Annex D City of Plymouth

D.1 Introduction

This Annex details the hazard mitigation planning elements specific to the City of Plymouth, a previously participating jurisdiction to the 2014 Amador County Local Hazard Mitigation Plan (LHMP) Update. This Annex is not intended to be a standalone document, but appends to and supplements the information contained in the Base Plan document. As such, all sections of the Base Plan, including the planning process and other procedural requirements apply to and were met by the City. This Annex provides additional information specific to Plymouth, with a focus on providing additional details on the risk assessment and mitigation strategy for this community.

D.2 Planning Process

As described above, Plymouth followed the planning process detailed in Chapter 3 of the Base Plan. In addition to providing representation on the Amador County Hazard Mitigation Planning Committee (HMPC), the City formulated their own internal planning team to support the broader planning process requirements. Internal planning participants, their positions, and how they participated in the planning process are shown in Table D-1. Additional details on plan participation and City representatives are included in Appendix A.

Table D-1 City of Plymouth – Planning Team

<table>
<thead>
<tr>
<th>Name</th>
<th>Position/Title</th>
<th>How Participated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cathleen Johnson</td>
<td>Deputy Director of Public Works</td>
<td>All aspects</td>
</tr>
</tbody>
</table>

Coordination with other community planning efforts is paramount to the successful implementation of this LHMP Update. This section provides information on how the City integrated the previously approved 2014 Plan into existing planning mechanisms and programs. Specifically, the City incorporated into or implemented the 2014 LHMP through other plans and programs shown in Table D-2.

Table D-2 2014 LHMP Incorporation

<table>
<thead>
<tr>
<th>Planning Mechanism 2014 LHMP Was Incorporated/Implemented In.</th>
<th>Details: How was it incorporated?</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Plan</td>
<td>LHMP was incorporated into the Safety Element</td>
</tr>
</tbody>
</table>
D.3 Community Profile

The community profile for the City of Plymouth is detailed in the following sections. Figure D-1 displays a City map and the location of Plymouth within Amador County.
Figure D-1 City of Plymouth
D.3.1. Geography and Climate

The City of Plymouth lies on flat to gently rolling terrain located at the lower elevations of the Western Slope of California’s Sierra Nevada. The benchmark elevation at the City is 1,086 feet. Changes in elevation across town vary less than one hundred feet. The City is traversed by several seasonal streams. They join together southwest of town and become the westward flowing Little Indian Creek. The climate is similar to the climate of other valley communities in Amador County, as discussed in the Base Plan.

D.3.2. History

Plymouth dates from 1852 when mining prospectors established a camp (Pokerville), before moving a mile to the permanent Puckerville in 1855. The name Plymouth was used for the first time a year later for a quartz mill, while the settlement itself became Plymouth in 1871, named after the Plymouth Mine Company, a gold mining concern. The last of the mines closed in the late 1940s, and today, Plymouth City, the "Gateway to the Shenandoah Valley", is renowned for its wine production.

D.3.3. Economy

US Census estimates show economic characteristics for the City of Plymouth. These are shown in Table D-3 and Table D-4. Mean household income in the City was $67,995. Median household income in the City was $61,591.

Table D-3 City of Plymouth – Civilian Employed Population 16 years and Over

<table>
<thead>
<tr>
<th>Industry</th>
<th>Estimated Employment</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture, forestry, fishing and hunting, and mining</td>
<td>47</td>
<td>9.0%</td>
</tr>
<tr>
<td>Construction</td>
<td>106</td>
<td>20.2%</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>67</td>
<td>12.8%</td>
</tr>
<tr>
<td>Wholesale trade</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>Retail trade</td>
<td>37</td>
<td>7.0%</td>
</tr>
<tr>
<td>Transportation and warehousing, and utilities</td>
<td>12</td>
<td>2.3%</td>
</tr>
<tr>
<td>Information</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>Finance and insurance, and real estate and rental and leasing</td>
<td>2</td>
<td>0.4%</td>
</tr>
<tr>
<td>Professional, scientific, and management, and administrative and waste management services</td>
<td>27</td>
<td>5.1%</td>
</tr>
<tr>
<td>Educational services, and health care and social assistance</td>
<td>99</td>
<td>18.9%</td>
</tr>
<tr>
<td>Arts, entertainment, and recreation, and accommodation and food services</td>
<td>60</td>
<td>11.4%</td>
</tr>
<tr>
<td>Other services, except public administration</td>
<td>35</td>
<td>6.7%</td>
</tr>
<tr>
<td>Public administration</td>
<td>33</td>
<td>6.3%</td>
</tr>
</tbody>
</table>

Table D-4 City of Plymouth – Income and Benefits

<table>
<thead>
<tr>
<th>Income Bracket</th>
<th>Population</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;$10,000</td>
<td>7</td>
<td>2.2%</td>
</tr>
<tr>
<td>$10,000 – $14,999</td>
<td>5</td>
<td>1.6%</td>
</tr>
<tr>
<td>$15,000 - $24,999</td>
<td>47</td>
<td>14.6%</td>
</tr>
<tr>
<td>$25,000 – $34,999</td>
<td>40</td>
<td>12.4%</td>
</tr>
<tr>
<td>$35,000 – $49,999</td>
<td>42</td>
<td>13.0%</td>
</tr>
<tr>
<td>$50,000 – $74,999</td>
<td>53</td>
<td>16.5%</td>
</tr>
<tr>
<td>$75,000 – $99,999</td>
<td>58</td>
<td>18.0%</td>
</tr>
<tr>
<td>$100,000 – $149,999</td>
<td>51</td>
<td>15.8%</td>
</tr>
<tr>
<td>$150,000 – $199,999</td>
<td>19</td>
<td>5.9%</td>
</tr>
<tr>
<td>$200,000 or more</td>
<td>0</td>
<td>0.0%</td>
</tr>
</tbody>
</table>


Plymouth’s largest employers are the 49 Village RV Resort, Pokerville Market and the numerous wineries located in the unincorporated area of Plymouth. Plymouth is home to a large senior/retired population, as well as winery agriculture workers. It is also the hub of Northwestern Amador County providing necessary essential services such as gas and groceries to the area. It relies heavily on the wine tourism market.

D.3.4. Population

The California Department of Finance estimated the January 1, 2019 total population for the City of Plymouth was 1,012.

D.4 Hazard Identification

Plymouth’s identified the hazards that affect the City and summarized their location, extent, frequency of occurrence, potential magnitude, and significance specific to Plymouth (see Table D-5).
### Table D-5 City of Plymouth—Hazard Identification Assessment

<table>
<thead>
<tr>
<th>Hazard</th>
<th>Geographic Extent</th>
<th>Likelihood of Future Occurrences</th>
<th>Magnitude/Severity</th>
<th>Significance</th>
<th>Climate Change Influence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural Hazards: Severe Weather/Insect - Pests</td>
<td>Limited</td>
<td>Unlikely</td>
<td>Negligible</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Aquatic Invasive Species</td>
<td>Limited</td>
<td>Unlikely</td>
<td>Negligible</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Avalanche</td>
<td>Limited</td>
<td>Unlikely</td>
<td>Negligible</td>
<td>Low</td>
<td>Medium</td>
</tr>
<tr>
<td>Climate Change</td>
<td>Extensive</td>
<td>Likely</td>
<td>Limited</td>
<td>Medium</td>
<td>–</td>
</tr>
<tr>
<td>Dam Failure</td>
<td>Limited</td>
<td>Unlikely</td>
<td>Negligible</td>
<td>Low</td>
<td>Medium</td>
</tr>
<tr>
<td>Drought &amp; Water shortage</td>
<td>Extensive</td>
<td>Occasional</td>
<td>Negligible</td>
<td>Medium</td>
<td>High</td>
</tr>
<tr>
<td>Earthquake (large damaging/small)</td>
<td>Limited</td>
<td>Unlikely</td>
<td>Negligible</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Floods: 1%/0.2% annual chance</td>
<td>Limited</td>
<td>Unlikely</td>
<td>Negligible</td>
<td>Low</td>
<td>Medium</td>
</tr>
<tr>
<td>Floods: Localized Stormwater</td>
<td>Limited</td>
<td>Unlikely</td>
<td>Limited</td>
<td>Low</td>
<td>Medium</td>
</tr>
<tr>
<td>Landslide, Mudslide, Debris Flow</td>
<td>Limited</td>
<td>Unlikely</td>
<td>Negligible</td>
<td>Low</td>
<td>Medium</td>
</tr>
<tr>
<td>Levee Failure</td>
<td>Limited</td>
<td>Unlikely</td>
<td>Negligible</td>
<td>Low</td>
<td>Medium</td>
</tr>
<tr>
<td>Severe Weather: Extreme Heat</td>
<td>Extensive</td>
<td>Likely</td>
<td>Limited</td>
<td>Medium</td>
<td>High</td>
</tr>
<tr>
<td>Severe Weather: Heavy Rains and Storms (Hail, Lightning)</td>
<td>Limited</td>
<td>Unlikely</td>
<td>Limited</td>
<td>Low</td>
<td>Medium</td>
</tr>
<tr>
<td>Severe Weather: High Winds and Tornadoes</td>
<td>Limited</td>
<td>Unlikely</td>
<td>Negligible</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Severe Weather: Winter Storms and Freeze</td>
<td>Limited</td>
<td>Unlikely</td>
<td>Negligible</td>
<td>Low</td>
<td>Medium</td>
</tr>
<tr>
<td>Wildfire</td>
<td>Limited</td>
<td>Occasional</td>
<td>Limited</td>
<td>Medium</td>
<td>High</td>
</tr>
</tbody>
</table>

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

**Likelihood 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**  
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

**Climate Change Influence**  
Low: minimal potential impact  
Medium: moderate potential impact  
High: widespread potential impact
D.5 Hazard Profile and Vulnerability Assessment

The intent of this section is to profile Plymouth’s hazards and assess the City’s vulnerability separate from that of the Planning Area as a whole, which has already been assessed in Sections 4.2 Hazard Profiles and 4.3 Vulnerability Assessment in the Base Plan. The hazard profiles in the Base Plan discuss overall impacts to the Planning Area and describes the hazard problem description, hazard location and extent, magnitude/severity, previous occurrences of hazard events and the likelihood of future occurrences. Hazard profile information specific to the City is included in this Annex. This vulnerability assessment analyzes the property, population, critical facilities, and other assets at risk to hazards ranked of medium or high significance specific to the City and also includes a vulnerability assessment to the three primary hazards to the State of California: earthquake, flood, and wildfire. For more information about how hazards affect the County as a whole, see Chapter 4 Risk Assessment in the Base Plan.

D.5.1. Hazard Profiles

Each hazard vulnerability assessment in Section D.5.3, includes a hazard profile/problem description as to how each medium or high significant hazard affects the City and includes information on past hazard occurrences and the likelihood of future hazard occurrence. The intent of this section is to provide jurisdictional specific information on hazards and further describes how the hazards and risks differ across the Amador County Planning Area.

D.5.2. Vulnerability Assessment and Assets at Risk

This section identifies Plymouth’s total assets at risk, including values at risk, populations at risk, critical facilities and infrastructure, natural resources, and historic and cultural resources. Growth and development trends are also presented for the community. This data is not hazard specific, but is representative of total assets at risk within the community.

Values at Risk

The following data from the Amador County Assessor’s Office is based on the 12/31/2018 Assessor’s data. The methodology used to derive property values is the same as in Section 4.3.1 of the Base Plan. This data should only be used as a guideline to overall values in the County, as the information has some limitations. The most significant limitations are created by Proposition 13 and the Williamson Act as detailed in the Base Plan. With respect to 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 most likely low and does not reflect current market value of properties within the County. It is also important to note, 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. However, depending on the type of hazard and impact of any given hazard event, land values may be adversely affected; thus, land values are included as appropriate. Table D-6 shows the 12/31/2018 Assessor’s values and content replacement values (e.g., the values at risk) broken down by property use for the City.
**Table D-6 City of Plymouth – Total Values at Risk by Property Use**

<table>
<thead>
<tr>
<th>Property Use</th>
<th>Total Parcel Count</th>
<th>Improved Parcel Count</th>
<th>Total Land Value</th>
<th>Improved Structure Value</th>
<th>Other Value</th>
<th>Estimated Contents Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural</td>
<td>39</td>
<td>9</td>
<td>$7,533,031</td>
<td>$2,225,033</td>
<td>$2,225,033</td>
<td>$11,983,097</td>
</tr>
<tr>
<td>Commercial</td>
<td>61</td>
<td>48</td>
<td>$10,901,341</td>
<td>$17,290,621</td>
<td>$17,290,621</td>
<td>$45,482,583</td>
</tr>
<tr>
<td>Industrial</td>
<td>0</td>
<td>0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>32</td>
<td>0</td>
<td>$68,736</td>
<td>$0</td>
<td>$0</td>
<td>$68,736</td>
</tr>
<tr>
<td>Residential</td>
<td>441</td>
<td>369</td>
<td>$31,049,959</td>
<td>$47,073,163</td>
<td>$23,536,580</td>
<td>$101,659,702</td>
</tr>
<tr>
<td>Unknown</td>
<td>5</td>
<td>0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td><strong>City of Plymouth Total</strong></td>
<td>578</td>
<td>426</td>
<td><strong>$49,553,067</strong></td>
<td><strong>$66,588,817</strong></td>
<td><strong>$43,052,234</strong></td>
<td><strong>$159,194,118</strong></td>
</tr>
</tbody>
</table>

Source: Amador County 12/31/2018 Parcel/Assessor’s Data

**Critical Facilities and Infrastructure**

Critical facilities and infrastructure are those buildings and infrastructure that are crucial to a community. Should these be damaged, it makes it more difficult for the community to respond to and recover from a disaster. For purposes of this plan, a critical facility is defined as:

*Any facility, including without limitation, a structure, infrastructure, property, equipment or service, that if adversely affected during a hazard event may result in severe consequences to public health and safety or interrupt essential services and operations for the community at any time before, during and after the hazard event.*

A critical facility is classified by the following categories: (1) Essential Services Facilities, (2) At-Risk Populations Facilities, and (3) Hazardous Materials Facilities, as discussed in Section 4.3.1 of the Base Plan.

An inventory of critical facilities in the City of Plymouth from Amador County GIS is shown on Figure D-2. Table D-7 gives summary information about the critical facilities in the City. Table D-8 details the facility categories and breaks them down by facility type. Details of critical facility definition, type, name, address, and jurisdiction by hazard area or zone are listed in Appendix F. The critical facility inventory and associated maps for the City only include the first two categories of facility types; a GIS layer of Hazardous Materials Facilities was not available.
Figure D-2 City of Plymouth – Critical Facilities
### Table D-7 City of Plymouth – Critical Facility Summary

<table>
<thead>
<tr>
<th>Critical Facility Category</th>
<th>Facility Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Essential Services</td>
<td>9</td>
</tr>
<tr>
<td>At Risk Population</td>
<td>1</td>
</tr>
<tr>
<td>City of Plymouth Total</td>
<td>10</td>
</tr>
</tbody>
</table>

Source: Amador County GIS

### Table D-8 City of Plymouth – Critical Facilities by Facility Category and Type

<table>
<thead>
<tr>
<th>Critical Facility Category</th>
<th>Facility Type</th>
<th>Facility Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Essential Services</td>
<td>Bridge</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Clinic</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>EMS Station</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Evacuation Shelter</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Fire Station</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Library</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Post Office</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Power Substation</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Public Administration Building</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>9</strong></td>
</tr>
</tbody>
</table>

| At Risk Population         | School                                     | 1              |
|                            | **Total**                                  | **1**          |

| City of Plymouth Total     | **Total**                                  | **10**         |

Source: Amador County GIS

### Natural Resources

Natural resources are unique to the City and are difficult to replace. Should a natural disaster occur, these species and locations are at risk.

Plymouth is located in the Foothill Belt or Upper Sonoran Zone. It is a region that runs north and south along the foothills of the Sierra Nevada that is characterized by digger pine, interior live oak, blue oak, and various types of chaparral. A diverse group of wildlife species occur within the City and immediate area, due primarily to the variety of habitat types. Many of the wildlife species found are year-round residents, while others are migratory. Examples of wildlife found in the area include:

- **Reptiles and amphibians.** Garter snake, king snake, rattle snake, gopher snake, racers, western fence lizard, alligator lizard, western skink, slender salamander, arboreal salamander, western toad, California newt, and California tree frog.
- **Birds.** Scrub jay, Stellar’s jay, rufous-sided towhee, sparrows, vireos, warblers, wrens, bluebird, western tanager, varied thrush, whitebreasted nuthatch, plain titmouse, acorn woodpecker, northern flicker, great horned owl, northern oriole, red-tailed hawk, American kestrel, wild turkey, and quail.
Mammals. Mule deer, jack rabbit, bobcat, red fox, grey fox, mountain lion, black bear, deer mouse, California vole, Botta’s pocket gopher, ground squirrel, western grey squirrel, striped skunk, raccoon, opossum, and porcupine.

Special status species are those plants and animals listed as rare, threatened, or endangered by the state or Federal governments, species designated as candidates for inclusion in those listings, and species categorized as California Species of Special Concern.

There are wetlands located in the City. These wetlands have been mapped and tabulated. Figure D-3 shows the wetlands locations in the City. Table D-9 delineates the types, counts, and acreages of wetlands in the City.
Figure D-3 City of Plymouth – Wetland Locations
Table D-9 City of Plymouth – Wetland Types, Counts, and Acreages

<table>
<thead>
<tr>
<th>Wetlands Area Type</th>
<th>Wetlands Count</th>
<th>Wetlands Area (in Acres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshwater Emergent Wetland</td>
<td>35</td>
<td>19.80</td>
</tr>
<tr>
<td>Freshwater Forested/Shrub Wetland</td>
<td>6</td>
<td>3.23</td>
</tr>
<tr>
<td>Freshwater Pond</td>
<td>19</td>
<td>8.40</td>
</tr>
<tr>
<td>Lake</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Riverine</td>
<td>19</td>
<td>9.75</td>
</tr>
<tr>
<td><strong>Plymouth Total</strong></td>
<td><strong>79</strong></td>
<td><strong>41.18</strong></td>
</tr>
</tbody>
</table>

Source: US Fish and Wildlife Service

Historic and Cultural Resources

Historic and cultural resource are difficult to replace, and special care is needed when rebuilding or improvements are necessary. Should a natural disaster occur, these properties and locations are at risk.

The City of Plymouth has a stock of historically significant homes, public buildings, and landmarks. To inventory these resources, the HMPC collected information from a number of sources. The California Department of Parks and Recreation Office of Historic Preservation (OHP) was the primary source of information. OHP administers the National Register of Historic Places, the California Register of Historical Resources, California Historical Landmarks, and the California Points of Historical Interest programs. Each program has different eligibility criteria and procedural requirements. These requirements are detailed in Section 4.3.1 of the Base Plan. Table D-10 lists the historical buildings in the City.

Table D-10 Amador County Planning Area – Historical Resources

<table>
<thead>
<tr>
<th>Resource Name (Plaque Number)</th>
<th>National Register</th>
<th>State Landmark</th>
<th>Point of Interest</th>
<th>Date Listed</th>
<th>City/Community</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plymouth Trading Post (470)</td>
<td></td>
<td>X</td>
<td></td>
<td>8/30/1950</td>
<td>Plymouth</td>
</tr>
<tr>
<td>D’Agostini Winery (762)</td>
<td></td>
<td>X</td>
<td></td>
<td>4/28/1961</td>
<td>Plymouth</td>
</tr>
</tbody>
</table>

Source: California Department of Parks and Recreation Office of Historic Preservation, http://ohp.parks.ca.gov/

It should be noted that these lists may not be complete, as they may not include those currently in the nomination process and not yet listed. Additionally, as defined by the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA), any property over 50 years of age is considered a historic resource and is potentially eligible for the National Register. Thus, in the event that the property is to be altered, or has been altered, as the result of a major federal action, the property must be evaluated under the guidelines set forth by CEQA and NEPA. Structural mitigation projects are considered alterations for the purpose of this regulation.

Growth and Development Trends

As part of the planning process, the HMPC looked at changes in growth and development, both past and future, and examined these changes in the context of hazard-prone areas, and how the changes in growth and development affect loss estimates and vulnerability over time. Information from the City of Plymouth
General Plan Housing Element, the California Department of Finance, the US Census Bureau form the basis of this discussion.

Historic Population Trends and Current Population

Population growth can increase the number of people living in hazard prone areas. Plymouth has generally seen steady growth. Plymouth has seen growth rates as shown in Table D-11.

Table D-11 City of Plymouth – Population Changes Since 1950

<table>
<thead>
<tr>
<th>Year</th>
<th>Population</th>
<th>Change</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>1950</td>
<td>382</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>1960</td>
<td>489</td>
<td>107</td>
<td>28.0%</td>
</tr>
<tr>
<td>1970</td>
<td>501</td>
<td>12</td>
<td>2.5%</td>
</tr>
<tr>
<td>1980</td>
<td>699</td>
<td>198</td>
<td>39.5%</td>
</tr>
<tr>
<td>1990</td>
<td>811</td>
<td>112</td>
<td>16.0%</td>
</tr>
<tr>
<td>2000</td>
<td>890</td>
<td>79</td>
<td>20.8%</td>
</tr>
<tr>
<td>2010(^1)</td>
<td>1,005</td>
<td>115</td>
<td>2.6%</td>
</tr>
<tr>
<td>2019(^2)</td>
<td>1,012</td>
<td>7</td>
<td>0.7%</td>
</tr>
</tbody>
</table>

Source: \(^1\)US Census Bureau, \(^2\)California Department of Finance

Special Populations and Disadvantaged Communities

There are certain populations in the City that are at greater risk to hazards, due to circumstances beyond their control. These populations in the City present a unique challenge when natural hazards arise. The City noted a few special populations that exist in the City:

- 21.3% of the population speaks Spanish. Many of these are agricultural workers. This language barrier presents unique challenges.
- 12.9% of adults are senior citizens. Some (but not all) lack mobility. This can cause issues during evacuations. This can also cause challenges during times of Public Safety Power Shutdowns (PSPS).

Land Use

State planning law requires that the land use element of a general plan include a statement of the standard population density, building intensity, and allowed uses for the various land use designations in the plan (Government Code Section 65302(a)). The City’s land use designations are generally described below and mapped on the Land Use Diagram (Figure D-4). The Plymouth Municipal Code provides detailed land use and development standards for development.

As a guide for land development and public improvement requirements, the plan depicted in Figure D-4, expresses the pattern and character of future development. It is independent of a growth plan as it does not indicate the timing or sequencing of development. Instead, this is a matter of local decision making that is to be determined through implementation of this plan. Future land use for the City of Plymouth from the City of Plymouth General Plan Land Use Element is shown on Figure D-4.
Figure D.4 City of Plymouth – Land Use Diagram

Source: City of Plymouth General Plan Land Use Element
Development since 2014 Plan

As discussed in Section 4.3.1 of the Base Plan, future development has occurred in the City since the last plan. Some of this has occurred in hazard prone areas. The City Building Department tracked total building permits issued since 2014 for the City. These are tracked by total development, property use type, and hazard risk area. These are shown in Table D-12 and Table D-13.

Table D-12 City of Plymouth – Total Development Since 2014

<table>
<thead>
<tr>
<th>Property Use</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural</td>
<td>0</td>
<td>0</td>
<td>21</td>
<td>19</td>
<td>13</td>
</tr>
<tr>
<td>Commercial</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Industrial</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Residential</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Unknown</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>0</td>
<td>0</td>
<td>21</td>
<td>19</td>
<td>13</td>
</tr>
</tbody>
</table>

Source: City of Plymouth Building Department

Table D-13 City of Plymouth – Development in Hazard Areas since 2014

<table>
<thead>
<tr>
<th>Property Use</th>
<th>1% Annual Chance Flood</th>
<th>Landslide Susceptibility Area</th>
<th>Wildfire Risk Area&lt;sup&gt;1&lt;/sup&gt;</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Commercial</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Industrial</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Residential</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Unknown</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Source: City of Plymouth Building Department
<sup>1</sup>Moderate or higher wildfire risk area

Future Development

A discussion of future development is included below. Future development is important to hazard mitigation planning. Ensuring that future development does not place more people and property into known hazard zones is one of the goals of mitigation planning.

The City of Plymouth General Plan Land Use Element noted that currently the City is divided into two residential, one commercial, two industrial, and two special (institutional and open space) zoning districts. In addition, there is a Planned Development (PD) zone and three combined zones. While the zoning ordinance establishes lot sizes there is no relationship to development character due to the span of uses and intensities allowed within each of the districts.

The Land Use Element also noted that the City had once before proposed an expanded SOI, which generally followed parcel ownership lines effectively squaring-off the official SOI. The SOI is significant because
this is the area within which the City intends to have ultimate land use authority. While there is no such land use authority until which time as the City requests from LAFCO annexation of land into its corporate limits, this is the area by which the City – in coordination with Amador County - presumes to have influence of the pattern and timing of development.

Interestingly, the City Land Use Element also noted that, due to the availability of water through an agreement with the Amador Water Agency the City is confronted with increased development pressure. This is significant and highly relevant as it relates to the City’s SOI and its plan for annexation and provision of services. Considering the possible future availability of additional water via the Arroyo Ditch there is likely to be continuing pressure for development in the immediate and surrounding area, which will greatly influence the community and its character.

The City noted that two new residential development was planned for the City. Greilich and Zinfandel Ridge are on the southern edge of the City limits. The City noted that they will be built outside of the FEMA floodplains. According to the FHSZ maps in the wildfire section below, it is most likely that this will fall in the moderate FHSZ.

More general information on growth and development in Amador County as a whole can be found in “Growth and Development Trends” in Section 4.3.1 Amador County Vulnerability and Assets at Risk of the Base Plan.

GIS Analysis

Using GIS, the following methodology was used in determining parcel counts and acreages with future development projects in the City of Plymouth.

Future development areas in the City were provided in mapped format by the City. 3 areas were provided:

- Greilich
- Zinfandel
- Plymouth SOI

Using the GIS parcel spatial file for each of these areas, the 3 areas and 97 parcels associated with future development projects for which the analysis was to be performed were identified. Utilizing the future development project spatial layer, the parcel centroid data was intersected to determine the parcel counts within each area. Figure D-5 shows the locations of future development areas the City is planning to develop. Table D-14 shows the parcels and acreages of each future development area in the City.
Figure D-5 City of Plymouth – Future Development Areas
Table D-14 City of Plymouth – Future Development Parcels and Acres

<table>
<thead>
<tr>
<th>Future Development</th>
<th>Total Parcel Count</th>
<th>Improved Parcel Count</th>
<th>Unimproved Parcel Count</th>
<th>Total Acres</th>
<th>Total Improved Acres</th>
<th>Total Unimproved Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greilich</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>170.90</td>
<td>170.90</td>
<td>0</td>
</tr>
<tr>
<td>Zinfandel</td>
<td>63</td>
<td>27</td>
<td>36</td>
<td>362.27</td>
<td>11.48</td>
<td>350.79</td>
</tr>
<tr>
<td>Plymouth SOI</td>
<td>33</td>
<td>16</td>
<td>17</td>
<td>579.54</td>
<td>357.84</td>
<td>221.69</td>
</tr>
<tr>
<td>Grand Total</td>
<td>97</td>
<td>44</td>
<td>53</td>
<td>1,112.71</td>
<td>540.22</td>
<td>572.48</td>
</tr>
</tbody>
</table>

Source: City of Plymouth, Amador County LAFCO

D.5.3. Vulnerability to Specific Hazards

This section provides the vulnerability assessment, including any quantifiable loss estimates, for those hazards identified above in Table D-5 as high or medium significance hazards. Impacts of past events and vulnerability of the City to specific hazards are further discussed below (see Section 4.1 Hazard Identification in the Base Plan for more detailed information about these hazards and their impacts on the Amador County Planning Area). Methodologies for evaluating vulnerabilities and calculating loss estimates are the same as those described in Section 4.3 of the Base Plan.

An estimate of the vulnerability of the City to each identified priority hazard, in addition to the estimate of likelihood of future occurrence, is provided in each of the hazard-specific sections that follow. Vulnerability is measured in general, qualitative terms and is a summary of the potential impact based on past occurrences, spatial extent, and damage and casualty potential. It is categorized into the following classifications:

- **Extremely Low**—The occurrence and potential cost of damage to life and property is very minimal to nonexistent.
- **Low**—Minimal potential impact. The occurrence and potential cost of damage to life and property is minimal.
- **Medium**—Moderate potential impact. This ranking carries a moderate threat level to the general population and/or built environment. Here the potential damage is more isolated and less costly than a more widespread disaster.
- **High**—Widespread potential impact. This ranking carries a high threat to the general population and/or built environment. The potential for damage is widespread. Hazards in this category may have occurred in the past.
- **Extremely High**—Very widespread with catastrophic impact.

Depending on the hazard and availability of data for analysis, this hazard specific vulnerability assessment also includes information on values at risk, critical facilities and infrastructure, populations at risk, and future development.

**Climate Change**

**Likelihood of Future Occurrence**—Likely  
**Vulnerability**—Medium
Hazard Profile and Problem Description

Climate change adaptation is a key priority of the State of California. The 2018 State of California Multi-Hazard Mitigation Plan stated that climate change is already affecting California. Sea levels have risen by as much as seven inches along the California coast over the last century, increasing erosion and pressure on the state’s infrastructure, water supplies, and natural resources. The State has also seen increased average temperatures, more extreme hot days, fewer cold nights, a lengthening of the growing season, shifts in the water cycle with less winter precipitation falling as snow, and earlier runoff of both snowmelt and rainwater in the year. In addition to changes in average temperatures, sea level, and precipitation patterns, the intensity of extreme weather events is also changing.

In Amador County and the City, the HMPC noted that each year it seems to get a bit warmer and snow seems to start at higher levels. It was also noted that 2017 was one of the wettest years ever. Climate change concerns in the area especially those affecting dry season are the priority. Wildfire is a major concern and less moisture/rainfall and higher temperatures increase that risk. Natural grasses dry out sooner in the season creating ground fuel and tree mortality adds to fire fuel as well. Drought is also a worry as Plymouth’s economy is centered around the Shenandoah Valley’s wine industry, which brings in tourists and provides employment. Also, water flowing through the City’s Arroyo Ditch has been impacted. This waterway provides agricultural water for numerous properties along it’s banksides as well as in the City and beyond heading downstream.

Location and Extent

Climate change is a global phenomenon. It is expected to affect the whole of the City, Amador County, and State of California. There is no scale to measure the extent of climate change. Climate change exacerbates other hazards, such as drought, extreme heat, flooding, wildfire, and others. The speed of onset of climate change is very slow. The duration of climate change is not yet known, but is feared to be tens to hundreds of years.

Past Occurrences

Climate change has never been directly linked to any declared disasters. While the City noted that climate change is of concern, no specific impacts of climate change could be recalled. The City and HMPC members noted that the strength of storms does seem to be increasing and the temperatures seem to be getting hotter.

Vulnerability to Climate Change

The California Adaptation Planning Guide (APG) prepared by California OES and CNRA was developed to provide guidance and support for local governments and regional collaboratives to address the unavoidable consequences of climate change. California’s APG: Understanding Regional Characteristics has divided California into 11 different regions based on political boundaries, projected climate impacts, existing environmental setting, socioeconomic factors and regional designations. Amador County falls within the North Sierra Region characterized as a sparsely settled mountainous region where the region’s economy is primarily tourism-based. The region is rich in natural resources, biodiversity, and is the source
for the majority of water used by the state. This information can be used to guide climate adaptation planning in the City and Amador County Planning Area.

The California APG: Understanding Regional Characteristics identified the following impacts specific to the North Sierra region in which the Amador County Planning Area is part of:

- Temperature increases
- Decreased precipitation
- Reduced snowpack
- Reduced tourism
- Ecosystem change
- Sensitive species stress
- Increased wildfire

**Future Development**

The City could see population fluctuations as a result of climate impacts relative to those experienced in other regions, and these fluctuations are expected to impact demand for housing and other development. For example, interior western and southwestern states may experience an exodus of population due to challenges in adapting to heat even more extreme than that which is projected to occur here. While there are currently no formal studies of specific migration patterns expected to impact the City and County region, climate-induced migration was recognized within the UNFCCC Conference of Parties Paris Agreement of 2015 and is expected to be the focus of future studies.

**Drought & Water Shortage**

**Likelihood of Future Occurrence**—Occasional  
**Vulnerability**—Medium

**Hazard Profile and Problem Description**

Drought is a complex issue involving many factors—it occurs when a normal amount of precipitation and snow is not available to satisfy an area’s usual water-consuming activities. Drought can often be defined regionally based on its effects. Drought is different than many of the other natural hazards in that it is not a distinct event and usually has a slow onset. Drought can severely impact a region both physically and economically. Drought affects different sectors in different ways and with varying intensities. Adequate water is the most critical issue and is critical for agriculture, manufacturing, tourism, recreation, and commercial and domestic use. As the population in the area continues to grow, so will the demand for water.

**Location and Extent**

Drought and water shortage are regional phenomenon. The whole of the County, as well as the whole of the City, is at risk. The US Drought Monitor categorizes drought conditions with the following scale:

- None
- D0 – Abnormally dry
➢ D1 – Moderate Drought
➢ D2 – Severe Drought
➢ D3 – Extreme drought
➢ D4 – Exceptional drought

Drought has a slow speed of onset and a variable duration. Drought can last for a short period of time, which does not usually affect water shortages and for longer periods. Should a drought last for a long period of time, water shortage becomes a larger issue. Current drought conditions in the City and the County are shown in Section 4.2.11 of the Base Plan.

Past Occurrences

Since drought is a regional phenomenon, past occurrences of drought for the City are the same as those for the County and includes 5 multi-year droughts over an 85-year period. Details on past drought occurrences can be found in Section 4.2.11 of the Base Plan.

The HMPC did not that the drought of 2014 revealed several issues within the City. First, an increase in grass fires throughout the City. Second a lower flow level for the City’s Arroyo Ditch which distributes agriculture water throughout the area. And thirdly, instituting water restriction policies, education and enforcement on the community the City serves.

Vulnerability to Drought and Water Shortage

Based on historical information, the occurrence of drought in California, including the City, is cyclical, driven by weather patterns. Drought has occurred in the past and will occur in the future. Periods of actual drought with adverse impacts can vary in duration, and the period between droughts can be extended. Although an area may be under an extended dry period, determining when it becomes a drought is based on impacts to individual water users.

The City is no longer reliant on wells as its principal water source. In January of 2010, a pipeline was finished in conjunction with Amador Water Agency (AWA) which now provides Mokelumne River water via the Tanner Treatment Plant to the City of Plymouth. The wells and the Arroyo Ditch are maintained as emergency secondary sources in the event something should happen to the pipeline or primary water source.

Impacts

The vulnerability of the City to drought is City-wide, but impacts may vary and include reduction in water supply and an increase in dry fuels. The potential for a reduction in water supply during drought conditions generally leads to both mandated and voluntary conservations measures during extended droughts. During these times, the costs of water can also increase. The increased dry fuels and fuel loads associated with drought conditions can also result in an increased fire danger. In areas of extremely dry fuels, the intensity and speed of fires can be significant. Water supply and flows for fire suppression can also be an issue during extended droughts.

Other qualitative impacts associated with drought in the planning area are those related to water intensive activities such as, municipal usage, commerce, tourism, recreation and agricultural use. Drought conditions
can also cause soil to compact and not absorb water well, potentially making an area more susceptible to flooding.

With more precipitation likely falling as rain instead of snow in the Sierra’s, and warmer temperatures causing decreased snowfall to melt faster and earlier, water supply is likely to become more unreliable. In addition, drought and water shortage is predicted to become more common. This means less water available for use over the long run, and additional challenges for water supply reliability, especially during periods of extended drought.

**Future Development**

As the population in the area continues to grow, so will the demand for water. The AWA provides water to the City through reliable surface water sources. However, population growth in the City will continue to increase the demand for water. Ongoing planning will be needed by the City and AWA to account for population growth and increased water demands.

**Earthquake (large damaging/small)**

**Likelihood of Future Occurrence**–Unlikely/Occasional  
**Vulnerability**–Low

**Hazard Profile and Problem Description**

*Note:* Though a low significance hazard for the City, due to its importance in the State of California, earthquake is profiled here. It is a low significance hazard for mitigation planning purposes.

An earthquake is caused by a sudden slip on a fault. Stresses in the earth’s outer layer push the sides of the fault together. Stress builds up, and the rocks slip suddenly, releasing energy in waves that travel through the earth’s crust and cause the shaking that is felt during an earthquake. Earthquakes can cause structural damage, injury, and loss of life, as well as damage to infrastructure networks, such as water, power, gas, communication, and transportation. Earthquakes may also cause collateral emergencies including dam and levee failures, seiches, hazmat incidents, fires, avalanches, and landslides. The degree of damage depends on many interrelated factors. Among these are: the magnitude, focal depth, distance from the causative fault, source mechanism, duration of shaking, high rock accelerations, type of surface deposits or bedrock, degree of consolidation of surface deposits, presence of high groundwater, topography, and the design, type, and quality of building construction.

The City of Plymouth General Plan Safety Element noted that the location of Plymouth in the Foothills of the Sierra Nevada mountain range creates a number of safety issues for development. Rolling hills and steep slopes, combined with proximity to active seismic faults, make the City susceptible to geologic and seismic hazards.
Location and Extent

Since earthquakes are regional events, the whole of the City is at risk to earthquake. Plymouth and the surrounding area are relatively free from significant seismic and geologic hazards. There are no known or inferred active faults within the City.

The amount of energy released during an earthquake is usually expressed as a magnitude and is measured directly from the earthquake as recorded on seismographs. An earthquake’s magnitude is expressed in whole numbers and decimals (e.g., 6.8). Seismologists have developed several magnitude scales, as discussed in Section 4.2.12 of the Base Plan. The closest known source of large earthquakes is the Sierra Frontal Fault System along the eastern margin of the Sierra Nevada, which includes the Carson Valley Fault. This fault is located within a few miles of the eastern border to the County and has been evaluated as being able to generate earthquakes that produce levels of damage up to VII on the Mercalli Scale (equivalent to 5.5 to 6.5 on the Richter Scale). During a Mercalli VII, most people are alarmed and run outside. Damage is negligible in buildings of good construction, considerable in buildings of poor construction.

Another measure of earthquake severity is intensity. Intensity is an expression of the amount of shaking at any given location on the ground surface. Seismic shaking is typically the greatest cause of losses to structures during earthquakes. The City is located in an area where few earthquakes of significant magnitude occur, so both magnitude and intensity of earthquakes are expected to remain low. Seismic shaking maps for the area show Amador County and the City fall within a low to moderate shake risk.

Past Occurrences

The City noted no past occurrences of earthquakes or that affected the City in any meaningful way.

Vulnerability to Earthquake

The combination of plate tectonics and associated California coastal mountain range building geology generates earthquake as a result of the periodic release of tectonic stresses. Amador County’s mountainous terrain lies in the center of the North American and Pacific tectonic plate activity. There have been earthquakes as a result of this activity in the historic past, and there will continue to be earthquakes in the future of the California north coastal mountain region. Both the San Andreas Fault and the Sierra Frontal System faults pose possibly significant impacts to Amador County and the City as they have the capabilities of producing a quake.

Fault ruptures itself contributes very little to damage unless the structure or system element crosses the active fault; however, liquefaction can occur further from the source of the earthquake. In general, newer construction is more earthquake resistant than older construction due to enforcement of improved building codes. Manufactured housing is very susceptible to damage because their foundation systems are rarely braced for earthquake motions. Locally generated earthquake motions and associated liquefaction, even from very moderate events, tend to be more damaging to smaller buildings, especially those constructed of unreinforced masonry (URM) and soft story buildings. The City Planning Team noted four URM buildings on the City’s Main Street: the Burke Building, China House, Levaggi Store, and the Roos Building. There are no soft story buildings in the City.
The Uniform Building Code (UBC) identifies four seismic zones in the United States. The zones are numbered one through four, with Zone 4 representing the highest level of seismic hazard. The UBC establishes more stringent construction standards for areas within Zones 3 and 4. All of California lies within either Zone 3 or Zone 4. The City of Plymouth is within the less hazardous Zone 3.

Earthquake vulnerability is primarily based on population and the built environment. Urban areas in high seismic hazard zones are the most vulnerable, while uninhabited areas are less vulnerable.

**Impacts from Earthquake**

Impacts from earthquake in the City will vary depending on the fault that the earthquake occurs on, the depth of the earthquake strike, and the intensity of shaking. Large events could cause damages to infrastructure, critical facilities, residential and commercial properties, and possible injuries or loss of life.

**Earthquake Analysis**

Due to the regional effects of an earthquake, a Hazus earthquake analysis was performed on a countywide basis. This can be found in Section 4.3.9 of the Base Plan. While these runs were not done specific to the City, maps showing damage in the County show greater areas of damage near the cities in the County. This is because most models reflect that the greatest damage occurs in the built-out, populated areas of the County. The deterministic 6.7 Hayward Fault run showed minimal damage to the County and the City, while the probabilistic 7.0 earthquake scenario showed moderate to high damage to the County and the City.

**Future Development**

Although new growth and development corridors would fall in the area affected by earthquake, given the small chance of major earthquake and the building codes in effect, development in the earthquake area will continue to occur. The City enforces the state building code, which mandates construction techniques that minimize seismic hazards. Future development in the City is subject to these building codes.

**Flood: 100/500-Year**

Likelihood of Future Occurrence—Occasional/Unlikely
Vulnerability—Low

**Hazard Profile and Problem Description**

*Note:* Though a low significance hazard for the City, due to its importance in the State of California, flood is profiled here. It is a low significance hazard for mitigation strategy planning purposes.

This hazard analyzes the FEMA DFIRM 1% and 0.2% annual chance floods. These tend to be the larger floods that can occur in the County or in the City, and have caused damages in the past. Flooding is a significant problem in Amador County and the City. Historically, the City has been at risk to flooding primarily during the winter and spring months when river systems in the County swell with heavy rainfall and snowmelt runoff. Normally, storm floodwaters are kept within defined limits by a variety of storm...
drainage and flood control measures. Occasionally, extended heavy rains result in floodwaters that exceed normal high-water boundaries and cause damage. Flooding has occurred both within the 1% and 0.2% annual chance floodplains and in other localized areas.

As previously described in Section 4.2.13 of the Base Plan, the Amador County Planning Area and the City of Plymouth have been subject to historical flooding. Plymouth is traversed by several stream systems and is at risk to the 1% and 0.2% flood.

Location and Extent

The City of Plymouth has areas located in the 1% and 0.2% annual chance floodplain. This is seen in Figure D-6.
Figure D-6 City of Plymouth – FEMA DFIRM Flood Zones
Table D-15 details the DFIRM mapped flood zones within the 1% annual chance flood zone as well as other flood zones located within the City.

**Table D-15 City of Plymouth—DFIRM Flood Hazard Zones**

<table>
<thead>
<tr>
<th>Flood Zone</th>
<th>Description</th>
<th>Flood Zone Present in City of Plymouth</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>100-year Flood: No base flood elevations provided</td>
<td>Y</td>
</tr>
<tr>
<td>AE</td>
<td>100-year Flood: Base flood elevations provided</td>
<td>N</td>
</tr>
<tr>
<td>AE Floodway</td>
<td>1% annual chance flood: Regulatory floodway; Base flood elevations provided</td>
<td>N</td>
</tr>
<tr>
<td>Shaded X</td>
<td>500-year Flood: The areas between the limits of the 1% annual chance flood and the 0.2-percent-annual-chance (or 500-year) flood</td>
<td>N</td>
</tr>
<tr>
<td>X (unshaded)</td>
<td>No flood hazard</td>
<td>Y</td>
</tr>
</tbody>
</table>

Source: FEMA

Additionally, flood extents can generally be measured in volume, velocity, and depths of flooding. Expected flood depths in the City vary, depending on the nature and extent of a flood event; specific depths are unknown. Flood durations in the City tend to be short to medium term, or until either the storm drainage system can catch up or flood waters move downstream. Flooding in the City tends to have a shorter speed of onset, due to the amount of water that flows through the City. Geographical flood extent from the FEMA DFIRMs is shown in Table D-16.

**Table D-16 City of Plymouth—Geographical Flood Hazard Extents in FEMA DFIRM Flood Zones**

<table>
<thead>
<tr>
<th>Flood Zone</th>
<th>Total Acres</th>
<th>% of Total Acres*</th>
<th>Improved Acres</th>
<th>% of Total Improved Acres*</th>
<th>Unimproved Acres</th>
<th>% of Total Unimproved Acres*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1% Annual Chance</td>
<td>28</td>
<td>0.01%</td>
<td>5</td>
<td>0.00%</td>
<td>23</td>
<td>0.01%</td>
</tr>
<tr>
<td>0.2% Annual Chance</td>
<td>0</td>
<td>0.00%</td>
<td>0</td>
<td>0.00%</td>
<td>0</td>
<td>0.00%</td>
</tr>
<tr>
<td>Other Areas</td>
<td>1,624</td>
<td>0.42%</td>
<td>581</td>
<td>0.35%</td>
<td>1,043</td>
<td>0.47%</td>
</tr>
<tr>
<td>Total</td>
<td>1,652</td>
<td>0.43%</td>
<td>586</td>
<td>0.35%</td>
<td>1,066</td>
<td>0.48%</td>
</tr>
</tbody>
</table>

Source: Amador County 1/20/2016 DFIRM

**Past Occurrences**

A list of state and federal disaster declarations for Amador County from flooding is shown on Table D-17. These events also likely affected the City to some degree.
Table D-17 Amador County – State and Federal Disaster Declarations from Flood 1950-2019

<table>
<thead>
<tr>
<th>Disaster Type</th>
<th>Federal Declarations</th>
<th>State Declarations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Count</td>
<td>Years</td>
</tr>
</tbody>
</table>

Source: Cal OES, FEMA

The City noted no other past occurrences of flooding. Major flooding did not occur in recent flood events. The Arroyo Ditch does seasonally flood near the crossing of Highway 16 on the eastern side of town.

Vulnerability to Flood

Floods have been a part of the City’s historical past and will continue to be so in the future. During winter months, long periods of precipitation and the timing of that precipitation are critical in determining the threat of flood, and these characteristics further dictate the potential for widespread structural and property damages. Predominantly, the effects of flooding are generally confined to areas near the waterways of the County. As waterways grow in size from local drainages, so grows the threat of flood and dimensions of the threat. This threatens structures in the floodplain. Structures can also be damaged from trees falling as a result of water-saturated soils. Electrical power outages happen, and the interruption of power causes major problems. Loss of power is usually a precursor to closure of governmental offices and community businesses. Public schools may also be required to close or be placed on a delayed start schedule. Roads can be damaged and closed, causing safety and evacuation issues. People may be swept away in floodwaters, causing injuries or deaths.

The General Plan Safety Element noted that flooding is an issue in the Foothills of the Sierra Nevada Mountains. With several months of rain and snow each year, the possibility of a flood warrants preparation by the City. The City has adopted the FEMA floodplain boundaries, which identify areas that present a risk of flooding every 100 years (1% chance of flooding each year). These boundaries are used to avoid a potential flood disaster.

The City also noted that the City is affected by flooding outside the City limits. Old Sacramento Road is a County Road that has had flooding issues in the past. Sacramento Road provides access to the City of Plymouth sewer plant. If it is unpassable, there is great difficulty reaching the sewer plant.

Impacts

Floods are among the costliest natural disasters in terms of human hardship and economic loss nationwide. Floods can cause substantial damage to structures, landscapes, and utilities as well as life safety issues. Floods can be extremely dangerous, and even six inches of moving water can knock over a person given a strong current. During a flood, people can also suffer heart attacks or electrocution due to electrical equipment short outs. Floodwaters can transport large objects downstream which can damage or remove stationary structures. Ground saturation can result in instability, collapse, or other damage. Objects can also be buried or destroyed through sediment deposition. Floodwaters can also break utility lines and interrupt services. Standing water can cause damage to crops, roads, foundations, and electrical circuits.
Direct impacts, such as drowning, can be limited with adequate warning and public education about what to do during floods. Other problems connected with flooding and stormwater runoff include erosion, sedimentation, degradation of water quality, loss of environmental resources, and economic impacts.

**Assets at Risk**

Based on the vulnerability of Plymouth to the flood hazard, the sections that follow describes significant assets at risk in the City of Plymouth. This section includes the values at risk, flooded acres, population at risk, and critical facilities at risk.

**Values at Risk**

GIS was used to determine the possible impacts of flooding within the City of Plymouth. The methodology described in Section 4.3.10 of the Base Plan was followed in determining structures and values at risk to the 1% (100-year) and 0.2% (500-year) annual chance flood event. Table D-18 is a summary table for the City of Plymouth. Parcel counts, values, estimated contents, and total values in the City are shown for the 1% and 0.2% annual chance flood zones, as well as for those properties that fall outside of the mapped FEMA DFIRM flood zones. As previously mentioned, there are no areas of the City within the 1% annual chance flood. Table D-19 breaks down Table D-18 and shows the property use, improved parcel count, improved values, estimated contents, and total values that fall in each floodplain in the City.

**Table D-18 City of Plymouth – Count and Value of Parcels at Risk in Summary DFIRM Flood Zones**

<table>
<thead>
<tr>
<th>Flood Zone/Property Use</th>
<th>Total Parcel Count</th>
<th>Total Improved Parcel Count</th>
<th>Total Land Value</th>
<th>Improved Structure Value</th>
<th>Estimated Contents Value</th>
<th>Total Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1% Annual Chance Flood Hazard</td>
<td>8</td>
<td>1</td>
<td>$640,093</td>
<td>$58,838</td>
<td>$29,419</td>
<td>$728,350</td>
</tr>
<tr>
<td>0.2% Annual Chance Flood Hazard**</td>
<td>0</td>
<td>0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Other Areas</td>
<td>570</td>
<td>425</td>
<td>$48,912,974</td>
<td>$66,529,979</td>
<td>$43,022,815</td>
<td>$158,465,768</td>
</tr>
<tr>
<td>City of Plymouth Total</td>
<td>578</td>
<td>426</td>
<td>$49,553,067</td>
<td>$66,588,817</td>
<td>$43,052,234</td>
<td>$159,194,118</td>
</tr>
</tbody>
</table>

*Source: FEMA 1/20/2016 DFIRM, Amador County 12/31/2018 Parcel/Assessor’s Data

*With respect to improve parcels within the floodplain, the actual structures on the parcels may not be located within the actual floodplain, may be elevated and or otherwise outside of the identified flood zone

**This parcel count only includes those parcels in the 0.2% annual chance flood zone, exclusive of the 1% annual chance flood zone. The 0.2% annual chance flood, in actuality, also includes all parcels in the 1% annual chance flood zone.

**Table D-19 City of Plymouth – Count and Values of Parcels at Risk by Detailed Flood Zone and Property Use**

<table>
<thead>
<tr>
<th>Flood Zone/Property Use</th>
<th>Total Parcel Count</th>
<th>Total Improved Parcel Count</th>
<th>Total Land Value</th>
<th>Improved Structure Value</th>
<th>Estimated Contents Value</th>
<th>Total Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1% Annual Chance Flood Hazard Zone A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Flood Zone/Property Use

<table>
<thead>
<tr>
<th>Property Use</th>
<th>Total Parcel Count</th>
<th>Improved Parcel Count</th>
<th>Total Land Value</th>
<th>Improved Structure Value</th>
<th>Estimated Contents Value</th>
<th>Total Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural</td>
<td>0</td>
<td>0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Commercial</td>
<td>0</td>
<td>0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Industrial</td>
<td>0</td>
<td>0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>5</td>
<td>0</td>
<td>$67,380</td>
<td>$0</td>
<td>$0</td>
<td>$67,380</td>
</tr>
<tr>
<td>Residential</td>
<td>3</td>
<td>1</td>
<td>$572,713</td>
<td>$58,838</td>
<td>$29,419</td>
<td>$660,970</td>
</tr>
<tr>
<td>Unknown</td>
<td>0</td>
<td>0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>8</td>
<td>1</td>
<td><strong>$640,093</strong></td>
<td><strong>$58,838</strong></td>
<td><strong>$29,419</strong></td>
<td><strong>$728,350</strong></td>
</tr>
</tbody>
</table>

#### 0.2% Annual Chance Flood Hazard**

<table>
<thead>
<tr>
<th>Property Use</th>
<th>Total Parcel Count</th>
<th>Improved Parcel Count</th>
<th>Total Land Value</th>
<th>Improved Structure Value</th>
<th>Estimated Contents Value</th>
<th>Total Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural</td>
<td>0</td>
<td>0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Commercial</td>
<td>0</td>
<td>0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Industrial</td>
<td>0</td>
<td>0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>0</td>
<td>0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Residential</td>
<td>0</td>
<td>0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Unknown</td>
<td>0</td>
<td>0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>0</td>
<td>0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
</tr>
</tbody>
</table>

### Other Areas

<table>
<thead>
<tr>
<th>Property Use</th>
<th>Total Parcel Count</th>
<th>Improved Parcel Count</th>
<th>Total Land Value</th>
<th>Improved Structure Value</th>
<th>Estimated Contents Value</th>
<th>Total Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural</td>
<td>39</td>
<td>9</td>
<td><strong>$7,533,031</strong></td>
<td><strong>$2,225,033</strong></td>
<td><strong>$2,225,033</strong></td>
<td><strong>$11,983,097</strong></td>
</tr>
<tr>
<td>Commercial</td>
<td>61</td>
<td>48</td>
<td><strong>$10,901,341</strong></td>
<td><strong>$17,290,621</strong></td>
<td><strong>$17,290,621</strong></td>
<td><strong>$45,482,583</strong></td>
</tr>
<tr>
<td>Industrial</td>
<td>0</td>
<td>0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>27</td>
<td>0</td>
<td><strong>$1,356</strong></td>
<td>$0</td>
<td>$0</td>
<td><strong>$1,356</strong></td>
</tr>
<tr>
<td>Residential</td>
<td>438</td>
<td>368</td>
<td><strong>$30,477,246</strong></td>
<td><strong>$47,014,325</strong></td>
<td><strong>$23,507,161</strong></td>
<td><strong>$100,998,732</strong></td>
</tr>
<tr>
<td>Unknown</td>
<td>5</td>
<td>0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td><strong>Other Areas Total</strong></td>
<td>570</td>
<td>425</td>
<td><strong>$48,912,974</strong></td>
<td><strong>$66,529,979</strong></td>
<td><strong>$43,022,815</strong></td>
<td><strong>$158,465,768</strong></td>
</tr>
</tbody>
</table>

### City of Plymouth Total

|                  | 578                | 426                   | **$49,553,067**  | **$66,588,817**          | **$43,052,234**          | **$159,194,118**|

Source: FEMA 1/20/2016 DFIRM, Amador County 12/31/2018 Parcel/Assessor's Data

**With respect to improve parcels within the floodplain, the actual structures on the parcels may not be located within the actual floodplain, may be elevated and or otherwise outside of the identified flood zone.

**This parcel count only includes those parcels in the 0.2% annual chance flood zone, exclusive of the 1% annual chance flood zone.

The 0.2% annual chance flood, in actuality, also includes all parcels in the 1% annual chance flood zone.

Table D-20 summarizes Table D-19 above and shows City of Plymouth loss estimates and shows improved values at risk by FEMA 1% and 0.2% annual chance flood zones.
Table D-20 City of Plymouth – Flood Loss Estimates*

<table>
<thead>
<tr>
<th>Flood Zone / Jurisdiction</th>
<th>Total Parcel Count</th>
<th>Improved Parcel Count</th>
<th>Total Land Value</th>
<th>Improved Structure Value</th>
<th>Estimated Contents Value</th>
<th>Total Value</th>
<th>Loss Estimate</th>
<th>Loss Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>1% Annual Chance Flood Hazard</td>
<td>8</td>
<td>1</td>
<td>$640,093</td>
<td>$58,838</td>
<td>$29,419</td>
<td>$88,257</td>
<td>$17,651</td>
<td>0.00%</td>
</tr>
<tr>
<td>0.2% Annual Chance Flood Hazard**</td>
<td>0</td>
<td>0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>0.00%</td>
</tr>
<tr>
<td>Grand Total</td>
<td>8</td>
<td>1</td>
<td>$640,093</td>
<td>$58,838</td>
<td>$29,419</td>
<td>$88,257</td>
<td>$17,651</td>
<td>0.00%</td>
</tr>
</tbody>
</table>

Source: FEMA 1/20/2016 DFIRM, Amador County 12/31/2018 Parcel/Assessor's Data

*With respect to improve parcels within the floodplain, the actual structures on the parcels may not be located within the actual floodplain, may be elevated and or otherwise outside of the identified flood zone

**This parcel count only includes those parcels in the 0.2% annual chance flood zone, exclusive of the 1% annual chance flood zone.

The 0.2% annual chance flood, in actuality, also includes all parcels in the 1% annual chance flood zone.

According to Table D-19 and Table D-20, the City of Plymouth has 1 improved parcel and $88,257 of structure and contents values in the 1% annual chance floodplain, and 0 improved parcels and $0 structure and contents values in the 0.2% annual chance floodplain. These values can be refined a step further. Applying the 20 percent damage factor as previously described in Section 4.3.10 of the Base Plan, there is a 1% chance in any given year of a flood event causing $17,561 in damage in the City of Plymouth. The loss ratio of 0.00% indicates that flood losses for 1% and 0.2% annual chance flooding, respectively, would be easy to recover from.

Flooded Acres

Also of interest is the land area affected by the various flood zones. The following is an analysis of flooded acres in the City in comparison to total area within the City limits. The same methodology, as discussed in Section 4.3.10 of the Base Plan, was used for the City of Plymouth as well as for the County as a whole. Table D-21 represents a detailed and summary analysis of total acres for each FEMA DFIRM flood zone in the City.

Table D-21 City of Plymouth – Flooded Acres

<table>
<thead>
<tr>
<th>Flood Zone / Jurisdiction</th>
<th>Total Acres</th>
<th>% of Total Acres</th>
<th>Improved Acres</th>
<th>% of Total Improved Acres</th>
<th>Unimproved Acres</th>
<th>% of Total Unimproved Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>1% Annual Chance Flood Hazard</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zone A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agricultural</td>
<td>8</td>
<td>0.49%</td>
<td>2</td>
<td>0.37%</td>
<td>6</td>
<td>0.56%</td>
</tr>
<tr>
<td>Commercial</td>
<td>2</td>
<td>0.13%</td>
<td>2</td>
<td>0.29%</td>
<td>0</td>
<td>0.05%</td>
</tr>
</tbody>
</table>
### Population at Risk

The DFIRM flood zones were overlayed on the parcel layer. Those residential parcel centroids that intersect the flood zones were counted and multiplied by the 2010 Census Bureau average household factors for Plymouth – 2.47. According to this analysis, there is a total population of 2 and 0 residents of the City at risk to flooding in the 1% and 0.2% annual chance floodplains, respectively. This is shown in Table D-22.

#### Table D-22 City of Plymouth – Count of Improved Residential Parcels and Population by Flood Zone

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>1 % Annual Chance Flooding</th>
<th>0.2% Annual Chance Flooding</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Improved Residential Parcels</td>
<td>Population</td>
</tr>
<tr>
<td>Plymouth</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

Source: FEMA DFIRM 1/20/2016
Critical Facilities at Risk

An analysis was performed on the critical facility inventory in Plymouth in DFIRM flood zones. GIS was used to determine whether the critical facility locations intersect a DFIRM flood zone, and if so, which zone it intersects. Details of critical facilities in mapped DFIRM flood zones in the City of Plymouth are shown in Figure D-7 and detailed in Table D-23. Details of critical facility definition, type, name and address and jurisdiction by DFIRM flood zone are listed in Appendix F.
Figure D-7 City of Plymouth – Critical Facilities in DFIRM Flood Zones
Table D-23 City of Plymouth – Critical Facilities in DFIRM Flood Zones

<table>
<thead>
<tr>
<th>Jurisdiction/Flood Zone</th>
<th>Critical Facility Category/Critical Facility Type</th>
<th>Facility Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other Areas</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zone X (unshaded)</td>
<td>Essential Services</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bridge</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Clinic</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>EMS Station</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Evacuation Shelter</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Fire Station</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Library</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Post Office</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Power Substation</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Public Administration Building</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td><strong>Essential Services Total</strong></td>
<td><strong>9</strong></td>
</tr>
<tr>
<td></td>
<td><strong>At Risk Population</strong></td>
<td><strong>1</strong></td>
</tr>
<tr>
<td></td>
<td><strong>At Risk Population Total</strong></td>
<td><strong>1</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Zone X (unshaded) Total</strong></td>
<td><strong>10</strong></td>
</tr>
<tr>
<td>Other Areas Total</td>
<td></td>
<td><strong>10</strong></td>
</tr>
<tr>
<td><strong>City of Plymouth Total</strong></td>
<td></td>
<td><strong>10</strong></td>
</tr>
</tbody>
</table>

Source: FEMA DFIRM 1/20/2016, Amador County GIS

Insurance Coverage, Claims Paid, and Repetitive Losses

The City of Plymouth joined the National Flood Insurance Program (NFIP) on December 1, 1990. The City does not participate in the CRS program. NFIP data indicates that as of March 2, 2020, there were no flood insurance policies in force in the City with $0 of coverage. There have been no historical claims for flood losses. NFIP data further indicates that there are no repetitive loss (RL) and no severe repetitive loss buildings in the City.

California Department of Water Resources Best Available Maps (BAM)

The FEMA regulatory maps provide just one perspective on flood risks in Amador County. Senate Bill 5 (SB 5), enacted in 2007, authorized the California DWR to develop the Best Available Maps (BAM) displaying 100- and 200-year floodplains for areas located within the Nevada-San Joaquin (SAC-SJ) Valley watershed. This effort was completed by DWR in 2008. DWR has expanded the BAM to cover all counties in the State and to include 500-year floodplains.

Different than the FEMA DFIRMs which have been prepared to support the NFIP and reflect only the 100-year event risk, the BAMs are provided for informational purposes and are intended to reflect current 100-, 200-(as applicable), and 500-year event risks using the best available data. The 100-year floodplain limits on the BAM are a composite of multiple 100-year floodplain mapping sources. It is intended to show all
Currently identified areas at risk for a 100-year flood event, including FEMA’s 100-year floodplains. The BAM are comprised of different engineering studies performed by FEMA, Corps, and DWR for assessment of potential 100-, 200-, and 500-year floodplain areas. These studies are used for different planning and/or regulatory applications, and for each flood frequency may use varied analytical and quality control criteria depending on the study type requirements.

The value in the BAMs is that they provide a bigger picture view of potential flood risk to the City than that provided in the FEMA DFIRMs. The BAM map for Plymouth is shown in Figure D-8.

*Figure D-8 City of Plymouth – Best Available Map*

Source: California DWR
Legend explanation: Blue - FEMA 1%, Orange – Local 1% (developed from local agencies), Red – DWR 1%r (Awareness floodplains identify the 1% annual chance flood hazard areas using approximate assessment procedures), Pink – USACE 1% (2002 Sac and San Joaquin River Basins Comp Study), Yellow – USACE 0.5% (2002 Sac and San Joaquin River Basins Comp Study), Tan – FEMA 0.2%, Grey – Local 0.2% (developed from local agencies), Purple – USACE 0.2%(2002 Sac and San Joaquin River Basins Comp Study).

**Future Development**

The City’s floodplain ordinance prohibits development in the floodplain, unless it meets specific criteria set forth in the City’s floodplain ordinance. No development is expected in the floodplain in the future.

The potential for flooding may increase as floodwaters are channeled due to land development. Such changes can exacerbate flooding problems inside and outside of natural floodplains by altering or confining...
natural drainage channels. Floodplain modeling and master planning should be based on build out property use to ensure that all new development remains safe from future flooding. While local floodplain management, stormwater management, and water quality regulations and policies address these changes on a site-by-site basis, their cumulative effects can have a negative impact on the overall floodplain.

GIS Analysis

The City provided Future Development Areas were used as the basis for the inventory of future development areas for the City. Using the GIS parcel spatial file for each of these areas, the 3 areas and 97 parcels associated with future development projects for which the analysis was to be performed were identified. Utilizing the future development project spatial layer, the parcel centroid data was intersected to determine the parcel counts within each area. Figure D-9 shows the locations of future development areas the City is planning to develop on the FEMA DFIRM. Table D-24 shows the parcels and acreages of each future development area in the City by DFIRM flood zone.
Figure D-9 City of Plymouth – Future Development Areas in FEMA DFIRM Flood Zones
**Severe Weather: Extreme Heat**

**Likelihood of Future Occurrence**—Likely  
**Vulnerability**—Medium  

**Hazard Profile and Problem Description**

According to FEMA, extreme heat is defined as temperatures that hover 10 degrees or more above the average high temperature for the region and last for several weeks. Heat kills by taxing the human body beyond its abilities. In extreme heat and high humidity, evaporation is slowed, and the body must work extra hard to maintain a normal temperature.” Most heat disorders occur because the victim has been overexposed to heat or has over-exercised for his or her age and physical condition. Older adults, young children, and those who are sick or overweight are more likely to succumb to extreme heat.

In addition to the risks faced by citizens of the City, there are risk to the built environment from extreme heat. While extreme heat on its own does not usually affect structure, extreme heat during times of drought can cause wildfire risk to heighten. Extreme heat and high winds can cause PSPS events, causing issues to
buildings in the City. Plymouth has numerous old structures and unmaintained structures within the City limits which are more susceptible to fire than the average structure.

**Location and Extent**

Heat is a regional phenomenon and affects the whole of the City. Heat emergencies are often slower to develop, taking several days of continuous, oppressive heat before a significant or quantifiable impact is seen. Heat waves do not strike victims immediately, but rather their cumulative effects slowly affect vulnerable populations and communities. Heat waves do not generally cause damage or elicit the immediate response of floods, fires, earthquakes, or other more “typical” disaster scenarios.

The NWS has in place a system to initiate alert procedures (advisories or warnings) when extreme heat is expected to have a significant impact on public safety. The expected severity of the heat determines whether advisories or warnings are issued. The NWS HeatRisk forecast provides a quick view of heat risk potential over the upcoming seven days. The heat risk is portrayed in a numeric (0-4) and color (green/yellow/orange/red/magenta) scale which is similar in approach to the Air Quality Index (AQI) or the UV Index. This can be seen in Section 4.2.2 of the Base Plan.

**Past Occurrences**

The City Planning Team note that since extreme heat is a regional phenomenon, events that affected the County also affected the City. Those past occurrences were shown in the Base Plan in Section 4.2.2.

**Vulnerability to Extreme Heat**

The City experiences temperatures in excess of 100°F during the summer and fall months. The temperature moves to 105-110°F in rather extreme situations. During these times, drought conditions may worsen. Also, PSPS events may occur during these times as well. Health impacts are the primary concern with this hazard, though economic impacts are also an issue.

**Impacts**

The elderly and individuals below the poverty level are the most vulnerable to extreme temperatures. Nursing homes and elder care facilities are especially vulnerable to extreme heat events if power outages occur and air conditioning is not available. In addition, individuals below the poverty level may be at increased risk to extreme heat if use of air conditioning is not affordable. Homeless people and the transient population are also at risk to extreme heat.

Days of extreme heat have been known to result in medical emergencies, and unpredictable human behavior. Periods of extended heat and dryness (droughts) can have major economic, agricultural, and water resources impacts. Extreme heat can also dry out vegetation, making it more vulnerable to wildfire ignitions. During periods of extreme heat (with high winds), PG&E can institute a PSPS.
Future Development

Future development of new buildings in the City will likely not be affected by extreme heat. Extreme heat is more likely to affect populations. Vulnerability to extreme heat will increase as the average age of the population in each City shifts. It is encouraged that nursing homes and elder care facilities have emergency plans or backup power to address power failure during times of extreme heat and in the event of a PSPS. Low income residents and homeless populations are also vulnerable. Cooling centers for these populations should be utilized when necessary. Plymouth City Hall is the area’s cooling center.

Wildfire

Likelihood of Future Occurrence–Occasional
Vulnerability–Medium

Hazard Profile and Problem Description

Wildland fire and the risk of a conflagration is an ongoing concern for the City of Plymouth. Throughout California, communities are increasingly concerned about wildfire safety as increased development in the foothills and mountain areas and subsequent fire control practices have affected the natural cycle of the ecosystem. Wildland fires affect grass, forest, and brushlands, as well as any structures located within them. Where there is human access to wildland areas the risk of fire increases due to a greater chance for human carelessness and historical fire management practices. Historically, the fire season extends from early spring through late fall of each year during the hotter, dryer months; however, in recent years, the risk of wildfire has become a year around concern. Fire conditions arise from a combination of high temperatures, low moisture content in the air and fuel, accumulation of vegetation, and high winds. While wildfire risk has predominantly been associated with more remote forested areas and wildland urban interface (WUI) areas, significant wildfires can also occur in more populated, urban areas.

Location and Extent

Wildfire can affect all areas of the City. CAL FIRE has estimated that the risk varies across the City and has created maps showing risk variance. Following the methodology described in Section 4.3.16 of the Base Plan, wildfire maps for the City of Plymouth were created. Figure D-10 shows the CAL FIRE FHSZ in the City. As shown on the maps, fire hazard severity zones within the City range from urban/unzone (low) to high.
Figure D-10 City of Plymouth – Fire Hazard Severity Zones
Wildfires tend to be measured in structure damages, injuries, and loss of life as well as on acres burned. Fires can have a quick speed of onset, especially during periods of drought or during hot dry summer months. Fires can burn for a short period of time, or may have durations lasting for a week or more. Geographical FHSZ extent from CAL FIRE is shown in Table D-25.

**Table D-25 City of Plymouth – Geographical FHSZ Extents**

<table>
<thead>
<tr>
<th>Fire Hazard Severity Zone</th>
<th>Total Acres</th>
<th>% of Total Acres*</th>
<th>Improved Acres</th>
<th>% of Total Improved Acres*</th>
<th>Unimproved Acres</th>
<th>% of Total Unimproved Acres*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very High</td>
<td>0</td>
<td>0.00%</td>
<td>0</td>
<td>0.00%</td>
<td>0</td>
<td>0.00%</td>
</tr>
<tr>
<td>High</td>
<td>123</td>
<td>0.03%</td>
<td>34</td>
<td>0.02%</td>
<td>89</td>
<td>0.04%</td>
</tr>
<tr>
<td>Moderate</td>
<td>1,308</td>
<td>0.34%</td>
<td>377</td>
<td>0.23%</td>
<td>932</td>
<td>0.42%</td>
</tr>
<tr>
<td>Non-Wildland/non-Urban</td>
<td>148</td>
<td>0.04%</td>
<td>135</td>
<td>0.08%</td>
<td>14</td>
<td>0.01%</td>
</tr>
<tr>
<td>Urban Unzoned</td>
<td>73</td>
<td>0.02%</td>
<td>41</td>
<td>0.02%</td>
<td>32</td>
<td>0.01%</td>
</tr>
<tr>
<td>Total</td>
<td>1,652</td>
<td>0.43%</td>
<td>586</td>
<td>0.35%</td>
<td>1,066</td>
<td>0.48%</td>
</tr>
</tbody>
</table>

Source: CAL FIRE

**Past Occurrences**

A list of state and federal disaster declarations for Amador County from wildfire is shown on Table D-17. These events also likely affected the City to some degree.

**Table D-26 Amador County – State and Federal Disaster Declarations from Wildfire 1950-2019**

<table>
<thead>
<tr>
<th>Disaster Type</th>
<th>Federal Declarations</th>
<th>State Declarations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Count</td>
<td>Years</td>
</tr>
<tr>
<td>Fire</td>
<td>1</td>
<td>2015</td>
</tr>
</tbody>
</table>

Source: Cal OES, FEMA

Fire is a significant concern to the City of Plymouth. Historic fires have occurred in and around the County for decades. Significant historical fires in the Plymouth area include:

- **The 1961 Fire** was actually 2 fires which started on the same day. The second fire started on Dry Creek on September 2nd. Strong winds carried it past Plymouth in the surrounding unincorporated area. Four injuries were recorded and large agricultural losses. At that time the wine tourism aspect of Plymouth did not exist and Plymouth fortunately did not have the extensive losses that many other areas of the county suffered from this fire.

- **The 2014 Sand Fire** affected the City. The fire burned from July 25, 2014 to August 2, 2014. The fire burned 67 structures outside the City Limits. 20 of these were residences and 47 were outbuildings. 1,200 residences (not all located in the City) were evacuated. The Arroyo Ditch suffered extensive damage. The waterway is still not functional since the wildfires. Air quality suffered, and tourism declined during this time.
Vulnerability to Wildfire

The wildfire hazard is one of the highest priority hazards in the County and City, and is the hazard with the greatest potential for catastrophic loss. High fuel loads in the County and Cities, along with geographical and topographical features, create the potential for both natural and human-caused fires that can result in loss of life and property. These factors, combined with natural weather conditions common to the area, including periods of drought, high temperatures, low relative humidity, and periodic winds, can result in frequent and sometimes catastrophic fires. The more urbanized areas within the County are not immune from fire. The dry vegetation and hot and sometimes windy weather, combined with continued growth in the WUI areas, results in an increase in the number of ignitions. Any fire, once ignited, has the potential to quickly become a large, out-of-control fire. As development continues throughout the County and City, especially in these interface areas, the risk and vulnerability to wildfires will likely increase.

The City General Plan Safety Element noted that as a Foothills community, Plymouth’s rural setting presents a constant threat of wildfire. The fuel load, made up of annual grasses, oaks, and other surface vegetation, is classified as a moderate risk for wild-land urban fires. In addition, the City has a significant threat to fire loss along Main Street due to shared common walls between businesses and the building materials used in construction.

Impacts

Potential impacts from wildfire include loss of life and injuries; damage to structures and other improvements, natural and cultural resources, croplands, and timber; and loss of recreational opportunities. Wildfires can cause short-term and long-term disruption to the City. Fires can have devastating effects on watersheds through loss of vegetation and soil erosion, which may impact the City by changing runoff patterns, increasing sedimentation, reducing natural and reservoir water storage capacity, and degrading water quality. Fires can also affect air quality in the City; smoke and air pollution from wildfires can be a severe health hazard.

Although the physical damages and casualties arising from wildland-urban interface fires may be severe, it is important to recognize that they also cause significant economic impacts by resulting in a loss of function of buildings and infrastructure. Economic impacts of loss of transportation and utility services may include traffic delays/detours from road and bridge closures and loss of electric power, potable water, and wastewater services. Schools and businesses can be forced to close for extended periods of time. Recently, the threat of wildfire, combined with the potential for high winds, heat, and low humidity, has caused PG&E to initiate PSPSs which can also significantly impact a community through loss of services, business closures, and other impacts associated with loss of power for an extended period. In addition, catastrophic wildfire can create favorable conditions for other hazards such as flooding, landslides, and erosion during the rainy season.

Based on the vulnerability of the City of Plymouth to the wildfire hazard, the sections that follow describes significant assets at risk in the City.
Assets at Risk

Based on the vulnerability of Plymouth to the wildfire hazard, the sections that follow describes significant assets at risk in the City of Plymouth. This section includes the values at risk, population at risk, and critical facilities at risk.

Values at Risk

GIS was used to determine the possible impacts of wildfire within the City of Plymouth. The methodology described in Section 4.3.18 of the Base Plan was followed in determining structures and values at risk in FHSZs. Summary analysis results for Plymouth are shown in Table D-27, which summarizes total parcel counts, improved parcel counts and their structure values by fire hazard severity zone.

Table D-27 City of Plymouth – Count and Value of Parcels by FHSZ

<table>
<thead>
<tr>
<th>Fire Hazard Severity Zone</th>
<th>Total Parcel Count</th>
<th>Improved Parcel Count</th>
<th>Total Land Value</th>
<th>Improved Structure Value</th>
<th>Total Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very High</td>
<td>0</td>
<td>0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>High</td>
<td>157</td>
<td>139</td>
<td>$10,726,981</td>
<td>$18,356,667</td>
<td>$29,083,648</td>
</tr>
<tr>
<td>Moderate</td>
<td>277</td>
<td>173</td>
<td>$27,840,001</td>
<td>$28,970,059</td>
<td>$56,810,060</td>
</tr>
<tr>
<td>Non-Wildland/Non-Urban</td>
<td>6</td>
<td>4</td>
<td>$1,255,887</td>
<td>$567,415</td>
<td>$1,823,302</td>
</tr>
<tr>
<td>Urban Unzoned</td>
<td>138</td>
<td>110</td>
<td>$9,730,198</td>
<td>$18,694,676</td>
<td>$28,424,874</td>
</tr>
<tr>
<td>City of Plymouth Total</td>
<td>578</td>
<td>426</td>
<td>$49,553,067</td>
<td>$66,588,817</td>
<td>$116,141,884</td>
</tr>
</tbody>
</table>

Source: Amador County 12/31/2018 Parcel/Assessor’s Data, CAL FIRE

Table D-28 breaks out the Table D-27 by adding the property use details by fire hazard severity zone for the City. As shown in both of these tables, the City has large percentages of values in the moderate and high FHSZ.

Table D-28 City of Plymouth – Count and Value of Parcels by Fire Hazard Severity Zone and Property Use

<table>
<thead>
<tr>
<th>Fire Hazard Severity Zone/ Property Use</th>
<th>Total Parcel Count</th>
<th>Improved Parcel Count</th>
<th>Total Land Value</th>
<th>Improved Structure Value</th>
<th>Total Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agricultural</td>
<td>0</td>
<td>0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Commercial</td>
<td>10</td>
<td>5</td>
<td>$1,630,550</td>
<td>$1,387,404</td>
<td>$3,017,954</td>
</tr>
<tr>
<td>Industrial</td>
<td>0</td>
<td>0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>3</td>
<td>0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Residential</td>
<td>143</td>
<td>134</td>
<td>$9,096,431</td>
<td>$16,969,263</td>
<td>$26,065,694</td>
</tr>
<tr>
<td>Unknown</td>
<td>1</td>
<td>0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>High Total</td>
<td>157</td>
<td>139</td>
<td>$10,726,981</td>
<td>$18,356,667</td>
<td>$29,083,648</td>
</tr>
</tbody>
</table>

Moderate
### Fire Hazard Severity Zone / Property Use

<table>
<thead>
<tr>
<th>Fire Hazard Severity Zone / Property Use</th>
<th>Total Parcel Count</th>
<th>Improved Parcel Count</th>
<th>Total Land Value</th>
<th>Improved Structure Value</th>
<th>Total Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural</td>
<td>35</td>
<td>5</td>
<td>$6,277,144</td>
<td>$1,657,618</td>
<td>$7,934,762</td>
</tr>
<tr>
<td>Commercial</td>
<td>30</td>
<td>27</td>
<td>$4,398,772</td>
<td>$6,656,631</td>
<td>$11,055,403</td>
</tr>
<tr>
<td>Industrial</td>
<td>0</td>
<td>0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>13</td>
<td>0</td>
<td>$1,969</td>
<td>$0</td>
<td>$1,969</td>
</tr>
<tr>
<td>Residential</td>
<td>195</td>
<td>141</td>
<td>$17,162,116</td>
<td>$20,655,810</td>
<td>$37,817,926</td>
</tr>
<tr>
<td>Unknown</td>
<td>4</td>
<td>0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td><strong>Moderate Total</strong></td>
<td>277</td>
<td>173</td>
<td><strong>$27,840,001</strong></td>
<td><strong>$28,970,059</strong></td>
<td><strong>$56,810,060</strong></td>
</tr>
</tbody>
</table>

### Non-Wildland / Non-Urban

<table>
<thead>
<tr>
<th>Fire Hazard Severity Zone / Property Use</th>
<th>Total Parcel Count</th>
<th>Improved Parcel Count</th>
<th>Total Land Value</th>
<th>Improved Structure Value</th>
<th>Total Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural</td>
<td>4</td>
<td>4</td>
<td>$1,255,887</td>
<td>$567,415</td>
<td>$1,823,302</td>
</tr>
<tr>
<td>Commercial</td>
<td>0</td>
<td>0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Industrial</td>
<td>0</td>
<td>0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>2</td>
<td>0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Residential</td>
<td>0</td>
<td>0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Unknown</td>
<td>0</td>
<td>0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>**Non-Wildland / Non-Urban Total</td>
<td>6</td>
<td>4</td>
<td><strong>$1,255,887</strong></td>
<td><strong>$567,415</strong></td>
<td><strong>$1,823,302</strong></td>
</tr>
</tbody>
</table>

### Urban Unzoned

<table>
<thead>
<tr>
<th>Fire Hazard Severity Zone / Property Use</th>
<th>Total Parcel Count</th>
<th>Improved Parcel Count</th>
<th>Total Land Value</th>
<th>Improved Structure Value</th>
<th>Total Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural</td>
<td>0</td>
<td>0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Commercial</td>
<td>21</td>
<td>16</td>
<td>$4,872,019</td>
<td>$9,246,586</td>
<td>$14,118,605</td>
</tr>
<tr>
<td>Industrial</td>
<td>0</td>
<td>0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>14</td>
<td>0</td>
<td>$66,767</td>
<td>$0</td>
<td>$66,767</td>
</tr>
<tr>
<td>Residential</td>
<td>103</td>
<td>94</td>
<td>$4,791,412</td>
<td>$9,448,090</td>
<td>$14,239,502</td>
</tr>
<tr>
<td>Unknown</td>
<td>0</td>
<td>0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td><strong>Urban Unzoned Total</strong></td>
<td>138</td>
<td>110</td>
<td><strong>$9,730,198</strong></td>
<td><strong>$18,694,676</strong></td>
<td><strong>$28,424,874</strong></td>
</tr>
</tbody>
</table>

### City of Plymouth Total

<table>
<thead>
<tr>
<th>Fire Hazard Severity Zone / Property Use</th>
<th>Total Parcel Count</th>
<th>Improved Parcel Count</th>
<th>Total Land Value</th>
<th>Improved Structure Value</th>
<th>Total Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>City of Plymouth</td>
<td>578</td>
<td>426</td>
<td><strong>$49,553,067</strong></td>
<td><strong>$66,588,817</strong></td>
<td><strong>$116,141,884</strong></td>
</tr>
</tbody>
</table>

Source: Amador County 12/31/2018 Parcel/Assessor's Data, CAL FIRE

### Population at Risk

The FHSZ dataset was overlayed on the parcel layer. Those residential parcel centroids that intersect the FHSZs were counted and multiplied by the 2010 Census Bureau average household factors for the City of Plymouth – 2.47. According to this analysis, there is a total population of 669 residents of Plymouth at risk to moderate or higher FHSZs. This is shown in Table D-29.
Table D-29 City of Plymouth – Count of Improved Residential Parcels and Population by Fire Hazard Severity Zone

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>Moderate Improved Residential Parcels</th>
<th>Moderate Population</th>
<th>High Improved Residential Parcels</th>
<th>High Population</th>
<th>Very High Improved Residential Parcels</th>
<th>Very High Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plymouth</td>
<td>141</td>
<td>348</td>
<td>134</td>
<td>331</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Source: Amador County 12/31/2018 Parcel/Assessor’s Data, CAL FIRE

Critical Facilities at Risk

An analysis was performed on the critical facility inventory in Plymouth in identified FHSZs. Critical facilities in a FHSZ in the City of Plymouth are shown in Figure D-11 and detailed in Table D-30. Details of critical facility definition, type, name and address and jurisdiction by fire hazard severity zone are listed in Appendix F.
Figure D-11 City of Plymouth – Critical Facilities in Fire Hazard Severity Zones
### Table D-30 City of Plymouth – Critical Facilities by Fire Hazard Severity Zone

<table>
<thead>
<tr>
<th>Fire Hazard Severity Zones</th>
<th>Critical Facility Category / Critical Facility Type</th>
<th>Facility Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moderate</td>
<td>Essential Services</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bridge</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Evacuation Shelter</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Library</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Post Office</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Power Substation</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Essential Services Total</td>
<td>5</td>
</tr>
<tr>
<td>Moderate Total</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>Urban Unzoned</td>
<td>Essential Services</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Clinic</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>EMS Station</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Fire Station</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Public Administration Building</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Essential Services Total</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>At Risk Population</td>
<td></td>
</tr>
<tr>
<td></td>
<td>School</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>At Risk Population Total</td>
<td>1</td>
</tr>
<tr>
<td>Urban Unzoned Total</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>City of Plymouth Total</td>
<td></td>
<td>10</td>
</tr>
</tbody>
</table>

Source: CAL FIRE, Amador County GIS

### Future Development

Additional growth and development within moderate or higher fire hazard severity zones in the City would place additional values at risk to wildfire. City building codes are in effect and should continue to be updated as appropriate to reduce this risk. Outside of the City’s core, the remainder of land is in the moderate and high FHSZs. Any building in these areas would place additional risk to wildfire.

### GIS Analysis

The City provided Future Development Areas were used as the basis for the inventory of future development areas for the City. Using the GIS parcel spatial file for each of these areas, the 3 areas and 97 parcels associated with future development projects for which the analysis was to be performed were identified. Utilizing the future development project spatial layer, the parcel centroid data was intersected to determine the parcel counts within each area. Figure D-12 shows the locations of future development areas the City is planning to develop on the FHSZs. Table D-31 shows the parcels and acreages of each future development area in the City in each FHSZ.
Figure D-12 City of Plymouth – Future Development Areas in FHSZs
### Table D-31 City of Plymouth – Future Development Parcels and Acres in FHSZs

<table>
<thead>
<tr>
<th>Future Development / Fire Hazard Severity Zone</th>
<th>Total Parcel Count</th>
<th>Improved Parcel Count</th>
<th>Unimproved Parcel Count</th>
<th>Total Acres</th>
<th>Total Improved Acres</th>
<th>Total Unimproved Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Greilich</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Very High</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>High</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Moderate</td>
<td>1</td>
<td>27</td>
<td>0</td>
<td>170.90</td>
<td>11.48</td>
<td>0</td>
</tr>
<tr>
<td>Urban Unzoned</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Greilich Total</strong></td>
<td>1</td>
<td>27</td>
<td>0</td>
<td>170.90</td>
<td>11.48</td>
<td>0</td>
</tr>
<tr>
<td><strong>Zinfandel</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Very High</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>High</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Moderate</td>
<td>63</td>
<td>14</td>
<td>36</td>
<td>362.27</td>
<td>335.17</td>
<td>350.79</td>
</tr>
<tr>
<td>Urban Unzoned</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Zinfandel Total</strong></td>
<td>63</td>
<td>16</td>
<td>36</td>
<td>362.27</td>
<td>357.84</td>
<td>350.79</td>
</tr>
<tr>
<td><strong>Plymouth SOI</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Very High</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>High</td>
<td>6</td>
<td>0</td>
<td>4</td>
<td>31.11</td>
<td>0</td>
<td>8.44</td>
</tr>
<tr>
<td>Moderate</td>
<td>27</td>
<td>1</td>
<td>13</td>
<td>548.43</td>
<td>170.90</td>
<td>213.25</td>
</tr>
<tr>
<td>Urban Unzoned</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Plymouth SOI Total</strong></td>
<td>33</td>
<td>1</td>
<td>17</td>
<td>579.54</td>
<td>170.90</td>
<td>221.69</td>
</tr>
<tr>
<td><strong>Grand Total</strong></td>
<td>97</td>
<td>44</td>
<td>53</td>
<td>1,112.71</td>
<td>540.22</td>
<td>572.48</td>
</tr>
</tbody>
</table>

Source: City of Plymouth, Amador County LAFCO, CAL FIRE

### D.6 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 education, outreach, and partnerships, and other mitigation efforts.
D.6.1. Regulatory Mitigation Capabilities

Table D-32 lists regulatory mitigation capabilities, including planning and land management tools, typically used by local jurisdictions to implement hazard mitigation activities and indicates those that are in place in the City of Plymouth.

Table D-32 City of Plymouth Regulatory Mitigation Capabilities

<table>
<thead>
<tr>
<th>Plans</th>
<th>Y/N</th>
<th>Year</th>
<th>Does the plan/program address hazards?</th>
<th>Does the plan identify projects to include in the mitigation strategy?</th>
<th>Can the plan be used to implement mitigation actions?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comprehensive/Master Plan/General Plan</td>
<td>Y</td>
<td>2014</td>
<td>Plan addresses hazards and ways to mitigate them.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Capital Improvements Plan</td>
<td>Y</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Economic Development Plan</td>
<td>Y</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Local Emergency Operations Plan</td>
<td>Y</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Continuity of Operations Plan</td>
<td>N</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transportation Plan</td>
<td>Y</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stormwater Management Plan/Program</td>
<td>N</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engineering Studies for Streams</td>
<td>N</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Community Wildfire Protection Plan</td>
<td>N</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other special plans (e.g., brownfields redevelopment, disaster recovery, coastal zone management, climate change adaptation)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Building Code, Permitting, and Inspections</th>
<th>Y/N</th>
<th>Are codes adequately enforced?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building Code</td>
<td>Y</td>
<td>Version/Year: 2013 CBC</td>
</tr>
<tr>
<td>Building Code Effectiveness Grading Schedule (BCEGS) Score</td>
<td>Score:</td>
<td></td>
</tr>
<tr>
<td>Fire department ISO rating:</td>
<td>Y</td>
<td>Rating: 9</td>
</tr>
<tr>
<td>Site plan review requirements</td>
<td>Y</td>
<td>Adequately enforced/</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Land Use Planning and Ordinances</th>
<th>Y/N</th>
<th>Is the ordinance an effective measure for reducing hazard impacts?</th>
<th>Is the ordinance adequately administered and enforced?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zoning ordinance</td>
<td>Y</td>
<td>Ordinance is effective, administered, and enforced.</td>
<td></td>
</tr>
<tr>
<td>Subdivision ordinance</td>
<td>Y</td>
<td>Ordinance is effective, administered, and enforced.</td>
<td></td>
</tr>
<tr>
<td>Floodplain ordinance</td>
<td>Y</td>
<td>Ordinance is effective, administered, and enforced.</td>
<td></td>
</tr>
<tr>
<td>Natural hazard specific ordinance (stormwater, steep slope, wildfire)</td>
<td>N</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flood insurance rate maps</td>
<td>N</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elevation Certificates</td>
<td>N</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acquisition of land for open space and public recreation uses</td>
<td>N</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Erosion or sediment control program | N

Other

**How can these capabilities be expanded and improved to reduce risk?**

The City would greatly benefit from completing a Community Wildfire Protection Plan since wildfire is their greatest risk as well as establishing a Continuity of Operations plan to address all disasters.

Source: City of Plymouth

---

**City of Plymouth General Plan (2009)**

The City of Plymouth General Plan Program serves as the blueprint for future growth and development and provides comprehensive planning for the future. It encompasses what the City is now, and what it intends to be, and provides the overall framework of how to achieve this future condition (see the discussion in Section 4.3.1 Growth and Development Trends).

California Law requires that every City and County in the state have a General Plan. The 2030 City of Plymouth General Plan was adopted in 2009. The General Plan is the most important policy and planning document in the city, and is used by virtually every department. The General Plan is the City's statement of its vision for the future. It contains broad community values and goals, giving a picture of the desired character and quality of development in the County and policies which outline the steps to accomplish those goals.

The General Plan includes a Safety Element that focuses on safety issues to be considered in planning for the present and future development of the City Planning Area. Identified hazards include wildfire, geologic/seismic, flooding, and other natural and man-made hazards (such as hazardous materials). Mitigation-related goals are as follows:

- **9A** Use established laws and guidelines to effectively mitigate the impacts of new development and, when appropriate, assess fees to fund mitigation measures.
- **9B** Provide appropriate training to adequately manage emergency and disaster situations.
- **9C** Provide guidance to citizens regarding their suitable preparation for and response to emergencies.
- **9D** Provide for citizen response teams to aid the City and other agencies in providing emergency response services.
- **9E** Reduce the loss of life, injury, and property damage due to geological and seismic hazards.
- **9F** Discourage development from occurring in areas with increased risk of geological and seismic hazards.
- **9G** Maintain an updated emergency response plan to reflect the most current information available regarding the potential risks to persons and property from flooding within the City.
- **9H** Provide guidance to citizens regarding their preparation for and response to floods.
- **9I** Coordinate with the Fire Chief and the City Engineer to ensure adequate fire protection throughout the community.

**Emergency Operations Plan, 2006**

The plan is designed to provide a comprehensive, multi-use, emergency management program for the City of Plymouth, in an effort to: lessen the effects of hazards, enhance response during emergencies, provide necessary assistance to citizens, prepare for measures to be taken which will preserve life and minimize damage, and establish a recovery system in order to return the City to normal operations as soon as feasible.
**Mitigation Related Ordinances**

**Emergency Organization and Functions (Chapter 8.07)**

The declared purposes of this chapter are to provide for the preparation and carrying out of plans for the protection of persons and property within this City in the event of an emergency; the direction of the emergency functions of this City with all other public agencies, corporations, organizations, and affected private persons.

The Plymouth Disaster Council is hereby created and shall consist of the following:

- The Mayor, who shall be Director.
- A member of the City Council who shall be appointed by the City Council, who shall be Vice-Director.
- Such representative of civic, business, labor, veterans, professional or other organizations having an official emergency responsibility, as may be appointed by the Director with the advice and consent of the City Council.

It shall be the duty of the Plymouth Disaster Council, and it is hereby empowered, to develop and recommend for adoption by the City Council, emergency and mutual aid plans and agreements and such ordinances and resolutions and rules and regulations as are necessary to implement such plans and agreements. The Disaster Council shall meet upon call of the Director or, in his absence from the City or inability to call such meeting, upon call of the Vice-Director.

The Plymouth Disaster Council shall be responsible for the implementation of all parts of the Amador County Emergency Plan which are applicable to this City of Plymouth, which plan shall provide for the effective mobilization of all of the resources of this City, both public and private, to meet any condition constituting a local emergency, state of emergency or state of war emergency; and shall provide for the organization, powers and duties, services, and staff of the emergency organization.

**Building and Construction (Title 15)**

In accordance with California Government Code Section 50022.2, the following publications are hereby adopted by reference:


Subdivisions (Title 16)

This title is adopted to:

Establish minimum permissible regulations and standards for the division and subdivision of land, for the design, improvement, and survey data related thereto, and for the physical alteration of the land involved therein, and;

Provide a guide for owners in the proper division of their land, and to provide for orderly development of the City consistent with the General Plan.

Zoning (Title 19)

The purpose of this chapter is to establish standard procedures necessary for the clear and consistent processing of land use and planning permits and entitlements, as well as to establish procedures necessary for the efficient processing of planning and development applications and requests.

City of Plymouth Flood Damage Prevention Ordinance (Chapter 8.11)

The flood hazard areas of the City are subject to periodic inundation which results in loss of life and property, health and safety hazards, disruption of commerce and governmental services, extraordinary public expenditures for flood protection and relief, and impairment of the tax base, all of which adversely affect the public health, safety and general welfare. These flood losses are caused by the cumulative effect of obstructions in areas of special flood hazards which increase flood heights and velocities, and when
inadequately anchored, damage uses in other areas. Uses that are inadequately floodproofed, elevated or otherwise protected from flood damage also contribute to the flood loss.

It is the purpose of this chapter to promote the public health, safety and general welfare, and to minimize public and private losses due to flood conditions in specific areas by provisions designed:

➢ To protect human life and health;
➢ To minimize expenditure of public money for costly flood control projects;
➢ To minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;
➢ To minimize prolonged business interruptions;
➢ To minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets and bridges located in areas of special flood hazard;
➢ To help maintain a stable tax base by providing for the second use and development of areas of special flood hazard so as to minimize future flood blight areas;
➢ To ensure that potential buyers are notified that property is in an area of special flood hazard; and
➢ To ensure that those who occupy the areas of special flood hazard assume responsibility for their actions.

In order to accomplish its purposes, this chapter includes methods and provisions for:
➢ Restricting or prohibiting uses which are dangerous to health, safety, and property due to water or erosion hazards, or which result in damaging increases in erosion or flood heights or velocities;
➢ Requiring that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction;
➢ Controlling the alteration of natural floodplains, stream channels, and natural protective barriers, which help accommodate or channel floodwaters;
➢ Controlling filling, grading, dredging, and other development which may increase flood damage; and
➢ Preventing or regulating the construction of flood barriers which will unnaturally divert flood waters or which may increase flood hazards in other areas.

This chapter shall apply to all areas of special flood hazards, areas of flood-related erosion hazards and areas of mudslide (i.e., mudflow) hazards within the jurisdiction of the City. A development permit shall be obtained before construction or development begins within any area of special flood hazards, areas of flood-related erosion hazards, or areas of mudslide.

Lands which are located within areas of special flood hazard are areas designated as floodways. Since the floodway is an extremely hazardous area due to the velocity of floodwaters which carry debris, potential projectiles and erosion potential, the following provisions apply:

➢ Encroachments, including fill, new construction, substantial improvements, and other development are prohibited unless certification by a registered professional engineer or architect is provided demonstrating that the encroachments will not result in any increase in flood levels during the occurrence of the base flood discharge.
➢ If the previous is satisfied, all new construction and substantial improvements shall comply with all other applicable flood hazard reduction provisions.

This chapter also establishes the base flood elevation and requires new construction or substantial improvements to be located one foot above the base flood elevation.
D.6.2. Administrative/Technical Mitigation Capabilities

Table D-33 identifies the City department(s) responsible for activities related to mitigation and loss prevention in Plymouth.

**Table D-33 City of Plymouth’s Administrative and Technical Mitigation Capabilities**

<table>
<thead>
<tr>
<th>Administration</th>
<th>Y/N</th>
<th>Describe capability</th>
<th>Is coordination effective?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planning Commission</td>
<td>Y</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mitigation Planning Committee</td>
<td>N</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maintenance programs to reduce risk (e.g., tree trimming, clearing drainage systems)</td>
<td>Y</td>
<td>Tree trimming on a contract basis. Clearing of drainage system is done by AWA and Public Works staff.</td>
<td></td>
</tr>
<tr>
<td>Mutual aid agreements</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Staff</th>
<th>Y/N</th>
<th>FT/PT</th>
<th>Describe capability</th>
<th>Is staffing adequate to enforce regulations?</th>
<th>Is staff trained on hazards and mitigation?</th>
<th>Is coordination between agencies and staff effective?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chief Building Official</td>
<td>Y</td>
<td>PT</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Floodplain Administrator</td>
<td>Y</td>
<td></td>
<td>City engineer</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emergency Manager</td>
<td>Y</td>
<td></td>
<td>Mayor</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Community Planner</td>
<td>Y</td>
<td>PT</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Civil Engineer</td>
<td>Y</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GIS Coordinator</td>
<td>N</td>
<td></td>
<td>Depend on County for GIS support</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Technical | | | | |
| Warning systems/services (Reverse 911, outdoor warning signals) | Y | CodeRed communication system | |
| Hazard data and information | | | |
| Grant writing | Y | | |
| Hazus analysis | | | |
| Other | | | |

How can these capabilities be expanded and improved to reduce risk?

CodeRed training of additional staff is in progress, as well as a continual refinement of our system.

Source: City of Plymouth

D.6.3. Fiscal Mitigation Capabilities

Table D-34 identifies financial tools or resources that the City could potentially use to help fund mitigation activities.
### Table D-34 City of Plymouth’s Fiscal Mitigation Capabilities

<table>
<thead>
<tr>
<th>Funding Resource</th>
<th>Access/Eligibility (Y/N)</th>
<th>Has the funding resource been used in past and for what type of activities? Could the resource be used to fund future mitigation actions?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capital improvements project funding</td>
<td>N</td>
<td></td>
</tr>
<tr>
<td>Authority to levy taxes for specific purposes</td>
<td>N</td>
<td></td>
</tr>
<tr>
<td>Fees for water, sewer, gas, or electric services</td>
<td>N</td>
<td></td>
</tr>
<tr>
<td>Impact fees for new development</td>
<td>N</td>
<td></td>
</tr>
<tr>
<td>Storm water utility fee</td>
<td>N</td>
<td></td>
</tr>
<tr>
<td>Incur debt through general obligation bonds and/or special tax bonds</td>
<td>Y</td>
<td>Voter approval required.</td>
</tr>
<tr>
<td>Incur debt through private activities</td>
<td>N</td>
<td></td>
</tr>
<tr>
<td>Community Development Block Grant</td>
<td>Y</td>
<td>Voter approval required.</td>
</tr>
<tr>
<td>Other federal funding programs</td>
<td>N</td>
<td></td>
</tr>
<tr>
<td>State funding programs</td>
<td>N</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

How can these capabilities be expanded and improved to reduce risk?

A review of funding resources by the City Finance Director would be appropriate.

Source: City of Plymouth

### D.6.4. Mitigation Education, Outreach, and Partnerships

Table D-35 identifies education and outreach programs and methods already in place that could be/or are used to implement mitigation activities and communicate hazard-related information.

### Table D-35 City of Plymouth’s Mitigation Education, Outreach, and Partnerships

<table>
<thead>
<tr>
<th>Program/Organization</th>
<th>Yes/No</th>
<th>Describe program/organization and how relates to disaster resilience and mitigation. Could the program/organization help implement future mitigation activities?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.</td>
<td>Y</td>
<td>Foothill conservancy (environmental protection)</td>
</tr>
<tr>
<td>Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)</td>
<td>Y</td>
<td>Responsible water use, fire safety, and household preparedness information available to the public and provided in newsletters.</td>
</tr>
<tr>
<td>Natural disaster or safety related school programs</td>
<td>N</td>
<td></td>
</tr>
<tr>
<td>StormReady certification</td>
<td>N</td>
<td></td>
</tr>
<tr>
<td>Firewise Communities certification</td>
<td>N</td>
<td></td>
</tr>
<tr>
<td>Public-private partnership initiatives addressing disaster-related issues</td>
<td>N</td>
<td></td>
</tr>
</tbody>
</table>
Review Firewise Community Program requirements, since wildfire is a primary concern.

Source: City of Plymouth

D.6.5. Other Mitigation Efforts

The City has many other completed or ongoing mitigation efforts that include the following:

➢ City performs tree trimming and removal of hazardous trees on City property.
➢ CodeRed was acquired and training was performed.
➢ The General Plan was updated, and the LHMP was integrated into it.

D.7 Mitigation Strategy

D.7.1. Mitigation Goals and Objectives

The City of Plymouth adopts the hazard mitigation goals and objectives developed by the HMPC and described in Chapter 5 Mitigation Strategy.

D.7.2. NFIP Mitigation Strategy

The City of Plymouth joined the National Flood Insurance Program (NFIP) on December 1, 1990. As a participant of the NFIP, the City of Plymouth has administered floodplain management regulations that meet the minimum requirements of the NFIP. The management program objective is to protect people and property within the City. The City of Plymouth will continue to comply with the requirements of the NFIP in the future.

In addition, the City of Plymouth actively participates with Amador County to address local NFIP issues through a regional approach. Many of the program activities are the same for the City of Plymouth as for Amador County since participation at the County level includes all local jurisdictions.

The City of Plymouth Public Works (in conjunction with the City’s contract engineer) Department provides public outreach activities which include map information services, public awareness, public hazard disclosure, and flood protection information. This information is readily available to the public and consists of current and accurate flood mapping. In addition, the Planning and Engineering Department provides information about our stormwater management program and up-to-date information related to the maintenance of our drainage system.

The National Flood Insurance Program’s (NFIP) Community Rating System (CRS) is a voluntary incentive program that recognizes and encourages community floodplain management activities that exceed the minimum NFIP requirements. As a result, flood insurance premium rates are discounted to reflect the...
reduced flood risk resulting from the community actions meeting the three goals of the CRS which are to reduce flood losses, facilitate accurate insurance rating, and promote the awareness of flood insurance. The City of Plymouth is not a current participant in the CRS program.

More information about the floodplain administration in the City of Plymouth can be found in Table D-36.

**Table D-36 City of Plymouth Compliance with NFIP**

<table>
<thead>
<tr>
<th>NFIP Topic</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Insurance Summary</strong></td>
<td></td>
</tr>
<tr>
<td>How many NFIP policies are in the community? What is the total premium and coverage?</td>
<td>0 policies</td>
</tr>
<tr>
<td>How many claims have been paid in the community? What is the total amount of paid claims? How many of the claims were for substantial damage?</td>
<td>0 claims</td>
</tr>
<tr>
<td>How many structures are exposed to flood risk within the community?</td>
<td>1 in the 1% annual chance floodplain</td>
</tr>
<tr>
<td>Repetitive Loss (RL) and Severe Repetitive Loss Properties (SRL)</td>
<td>0 RL and SRL properties</td>
</tr>
<tr>
<td>Describe any areas of flood risk with limited NFIP policy coverage</td>
<td>None</td>
</tr>
<tr>
<td><strong>Staff Resources</strong></td>
<td></td>
</tr>
<tr>
<td>Is the Community Floodplain Administrator or NFIP Coordinator certified?</td>
<td>N</td>
</tr>
<tr>
<td>Provide an explanation of NFIP administration services (e.g., permit review, GIS, education or outreach, inspections, engineering capability)</td>
<td>Permit review. Inspections. Engineering capabilities.</td>
</tr>
<tr>
<td>What are the barriers to running an effective NFIP program in the community, if any?</td>
<td>No barriers currently exist that limits the effectiveness of the NFIP program.</td>
</tr>
<tr>
<td><strong>Compliance History</strong></td>
<td></td>
</tr>
<tr>
<td>Is the community in good standing with the NFIP?</td>
<td>Y</td>
</tr>
<tr>
<td>Are there any outstanding compliance issues (i.e., current violations)?</td>
<td>N</td>
</tr>
<tr>
<td>When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?</td>
<td>12/17/2013 (CAC)</td>
</tr>
<tr>
<td></td>
<td>3/24/2005 (CAV)</td>
</tr>
<tr>
<td>Is a CAV or CAC scheduled or needed?</td>
<td>N</td>
</tr>
<tr>
<td><strong>Regulation</strong></td>
<td></td>
</tr>
<tr>
<td>When did the community enter the NFIP?</td>
<td>12/1/1990</td>
</tr>
<tr>
<td>Are the FIRMs digital or paper?</td>
<td>Digital</td>
</tr>
<tr>
<td>Do floodplain development regulations meet or exceed FEMA or State minimum requirements? If so, in what ways?</td>
<td>Meet</td>
</tr>
<tr>
<td>Provide an explanation of the permitting process.</td>
<td>City engineer review permit, performs inspection, and ensures floodplain ordinance is enforced.</td>
</tr>
<tr>
<td><strong>Community Rating System</strong></td>
<td></td>
</tr>
<tr>
<td>Does the community participate in CRS?</td>
<td>N</td>
</tr>
<tr>
<td>What is the community’s CRS Class Ranking?</td>
<td>–</td>
</tr>
<tr>
<td>What categories and activities provide CRS points and how can the class be improved?</td>
<td>–</td>
</tr>
</tbody>
</table>
D.7.3. Mitigation Actions

The planning team for the City of Plymouth 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. The following hazards were considered a priority for purposes of mitigation action planning:

- Climate Change
- Drought and Water Shortage
- Severe Weather: Extreme Heat
- Wildfire

It should be noted that many of the projects submitted by each jurisdiction in Table 5-4 in the Base Plan benefit all jurisdictions whether or not they are the lead agency. Further, many of these mitigation efforts are collaborative efforts among multiple local, state, and federal agencies. In addition, the countywide public outreach action, as well as many of the emergency services actions, apply to all hazards regardless of hazard priority. Collectively, this multi-jurisdictional mitigation strategy includes only those actions and projects which reflect the actual priorities and capacity of each jurisdiction to implement over the next 5 years covered by this plan. It should further be noted, that although a jurisdiction may not have specific projects identified for each priority hazard for the five year coverage of this planning process, each jurisdiction has focused on identifying those projects which are realistic and reasonable for them to implement and would like to preserve their hazard priorities should future projects be identified where the implementing jurisdiction has the future capacity to implement.

**Multi-Hazard Actions**

**Action 1. Integrate Local Hazard Mitigation Plan into Safety Element of General Plan**


**Goals Addressed:** 1, 2, 3, 4, 5

**Issue/Background:** Local jurisdictional reimbursement for mitigation projects and cost recovery after a disaster is guided by Government Code Section 8685.9 (AB 2140).

**Project Description:** Specifically, this section requires that each jurisdiction adopt a local hazard mitigation plan (LHMP) in accordance with the federal Disaster Mitigation Act of 2000 as part of the Safety
Element of its General Plan. Adoption of the LHMP into the Safety Element of the General Plan may be by reference or incorporation.

**Other Alternatives:** No action

**Existing Planning Mechanisms through which Action will be Implemented:** Safety Element of General Plan

**Responsible Office:** City of Plymouth Planning Department

**Cost Estimate:** Jurisdictional board/staff time

**Benefits (avoided Losses):** Incorporation of an adopted LHMP into the Safety Element of the General Plan will help jurisdictions maximize the cost recovery potential following a disaster.

**Potential Funding:** Local budgets

**Timeline:** As soon as possible

**Project Priority:** High

### Action 2. Enhance Public Education and Awareness of Natural Hazards and Public Understanding of Disaster Preparedness


**Goals Addressed:** 1, 2, 3, 4, 5

**Issue/Background:** The City and County play a key role in public outreach/education efforts to communicate the potential risk and vulnerability of their community to the effects of natural hazards. A comprehensive multi-hazard public education program will better inform the community of natural hazards of concern and actions the public can take to be better prepared for the next natural disaster event.

**Project Description:** A comprehensive multi-hazard outreach program will ascertain both broad and targeted educational needs throughout the community. The City will work with the County and other agencies as appropriate to develop timely and consistent annual outreach messages in order to communicate the risk and vulnerability of natural hazards of concern to the community. This includes measures the public can take to be better prepared and to reduce the damages and other impacts from a hazard event. The public outreach effort will leverage and build upon existing mechanisms.

**Other Alternatives:** Continue public information activities currently in place.
Existing Planning Mechanism(s) through which Action Will Be Implemented: Existing County outreach programs will be reviewed for effectiveness and leveraged and expanded upon to reach the broader region.

Responsible Office: City of Plymouth in partnership with the County

Cost Estimate: Annual costs to be determined, and will depend on the scope and frequency of activities and events as well as volunteer participation

Benefits (Losses Avoided): Increase residents’ knowledge of potential hazards and activities required to mitigate hazards and be better prepared. Protect lives and reduce damages, relatively low cost to implement.

Potential Funding: Local budgets, grant funds

Timeline: Ongoing/Annual public awareness campaign

Project Priority: High

Action 3. Secure City Hall as Critical Infrastructure with Commercial Generator

Hazards Addressed: Excessive Heat/Cold, Climate Change, All General Emergencies

Goals Addressed: 1, 2, 3, 4, 5

Issues/Background: Plymouth is the only City located on the Northwestern side of Amador County. It is the hub for many smaller unincorporated communities which surround it, such as the Shenandoah Valley, Fiddletown and River Pines. During emergencies City Hall is used as a shelter, heating and cooling station, charging station, information outlet and help center. To better support the communities in need a standby generator which could run more services from City Hall is essential.

Project Description:

➢ Purchase and install a commercial generator to run all aspects of City Hall which is used as a critical facility during emergencies, long term power outages and severe weather, serving multiple communities in Northwestern Amador.
➢ Determine and address all possible public assistance which may be increased with a stable energy system.

Other Alternatives: None

Existing Planning Mechanisms through which Action Will Be Implemented: N/A

Responsible Office/Partners: Building Department, Public Works, Administration

Cost Estimate: $30,000

Benefits/Losses Avoided:
Potential Funding: FEMA Hazard Mitigation Grant Program

Timeline: 1 year

Project Priority: High

Action 4. Indian Creek Stream Restoration & Culvert Improvement in Flood Hazard Zone

Hazards Addressed: Flood, Drought, Climate Change, and Storm Water Management

Goals Addressed: 1, 2, 3, 4, 5

Issue/Background: Indian Creek travels through the City of Plymouth and its flood zones. In storm season it overflows and leaks flooding public and privately owned areas and roads creating hazards and damage. In summer, water pulled from the Cosumnes River through City water rights is used for agriculture. Water lost from leaking creek beds is water that is needed to maintain local agriculture in the community. This has become an even greater problem since the Sand Fire in 2014 (Damage was caused to the City’s Arroyo Ditch line near the pull site of the Cosumnes River.), which has affected the water flow volumes higher up the creek, already reducing the amount of water that can travel into the City of Plymouth and beyond.

Project Description:

➢ Rebuild the levees to secure the water and stop damage from leakage. (One difficult area abuts the business of Rory’s Towing & Repair, constantly flooding the business.)
➢ Clear creek beds of brush and debris allowing for fluent flow.
➢ Upgrade culverts to accommodate more volume to travel freely, save water from evaporation and help manage flooding in the City’s flood zones.

Other Alternatives: None

Existing Planning Mechanisms through which Action Will Be Implemented: N/A

Responsible Office/Partners: Building Department, Public Works

Cost Estimate:

Benefits/Losses Avoided: Less water lost in winter causing damage to property and flooding roads and more available agriculture water in the dry season.

Potential Funding: FEMA Hazard Mitigation Grant Program

Timeline: 4 years

Project Priority: High
Action 5. Maintain and Enhance Water Canal by Converting Earthen Arroyo Ditch to Fixed Pipeline or Gunite Lined Canal

Hazards Addressed: Flood, Drought, Climate Change and Storm Water Management

Goals Addressed: 1, 2, 3, 4, 5

Issue/Background: The Arroyo Ditch has been supplying water to the City of Plymouth under CA water rights for decades. It is still a vital water supply for the local agricultural community. In 2014 the Sand Fire burned much of the Arroyo Ditch destroying its wooden flues, covering the area with burn debris and limiting access to the area. This has drastically reduced the amount of water which can now make its way to the Plymouth area. The City currently is working with CAL OES and FEMA to obtain funding to repair the damage from the Sand Fire. The City is currently holding waiting for a hearing date on the matter. The southern area of the ditch was not damaged by fire; however it is the area that enters into the City and needs the most water control to prevent flooding and serve the City. Much of the water pulled from the Cosumnes River is lost to evaporation and saturation and is never available as supply water. Piping or lining the canal with gunite would positively affect the efficiency of the water line and greatly increase water supply to the community.

Project Description: Replace the open earthen ditch with fixed pipe and/or gunite lining to increase available water supply eliminating evaporation and saturation.

Other Alternatives: None

Existing Planning Mechanisms through which Action Will Be Implemented: N/A

Responsible Office/Partners: City Engineering, Public Works

Cost Estimate: $500,000

Benefits/Losses Avoided: Potentially double available water supply from the Arroyo Ditch. Creating a more reliable water source for the local agricultural community and emergencies such as wildfire.

Potential Funding: FEMA Hazard Mitigation Grant Program

Timeline: 5 years

Project Priority: High

Action 6. Develop a Community Wildfire Prevention Plan

Hazards Addressed: Wildfire, Drought, High Winds and Extreme Heat

Goals Addressed: 1, 2, 3, 4, 5

Issue/Background: Plymouth is surrounded by unincorporated area, which for the most part is WUI (Wildland Urban Interface). In 2014, the Sand Fire started in this type of area when a vehicle drove “off
road” into dry grasses. This fire destroyed 20 residences, 47 outbuildings, burned 4,240 acres and contributed to 2 deaths. Less than 5 miles outside City limits, a big factor that saved the City of approximately 1,000 residents was the direction of the wind. This small City was still greatly impacted, as firefighters made basecamp at the Amador County Fairgrounds and trucks pulled water non-stop from the City hydrants the population faced unsafe air quality, fear and economic shutdown. Plymouth’s businesses rely on tourism brought by the Shenandoah Valley wine industry. This event made it clear that planning and preparation for the next fire was essential to the City’s survival.

**Project Description:**

- Develop and implement a Public Awareness Education Program including defensible space, best practice guidelines and self-preparedness and evacuation knowledge.
- Revise building requirements to ensure new development is using fire resistant materials and strategies and incentivize renovation projects on older buildings to do the same.
- Increase Fuel Management efforts focusing on undeveloped parcels, non-resident property owners whose land or property is neglected and WUI areas.

**Other Alternatives:** None

**Existing Planning Mechanisms through which Action Will Be Implemented:** This would create the planning mechanism.

**Responsible Office/Partners:** Building Department, Code Enforcement, Fire Department

**Cost Estimate:** To be determined

**Benefits/Losses Avoided:** Reduced risk to wildfire for City.

**Potential Funding:** FEMA Hazard Mitigation Grant Program

**Timeline:** 5 years

**Project Priority:** High