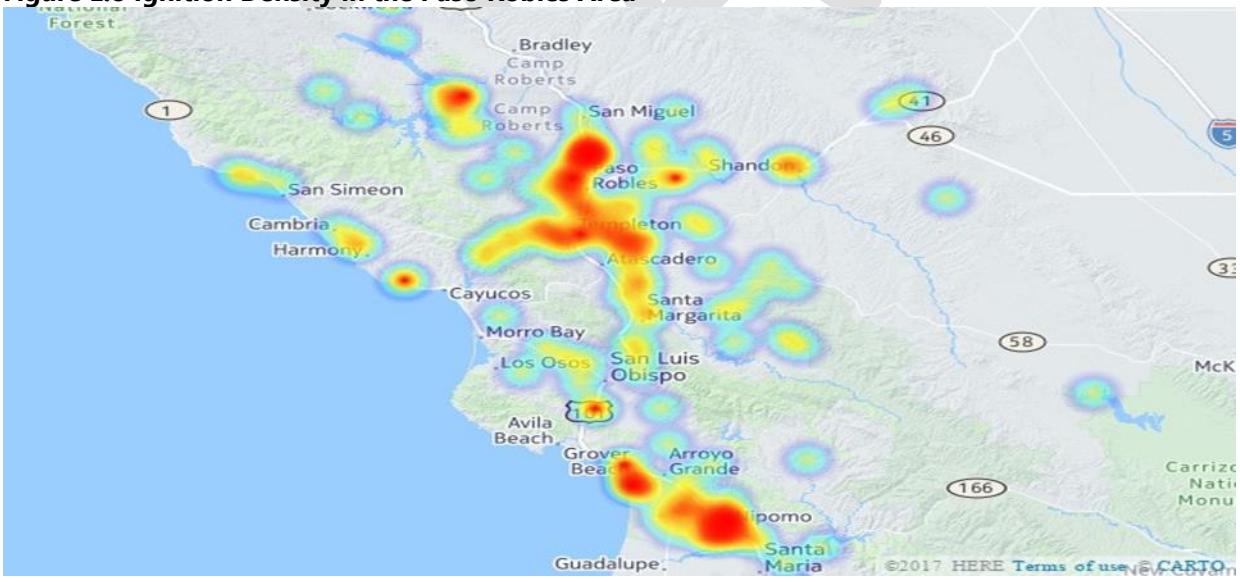
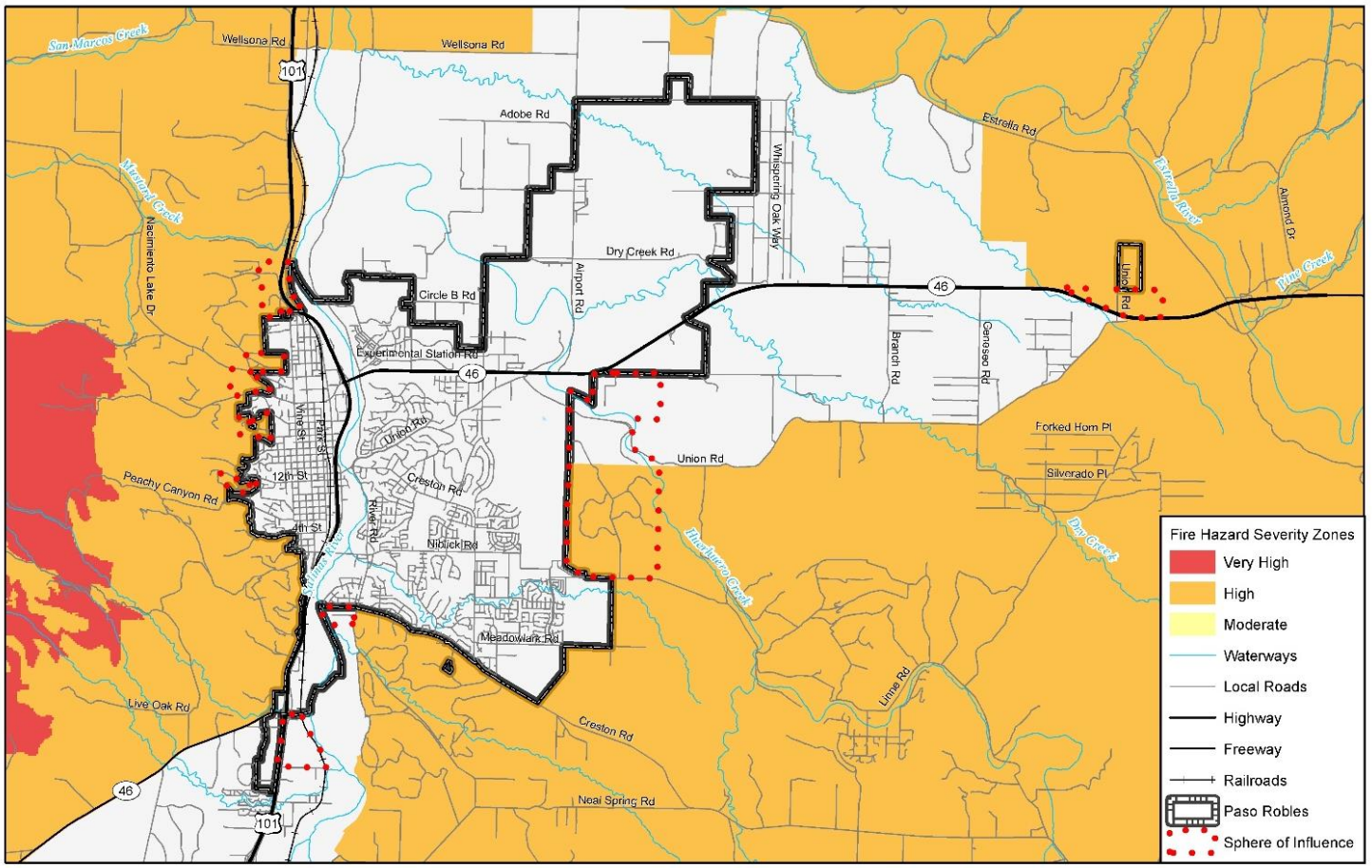


Figure E.9 Fire Hazard Severity Zones in the Paso Robles Area



Map compiled 6/2019;
intended for planning purposes only.
Data Source: San Luis Obispo County, US Census TIGER Database, CA Open Data Portal, BLM/California State Office, LAFCO, CalFire

Table E.19 City of Paso Robles Properties in High Severity SRA Zones

Property Type	Parcel Count	Improved Value	Content Value	Total Value	Loss Estimate	Population
Government/Utilities	1	--	--	$0	$0	--
Residential	1	$262,567	$131,284	$393,851	$393,851	3
Multi-Family Residential	1	$75,478	$37,739	$113,217	$113,217	3
TOTAL	**3**	**$338,045**	**$169,023**	**$507,068**	**$507,068**	**6**

Source: San Luis Obispo County Planning and Building Dept., Assessor's Office, ParcelQuest, Wood Plc Parcel Analysis

Table E.20 Paso Robles Critical Facilities at Risk from Wildfire

Critical Facility Type	Count	Risk
Microwave Service Towers	2	High
TOTAL	**2**	

Source: San Luis Obispo County Planning & Building, HIFLD 2017

Human Caused: Hazardous Materials

The Cal OES Warning Center reports 123 hazardous materials incidents in the City of Paso Robles from 1994 through October 24, 2018; as noted in Section 5.3.13 of the County plan, this likely excludes a large number of unreported minor spills. This constitutes 7% of the hazardous materials incidents reported countywide during the same time frame, and averages out to roughly 4.9 incidents per year. As noted in Section 5.3.13, only around 6% of reported hazardous materials incidents result in injuries, fatalities, or evacuations.

As shown in Figure 5-84 in the Base Plan, there are three EPA Risk Management Plan (RMP) facilities and five CalARP regulated facilities located in the City.

E.4 Capability Assessment

Capabilities are the programs and policies currently in use to reduce hazard impacts or that could be used to implement hazard mitigation activities. This capabilities assessment is divided into five sections: regulatory mitigation capabilities, administrative and technical mitigation capabilities, fiscal mitigation capabilities, mitigation outreach and partnerships, and other mitigation efforts.

To develop this capability assessment, the jurisdictional planning representatives used a matrix of common mitigation activities to inventory which of these policies or programs were in place. The team then supplemented this inventory by reviewing additional existing policies, regulations, plans, and programs to determine if they contributed to reducing hazard-related losses.

During the plan update process, this inventory was reviewed by the jurisdictional planning representatives and Wood consultant team staff to update information where applicable and note ways in which these capabilities have improved or expanded. Additionally, in summarizing current capabilities and identifying gaps, the jurisdictional planning representatives also considered their ability to expand or improve upon existing policies and programs as potential new mitigation strategies. The City of Paso Robles's capabilities are summarized below.

E.4.1 Regulatory Mitigation Capabilities

Table E.21 City of Paso Robles Regulatory Mitigation Capabilities

Regulatory Tool	Yes/No	Comments
General plan	Yes	Current General Plan on City Website
Zoning ordinance	Yes	Updated September 2018
Subdivision ordinance	Yes	See City Website.
Growth management ordinance	Yes	See City Website
Floodplain ordinance	Yes	Floodplain Management Ordinance (2008)
Other special purpose ordinance (stormwater, water conservation, wildfire)	Yes	Hazardous Fuels Reduction Ordinance (2019) Storm Water Management Ordinance (2013)
Building code	Yes	2016 California Building Code, Title 17 Municipal Code (See Website)
Fire department ISO rating	Yes	ISO Rating 03/3X
Building Department ISO Rating	Yes	ISO Rating 2/3
Erosion or sediment control program	Yes	Ongoing Public Works/ Development Review Process
Stormwater management program	Yes	Public Works
Site plan review requirements	Yes	Ongoing Development Review Process
Capital improvements plan	Yes	Revolving Five Year Program
Economic development plan	No	
Local emergency operations plan	Yes	EOC Emergency Plan and Annexes
Other special plans	No	
Flood Insurance Study or other engineering study for streams	Yes	FEMA LOMR by project when applicable, City Engineer
Elevation certificates (for floodplain development)	Yes	FEMA/ Floodplain Development requirements ongoing, City Engineer

E.4.2 Administrative/Technical Mitigation Capabilities

Table E.22 identifies the personnel responsible for activities related to mitigation and loss prevention in Paso Robles.

Table E.22 City of Paso Robles Administrative/Technical Mitigation Capabilities

Personnel Resources	Yes/ No	Department/ Position	Comments
Planner/engineer with knowledge of land development/land management practices	Yes	Community Development Department (Planning Division)	Develops and maintains the General Plan, Including the Safety Element. Develops area plans based on the General Plan, to provide more detailed guidance for the development of more specific areas. Reviews private development projects and proposed capital improvements projects and other physical projects involving property for consistency and conformity with the General Plan. Anticipates and acts on the need for new plans, policies, and Code changes. Applies the approved

Personnel Resources	Yes/ No	Department/ Position	Comments
			plans, policies, code provisions, and other regulations to proposed land uses.
Engineer/professional trained in construction practices related to buildings and/or infrastructure	Yes	Community Development Department (Building Division)	Oversees the effective, efficient, fair, and safe enforcement of the California Building Code.
Planner/engineer/scientist with an understanding of natural hazards	Yes	Community Development (Building and Engineering Divisions)	Reviews Grading and Building Plans to ensure that development is in compliance with existing policies and codes relating to mitigation of natural hazards.
Personnel skilled in GIS	Yes	Administrative Services GIS	
Full time building official	Yes	Community Development Department/Building Official	
Floodplain manager	Yes	Community Development Department (Engineering Division)	Reviews and ensures that new development proposals do not increase flood risk, and that new developments are not located below the 100-year flood level. In addition, the Floodplain Administrator is responsible for planning and managing flood risk reduction projects throughout the City.
Emergency manager	Yes	Emergency Services (Fire Chief)	Coordinates local response and relief activities within the Emergency Operation Center, and works closely with county, state, and federal partners to support planning and training and to provide information and coordinate assistance.
Grant writer	Yes	Emergency Services	
Other personnel			
GIS Data Resources (Hazard areas, critical facilities, land use, building footprints, etc.)	Yes	GIS	
Warning Systems/Services (Reverse 9-11, cable override, outdoor warning signals)	Yes	Reverse 911 and EAS activated through Sherriff's Department	
Procurement Services Manager	Yes	Administrative Services	Provides a full range of municipal financial services and administers several licensing measures.

E.4.3 Fiscal Mitigation Capabilities

Table E.23 identifies financial tools or resources that the City could potentially use to help fund mitigation activities.

Table E.23 City of Paso Robles Fiscal Mitigation Capabilities

Financial Resources	Accessible/ Eligible to Use (Yes/No)	Comments
Community Development Block Grants	N	
Capital improvements project funding	Y	
Authority to levy taxes for specific purposes	Y	
Fees for water, sewer, gas, or electric services	Y	
Impact fees for new development	Y	
Incur debt through general obligation bonds	Y	
Incur debt through special tax bonds	Y	
Incur debt through private activities	N	
Withhold spending in hazard prone areas	N	

E.4.4 Mitigation Outreach and Partnerships

The City conducts several ongoing public education or information programs, such as for fire safety, disaster preparedness, wildland preparedness, responsible water use, FOG (fats, oils and greases), and storm water public education.

E.4.5 Other Mitigation Efforts

Other mitigation efforts the City has conducted include:

- Riverbed Hazardous Fuels Reduction Program
- Weed Abatement Program
- Fuel Breaks
- Un-reinforced Masonry Building Retrofit Ordinance (retrofits completed)

E.4.6 Opportunities for Enhancement

Based on the capabilities assessment, the City of Paso Robles has several existing mechanisms in place that already help to mitigate hazards. In addition to these existing capabilities, there are also opportunities for the City to expand or improve on these policies and programs to further protect the community. Future improvements may include providing training for staff members related to hazards or hazard mitigation grant funding in partnership with the County and Cal OES. Additional training opportunities will help to inform City staff members on how best to integrate hazard information and mitigation projects into their departments. Continuing to train City staff on mitigation and the hazards that pose a risk to the City of Paso Robles will lead to more informed staff members who can better communicate this information to the public.

E.5 Mitigation Strategy

E.5.1 Mitigation Goals and Objectives

The City of Paso Robles Planning Team determined the two goals from the 2014 HMP continue to be approriate for this plan update. The following are the City of Paso Robles's 2019 mitigation goals and objectives:

Goal 1 – Minimize loss of life, injury, and damage to property, the economy, and the environment from the hazards identified in the 2016 LHMP.

Goal 2 – Build and enhance local mitigation capabilities to reduce the hazards identified in the 2016 LHMP. This will help ensure individual safety, reduce damage to public and private buildings and guarantee continuity of emergency services.

Continued Compliance with the National Flood Insurance Program

The City has been an NFIP participating community since 1981. In addition to the mitigation actions identified herein the City will continue to comply with the NFIP. This includes ongoing activities such as enforcing local floodplain development regulations, including issuing permits for appropriate development in Special Flood Hazard Areas and ensuring that this development mitigated in accordance with the regulations. This will also include periodic reviews of the floodplain ordinance to ensure that it is clear and up to date and reflects new or revised flood hazard mapping.

E.5.2 Completed 2016 Mitigation Actions

During the 2019 planning process the City of Paso Robles Planning Team reviewed all the mitigation actions from the 2016 plan. During the 2019 planning process the Planning Team identified that of their fifteen (15) mitigation actions from 2016, thirteen (13) were deferred and two (2) of the actions are in progress demonstrating the ongoing progress of building the community's resiliency to disasters.

E.5.3 Mitigation Actions

The planning team for the City of Paso Robles identified and prioritized the following mitigation actions based on the risk assessment. Background information and information on how each action will be implemented and administered, such as ideas for implementation, responsible office, potential funding, estimated cost, and timeline, are also included. Actions were prioritized using the process described in Section 7.2.1 of the Base Plan. Actions with an '*' are those that mitigate losses to future development.

Table E. 24 City of Paso Robles 's Mitigation Action Plan

ID	Hazard(s) Mitigated	Description/Background/Benefits	Lead Agency and Partners	Cost Estimate	Potential Funding	Priority	Timeline	Status/ Implementation Notes
PR.1*	Drought, Flood, Landslide, Wildfire, Subsidence	Integrate the hazard analysis and mitigation strategy into the General Plan's Safety Element.	CMO	Little to no cost	Staff Time/Dept. Budget	Low	TBD	Deferred
PR.2*	Flood, Landslide, Wildfire, Subsidence	Create a GIS-based pre-application review for new construction and major remodels in hazard areas, such high wildfire severity zones, moderate landslide susceptibility areas, and dam failure inundation zones.	Community Development Department/ Department of Emergency Services	Less than $10,000	FEAM HMA/Staff Time/Dept. Budget	Low	3-5 yrs.	Deferred
PR.3	Flood, Landslide, Wildfire	Establish a county evacuation and re-population plan. Make sure this plan works with other municipalities so that people are not receiving conflicting information about where to evacuate to. Benefit: Reduce death and injury; organized and systemic approach to evacuation of area with predesignated locations on where to go	Emergency Services Department	Less than $10,000	General fund; FEMA HMA	High	1 yr.	New
PR.4	Dam Failure	Develop a public outreach program that informs property owners located in the dam inundation areas about voluntary flood insurance.	Public Works Department	Little to no cost	Staff Time/Dept. Budget	Low	2-3 yrs.	Deferred
PR.5	Drought	Develop a drought contingency plan to provide an effective and systematic means of assessing drought conditions, develop mitigation actions and programs to reduce risks in advance of drought, and develop response options that minimize hardships during drought.	Public Works Department	$10,000 to $50,000	FEMA HMA	High	3-5 yrs.	Deferred
PR.6	Drought	Develop measures to achieve a higher level of irrigation efficiency with respect to plant water requirements, through assistance programs to customers.	Public Works Department	Little to no cost	Staff Time/Dept. Budget	Low	2-3 yrs.	Deferred

ID	Hazard(s) Mitigated	Description/Background/Benefits	Lead Agency and Partners	Cost Estimate	Potential Funding	Priority	Timeline	Status/ Implementation Notes
PR.7	Extreme Heat	Initiate an extreme heat public awareness and educational campaign to discuss the dangers of extreme heat, steps each individual can personally take during periods of extreme heat and ways to reduce energy consumption during periods of extreme heat.	Emergency Services Department	Little to no cost	Staff Time/Dept. Budget	Low	1 yr.	Deferred
PR.8	Flood	Acquire, relocate, elevate, and/or floodproof public works critical facilities that are located within the 100-year floodplain.	Public Works Department	$500,000 to $1,000,000	FEMA HMA	High	More than 5 yrs.	Deferred
PR.9	Flood	Reinforce roads from flooding through protection activities, including elevating the road and installing/widening culverts beneath the road or upgrading storm drains.	Public Works Department	$500,000 to $1,000,000	FEMA HMA	High	More than 5 yrs.	Deferred
PR.10	Flood	Develop a public outreach program that educates property owners about voluntary flood insurance (targeted at areas that historically flood, but are not acknowledged on FEMA flood insurance rate maps)	Public Works Department	Little to no cost	Staff Time/Dept. Budget	Low	2-3 yrs.	Deferred
PR.11	Flood	Partner with propane companies and regulating agencies to secure tanks located in special flood hazard areas.	Emergency Services Department	Little to no cost	Staff Time/Dept. Budget	Low	1 yr.	Deferred
PR.12	Flood	Increase participation in the NFIP by entering the Community Rating System program which through enhanced floodplain management activities would allow property owners to receive a discount on their flood insurance.	Public Works Department	Little to no cost	Staff Time/Dept. Budget	Low	1 yr.	Deferred
PR.13	Hazardous Materials	Continue to monitor the manufacture, storage, and transport of hazardous materials by working with environmental health and public safety agencies to identify effective mitigation actions or requirements that will help reduce the risk of incidents, including the spread of released materials.	Emergency Services Department	Little to no cost	Staff Time/Dept. Budget	Low	Ongoing	Deferred

ID	Hazard(s) Mitigated	Description/Background/Benefits	Lead Agency and Partners	Cost Estimate	Potential Funding	Priority	Timeline	Status/ Implementation Notes
PR.14 *	Multi: Landslide, Subsidence	Establish local zoning regulations that require the stabilization of landslide-prone areas and land subsidence hazard areas before new development can occur, through stability improvement measures such as the inclusion of interceptor drains, in-situ soil piles, drained earth buttresses, and subdrains.	Community Development Department	Little to no cost	Staff Time/Dept. Budget	Low		Completed on an ongoing basis
PR.15	Wildfire	Create a new vegetation management program that provides vegetation management services to elderly, disabled, or low-income property owners who lack the resources to remove flammable vegetation from around their homes.	Emergency Services Department	Less than $10,000	FEMA HMA	High	3-5 yrs.	Deferred
PR.16 *	Wildfire	Implement a fuel modification program for new construction by requiring builders and developers to submit their plans, complete with proposed fuel modification zones, to the local fire department for review and approval prior to beginning construction.	Community Development Department/ Emergency Services Department	Less than $10,000	FEMA HMA	High	2-3 yrs.	In progress
PR.17	Wildfire	Ability to fast track cleanup efforts in the Salinas Riverbed with approvals through Fish and Wildlife, or other agencies involved in environmentally sensitive areas	Emergency Services Department	Less than $10,000	General funds; FEMA HMA	High	1 yr.	New

E.6 Implementation and Maintenance

Moving forward, the City will use the mitigation action table in the previous section to track progress on implementation of each project. As illustrated in Section 7.3.1 of the County plan, much progress has been made since the plan was originally developed. Implementation of the plan overall is discussed in Chapter 8 of the main plan.

E.6.1 Incorporation into Existing Planning Mechanisms

The information contained within this plan, including results from the Vulnerability Assessment, and the Mitigation Strategy will be used by the City to help inform updates and the development of local plans, programs and policies. The Engineering Division may utilize the hazard information when implementing the City's Community Investment Program and the Planning and Building Divisions may utilize the hazard information when reviewing a site plan or other type of development applications. The City will also incorporate this LHMP into the Safety Element of their General Plan, as recommended by Assembly Bill (AB) 2140.

As noted in Chapter 7.0 Plan Implementation, the HMPC representatives from Paso Robles will report on efforts to integrate the hazard mitigation plan into local plans, programs and policies and will report on these efforts at the annual HMPC plan review meeting.

E.6.2 Monitoring, Evaluation and Updating the Plan

The City will follow the procedures to monitor, review, and update this plan in accordance with San Luis Obispo County as outlined in Chapter 8 of the Base Plan. The City will continue to involve the public in mitigation, as described in Section 8.3 of the Base Plan. The Fire Chief will be responsible for representing the City in the County HMPC, and for coordination with City staff and departments during plan updates. The City realizes it is important to review the plan regularly and update it every five years in accordance with the Disaster Mitigation Act Requirments as well as other State of California requirements.

F.1 Community Profile

F.1.1 Mitigation Planning History and 2019 Process

This annex was created during the development of the 2019 San Luis Obispo County Hazard Mitigation Plan update. This Jurisdictional Annex builds upon the previous version of the Local Hazard Mitigation Plan for the City of Pismo Beach, which was completed and adopted by the City Council on July 15, 2014 and approved by FEMA in June 2015; that previous mitigation plan was not incorporated into the City's General Plan, as this updated mitigation plan will be. A review of jurisdictional priorities found no significant changes in priorities since the last update.

The City's Local Planning Team (LPT) held responsibility for implementation and maintenance of the plan. The Associate Planner for City of Pismo Beach is responsible for updating the plan.

Table F.1 Pismo Beach Hazard Mitigation Plan Revision Planning Group

Department or Stakeholder	Title
Community Development -Planning Division	Community Development Director
Community Development -Planning Division	Associate Planner
Fire Department (Calfire)	Captain – Prevention
Public Works – Engineering Division	Public Works Director

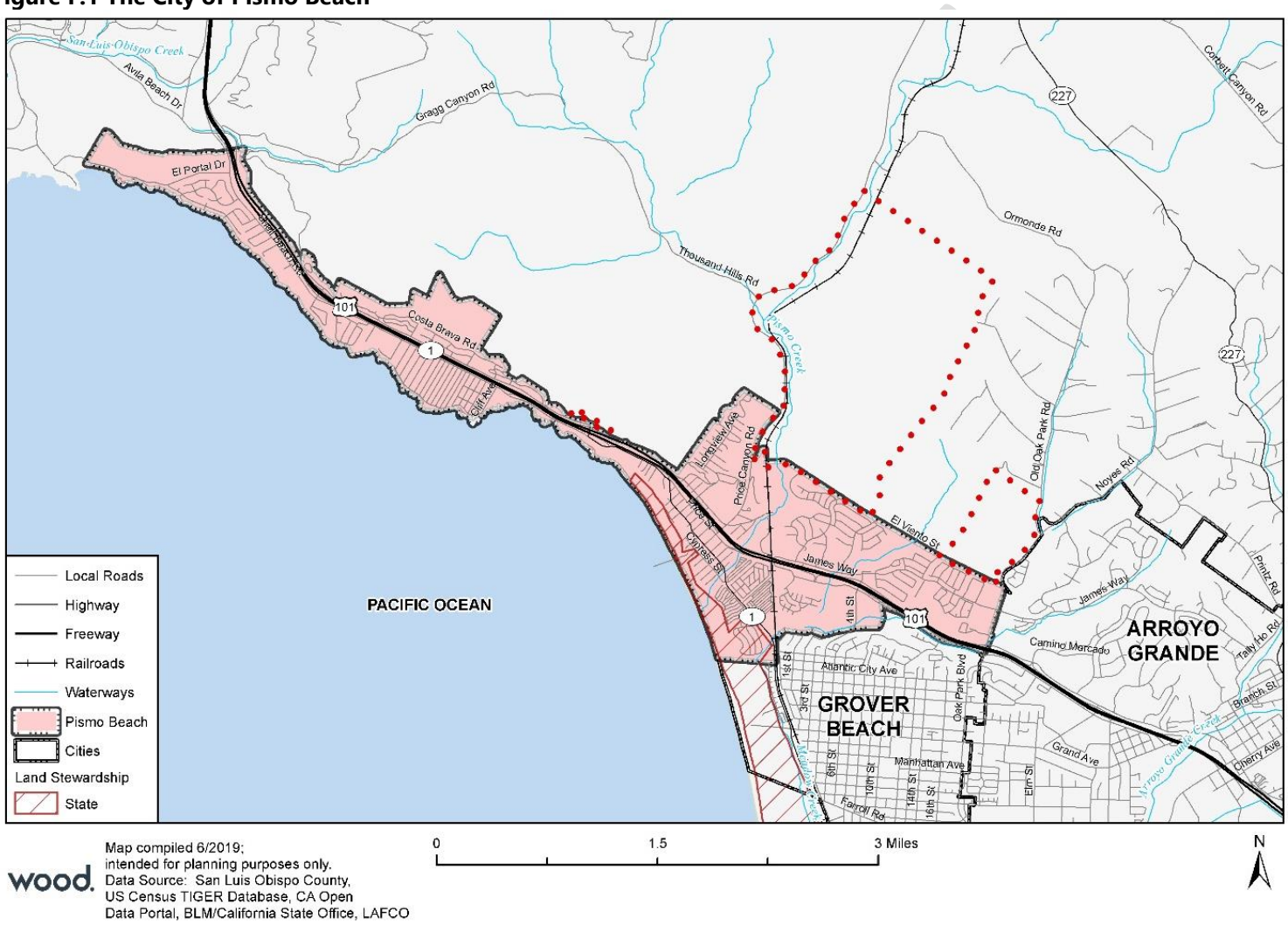
More details on the planning process followed and how the jurisdictions, service districts, and stakeholders participated can be found in Chapter 3 of the Base Plan, as well as how the public was involved during the 2019 update.

F.1.2 Geography and Climate

The City of Pismo Beach is a coastal community located in the south county area of the San Luis Obispo. U.S. Highway 101 traverses the City limits along the Pacific Ocean. The City of Pismo Beach, encompassing 3.6 miles, is one of the communities in the area known as the Five Cities. The Cities of Grover Beach and Arroyo Grande border Pismo Beach on the south, and the unincorporated community of Avila Beach borders Pismo Beach to the North. The City of Pismo Beach has varying topography with elevations ranging from 0 feet above mean sea level (msl) to 600 feet msl, as can be seen from the community's sandy beaches and sand dune to cliffs and bluffs ranging from 10 to 100 feet in height. Figure F.1 displays a map and the location within San Luis Obispo County of the City of Arroyo Grande planning area.

According to the Western Regional Climate Center, Pismo Beach has an average high temperature (June) of 70°F and low temperature of 42°F (January). The jurisdiction receives 17.14 inches of rain annual. While the average temperature is relatively temperate, summer and winter months bring unique weather patterns to the region.

Figure F.1 The City of Pismo Beach



Map compiled 6/2019;
intended for planning purposes only.
Data Source: San Luis Obispo County,
US Census TIGER Database, CA Open
Data Portal, BLM/California State Office, LAFCO

F.1.3 History

The City of Pismo Beach consists of 3.6 square miles of the original 13.8 square miles of Rancho Pismo. The historic Pismo Beach was founded in 1840 by Jose Ortega and was purchased by John Price in the mid-1850's. Price hired a surveyor to plan and plat a town which would be known as "El Pismo". The town consisted of a wharf, warehouse, school districts, post office, and beach hotel, and quickly establishing itself as a tourist destination. The original town site of El Pismo continues to be the downtown area of the City. The community changed the its name from "El Pismo" to "Pismo Beach" in 1923. Tourism continued to be a draw to Pismo Beach as the community-built tourist attractions such as the pier at Pismo Beach, which continues to be an attraction to this day. In 1926 the community attempted to incorporate but was unsuccessful until 1939. The following year, in 1940 with fears of increased taxes under the newly incorporated City, the Community voted to disincorporate the City. The City was again incorporated on April 25, 1946. Shell Beach was annexed into the City of Pismo Beach in 1964 followed by the annexation of Sunset Palisades in 1970.

F.1.4 Economy

The City of Pismo Beach has a robust economy that's been built around the tourism and retail industries. The 5-year estimates (2013-2017) from the U.S. Census Bureau's American Community Survey show the majority of those employed work in the educational services and health care and social assistance industry (23%); arts, entertainment and recreation and accommodation and food services (17%); professional, scientific and management (13%); and retail trade (11%). Refer to Table F.3 below for a complete breakdown of the labor force by industry, based on the estimate from the 2013-2017 five-year American Community Survey.

Select estimates of economic characteristics for the City of Pismo Beach are shown in Table F.2.

Table F.2 City of Pismo Beach Economic Characteristics, 2013-2017

Characteristic	City of Pismo Beach
Families below Poverty Level (%)	2.2%
All People below Poverty Level (%)	8.4%
Median Family Income	$90,069
Median Household Income	$77,316
Per Capita Income	$50,762
Population in Labor Force	4,175
Population Employed*	4,012
Unemployment	163

Source: CA Department of Finance U.S. Census Bureau American Community Survey 2013-2017 5-Year Estimates, www.census.gov/

*Excludes armed forces

Table F.3 City of Pismo Beach Employment by Industry, 2013-2017

Industry	# Employed
Agriculture, forestry, fishing and hunting, and mining	55
Construction	186
Manufacturing	77
Wholesale trade	442
Retail trade	174
Transportation and warehousing, and utilities	47
Information	252
Finance and insurance, and real estate and rental and leasing	560
Professional, scientific, and management, and administrative and waste management services	953
Educational services, and health care and social assistance	716
Arts, entertainment, and recreation, and accommodation and food services	221
Other services, except public administration	201
Public Adm	55
Total	**4,012**

Source: U.S. Census Bureau American Community Survey 2013-2017 5-Year Estimates, www.census.gov/

F.1.5 Population

The U.S. Census Bureau estimated the City's 2017 population as 8,060, up from 7,655 at the 2010 census. Table F.4 shows an overview of key social and demographic characteristics of the City taken from the U.S. Census Bureau's American Community Survey.

Table F.4 City of Pismo Beach's Demographic and Social Characteristics, 2012-2017

City of Pismo Beach	2012	2017	% Change
Population	7,721	8,060	4.4%
Median Age	51.3	54.1	5.5%
Total Housing Units	5,290	5,622	6.3%
Housing Occupancy Rate	68.5%	72.6%	4.1%
% of Housing Units with no Vehicles Available	4.9%	6.4%	1.5%
Mean Travel Time to Work (minutes)	4.9%	8.4%	3.5%
# of Households	3,626	4,081	12.5%
Average Household Size	2.13	1.97	-7.5%
% of Population Over 25 with High School Diploma	95.9%	96.3%	0.4%
% of Population Over 25 with Bachelor's Degree or Higher	35.3%	45.2%	9.9%
% with Disability	13.1%	13.1%	0.0%
% Speak English less than "Very Well"	3.7%	2.2%	-1.5%

Source: U.S. Census Bureau American Community Survey 2012-2017 5-Year Estimates, www.census.gov/

F.1.6 Development Trends

A majority of development within the City of Pismo Beach is residential. According to the LPT, the City of Pismo Beach is fairly built out, with vacant properties available to be developed for housing in the Sunset Palisades and Freeway Foothill Planning Areas. Other areas of the City are experiencing infill and redevelopment activity. New hotels near the City Pier have been developed, which the LPT has concerns will expose an increased number of visitors to hazards such as tsunamis. Most of the City is within the Coastal Zone, although as noted in the 2015 LHMP, recent development has extended into the foothills beyond the Coastal Zone. Development within the City falls under two zoning codes: the 1983 zoning codes applies to the Coastal Zone, while the 1998 zoning code applies to properties outside the Coastal Zone.

F.2 Hazard Identification and Summary

The Pismo Beach Planning Team identified the hazards that affect the City and summarized their frequency of occurrence, spatial extent, potential magnitude, and significance specific to Pismo Beach (see Table F.5). There are no hazards that are unique to the City. The overall hazard significance takes into account the geographic area, probability and magnitude as a way to identify priority hazards for mitigation purposes. This is discussed further in the Vulnerability Assessment section below.

Table F.5 City of Pismo Beach – Hazard Summaries

Hazard	Geographic Area	Probability of Future Occurrence	Magnitude/ Severity (Extent)	Overall Significance
Coastal Erosion	Significant	Highly Likely	Limited	Medium
Coastal Storm	Limited	Occasional	Limited	Medium
Sea Level Rise	Significant	Occasional	Limited	Medium
Dam Incidents	Limited	Occasional	Critical	Medium
Drought and Water Shortage	Extensive	Likely	Negligible	Medium
Earthquake	Extensive	Occasional	Limited	Medium
Landslide	Significant	Likely	Limited	Medium
Tsunami	Significant	Occasional	Critical	Medium
Wildfire	Significant	Occasional	Critical	Medium
Human Caused: Hazardous Materials	Limited	Likely	Limited	Medium

Geographic Area
Limited: Less than 10% of planning area
Significant: 10-50% of planning area
Extensive: 50-100% of planning area

Probability of Future Occurrences
Highly Likely: Near 100% chance of occurrence in next year or happens every year.
Likely: Between 10 and 100% chance of occurrence in next year or has a recurrence interval of 10 years or less.
Occasional: Between 1 and 10% chance of occurrence in the next year or has a recurrence interval of 11 to 100 years.
Unlikely: Less than 1% chance of occurrence in next 100 years or has a recurrence interval of greater than every 100 years.

Magnitude/Severity (Extent)
Catastrophic—More than 50 percent of property severely damaged; shutdown of facilities for more than 30 days; and/or multiple deaths
Critical—25-50 percent of property severely damaged; shutdown of facilities for at least two weeks; and/or injuries and/or illnesses result in permanent disability
Limited—10-25 percent of property severely damaged; shutdown of facilities for more than a week; and/or injuries/illnesses treatable do not result in permanent disability
Negligible—Less than 10 percent of property severely damaged, shutdown of facilities and services for less than 24 hours; and/or injuries/illnesses treatable with first aid

Significance
Low: minimal potential impact
Medium: moderate potential impact
High: widespread potential impact

F.3 Vulnerability Assessment

The intent of this section is to assess Pismo Beach's vulnerability separate from that of the planning area as a whole, which has already been assessed in Section 5 of the Base Plan. This vulnerability assessment analyzes the population, property, and other assets at risk to hazards ranked of medium or high significance, or that may vary from other parts of the planning area.

The information to support the hazard identification and risk assessment was based of the previous LHMP for the City. A Local Hazard Mitigation Plan Update Guide and associated worksheets were distributed to each participating municipality or special district to complete during the 2019 update process. Information collected was analyzed and summarized in order to identify and rank all the hazards that could impact anywhere within the County, as well as to rank the hazards and identify the related vulnerabilities unique to each jurisdiction.

Each participating jurisdiction was in support of the main hazard summary identified in the Base Plan (See Table 5.2). However, the hazard summary rankings for each jurisdictional annex may vary slightly due to specific hazard risk and vulnerabilities unique to that jurisdiction (See Table F.5). Identifying these differences helps the reader to differentiate the jurisdiction's risk and vulnerabilities from that of the overall County.

Note: The hazard "Significance" reflects overall ranking for each hazard, and is based on the City of Pismo Beach's Planning Team member input from the Data Collection Guide and the risk assessment developed during the planning process (see Section 5 of the Base Plan), which included a more detailed qualitative analysis with best available data.

The hazard summaries in Table F.5 reflect the hazards that could potentially affect City. The discussion of vulnerability for each of the following hazards is located in F.3.2 Estimating Potential Losses. Based on this analysis, there are no hazards ranked as High significance. The following hazards were given a Medium significance for the City of Pismo Beach.

- Coastal Storm/Coastal Erosion/Sea Level Rise
- Dam Incidents
- Drought and Water Shortage
- Earthquake
- Landslide
- Tsunami
- Wildfire
- Hazardous Materials

Other Hazards

Hazards assigned a significance rating of Low and which do not differ significantly from the County ranking (e.g., Low vs. High) are not addressed further in this plan and are not assessed individually for specific vulnerabilities in this section. In the City of Pismo Beach, those hazards include: adverse weather, agricultural pests and plant diseases, biological agents, flooding, debris flow, subsidence, and seiches.

F.3.1 Assets at Risk

This section considers Pismo Beach's assets at risk, including values at risk, critical facilities and infrastructure, historic assets, economic assets and growth and development trends.

Values at Risk

The following data on property exposure is derived from the San Luis Obispo County 2019 Parcel and Assessor data. This data should only be used as a guideline to overall values in the City as the information has some limitations. The most significant limitation is created by Proposition 13. Instead of adjusting property values annually, the values are not adjusted or assessed at fair market value until a property transfer occurs. As a result, overall value information is likely low and does not reflect current market value of properties. It is also important to note that in the event of a disaster, it is generally the value of the infrastructure or improvements to the land that is of concern or at risk. Generally, the land itself is not a loss. Table F.6 shows the exposure of properties (e.g., the values at risk) broken down by property type for the City of Pismo Beach.

Table F.6 2019 Property Exposure for the City of Pismo Beach by Property Types

Property Type	Parcel Count	Improved Value	Content Value	Total Value
Commercial	157	$114,852,343	$114,852,343	$229,704,686
Government/Utilities	80	$23,467	--	$23,467
Other/Exempt/Misc.	199	$13,450,476	--	$13,450,476
Residential	3,366	$922,174,106	$461,087,053	$1,383,261,159
Multi-Family Residential	851	$188,228,183	$94,114,092	$282,342,275
Mobile/Manufactured Homes	5	$20,491,650	$10,245,825	$30,737,475
Residential: Other	200	$162,579,999	$81,290,000	$243,869,999
Vacant	27	$17,273,561	--	$17,273,561
Total	**4,885**	**$1,439,073,785**	**$761,589,312**	**$2,200,663,097**

Source: Wood Plc analysis based on ParcelQuest and San Luis Obispo County Assessor's Office data 2019

Critical Facilities and Infrastructure

A critical facility may be defined as one that is essential in providing utility or direction either during the response to an emergency or during the recovery operation. See Section 5 of the Base Plan for more details on the definitions and categories of critical facilities.

An inventory of critical facilities in the City of Pismo Beach from San Luis Obispo County GIS is provided in Table F.7 and illustrated in Figure F.2. A more detailed list of the critical facilities was provided by the Planning team that includes the name of the asset, replacement value and hazard specific issues can be found as an Attachment at the end of this Annex.

Table F.7 City of Pismo Beach's Critical Facilities

Facility Type	Counts
Day Care Facilities	2
Emergency Medical Service Stations	2
Fire Stations	3
Local Law Enforcement	1
Public Schools	2
Urgent Care	1
Microwave Service Towers	6
Wastewater Treatment Plants	1
Airports	1
Total	**19**

Source: San Luis Obispo County Planning & Building, HIFLD 2017

Transportation and Lifeline Facilities

The City of Pismo Beach is a "highway-oriented" community, with U.S. Highway 101 traversing through the center of the City along its entire length. There are several bridges within the City limits that cross Highway 101, and which the Planning Team noted as being vulnerable to an earthquake event; in some cases, the bridges are also at risk of other hazards such as tsunami inundation or inundation from the Lopez Dam. In addition to Highway 101 there are two regionally significant roads that cross the City of Pismo Beach: Price Canyon Road and State Road 1. The City's 2015 notes the limited transportation route options as a concern if evacuation was required.

Other transportation facilities within or near the City of Pismo Beach include, Oceano County Airport and the San Luis Obispo County Regional Airport. Both airports are outside the City limits of Pismo Beach but could impact the City of Pismo Beach if these facilities were impacted by a disaster.

There are seven lifeline utility systems within the City of Pismo Beach, including six microwave service towers and one wastewater treatment plant. Based on the GIS analysis there are two microwave service towers that are at moderate to high risk from landslide events. Refer to the landslide section under F.3.2 Estimating Potential Losses.

Emergency Services

Based on the GIS analysis the City of Pismo Beach has eleven emergency services facilities that will be important to remain operable during an emergency or after a disaster. A majority of these emergency services facilities are located near Highway 101. According to the Planning Team, Fire Stations 63 and 64 as well as the Police Annex, and Police Department/EOC are vulnerable to an earthquake event. The two public schools in the City of Pismo Beach, Judkins Middle School, and Shell Beach Elementary as well as the Happy Time Cooperative Preschool are all considered by the Planning Team to be vulnerable to earthquake hazards.

Historic and Cultural Resources

The National Register of Historic Places lists one historic site in the City of Pismo Beach: the John Price House, Also known as the Price Anniversary House, which is the oldest building in Pismo Beach. The Planning Team lists the following resources as community assets for Pismo Beach.

- Ira Lease Park
- Mary Herrington Park
- Old City Hall
- Pismo Beach Pier
- Pismo Veterans' Hall
- Price Anniversary House
- Meherin House
- Price Adobe
- Shell Beach Veterans' Hall

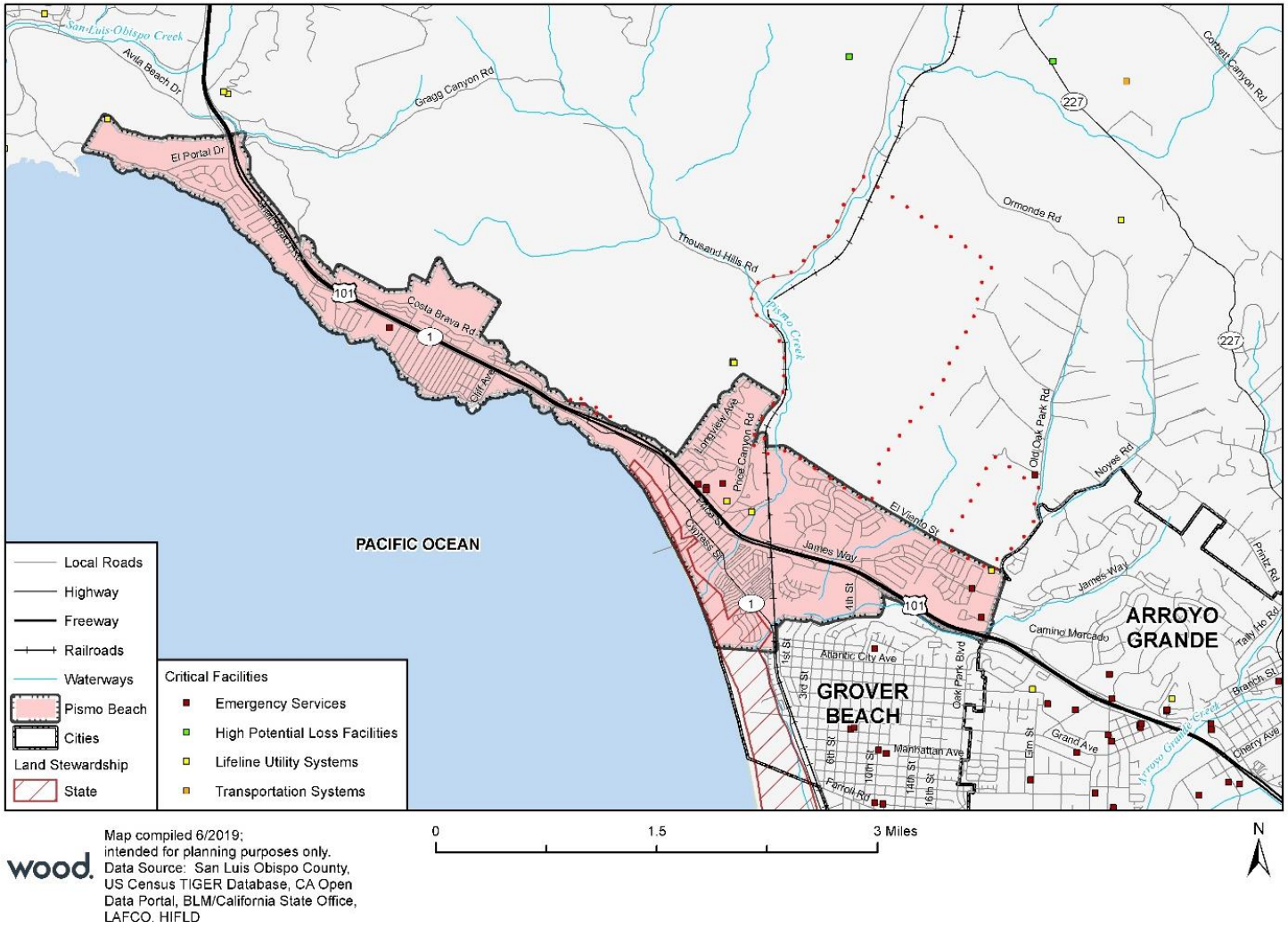
Natural Resources

Natural resources are important to include in benefit-cost analyses for future projects and may be used to leverage additional funding for projects that also contribute to community goals for protecting sensitive natural resources. Awareness of natural assets can lead to opportunities for meeting multiple objectives. For instance, protecting the dunes and bluffs along the coast of Pismo Beach is important both for continuing to attract tourists but also as a form of natural protection against coastal storms for the entire community of Pismo Beach. The City of Pismo Beach is home to several parks and natural areas, including the Monarch Butterfly Grove and the Dinosaur Cave Park, which encompasses 11-acres of ocean-front, bluff-top park. The over 900-acre Pismo Preserve is another natural attraction in the City with over 10 miles of existing ranch roads and trails that meander through the Preserve. The Land Conservancy of San Luis Obispo County has been working with the County, San Luis Obispo Council of Governments, and the City of Pismo Beach to fund and construct public amenities for the Pismo Preserve. The Pismo Preserve is currently closed, and initial construction has begun. The Land Conservancy is anticipating opening the Preserve by the end of 2019.

Economic Assets

The local economy for Pismo Beach is oriented around tourism. Many of the historic, cultural and natural resources noted above help to attract visitors to the City. According to the City's Housing Element (2007), the Pismo Beach's primary industries relate to service industry such as lodging, food service, and retail. With tourism being the greatest economic asset, if a disaster event was to occur within or near the City of Pismo Beach there is also a risk of the public's perception of safety after the event that could impact the number of tourists or visitors to the City in the years following the event.

Figure F.2 City of Pismo Beach's Critical Facilities



F.3.2 Estimating Potential Losses

Note: This section details vulnerability to specific hazards of high or medium significance, where quantifiable, and/or where (according to HMPC member input) it differs from that of the overall County.

Table F.6 above shows Pismo Beach's exposure to hazards in terms of number and value of structures. San Luis Obispo County's parcel and assessor data was used to calculate the improved value of parcels. The most vulnerable structures are those unreinforced masonry buildings, and buildings built prior to the introduction of modern-day building codes. Impacts of past events and vulnerability to specific hazards are further discussed below (see Section 5 for more detailed information about these hazards and their impacts on San Luis Obispo County as a whole).

Note: The risk and vulnerability related to biological agents in Pismo Beach do not differ from those of the County at large. Please refer to Section 5 of the Base Plan for more details on this hazard.

Coastal Storm/Coastal Erosion/Sea Level Rise

As a low-lying coastal community Pismo Beach is exposed to a range of coastal hazards, including coastal storms and coastal erosion. As described in the Base Plan (refer to Section 5), these hazards are projected to become more severe when combined with sea level rise.

Coastal storms include tidal flooding, storm surge and wave action, sometimes in combination with high tide and strong winds. Coastal storms can cause high winds and strong storm surges that would affect low-lying "vulnerable" coastal resources and infrastructure located in urban areas. All coastal development in proximity to the shoreline is threatened by landward retreat of the shoreline due to beach and bluff erosion, which are exacerbated by coastal storm events. A coastal storm during the 1982/83 El Niño season caused significant damage to coastal structures at Pismo Beach, including the Pier, RV park, access trail, and seawall. An estimated replacement cost of over $5.5 million was reported.

The following table shows the parcels by property type that are risk of coastal flooding events.

Table F.8 City of Pismo Beach Coastal Flooding Risk by Property Type

Property Type	Parcel Count	Improved Value	Content Value	Total Value
Government/Utilities	9	--	--	$0
Other/Exempt/Misc.	1	--	--	$0
Total	**10**	**$0**	**$0**	**$0**

Source: Wood Plc analysis based on ParcelQuest and San Luis Obispo County Assessor's Office data 2019

The City of Pismo Beach's topography varies from sandy beaches and sand dunes to cliffs and bluffs ranging from 10 to 100 feet in height along five miles of the northwest portion of the City's shoreline. Erosion of the beach and dunes threaten residential, commercial, and recreational development. There have been several erosion events in the City's history that have caused damage including the following events. Refer to the Adverse Weather profile of Section 5 for additional events that have impacted the Pismo Beach planning area.

1978 – A severe storm led to bluff erosion and resulted in the damage to eight (8) homes.

1998 – Five coastal bluff failures affected City roads. Increased sea-wave erosion, surface-water erosion, and urban irrigation contributed to failures.

2009 and 2011 – Beginnings of bluff failures prompted emergency work to stabilize the impacted areas to prevent the erosion of a frontage road by Highway 1 and damage to the sewage pumping station at Shell Beach.

According to the City of Pismo Beach 1992 Bluff Erosion Study Update, bluff erosion rates average 2 inches per year where bedrock is present in locations such as Park Place, South Point and Price Street. Up to 12 inches per year is possible in areas with limited bedrock such as Indio Drive. The same study states that past studies have found that more than 60 homes are within the bluff retreat hazard zone and may be subject to damage or destruction by 2100, without accounting for accelerated bluff retreat associated with sea level rise. Refer to Section 5 of the Base Plan for additional information, including pictures of past bluff erosion events that have occurred in Pismo Beach

Rising sea levels as a result of climate change are projected to increase the intensity of coastal storms, flooding, inundation, and erosion along the Pismo Beach coast. The areas with the highest potential of experiencing coastal hazards include portions of the City that are either low-lying or located atop eroding coastal bluffs. If sea levels continue to rise at higher projected rates, episodic coastal erosion and coastal flooding impacts that already occur during large storm wave events could become more frequent, as predictable high tides may regularly inundate public beaches and low-lying coastal infrastructure.

As part of the 2019 HMP planning effort, a sea level rise risk assessment was completed to determine how sea level rise may affect coastal jurisdictions and critical facilities and how coastal flooding might be exacerbated in the future. Table F.9 Properties Inundated by Sea Level Rise and Sea Level Rise with 1% Annual Chance Flood and

Table F.10 summarize the properties at risk of inundation by sea level rise and sea level rise combined with a FEMA 1% annual chance flood. The area of inundation by sea level rise and sea level rise combined with the 1% flood are shown in Figure F. 3 and Figure F. 4, respectively. No critical facilities were determined to be at risk in the sea-level rise scenarios. See Section 5.3.4 Coastal Storm/Coastal Erosion/Sea Level Rise in the base plan for more details on the scenarios and data sources used for this analysis.

Table F.9 Properties Inundated by Sea Level Rise and Sea Level Rise with 1% Annual Chance Flood

Property Type	25-cm SLR	75-cm SLR	300-cm SLR	25-cm SLR w/ 1% Flood	75-cm SLR w/ 1% Flood	300-cm SLR w/ 1% Flood
Commercial	--	--	9	2	4	9
Government/Utilities	1	1	12	4	5	13
Other/Exempt/Misc.	--	1	18	1	6	22
Residential	1	2	37	2	9	41
Multi-Family Residential	--	--	93	--	6	104
Mobile/Manufactured Homes	--	--	3	--	2	3
Residential: Other	--	--	7	--	--	13
Total	**2**	**4**	**179**	**9**	**32**	**205**

Source: Wood analysis with USGS CoSMoS 3.1 data

Table F.10 Improved Values of Properties Inundated by Sea Level Rise and Sea Level Rise with 1% Annual Chance Flood

Property Type	25-cm SLR	75-cm SLR	300-cm SLR	25-cm SLR w/ 1% Flood	75-cm SLR w/ 1% Flood	300-cm SLR w/ 1% Flood
Commercial	--	--	$3,931,762	$255,000	$330,726	$3,931,762
Government/Utilities	--	--	--	--	--	--
Other/Exempt/Misc.	--	$2,214,828	$3,727,316	$2,214,828	$2,349,497	$3,727,316
Residential	$174,047	$176,839	$6,468,297	$176,839	$3,056,157	$6,933,545
Multi-Family Residential	--	--	$55,908,703	--	$1,255,367	$24,617,998
Mobile/Manufactured Homes	--	--	$17,059,909	--	$16,215,406	$17,059,909
Residential: Other	--	--	$13,124,415	--	--	$17,033,080
Total	**$174,047**	**$2,391,667**	**$67,220,402**	**$2,646,667**	**$23,207,153**	**$73,303,610**

Source: Wood analysis with USGS CoSMoS 3.1 data

Figure F. 3 Pismo Beach Sea Level Rise Scenario Analysis: Tidal Inundation Only

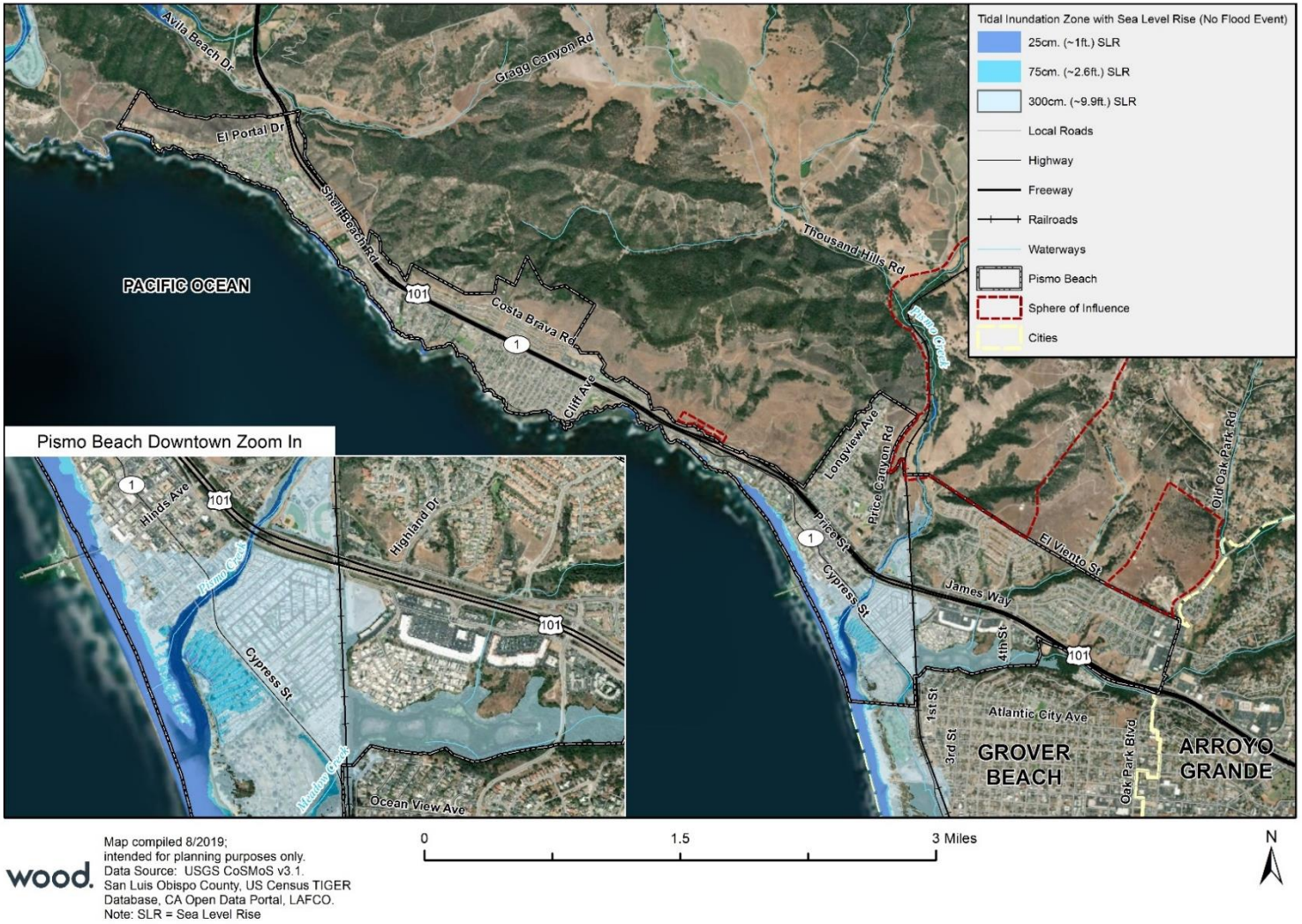
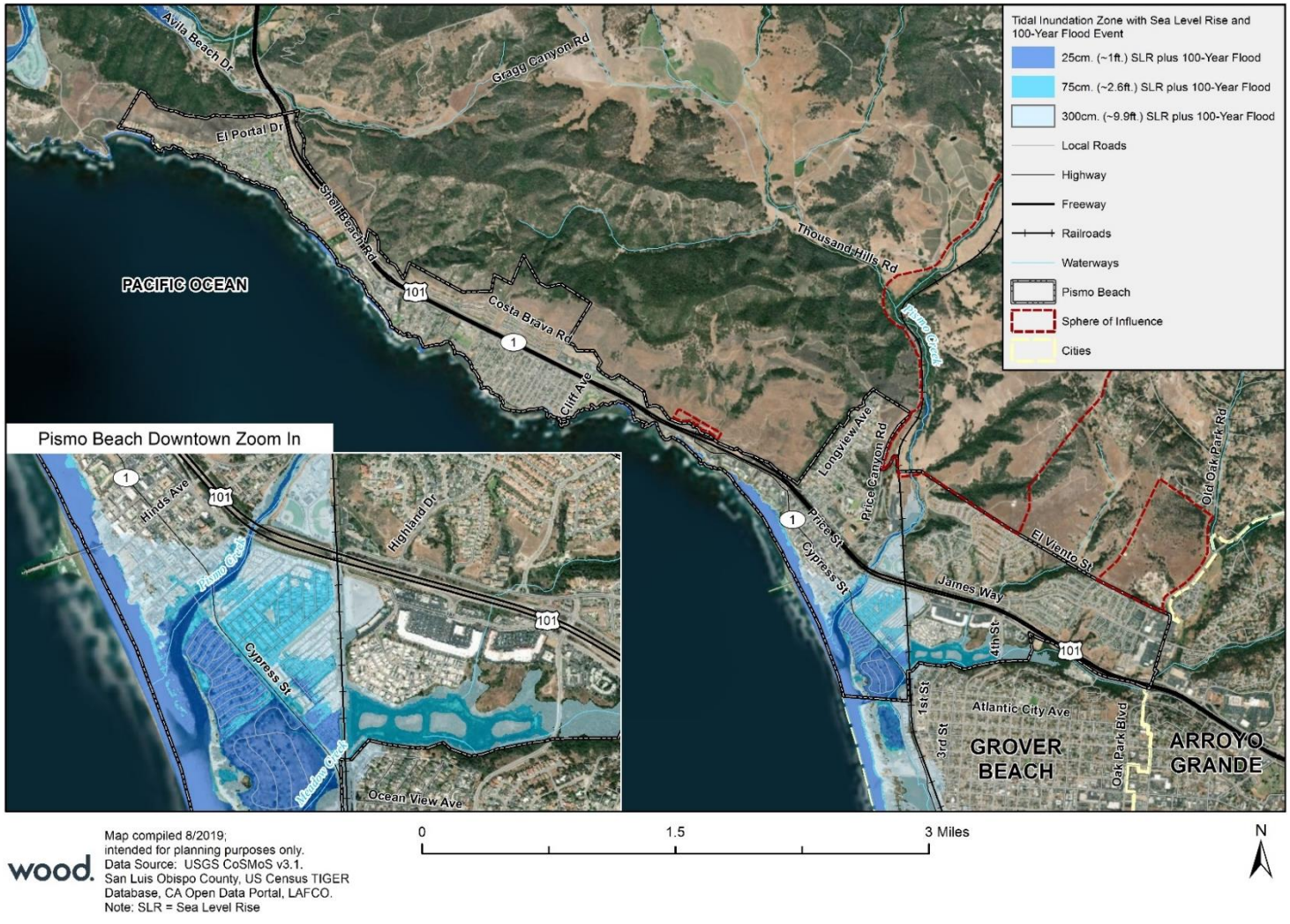


Figure F. 4 Pismo Beach Sea Level Rise Scenario Analysis: Tidal Inundation and 1% Annual Chance Flood



Dam Failure

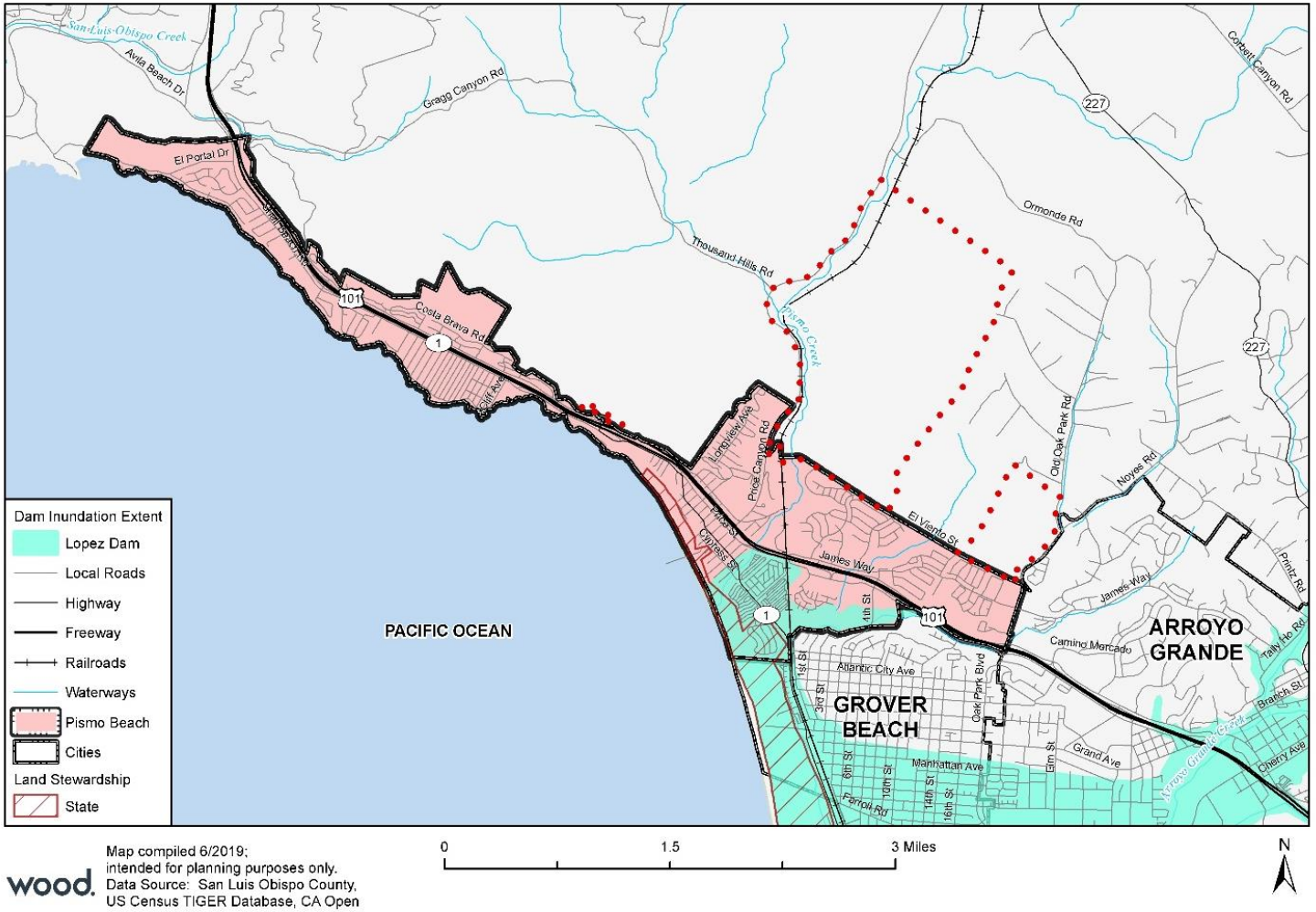
The City of Pismo Beach is among the most vulnerable communities in San Luis Obispo at risk of a dam failure incident. The Lopez Dam, a high hazard earthen dam located upstream from the community, poses the greatest risk to Pismo Beach if an incident was to occur. Failure of the Lopez Dam would inundate areas within the southern portion of the City limits. A total of 113 persons and 66 properties in the City of Pismo Beach could be inundated if the Lopez Dam was to fail. Most of the properties impacted would be residential (45, including 2 mobile homes) located in the southern portion of the City. Refer to the Dam Inundation Estimate Losses by Jurisdiction and Dam table in Chapter 5 of the Base Plan for additional details on estimated losses in Pismo Beach and for additional discussion on the potential impacts of dam incidents in the County.

Table F.11 Lopez Dam Inundation Estimate Losses by Property Type

Property Type	Parcel Count	Improved Value	Content Value	Total Value	Loss Estimate	Population
Commercial	5	$558,082	$558,082	$1,116,164	$558,082	--
Government/Utilities	11	--	--	$0	$0	--
Other/Exempt/Misc.	5	$3,592,647	--	$3,592,647	$1,796,324	--
Residential	20	$5,096,040	$2,548,020	$7,644,060	$3,822,030	50
Multi-Family Residential	20	$5,912,448	$2,956,224	$8,868,672	$4,434,336	50
Mobile/Manufactured Homes	3	$17,059,909	$8,529,955	$25,589,864	$12,794,932	8
Residential: Other	2	$857,194	$428,597	$1,285,791	$642,896	5
TOTAL	**66**	**$33,076,320**	**$15,020,878**	**$48,097,198**	**$24,048,599**	**113**

Source: San Luis Obispo County Planning and Building Dept., Assessor's Office, ParcelQuest, Wood Plc Parcel Analysis

Figure F.5 Dam Inundation Extents in the City of Pismo Beach



Map compiled 6/2019;
intended for planning purposes only.
Data Source: San Luis Obispo County, US Census TIGER Database, CA Open Data Portal, BLM/California State Office, LAFCO, CA DWR, NID 2018

Drought and Water Shortage

The City of Pismo Beach has a variety of water sources that support the City's water supply, including Lopez Lake, the State Water Project, and groundwater resources. The City owns and operates two wells that pump from the Santa Maria Valley Groundwater Basin, and have a combined pumping capacity of 1,550 gallons per minute.

After multiple years of drought, the City has made efforts to reduce its reliance on groundwater supplies through alternative water opportunities. In 2015 the City announced plans for a water recycling project that will serve the South County area. The Central Coast Blue Project is a regional recycled water project that will treat water from the City's and the South San Luis Obispo County Sanitation District's wastewater treatment plant to produce purified water through a three-step filtration process that will be pumped to injection wells and injected into the Santa Maria Groundwater Basin. This will give an additional drinking water source and help prevent seawater instruction into the groundwater basin. Construction is expected to begin in 2021 and will be located within the City of Pismo Beach's boundaries.

The following figure from the City of Pismo Beach Urban Water Management Plan (2015) depicts the current and projected water supply through the year 2035. The City is projecting to receive a consistent amount of water supply from wholesale suppliers (Lopez Reservoir and the State Water Project) and increase the City's water supply through the regional recycled water project. Currently, in the event of an emergency the City has emergency connections with the Cities of Arroyo Grande and Grover Beach as well as an opportunity to purchase more allocations from Lopez Lake through the County Flood and Water Conservation District.

Figure F.6 City of Pismo Beach Current and Projected Water Supplies

Water Supply Sources		Projected Water Supply (afy)				
Water purchased from:	**Wholesale Supplied Volume**	**2015**	**2020**	**2025**	**2030**	**2035**
Lopez Reservoir	Yes	892	892	892	892	892
State Water Project (Secured)[1]	Yes	1,240	1,240	1,240	1,240	1,240
Supplier-produced groundwater[2]	No	700	700	700	700	700
Supplier-produced surface water	No					
Transfers In	No					
Exchanges In	No					
Recycled Water[3]	No	0	645	662	680	698
Desalinated Water	No					
Total		**2,832**	**3,477**	**3,494**	**3,512**	**3,530**

Notes:
1. The City's allocation includes a 40 af allotment for Pismo 98, LLC and 100 af for the Central Coast Development Company. A portion of this 140 af allotment is available for City use only if there is excess water available from the District.
2. Groundwater supplies include 700 afy allocated as part of the Adjudication of the SMGB.
3. These values are 100% of the anticipated yield from a recycled water upgrade to the Pismo Beach Wastewater Treatment Plant. The City's goal is to develop a regional recycled water project that could share the recycled water with regional partners and potentially utilize additional flows from the South San Luis Obispo County Sanitation District's (SSLOCSD) wastewater treatment plant. If a regional project is implemented, the volume of recycled water available could increase or decrease depending upon interagency agreements and water availability from the SSLOCSD facility among other factors.

Source: 2015 Urban Water Management Plan for the City of Pismo Beach

Earthquake

There are no mapped active or potentially active faults in the City of Pismo Beach planning area, although the area is exposed to seismic hazards from movement along several regional faults. Historically, the faults that have caused seismic activity in Pismo Beach have originated from movement along the southern segment of the San Andreas Fault, approximately 42 miles northeast of the City. The Wilmar Avenue fault is the only fault that goes through the City of Pismo Beach and is exposed in a sea cliff near the City limits. The Wilmar Avenue Fault is considered potentially active but poses a moderate risk of fault rupture hazard to the Cities of Grover Beach and Arroyo Grande. The largest historical earthquake that impacted the City of Pismo Beach was the Bryson earthquake, a magnitude 6.2 event in November of 1952. The Bryson earthquake caused older, brick masonry buildings to be damaged in the City of Pismo Beach, but no deaths or injuries were reported.

As a coastal community liquefaction, the result of ground shaking causing fine grained, saturate soils to liquefy and as a fluid, also poses a risk to the City of Pismo Beach. Table F.12 shows the types of properties at moderate

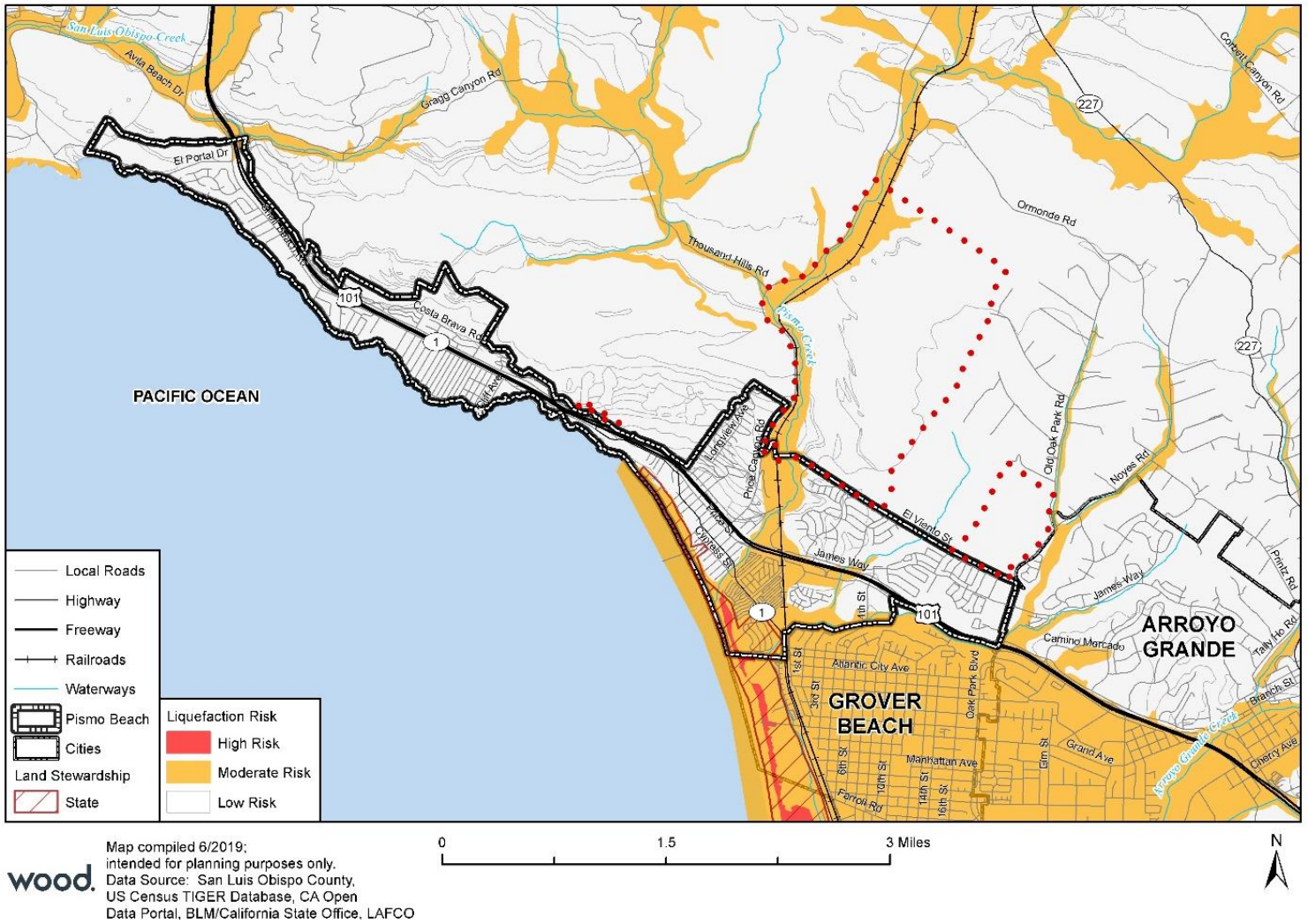
risk of liquefaction. Based on this analysis there are 66 properties at moderate risk of liquefaction with an improved value of over $57 million. Government/Utility properties are the most vulnerable property type to liquefaction in Pismo Beach, with a total of 20 properties located in an area of moderate liquefaction risk. Refer to Figure F.7 below for the areas of Pismo Beach vulnerable to liquefaction hazards.

Table F.12 Property Types with Moderate Liquefaction Risk

Property Type	Property Count	Improved Value
Commercial	15	$31,080,392
Government/Utilities	20	--
Other/Exempt/Misc.	6	$3,885,017
Residential	1	$2,792
Multi-Family Residential	18	$1,855,926
Mobile/Manufactured Homes	3	$17,059,909
Residential: Other	3	$3,302,992
Total	**66**	**$57,187,028**

Source: San Luis Obispo County Planning and Building Dept., Assessor's Office, ParcelQuest, Wood Plc Parcel Analysis

Figure F.7 City of Pismo Beach Areas Vulnerable to Liquefaction



Landslides

A landslide is a geologic hazard where the force of gravity combines with other factors to cause earth material to move or slide down an incline. Some landslides move slowly and cause damage gradually, whereas others move so rapidly that they can destroy property and take lives suddenly and unexpectedly. The potential for landslides is present on the hill sides to the north of highway 101 and along the Price Canyon corridor. The potential slope instability is greatest on the west facing slopes directly adjacent to the freeway and Price Canyon Road.

The City has had a history of landslide events. County geologists observed earthquake-induced landslides in the foothills after the San Simeon earthquake on December 22, 2003. Minor landsliding was reported along the coastal highway in May 2011 and April 2012. Recent landslide events occurred in 2017 near Spyglass Beach, and in 2018 near Silver Shoals Beach where a 30 by 40-foot section of cliff came down. The Pismo Beach Public Works Department in addition to Cal Fire assisted in the response to both incidents.

The City of Pismo Beach is among the communities in the County of San Luis Obispo that has the most properties in the Moderate and High landslide potential areas; these properties are located primarily near the hills north of the City (refer to Figure F.8 below). The following tables shows the breakdown of landslide risk by property type.

Table F.13 City of Pismo Beach Properties in the Moderate Landslide Risk Areas

Property Type	Property Count	Improved Value
Commercial	3	$4,639,233
Government/Utilities	16	--
Other/Exempt/Misc.	41	--
Residential	530	$178,737,349
Multi-Family Residential	123	$29,869,616
Residential: Other	22	$33,812,694
Vacant	5	$1,263,997
Total	**740**	**$248,322,889**

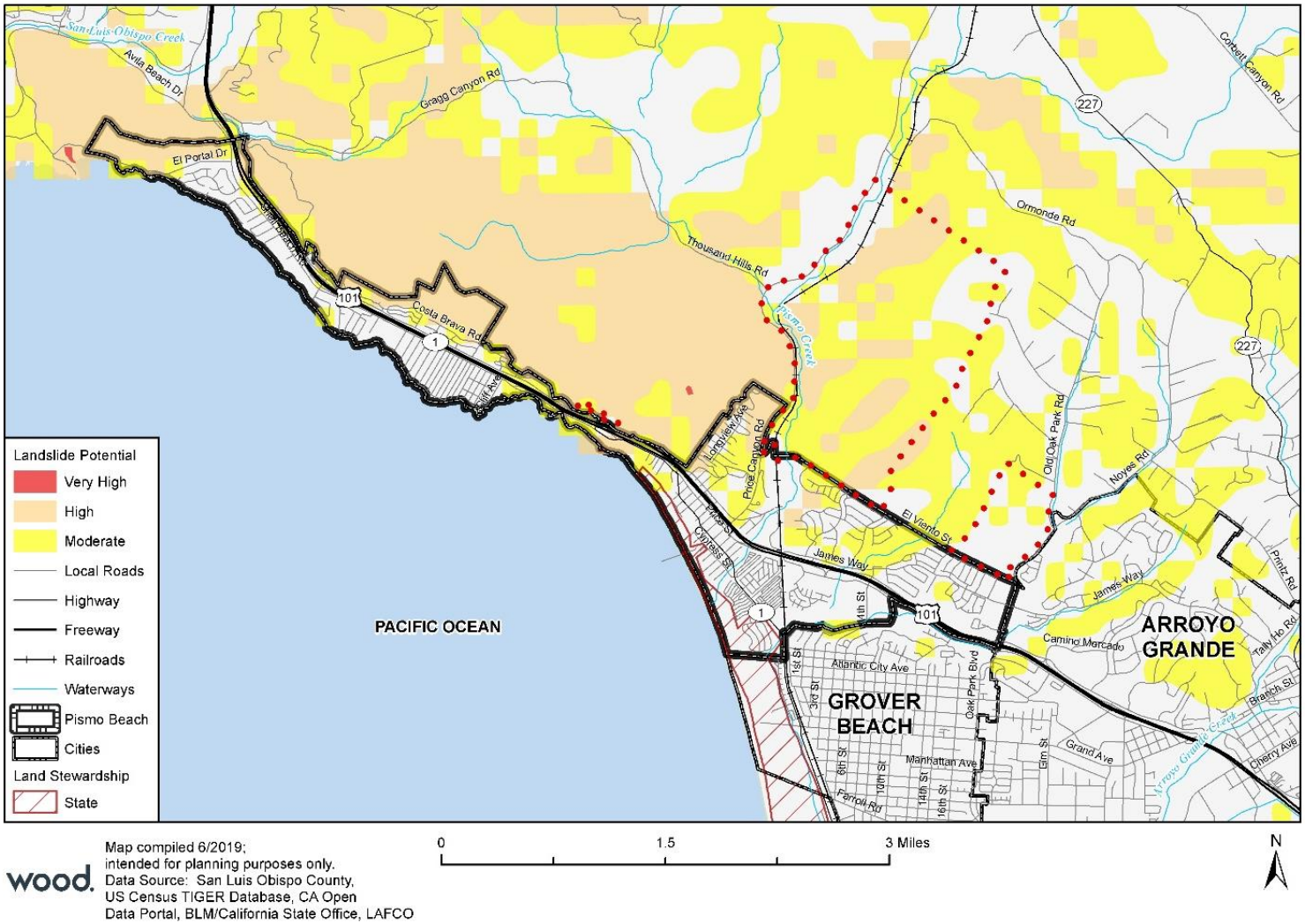
Source: San Luis Obispo County Planning and Building Dept., Assessor's Office, ParcelQuest, Wood Plc Parcel Analysis

Table F.14 City of Pismo Beach Properties in High Landslide Risk Areas

Property Type	Property Count	Improved Value
Government/Utilities	5	--
Other/Exempt/Misc.	12	--
Residential	265	$107,220,459
Multi-Family Residential	8	$1,231,141
Residential: Other	8	$23,736,555
Vacant	5	$1,508,988
Total	**303**	**$133,697,143**

Source: San Luis Obispo County Planning and Building Dept., Assessor's Office, ParcelQuest, Wood Plc Parcel Analysis

Figure F.8 Areas with Potential Landslide Risk in Pismo Beach



Based on this analysis there are a total of 1,043 properties with a combined improved value of over $300 million, located in moderate or high landslide risk areas. Residential properties are most at risk of landslides in Pismo Beach. Of the properties located in moderate or high-risk areas, 956 are designated as residential, multi-family residential or residential: other. As shown in the tables below, there are also four critical facilities, all microwave service towers, that are located in moderate to high-risk landslide areas.

Table F.15 Critical Facilities located in Moderate or High Landslide Risk Areas

Critical Facility Type	Count
Moderate Risk	
Microwave Service Tower	2
High Risk	
Microwave Service Tower	2
Grand Total	**4**

Source: San Luis Obispo County Planning and Building Dept., Assessor's Office, ParcelQuest, Wood Plc Parcel Analysis

The potential for slope instability in the sloping terrain can mostly be mitigated by applying building code requirements that provide minimum requirements for building construction and grading on sloping ground, as these areas are not known to be underlain by large landslide features or notoriously unstable formations. Steep slopes have been a controlling influence in the shaping of the City of Pismo Beach by constraining the location of development. City policies prohibit development on slopes over 30 percent in all areas except Pismo Heights. In addition to this policy, there are several other policies related to landslide risk and mitigation noted in the City's Land Use Element (2014).

Wildfire

Wildfires are a common occurrence in San Luis Obispo County, with some of the most significant wildfire events occurring in the Los Padres National Forest, approximately 22-miles east of the City limits. Cal FIRE has designated the City of Pismo Beach as being at an increased risk from wildfires, and a priority community to work with to prepare and mitigate potential fire risk. According to the County's Community Wildfire Protection Plan (2019), the prevailing wind patterns, especially the Santa Ana Winds which are accompanied by warm temperatures, high wind speeds and low humanities, is another dominant factor that influences the wildfire risk in Pismo Beach. A fire that originates in the Los Osos area or at the Diablo Canyon Power Plant could be pushed by prevailing winds southeast towards the Pismo Beach community.

Analysis using GIS was used to create the following tables to quantify the potential losses by property type of parcels located in the very high wildfire severity zone. Based on the analysis there are 1,068 properties in Pismo Beach that are located within the very high severity zones with a total value of $501,553,587. Residential property types, including multi-family and residential: other, are the most common property type found in the very high wildfire severity zone. This includes 2,445 persons and 974 residential properties with a combined value of almost $500 million vulnerable to wildfire events. There is one critical facility, a microwave service tower that is also located in the very high severity wildfire zone.

Table F.16 City of Pismo Beach Wildfire Risk by Property Type – Very High Severity Zone

Property Type	Property Count	Improved Value	Content Value	Total Value	Loss Estimate	Population
Commercial	3	$5,145,662	$5,145,662	$10,291,327	$10,291,327	--
Government/Utilities	12	--	--	$12	$12	--
Other/Exempt/Misc.	70	--	--	$70	$70	--
Residential	803	$285,939,224	$142,969,612	$428,909,639	$428,909,639	2,016
Multi-Family Residential	133	$27,181,799	$13,590,900	$40,772,832	$40,772,832	334
Residential: Other	38	$12,494,584	$6,247,292	$18,741,914	$18,741,914	95
Vacant	9	$2,837,784	--	$2,837,793	$2,837,793	--
Total	**1,068**	**$333,599,053**	**$167,953,466**	**$501,553,587**	**$501,553,587**	**2,445**

Source: San Luis Obispo County Planning and Building Dept., Assessor's Office, ParcelQuest, Wood Plc Parcel Analysis

Table F.17 City of Pismo Beach's Critical Facilities in Very High Wildfire Severity Zone

Facility Type	Count
Microwave Service Tower	1
Total	**1**

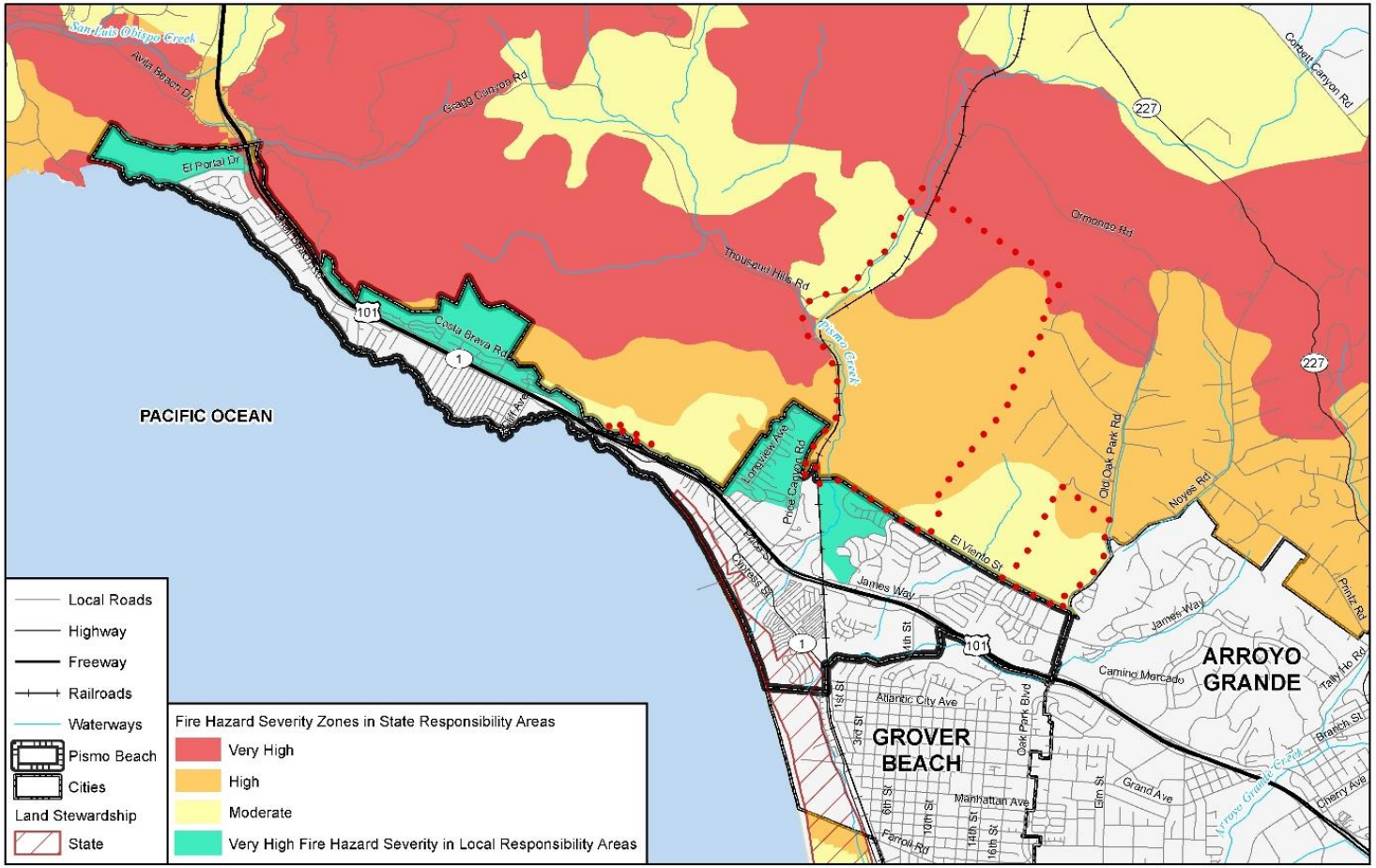
Source: San Luis Obispo County Planning and Building Dept., Assessor's Office, ParcelQuest, Wood Plc Parcel Analysis

Acknowledging the City's risk to wildfires, the City's General Plan Safety Element, sets forth policies for wildfire protection, including a requirement for the City to conduct a wildland fire analysis and plan as part of all future annexation, as well as conducting analysis prior to the creation of regional coastal open space areas or parks, as stated in Conservation Element, policy CO-8. Wildfire protection plans are required to specify the following requirements:

- Appropriate fuel clearance areas
- Building set-backs from undeveloped areas
- Access to high hazard areas
- Standards for evaluation of areas
- Identified turnouts and helispots in road system
- Water supplies
- Manpower and equipment requirements

The following map shows the areas within the very high wildfire severity zones in the City of Pismo Beach.

Figure F.9 City of Pismo Beach Areas of Very High Severity



Map compiled 6/2019;
intended for planning purposes only.
Data Source: San Luis Obispo County, US Census TIGER Database, CA Open Data Portal, BLM/California State Office, LAFCO, CalFire

Tsunami

Tsunami inundation poses a risk to all coastal communities in the County of San Luis Obispo. Offshore faults and related seismic activity could cause a tsunami event off the coast of Pismo Beach, even if the faults are thousands of miles away. The City has had a history of tsunami events. In the last 141 years there have been eight observed tsunami events. Most of these events resulted in little to no wave run-up, except for the event in 1927 which resulted in wave run-ups of 6 feet, over 4 feet wave run-ups in 1960 and under 4 feet in 2010 and 2011. The following table lists the historic tsunami events that have impacted the City of Pismo Beach since 1848.

Table F.18 Historic Tsunami Events, 1878-2011

Date	Origin	Source Type	Run-Up (Feet)
November 22, 1878	Southern California	Probably Submarine Landslide	Observed
November 4, 1927	Southern California	7.3M Earthquake	6
April 1, 1947	Southern California	8.6M Earthquake	Observed
May 22, 1960	South Central Chile	9.5M Earthquake	4.5
March 28, 1964	Prince William Sound, Alaska	9.2M Earthquake	Observed
February 27, 2010	Maule Region, Chile	8.8M Earthquake	3.9
March 11, 2011	Honshu, Japan	9.0M Earthquake	3.3

Source: City of Pismo Beach Local Planning Team, Data Collection Workbook, 2019

Pismo Beach's coastal bluffs (the Pismo Bluffs) in general provide protection from coastal hazards, although the low-lying areas where Pismo Creek meets the ocean are considered to be at moderate risk of tsunami hazards. The following areas were noted in the City's 2015 LHMP as being the highest risk to tsunamis:

- Development located near the mouth of Pismo Creek
- State Parks North Beach Campground
- State Route 1 to the Pacific Ocean from Franklin to Hinds
- US 101 to the Pacific Ocean from Hinds to Price Canyon
- James Way to the Pacific Ocean from Price Canyon to 4th Street

The following table breaks down the tsunami risk for the City of Pismo Beach by property type.

Table F.19 City of Pismo Beach's Tsunami Risk by Property Type

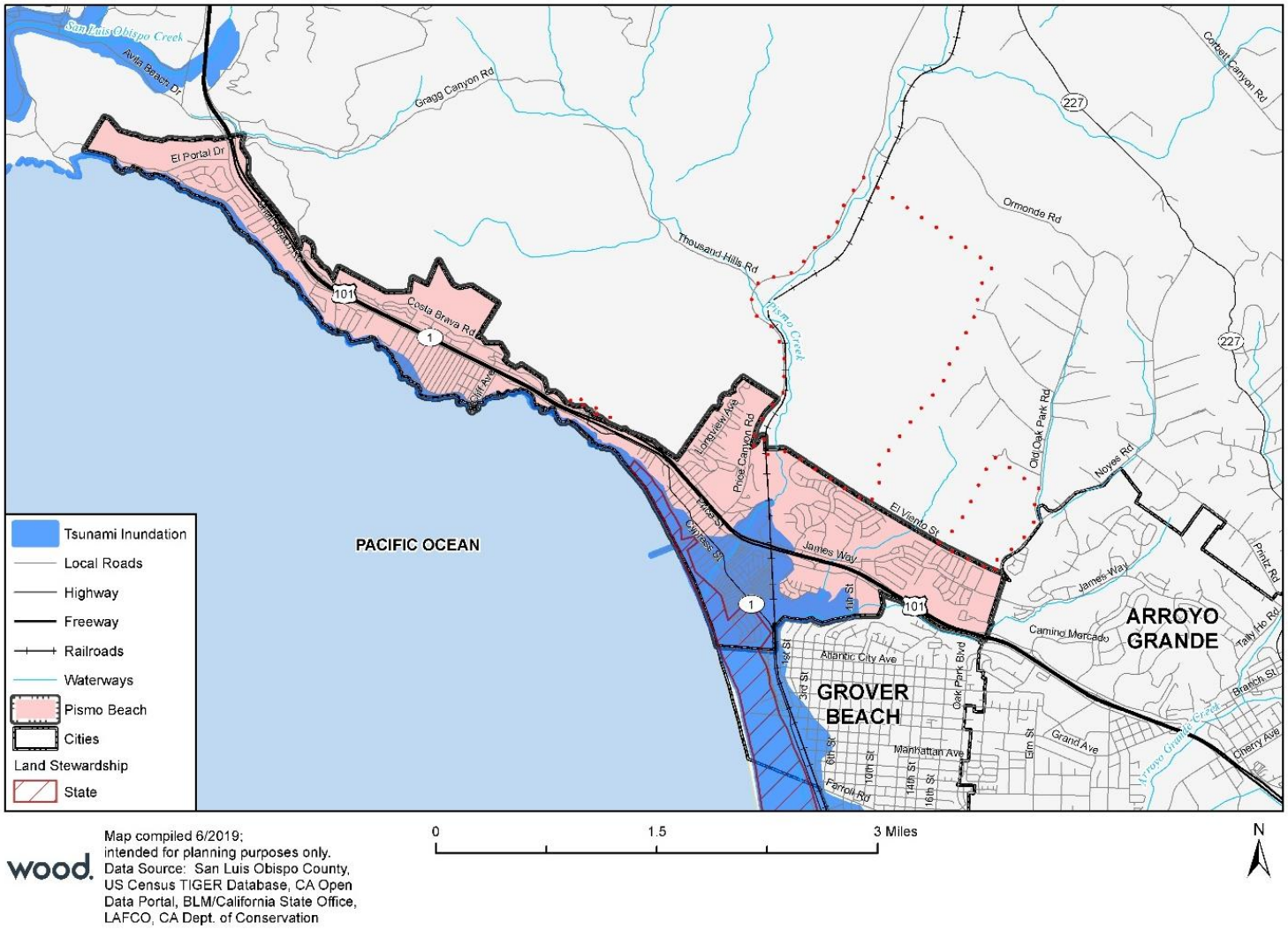
Property Type	Parcel Count	Improved Value	Content Value	Total Value	Population
Commercial	18	$10,188,285	$10,188,285	$20,376,570	--
Government/Utilities	30	--	--	$0	--
Other/Exempt/Misc.	29	$3,783,908	--	$3,783,908	--
Residential	98	$28,903,496	$14,451,748	$43,355,244	246
Multi-Family Residential	219	$43,209,500	$21,604,750	$64,814,250	550
Mobile/Manufactured Homes	3	$17,059,909	$8,529,955	$25,589,864	8
Residential: Other	29	$22,662,259	$11,331,130	$33,993,389	73
Vacant	1	$9,000,000	--	$9,000,000	--
Total	**427**	**$134,807,357**	**$66,105,867**	**$200,913,224**	**877**

Source: Wood Plc analysis based on ParcelQuest and San Luis Obispo County Assessor's Office data 2019

Based on this analysis all of the City of Pismo Beach coastline is at significant risk to a tsunami event, particularly the southern portion of the City limits. There are 427 properties with a combined value of over $200 million vulnerable to the impacts of a tsunami. Of the properties at risk, 349 are residential properties (includes mobile/manufactured homes), with a majority being multi-family residential and have a combined loss estimate of over $167 million. There is a population of 877 at risk of tsunami events, although the LPT noted this number will increase drastically in the summer months when the City and the surrounding attractions are filled with tourists who may not be familiar with the risk tsunamis pose leading them to not heed warnings. Refer to Section 5 of the Base Plan for additional information related to the past tsunami events and analysis on future vulnerability.

The following map show the areas at risk of potential inundation from a tsunami event.

Figure F.10 City of Pismo Beach Areas of Tsunami Inundation



Map compiled 6/2019;
intended for planning purposes only.
Data Source: San Luis Obispo County, US Census TIGER Database, CA Open Data Portal, BLM/California State Office, LAFCO, CA Dept. of Conservation

Human Caused: Hazardous Materials

The Cal OES Warning Center reports 54 hazardous materials incidents in the City of Pismo Beach from 1994 through October 24, 2018; as noted in Section 5.3.13 of the county plan, this likely excludes a large number of unreported minor spills. This constitutes 3% of the hazardous materials incidents reported countywide during the same time frame and averages out to roughly 2.2 incidents per year. As noted in Section 5.3.13, only around 6% of reported hazardous materials incidents result in injuries, fatalities, or evacuations.

There are no significant hazardous materials facilities located in the City. However, Pismo Beach sits within the Emergency Planning Zone for the Diablo Canyon Nuclear Power Plant.

F.4 Capability Assessment

Capabilities are the programs and policies currently in use to reduce hazard impacts, or that could be used to implement hazard mitigation activities. This capability assessment is divided into five sections: regulatory mitigation capabilities, administrative and technical mitigation capabilities, fiscal mitigation capabilities, mitigation outreach and partnerships, and other mitigation efforts.

To develop this capability assessment, the jurisdictional planning representatives used a matrix of common mitigation activities to inventory which of these policies or programs were in place. The team then supplemented this inventory by reviewing additional existing policies, regulations, plans, and programs to determine if they contributed to reducing hazard-related losses.

During the plan update process, this inventory was reviewed by the jurisdictional planning representatives and Wood consultant team staff to update information where applicable and note ways in which these capabilities have improved or expanded. Additionally, in summarizing current capabilities and identifying gaps, the jurisdictional planning representatives also considered their ability to expand or improve upon existing policies and programs as potential new mitigation strategies. The City of Pismo Beach's capabilities are summarized below.

F.4.1 Regulatory Mitigation Capabilities

Table F.20 City of Pismo Beach Regulatory Mitigation Capabilities

Regulatory Tool	Yes/No	Comments
General plan	Yes	
Zoning ordinance	Yes	
Subdivision ordinance	Yes	
Growth management ordinance	No	
Floodplain ordinance	Yes	
Other special purpose ordinance (stormwater, water conservation, wildfire)	Yes	Stormwater Ordinance
Building code	Yes	
Fire department ISO rating	Yes	
Erosion or sediment control program	Yes	
Stormwater management program	Yes	
Site plan review requirements		
Capital improvements plan	Yes	
Economic development plan	No	
Local emergency operations plan	Yes	
Other special plans		
Flood Insurance Study or other engineering study for streams	Yes	
Elevation certificates (for floodplain development)	Yes	

F.4.2 Administrative/Technical Mitigation Capabilities

Table F.21 identifies the personnel responsible for activities related to mitigation and loss prevention in Pismo Beach

Table F.21 City of Pismo Beach Administrative/Technical Mitigation Capabilities

Personnel Resources	Yes/No	Department/Position
Planner/engineer with knowledge of land development/land management practices	Yes	Community Development – Associate Planners
Engineer/professional trained in construction practices related to buildings and/or infrastructure	Yes	Public Works – City Engineer
Planner/engineer/scientist with an understanding of natural hazards	Yes	Community Development – Associate Planners and Public Works – City Engineer
Personnel skilled in GIS	Yes	Public Works – City Engineer
Full time building official	Yes	Community Development
Floodplain manager	Yes	Community Development – Director
Emergency manager	Yes	City Manager
Grant writer	No	TBD
Other personnel	Unknown	Unknown
GIS Data Resources (Hazard areas, critical facilities, land use, building footprints, etc.)	Yes	Public Works- City Engineer
Warning systems/services (Reverse 9-11, outdoor warning signals)	Yes	Police and Fire

F.4.3 Fiscal Mitigation Capabilities

Table F.22 identifies financial tools or resources that the City could potentially use to help fund mitigation activities.

Table F.22 City of Pismo Beach Fiscal Mitigation Capabilities

Financial Resources	Accessible/Eligible to Use (Yes/No)
Community Development Block Grants	Yes
Capital improvements project funding	Yes
Authority to levy taxes for specific purposes	Yes
Fees for water, sewer, gas, or electric services	Yes
Impact fees for new development	Yes
Incur debt through general obligation bonds	Yes – with voter approval
Incur debt through special tax bonds	Yes
Incur debt through private activities	Yes
Withhold spending in hazard prone areas	No

F.4.4 Mitigation Outreach and Partnerships

The City of Pismo Beach Public Works Department conducts several water programs related to water usage and water conservation. Their website provides information for residents related to water wise gardening and links to "how to garden in a drought." The Department also has a stormwater program which includes public outreach related to water pollution and how to improve discharges from individual residences within the City of Pismo

Beach. The City of Pismo Beach website has a "Community Emergency & Disaster Preparedness "page which contains resources and information for individuals, families, and businesses on how to prepare for an emergency. The Preparedness web page also contains information specific to individuals with various disabilities including mobility, vision, hearing, and special medical needs.

F.4.5 Other Mitigation Efforts

The City has designated 550 Frady Lane as the Pismo Beach Sandbag Station location, and provides bags and shovels at the site. The Planning Team also shared the following mitigation projects as past or ongoing projects:

- Worked on Five Cities Drive Lift station floodproofing to reduce impacts to the critical facility.
- Ongoing work with FEMA related to FIRM maps for the City.
- Working on Bello Street Bridge plans within construction starting soon. Will reduce the impacts for flooding and emergency evacuation routes.
- Vegetation reeducation and weed abatement programs for fuel reeducation are ongoing.
- Public Works has been coordinating with County OES regarding consistent signage with the County. Signs are being manufactured but have not been installed yet.

F.4.6 Opportunities for Enhancement

Based on the capability assessment, the City of Pismo Beach has several existing mechanisms in place that already help to mitigate hazards. In addition to these existing capabilities, there are also opportunities for the City to expand or improve on these policies and programs to further protect the community. Future improvements may include providing training for staff members related to hazards or hazard mitigation grant funding in partnership with the County and Cal OES. Additional training opportunities will help to inform City staff members on how best to integrate hazard information and mitigation projects into their departments. Continuing to train City staff on mitigation and the hazards that pose a risk to the City of Pismo Beach will lead to more informed staff members who can better communicate this information to the public. The City also has the opportunity to become a StormReady and a TsunmiReady community which can provide training resources for City staff as well as public outreach and educational opportunities.

F.5 Mitigation Strategy

F.5.1 Mitigation Goals and Objectives

During the 2019 Planning Process the Pismo Beach Planning Team reviewed the mitigation goals and objectives from the 2014 LHMP and determined the existing number and intent of the goals and objectives continue to be appropriate and no revisions or additions were necessary. The City of Pismo Beach's 2019 hazard mitigation goals are the following:

Goal 1 – Promote disaster-resistant development

Goal 2 – Build and support local capacity to enable the public to prepare for, respond to and recover from disasters

Goal 3 – Reduce the possibility of damage and losses due to bluff/erosion failure

Goal 4 – Reduce the possibility of damage and losses due to coastal storm

Goal 5 – Reduce the possibility of damage and losses due to dam failure

Goal 6 – Reduce the possibility of damage and losses due to earthquake

Goal 7 – Reduce the possibility of damage and losses due to flood

Goal 8 – Reduce the possibility of damage and losses due to hazardous material events

Goal 9 – Reduce the possibility of damage and losses due to landslide

Goal 10 – Reduce the possibility of damage and losses due to tsunami

Goal 11 – Reduce the possibility of damage and losses due to wildland fire

Continued Compliance with the National Flood Insurance Program

The City has been an NFIP participating community since 1984. In addition to the mitigation actions identified herein the City will continue to comply with the NFIP. This includes ongoing activities such as enforcing local floodplain development regulations, including issuing permits for appropriate development in Special Flood Hazard Areas, and ensuring that this development mitigated in accordance with the regulations. This will also include periodic reviews of the floodplain ordinance to ensure that it is clear and up to date and reflects new or revised flood hazard mapping. The City of Pismo Beach does not currently have any Repetitive Loss or Severe Repetitive Loss properties.

F.5.2 Completed and Deleted 2015 Mitigation Actions

The City of Pismo Beach has completed one mitigation action identified in the 2015 plan. This completed actions has reduced vulnerability to hazards and increased local capability to implement additional mitigation actions. The completed action is as follows:

Action 9. Acquire, relocate, elevate, and/or floodproof critical facilities that are located within eh 100-year floodplain

The City of Pismo Beach has reduced the impacts of the Five Cities Drive Lift Station, a critical facility for the community through floodproofing mechanisms.

After reviewing the 2015 mitigation actions, the Planning Team determined that the following action could be deleted:

Action 12. Increase participation in the National Flood Insurance Program (NFIP) by entering the Community Rating System program which through enhanced floodplain management activities would allow property owners to receive a discount on their flood insurance.

It was determined that this action was not feasible due to the minimum rating needed to qualify for the Community Rating System program.

F.5.3 Mitigation Actions

The Planning Team for the City of Pismo Beach identified and prioritized the following mitigation actions based on the risk assessment. Actions were prioritized using the process described in Section 7.2.1 of the Base Plan.

Background information and information on how each action will be implemented and administered, such as ideas for implementation, responsible office, potential funding, estimated cost, and timeline are also included.

Table F.23 City of Pismo Beach 2020 Mitigation Action Plan

ID	Hazard(s) Mitigated	Description/Background/Benefits	Lead Agency and Partners	Cost Estimate	Potential Funding	Priority	Timeline	Status/ Implementation Notes
PB.1	Flood; Coastal Storm, Sea Level Rise Dam Incidents, Tsunami	Rehabilitate Bello Bridge to withstand flooding and tsunami hazards.	Public Works	Over $1,000,000	FEMA HMA	High	3-5 yrs.	In progress. Working on Bello Street Bridge plans. About to start construction. Reduces impacts for flooding and emergency evacuation routes
PB.2	Flood	Work with FEMA Region IX to address any floodplain management issues that may have arisen/arise from the countywide Digital Flood Insurance Rate Map (DFIRM), Community Assessment Visits, and/or the Department of Water Resources (DWR).	Community Development, Public Works	Less than $10,000	Staff Time/Dept. Budget	High	Ongoing	In progress. Ongoing work with FEMA re FIRM maps
PB.3	Tsunami	Display standardized and easy to read signs alerting community members of tsunami hazard zones, evacuation routes, and evacuation sites.	Public Works, Police, Fire	Little to no cost	FEMA HMA	High	1 yr.	In progress. Tsunami signage. Public Works has been coordinating with SLO County OES regarding consistent signage with the County. About to get signage manufactured. Not yet installed.

ID	Hazard(s) Mitigated	Description/Background/Benefits	Lead Agency and Partners	Cost Estimate	Potential Funding	Priority	Timeline	Status/ Implementation Notes
PB.4	Dam Failure	Develop a public outreach program that informs property owners located in the dam or levee inundation areas about voluntary flood insurance.	Fire, Community Development, Public Works	Little to no cost	Staff Time/Dept. Budget	High	2-3 yrs.	Deferred
PB.5	Earthquake	Develop an "Earthquake Education Program" for residents which illustrates what steps the individual can take to prepare for an earthquake and mitigate the effects of an earthquake. Coordinate with Community Emergency Response Teams (CERT) where applicable.	Community Development	Little to no cost	Staff Time/Dept. Budget	High	1 yr.	Deferred. Due to Department workload and funding.
PB.6	Earthquake	Target old pipelines in seismic areas for upgrades and automatic seismic shut-off switches that cut off natural gas to customers	Community Development, Public Works	$500,000 to $1,000,000	FEMA HMA	High	More than 5 yrs.	In progress. Portions of gas pipelines being replaced. Switches?
PB.7	Hazardous Materials	Conduct a public awareness and educational campaign to raise awareness about the presence of hazardous materials throughout the City.	Fire, Police	Little to no cost	Community Action Renewed Environment (CARE) and PDM	High	1 yr.	Deferred. Still needed if there is a hazmat impact to City
PB.8	Landslide	Stabilize landslide-prone areas through stability improvement measures, including interceptor drains, in situ soil piles, drained earth buttresses, and subdrains.	Community Development, Public Works	$500,000 to $1,000,000	FEMA HMA	High	More than 5 yrs.	Deferred. Additional study needed before requiring.
PB.9	Wildfire	Create a vegetation management program that provides vegetation management services to elderly, disabled, or low-income property owners who lack the resources to remove flammable vegetation from around their homes.	Fire	Little to no cost	FEMA HMA	High	2-3 yrs.	Deferred. Need additional Calfire approval for such a program.

ID	Hazard(s) Mitigated	Description/Background/Benefits	Lead Agency and Partners	Cost Estimate	Potential Funding	Priority	Timeline	Status/ Implementation Notes
PB.10	Wildfire	Implement a fuel modification program, which also includes residential maintenance requirements and enforcement, plan submittal and approval process, guidelines for planting, and a listing of undesirable plant species. Require builders and developers to submit their plans, complete with proposed fuel modification zones, to the local fire department for review and approval prior to beginning construction.	Fire	Little to no cost	FEMA HMA	High	Annual	In progress. Vegetation reduction and weed abatement programs for fire fuel reduction have been ongoing
PB.11	Wildfire	Develop and provide funding and/or incentives for defensible space measures (e.g., free chipping day, free collection day for tree limbs).	Fire	Little to no cost	FEMA HMA	High	2-3 yrs.	Deferred. Could be useful but still needs implementation.
PB.12	Wildfire	Provide assistance to private property owners for brush and weed abatement	All cities, county, CalFire	Little to no cost	State grants; Federal grants	High	Annual	New
PB.13	Wildfire	Implement a fuel modification program, which also includes residential maintenance requirements and enforcement, plan submittal and approval process, guidelines for planting, and a listing of undesirable plant species. Require builders and developers to submit their plans, complete with proposed fuel modification zones, to the local fire department for review and approval prior to beginning construction.	Fire	Less than $10,000	FEMA HMA	High	2-3 yrs.	In progress. Vegetation reduction and weed abatement programs for fire fuel reduction have been ongoing
PB.14	Drought	Develop additional water efficient landscape measures for new construction, including the encouragement xerophytic landscape designs.	Community Development Department	Little to no cost	TBD	Low	2-3 yrs.	New

ID	Hazard(s) Mitigated	Description/Background/Benefits	Lead Agency and Partners	Cost Estimate	Potential Funding	Priority	Timeline	Status/ Implementation Notes
PB.15	Drought	Continue to monitor reservoir and well water levels. Develop and enact a tiered water restriction program in the event of drought conditions or other water availability emergency, including possible limits on new construction.	Community Development Department	Little to no cost	TBD	High	2-3 yrs.	New

F.6 Implementation and Maintenance

Moving forward, the City will use the mitigation action table in the previous section to track progress on implementation of each project. Much progress has been made since the plan was originally developed. Implementation of the plan overall is discussed in Section 8 in the Base Plan.

F.6.1 Incorporation into Existing Planning Mechanisms

The information contained within this plan, including results from the Vulnerability Assessment, and the Mitigation Strategy will be used by the City to help inform updates and the development of local plans, programs and policies. City staff may utilize the hazard information when implementing preparing and implementing the City's Ten-Year Capital Improvement Program. Within the City's Community Development Department, the Planning and Building Divisions may utilize the hazard information when reviewing a site plan or other type of development applications. The City will also incorporate this LHMP into the Safety Element of their General Plan, as recommended by Assembly Bill (AB) 2140.

As noted in Section 8 Plan Implementation and Monitoring, the HMPC representatives from Pismo Beach will report on efforts to integrate the hazard mitigation plan into local plans, programs and policies and will report on these efforts at the annual HMPC plan review meeting.

F.6.2 Monitoring, Evaluation and Updating the Plan

The City will follow the procedures to monitor, review, and update this plan in accordance with San Luis Obispo County as outlined in Section 8 of the Base Plan. The City will continue to involve the public in mitigation, as described in Section 8.3 of the Base Plan. The City's Community Development Director will be responsible for representing the City in the County HMPC, and for coordination with City staff and departments during plan updates. The City realizes it is important to review the plan regularly and update it every five years in accordance with the Disaster Mitigation Act Requirements as well as other State of California requirements.

G.1 Community Profile

G.1.1 Mitigation Planning History and 2019 Process

Annex G, City of San Luis Obispo (City), was created during the development of the 2019 Multi-Jurisdictional San Luis Obispo Hazard Mitigation Plan update (HMP). This Jurisdictional Annex builds upon and supersedes the 2014 City of San Luis Obispo Local Hazard Mitigation Plan (LHMP). The General Plan Safety Element references the 2014 Local Hazard Mitigation Plan in Chapter 5:

- Additional information on hazards in the San Luis Obispo area can be found in the Technical Background Report for the San Luis Obispo County and Cities Safety Element (June 1999). Additionally, the City of San Luis Obispo Local Hazard Mitigation Plan presents a comprehensive risk assessment of natural hazards that have the potential to affect the City of San Luis Obispo. The Local Hazard Mitigation Plan was developed by the City in accordance with the Federal Disaster Mitigation Act of 2000, adopted by the City Council and approved by the Federal Emergency Management Agency. The Local Hazard Mitigation Plan suggests possible mitigation actions for reducing the effects of potential hazards. It is incorporated by reference into the Safety Element and should be consulted when addressing known hazards to ensure the general health and safety of people within the City of San Luis Obispo. The goals and policies within this Safety Element support and are consistent with the recommended mitigation strategy within the Local Hazard Mitigation Plan.

The City had representation on the County multi-jurisdictional Hazard Mitigation Planning Committee and utilized a Local Planning Team (LPT) subcommittee to develop input into the annex.

Table G.1 City of San Luis Obispo Local Planning Team

Department or Stakeholder	Title
Fire Department	Fire Chief
Fire Department	Fire Marshall
Fire Department	Administrative Analyst
Administration	Natural Resources Manager
Administration	Sustainability Manager

More details on the planning process and participating jurisdictions, service districts and stakeholders can be found in Section 3 of the Base Plan, along with the public's role during the 2019 update.

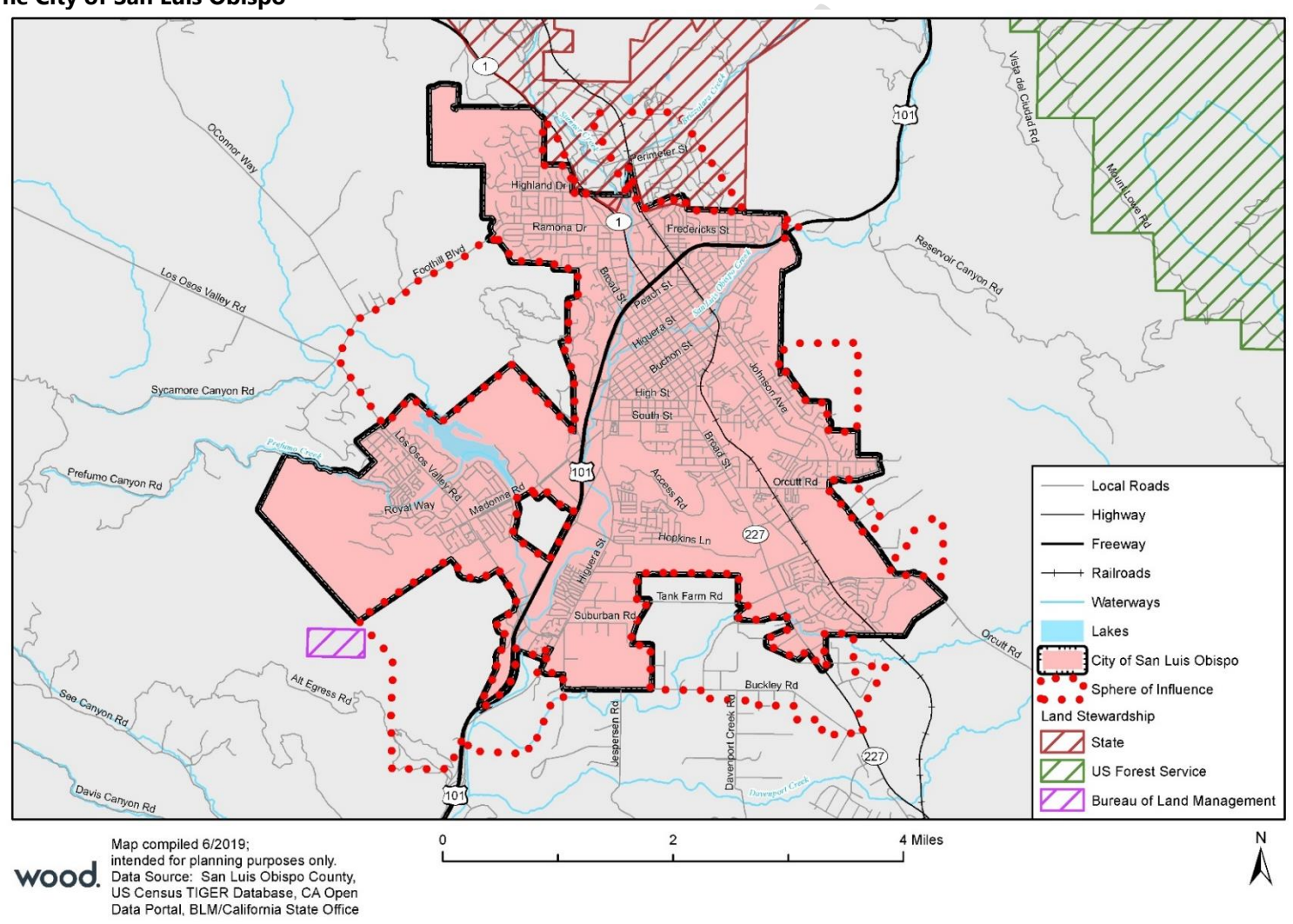
G.1.2 Geography and Climate

The City is located in California's Central Coast region approximately 200 miles north of Los Angeles and 230 miles south of San Francisco. The City is situated to the west of the Santa Lucia Mountains and is located eight miles east of the Pacific Ocean. The San Luis Obispo Creek originates from the mountains and flows westward in confluence with the Pacific Ocean at Avila Beach. The mountain ranges form a natural barrier to development in San Luis Obispo. The City is an estimated 10.7 square miles and is surrounded by protected open space and productive agricultural lands. San Luis Obispo is regionally accessible via US Highway 1, US Highway 101, and

State Route 227 (Broad Street). The City terrain stands at an average elevation of 300 feet above sea level, with prominent peaks such as Cerro San Luis and Bishop Peak at 1,292 and 1,559 feet, respectively, above sea level.

The City's Sphere of Influence includes approximately 5,930+/- acres outside of the City limits and includes nine unincorporated areas: Cal Poly, Florita-Alrita, Orcutt, Broad Street, Airport, Chevron, Los Osos Valley Road/US Highway 101, San Luis Ranch, and Cerro San Luis area. All lands outside of the City's Sphere of Influence are regulated by the San Luis Obispo County General Plan and zoning designations. State law requires that cities maintain plans for areas outside of their immediate jurisdiction if the areas have a direct relationship to planning needs.

Figure G.1 The City of San Luis Obispo



Map compiled 6/2019;
intended for planning purposes only.
Data Source: San Luis Obispo County, US Census TIGER Database, CA Open Data Portal, BLM/California State Office

San Luis Obispo is characterized by a Mediterranean climate with an average temperature of 70.2 degrees Fahrenheit. While generally considered a mild climate, weather patterns and events have historically observed both unseasonably warm periods and cold spells. The City receives an average precipitation of 19 inches per year, with increased amounts of rainfall in the winter and spring months between November and April (US Climate Data 2019). Due to its close proximity to the Pacific Ocean, San Luis Obispo is also subject to coastal weather influences such as dense fog that typically rolls into the City through the Chorro Valley, steady on-shore wind patterns, and coastal storms. For general details on climate characteristics of the region refer to the Adverse Weather Section of the Risk Assessment in the HMP (Section 5.3.1).

G.1.3 History

The native Chumash Tribe was the first known settled human population in the City of San Luis Obispo area. The Chumash established a network of villages along the San Luis Obispo Creek. Spanish Colonization of the area began in 1769 with the founding of Mission San Luis Obispo de Tolosa in 1772 by Father Junipero Serra, resulting in devastating impacts to the Chumash culture. Diseases and significant alterations of culture due to the establishment of the mission caused a significant decrease in the Native American population. Spanish and Mexican ranchos were established in the area in the late 1700s. The development of the area of San Luis Obispo has historically been connected to the San Luis Obispo Creek, where the first settlements could be found, and to the emphasis on agricultural production by the Mission and later the adjacent ranchos.

The California Land Act of 1851 caused a shift to residential development in San Luis Obispo. By 1870, the community had grown to a population of 1,579 and it became a charter city in 1876. Historic influences on the growth and development of San Luis Obispo include the City's beginnings as a center for agricultural productivity, the extension of the Southern Pacific Railroad in 1894, and the establishment of California Polytechnic State University (Cal Poly) in 1901.

Agriculture, transportation, government, and education related activities continue to play a significant role in the demographic, economic, land use, and development characteristics of the City. These characteristics and proactive protection of the City's natural and scenic resources contribute to the small-town charm and high quality of life of the City's residents.

G.1.4 Economy

As the civic, economic, and cultural hub of the Central Coast, the City serves as the seat of the County of San Luis Obispo. With major regional employers such as Cal Poly, state agencies, PG&E, Tenet Health Care, and the County of San Luis Obispo, the City has an estimated daytime population of more than 70,000 people. The San Luis Obispo Chamber of Commerce and the Downtown Association are active collaborators and leaders in supporting the retention and expansion of local businesses in the City. The City's leading industries include hospitality, food services, retail, professional services, health care, information and technology, public administration, and educational sectors.

To support the high quality of life and economic vitality of the community, San Luis Obispo is considered a full-service city, providing police, fire, water, sewer, streets, transit, parking, planning, building, engineering, and parks and recreation services to the community.

Select estimates of economic characteristics for the City of San Luis Obispo are shown in Table G.2.

Table G.2 City of San Luis Obispo Economic Characteristics, 2017

Characteristic	City of San Luis Obispo
Families below Poverty Level	6.9%
All People below Poverty Level	32.4%
Median Family Income	$87,635
Median Household Income	$49,640
Per Capita Income	$29,748
Population in Labor Force	25,363
Population Employed*	41,668
Unemployment	1,128

Source: U.S. Census Bureau American Community Survey 2017, www.census.gov/
*Excludes armed forces

Tables G.3 and G.4 show the occupational and industry breakdown of the City of San Luis Obispo's labor force based on estimates from the 2017 American Community Survey.

Table G.3 City of San Luis Obispo's Employment by Occupation, 2017

Occupation	# Employed	% Employed
Sales and Office Occupations	5,630	21.6%
Management, Business, Science, and Arts Occupations	10,777	44.5%
Natural Resources, Construction, and Maintenance Occupations	934	3.9%
Production, Transportation, and Material Moving Occupations	1,632	6.7%
Service Occupations	5,240	21.6%
Total	**24,213**	

Source: U.S. Census Bureau American Community Survey 2017, www.census.gov/
*Excludes armed forces

Table G.4 City of San Luis Obispo's Employment by Industry, 2017

Industry	# Employed	% Employed
Retail Trade	3,044	12.6%
Professional, Scientific, and Mgmt., and Administrative and Waste Mgmt. Services	2,879	11.9%
Manufacturing	1,585	6.5%
Arts, Entertainment, and Recreation, and Accommodation, and Food Services	4,292	17.7%
Construction	886	3.7%
Finance and Insurance, and Real Estate and Rental and Leasing	846	3.5%
Public Administration	948	3.9%
Other Services, Except Public Administration	1,281	5.3%
Wholesale Trade	509	2.1%
Transportation and Warehousing, and Utilities	731	3.0%
Agriculture, Forestry, Fishing and Hunting, and Mining	269	1.1%
Information	457	1.9%
Educational Services, and Health Care, and Social Assistance	6,486	26.8%
Total	**24,213**	

Source: U.S. Census Bureau American Community Survey 2017, www.census.gov/

G.1.5 Population

In May 2019, the State Department of Finance released preliminary population data for the state to reflect wildfire-driven changes to local populations. The City of San Luis Obispo has a population of 46,802 persons as of January 2019, which accounts for approximately 16.7% of the County's population. The City experienced a growth of 0.1% from 46,741 residents from January 2018 (Department of Finance 2019). The U.S. Census Bureau's American Community Survey 2017 5-Year Estimates provide select demographic and social characteristics and changes from 2012 to 2017 for the City of San Luis Obispo (Table G.5).

Table G.5 City of San Luis Obispo's Demographic and Social Characteristics, 2012 to 2017

Characteristic	2012	2017
Population	270,121	280,119
Median Age	39.3	39.0
Total Housing Units	117,318	120,182

Housing Occupancy Rate	86.7%	87.4%
% of Housing Units with no Vehicles Available	4.5%	4.5%
Median Home Value	$449,300	$499,800
Unemployment	8.7%	4.8%
Mean Travel Time to Work (minutes)	20.9	21.8
Median Household Income	$59,628	$67,175
Per Capita Income	$30,218	$33,972
% of Individuals Below Poverty Level	13.7%	13.8%
# of Households	101,708	105,044
Average Household Size	2.49	2.51
% of Population Over 25 with High School Diploma	89.5%	90.5%
% of Population Over 25 with Bachelor's Degree or Higher	31.5%	34.0%
% with Disability	11.1%	11.1%
% Speak English less than "Very Well"	6.7%	6.8%

Source: U.S. Census Bureau American Community Survey 2017 5-Year Estimates, www.census.gov/

Between 1950 and 1990, the City grew from a population of 14,180 to just under 42,000. Since 1990, the City has maintained an average growth rate of less than one percent per year. Owner-occupied housing units account for 39% of all households, while approximately 61% of households are renter-occupied. The City's population is growing steadily at a relatively slow rate at approximately 1% or less per year with an estimated of 5.3% growth since the 2010 Census. The SLO 2035 Land Use and Circulation Elements update provides population estimates

Table G.6 City of San Luis Obispo Population Growth

Year	Approximate Maximum Number of Housing Units	Projected Population
2013	20,697	45,541
2015	21,113	46,456
2020	22,190	48,826
2025	23,322	51,317
2030	24,512	53,934
2035	25,762	56,686

Source: SLO 2035 Land Use Element Update

G.1.6 Development Trends

The City has traditionally expanded through annexation of County lands and increased development of diverse land uses; these include low to high density residential, general retail and commercial, services, and manufacturing uses bordering the San Luis Obispo Regional Airport, and dispersed undeveloped open space. With Mission Plaza and downtown at the heart of the City, development trends have included transition from the historic neighborhoods immediately adjacent to Downtown, to post-World War II growth in areas along the foothills of the Santa Lucia Mountains, surrounding Laguna Lake, and in the northern areas of town near the growing Cal Poly. Recent development efforts have focused on incorporating additional housing opportunities in the historic downtown core, through the renovation of historic structures and infill development on underutilized and vacant land. The Land Use Element of the City's General Plan provides designated land use and establishes development standards for new and existing structures and uses. The Safety Element further identifies hazards that may influence the locations and types of proposed land uses and provides policies that reduce exposure to hazards. These policies have also encouraged changes to development in San Luis Obispo's hazard prone/vulnerable areas, decreasing the City's vulnerability. Any future development within the City will be informed by the most up to date hazard maps as well as state and local development ordinances (e.g. floodplain) that restrict development in hazard prone areas to minimize risk.

In recent years, more residents and visitors are staying and living in the downtown core. This change in demographic could impact response capabilities if a hazard impacts the downtown core. The City also has a greenbelt protection program and have acquired throusands of acres of land around the City to minimalize development in areas around the City. Thus the redevelopment of already developed areas or infill development is likely to be the trend in the future.

Specific to hazards, continuing moderate population growth is increasing exposure to earthquake hazards, though new or re-developed areas built to modern codes will be more resistant to collapse and damage.

G.2 Hazard Identification and Summary

San Luis Obispo's planning team identified the hazards that affect the region and summarized their frequency of occurrence, spatial extent, potential magnitude, and significance specific to the City (see Table G.7). There are no hazards that are unique to the City. The overall hazard significance takes into account the geographic area, probability and magnitude as a way to identify priority hazards for mitigation purposes. This is discussed further in the Vulnerability Section (4.3).

Table G.7 City of San Luis Obispo – Hazard Summaries

Hazard	Geographic Area	Probability of Future Occurrence	Magnitude/ Severity (Extent)	Overall Significance
Adverse Weather: Thunderstorm/ Heavy Rain/Hail/Lightning/Dense Fog/Freeze	Extensive	Likely	Limited	Medium
Adverse Weather: High Wind/ Tornado	Extensive	Occasional	Limited	Medium
Adverse Weather: Extreme Heat	Extensive	Occasional	Negligible	Low
Agricultural Pest Infestation and Disease	Limited	Highly Likely	Negligible	Medium
Biological Agents	Extensive	Occasional	Critical	Medium
Drought and Water Shortage	Extensive	Likely	Limited	Medium
Earthquake	Extensive	Occasional	Catastrophic	High
Flood	Limited	Occasional	Limited	Medium
Landslides and Debris Flow	Limited	Occasional	Limited	Low
Subsidence	Significant	Occasional	Negligible	Low
Wildfire	Significant	Occasional	Limited	Medium
Human Caused: Hazardous Materials	Significant	Highly Likely	Negligible	Medium

Geographic Area Limited: Less than 10% of planning area Significant: 10-50% of planning area Extensive: 50-100% of planning area **Probability of Future Occurrences** Highly Likely: Near 100% chance of occurrence in next year or happens every year. Likely: Between 10-100% chance of occurrence in next year or has a recurrence interval of 10 years or less. Occasional: Between 1 and 10% chance of occurrence in the next year or has a recurrence interval of 11 to 100 years. Unlikely: Less than 1% chance of occurrence in next 100 years or has a recurrence interval of greater than every 100 years.	**Magnitude/Severity (Extent)** Catastrophic—More than 50 percent of property severely damaged; shutdown of facilities for more than 30 days; and/or multiple deaths Critical—25-50 percent of property severely damaged; shutdown of facilities for at least two weeks; and/or injuries and/or illnesses result in permanent disability Limited—10-25 percent of property severely damaged; shutdown of facilities for more than a week; and/or injuries/illnesses treatable do not result in permanent disability Negligible—Less than 10 percent of property severely damaged, shutdown of facilities and services for less than 24 hours; and/or injuries/illnesses treatable with first aid **Significance** Low: minimal potential impact Medium: moderate potential impact High: widespread potential impact

G.3 Vulnerability Assessment

The intent of this section is to assess the City's vulnerability separately from that of the County as a whole, which has already been assessed in Chapter 5 of the Base Plan. This vulnerability assessment analyzes the population, property, and other assets at risk to hazards ranked of medium or high significance specific to the City.

The information to support the hazard identification and risk assessment was based on a combination of the pervious previous LHMP for the City and jurisdiction specific information collected during the 2019 update. A Local Hazard Mitigation Plan Update Guide and associated worksheets were distributed to each participating municipality or special district to complete during the 2019 update process. Information collected was analyzed and summarized in order to identify and rank all the hazards within the County, as well as to rank the hazards and identify the related vulnerabilities unique to each jurisdiction.

Each participating jurisdiction was in support of the main hazard summary identified in the Base Plan (See Table 5.2). However, the hazard summary rankings for each jurisdictional annex may vary slightly due to specific hazard risk and vulnerabilities unique to each jurisdiction (See Table G.7).

Note: The hazard "Significance" reflects overall ranking for each hazard, and is based on the City of San Luis Obispo LPT member input from the Data Collection Guide and the risk assessment developed during the planning process (see Chapter 5 of the Base Plan), which included a more detailed qualitative analysis with best available data.

The hazard summaries in Table G.7 reflect the hazards that could potentially affect City. The discussion of vulnerability for each of the following hazards is located in Section G.3.2 Estimating Potential Losses. Based on this analysis, the highest priority hazard (High Significance) for mitigation is Earthquake. Those of Medium or High significance for the City of San Luis Obispo are identified below.

- Adverse Weather: Thunderstorm/Heavy Rain/Hail/Lighting/Dense Fog/Freeze
- Adverse Weather: High Wind/Tornado
- Agricultural Pest Infestation and Disease
- Biological Agents
- Drought and Water Storage
- Earthquake
- Flood
- Human Caused: Hazardous Materials
- Wildfire

Other Hazards

Hazards assigned a significance rating of Low and which do not differ significantly from the County ranking (e.g., Low vs. High) are not addressed further in this plan. In the City of San Luis Obispo, those hazards are:

- Landslide and Debris Flow
- Adverse Weather: Extreme Heat
- Subsidence

Additionally, the City's HMPC members decided to rate several hazards as Not Applicable (N/A) to the planning area due to a lack of exposure, vulnerability, and no probability of occurrence. Dam Incidents, Coastal Storm/Coastal Erosion/Sea Level Rise, and Tsunami and Seiche Hazards are considered Not Applicable (N/A) to the City of San Luis Obispo.

G.3.1 Assets at Risk

This section considers San Luis Obispo's assets at risk, including values at risk, critical facilities and infrastructure, historic assets, economic assets, and growth and development trends. The HMPC used a variety of data to define a baseline against which all disaster impacts could be compared. If a catastrophic disaster was to occur in the Planning Area, this section describes significant assets exposed or at risk in the City of San Luis Obispo.

Values at Risk

Parcel data was provided by ParcelQuest, a third-party service working alongside the San Luis Obispo County Assessor's Office to compile property information. This data provided the baseline for an inventory of the total exposure of developed properties within the county, and helps to ensure that the updated HMP reflects changes in development. This data should only be used as a guideline to overall values in the City as the information has some limitations. The most significant limitation is created by Proposition 13; instead of adjusting property values annually, the values are not adjusted or assessed at fair market value until a property transfer occurs. As a result, overall value information is likely low and does not reflect current market value of properties. It is also important to note that in the event of a disaster, it is generally the value of the infrastructure or improvements to the land that is of concern or at risk. Generally, the land itself is not a loss. Table G.8 shows the exposure of properties (e.g., the values at risk) broken down by property type for the City of San Luis Obispo.

Table G.8 2019 Property Exposure for the City of San Luis Obispo by Property Types

Property Type	Property Count	Improved Value	Content Value	Total Value
Commercial	1,081	$1,023,078,842	$1,023,078,842	$2,046,157,684
Government/Utilities	168	$1,435,945	--	$1,435,945
Other/Exempt/Misc.	507	$189,186,968	--	$189,186,968
Residential	8,226	$1,896,071,588	$948,035,794	$2,844,107,382
Multi-Family Residential	2,885	$811,851,931	$405,925,966	$1,217,777,897
Mobile/Manufactured Homes	156	$25,110,344	$12,555,172	$37,665,516
Residential: Other	963	$368,632,456	$184,316,228	$552,948,684
Industrial	42	$60,310,187	$90,465,281	$150,775,468
Vacant	55	$36,862,009	--	$36,862,009

Total	**14,083**	**$4,412,540,270**	**$2,664,377,282**	**$7,076,917,552**

Source: Wood analysis based on ParcelQuest and San Luis Obispo County Assessor's Office data 2019.

Critical Facilities and Infrastructure

Critical Facilities are essential in providing utility or direction either during the response to an emergency or during the recovery operation. These facilities typically include hospitals, fire stations, and local law enforcement stations, and according to FEMA should be given special consideration when formulating regulatory hazard mitigation and floodplain management plans. See Section 5.2 of the Base Plan for more details on the definition s and categories of critical facilities.

A portion of the critical facilities data was provided by the San Luis Obispo County Planning & Building and GIS Departments. Supplemental data from the Homeland Infrastructure Foundation-Level Data (HIFLD) was used to capture additional facilities such as law enforcement facilities and centers, communications facilities, emergency operations centers, schools, and urgent care facilities among others. In addition, participating jurisdictions identified assets on a data collection guide worksheet or in previous LHMPs which may capture additional facilities and additional details not within the GIS database. An inventory of critical facilities in the City of San Luis Obispo determined with San Luis Obispo County GIS data is provided in Table G.9 and illustrated in Figure G.2.

Figure G.2 Critical Facilities in the City of San Luis Obispo

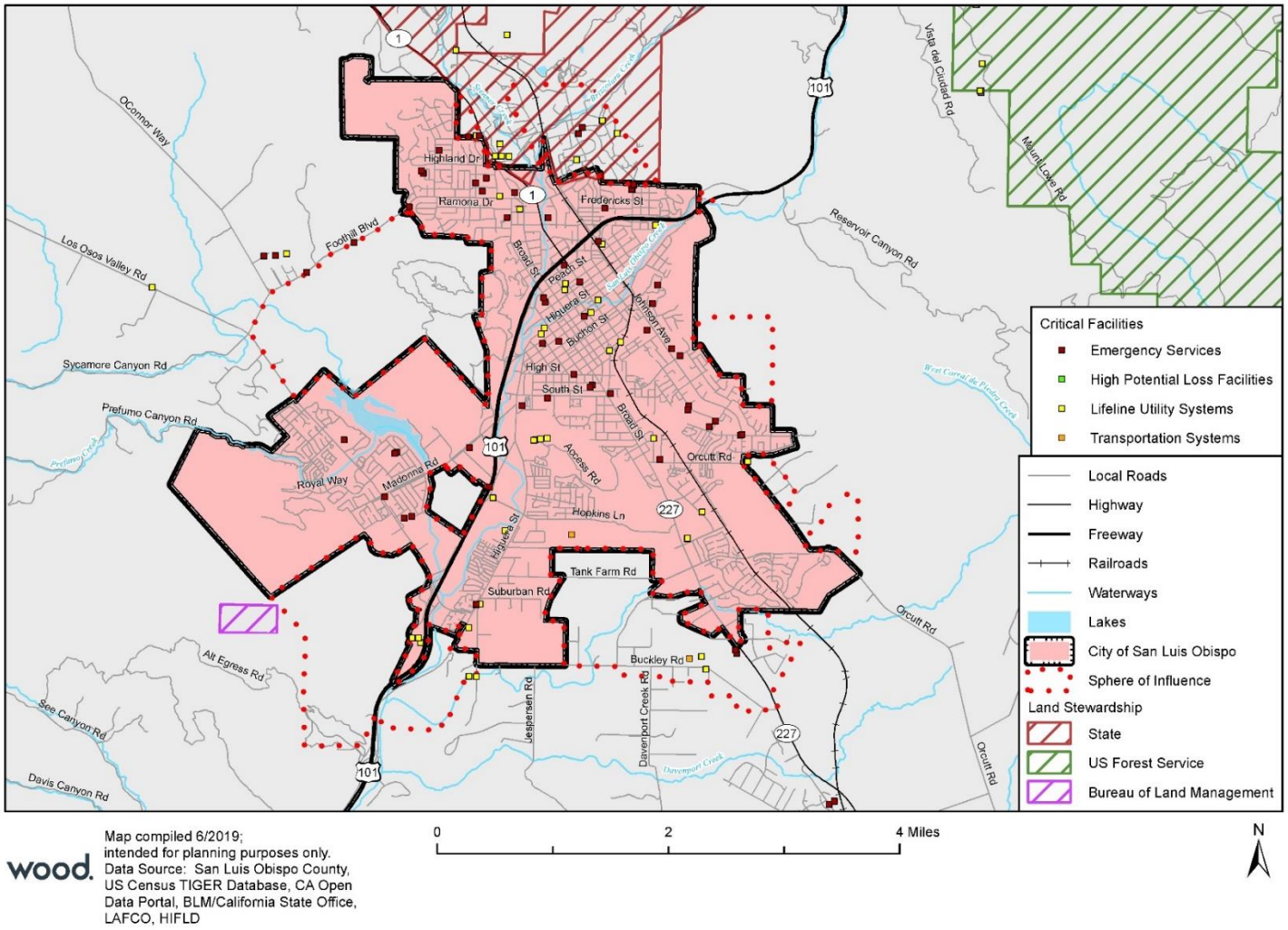


Table G.9 City of San Luis Obispo's Critical Facilities

Category	Asset Name	Asset IDs	Address	Replacement Value	Priority
Community and Recreational Facilities	City Hall	68	990 Palm St	$9,287,080	Critical
	Library	451	995 Palm St	$1,604,146	Essential
	Ludwick Community Center	452	864 Santa Rosa St	$2,559,501	Critical
	Meadow Park Recreational Center	453	2333 Meadow St	$1,448,126	Essential
	Mitchell Park Senior Center	456	1445 Santa Rosa St	$1,068,158	Essential
	Sinsheimer Pool and Park	97-110	900 Southwood Dr	$2,623,419	Essential
Infrastructure	Critical Bridges	10, 11, 19, 20, 23, 25, 27, 34, 35, 40, 41, 42, 44, 51, 56	Varies by bridge	Varies by bridge	Critical
	Essential Bridges	8, 9, 12-18, 21, 22, 24, 26, 28-33, 36-39, 43, 45-50, 52-55, 58, 59-62	Varies by bridge	Varies by bridge	Essential
	Higuera Box Culvert	57	Higuera St	$4,500,000	Critical
	Evacuation Route Roads		50 miles	$1 million/mile = $50,000,000	Critical
	Other Essential City-Owned Roads		120 miles	$1 million/mile = $120,000,000	Essential
	Communication Towers	614,616,617		N/A	Essential
Other City-Owned Facilities	City Corporation Yard	426	25 Prado Rd	$4,884,929	Critical
	Community Development and Public Works Administration	437	919 Palm St	$23,081,375	Essential
	Parking Garage	477	Marsh and Chorro St	$22,873,449	Essential
	Parking Garage	478	842 Palm St	$8,795,686	Essential
	Parks and Recreation Building	479	1341 Nipomo St	$1,282,662	Essential
	Prado Day Center	96	45 Prado Rd	$699,393	Essential
	Utilities Administration	541	879 Morro St	$1,060,252	Essential
Police and Fire Stations	Dispatch Center	78	1135 Roundhouse	$6,701,098	Critical
	Fire Station #1	69	2160 Santa Barbara	$5,483,205	Critical
	Fire Station #2	70	136 N Chorro St	$511,872	Critical
	Fire Station #3	71	1280 Laurel Ln	$594,009	Critical
	Fire Station #4	72	1395 Madonna Rd	$507,087	Critical
	Police Main Building, Garage, Annex	73-77	1042 and 1016 Walnut St	$4,854341	Critical
Potable Water and Wastewater Facilities	Fire Station #4 Well	619	1395 Madonna Rd	N/A	Essential
	Pacific Beach Well	620	11950 LOVR	N/A	Essential
	Reservoirs	63-67		N/A	Essential
	Sewer Lift Stations	555-564		N/A	Essential

Category	Asset Name	Asset IDs	Address	Replacement Value	Priority
	Sewer System Infrastructure (pipes)			N/A	Essential
	Storm Drain System			N/A	Essential
	Waste Water Treatment Plant (includes Water/Wastewater Laboratory)	615	35 Prado Rd	$77,296,765	Essential
	Water Pump Stations	1-7		N/A	Critical
	Water System Infrastructure (pipes)			N/A	Critical
	Water Tanks	566-613		N/A	Critical
	Water Treatment Plant and Stenner Hydro Plant	565	Stenner Creek Rd	$51,486,423	Essential

Source: San Luis Obispo County Planning & Building, HIFLD

High Potential Loss Facilities

High potential loss facilities are considered critical facilities that present significant risks if damaged and include nuclear power plants, dams, and military installations. The City has one classified high potential loss facility: The San Luis Obispo Wastewater Treatment Plant (WWTP). The WWTP is located within a 100-year floodplain and within a moderate liquefaction risk zone; however, other potential hazard impacts are low.

Transportation and Lifeline Facilities

The City contains a network of roadways and public transportation including the Pacific Coast Railway. US Highway 101, Highway 1, and State Route 227 (Broad Street) provide regional access to the City. The San Luis Obispo County Regional Airport serves the City and is located in the southern portion of the jurisdiction.

Lifeline Utility Systems are defined as those systems necessary to provide electric power, natural gas, water and wastewater, and other facilities and services that are essential to the well-being of the City. Lifeline utility systems within the City include:

- AM Transmission Towers (1)
- FM Transmission Towers (1)
- Microwave Service Towers (52)
- Wastewater Treatment Plants (1)
- Energy Commission Facilities (7)

Historic and Cultural Resources

The City of San Luis Obispo has a wealth of historic and culturally significant resources due to its rich and varied history. Such resources represent the City's diverse historical context from periods prior to Chumash settlement and Spanish colonization, through early development and mid-century growth that established many of the existing neighborhoods and set a precedent for community design. The City of San Luis Obispo Citywide Historic Context Statement (2014) identifies various historical factors that shaped the development of the area, and provides a framework for the continuing process of identifying historic, architectural, and cultural resources in the City. The City has an active historic preservation program, and historic preservation is prioritized throughout City policy. City Zoning Regulations also establish the Historical Preservation Overlay Zone, which describes the

allowed uses and property development standards within designated Historic Districts. Historic Districts within the City include Downtown Commercial District, the Mill Street District, the Old Town Neighborhood, the Little Italy District, the Monterey Heights District, the Mount Pleasanton/Anholm District, the Chinatown Historic District, and the Railroad Districts.

Historical resources in the context of the City are also identified by the National Register of Historic Places (NRHP), the California Register of Historic Resources (CRHR), and the County of San Luis Obispo's List of Historic Resources in addition to local designation. Such resources are buildings, structures, objects, places, and areas that have an association with important persons, events in history, or cultural heritage, or have distinctive architecture, design or construction method. State and local registers of historic resources also identify Historical Points of Interest that have primarily local significance and interest in preservation. The City of San Luis Obispo has several registered national, state, and local sites of historic and cultural significance (Table G.10). County-wide historic resources are further detailed in Chapter 5.2, Asset Summary, of the Base Plan.

Table G.10 Historic Places

Historic Site	Register	Date Listed	Address
Ah Louis Store	State/National	1965	800 Palm Street
Angel Myron House	National	1982	714 Buchon St.
Corral de Piedra	National	1978	S of San Luis Obispo on Price Canyon Rd.
Dallidet Adobe	State	1960	1185 Pacific Street
Jack Robert House	National	1992	536 Marsh St.
Mission San Luis Obispo De Tolosa	State	1939	751 Palm Street
Monday Club of San Luis Obispo	National	2016	1815 Monterey St.
Pacific Coast Railway Company Grain Warehouse	National	1988	65 Higuera St.
Pereira Octagon Barn	National	2014	4400 Octagon Way
Port San Luis Site	National	1978	Address Restricted
The Powerhouse	National	1993	Junction of S/ Perimeter Rd. and Cuesta Ave
Rancho Canada de los Osos y Pecho y Islay	National	1975	Address Restricted
San Luis Obispo Carnegie Library	National	1995	696 Monterey St.
Tribune Republic Building	National	1993	1763 Santa Barbara St.
William Shipsey House	National	2010	1266 Mill St.
Camp San Luis Obispo	State Point of Interest	1990	NA
Hollister Adobe	State Point of Interest	1972	NA

Natural Resources

Natural resources are important to include in benefit-cost analyses for future projects and may be used to leverage additional funding for projects that also contribute to community goals for protecting sensitive natural resources. Awareness of natural assets can lead to opportunities for meeting multiple objectives. For instance, protecting wetlands areas protects sensitive habitat as well as attenuates and stores floodwaters.

The City's landscape is made up of creeks, hills, valleys, and rich farmland that supports a variety of plants and animal species. The San Luis Obispo area contains a diverse array of naturally occurring biological communities and extensive open space areas including the Irish Hills Natural Reserve, the Islay Hills Open Space, South Hills Open Space, Charles A. and Mary R. Maino Open Space, Ferrini Ranch, and the Laguna Lake Park and Open Space. The City's many creeks provide sheltered corridors that allow wildlife to move between dispersed habitats and open space areas.

Economic Assets

California Polytechnic State University is the largest employer in the City of San Luis Obispo with nearly 3,000 employees. San Luis Coastal Unified School District employs 384 regular classified employees. The industrial sector including education services, healthcare, and social assistance are the largest employers in the City at approximately 20.2% of the total employers. In 2007, approximately 5,127 individuals were employed in educational services, health care, and social assistance jobs. The General Plan Land Use Element (LUE) for the City includes policies to accommodate a maximum population of 57,200 persons. Assuming a 0.5% growth rate, the City would reach the anticipated residential capacity by year 2057. Tourism is an increasing trend in the City due to the diverse range of activities, small-town appeal and recent development of several hotels near and in the downtown core. Loss of a major employer from a hazard impact would result in a significant rise in unemployment and loss in sales tax revenue.

G.3.2 Estimating Potential Losses

Note: This section details vulnerability to specific hazards of high or medium significance, where quantifiable, and/or where (according to HMPC member input) it differs from that of the overall County.

Table G.10 above shows San Luis Obispo's exposure to hazards in terms of number and value of structures. San Luis Obispo County parcel and assessor data were used to calculate the improved value of parcels. The most vulnerable structures are those in the floodplain (especially those that have been flooded in the past), unreinforced masonry buildings, and buildings built prior to the introduction of modern-day building codes. Impacts of past events and vulnerability to specific hazards are further discussed below. (See Section 4.1 Hazard Identification for more detailed information about these hazards and their impacts on the County as a whole.)

Adverse Weather: Thunderstorm/Heavy Rain/Hail/Lightning/Dense Fog/Freeze

Adverse weather in the City usually occurs as localized thunderstorms that bring heavy rains and strong winds, most often during the winter and spring months. Heavy rain has historically produced extensive flooding in the City. Dense fog can result in reduced visibility and slick road conditions that increase the likelihood for traffic accidents. Freeze is rarely a threat to human life in the City, but has the potential to impact agricultural operations where crop damage to high value products can be extensive. According to frost dates and temperature data published by the University of California Agriculture & Natural Resources, the lowest recorded

temperature is 20°F, and average annual low temperatures of 42 to 43°F typically occur in January and December.

Adverse Weather: High Wind/Tornado

The City is subject to strong southeasterly winds associated with strong cold fronts and coastal storms, which generally occur during the winter months from November to February. Northwesterly winds that are typical of the central coast of California also occur throughout San Luis Obispo during the spring and summer. Both southeast and northwest wind events can reach sustained wind speeds of 35-45 mph with wind gusts of 65-75 mph within the City. Wind related events can have substantial destructive impacts, especially in urban areas where falling trees and branches can result in considerable property damage. Tornadoes have historically occurred in San Luis Obispo, with the first recorded tornado taking place in April 1926 due to a strong coastal storm front from the Pacific. Recorded tornadoes since then have typically been low severity, and caused minor damage such as broken tree branches and minor structural and roof damage to buildings. Refer to Section 5.3.1 Adverse Weather, in the Base Plan for analysis related to tree mortality in the County of San Luis Obispo.

Agricultural Pest Infestation and Disease

Agricultural pests and pathogens (insects, fungi, bacteria, viruses and invasive plants) cause injury or destruction to crops or livestock. The prominent agricultural uses in San Luis Obispo County can be impacted by a wide variety of invasive pests, which pose a significant threat to crops, economy, food supply, and native habitat.

Biological Agents

Public health impacts due to biological agents are a recognized potential threat to the City. The City is largely reliant on the County's Emergency Preparedness Program, which supports the Public Health Department in the management and coordination of public health emergencies including natural disasters, technological disasters, bioterrorism incidents, and pandemics. Food and waterborne illnesses are major health problems that present significant health risks to the City as well as threats to regional food and water supply. The City supports and participates in the County Public Health Department's up-to-date Pandemic Influenza Plan and Strategic National Stockpile Plan to facilitate prevention, early detection, and treatment to effectively respond to pandemics.

Drought and Water Storage

Periods of drought can have significant environmental, agricultural, health, economic, and social consequences. Prolonged drought has the potential to impact structures due to subsidence, and can reduce water quality due to lower water flows and reduced pollutant dilution. The City recently experienced its third driest period on record since 1870 when weather observations began at the San Luis Obispo Polytech Weather Station. Long-term precipitation information from the station indicates the variability that can occur, which is summarized in Figure 5-4 in Section 5.3.6 of the Base Plan. The City has invested in a multi-source water supply including Nacimiento, Whale Rock, and Santa Margarita Reservoirs, groundwater, and recycled water for landscape irrigation. Water demand modeling estimates that these sources provide a 7.5 year combined water supply, assuming an extended worst case historical drought.

Earthquake

Earthquake events have occurred in the City in the past, including a number of magnitude 5.0 to 7.0 earthquakes. Historically, most of the earthquakes that have occurred near the City have originated from movement along the San Andreas Fault, which lies approximately 35 miles northeast of the City. The most recent major earthquake to affect San Luis Obispo occurred at 11:15:56 am Pacific Standard Time on December 22, 2003. The epicenter of the magnitude 6.5 earthquake was approximately 7 miles northeast of San Simeon at a depth of 4.7 miles (35.706N, 121.102W), 45 miles from San Luis Obispo. The City of San Luis Obispo experienced some minor damage. The main strand of the Los Osos fault zone, also known as the Edna fault zone, traverses the City near the intersection of Los Osos Valley Road and Foothill Boulevard. Field evaluations by the California Geological Survey (CGS) for the main strand of the Los Osos fault found evidence of movement in the last 11,000 years. This evidence of recent activity resulted in the establishment of an Earthquake Fault Zone by CGS in 1989 under the Alquist-Priolo Fault Zoning Act. The Los Osos fault specifically presents a high to very high fault rupture hazard to developments near and southwest of the Los Osos Valley Road area.

Table G.11 Seismic Hazard Designation by Property Type

Seismic Designation	Property Type	Property Count	Improved Value
Los Osos Alquist-Priolo	Residential	28	$9,541,741
	Residential: Other	2	$693,134
TOTAL		**30**	**$10,234,875**

Source: San Luis Obispo County Planning & Building, County Assessor's Office, ParcelQuest, Wood Plc analysis

In addition to being at risk of groundshaking as a result of a fault rupture, the City of San Luis Obispo is also susceptible to the effects of liquefaction. Most of the City is underlain by alluvium and other liquefiable sediments that may present a risk of liquefaction during ground shaking; however, liquefaction risk is generally classified as low to medium on a scale of very low to very high. Liquefaction risk is visually displayed across the City under Figure G.4 below.

Table G.12 Parcels Susceptible to Moderate Liquefaction Risk

Parcel Type	Parcel Count	Improved Parcel Value
Commercial	992	$964,747,104
Government/Utilities	125	$1,435,945
Other/Exempt/Miscellaneous	418	$170,684,946
Residential	5,282	$1,076,982,642
Multi-Family Residential	2,387	$678,902,288
Mobile/Manufactured Homes	148	$16,744,811
Residential: Other	673	$272,473,739
Industrial	36	$55,659,992
Vacant	42	$31,483,257
TOTAL	**10,103**	**$3,269,114,724**

Source: San Luis Obispo County Planning & Building, County Assessor's Office, ParcelQuest, Wood Plc analysis

Figure G.3 Seismic Hazard Designation in the City of San Luis Obispo

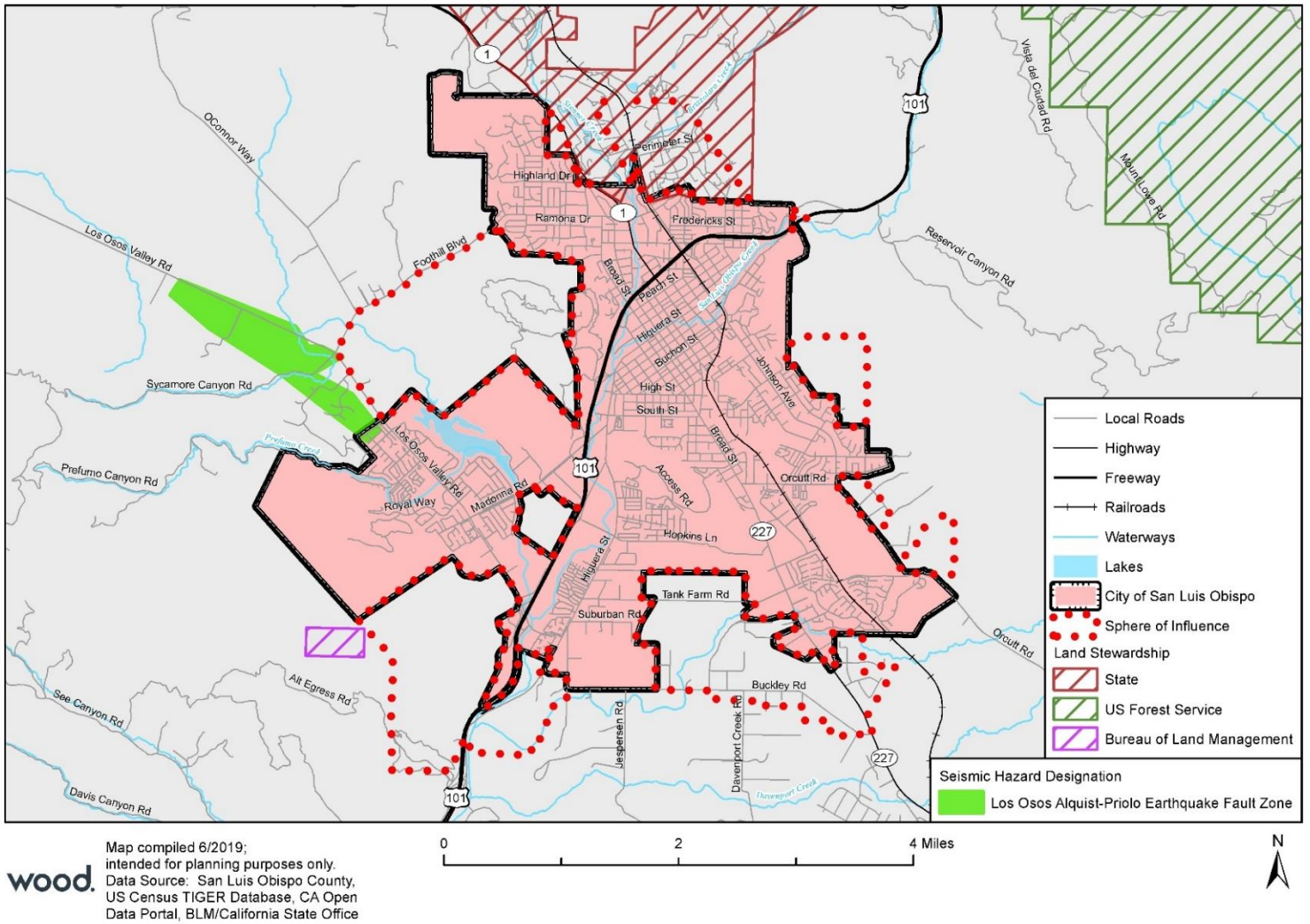
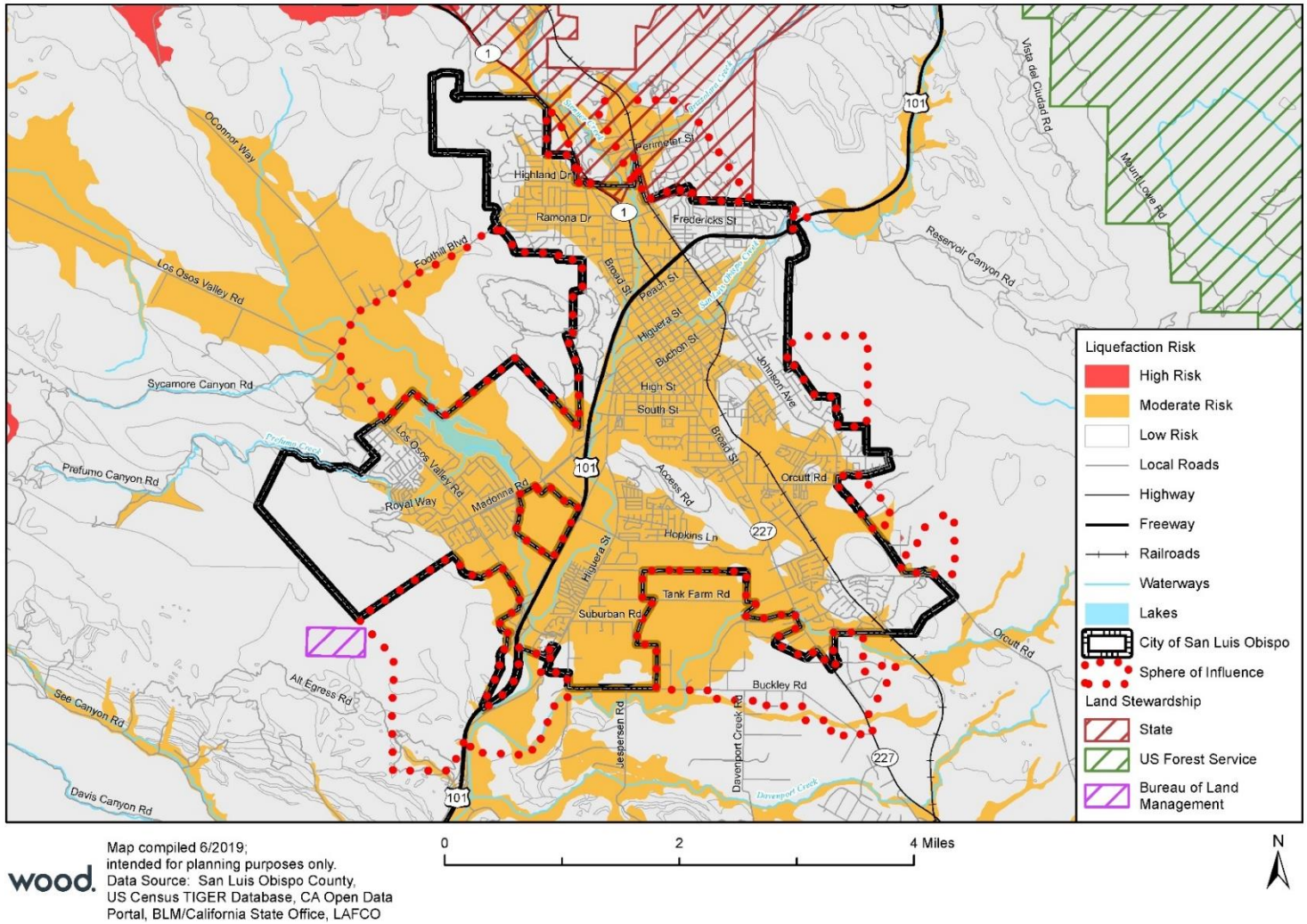


Figure G.4 Liquefaction Risk in the City of San Luis Obispo



Flood

In San Luis Obispo, the most common type of flooding event is riverine flooding, also known as overbank flooding. Riverine floodplains range from narrow, confined channels in the steep valleys of mountainous and hilly regions, to wide, flat areas in plains and coastal regions. The amount of water in the floodplain is a function of the size and topography of the contributing watershed, the regional and local climate, and land use characteristics. Flooding in steep, mountainous areas is usually confined, strikes with less warning time, and has a short duration. Larger rivers typically have longer, more predictable flooding sequences and broad floodplains.

In addition to riverine flooding, San Luis Obispo is susceptible to flash flooding. Flash flood is a term widely used by experts and the general population, but no single definition or clear means of distinguishing flash floods from other riverine floods exists. Flash floods are generally understood to involve a rapid rise in water level, high velocity, and large amounts of debris, which can lead to significant damage that includes the tearing out of trees, undermining of buildings and bridges, and scouring of new channels. The intensity of flash flooding is a function of the intensity and duration of rainfall, steepness of the watershed, stream gradients, watershed vegetation, natural and artificial flood storage areas, and configuration of the streambed and floodplain. Urban areas are increasingly subject to flash flooding due to the removal of vegetation, installation of impermeable surfaces over ground cover, and construction of drainage systems. Wildfires that strip hillsides of vegetation and alter soil characteristics may also create conditions that lead to flash floods and debris flows. Debris flows are particularly dangerous due to the fact that they generally strike without warning and are accompanied by extreme velocity and momentum. Dam failure may also lead to flash flooding; however, the County's dam inundation as well as the California Office of Emergency Services dam inundation data confirms that there are no dam inundation zones located within the City limits.

The most serious flood events on record resulting in property damage or loss of life in San Luis Obispo occurred in 1868, 1884, 1897, 1911, 1948, 1952, 1962, 1969, 1973, 1993, 1995, 1998, and 2001. Recent damaging floods occurred during January and March of 1995, with a lesser flooding problem in 1998. Flow during these events overtopped streambanks near the intersection of Marsh and Higuera Streets and remained out of the channel for nearly three miles downstream, with damage estimated at nearly $2.3 million. The City and Zone 9 spent approximately $1 million to repair bank erosion caused during the winter of 1995. Damage occurred near the town of Avila during both the January and March 1995 events, where high flow and debris blockages caused extensive damage to several bridges across the creek. Flooding during 1969 was significantly damaging; two floods occurred, one at the end of January and the second at the end of February. During this two-month period, a local rain gage recorded an accumulated precipitation total of 39.79 inches. Historically, the 1969 and 1973 events were more damaging than the 1995 floods in present day dollars. The 1969 flood caused approximately $6.92 million in damage within the SLO Creek watershed. The 1973 storm caused $13.6 million along Stenner Creek, Brizziolari Creek, Prefumo Creek, and See Canyon Creek.

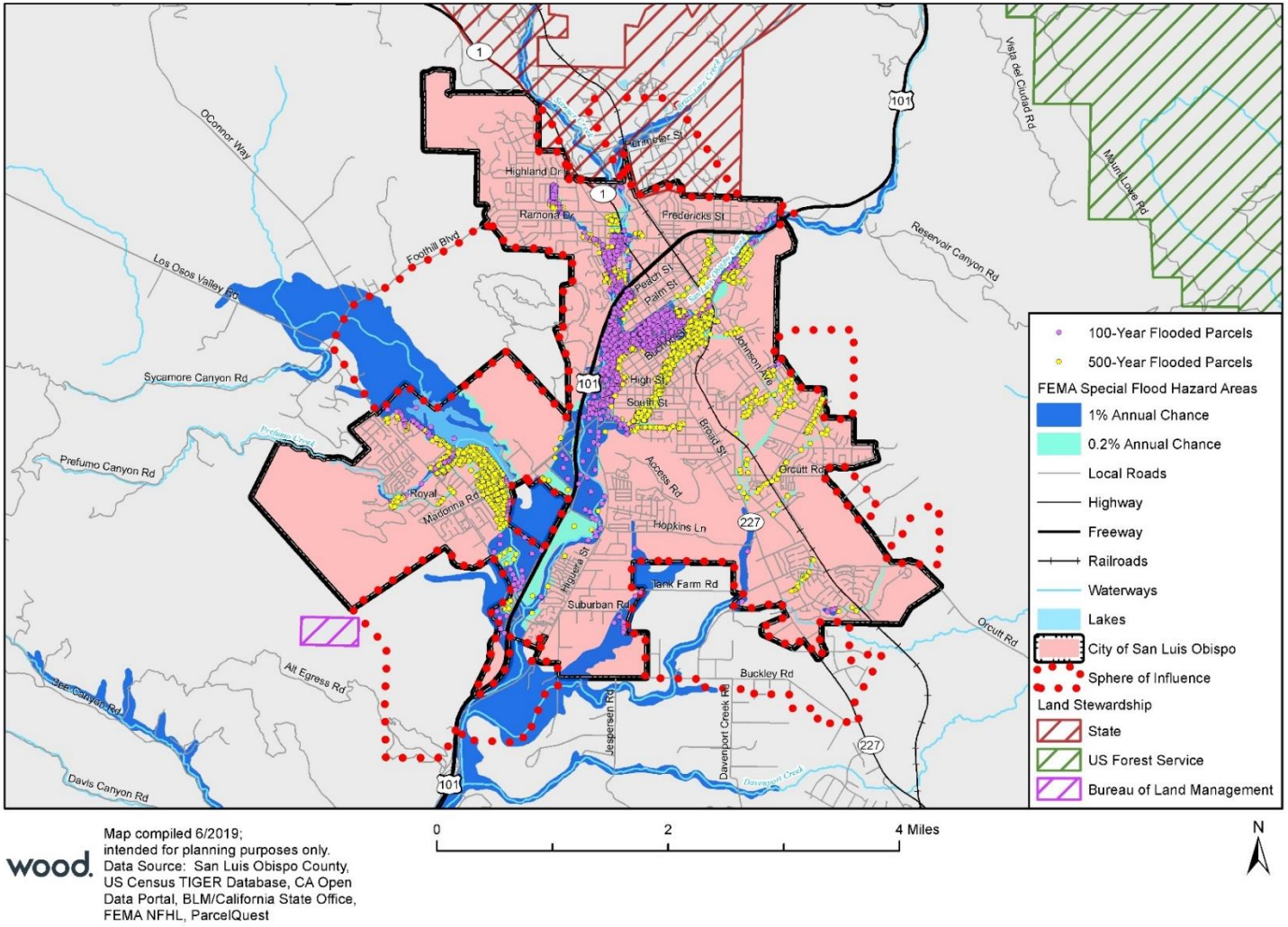
See Figure G.5 below illustrating the parcels at risk of flooding during a 100- or 500-year event based on the FEMA flood hazard areas.

Table G.13 100-Year and 500-Year Flooding by Jurisdiction and Parcel Type

Parcel Type	Parcel Count	Improved Value	Content Value	Total Value	Loss Estimate	Population
100-YEAR FLOOD EVENT						
Commercial	307	$310,143,384	$310,143,384	$620,286,768	$155,071,692	--
Government/Utilities	29	$10,050	--	$10,050	$2,513	--
Other/Exempt/Miscellaneous	75	$29,586,337	--	$29,586,337	$7,396,584	--
Residential	338	$71,676,715	$35,838,358	$107,515,073	$26,878,768	848
Multi-Family Residential	209	$66,889,696	$33,444,848	$100,334,544	$25,083,636	525
Mobile/Manufactured Homes	5	$591,404	$295,702	$887,106	$221,777	13
Residential: Other	25	$42,055,551	$21,027,776	$63,083,327	$15,770,832	63
Industrial	6	$2,632,168	$3,948,252	$6,580,420	$1,645,105	--
Vacant	11	$2,988,322	--	$2,988,322	$747,081	--
TOTAL	1,005	$526,573,627	$404,698,319	$931,271,946	$232,817,987	1,448
500-YEAR FLOOD EVENT						
Commercial	111	$74,714,129	$74,714,129	$149,428,258	$37,357,065	
Government/Utilities	8	--	--	$0	$0	--
Other/Exempt/Miscellaneous	35	$19,148,234	--	$19,148,234	$4,787,059	--
Residential	971	$190,774,098	$95,387,049	$286,161,147	$71,540,287	2,437
Multi-Family Residential	297	$66,546,672	$33,273,336	$99,820,008	$24,955,002	745
Mobile/Manufactured Homes	1	$245,631	$122,816	$368,447	$92,112	3
Residential: Other	51	$35,270,066	$17,635,033	$52,905,099	$13,226,275	128
Industrial	1	$312,120	$468,180	$780,300	$195,075	--
TOTAL	1,475	$387,010,950	$221,600,543	$608,611,493	$152,152,873	3,313
GRAND TOTAL	2,480	$913,584,777	$626,298,862	$1,539,883,439	$384,970,860	4,761

Source: San Luis Obispo County Planning & Building, County Assessor's Office, ParcelQuest, Wood Plc analysis, FEMA NFHL

Figure G.5 Flood Hazard Areas and Flooded Parcels in the City of San Luis Obispo



Wildfire

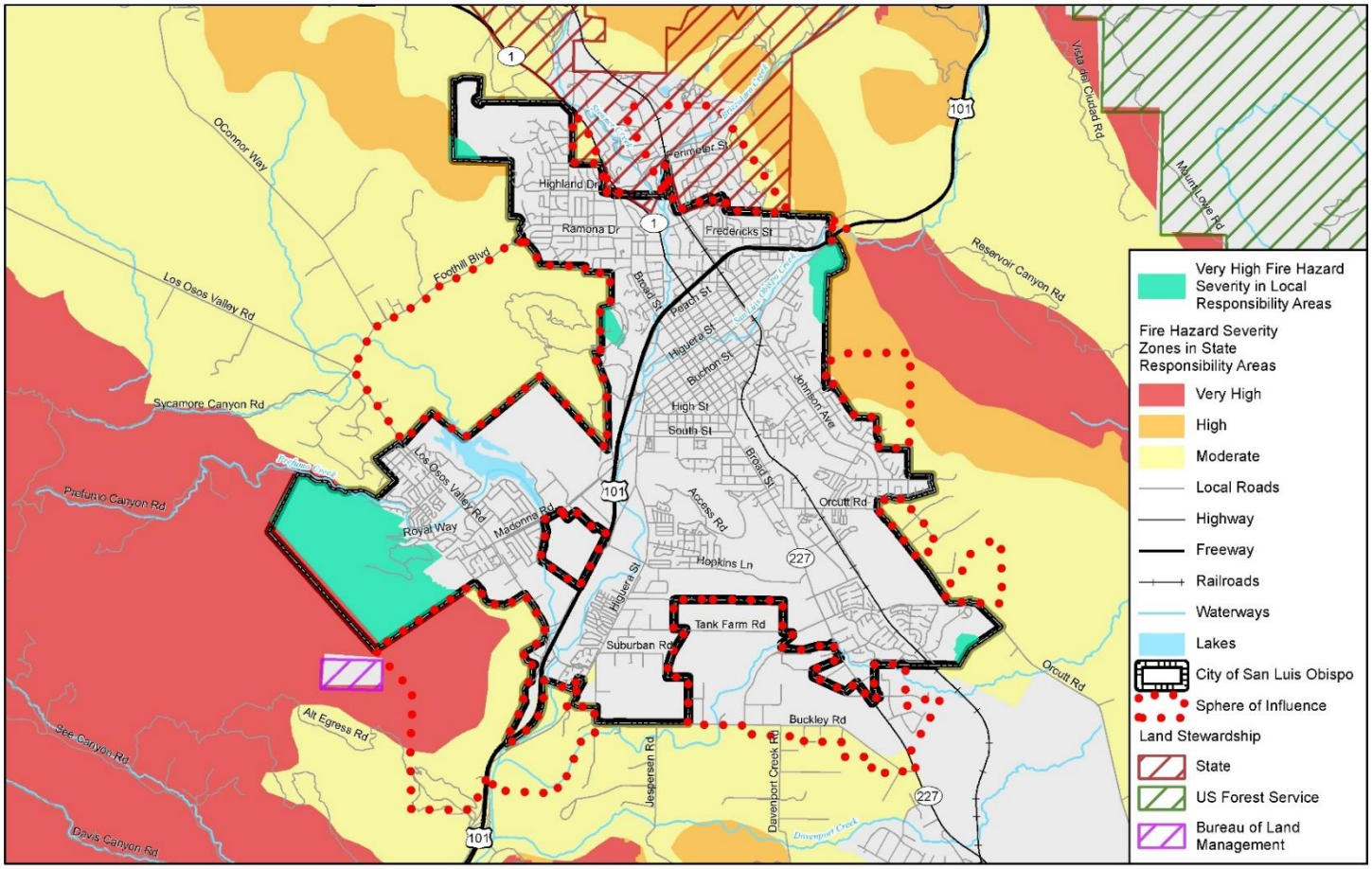
The risk of wildland fires is greatest near the City limits where development meets rural areas of combustible vegetation. Most of the community is within one mile of a High or Very High Fire Hazard Severity Zone, which indicates significant risk to wildland fire. The City of San Luis Obispo is confronted with one of the more hazardous wildfire risks in the County due to its location near the foothills of the Santa Lucia Mountains and the Irish Hills, with increased wildfire risk in these foothills as well as on Chumash Peak, Bishop Peak, Cerro San Luis, and Islay Hill. Figure G.6 illustrates, in map form, the wildfire hazard severity zones that cross over into the City and hence pose risk to the community and its people.

Table G.15 Properties Within Moderate and Very High Wildfire Hazard Severity Zones

Parcel Type	Parcel Count	Improved Value	Content Value	Total Value	Loss Estimate	Population
MODERATE WILDFIRE HAZARD SEVERITY						
Commercial	1	$2,392,765	$2,392,765	$4,785,530	$4,785,530	--
Government/Utilities	1	--	--	$0	$0	--
Other/Exempt/Miscellaneous	1	--	--	$0	$0	--
Residential	3	$218,358	$109,179	$327,537	$327,537	8
TOTAL	6	$2,611,123	$2,501,944	$5,113,067	$5,113,067	8
VERY HIGH WILDFIRE HAZARD SEVERITY						
Other/Exempt/Miscellaneous	2		--	$2	$2	--
Residential	14	$7,928,870	$3,964,435	$11,893,319	$11,893,319	35
Vacant	1	$40,500	--	$40,501	$40,501	--
TOTAL	17	$7,969,370	$3,964,435	$11,933,822	$11,933,822	35
GRAND TOTAL	23	$10,580,493	$6,466,379	$17,046,889	$17,046,889	43

Source: San Luis Obispo County Planning & Building, County Assessor's Office, ParcelQuest, Wood Plc analysis, CalFire

Figure G.6 Wildfire Hazard Severity Zones



Human Caused: Hazardous Materials

The Cal OES Warning Center reports 419 hazardous materials incidents in the City of San Luis Obispo from 1994 through October 24, 2018; as noted in Section 5.3.13 of the county plan, this likely excludes a large number of unreported minor spills. This constitutes 23% of the hazardous materials incidents reported countywide during the same time frame, and averages out to roughly 16.8 incidents per year. As noted in Section 5.3.13, only around 6% of reported hazardous materials incidents result in injuries, fatalities, or evacuations.

There is one CalARP regulated facilities and no EPA Risk Management Plan (RMP) facilities located in the City. Additionally, the City sits within the Emergency Planning Zone for the Diablo Canyon Nuclear Power Plant.

G.4 Capability Assessment

Capabilities are the programs and policies currently in use to reduce hazard impacts or that could be used to implement hazard mitigation activities. This capability assessment is divided into six sections: regulatory mitigation capabilities, administrative and technical mitigation capabilities, fiscal mitigation capabilities, mitigation outreach and partnerships, other mitigation efforts, and opportunities for enhancement.

To develop this capability assessment, the jurisdictional planning representatives used a matrix of common mitigation activities to inventory policies or programs in place. The team then supplemented this inventory by reviewing additional existing policies, regulations, plans, and programs to determine if they contributed to reducing hazard-related losses.

During the plan update process, this inventory was reviewed by the jurisdictional planning representatives and Wood consultant team staff to update information where applicable and note ways in which these capabilities have improved or expanded. In summarizing current capabilities and identifying gaps, the jurisdictional planning representatives also considered their ability to expand or improve upon existing policies and programs as potential new mitigation strategies. The City of San Luis Obispo's updated capabilities are summarized below.

G.4.1 Regulatory Mitigation Capabilities

Table G.16 City of San Luis Obispo Regulatory Mitigation Capabilities

Regulatory Tool (ordinances, codes, plans)	Yes/No	Comments
General Plan	Yes	Land Use Element, Circulation Element, Housing Element, Noise Element, Safety Element, Conservation and Open Space Element, Parks and Recreation Element, and Water and Wastewater Element
Zoning ordinance	Yes	Title 17: Zoning Regulations of the City of San Luis Obispo Municipal Code
Subdivision ordinance	Yes	Title 16: Subdivisions, Subdivision Regulations
Growth management ordinance	Yes	Chapter 17.144: Residential Growth Management Regulations
Floodplain ordinance	Yes	Chapter 17.78: Flood Damage Prevention
Other special purpose ordinance (stormwater, steep slope, wildfire)	Yes	Ordinance 1543: Chapter 12.08 Urban Storm Water Quality Management and Discharge Control Ordinance 1490: Chapter 16.20 Physical Improvement Standards and Procedures - 16.20.040 Grading plan

Regulatory Tool (ordinances, codes, plans)	Yes/No	Comments
		Ordinance 1490: Chapter 16.18 General Subdivision Design Standards Chapter 17.70.090: Hillside Development Standards Ordinances 1630 (part) and 1595 (part), Chapter 15.04 Construction and Fire Prevention Regulations A Stormwater Control Plan is required to be submitted for all projects to demonstrate exemption or level of compliance required. Post Construction Regulation outlines Stormwater Control Plan content in Performance Requirement 2 - Sections B.3.c, Performance Requirement 3 - Section B.4.g, and Performance Requirement 4 – Section B.5.b. Through the Stormwater Control Plan submittal, applicants demonstrate compliance with Post Construction Requirements or exemption status. Drainage Design Manual (Design Manual) has been developed to provide criteria and planning procedures for floodplains, waterways, channels, and closed conduits in the San Luis Obispo Creek watershed. This Drainage Manual will be used by the City of San Luis Obispo and San Luis Obispo County Flood Control and Water Conservation District Zone 9 (SLO/Zone 9) staff in their internal design of stormwater drainage, flood management and bank stabilization and restoration projects.
Building code	Yes	Title 15, Buildings and Construction of the City of San Luis Obispo Municipal Code. California Building Codes: CA Residential Code (2016); CA Plumbing Code (2015 UPC); CA Mechanical Code (2015 UMC); CA Electrical Code (2014 NEC); CA Energy Code (2016); CA Green Building Code (2016); CA Fire Code (2015 IFC); CA Reference Standards Code (2016)
Fire department ISO rating	Yes	2
Erosion or sediment control program	Yes	Chapter 17.78 Flood Damage Prevention Chapter 12.08 Urban Storm Water Quality Management and Discharge Control Chapter 16.20 Physical Improvement Standards and Procedures Ordinance 1543, Code Section 12.08.150 Requirement to prevent, control, and reduce storm water and pollutants City of SLO Waterway Management Plan and Drainage Design Manual Annual silt removal to maintain hydraulic capacity in San Luis Obispo creek beds to reduce flooding. City has 14 total sites in the management plan and complete silt removal on a rotating basis.
Stormwater management program	Yes	Chapter 12.08: Stormwater Regulations & Requirements
Site plan review requirements	Yes	Title 22 Article 3
Capital improvements plan	Yes	Department of Public Works 5-Year Strategic Plan
Economic development plan	Yes	5-Year Economic Development Strategic Plan Updated in 2015

Regulatory Tool (ordinances, codes, plans)	Yes/No	Comments
Local emergency operations plan	Yes	City of San Luis Obispo Emergency Operations Plan (2011)
Other special plans	Yes	Open Space Conservation Plans, Climate Action Plan, Urban Water Management and Water Shortage Contingency Plans, Waterway Management Plan, Utilities Department Emergency Plan, Unreinforced Masonry Hazard Mitigation Program, Disaster Preparedness Program, Community Wildfire Preparedness Plan, Greenbelt Protection Program
Flood insurance study or other engineering study for streams	Yes	2012
Elevation certificates (for floodplain development)	Yes	Chapter 17.78: Flood Damage Prevention
Other	Yes	Water System Vulnerability Assessment, Floodplain Management Educational Program

G.4.2 Administrative/Technical Mitigation Capabilities

There are several key departments and staff within the City organization that serve a specific role in developing and implementing hazard mitigation activities. City government consists of approximately 399 full-time equivilent employees and 10 departments: Police, Fire, Public Works, Public Utilities, Community Development, Parks and Recreation, Human Resources, Finance and Information Technology, City Administration, and the City Attorney's Office. With a clear set of policies in place and a diverse range of staff available to mitigate identified hazards within the City, the City has many staff with specific training on the use of specialized equipment or particular areas of expertise that are essential in implementing mitigation actions. Technical resources are considered to be physical infrastructure or equipment available to the City to aid in implementing hazard mitigation or disaster response activities. Table G.17 identifies the personnel resources and technical resources that increase capabilities related to mitigation and loss prevention in the City.

Table G.17 City of San Luis Obispo Administrative/Technical Mitigation Capabilities

Personnel Resources	Yes/No	Department/Position
Planner/engineer with knowledge of land development/land management practices	Yes	Staff with knowledge of land development practices and local land development patterns.
Engineer/professional trained in construction practices related to buildings and/or infrastructure	Yes	Professionals trained in construction practices associated with buildings and infrastructure and in storm water compliance during construction and operation of buildings and infrastructure projects.
Planner/engineer/scientist with an understanding of natural hazards	Yes	
Personnel skilled in GIS	Yes	Provide accurate and comprehensive Geographic Information System for managing resources, make informed decisions, and expedite work processes.
Full time building official	Yes	Community Development Department, Chief Building Official
Floodplain manager	Yes	Community Development Department, Supervising Civil Engineer

Personnel Resources	Yes/No	Department/Position
Emergency manager	Yes	Accomplished through contract services. City maintains funding for the 2019-21 Financial Plan to maintain an Emergency Manager positon equivalent to 0.5 FTE.
Grant writer	Yes	Accomplished through Contract Services. The City maintains two-year contracts with both a local grant writing firm and grant advocate firm based out of Irvine, CA.
Mutual Aid Agreements	Yes	Establishes agreements among local jurisdictions to assist in emergency response efforts in neighboring jurisdictions during times of need. San Luis Obispo currently participates in the following mutual aid agreements: 1. California Master Mutual Aid Agreement, 2. SLO County Fire and Rescue Mutual Aid Agreement, 3. California Fire Assistance Agreement, 4. Region 1A Law Enforcement Mutual Aid Agreement, 5. Public Works Mutual Aid Agreement, 6. California Emergency Managers Mutual Aid Agreement, 7. Regional Disaster Medical/Health Coordination.
Code Enforcement and Neighborhood Services	Yes	Staff with training and expertise in identifying hazards to health, safety, and welfare, and assisting property owners with achieving code and policy compliance.
Fire Marshal	Yes	Measure G funded position, manages and directs the activities of the Fire Prevention Bureau. Oversees fire safety inspections for all facilities in the City. Ensures that development in the City meets fire safety standards. Obtains funding and implements wildland fuel reduction projects. Directs and oversees fire investigations.
Fire Inspectors	Yes	Professionals trained in fire prevention techniques and construction practices associated with buildings and infrastructure. Inspect all multi-family residential buildings and public assembly buildings. Review building plans and inspect construction projects for fire and life safety and proper installation of fire protection systems. Investigate fire for cause and origin.
Hazardous Materials Coordinator		Staff designated to inspect facilities and containers storing hazardous materials. There are approximately 244 facilities located within the City that are permitted for the use of hazardous materials.
Network Administrators	Yes	Provide technical support for wired/wireless network and radios.
Park Rangers	Yes	Staff familiar with brush clearance requirements and conditions of City-owned open space.
Police Officers	Yes	Emergency response to provide protection of life, property and address community safety/security needs. Work cooperatively with other first responders for an organized response to disaster mitigation plans.
Dispatchers	Yes	Provide communication links to responding personnel to transfer emergency information and direct resources as needed.
Construction Inspection	Yes	Ensures storm water compliance during construction of City projects, and private grading and encroachment projects.
Public Works Department – Department Operations Centers (DOC)	Yes	The Public Works DOC coordinates responses to road flooding and related problems during a storm with road crews, the County, Caltrans, and the California Highway Patrol. They also support other

Personnel Resources	Yes/No	Department/Position
		emergency response operations coordinated through the City's EOC.
Storm Water Compliance	Yes	Staff responsibility assigned to ensure storm water compliance during construction and operation of buildings and infrastructure projects.
Other personnel	Yes	Operations: Field staff provide assistance to Public Works DOC for flood response, and City EOC for general emergency response.
GIS Data Resources (Hazard areas, critical facilities, land use, building footprints, etc.)	Yes	
Warning systems/services (Reverse 9-11, outdoor warning signals)	Yes	
Voluntary Organizations Active in Disaster	Yes	Provides disaster preparedness courses to residents and community members and provides care and shelter to those threatened or impacted by natural hazards. Volunteer and private agencies are essential to the area's mutual aid system by providing for the care and shelter needs of disaster victims. Organizations active in San Luis Obispo include the American Red Cross and Salvation Army.

G.4.3 Fiscal Mitigation Capabilities

There are multiple financial and funding opportunities for the City to mitigate or respond to natural hazards. These capabilities include local revenues from the general fund, or the receipt of grant funds from state or federal agencies. The City's financial planning process includes a two-year goal setting and budget development based on community and council priorities. The City's five-year fiscal forecast identifies the City's forecast of revenues, expenditures, and changes in fund balance. The general fund receives revenues from a variety of sources including taxes (sales, property, transient occupancy, business, utility users), subventions and grants (vehicle license fees, gas tax, and other subventions), service charges (development review fees, recreation fees), and other revenues (fines, interest earnings, and rents). The City has and will continue to utilize the two-year goal setting and budget process to prioritize expenditures needed to mitigate future hazards. In the event of a natural disaster and a need for immediate City response, the City has the financial capacity to utilize reserve funds, when authorized by the City Council. The City has previously utilized the following financial resources to implement hazard mitigation activities. The added revenues to the General Fund from Measure "G" have allowed the City to financially support major improvements in the areas of public safety, flood protection, and open space preservation. Financial resources to mitigate hazards: Table G.18 identifies financial tools or resources that the City could potentially use to help fund mitigation activities.

Table G.18 City of San Luis Obispo Fiscal Mitigation Capabilities

Financial Resources	Accessible/Eligible to Use (Yes/No)	Comments
Community Development Block Grants	Yes	The City continues to seek grant opportunities through the CDBG program and identify potential eligible projects that would fund mitigation activities to benefit the health and welfare of the community.

Financial Resources	Accessible/Eligible to Use (Yes/No)	Comments
Capital improvements project funding	Yes	The Capital Improvement Plan (CIP) enables the City to plan, schedule, and finance capital projects to ensure cost effectiveness and conformance with established plans and policies. The City's budget process guides the capital priorities through community input, Council goal setting, Local Revenue Measure priorities, and the biennially adopted Major City Goal work programs. The City's CIP includes all planned infrastructure projects over a five year period. The first two years identify those projects that are planned to be funded and/or completed during the adopted two-year financial plan. The latter three years serve as the framework for future Financial Plans' capital budgets. The plan represents a phased approach to funding the projects needed to maintain the City's infrastructure and major facilities over the entire five-year period.
Authority to levy taxes for specific purposes	Yes	Taxes for specific purposes can be levied with authorization from the City Council and further approval through a local ballot measure.
Fees for water, sewer, gas, or electric services	Yes	The City's utilities department provides water and wastewater services to the residents and businesses of San Luis Obispo. Water and sewer revenues are collected to support operations and capital improvements, with rates reviewed on an annual basis and approved by the City Council. These revenues from customer water and sewer use are utilized by the utilities department to maintain, improve, expand and replace components of the City's water and wastewater infrastructure system, including improvements made to protect from natural hazards.
Impact fees for new development	Yes	New development projects proposed in the City affect the City's ability to provide adequate essential services (e.g. transportation, water and wastewater, and open space). To ensure these essential services can adequately serve the City's existing and future community needs, a series of development impact fees are levied on new development projects.
Incur debt through general obligation bonds	Yes	Debt can be incurred through general obligation bonds with authorization from the City Counccl and further approval through a local ballot measure.
Incur debt through special tax bonds	Yes	Debt can be incurred through special tax bonds with authorization from the City Council and further approval through a local ballot measure.
Incur debt through private activities	Yes	City Financial Policy allows debt to be incurred through private activities with approval from City Council
Withhold spending in hazard prone areas	Yes	Policy is accessible with authorization from City Council.

Financial Resources	Accessible/Eligible to Use (Yes/No)	Comments
General Fund (including Measure G Funding)	Yes	In 2006, City voters approved measure Y to preserve and enhance essential City services by establishing a 1/2 –cent City sales tax. In the 2011/12 fiscal year, measure Y generated approximately $6.2 million in revenue. This funding has been used in recent years for public safety, infrastructure maintenance, traffic congestion relief, neighborhood code enforcement and open space acquisition project. Many of the projects funded through measure Y revenues are considered to help mitigate hazard throughout the community. In 2014 Measure Y was approved to be extended through ballot measure G, which will sunset in 2022 unless a new measure is passed to continue the collection of additional sales tax.
Reserve Funds	Yes	The City's budget and fiscal policies includes a requirement to maintain adequate fund reserves for both general and enterprise funds. The minimum reserve level is 20% of annual operating expenditures.
Building Permit Inspection and Review Fees	Yes	Fees are collected by the planning and building divisions of the community development department to inspect and review construction documents on proposed projects within the City. The collection of these fees ensures buildings are designed and constructed in a manner consistent with applicable components of the municipal code and helps the department to recover staff costs associated with review and inspection.

G.4.4 Mitigation Outreach and Partnerships

Throughout the planning process of the Multi-jurisdictional HMP, the City participated in local outreach by promoting public meetings and circulating the Public Draft of the HMP for public comment and review. Public comments have been addressed and have been incorporated into the final HMP, where applicable. To further support implementation of hazard mitigation activities, the City has established strong partnerships with its neighboring jurisdictions, San Luis Obispo County, and multiple state organizations such as the California Highway Patrol, Cal Poly, CalFire, and Caltrans to collectively address local hazards. These partnerships have been formalized through the following:

- Mutual Aid Agreements
- Voluntary Organizations Active in Disaster
- San Luis Obispo County Community Fire Sage Council
- Department Operations Centers (DOC)

The City of San Luis Obispo also coordinates with many external (local, state, federal, and private sector) agencies which have capabilities to support hazard mitigation activities. Many of these agencies participated in the hazard mitigation planning process to update this plan, including the following:

- County of San Luis Obispo – Airports
- County of San Luis Obispo – Office of Emergency Services
- County of San Luis Obispo – Public Health Department
- Cal Poly – City & Regional Planning Department

- Cal Poly – Administration and Finance
- French Hospital Medical Center
- American Red Cross
- Sierra Vista Regional Medical Center
- San Luis Coastal Unified School District
- California Highway Patrol
- Pacific Gas and Electric Company (PG&E)

G.4.5 Other Mitigation Efforts

In addition to the plan and policy resources available to the City to mitigate hazards, the City has developed or participated in several hazard mitigation programs including:

- Unreinforced Masonry Hazard Mitigation Program
- Disaster Preparedness Program
- Floodplain Management Educational Program
- San Luis Obispo Chamber of Commerce Business Continuity Planning
- County Public Health Emergency Preparedness Advisory Committee
- National Flood Insurance Program (NFIP) and FEMA Repetitive Loss Properties
- Community Wildfire Protection Program
- Greenbelt Protection Program

G.4.6 Opportunities for Enhancement

Based on the capability assessment, the City has several existing mechanisms in place that help to mitigate hazards. There are also opportunities for the City to expand or improve on these policies and programs to further protect the community. Future improvements may include providing training for staff members related to hazards or hazard mitigation grant funding in partnership with the County and Cal OES. Additional training opportunities will help to inform City staff members on how best to integrate hazard information and mitigation projects into their departments. Continuing to train City staff on mitigation and the hazards that pose a risk to the City will lead to more informed staff members who can better communicate this information to the public.

The following themes or opportunities were identified during the planning process of the 2014 LHMP:

- Actions to Prepare – While many members of the community have taken small actions to prevent damage to their home in the event of a natural hazard, only a small portion have completed larger structural items to prevent damage. The City may consider developing and implementing programs to support risk reduction activities by property owners. Using the data available as a result of the risk assessment in this HMP, the City is able to identify areas and structures with a higher risk or exposure to the identified hazards. Sharing this information with community members and evaluating opportunities to help property owners in funding risk reduction activities will increase the resiliency of San Luis Obispo.
- Awareness of Neighbor Needs – Given the high student population and regular turnover of neighbors in some neighborhoods, it can be challenging for community members to be fully aware of neighbors and their needs. Neighborhood events such as the annual community block parties are an opportunity for the City to support greater community interaction which can increase awareness of neighbors needs in the event of an emergency.

- Community or Workplace Awareness – In many cases, respondents were unaware or unsure of the hazards that may affect the community or their workplace and policies that may be in place to help respond to a natural disaster. The City can help to increase community awareness through wider promotion or participation in workshops or resources available to the community that have already been prepared by the City or volunteer organizations. The City may increase business owners' awareness of risk by providing emergency planning support, continuity of operations planning support, and potentially hosting seminars for the business community to learn about the hazard risks.
- Understanding the Extent of Damages – To better understand the extent of damages to homeowners from a natural disaster, the City could coordinate with homeowner insurance providers to track damages beyond those reported through the National Flood Insurance Program (NFIP).

G.5 Mitigation Strategy

G.5.1 Mitigation Goals and Objectives

The City of San Luis Obispo Planning Team determined the two goals from the 2014 LHMP continue to be appropriate for this plan update, with the addition of a third goal to address hazards exacerbated by the impacts of climate change. The following are the City of San Luis Obispo's 2019 mitigation goals:

- **Goal 1:** Cultivate a disaster-resistant and resilient community through implementation of risk reduction measures and increased public awareness to prepare for, respond to, and recover from natural and human-caused hazard events.
  - **Objective 1.A** Ensure that local plans, policies, and programs are consistent with the hazard information identified in the LHMP.
  - **Objective 1.B** Increase City employee capacity through SIMS and NIMS compliant training and EOC drills to identify hazards, and assist in emergency preparedness, response, and recovery.
  - **Objective 1.C** Pursue available grant funding to implement hazard mitigation efforts.
  - **Objective 1.D** Maintain critical and essential key assets to increase resiliency and minimize future damage from hazard events.
  - **Objective 1.E** Increase public awareness of hazards, emergency response, and recovery.
  - **Objective 1.F** Promote public/private partnerships to increase community resiliency.
- **Goal 2:** Reduce the severity of damage and losses due to natural and human-caused hazards.
  - **Objective 2.A** Protect and enhance, as practical, existing assets, as well as any future development, from the effects of natural and human-caused hazards.
- **Goal 3:** Prepare for and adapt to the impacts of climate change.
  - **Objective 3.A** Use, and update as needed, the best available science to estimate exposure, vulnerability, and risk of hazards as the result of climate change.
  - **Objective 3.B** Use the climate change exposure, vulnerability, and risk assessments to ensure mitigation investments, capital projects, and programs actively mitigate climate impacts.

Continued Compliance with the National Flood Insurance Program (NFIP)

The City has been an NFIP participating community since 1973 and will continue to comply with the NFIP. This includes ongoing activities such as enforcing local floodplain development regulations, including issuing permits for appropriate development in Special Flood Hazard Areas and ensuring that this development is mitigated in accordance with the regulations. This will also include periodic reviews of the floodplain ordinance to ensure that it is clear and up to date and reflects new or revised flood hazard mapping. The goals of the NFIP are to reduce

future flood damage through floodplain management and to provide people in participating communities with flood insurance. Community participation is voluntary. The City is also part of the Community Rating System (CRS), currently rated at Class 7. The goals of the CRS are to reduce flood damages to insurable property, strengthen and support the insurance aspects of the NFIP, and encourage a comprehensive approach to floodplain management. The City of San Luis Obispo maintains full compliance with the NFIP through Sections 17.84.010- 17.84.170 within Chapter 17.84 Flood Damage Prevention Regulations of the San Luis Obispo Municipal Code, which sets forth means to reduce losses from floods. These standards focus on areas located within or near the 100-year floodplain. Section 8.12.010-8.12.010 of the Municipal Code provides a mechanism for the City to require the removal of dangerous obstructions in streambeds that have the potential to obstruct water flow.

FEMA insures properties against flooding losses through the NFIP. As part of the process to reduce or eliminate repetitive flooding to structures across the United States, FEMA has developed an official Repetitive Loss Strategy. The purpose behind the national strategy is to identify, catalog, and propose mitigation measures to reduce flood losses due to the relatively few structures that represent the majority of claims from the National Flood Insurance Fund. A Repetitive Loss property is defined by FEMA as a "property for which two or more NFIP losses of at least $1,000 each have been paid within any 10-year period since 1978." The City of San Luis Obispo has two Repetitive Loss properties. As a CRS requirement, the City Public Works Department sends community outreach notifications and letters to property owners in repetitive loss areas, including the City's Mid Higuera Area, to inform residents of flooding and to offer ways in which property owners can prepare for and reduce the damage from repetitive flooding. In addition, the Public Works Department conducted storm drain improvements as part of a Capital Improvements Project that helped with flood control in the Mid Higuera Area, an area of repetitive flooding. FEMA also defines Severe Repetitive Loss properties; however, the City does not have any Severe Repetitive Loss properties.

G.5.2 Completed 2014 Mitigation Actions

During the 2019 planning process the City of San Luis Obispo Local Planning Team reviewed all the mitigation actions from the 2014 LHMP. The review indicated the City has completed one mitigation action since 2014 and made continued progress in implementing mitigation projects and building the community's resilience to disasters. Of the 29 mitigation actions identified in the 2014 LHMP, the Planning Team has completed the following action, which the Planning Team notes as being completed in January of 2017:

2.A.12 Add gas pipeline mapping to the City's GIS resources.

G.5.3 Mitigation Actions

The City of San Luis Obispo Local Planning Team identified and prioritized one new mitigation action based on the 2019 risk assessment. New and existing actions were prioritized using the process described in Section 7.2.1 of the Base Plan. The new mitigation action identifies implementation strategies, the responsible agency, potential funding, estimated cost, and implementation schedule.

Table G.19 City of San Luis Obispo's Mitigation Action Plan

ID	Hazard(s) Mitigated	Description/Background/Benefits	Lead Agency and Partners	Cost Estimate	Potential Funding	Priority	Timeline	Status/ Implementation Notes
SL.1*	Adverse Weather, Biological, Earthquake, Flood, Wildfire, Hazardous Materials	Regularly review and continue to maintain consistency between the Safety Element, Municipal Code, zoning regulations, hazard area maps, and LHMP implementation strategies. Added 10/2016: Review the implementation and impacts of SB1069 Land use zoning	Community Development /Public Works /Fire	Little to no cost	Staff Time/ Dept. Budget	Medium	1-3 years	In progress. Safety Element to be updated in 2021
SL.2	Adverse Weather, Biological, Earthquake, Flood, Wildfire, Hazardous Materials	Train all City employees including fire fighters, police officers, building inspectors, and public works and utilities staff to levels appropriate for their hazard mitigation tasks and responsibilities.	Fire	Little to no cost	Staff Time/ Dept. Budget	Medium	1-3 years	In progress. Currently updating a City-wide training matrix to ensure employees have the valid training based on their position. Once the matrix is complete the City will hold training to ensure all City employees receive appropriate training and certifications. Utilize new Human Capital Management software to ensure new employees receive training during onboarding.
SL.3	Adverse Weather, Earthquake, Flood,	Provide training for City staff who apply its building regulations and planning standards, emphasizing the lessons learned in locations that have experienced disasters	Fire / Community Development /Public Works	Little to no cost	Staff Time/ Dept. Budget	Medium	1 yr.	In progress. Additional modeling has been completed. The results of this modeling

ID	Hazard(s) Mitigated	Description/Background/Benefits	Lead Agency and Partners	Cost Estimate	Potential Funding	Priority	Timeline	Status/ Implementation Notes
	Wildfire, Hazardous Materials							indicated that a more expansive model should be created which is underway.
SL.4	Adverse Weather, Biological, Earthquake, Flood, Wildfire, Hazardous Materials	Conduct disaster-preparedness exercises for the types of hazards discussed in this LHMP.	Fire	Little to no cost	Staff Time/ Dept. Budget	Medium	1 yr.	In progress. Latest Public Point of Distribution drill held at the City of San Luis Obispo was on 10/18/2017. October 2018 Distribution took place on 10/21/18 in Arroyo Grande and Atascadero (the two locations exercised were intended to cover the whole county, including SLO). City plans to continue participating in exercises as allowed.
SL.5	Adverse Weather, Biological, Earthquake, Flood, Wildfire, Hazardous Materials	Establish ongoing Disaster Service Worker training program to include training for City staff to deal with emergencies as well as contribute to risk reduction measures.	Fire	Little to no cost	Staff Time/ Dept. Budget	Medium	1 yr.	In progress
SL.6	Adverse Weather, Biological, Earthquake,	Review funding opportunities and establish centralized internal procedures to coordinate efforts for securing funds that support risk reduction measures.	Admin. - Finance	Little to no cost	General Funds/ FEMA HMA	High	1 yr.	In progress. Spring of 2019. The City released an RFP to hire a grant writing firm to seek

ID	Hazard(s) Mitigated	Description/Background/Benefits	Lead Agency and Partners	Cost Estimate	Potential Funding	Priority	Timeline	Status/ Implementation Notes
	Flood, Wildfire, Hazardous Materials							funding opportunities to leverage community improvement. This includes risk reduction measures.
SL.7	Adverse Weather, Biological, Earthquake, Flood, Wildfire, Hazardous Materials	Identify hazard mitigation projects eligible for grants as part of the Capital Improvement Program planning process.	Public Works/ Utilities	Little to no cost	Cal OES /FEMA: Up to $2 Million at WRRF	Medium	3-5 years	In progress. The Mid-Higuera Bypass project is currently being designed. Once design is complete, grant application work will begin. Utilities (new) - A $2 million grant application has been submitted with CalOES for flood proofing mission critical facilities related the Water Resource Recovery Facility.
SL.8	Adverse Weather, Earthquake, Flood, Hazardous Materials	Assess structural capacity of key assets (including bridges) and pursue infrastructure improvements as necessary.	Public Works/ Community Development	Less than $10,000	General Fund	Medium	3-5 years	In progress. As part of 2019-21 financial plan process the City has reviewed and prioritized assets maintenance and replacement. This prioritized asset list will be presented to the City Council for funding consideration.

ID	Hazard(s) Mitigated	Description/Background/Benefits	Lead Agency and Partners	Cost Estimate	Potential Funding	Priority	Timeline	Status/ Implementation Notes
SL.9	Adverse Weather, Biological, Earthquake, Flood, Wildfire, Hazardous Materials	Establish a funded program or mechanism to distribute public information regarding risk reduction activities and projects at City-sponsored events. Identify materials available for use at public education workshops. Coordinate messaging with external agencies such as the American Red Cross and Volunteer Organizations Active in Disasters.	Fire	Little to no cost	General Fund	Medium	1-2 years	In progress. Fire Prevention Open House occurred on and 10/14/17 and 10/13/18. Presentations at Cal Poly orientations for students and their parents. Department is developing new disaster preparedness neighborhood presentation program and employee disaster worker preparedness beginning FY2020.
SL.10	Adverse Weather, Biological, Earthquake, Flood, Wildfire, Hazardous Materials	Support the efforts and education of people with access and functional needs to prepare for disasters.	Fire	Little to no cost	Staff Time/ Dept. Budget	Medium	1 yr.	In progress
SL.11	Adverse Weather, Biological, Earthquake, Flood, Wildfire, Hazardous Materials	Educate the community on individual preparedness and response to deal with emergencies at times when professional responders would be overwhelmed.	Fire	Little to no cost	General Fund	Medium	1-2 years	In progress. See SL.9 comments

ID	Hazard(s) Mitigated	Description/Background/Benefits	Lead Agency and Partners	Cost Estimate	Potential Funding	Priority	Timeline	Status/ Implementation Notes
SL.12	Adverse Weather, Biological, Earthquake, Flood, Wildfire, Hazardous Materials	Offer seminars and/or resources to assist local / small businesses in planning for continuity of operations and emergency preparedness.	Fire	Little to no cost	General Fund	Medium	1-2 years	In progress. Fire department staff attend the weekly meetings at the Downtown Association and has updated a fire safety checklist for festival vendors in the downtown, provided education to DTA staff.
SL.13*	Adverse Weather, Biological, Earthquake, Flood, Wildfire, Hazardous Materials	Continue to enforce local codes, ordinances, and standards pertaining to safe development and resiliency to natural and human-caused hazards.	Community Development /Fire	Little to no cost	General Funds/ FEMA HMA	High	1-2 years	In progress. As of April of 2019, permits have been issued on all URM structures. All have been finalized/closed out except for four properties, one of which is currently being retrofitted and remodeled (SLO Brew at 736 Higuera). Permits have been issued on two others (1029 and 1035 Chorro) but have not been finalized/closed out in permitting system. Current status on these is currently being researched. Records indicate the last of the four has

ID	Hazard(s) Mitigated	Description/Background/Benefits	Lead Agency and Partners	Cost Estimate	Potential Funding	Priority	Timeline	Status/ Implementation Notes
								completed Level A strengthening, but still has an outstanding permit - permit records and status is currently being researched.
SL.14	Earthquake	Develop and provide managers of mobile home parks with information on how to improve the seismic performance of mobile homes and awareness of flood risk.	Community Development	Less than $10,000	Staff Time/ Dept. Budget	Medium	2-3 yrs.	In progress. Still in planning process; will be incorporated into Safety Element)
SL.15	Earthquake, Wildfire, Adverse Weather	The Secure and Resilient Electricity action would plan for energy independence and security at critical facilities throughout the City. By providing grid independent onsite renewable energy, storage, and energy management systems, and by providing a planning and financing framework for future investments, the City will be able maintain uninterrupted operations during times of electricity or natural gas grid instability.	Fire; police; public works; utilities; administration; parks and recreation	$200k to $500k;	California Energy Commission; Monterey Bay Community Power	High	3-5 yrs.	New Benefits: A resilient electricity system (solar and storage) at critical facilities ensure ongoing operations during significant disaster events and ensures viability of electric evacuation vehicles, City fleet, and transit vehicles.
SL.16	Earthquake	Continue to implement the Unreinforced Masonry Hazard Mitigation Plan and strengthen buildings identified in Levels A and B.	Community Development / Fire	$10,000 to $50,000	General Funds/FEMA HMA	Medium	2-3 yrs.	In progress. See SL.13 comments
SL.17	Flood	Develop and carry out environmentally sensitive flood reduction programs.	Administration - Natural Resources	$10,000 to $50,000	FEMA HMA	Medium	2-3 yrs.	In progress. The City continues to assess high priority erosion and sedimentation sites identified in the Waterway Management

ID	Hazard(s) Mitigated	Description/Background/Benefits	Lead Agency and Partners	Cost Estimate	Potential Funding	Priority	Timeline	Status/ Implementation Notes
								Plan and provide maintenance or restoration as appropriate; review City owned property and property with drainage easements covering private properties and conduct vegetation management/removal as needed; and, complete silt removal projects at key drainage locations on a rotating basis. Assess and remove as necessary undesirable trees from creek system with tree/landscape contractors. Natural Resources Program staff manages vegetation trimming or removal to maintain the riparian corridors. The EIR for the Mid-Higuera Bypass project was adopted and the 95% plans are nearing completion.
SL.18	Haz Mat	Continue requiring businesses that use, store, or transport hazardous materials to ensure	Fire	Little to no cost	Certified Unified Program	High	Annual implementation	Fire Department CUPA Participating Agency completes 100% of

ID	Hazard(s) Mitigated	Description/Background/Benefits	Lead Agency and Partners	Cost Estimate	Potential Funding	Priority	Timeline	Status/ Implementation Notes
		that adequate measures are taken to protect public health and safety.			Agency (CUPA)			permitted facility inspections annually to assure compliance with the fire code and state regulations. The fire department is subject to audit by the County CUPA and has passed all recent audits.
SL.19	Haz Mat	Coordinate with allied agencies to prepare for hazardous materials incidents. Reference City EOP and Training and Exercise Plan; Maintain participation in County hazardous materials team	Fire	Less than $10,000	Certified Unified Program Agency (CUPA)	Medium	1 yr.	In progress. City Emergency Operations Plan is currently set to be updated. City issued RFP to hire consultant to update plan in Spring of 2019 and is expected to have a completed plan with associated training in Winter of 2020.
SL.20	Haz Mat	Maintain City's web site and other outlets with information regarding the safe handling and disposal of household chemicals.	Fire	Little to no cost	Staff Time/Dept. Budget	Medium	1 yr.	In progress/ongoing
SL.21	Wildfire	Enhance partnerships with CalFire and the local Fire Safe Council for fuel reduction efforts.	Fire	Little to no cost	Cal Fire / FireSafe Grants	Medium	1 yr.	In progress. As of March of 2019, The City of San Luis Obispo is now a recognized focus group and voting board member on the Fire Safe Council

ID	Hazard(s) Mitigated	Description/Background/Benefits	Lead Agency and Partners	Cost Estimate	Potential Funding	Priority	Timeline	Status/ Implementation Notes
SL.22	Wildfire, Drought	Support ongoing urban forest maintenance and tree trimming programs.	Public Works - Urban Forestry / Fire / Parks & Recreation / Natural Resources	Less than $10,000	General Fund	Medium	1-2 yrs	In progress. Urban Forest Services continues regular maintenance which includes pruning and dead tree removal in City Streets, Parks and other City owned properties.
SL.23	Wildfire	Continue to conduct current fuel management programs and investigate and apply new and emerging fuel management techniques.	Fire/Natural Resources Director/Parks and Recreation	$10,000 to $50,000	FEMA and Fire Safe Council grants	High	1 yr.	In progress. The Natural Resource Manager has taken lead on all fuel management funds and projects in the City Open Space. Additional grant funding has been obtained to augment allocated fuel management budget.
SL.24	Wildfire	Require an enhanced fire protection plan in Local Very High Fire Severity Zones.	Fire	Less than $10,000	Staff Time/Dept. Budget	Medium	1 yr.	In progress.
SL.25	Biological	Continue offering free flu vaccines to City employees.	Human Resources	Less than $10,000	County Program	Medium	Annual implementation	In progress. Continued participation in the County Public Health Point of Distribution program.
SL.26	Biological	Educate and encourage City employees to maintain a healthy work environment by utilizing sick and other leave benefits to avoid coming to work when sick or contagious and encouraging employees to develop plans for	Human Resources	Little to no cost	General Fund	Medium	Annual implementation	In progress. Include in ongoing wellness, benefits, and leave of absence training,

ID	Hazard(s) Mitigated	Description/Background/Benefits	Lead Agency and Partners	Cost Estimate	Potential Funding	Priority	Timeline	Status/ Implementation Notes
		caring for sick family members taking care of ill family members.						education, and general communications.

G.6 Implementation and Maintenance

Moving forward, the City will use the mitigation action table in the previous section to track progress on implementation of each project. As illustrated in the completed actions table (Table G.19) much progress has been made since the plan was originally developed. Implementation of the plan overall is discussed in Chapter 8 in the Base Plan.

A.1.1 Incorporation into Existing Planning Mechanisms

The information contained within this plan, including results from the Vulnerability Assessment and the Mitigation Strategy, will be used by the City to help inform updates and the development of local plans, programs and policies. The Engineering Division may utilize the hazard information when implementing the City's Community Investment Program and the Planning and Building Divisions may utilize the hazard information when reviewing a site plan or other type of development applications. The City will also incorporate this LHMP into the Safety Element of their General Plan, as recommended by Assembly Bill (AB) 2140. This enables the City of San Luis Obispo to qualify for additional funding through the California Disaster Assistance Act should the State determine there to be a need and/or additional funding to be available.

California State Assembly Bill 162 requires the General Plan Land Use Element to identify existing and proposed uses and flood mitigation strategies within the 100-year floodplain. The HMP should be referenced and used to inform the Land Use Element in order to meet this requirement. California State Senate Bill 1241 requires the Safety Element to incorporate wildfire hazard considerations for State Responsibility Areas (SRAs) and lands within very high fire severity zones. These areas are already depicted within the Safety Element and this Annex. They will be reviewed and updated as appropriate during the future updates to both of these documents. Whenever there are substantive changes to the County HMP or this Annex, those involved in other relevant planning mechanisms in the City will be included in the review process.

As stated in Chapter 8 of the Base Plan, the HMPC representatives from the City of San Luis Obispo will report on efforts to integrate the hazard mitigation plan into local plans, programs and policies and will report on these efforts at the annual HMPC plan review meeting.

A.1.2 Monitoring, Evaluation and Updating the Plan

The City will follow the procedures to Monitor, review, and update this plan in accordance with San Luis Obispo County as outlined in Chapter 8 of the Base Plan. The City will continue to involve the public in mitigation, as described in Section 8.3 of the Base Plan. The Administrative Analyst in the City Fire Department will be responsible for representing the City in the County HMPC, and for coordination with the City LPT, including relevant staff and departments during plan updates. The City realizes it is important to review the plan regularly and update it every five years in accordance with the Disaster Mitigation Act Requirements as well as other State of California requirements. In order to ensure that regular review and update of the HMP occurs, the LPT will convene annually to review and discuss mitigation progress and any new concerns that may benefit from mitigation activities. During each annual review, the LPT will review each goal and objective to evaluate its:

- Relevance to the evolving setting and needs of the City of San Luis Obispo
- Consistency with changes in State and Federal policy
- Relevance to current and expected conditions

The LPT will review the Risk Assessment portion of the plan to determine if the information should be updated or modified. The parties responsible for various implementation should be updated or modified. The parties responsible for various implantation actions will report on:

- Status of their projects
- Implementation processes that have worked well
- Any difficulties encountered
- How coordination efforts are proceeding
- Which strategies should be revised