Delta Annex Chapter 1 City of Isleton

1.1 Introduction

This Annex details the hazard mitigation planning elements specific to the City of Isleton, a previously participating jurisdiction to the 2016 Sacramento 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 Isleton, with a focus on providing additional details on the risk assessment and mitigation strategy for this community.

1.2 Planning Process

As described above, the City followed the planning process detailed in Chapter 3 of the Base Plan. In addition to providing representation on the Sacramento 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 1-1. Additional details on plan participation and City representatives are included in Appendix A.

Table 1-1 City of Isleton – Planning Team

Name	Position/Title	How Participated
Charles Bergson	City Manager	Attended planning meetings, public hearings, review, comment
James Gates	Assistant City Planner	Attended planning meetings, public hearings, review, comment
Planning Commission	Planning Commission	Held public hearings, review, comment

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 2016 Plan into existing planning mechanisms and programs. Specifically, the City incorporated into or implemented the 2016 LHMP through other plans and programs shown in Table 1-2.

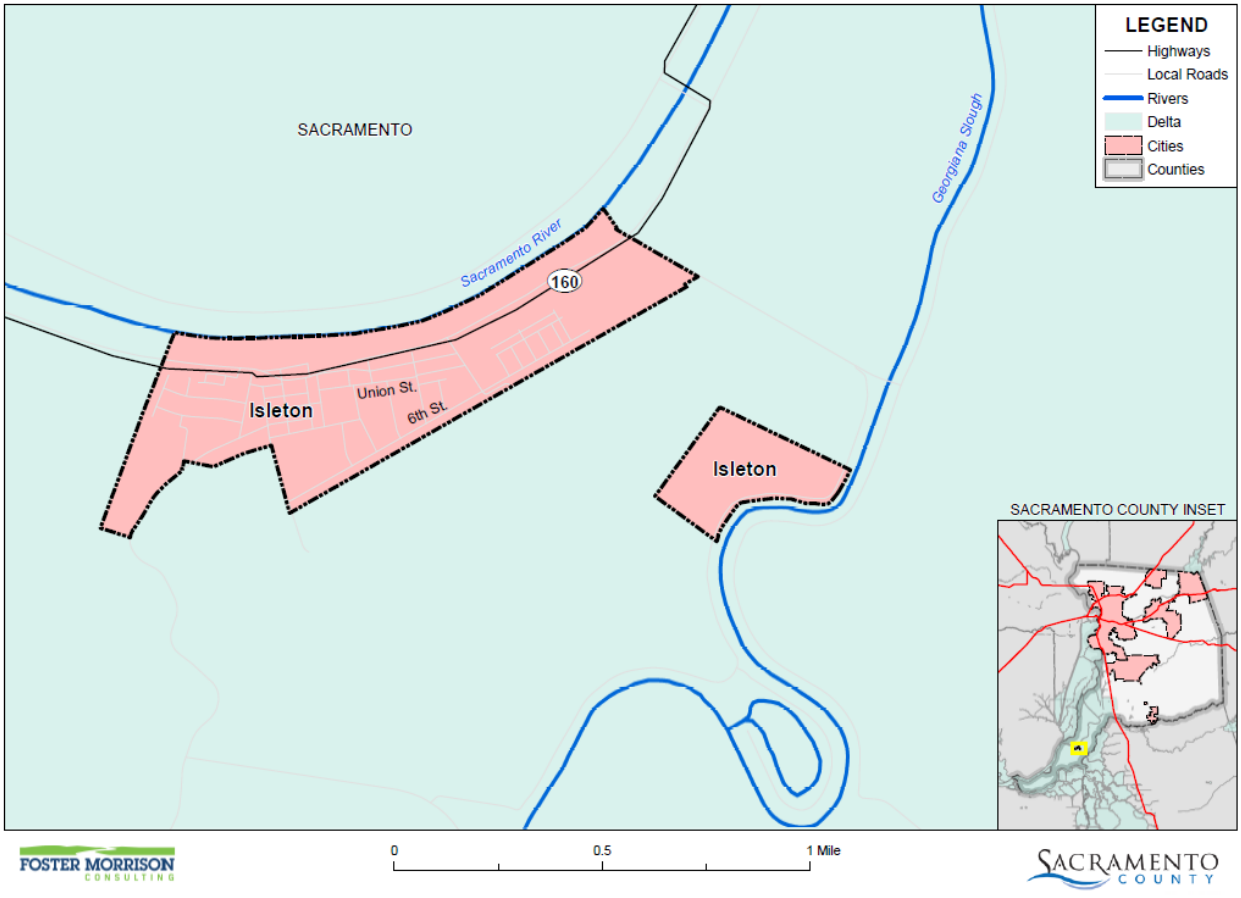
Table 1-2 2016 LHMP Incorporation

Planning Mechanism 2016 LHMP Was Incorporated/Implemented In.	Details: How was it incorporated?
None	No other mitigation mechanisms have been developed since 2016

1.3 Community Profile

The City profile for the City of Isleton is detailed in the following sections. Figure 1-1 displays a map and the location of the City within Sacramento County.

Figure 1-1 City of Isleton



Data Source: Sacramento County GIS, Cal-Atlas; Map Date: 09/2020.

1.3.1. Geography and Climate

The City of Isleton is located in the southwestern corner of Sacramento County in the Sacramento- San Joaquin Delta (Delta), adjacent to the Sacramento River. Once a great marsh, the Delta now is a network of channels and sunken "islands" that cover—together with Suisun Marsh—about 1,300 square miles. These islands and channels have been built over with the infrastructure of a 21st century economy: water supply conduits; major arteries of the state's electrical grid; natural gas fields, storage facilities, and pipelines; highways and railways; and shipping channels, all surrounded by an increasingly urban landscape. Water from the vast Delta watershed, spanning over 45,000 square miles (30 million acres), fuels both local economies and those in export areas hundreds of miles away.

According to the United States Census Bureau, the City has a total area of 0.5 square miles, of which, 0.4 square miles of it is land and 0.05 square miles of it is water. According to the Köppen Climate Classification system, Isleton has a warm-summer Mediterranean climate.

1.3.2. History

The small town on Isleton is located in southern Sacramento County in the Delta Region along the banks of the Sacramento River. The Delta is a land of rivers, agriculture, boating, fishing, and rich history. Isleton was once referred to as the "Little Paris on the Delta."

Josiah Pool founded Isleton in 1874. Isleton, like many other communities in Sacramento County, benefited from gold fever. Its location on the river brought commerce and trade since the river was the primary source of transport. Improving the waterways for deeper channels that would permit year round travel brought about levee construction. The levees remain though the town has since dwindled from its boom days.

Isleton's resident population is currently 820. The town hosts several festivals, including the Spam Contest, which originated as a direct result of the floods of 1996. Displaced families during the flood were given shelter at the Hotel Del Rio, owned by Ralph and Charli Hand. When people visited their homes, they remarked that the labels on the Spam cans were the only labels that survived. Charli decided to make some fun of it and the Spam Contest was created. Contestants cook Spam, carve Spam, dress up in Spam costumes and even appoint a "Captain Spam."

1.3.3. Economy and Tax Base

US Census estimates show economic characteristics for the City of Isleton. These are shown in Table 1-3 and Table 1-4. Mean household income in the City was $47,773. Median household income in the City was $36,875.

Table 1-3 City of Isleton Civilian Employed Population 16 years and Over

Industry	Estimated Employment	Percent
Agriculture, forestry, fishing and hunting, and mining	24	8.3%
Construction	60	20.8%
Manufacturing	13	4.5%
Wholesale trade	6	2.1%
Retail trade	18	6.2%
Transportation and warehousing, and utilities	11	3.8%
Information	0	0.0%
Finance and insurance, and real estate and rental and leasing	0	0.0%
Professional, scientific, and management, and administrative and waste management services	51	17.6%
Educational services, and health care and social assistance	44	15.2%
Arts, entertainment, and recreation, and accommodation and food services	49	17.0%

Industry	Estimated Employment	Percent
Other services, except public administration	7	2.4%
Public administration	6	2.1%

Source: US Census Bureau American Community Survey 2019 Estimates

Table 1-4 City of Isleton Income and Benefits

Income Bracket	Percent
>$10,000	15.4%
$10,000 – $14,999	0.8%
$15,000 - $24,9999	8.5%
$25,000 – $34,999	20.8%
$35,000 – $49,999	15.0%
$50,000 – $74,999	18.5%
$75,000 – $99,999	12.7%
$100,000 – $149,999	7.7%
$150,000 – $199,999	0.0%
$200,000 or more	0.8%

Source: US Census Bureau, 2019

1.3.4. Population

The California Department of Finance estimated the January 1, 2020 total population for the City of Isleton was 828.

1.4 Hazard Identification

City of Isleton identified the hazards that affect the City and summarized their location, extent, frequency of occurrence, potential magnitude, and significance specific to City (see Table 1-5).

Table 1-5 City of Isleton—Hazard Identification Assessment

Hazard	Geographic Extent	Likelihood of Future Occurrences	Magnitude/ Severity	Significance	Climate Change Influence
Climate Change	Significant	Likely	Limited	Medium	–
Dam Failure	Extensive	Unlikely	Limited	Low	Medium
Drought & Water Shortage	Extensive	Likely	Limited	High	High
Earthquake	Extensive	Unlikely	Limited	Low	Low
Earthquake Liquefaction	Extensive	Unlikely	Limited	Low	Low
Floods: 1%/0.2% annual chance	Significant	Occasional	Catastrophic	High	Medium
Floods: Localized Stormwater	Limited	Highly Likely	Limited	Medium	Medium
Landslides, Mudslides, and Debris Flow	Limited	Unlikely	Negligible	Low	Medium
Levee Failure	Extensive	Occasional	Catastrophic	High	Medium
Pandemic	Extensive	Likely	Limited	Low	Medium
Severe Weather: Extreme Cold and Freeze	Extensive	Occasional	Negligible	Low	Medium
Severe Weather: Extreme Heat	Extensive	Highly Likely	Limited	Medium	High
Severe Weather: Heavy Rains and Storms	Significant	Highly Likely	Critical	Medium	Medium
Severe Weather: Wind and Tornado	Extensive	Highly Likely	Limited	Low	Low
Subsidence	Significant	Highly Likely	Limited	Low	Medium
Volcano	Limited	Unlikely	Limited	Low	Low
Wildfire	Limited	Unlikely	Limited	Low	High

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

1.5 Hazard Profile and Vulnerability Assessment

The intent of this section is to profile Isleton's hazards and assess the City's vulnerability separate from that of the Sacramento County Planning Area as a whole, which has already been assessed in Section 4.3 Hazard Profiles and Vulnerability Assessment in the Base Plan. The hazard profiles in the Base Plan discuss overall impacts to the Sacramento County 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 (as identified in the Significance column of Table 1-5) 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.

1.5.1. Hazard Profiles

Each hazard vulnerability assessment in Section 0, 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 Planning Area.

1.5.2. Vulnerability Assessment and Assets at Risk

This section identifies Isleton'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 Sacramento County Assessor's Office is based on the 2020 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 1-6 shows the 2020 Assessor's values and content replacement values (e.g., the values at risk) broken down by property use for the City.

Table 1-6 City of Isleton – Total Values at Risk by Property Use

Property Use	Total Parcel Count	Improved Parcel Count	Total Land Value	Improved Structure Value	Estimated Contents Value	Total Value
Agricultural	1	0	$32,472	$0	$0	$32,472
Care/Health	0	0	$0	$0	$0	
Church/Welfare	8	8	$208,114	$1,009,072	$1,009,072	$2,226,258
Industrial	5	5	$2,126,988	$1,224,909	$1,837,364	$5,189,260
Miscellaneous	20	0	$884,138	$0	$0	$884,138
Office	5	4	$447,754	$693,344	$693,344	$1,834,442
Public/Utilities	28	1	$44,163	$32,966	$32,966	$110,095
Recreational	0	0	$0	$0	$0	$0
Residential	260	257	$13,055,718	$31,636,760	$15,818,384	$60,510,861
Retail/ Commercial	60	58	$2,600,078	$6,662,426	$6,662,426	$15,924,930
Unknown	0	0	$0	$0	$0	$0
Vacant	149	5	$3,317,786	$8,802	$0	$3,326,588
Isleton Total	**536**	**338**	**$22,717,211**	**$41,268,279**	**$26,053,556**	**$90,039,044**

Source: Sacramento County 2020 Parcel/Assessor's Data

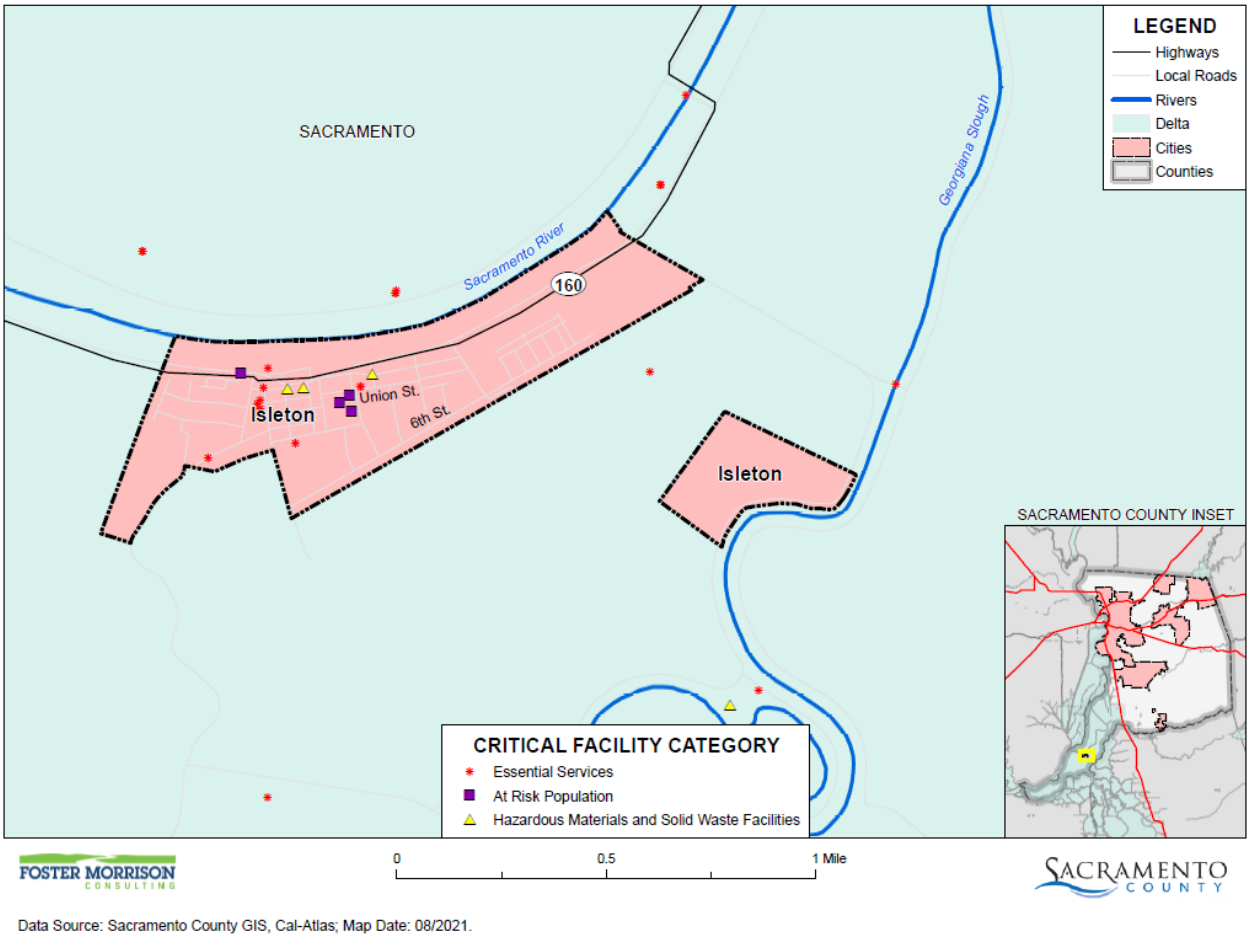
Critical Facilities and Infrastructure

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, (3) Hazardous Materials and Solid Waste Facilities. These facilities for the City of Isleton are shown on Figure 1-2, and detailed in .

Figure 1-2 City of Isleton – Critical Facilities



Data Source: Sacramento County GIS, Cal-Atlas; Map Date: 08/2021.

Table 1-7 City of Isleton – Critical Facilities by Facility Category and Type

Jurisdiction/Critical Facility Category	Critical Facility Type	Facility Count
Essential Services Facilities	Emergency Evacuation Center	1
	EMS Stations	1
	Fire Station	2
	Law Enforcement	1
	Microwave Service Towers	2
	Water Well	2
	Total	**9**
At Risk Population Facilities	Day Care Center	1
	Mobile Home Parks	1
	School	2
	Total	**4**
	Leaky Underground Storage Tank	3

Jurisdiction/Critical Facility Category	Critical Facility Type	Facility Count
Hazardous Materials and Solid Waste Facilities	**Total**	**3**
Isleton Total		**16**

Source: City of Isleton

Natural Resources

Natural resources are unique to each area and are difficult to replace. Should a natural disaster occur, these species and locations are at risk. There are ample natural resources in and around the City of Isleton.

Vegetation occurring throughout the urban areas includes nonnative annual grasses such as Italian ryegrass, Ripgut brome, and Bermuda grass. Nonnative herbaceous species such as Yellow star-thistle, Wild radish, Field mustard, Peppergrass, and Pampas grass are also present. Stands of Northern California black walnut are located along Hwy. 160, on the east side of the Sacramento River.

A number of irrigation canals occur within the agricultural lands and are vegetated with species adapted to wet habitats (e.g. Cattail, Bulrush, Cocklebur, and Waterpepper).

Riparian woodland vegetation occurs along the Sacramento River. The riparian corridors are dominated by Valley and Coast live oaks, Narrow-leaved willow, Fremont cottonwood, California buckeye, and Himalayan blackberry. Jackson Slough serves as an agricultural drainage canal within the area. Vegetation along the slough includes Narrow-leaved willow, Valley and Coast live oak, Himalayan blackberry, Giant reed, and emergent vegetation such as cattails. Several clumps of Blue elderberry shrubs were observed on the banks of the slough on the east side of Jackson Slough Road.

Wildlife habitats provide foraging and/or breeding habitat for wildlife species including amphibians, reptiles, birds, and mammals. Amphibian species that could occur in the City include bullfrog, Pacific treefrog, and Western toad. Reptile species that may occur in the study area include Western terrestrial garter snake *(Thamnophis elegans*), Western fence lizard (*Sceloporus occidentalis*), and Western pond turtle (*Clemmys mannorata mannorata*). Habitat for Giant garter snakes (Thamnophis gigas) occurs in Jackson Slough.

The riparian habitats along the Sacramento River and Jackson Slough provide nesting and foraging habitat for numerous bird species. The agricultural lands provide foraging habitat for bird species such as Brewer's blackbird (*Euphagus cyanocephalus*), brown-headed cowbird (*Molothrus ater*), killdeer (*Charadrius vociferus*), and Western meadowlark (*Sturnella neglecta*). Raptors (birds of prey) known to forage in the vicinity of the Plan area include blackshouldered kite, Northern hanier (*Circus cyaneus*), and Swainson's hawk (*Buteo swainsoni*). Birds species that could forage in agricultural ditches and sloughs include American coot (*Fulica americana*), mallard (*Anas platyrhynchos*), and red-winged blackbird (*Agelaius phoeniceus*).

Small terrestrial mammals that could inhabit the area include Botta' s pocket gopher (*Thomomys bottae*) and various species of mice, rats, and squirrels. Larger terrestrial mammals that could inhabit or transit through the area include Beaver, Opossum, Skunk, Raccoon, and River otter. Several species of bats could

occur within the Plan area. These species forage on insects over open fields, above tree canopies, and over open water. Bats could use man-made structures and spaces under bark of large trees for day roosts.

Invertebrate species of concern in the plan area include the Valley elderberry longhorn beetle *(Desmocerus californicus dimorphus*). The Valley elderberry longhorn beetle is a federally listed threatened species dependent on elderberry shrubs for its life cycle. Blue elderberry shrubs were observed along Jackson Slough near Jackson Slough Road. The Antioch dunes anthicid beetle and the Sacramento anthicid beetle require loose, sandy soils. Potential habitat for anthicid beetles in the plan area is very marginal and limited to small patches of sandy soils along the Sacramento River levee.

The Sacramento River supports important sport and commercial fisheries. Warmwater game fish found in the Sacramento River include channel *(Ictalurus punctatus*) and white catfish *(lctalurus catus*); largemouth, smallmouth, and spotted bass (*Micropterus salmonides, Micropterus dolomieui,* and *Micropterus punctulatus*); carp and various sunfishes (*Centrarchidae*). Native freshwater fish occurring in the Sacramento River include Sacramento perch, Sacramento roach, River lamprey, etc., as well as special-status species such as Delta smelt, Longfin smelt, Sacramento splittail, chinook salmon, and green sturgeon. The Delta smelt is a resident fish in the Delta around the City as well.

Historic and Cultural Resources

Historic and cultural resources are difficult to replace. Should a natural disaster occur, these properties and locations can be at risk.

The City of Isleton 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 1-8 lists the historical buildings in the City.

Table 1-8 City of Isleton – Historical Resources

Name (Landmark Plaque Number)	National Register	State Landmark	California Register	Point of Interest	Date Listed	City/Area
Isleton Chinese And Japanese Commercial Districts (N1674)	X				3/14/1991	Isleton

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.

The City has an historic district which has been preserved in order to typify the region's unique history. An aspect of Isleton's distinctive history is its connection to Chinese and Japanese immigrant communities. There was a mass migration of Chinese immigrants to Isleton and the Delta in the latter half of the 19th century due to an availability in occupation regarding railroad construction, levee construction, and in agriculture. The two blocks of Main Street, which were Isleton's original Chinatown and Japantown, were placed on the National Register for Historic Places in 1991. The metal siding that is present on these historic buildings today was constructed following the fire in 1926 that destroyed these two blocks. Chinese and Japanese communities quickly rebuilt Main Street following the fire and covered the buildings in metal siding to slow the spread of future fires. Today, Isleton's residential areas are in the western portion of the City, passed City Hall and the Fire Station, and south of downtown surrounding Isleton Elementary School. The Isleton Trailer Park is located off of River Road to the west of Delta Avenue. The age of Isleton's housing structures can be dated to the median year that Isleton's homes were built, which is 1959. The greatest proportion of Isleton's homes were built in 1939 or earlier at approximately 33 percent of all existing homes.

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 Isleton 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. Isleton has generally seen small fluctuations in population since 1970. Isleton has seen growth rates as shown in Table 1-9.

Table 1-9 City of Isleton – Population Changes Since 1970

Year	Population	Change	% Change
1970	909	–	–
1980	910	1	0.1%
1990	850	-60	-6.6%
2000	828	-22	-2.6%
2010[1]	804	-24	-2.9%
2020[2]	828	24	2.9%

Source: [1]US Census Bureau, [2]California Department of Finance

Special Populations and Disadvantaged Communities

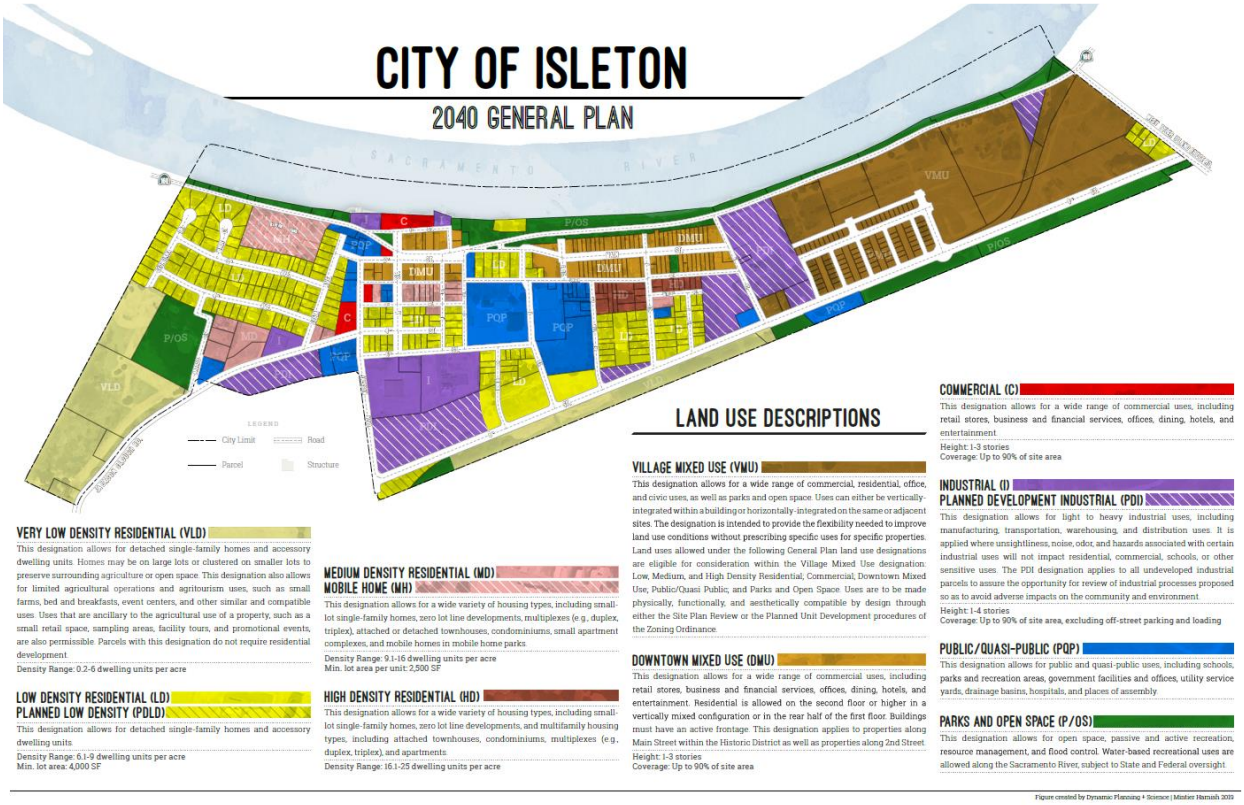
Under the State guidelines the City is considered a low – income community. Under SACOG's environmental justice definition the city falls into the Disadvantage Census tract area. The City has 19.1% persons in poverty, 18.2% person without health insurance, the median male income is $31,063, the median

female income is $25,300, and the median household income is $36,875. These populations abilities to meet the fiscal demands of hazards are restricted.

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. The Isleton Municipal Code provides detailed land use and development standards for development. The Land Use map from the 2040 City of Isleton General Plan is shown on Figure 1-3.

Figure 1-3 City of Isleton – Land Use



Source: 2040 City of Isleton General Plan

The environmental setting of the Isleton General Plan Planning Area is dominated by the Sacramento River on the north, Georgiana Slough on the south and agricultural lands which border the City on the south, east, and west. The primary land use (108.6 acres) in the City is developed (urban and residential) land in the City of Isleton. Urban land covers most of the City. Urban habitat is concentrated along Tyler Island Bridge Road. Agricultural lands exist within the western part of the community immediately south of the City limits, and between the community and Georgiana Slough to the southeast and State Route 12 to the south and southwest. The first location involves approximately 37 acres all north of the extended westerly alignment of 6th Street. The second location involves several thousand acres outside of the City in

productive agricultural use and with much of the acreage under Williamson Act contracts with Sacramento County. Riparian woodland vegetation occurs along the Sacramento River.

Isleton is a historical community, founded in 1874 by John Poole and incorporated May 23, 1923. Many of the buildings within the City's old town are on the National Historical register, but are in need of repair. A new housing development area began construction in 2009, but has not been completed due to the recession and change of ownership hands. There are currently two city parks, a Central Park in old town and a softball complex and park on the Northwest side of town, both are in need of repair. There is an elementary school in Isleton. After elementary school, the children of Isleton are bussed to Walnut Grove. A privately owned trailer park within the City limits primarily houses elderly and very low-income persons. Agriculture, blue-collar service workers and food service are the primary industry; however, tourism is a significant economic driver for the community due to the location on the Delta loop and proximity to the waterways between Sacramento and the Pacific Ocean. There are many artists, writers and musicians within the Isleton community.

Development since 2016 Plan

As discussed in Section 4.3.1 of the Base Plan, future development has occurred in the Ciy since the last plan. Some of this has occurred in hazard prone areas. The City Building Department tracked total building permits issued since 2016 for the City. These are tracked by total development, property use type, and hazard risk area. These are shown in Table 1-10 and Table 1-11.

Table 1-10 City of Isleton – Total Development Since 2016

Property Use	2016	2017	2018	2019	2020
Agricultural	0	0	0	0	0
Commercial	0	0	0	4	1
Industrial	0	0	0	0	1
Residential	1	0	7	0	0
Unknown	0	0	1	0	0
Total	**1**	**0**	**8**	**4**	**2**

Source: City of Isleton Building Department

Table 1-11 City of Isleton – Development in Hazard Areas since 2016

Property Use	1% Annual Chance Flood	Levee Protected Area	Wildfire Risk Area[1]	Other
Agricultural	0	0	0	0
Commercial	0	0	0	0
Industrial	0	0	0	0
Residential	14	14	0	0
Unknown	0	0	0	0
Total	**14**	**14**	**0**	**0**

Source: City of Isleton Building Department

[1]Moderate or higher wildfire risk area

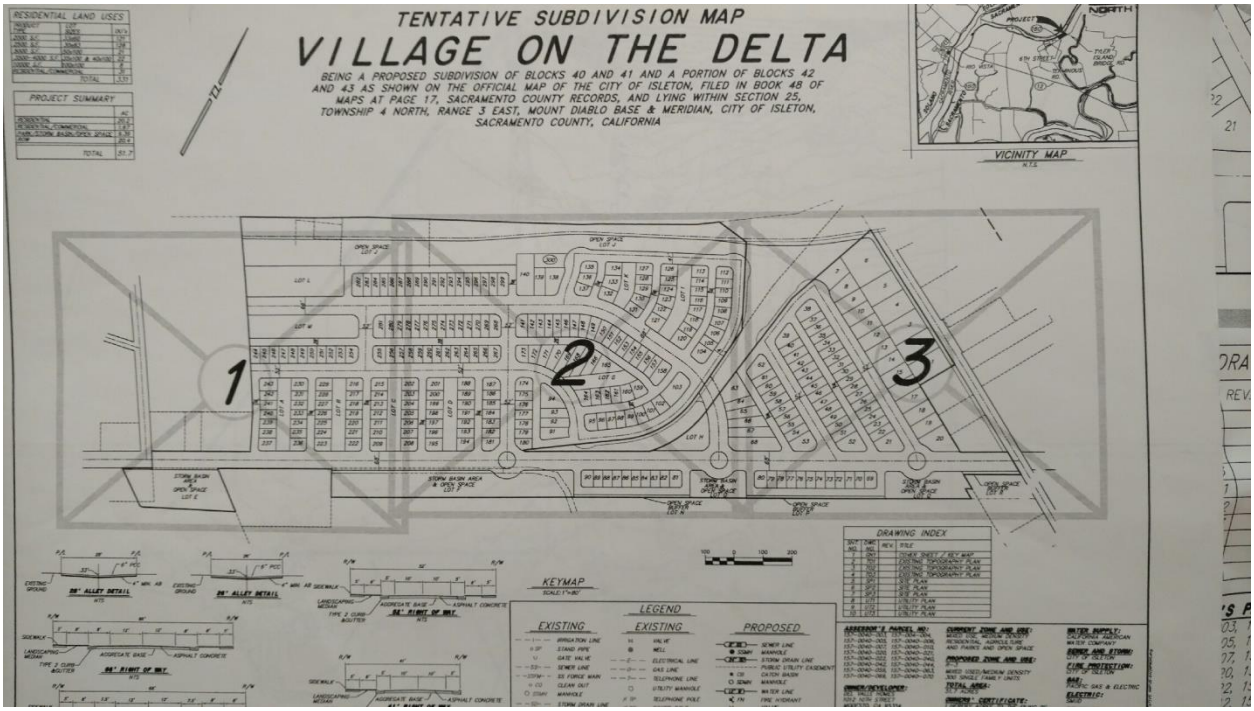
In Isleton, development occurred in the flood and levee risk areas. While the data shows changes in development in the City since the 2016, including development in mapped hazard areas, all development is subject to current building standards to include any requirements for building in hazard areas which act to mitigate hazard exposure. Further development in hazard areas is only one factor of many that contribute to an overall change in hazard vulnerability. Based on these considerations, it cannot be definitively stated as to whether the development or even lack of development contributed to an increase or decrease in vulnerability for Isleton.

Future Development

The Sacramento Council on Governments (SACOG) modeled population projections for the City of Isleton and other areas of the region in 2012 for a Metropolitan Transportation Plan/Sustainable Communities Strategy report. This forecast uses a 2008 base year estimate with projections to 2020 and 2035 for population, housing units, households and employment. SACOG estimated the City population in 2020 and 2035 to be 730 and 894 respectively. Recent planning studies note that the population has increased 5.4% over the past five years. City is forecasting a population of 1,400 in twenty years.

There is a new development that has been in the works since 2005. This development is called Village on the Delta. There is a proposed mixed used/medium density 300 single family units. The total area of the project is 51.7 acres. The Village on the Delta development is planning to add about 4 more units in the coming year. This development has indicated that it wants to continue to build after this addition. The City has also been approached, collectively among three developments, about developing up to 30 high density apartment units. The City does have a vacant storefront analysis of Main Street.

Figure 1-4 Village on the Delta Subdivision Map



Source: City of Isleton

GIS Analysis

The City of Isleton provided a list of projects that the City is seeing be developed. Using GIS, the following methodology was used in determining parcel counts and acreages with future development projects in the City of Isleton. Future development areas in the City were provided in mapped format by the City. 6 areas were provided. Using the GIS parcel spatial file for each of these areas, the 6 areas 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 1-5 shows the locations of future development areas the City is planning to develop. Table 1-12 shows the summary of parcels and acreages of each future development area in the City.

Figure 1-5 City of Isleton – Future Development Areas

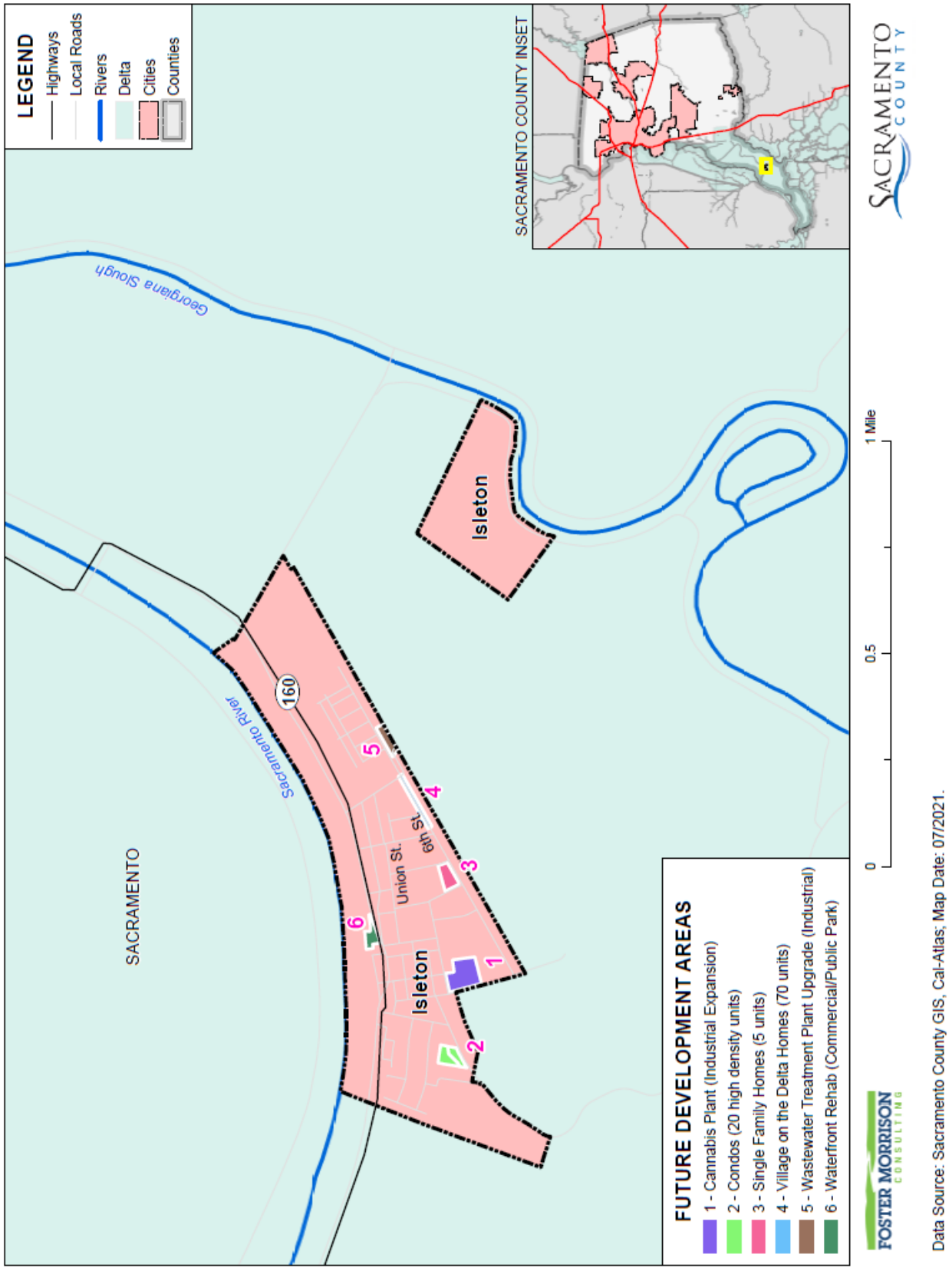


Table 1-12 City of Isleton – Summary of Future Development Area Parcels and Acres

Future Development Status	Total Parcel Count	Improved Parcel Count	Total Acres
Cannabis Plant (Industrial Expansion)	1	1	3.00
Condos (20 high density units)	2	0	1.42
Single Family Homes (5 units)	1	0	1.15
Village on the Delta Homes (70 units)	1	0	1.03
Wastewater Treatment Plant Upgrade (Industrial)	1	0	0.90
Waterfront Rehab (Commercial/Public Park)	1	0	0.96
Grand Total	**7**	**1**	**8.47**

Source: City of Elk Grove GIS

1.5.3. Vulnerability to Specific Hazards

This section provides the vulnerability assessment, including any quantifiable loss estimates, for those hazards identified above in Table 1-5 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 Sacramento 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, populations at risk, critical facilities and infrastructure, and future development.

Power Outage/Power Failure

An impact of almost all hazards below relates to power outage and/or power failures. The US power grid crisscrosses the country, bringing electricity to homes, offices, factories, warehouses, farms, traffic lights and even campgrounds. According to statistics gathered by the Department of Energy, major blackouts are on the upswing. Incredibly, over the past two decades, blackouts impacting at least 50,000 customers have increased 124 percent. The electric power industry does not have a universal agreement for classifying disruptions. Nevertheless, it is important to recognize that different types of outages are possible so that plans may be made to handle them effectively. In addition to blackouts, brownouts can occur. A brownout is an intentional or unintentional drop in voltage in an electrical power supply system. Intentional brownouts are used for load reduction in an emergency. Electric power disruptions can be generally grouped into two categories: intentional and unintentional. More information on types of power disruptions can be found in Section 4.3.2 of the Base Plan.

Public Safety Power Shutoff (PSPS)

A new intentional disruption type of power shortage/failure event has recently occurred in California. In recent years, several wildfires have started as a result of downed power lines or electrical equipment. This was the case for the Camp Fire in 2018. As a result, California's three largest energy companies (including PG&E), at the direction of the California Public Utilities Commission (CPUC), are coordinating to prepare all Californians for the threat of wildfires and power outages during times of extreme weather. To help protect customers and communities during extreme weather events, electric power may be shut off for public safety in an effort to prevent a wildfire. This is called a PSPS. More information on PSPS criteria can be found in Section 4.3.2 of the Base Plan.

The power service in Isleton is not dependable. Over the past nine months the City endured about thirty power failures. It is not known if these power failures are related to public safety power shutoffs. The City did not receive notice prior to these power failures.

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.

Location and Extent

Climate change is a global phenomenon. It is expected to affect the whole of the City, Sacramento 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 are getting hotter.

Vulnerability to and Impacts from Climate Change

The 2012 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. Sacramento 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 Sacramento County Planning Area.

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

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

The City's population, resources, and economy are vulnerable to climate change impacts, particularly those associated with flooding and extreme heat. Without reduction strategies in place, county-wide greenhouse gases (GHG) emissions are anticipated to increase based on the Sacramento County Planning Area's anticipated growth.

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. 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.

The City of Isleton is committed to meeting State standards for the reduction of greenhouse gas emissions to achieve sustainable land use. The City will evaluate the use of sustainable land use and growth principals when considering future development.

Dam Failure

Though considered a low significance hazard by the City, due to its significance in the County and in the State of California, dam failure is profiled and a vulnerability analysis has been performed here. It remains a low significance hazard for mitigation strategy and action purposes.

Likelihood of Future Occurrence–Unlikely
Vulnerability–Low

Hazard Profile and Problem Description

Dams are manmade structures built for a variety of uses including flood protection, power generation, agriculture, water supply, and recreation. When dams are constructed for flood protection, they are usually engineered to withstand a flood with a computed risk of occurrence. For example, a dam may be designed to contain a flood at a location on a stream that has a certain probability of occurring in any one year. If prolonged periods of rainfall and flooding occur that exceed the design requirements, that structure may be overtopped or fail. Overtopping is the primary cause of earthen dam failure in the United States.

Location and Extent

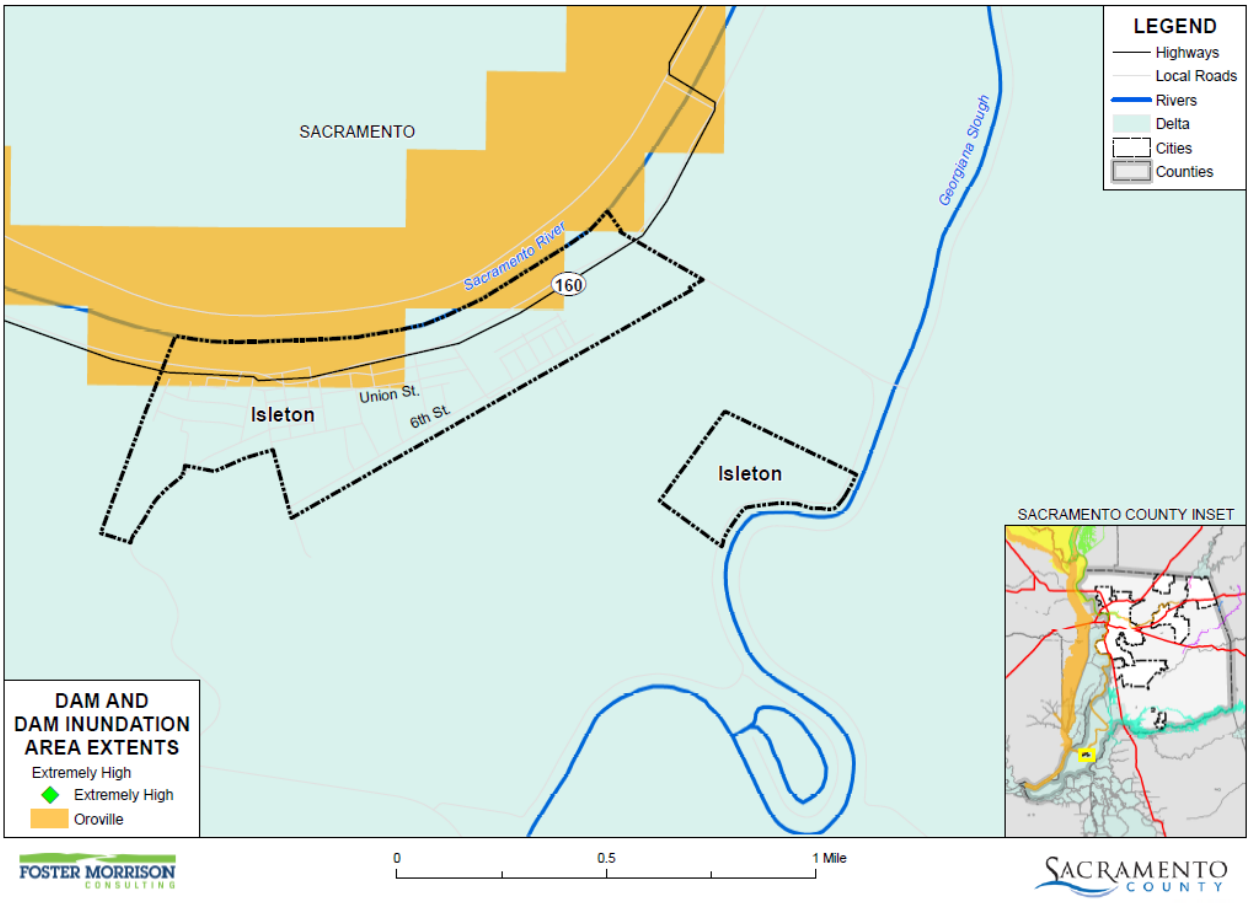
Dam failure is a natural disaster from two perspectives. First, the inundation from released waters resulting from dam failure is related to naturally occurring floodwaters. Second, a total dam failure would most probably happen as a consequence of the natural disaster triggering the event, such as an earthquake. There is no scale with which to measure dam failure. However, Cal DWR Division of Safety of Dams (DOSD) assigns hazard ratings to dams within the State that provides information on the potential impact should a dam fail. The following two factors are considered when assigning hazard ratings: existing land use and land use controls (zoning) downstream of the dam. Dams are classified in four categories that identify the potential hazard to life and property: Low, Significant, High, and Extremely High. These were discussed in more detail in Section 4.3.7 of the Base Plan.

While a dam may fill slowly with runoff from winter storms, a dam break has a very quick speed of onset. The duration of dam failure is generally not long – only as long as it takes to empty the reservoir of water the dam held back. The City would be affected for as long as the flood waters from the dam failure took to drain downstream.

Based on available data, the City falls within the inundation areas of the Oroville dam, which is an Extremely High Hazard dam located outside the County. The City falls outside in the Folsom Dam 235,000 cfs scenario, as discussed in Section 4.3.7 of the Base Plan and falls outside of dam inundation areas from dams inside the County. Geographic flood extent from the DWR DSOD and Cal OES dam inundation areas is shown on Figure 1-6 for dams outside the County and summarized for all these dams in Table 1-13.

Note: the Cal OES and DSOD dam inundation data did not include inundation mapping of all dams that could affect the Sacramento County Planning Area and the City; thus, the below analysis reflects information based on available data. Other dams may be identified as a concern to the City.

Figure 1-6 City of Isleton – Dam Inundation Areas from Dams Outside the County



Data Source: DWR DSOD Data 2020 and Cal OES Dam Status 10/2017, Sacramento County GIS, Cal-Atlas; Map Date: 9/2020.

Table 1-13 City of Isleton – Geographical Dam Inundation Extents

Dam Inundation Areas	Jurisdiction	Total Acres	% of Total Acres	Improved Acres	% of Total Improved Acres	Unimproved Acres	% of Total Unimproved Acres
Extremely High Hazard Dams Outside the County							
Oroville	Isleton	23.87	10.23%	12.61	19.26%	11.25	6.71%

Source: Cal OES, DSOD

Past Occurrences

There has been no state or federal disaster declarations for dam failure in the County. The City noted no other dam failure occurrences that have affected the City.

Vulnerability to and Impacts from Dam Failure

Dam failure flooding would vary by community depending on which dam fails and the nature and extent of the dam failure and associated flooding. Warning ability is generally determined by the frequency of inspections for structural integrity, the flood wave arrival time (the time it takes for the flood wave to reach its maximum distance of inundation), or the ability to notify persons downstream and their ability to evacuate. The existence and frequency of updating and exercising an evacuation plan that is site-specific assists in warning and evacuation functions. A failure of the Folsom Dam would leave little time for evacuation of the City of Isleton.

Impacts to the City from a dam failure flood include loss of life and injury, flooding and damage to property and structures, damage to critical facilities and infrastructure, loss of natural resources, and all other flood related impacts. Additionally, mass evacuations and associated economic losses can also be significant.

The City effectively exists and operates at a level below the adjacent Sacramento River the surrounding sloughs. All of these bodies of water are potential catastrophic hazards to the City meaning that the City is operating at a heightened level of danger.

Assets at Risk

Based on the vulnerability of Isleton to the dam failure hazard, the sections that follow describes significant assets at risk in the City of Isleton. This section includes the values at risk, inundated 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 Isleton. The methodology described in Section 4.3.9 of the Base Plan was followed in determining structures and values at risk to dam failure. Table 1-14 shows the property use, improved parcel count, improved values, estimated contents, and total values that fall in dam inundation areas in the City.

Table 1-14 City of Isleton – Count and Values of Parcels at Risk by Dam Inundation Area and Property Use

Dam Inundation Area/ Property Use	Total Parcel Count	Improved Parcel Count	Total Land Value	Improved Structure Value	Estimated Contents Value	Total Value
Oroville Dam – Extremely High Hazard Dam Outside the County						
Miscellaneous	4	0	$51,075	$0	$0	$51,075
Office	3	2	$304,492	$419,553	$419,553	$1,143,598

Dam Inundation Area/ Property Use	Total Parcel Count	Improved Parcel Count	Total Land Value	Improved Structure Value	Estimated Contents Value	Total Value
Public / Utilities	10	1	$43,974	$32,966	$32,966	$109,906
Residential	51	51	$3,721,608	$7,704,512	$3,852,256	$15,278,378
Retail / Commercial	30	29	$1,107,741	$2,798,204	$2,798,204	$6,704,149
Vacant	13	**0**	$318,175	$0	$0	$318,175
Isleton Total	**111**	**83**	**$5,547,065**	**$10,955,235**	**$7,102,979**	**$23,605,281**

Source: CAL OES, DSOD, Sacramento County 2020 Parcel/Assessor's Data

Population at Risk

The DSOD and Cal OES dam inundation areas were overlayed on the parcel layer. Those residential parcel centroids that intersect the dam inundation areas were counted and multiplied by the Census Bureau average household factors for Isleton – 2.70. This is shown in Table 1-27.

Table 1-15 City of Isleton – Count of Improved Residential Parcels and Population by Dam Inundation Area

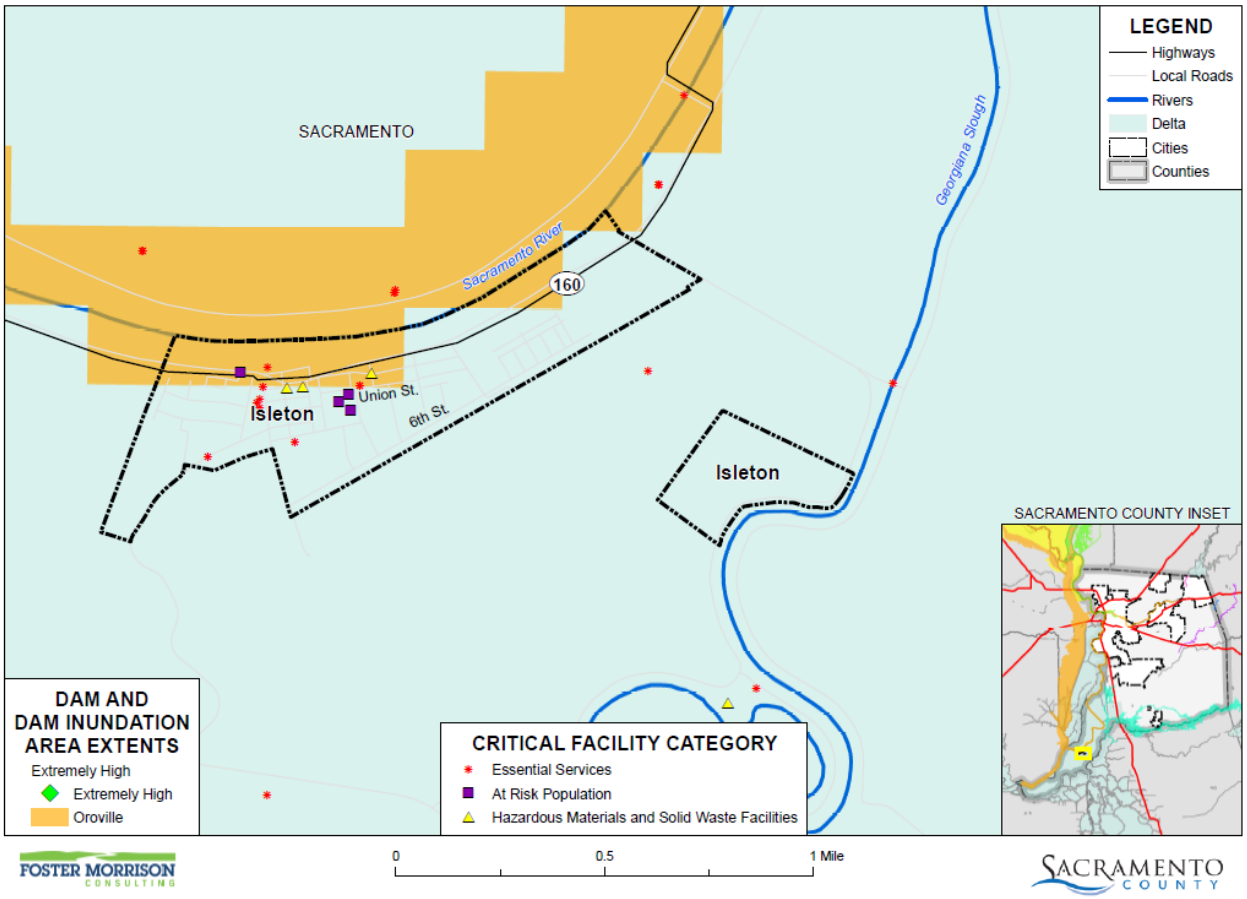
	Oroville Dam Inundation Area	
Jurisdiction	Improved Residential Parcels	Population
Isleton		

Source: Cal OES, DSOD, Sacramento County 2020 Parcel/Assessor's Data, US Census Bureau

Critical Facilities at Risk

An analysis was performed on the critical facility inventory in Isleton in identified dam inundation areas. GIS was used to determine whether the critical facility locations intersect a DSOD or Cal OES dam inundation area. Details of critical facilities in mapped dam inundation areas in the City of Isleton are shown in Figure 1-7 and detailed in Table 1-16. Details of critical facility definition, type, name and address and jurisdiction by dam inundation area are listed in Appendix F.

Figure 1-7 City of Isleton – Critical Facilities in Dam Inundation Areas from Dams Outside the County



Data Source: DWR DSOD Data 2020 and Cal OES Dam Status 10/2017, Sacramento County GIS, Cal-Atlas; Map Date: 08/2021.

Table 1-16 City of Isleton – Critical Facilities in Dam Inundation Areas by Category and Type

Dam Inundation Areas/Critical Facility Category	Critical Facility Type	Facility Count
Oroville Dam (Extremely High Hazard Dam Outside the County)		
Essential Services Facilities	Microwave Service Towers	2
	Water Well	1
	Total	**3**
At Risk Population Facilities	Mobile Home Park	1
	Total	**1**
Hazardous Materials and Solid Waste Facilities	Leaky Underground Storage Tank	1
	Total	**1**
Oroville Dam Total		**5**

Source: Cal OES, DSOD, Sacramento County GIS

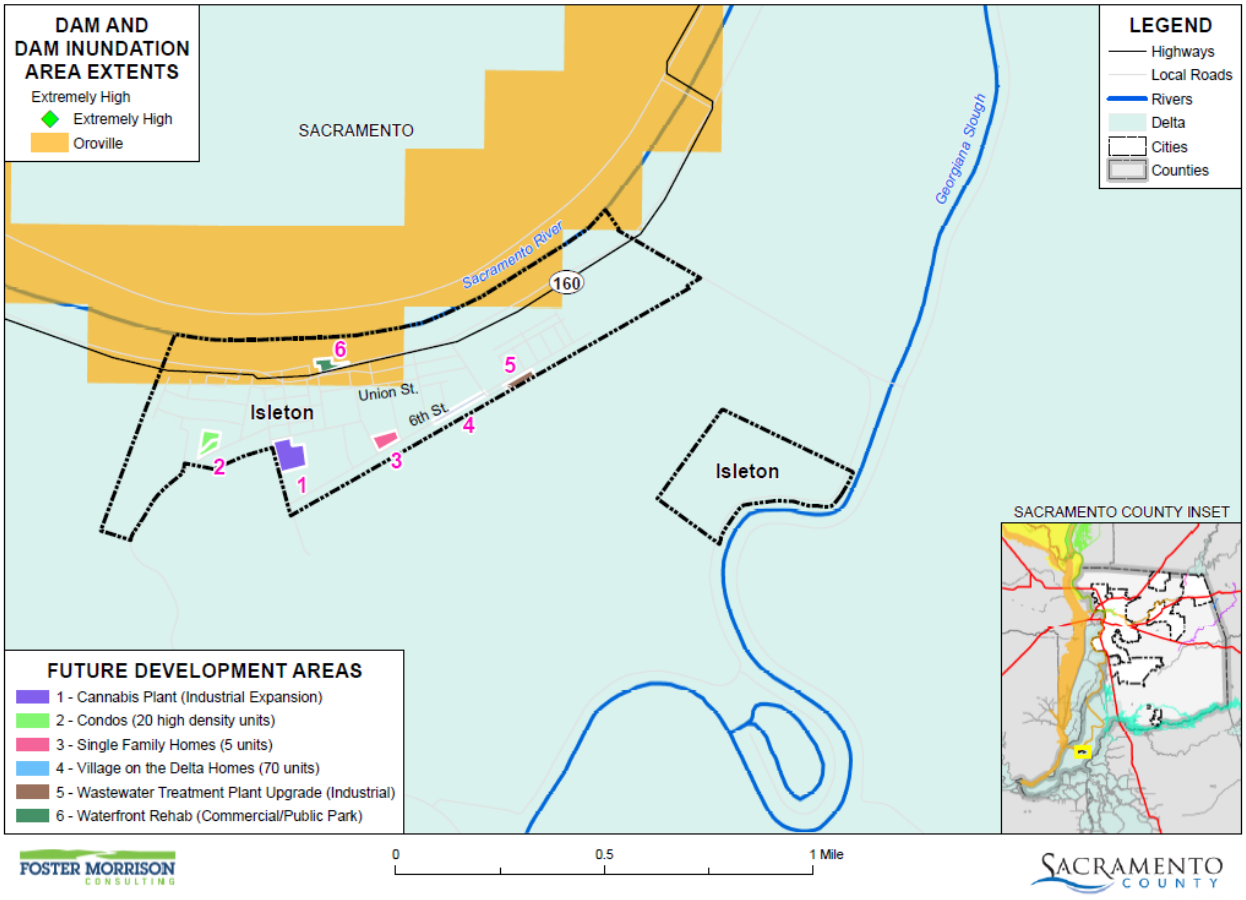
Future Development

Future dam failures are considered unlikely. The City enforces it floodplain ordinance, which helps to reduce risk to flooding by requiring structures in the 1% annual chance floodplains to be above the base flood elevation, which depending on inundation depths and affected areas may provide some relief. Siting of future development areas should take dam failure flooding into account.

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 areas and 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 1-8 shows the locations of future development areas the City is planning to develop on the dam inundation zones from dams inside the County. Table 1-17 shows the parcels and acreages of each future development area in the City in the dam inundation areas inside the County.

Figure 1-8 City of Isleton – Future Development in Dam Inundation Areas from Dams Outside the County



Data Source: DWR DSOD Data 2020 and Cal OES Dam Status 10/2017, Sacramento County GIS, Cal-Atlas; Map Date: 07/2021.

Table 1-17 City of Isleton – Future Development Parcels and Acres in Dam Inundation Areas from Dams Outside the County

Dam Inundation Are/ Future Development	Total Parcel Count	Improved Parcel Count	Total Acres
Oroville			
Waterfront Rehab (Commercial/Public Park)	1	0	0.96
Oroville Total	**1**	**0**	**0.96**

Source: City of Isleton, Cal OES, DSOD

Drought & Water Shortage

Likelihood of Future Occurrence–Likely
Vulnerability–High

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 4.3.8 of the Base Plan.

Past Occurrences

There have been two state and one federal disaster declaration from drought. This can be seen in Table 1-18.

Table 1-18 Sacramento County – State and Federal Drought Disaster Declarations 1950-2020

Disaster Type	State Declarations		Federal Declarations	
	Count	Years	Count	Years
Drought	2	2008, 2014	1	1977

Source: Cal OES, FEMA

Since drought is a regional phenomenon, past occurrences of drought for the City are the same as those for the County and includes 4 multi-year droughts since 1950. Details on past drought occurrences can be found in Section 4.3.8 of the Base Plan. During 2016, the City implemented basic water saving measures.

Vulnerability to and Impacts from 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 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 City and Sacramento County 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.

The City of Isleton receives its drinking water from a groundwater well. With the drought and water shortage there is the likelihood of shortages of drinking water to the City's residents if groundwater tables lower beyond the depth of the well. The present water service is not reliable. The City has endured three

water outages – no water, not water pressure, no fire service – over the past four years. The present water purveyor has not adequately managed existing water service and has no plans for future services.

The main asset at risk due to water shortage would be the cities' Wastewater Treatment Plant. Water is the conveyance method used to expel the waste from the cities' sewer system. During a water shortage or while under drought restrictions, adequate water supply necessary to keep the waste suspended long enough to reach the wastewater plant may not be available. If the solids fall out of the stream, waste could possibly build up in the sewer lines causing a plug. This could lead to backups into homes onto the streets and create a health hazard.

The lack of water planning adversely effects City's planning efforts.

Future Development

As the population in the area continues to grow, so will the demand for water. Water shortages in the future may be worsened by drought, as the City relies on groundwater for its water source. Ongoing planning will be needed by the City and water agencies to account for population growth and increased future water demands.

Flood: 1%/0.2% Annual Chance

Likelihood of Future Occurrence–Occasional/Unlikely
Vulnerability–High

Hazard Profile and Problem Description

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 Sacramento 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.

Snowmelt floods on the Sacramento and the San Joaquin Rivers and their higher elevation tributaries can be expected to occur during the period from April through June. Although snowmelt flooding is of much larger volume and longer duration than flooding from rain, it does not have the high peak flows characteristic of floods from rain. Snowmelt flood runoff is sometimes augmented by late spring rains on the snowfields or lower elevation tributary watersheds.

Location and Extent

According to the City of Isleton 2020 Draft Safety Element, the City of Isleton is located at the north end of Andrus Island, with an elevation of only five feet below mean sea level at its highest point, which is located at the base of the levee along the Sacramento River. The Sacramento River levee is a Project Levee

of the U.S. Army Corps of Engineers. It has a height of about 18 feet above mean sea level. The community is underlain by as much as 10 feet of organic peat soils, which increases to more than 40 feet at the southern end of Andrus Island. Most of the City of Isleton is located in the 1% annual chance flood zones. This is seen in Figure 1-9.

Figure 1-9 City of Isleton – FEMA DFIRM Flood Zones

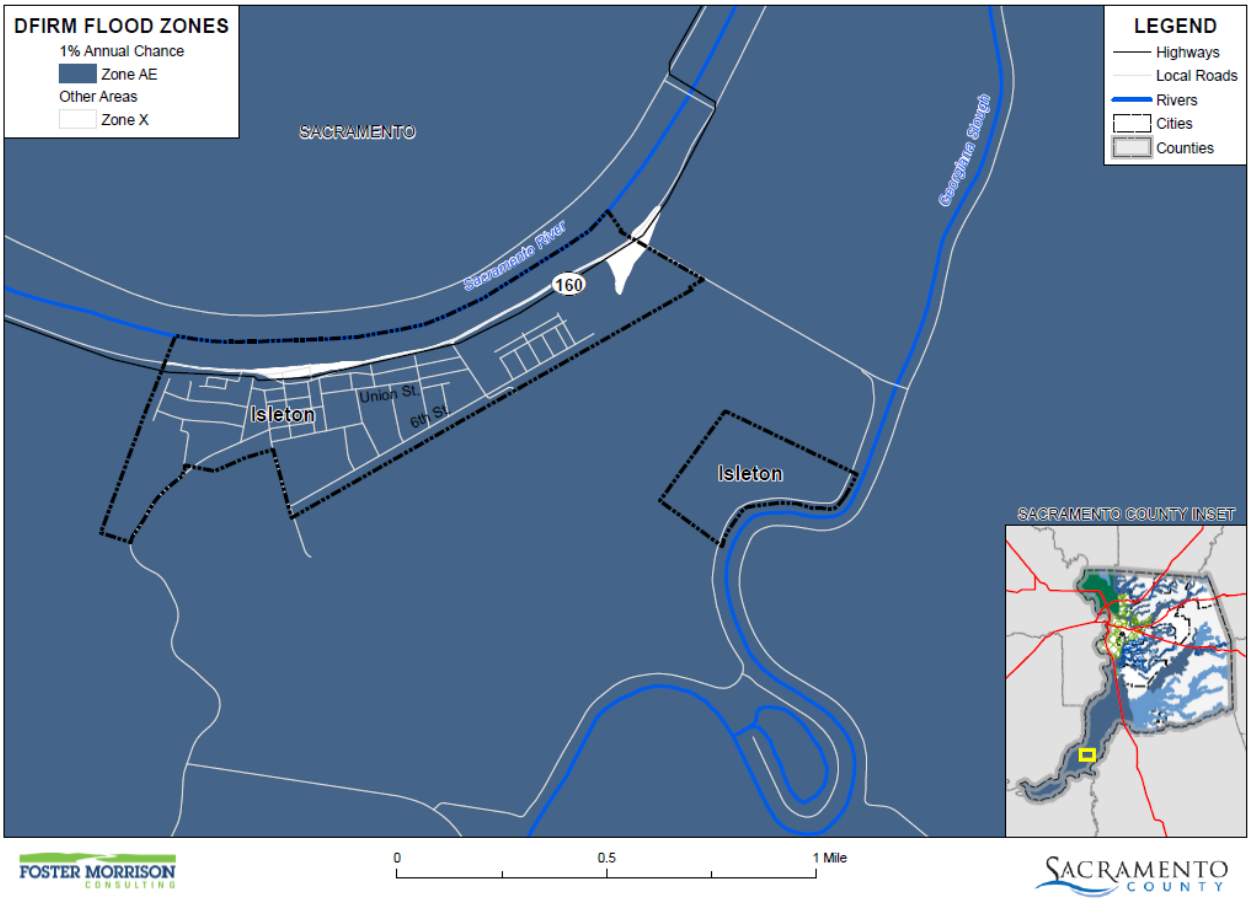


Table 1-19 details the DFIRM mapped flood zones located within the City.

Table 1-19 City of Isleton – DFIRM Flood Hazard Zones

Flood Zone	Description	Flood Zone Present in City
A	1% annual chance flooding: No base flood elevations provided. Mandatory flood insurance purchase requirements and floodplain management standards apply.	
AE	1% annual chance flooding: Base flood elevations provided. Mandatory flood insurance purchase requirements and floodplain management standards apply.	X

Flood Zone	Description	Flood Zone Present in City
AH	Areas subject to inundation by 1-percent-annual-chance shallow flooding (usually areas of ponding) where average depths are between one and three feet. Base Flood Elevations (BFEs) derived from detailed hydraulic analyses are shown in this zone. Mandatory flood insurance purchase requirements and floodplain management standards apply.	
AO	Areas subject to inundation by 1-percent-annual-chance shallow flooding (usually sheet flow on sloping terrain) where average depths are between one and three feet. Average flood depths derived from detailed hydraulic analyses are shown in this zone. Mandatory flood insurance purchase requirements and floodplain management standards apply.	
A99	Areas subject to inundation by the 1-percent-annual-chance flood event, but which will ultimately be protected upon completion of an under-construction Federal flood protection system. These are areas of special flood hazard where enough progress has been made on the construction of a protection system, such as dikes, dams, and levees, to consider it complete for insurance rating purposes. Zone A99 may only be used when the flood protection system has reached specified statutory progress toward completion. No Base Flood Elevations (BFEs) or depths are shown. Mandatory flood insurance purchase requirements and floodplain management standards apply.	
Shaded X	0.2% annual chance flooding: The areas between the limits of the 1% annual chance flood and the 0.2-percent-annual-chance (or 500-year) flood. Flood insurance is not mandatory but is available.	
X Protected by Levee	Areas protected by levees from 1% annual chance flood event. Levee protection places these areas in the 0.2% annual chance flood zone. Flood insurance is not mandatory but is available.	
X (unshaded)	No flood hazard	X

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 for the City from the FEMA DFIRMs are shown in Table 1-20.

Table 1-20 City of Isleton – Geographical DFIRM Flood Zone Extents

Flood Zone	Total Acres	% of Total Acres	Improved Acres	% of Total Improved Acres	Unimproved Acres	% of Total Unimproved Acres
1% Annual Chance	220	94.27%	61	92.77%	159	94.85%
0.2% Annual Chance	0	0.00%	0	0.00%	0	0.00%
Other Areas	13	5.73%	5	7.23%	9	5.15%
Total	**233**	**100.00%**	**66**	**100.00%**	**168**	**100.00%**

Source: FEMA DFIRM 11/2/2018

Past Occurrences

A list of state and federal disaster declarations for Sacramento County from flooding is shown on Table 1-21. These events also likely affected the City to some degree.

Table 1-21 Sacramento County – State and Federal Disaster Declarations from Flood 1950-2020

Disaster Type	Federal Declarations		State Declarations	
	Count	Years	Count	Years
Flood (including heavy rains and storms)	19	1950, 1955, 1958 (twice), 1963, 1969, 1982 (twice), 1983, 1986, 1995 (twice), 1996, 1997, 1998, 2008, 2017 (three times)	14	1955, 1958, 1964, 1969, 1983, 1986, 1995 (twice), 1997, 1998, 2006, 2017 (three times)

Source: Cal OES, FEMA

Past flooding in the City of Isleton area has been primarily due to levee failures caused by the separate or coincidental occurrence of very high tides and high stream outflow through the Delta region, or from unexplained levee failures apparently not related to these phenomena. As such, the past occurrences of flood in the City of Isleton can be found in the Levee Failure section below.

Vulnerability to and Impacts from 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.

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.

The City noted that the largest impacts would be from lack of facilities and equipment to manage flood and flood's catastrophic impact to community.

Assets at Risk

Based on the vulnerability of Isleton to the flood hazard, the sections that follow describes significant assets at risk in the City of Isleton. 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 Isleton. The methodology described in Section 4.3.12 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 1-22 is a summary table for the City of Isleton. 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. Table 1-23 breaks down Table 1-22 and shows the property use, improved parcel count, improved values, estimated contents, and total values that fall in FEMA flood zones in the City.

*Table 1-22 City of Isleton – Count and Value of Parcel*s at Risk in Summary DFIRM Flood Zones*

Flood Zone	Total Parcel Count	Improved Parcel Count	Total Land Value	Improved Structure Value	Estimated Contents Value	Total Value
1% Annual Chance Flood	515	329	$21,145,419	$39,144,051	$24,482,767	$84,772,235
0.2% Annual Chance Flood**	-	-	$0	$0	$0	$0
Other Areas	21	9	$1,571,792	$2,124,228	$1,570,789	$5,266,809
City of Isleton Total	**536**	**338**	**$22,717,211**	**$41,268,279**	**$26,053,556**	**$90,039,044**

Source: FEMA 11/2/2018 DFIRM, Sacramento County 2020 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 1-23 City of Isleton – Count and Values of Parcels at Risk by Detailed Flood Zone and Property Use*

Flood Zone / Property Use	Total Parcel Count	Improved Parcel Count	Total Land Value	Improved Structure Value	Estimated Contents Value	Total Value
1% Annual Chance Flood Hazard						
Zone AE						
Agricultural	1	0	$32,472	$0	$0	$32,472
Care/Health	0	0	$0	$0	$0	$0
Church/Welfare	8	8	$208,114	$1,009,072	$1,009,072	$2,226,258
Industrial	5	5	$2,126,988	$1,224,909	$1,837,364	$5,189,260
Miscellaneous	17	0	$851,679	$0	$0	$851,679
Office	4	3	$188,095	$374,669	$374,669	$937,433
Public/Utilities	26	1	$43,974	$32,966	$32,966	$109,906
Recreational	0	0	$0	$0	$0	$0
Residential	257	254	$12,279,026	$30,529,882	$15,264,945	$58,073,852
Retail/ Commercial	55	53	$2,190,276	$5,963,751	$5,963,751	$14,117,778
Unknown	0	0	$0	$0	$0	$0
Vacant	142	5	$3,224,795	$8,802	$0	$3,233,597
Zone AE Total	**515**	**329**	**$21,145,419**	**$39,144,051**	**$24,482,767**	**$84,772,235**
1% Annual Chance Flood Hazard Total	**515**	**329**	**$21,145,419**	**$39,144,051**	**$24,482,767**	**$84,772,235**
Other Areas						
Zone X						
Agricultural	0	0	$0	$0	$0	$0
Care/Health	0	0	$0	$0	$0	$0
Church/Welfare	0	0	$0	$0	$0	$0
Industrial	0	0	$0	$0	$0	$0
Miscellaneous	3	0	$32,459	$0	$0	$32,459
Office	1	1	$259,659	$318,675	$318,675	$897,009
Public/Utilities	2	0	$189	$0	$0	$189
Recreational	0	0	$0	$0	$0	$0
Residential	3	3	$776,692	$1,106,878	$553,439	$2,437,009
Retail/ Commercial	5	5	$409,802	$698,675	$698,675	$1,807,152
Unknown	0	0	$0	$0	$0	$0
Vacant	7	0	$92,991	$0	$0	$92,991
Zone X Total	**21**	**9**	**$1,571,792**	**$2,124,228**	**$1,570,789**	**$5,266,809**

Flood Zone / Property Use	Total Parcel Count	Improved Parcel Count	Total Land Value	Improved Structure Value	Estimated Contents Value	Total Value
Other Areas Total	**21**	**9**	**$1,571,792**	**$2,124,228**	**$1,570,789**	**$5,266,809**
Isleton Total	**536**	**338**	**$22,717,211**	**$41,268,279**	**$26,053,556**	**$90,039,044**

Source: FEMA 11/2/2018 DFIRM, Sacramento County 2020 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

Table 1-24 summarizes Table 1-23 above and shows City of Isleton loss estimates and improved values at risk by FEMA 1% and 0.2% annual chance flood zones.

Table 1-24 City of Isleton – Flood Loss Estimates

Flood Zone	Total Parcel Count	Improved Parcel Count	Improved Structure Value	Estimated Contents Value	Total Value	Loss Estimate	Loss Ratio
1% Annual Chance Flood	515	329	$39,144,051	$24,482,767	$63,626,818	$12,725,364	14.1%
0.2% Annual Chance Flood**	0	0	$0	$0	$0	$0	0.00%
Grand Total	**515**	**329**	**$39,144,051**	**$24,482,767**	**$63,626,818**	**$12,725,364**	**14.10%**

Source: FEMA 11/2/2018 DFIRM, Sacramento County 2020 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 1-23 and Table 1-24, the City of Isleton has 329 parcels and $63.6 million of structure and contents values or values in the 1% annual chance flood zone, and 0 improved parcels in the 0.2% annual chance flood zone. These values can be refined a step further. Applying the 20 percent damage factor as previously described in Section 4.3.11 of the Base Plan, there is a 1% chance in any given year of a flood event causing $12.7 million in damage and a 0.2% chance in any given year of a flood event causing $0 in damage in the City of Isleton. The loss ratio of 14.1% indicates that flood losses for 1% and 0.2% annual chance flooding, respectively, would be overwhelming and difficult 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 4.3.12 of the Base Plan, was used for the City of Isleton as well as for the County as a whole. Table 1-25 represents a summary analysis of total acres for each FEMA DFIRM flood zone in the City. Table 1-26 represents a detailed analysis of total acres and property use for each FEMA DFIRM flood zone in the City.

Table 1-25 City of Isleton – Flooded Acres by Summary Flood Zone

Flood Zone	Total Acres	% of Total Acres	Improved Acres	% of Total Improved Acres	Unimproved Acres	% of Total Unimproved Acres
1% Annual Chance Flood Hazard	220	0.03%	61	0.02%	159	0.06%
0.2% Annual Chance Flood Hazard	0	0.00%	0	0.00%	0	0.00%
Other Areas	13	0.00%	5	0.00%	9	0.00%
Isleton Total	**233**	**0.04%**	**66**	**0.02%**	**168**	**0.06%**

Source: FEMA 11/2/2018 DFIRM

Table 1-26 City of Isleton – Flooded Acres by Detailed Flood Zone and Property Use

Flood Zone/ Property Use	Total Acres	% of Total Acres	Improved Acres	% of Total Improved Acres	Unimproved Acres	% of Total Unimproved Acres
1% Annual Chance Flood Hazard						
Zone AE						
Agricultural	2.6	0.00%	0	0.00%	2.6	0.00%
Care/Health	0	0.00%	0	0.00%	0	0.00%
Church/Welfare	2.2	0.00%	2.2	0.00%	0	0.00%
Industrial	10.3	0.00%	10.3	0.00%	0	0.00%
Miscellaneous	12.1	0.00%	0	0.00%	12.1	0.00%
Office	0.7	0.00%	0.5	0.00%	0.2	0.00%
Public/Utilities	72.7	0.01%	0.1	0.00%	72.6	0.03%
Recreational	0	0.00%	0	0.00%	0	0.00%
Residential	37.7	0.01%	37.7	0.01%	0.1	0.00%
Retail/ Commercial	7.4	0.00%	7.0	0.00%	0.4	0.00%
Unknown	0	0.00%	0	0.00%	0	0.00%
Vacant	74.1	0.01%	3.0	0.00%	71.1	0.03%
Zone AE Total	**219.8**	**0.03%**	**60.8**	**0.02%**	**159.1**	**0.06%**
1% Annual Chance Flood Hazard Total	**219.8**	**0.03%**	**60.8**	**0.02%**	**159.1**	**0.06%**
Other Areas						
Zone X						
Agricultural	0	0.00%	0	0.00%	0	0.00%
Care/Health	0	0.00%	0	0.00%	0	0.00%
Church/Welfare	0	0.00%	0	0.00%	0	0.00%

Flood Zone/ Property Use	Total Acres	% of Total Acres	Improved Acres	% of Total Improved Acres	Unimproved Acres	% of Total Unimproved Acres
Industrial	0.6	0.00%	0.6	0.00%	0	0.00%
Miscellaneous	0.5	0.00%	0	0.00%	0.5	0.00%
Office	0.2	0.00%	0.2	0.00%	0	0.00%
Public/Utilities	1.7	0.00%	0	0.00%	1.7	0.00%
Recreational	0	0.00%	0	0.00%	0	0.00%
Residential	2.1	0.00%	2.1	0.00%	0	0.00%
Retail/ Commercial	1.9	0.00%	1.9	0.00%	0	0.00%
Unknown	0	0.00%	0	0.00%	0	0.00%
Vacant	6.4	0.00%	0	0.00%	6.4	0.00%
Zone X Total	**13.4**	**0.00%**	**4.7**	**0.00%**	**8.6**	**0.00%**
Other Areas Total	**13.4**	**0.00%**	**4.7**	**0.00%**	**8.6**	**0.00%**
Isleton Total	**233.2**	**0.04%**	**65.5**	**0.02%**	**167.7**	**0.06%**

Source: FEMA 11/2/2018 DFIRM

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 Isleton – 2.70. According to this analysis, there is a total population of 701 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 1-27.

Table 1-27 City of Isleton – Count of Improved Residential Parcels and Population by Flood Zone

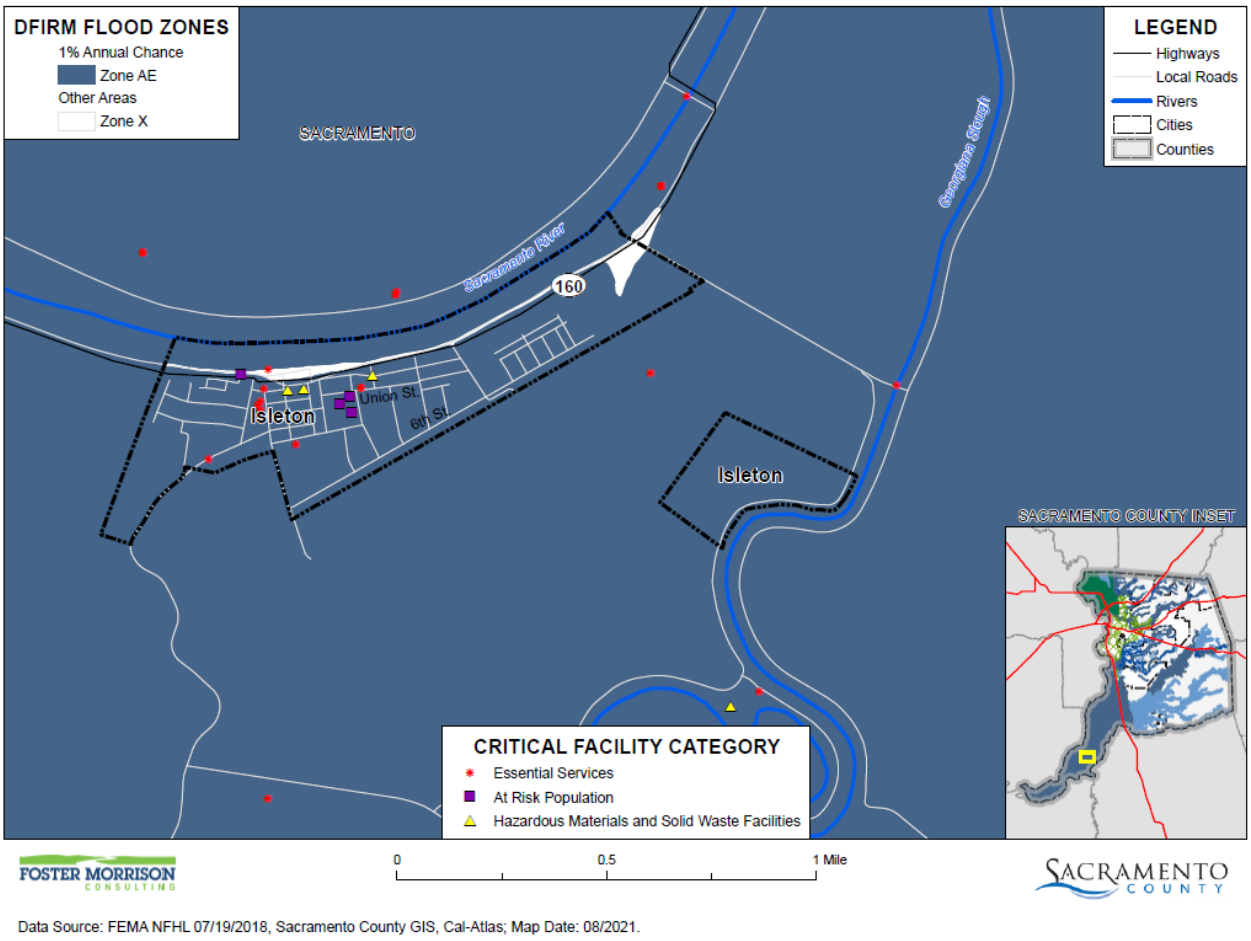
Jurisdiction	1% Annual Chance		0.2% Annual Chance	
	Improved Residential Parcels	Population at Risk	Improved Residential Parcels	Population at Risk
Isleton	254	701	0	0

Source: FEMA DFIRM 11/2/2018, Sacramento County 2020 Parcel/Assessor's Data, US Census Bureau

Critical Facilities at Risk

An analysis was performed on the critical facility inventory in Isleton in identified DFIRM flood zones. GIS was used to determine whether the critical facility locations intersect a DRIFM flood zone, and if so, which flood zone it intersects. Details of critical facilities in mapped DFIRM flood zones in the City of Isleton are shown in Figure 1-10 and detailed in Table 1-28. Details of critical facility definition, type, name and address and jurisdiction by DFIRM flood zone are listed in Appendix F.

Figure 1-10 City of Isleton - Critical Facilities and FEMA DFIRM Flood Zones



Data Source: FEMA NFHL 07/19/2018, Sacramento County GIS, Cal-Atlas; Map Date: 08/2021.

Table 1-28 City of Isleton – Critical Facilities in DFIRM Flood Zones by Facility Category and Type

Flood Zone Critical Facility Category	Critical Facility Type	Facility Count
1% Annual Chance Flood Hazard		
Essential Services Facilities	Emergency Evacuation Center	1
	EMS Stations	1
	Fire Station	2
	Law Enforcement	1
	Microwave Service Towers	2
	Water Well	1
	Total	**8**
At Risk Population Facilities	Day Care Center	1
	Mobile Home Parks	1
	School	2

Flood Zone Critical Facility Category	Critical Facility Type	Facility Count
	Total	**4**
Hazardous Materials and Solid Waste Facilities	Leaky Underground Storage Tank	3
	Total	**3**
1% Annual Chance Flood Hazard Total		**15**
Other Areas		
Essential Services Facilities	Water Well	1
	Total	**1**
Other Areas Total		**1**
Isleton Total		**16**

Source: City of Isleton, FEMA 7/19/2018 DFIRM

Insurance Coverage, Claims Paid, and Repetitive Losses

Standard property insurance does not include flood coverage because of the relatively high risk. The National Flood Insurance Program (NFIP) provides flood insurance to residents in those communities that participate in the NFIP. Federal financial assistance requires the purchase of flood for structures located within a 100-year floodplain – a requirement that affects nearly all mortgages financed through commercial lending institutions. Flood insurance is also recommended for all structures protected by levees, even if not mapped within a floodplain.

The City of Isleton joined the National Flood Insurance Program (NFIP) on December 1, 1978. The City does not participate in CRS program. NFIP data indicates that as of March 24, 2020, there were 110 flood insurance policies in force in the City with $24,037,600 of coverage. Of the 110 policies, 107 were residential (single-family homes) and 3 were non-residential. Of the 110 policies, 107 were in A zones, while 3 were in B, C, and X zones. There have been 23 historical claims for flood losses totaling $467,013.07. NFIP data further indicates that there is 1 repetitive loss (RL) and no severe repetitive loss (SRL) buildings in Isleton. There have been 7 substantial damage claims since 1978.

Based on this analysis of insurance coverage, the City has values at risk to the 1% annual chance and greater floods. Of the 329 improved parcels within the 1% annual chance flood zone, only 107 (or 32.5 percent) of those parcels maintain flood insurance. This can be seen on Table 1-29.

Table 1-29 City of Isleton – Percentage of Policy Holders to Improved Parcels in the 1% Annual Chance Floodplain

Jurisdiction	Improved Parcels in SFHA (1% Annual Chance) Floodplain*	Insurance Policies in the SFHA (1% Annual Chance) Floodplain	Percentage of 1% Annual Chance Floodplain Parcels Currently Insured
City of Isleton	329	107	32.5%

Source: FEMA DFIRM 11/2/2018, Sacramento County 2020 Parcel/Assessor's Data, NFIP CIS data 3/2020.

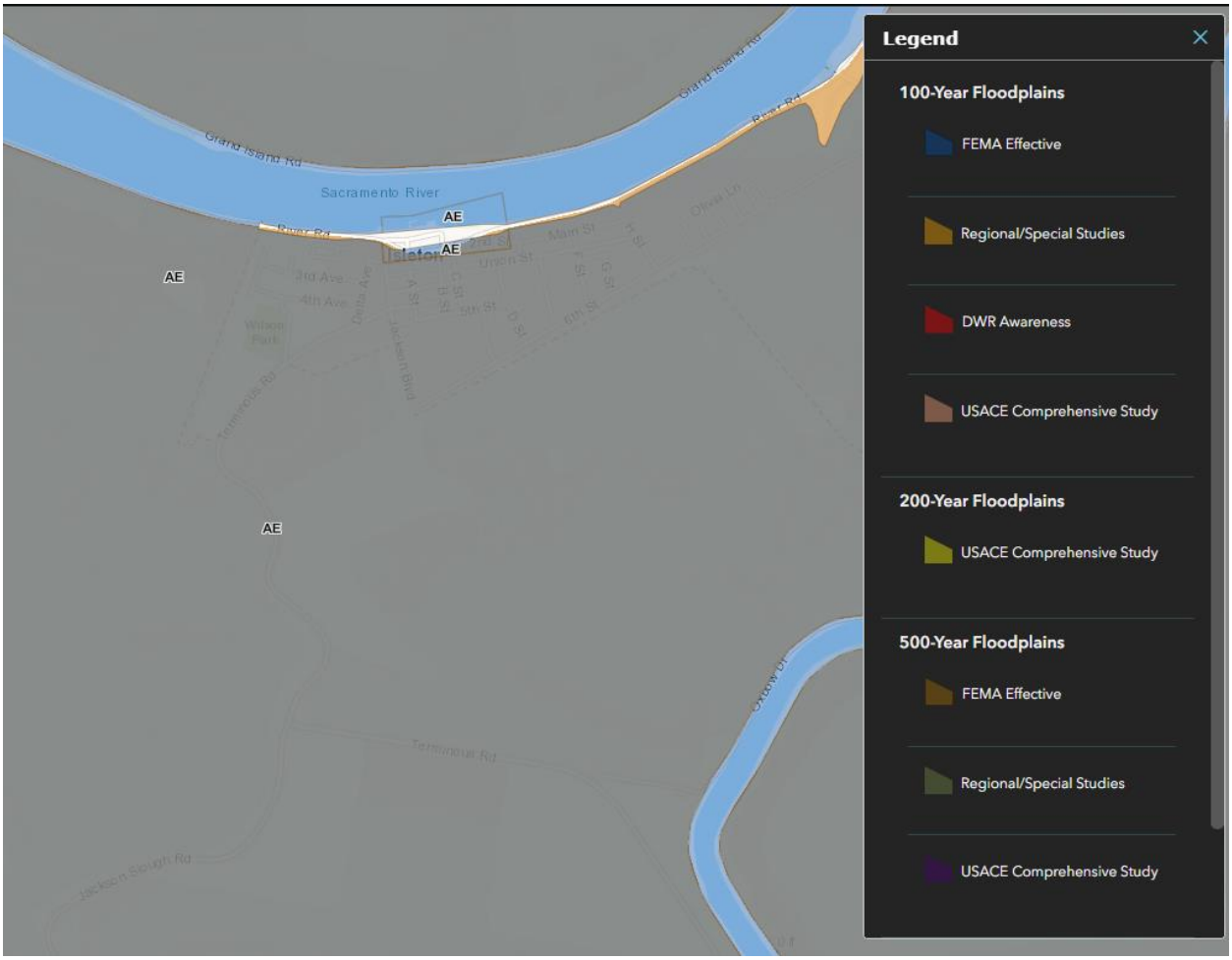
California Department of Water Resources Best Available Maps (BAM)

The FEMA regulatory maps provide just one perspective on flood risks in Sacramento 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 Isleton is shown in Figure 1-11.

Figure 1-11 City of Isleton – 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 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.

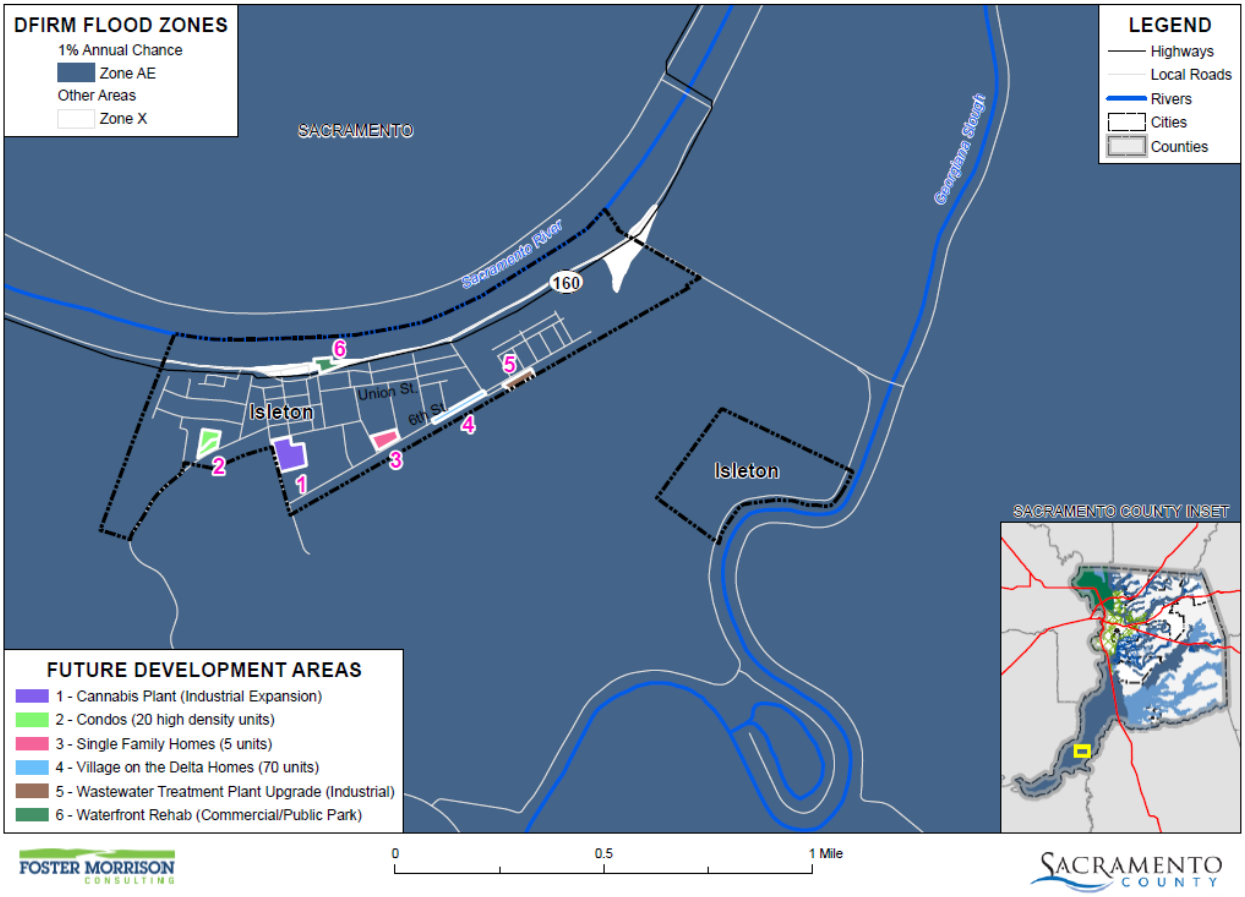
The entire city of Isleton lies within a 100-year flood zone, involving different standards for floor level elevation for residential, rehabilitated residential, and industrial construction. The most recent housing construction typically has involved two stories, with garages at ground level and living quarters on the

second story above the 100-year intensity flood level. The City enforces the floodplain ordinance. If any development is to occur in the floodplain, it would have to conform to the elevation standards of the floodplain ordinance. The City wants to engage an active flood improvement program and flood management program. This would allow the citizens to pursue normal residential and commercial construction.

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 areas and 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 1-12 shows the locations of future development areas the City is planning to develop on the DFIRM flood zones. Table 1-30 shows the parcels and acreages of each future development area in the City in the DFIRM flood zones.

Figure 1-12 City of Isleton – Future Development and FEMA DFIRM Flood Zones



Data Source: FEMA NFHL 07/19/2018, Sacramento County GIS, Cal-Atlas; Map Date: 07/2021.

Table 1-30 City of Isleton – Future Development Parcels and Acres by FEMA DFIRM Flood Zone

DFIRM Flood Zone/Future Development	Total Parcel Count	Improved Parcel Count	Total Acres
1% Annual Chance Flood Hazard			
Cannabis Plant (Industrial Expansion)	1	1	3.00
Condos (20 high density units)	2	0	1.42
Single Family Homes (5 units)	1	0	1.15
Village on the Delta Homes (70 units)	1	0	1.03
Wastewater Treatment Plant Upgrade (Industrial)	1	0	0.90
1% Annual Chance Flood Hazard Total	**6**	**1**	**7.51**
Other Areas			
Waterfront Rehab (Commercial/Public Park)	1	0	0.96
Other Areas Total	**1**	**0**	**0.96**
Grand Total	**7**	**1**	**8.47**

Source: City of Isleton, FEMA 7/19/2018 DFIRM

Flood: Localized Stormwater Flooding

Likelihood of Future Occurrence–Highly Likely
Vulnerability–Medium

Hazard Profile and Problem Description

Flooding occurs in areas other than the FEMA mapped 1% and 0.2% annual chance floodplains. Flooding may be from drainages not studied by FEMA, lack of or inadequate drainage infrastructure, or inadequate maintenance. Localized, stormwater flooding occurs throughout the County during the rainy season from November through April. Prolonged heavy rainfall contributes to a large volume of runoff resulting in high peak flows of moderate duration.

Location and Extent

The City of Isleton is subject to localized flooding throughout the City. Flood extents are usually measured in areas affected, velocity of flooding, and depths of flooding. Expected flood depths in the City vary by location. 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. Localized flooding in the City tends to have a shorter speed of onset, especially when antecedent rainfall has soaked the ground and reduced its capacity to absorb additional moisture.

The 2017 Isleton Opportunities, Constraints, and Vision report noted that surface water drainage consists of a traditional above-ground curb and gutter collection system and some underground facilities. Much of

the City street system has curb, gutter, and some drop inlets installed with ultimate disposal to major drainage ditches south of the city. Where curb, gutter, and drop inlets are missing, drainage occurs by gravity flow to the lowest points along the street system and adjacent parcels.

The City tracks localized flooding areas. Affected localized flood areas identified by the City of Isleton are summarized in Table 1-31.

Table 1-31 City of Isleton – List of Localized Flooding Problem Areas

Road Name	Flooding	Pavement Deterioration	Washout	High Water	Landslide/ Mudslide	Debris	Downed Trees
Jackson Blvd	X			X			
Hwy 160	X	X		X			
Union St	X	X		X			

Source: City of Isleton

Past Occurrences

The City noted the following areas where localized flooding occurs almost yearly:

During heavy rainfall, Isleton has three areas of concern as detailed in the above table.. At Jackson and 4th, there is a drainage inlet that gets overwhelmed with runoff and causes ponding that reaches into the intersection. At Highway 160 and A St. there is another drainage inlet that gets overwhelmed with rain water that causes 160 to flood. On Union St. between D St and E St the City has problems with ponding due to excessive runoff.

In addition, the East Isleton area/rural region has localized flooding which is widespread but generally minor; the flat land causes floodwaters to spread out reducing threats to life. These areas of potential concern are included in Table 1-31. In this area, roadside ditches and culverts lack capacity and are prone to blockages from debris. In addition, the southern edge of the town is very vulnerable to flooding.

Vulnerability to and Impacts from Localized Flooding

Historically, much of the growth in the City and County has occurred adjacent to streams, resulting in significant damages to property, and losses from disruption of community activities when the streams overflow. Additional development in the watersheds of these streams affects both the frequency and duration of damaging floods through an increase in stormwater runoff.

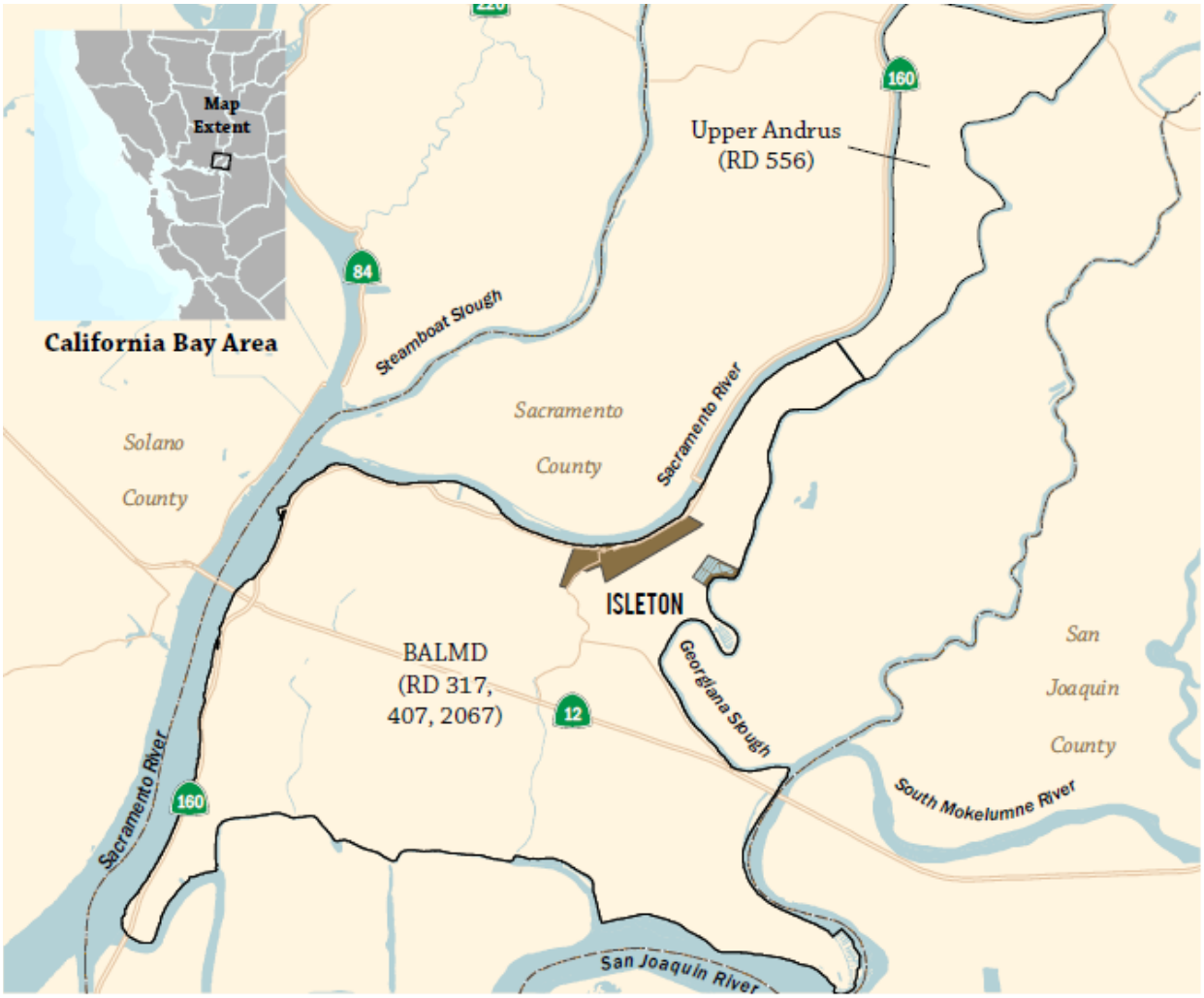
Primary concerns associated with stormwater flooding include impacts to infrastructure that provides a means of ingress and egress throughout the community. Ground saturation can result in instability, collapse, or other damage to trees, structures, roadways and other critical infrastructure. Objects can also be buried or destroyed through sediment deposition. Floodwaters can break utility lines and interrupt services. Standing water can cause damage to crops, roads, and foundations. Other problems connected with flooding and stormwater runoff include erosion, sedimentation, degradation of water quality, losses of environmental resources, and certain health hazards.

To some extent in the City of Isleton, drainage from roofs and private properties has in the past been allowed to be funneled into the sewage collection system, adding to problems of sewage treatment during wet weather. Fortunately, much of the latter problem has been corrected by City inspection and notice to owners.

The 2017 Isleton Opportunities, Constraints, and Vision report noted that the islands of Brannan, Andrus, and Lower Andrus are represented by individual reclamation districts, each with its own elected Board of Trustees. The reclamation districts (RD) surrounding the city of Isleton include RD2067, RD317, and RD407. These agencies operate the drainage pump facilities and oversee maintenance of the primary drainage canals around Isleton. Recognizing that the levees of these three districts were interconnected and impacted each other, the oversight and maintenance of the levees protecting the three areas were legislatively vested in a single entity known as Brannan-Andrus Levee Maintenance District (BALMD).

RD407 within BALMD oversees dewatering for land areas encompassed by the Sacramento River, the RD556 cross levee, Georgiana Slough, Terminous Road, and the historical meander line of Jackson Slough.

Figure 1-13 City of Isleton – Surface Water Drainage



Source: 2017 Isleton Opportunities, Constraints, and Vision Report

The City has filed to expand its sphere of influence. Generally speaking, the sphere of influence is about a mile west of the City, to Georgiana Slough, and to about two miles east of the City.

Future Development

Future development in the City will add more impervious surfaces causing an increase in stormwater runoff and the continued need to drain these waters. The City will need to be proactive to ensure that increased development has proper siting and drainage for stormwaters. The risk of localized flooding to future development can also be minimized by accurate recordkeeping of repetitive localized storm activity. Mitigating the root causes of the localized stormwater flooding will reduce future risks of losses. The City of Isleton has taken measures to prevent storm water flooding by doing the following:

- Replaced damaged and crushed culvert pipes to help the flow of storm water to the reclamation ditches
- Removed and cleared all debris from storm water drainage ditches.

On an annual basis a vacuum truck is brought in to clean out all storm water collection basins throughout the City. Drainage basins grates have been replaced and repaired to help prevent debris clogs. During the fall the City employees temp help to sweep leaves and all other debris from gutters to prevent this material from causing drain blockages.

Levee Failure

Likelihood of Future Occurrence–Occasional
Vulnerability–Extremely High

Hazard Profile and Problem Description

A levee is a raised area that runs along the banks of a stream or canal. Levees reinforce the banks and help prevent flooding by containing higher flow events to the main channel of a stream. By confining the flow to a narrower steam channel, levees can also increase the speed of the water. Levees can be natural or man-made.

Levees provide strong flood protection, but they are not failsafe. Levees are designed to protect against a specific flood level and could be overtopped during severe weather events or dam failure. For example, levees can be certified to provide protection against the 1% annual chance flood. Levees reduce, not eliminate, the risk to individuals and structures located behind them. A levee system failure or overtopping can create severe flooding and high water velocities. Levee failure can occur through overtopping or from seepage issues resulting from burrowing rodents, general erosion, excessive vegetation and root systems and other factors that compromise the integrity of the levee. No levee provides protection from events for which it was not designed, and proper operation and maintenance are necessary to reduce the probability of failure.

The City has participated in FEMA's Map Modernization Project and the requirements of Title 44 of the Federal Code of Regulations (CFR), Section 65.10 of the National Flood Insurance Program (NFIP) regulations to certify the Laguna West levee system. The Laguna West levee system meets the design, operation and maintenance criteria set forth 44 CFR Section 65.10.

The City's implements levee operation and maintenance activities which provide maintenance recommendations and requirements for specific levee inspections and maintenance operations. Levee inspections and maintenance activities include vegetation control, rutting/depressions, erosion control, slope stability, cracking, rodent control, encroachments/excavation, riprap revetments/banks, closure structures, underseepage relief wells/toe drainage system, seepage/sand boils, debris removal, roadway crown, utilities, minor structures, and mosquito abatement.

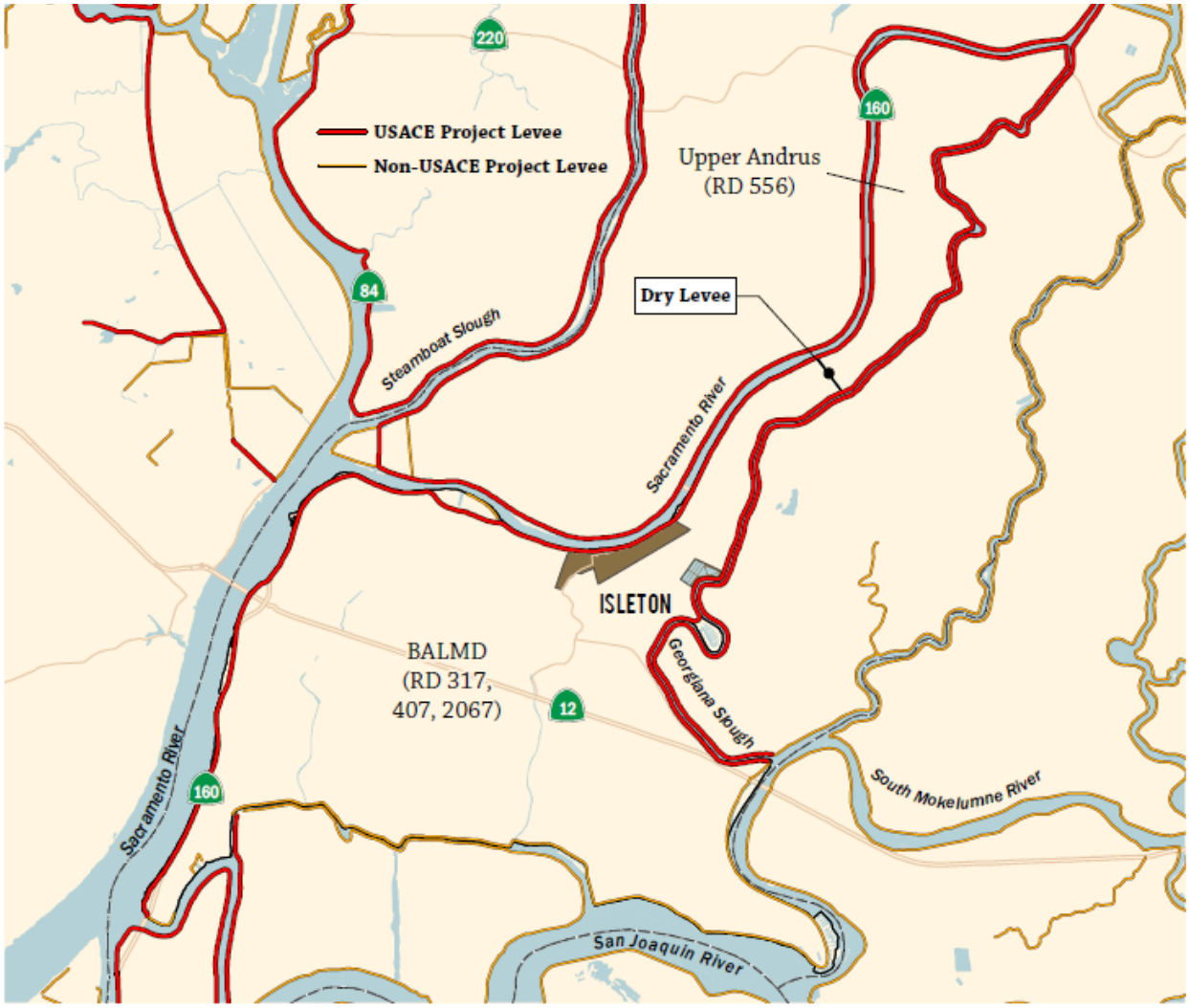
Location and Extent

There is not a scientific scale or measurement system in place for levee failure. Expected flood depths from a levee failure in the City are not known. The speed of onset is slow as the river rises, but if a levee fails the warning times are generally short for those in the inundation area. The duration of levee failure risk times can be hours to weeks, depending on the river flows that the levee holds back. The HMPC noted that when northern California reservoirs are nearing maximum capacity, they release water through the river systems, causing additional burdens on County levees. The levees in the City are not shown as being certified on the DFIRM X Protected by Levee layer. As such, no mapping has been supplied for this Plan Update.

The 2017 City of Isleton Opportunities, Constraints, and Vision Report noted that the City of Isleton is protected by a system of leveed channels, multipurpose reservoirs, and other structures, which comprise the Sacramento River Flood Control Project (SRFCP). The goal of the SRFCP is to reduce the chance of flooding for communities like Isleton. Even with the realization of major physical improvements to the flood management system, the risk of flooding will continue to exist within the city.

The Brannan-Andrus Levee Maintenance District (BALMD) and Reclamation District 556 (RD 556) system of levees provide flood protection for the city of Isleton. Isleton is located along the left bank of the Sacramento River approximately 3.12 miles upstream of its confluence with Steamboat Slough. Isleton sits at an approximate elevation of +5 feet. BALMD staff monitors and maintains the levees on the island and maintains and controls the operations of the seven pumping stations to keep the island dry.

Figure 1-14 City of Isleton – Levees in and near the City



Source: 2017 City of Isleton Opportunities, Constraints, and Vision Report

Brannan-Andrus Island has a population of approximately 1,837, which is made up of a major recreation contingent and the City of Isleton. The maintenance of the levee system is critical to maintain the economy supported by over 10,856 acres of prime agricultural land and 1,500 residents. District levees protect about 1,500 residents, 613 residential structures, 33 gas wells, and approximately 9,088 acres of gas fields (Sacramento County and GEI Consulting Engineers, 2017).

Along RD 556, the flood protection facilities include the Sacramento River Unit 2, Segment 390 and Georgiana Slough Unit 1, and Segment 129 (see Figure 11). BALMD SPFC facilities include Sacramento River Unit 2, Segment 378, Georgiana Slough Unit 1, Segment 40, Mokelumne River Unit 3, Segment 1050, San Joaquin River Unit 4, Segment 1049, and Sevenmile Slough Unit 5, 1048 (see Figure 11). The Sacramento River and Georgiana Slough are project levees, and the Mokelumne and San Joaquin Rivers and Sevenmile Slough are non-project levees. These levee systems primarily protect the small communities of Isleton and the Delta Loop recreational area, in addition to other rural agricultural areas. Oxbow Marina

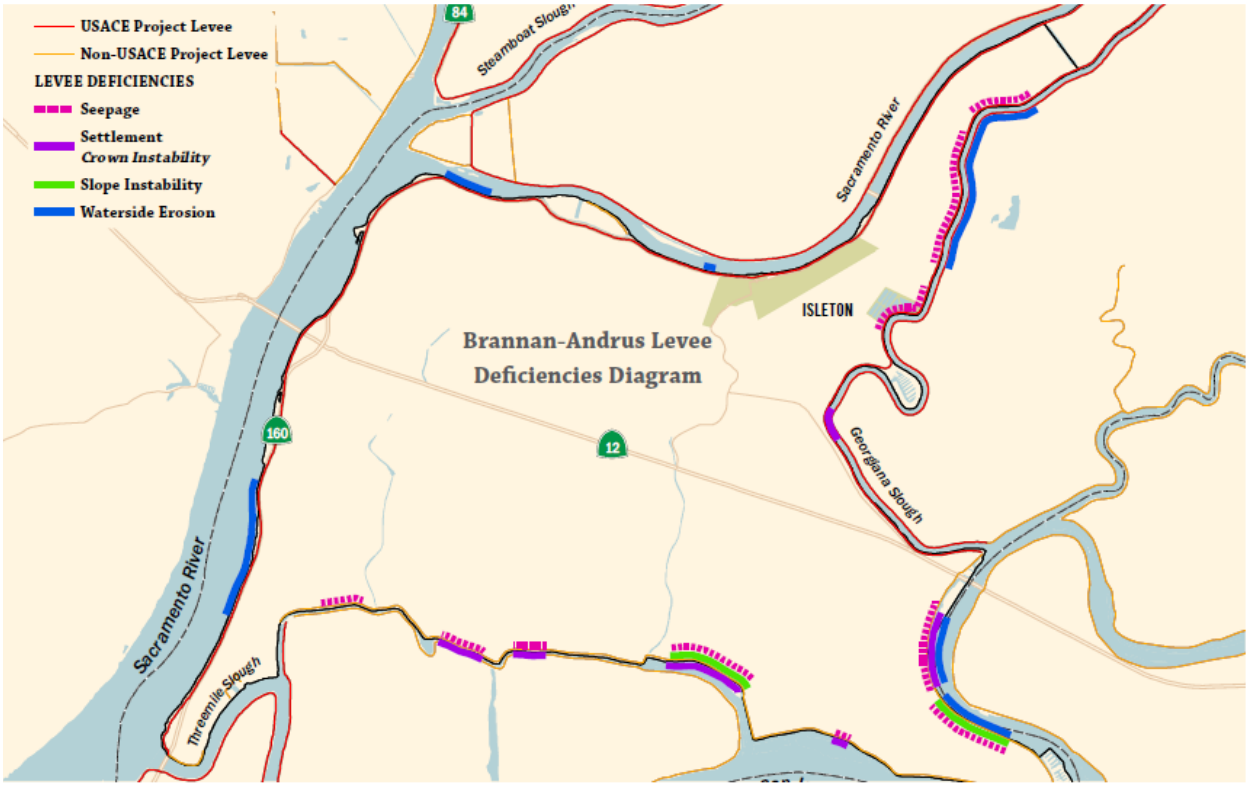
is accessed by the District's levee system. In the event of a flood, the area would be disconnected from services and the area's population would be forced to evacuate.

Isleton and the Delta Loop Recreational Area are protected by a levee system that is bordered by the Sacramento River, Georgiana Slough, Mokelumne River, San Joaquin River, and Sevenmile Slough. Oxbow Marina is outside of the flood protection system, but its access is protected by the system.

There are approximately 26.2 miles of levee that surround Brannan-Andrus Levee Maintenance District with 16.2 miles of project levees and 10 miles of non-project levees. In addition, BALMD is separated from Upper Andrus Island (RD 556) by a 0.46-mile cross levee that is owned by RD 556. RD 556 is surrounded by 11.2 miles of project levees. In the event of a levee failure and flood on RD 556, the cross levee could likely overtop and flood BALMD and the small communities of Isleton, Oxbow Marina, and the Delta Loop Recreational Area. Therefore, an evaluation is needed of the entire levee system surrounding the two districts as well as the cross levee (Sacramento County and GEI Consulting Engineers, 2017).

Most of the levees surrounding the districts do not meet the FEMA 100-year levee standard. In addition, there are several areas with Bulletin 192-82 (agricultural levee design standards) geometry deficiencies. As part of the Non-Urban Levee Evaluation (NULE) investigations, DWR analyzed the deficiencies currently (2017)associated with passing the 1957 design flow. The investigations concluded that some segments of the levees protecting Isleton, Oxbow Marina, and the Delta Loop Recreation Area suffer from under-seepage, through-seepage, landside stability, and geometry deficiencies (see Figure 1-15).

Figure 1-15 Brannan Andrus Levee Deficiencies Diagram



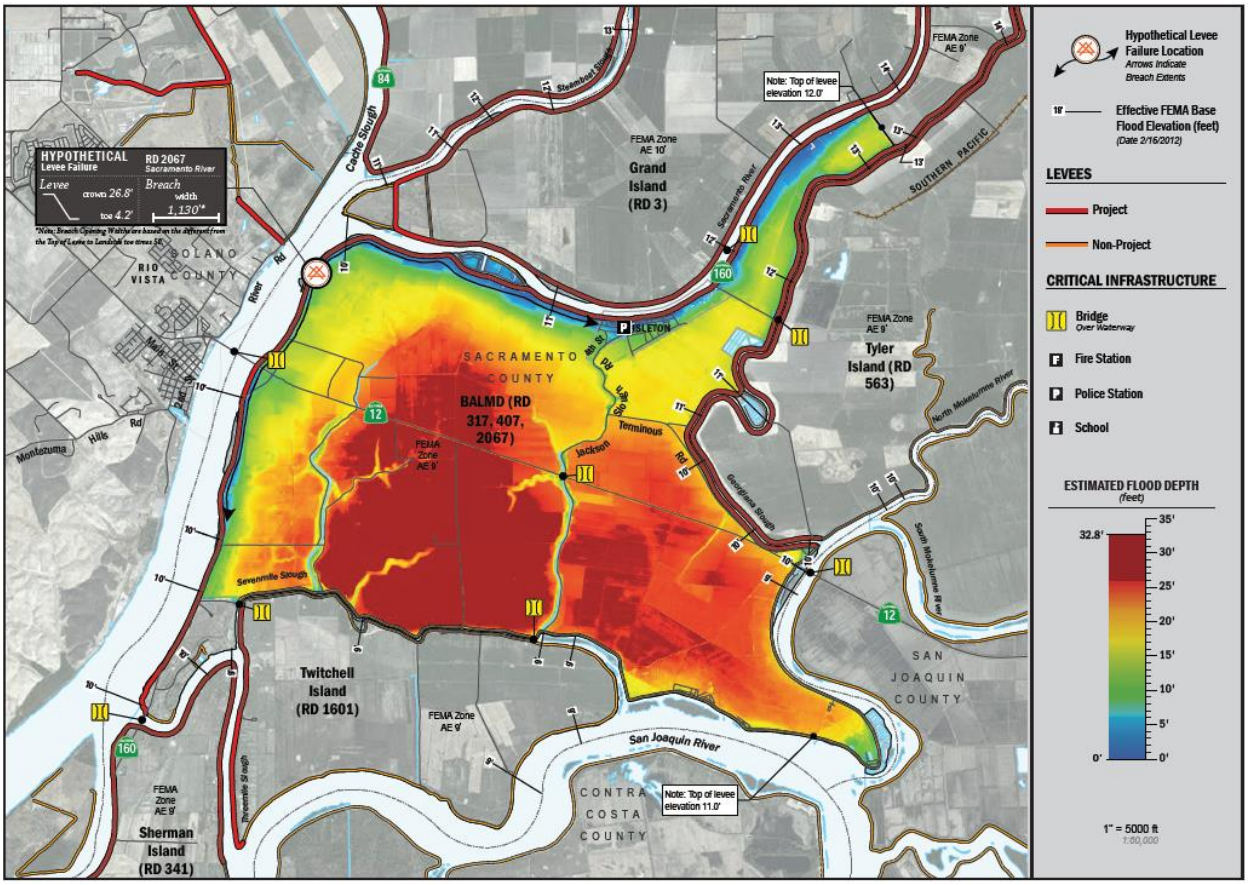
Source: 2017 City of Isleton Opportunities, Constraints, and Vision Report

The County, BALMD, and RD 556 have been active participants in DWR's Delta Flood Emergency Preparedness, Response, and Recovery Program, including activities associated with updating the Reclamation District's Flood Emergency and Safety Plans (ESPs), and Multi-Hazard Mitigation Plan (MHMP) for each of the County's RDs/Levee Maintaining Agencies (LMAs) located in the Delta. The ESPs and MHMPs for each of the RDs/LMAs in the Sacramento-San Joaquin Delta have been prepared and updated as non-structural measures to improve flood emergency preparedness, response, and recovery actions for each of the communities and adjoining agricultural areas. Simulated levee breaches of the State Plan of Flood Control (SPFC) levee sections indicating timing and potential deep flooding conditions have been developed for each of the RDs/LMAs inclusive of all the small communities and adjoining agricultural areas in the Delta, including the Isleton region.

The BALMD ESP provides mapping to show the projected flood depth and flood timing if a levee protecting BALMD were to fail. There were three hypothetical levee failure "breach" model scenarios provided for BALMD. The first scenario model was on the left bank of the Sacramento River across from Rio Vista. Tidal conditions as well as flows from the Yolo Bypass greatly impact the results of the levee failure in this location. The second scenario model was on the right bank of the Mokelumne River downstream of the confluence with Georgiana Slough. The third scenario model was on the right bank of the Sacramento River upstream of the city of Isleton and downstream of the cross levee. The criteria to approximate the hypothetical levee failure opening in the hydraulic model was developed by the DWR and USACE (Sacramento County and GEI Consulting Engineers, 2017).

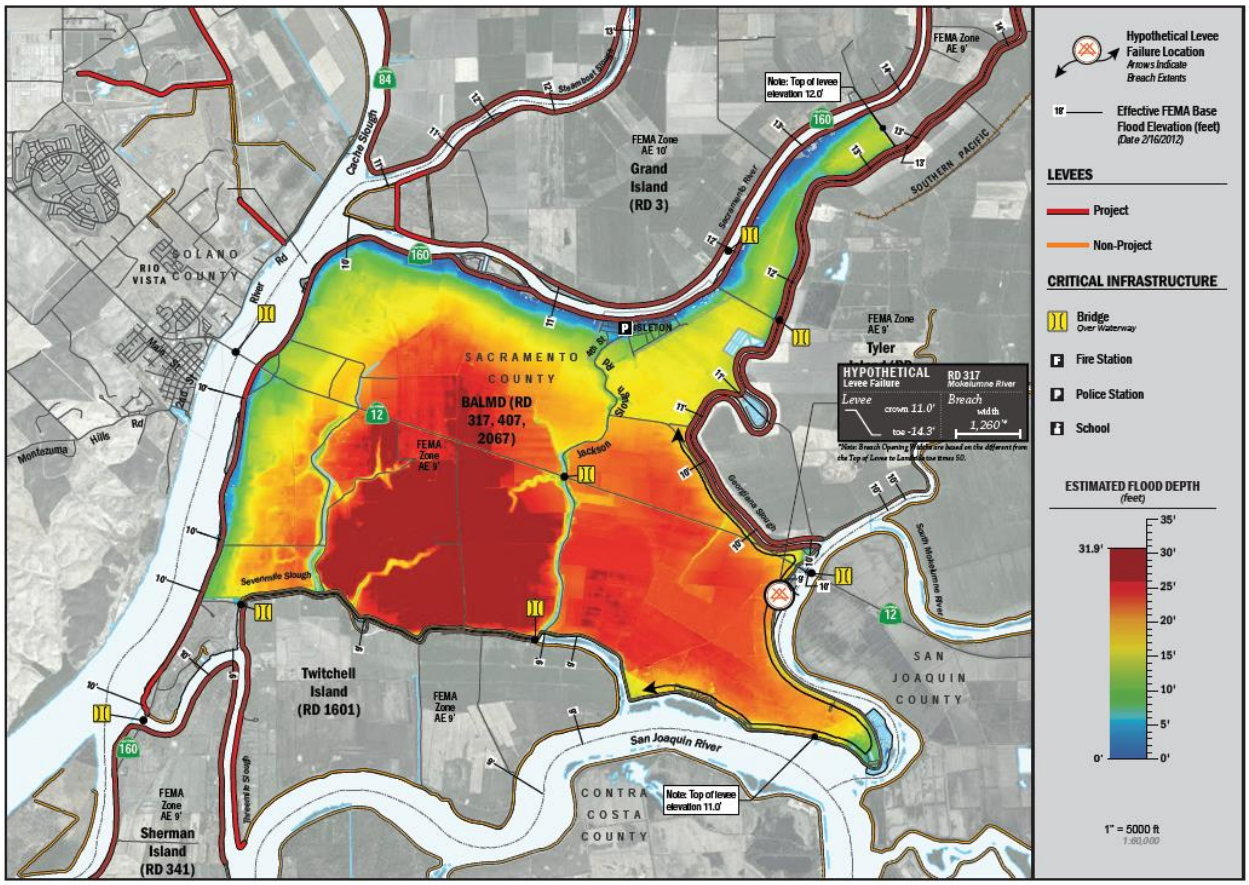
Maps in Figure 1-16, Figure 1-17, and Figure 1-18 provide the estimated depth of flooding (in feet) in assuming a levee fails and no relief cuts were placed in the levee. The results indicate that a levee failure located on the Sacramento River could produce enough volume to fill the basin close to the effective Federal Emergency Management Agency (FEMA) elevation. The lowest ground elevation in the basin is approximately El. -22.0 feet and the lowest top of levee along the San Joaquin is approximately El. 11.0 feet (Sacramento County and GEI Consulting Engineers, 2017).

Figure 1-16 City of Isleton – Depth of Flooding from Levee Breach Scenario #1



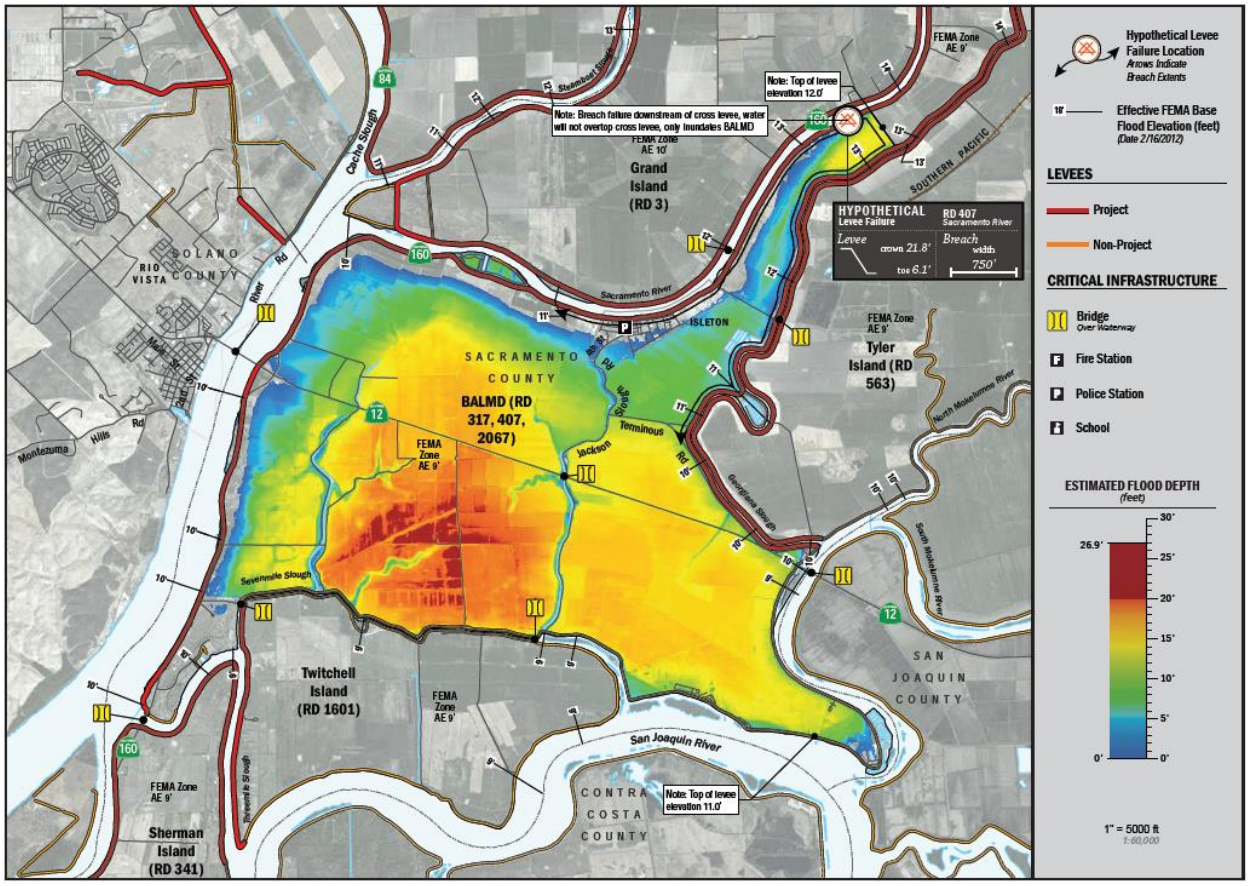
Source: 2017 City of Isleton Opportunities, Constraints, and Vision Report

Figure 1-17 City of Isleton – Depth of Flooding from Levee Breach Scenario #2



Source: 2017 City of Isleton Opportunities, Constraints, and Vision Report

Figure 1-18 City of Isleton – Depth of Flooding from Levee Breach Scenario #3



Source: 2017 City of Isleton Opportunities, Constraints, and Vision Report

Past Occurrences

There have been two state and two federal disaster declaration from levee failure. This can be seen in Table 1-32.

Table 1-32 Sacramento County – State and Federal Levee Failure Disaster Declarations 1950-2020

Disaster Type	State Declarations		Federal Declarations	
	Count	Years	Count	Years
Levee Break	2	1972, 1980	2	1972, 1980

Source: Cal OES, FEMA

The Delta has a long history of flooding, but little definitive data on specific flood events are available. Andrus, Brannan, and Twitchell Islands, have all experienced historical floods. Large areas of the delta were inundated during floods, and it is probable that the City of Isleton was damaged or seriously threatened.

The 1950 and 1955 floods were outstanding in peak outflows through the Delta and several islands were flooded. The City of Isleton, however, was not affected. In December 1965 and January 1965, the

coincidental occurrence of very high tides and heavy inflow resulted in unusually high stages on all Delta waterways. Concurrent strong onshore winds generated high waves that created very perilous conditions for many islands. Levees protecting Twitchell Island were seriously threatened by erosion and overtopping, but a massive flood fighting effort prevented overflow, destruction of levees and inundation of the City of Isleton.

The HMPC noted that in 1972, a levee break flooded areas of the City. The levee separating Andrus Island and the San Joaquin River failed from unknown causes in June 1972, resulting in the flooding of Andrus and Brannan Islands (including the City of Isleton). High winds had occurred prior to the break, but there had been no antecedent rainfall and the tidal cycle was not on the higher side. Approximately 200,000 acre-feet of water from the San Joaquin River inundated Andrus and Brannan Islands. Activities to fight floods to protect the City of Isleton proved to be a losing battle, and almost all of the City was flooded. The entire population was evacuated, with some residents not being able to return to their homes for 4 months. Approximately one-half of the housing units in the City were damaged or destroyed. About 15,000 acres were inundated and flood damages for the event approximated $30 million. Specific damages values for the City were unavailable.

Vulnerability to and Impacts from Levee Failure

A levee failure can range from a small, uncontrolled release to a catastrophic failure. Levee failure flooding can occur as the result of prolonged rainfall and flooding. The primary danger associated with levee failure is the high velocity flooding of those properties outside and downstream of the breach.

Should a levee fail, some or all of the area protected by the levees would be at risk to flooding. Impacts from a levee failure include property damage, critical facility damage, and life safety issues. Business and economic losses could be large as facilities could be flooded and services interrupted. School and road closures could occur. Road closures would impede both evacuation routes and ability of first responders to quickly respond to calls for aid. Other problems connected with levee failure flooding include erosion, sedimentation, degradation of water quality, losses of environmental resources, and certain health hazards.

Due to the low-lying tidal nature of the Delta and low elevation of the City of Isleton (just above 5 feet), the entire community must be considered to be in a floodplain. Flood conditions in the City of Isleton are influenced by Pacific Ocean tides and strong onshore winds, as well as high outflow from streams originating in the foothills or higher areas of the Sierra Nevada. Specifically, the City of Isleton may flood when the levees protecting Andrus, Brannan and Twitchell Islands, are either overtopped or fail, as a result of the separate or coincidental occurrence of higher high tides and high outflow through the Delta. The waterways surrounding the islands are the Mokelumne, Sacramento and San Joaquin Rivers, and Georgiana, Sevenmile and Threemile Sloughs. The levees within the City of Isleton are maintained by the levee district.

The levees in the City are not shown as being certified on the DFIRM X Protected by Levee layer. As such, no mapping has been supplied for this Plan Update.

Future Development

Future development built in the areas protected by levees is subject to being built to the standards in the City of Isleton Floodplain Ordinance. Whether a levee is certified as providing protection from the 1% annual chance flood will also factor into development requirements. Future development in levee protected areas may be affected by this hazard, thus there will always be some level of concern.

Severe Weather: Extreme Heat

Likelihood of Future Occurrence–Highly 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 lasts 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 risks to the built environment from extreme heat. While extreme heat on its own does not usually affect structures, extreme heat during times of drought can cause wildfire risk to heighten. Extreme heat can lead to power outages and when combined with high winds, to Public Safety Power Shutdown (PSPS) events, creating significant issues in the City. However, PSPS events in the City have been declining with PG&E's refined system for shutting power off in high wildfire risk areas.

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 4.3.3 of the Base Plan.

Past Occurrences

The City Planning Team noted 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 4.3.3.

Vulnerability to and Impacts from Extreme Heat

The City experiences temperatures in excess of 100°F during the summer and fall months. The temperature moves to 105-115°F in rather extreme situations. During these times, drought conditions may worsen and the City may see an increase in dry fuels. Also, power outage events may occur during these times as well. Health issues are the primary concern with this hazard, although economic impacts can also be an issue.

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. This is especially true of homeless people and the transient population.

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 vegetations, making it more vulnerable to wildfire ignitions.

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 vulnerable 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. Low income residents and homeless populations are also vulnerable. Cooling centers for these populations should be utilized when necessary.

Severe Weather: Heavy Rains and Storms

Likelihood of Future Occurrence–Highly Likely
Vulnerability–Medium

Hazard Profile and Problem Description

Storms in the City occur annually and are generally characterized by heavy rain often accompanied by strong winds and sometimes lightning and hail. Approximately 10 percent of the thunderstorms that occur each year in the United States are classified as severe. A thunderstorm is classified as severe when it contains one or more of the following phenomena: hail that is three-quarters of an inch or greater, winds in excess of 50 knots (57.5 mph), or a tornado. Heavy precipitation in the City falls mainly in the fall, winter, and spring months. Wind often accompanies these storms; hail and lightning are rare in the City.

Location and Extent

Heavy rain events occur on a regional basis. Rains and storms can occur in any location of the City. All portions of the City are at risk to heavy rains. Most of the severe rains occur during the fall, winter, and spring months. There is no scale by which heavy rains and severe storms are measured. Magnitude of storms is measured often in rainfall and damages. The speed of onset of heavy rains can be short, but accurate weather prediction mechanisms often let the public know of upcoming events. Hail and lightning are rare in the City and Sacramento County. Duration of severe storms in California, Sacramento County, and the City can range from minutes to hours to days. Information on precipitation extremes can be found in Section 4.3.4 of the Base Plan.

Past Occurrences

According to historical hazard data, severe weather, including heavy rains and storms, is an annual occurrence in the City. This is the cause of many of the federal disaster declarations related to flooding.

In late 2016 the Wastewater Treatment Plant almost reached capacity during intense rains. This situation was going to lead to street flooding and unsanitary street conditions. The WWTP is still vulnerable to this catastrophe.

Vulnerability to and Impacts from Heavy Rain and Storms

Heavy rain and severe storms are the most frequent type of severe weather occurrences in the City. These events can cause significant and localized flooding. Elongated events, or events that occur during times where the ground is already saturated can cause 1% and 0.2% annual chance flooding. Wind often accompanies these storms and has caused damage in the past. Hail and lightning are rare in the City, but also can cause damage, with lightning occasionally igniting wildfires.

Actual damage associated with the effects of severe weather include impacts to property, critical facilities (such as utilities), and life safety. Power outages may also occur. Heavy rains and storms often result in flooding creating significant issues. Roads can become impassable and ground saturation can result in instability, collapse, or other damage to trees, structures, roadways and other critical infrastructure. Floodwaters and downed trees can break utilities and interrupt services.

The City of Isleton's Wastewater Treatment Plant, and City Hall are at risk. All of the City's operations are based out of these buildings. These storms also cause increases of infiltration that triples the inflow to the wastewater treatment plant. With the new development, Village on the Delta, these storms could cause amounts of water to be treated to exceed the amount of daily flow the wastewater plant can handle. Primarily the vulnerabilities are to do the being at low elevations and a limited wastewater treatment facility.

Future Development

Building codes in the City ensure that new development is built to current building standards, which should reduce the risk to future development in the City from heavy rains and storms. New critical facilities should be built to withstand hail damage, lightning, and thunderstorm winds. With adherence to development

standards, future losses to new development should be minimal. The City is conducting a sewer plant study that is expected to lead to WWTP upgrade by 2025.

Wildfire

Likelihood of Future Occurrence–Unlikely
Vulnerability–Low

Though considered a low significance hazard, due to its importance in the State of California, wildfire is profiled here. Wildfire is not considered a priority hazard to the City for mitigation planning and action purposes.

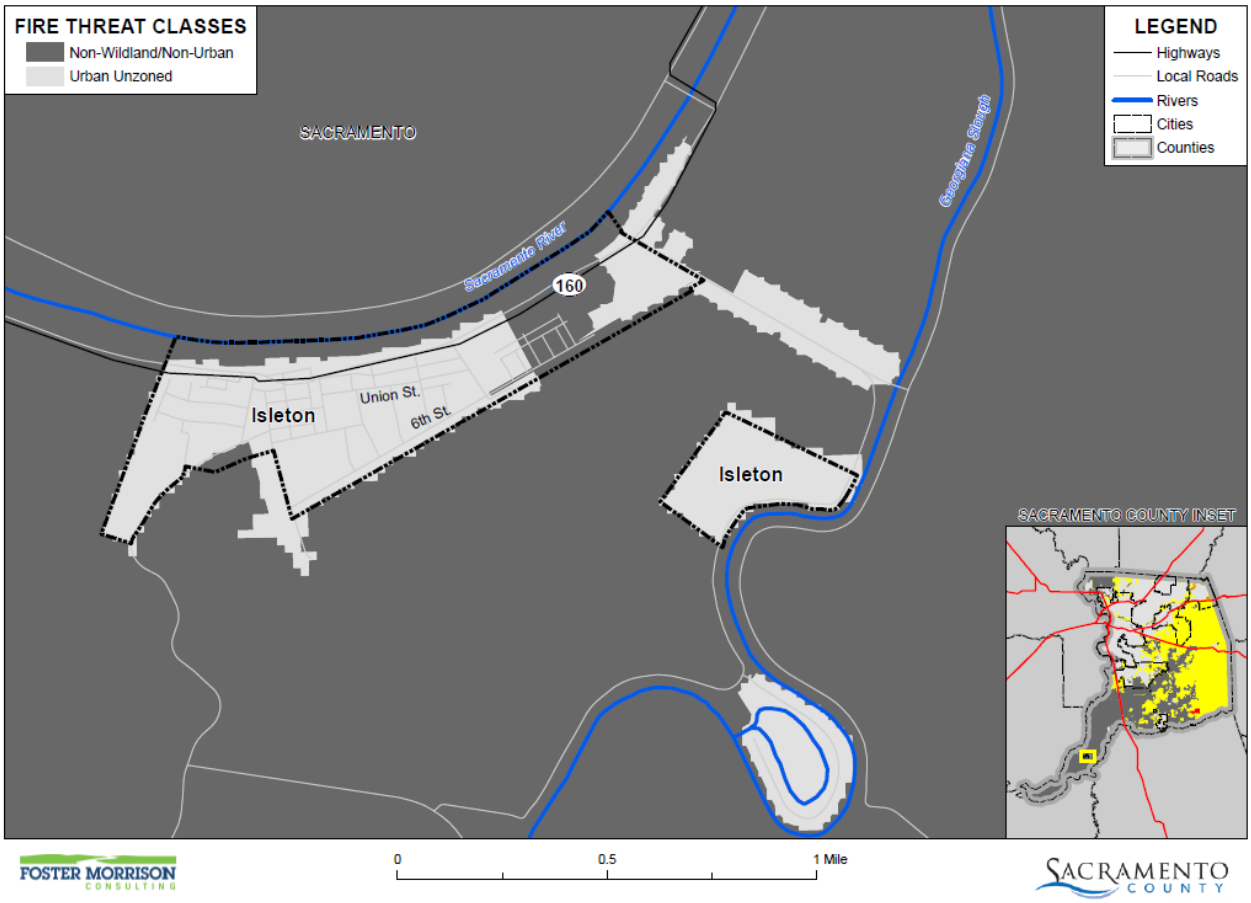
Hazard Profile and Problem Description

Wildland fire and the risk of a conflagration is an ongoing concern for the City of Isleton. 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. These high winds can result in red flag days, and can result in PSPS events in the City. 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

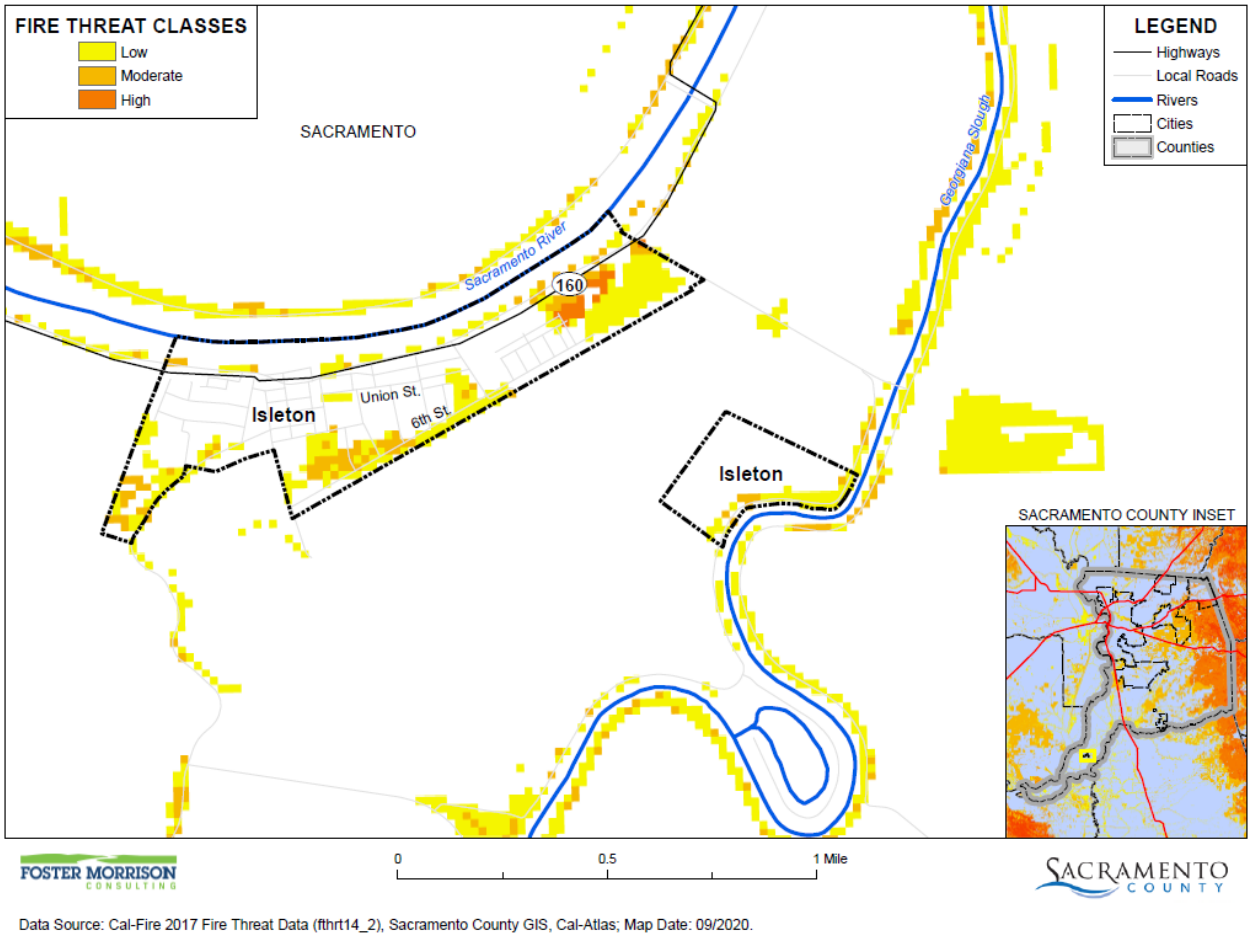
Wildfire can affect all areas of the City. CAL FIRE has estimated that the risk varies across the City and has created maps showing risk variance. Following the methodology described in Section 4.3.19 of the Base Plan, wildfire maps for the City of Isleton were created. Figure 1-19 shows the CAL FIRE Fire Hazard Severity Zone (FHSZS) in the City. As shown on the maps, FHSZs within the City fall outside the moderate or higher FHSZ. Figure 1-20 shows the CAL FIRE Fire Threat Areas in the City. As shown on the maps, fire threat within the City range from No Threat to High.

Figure 1-19 City of Isleton – Fire Hazard Severity Zones



Data Source: Cal-Fire 2017 (Draft 9/2007 - c34fhszl06_1, Adopted 11/2007 - fhsz06_3_34, Recommended 10/2008 - c34fhszl06_3), Sacramento County GIS, Cal-Atlas; Map Date: 09/2020.

Figure 1-20 City of Isleton – Fire Threat Areas



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 1-33. Geographical Fire Threat Area extents from CAL FIRE are shown on Table 1-34.

Table 1-33 City of Isleton – Geographical FHSZ Extents

Fire Hazard Severity Zone	Total Acres	% of Total Acres	Improved Acres	% of Total Improved Acres	Unimproved Acres	% of Total Unimproved Acres
Very High	0	0.00%	0	0.00%	0	0.00%
High	0	0.00%	0	0.00%	0	0.00%
Moderate	0	0.00%	0	0.00%	0	0.00%
Non-Wildland/non-Urban	35.2	15.08%	0.3	0.40%	34.9	20.81%
Urban Unzoned	198.0	84.92%	65.2	99.60%	132.8	79.19%
Total	**233.2**	**100.00%**	**65.5**	**100.00%**	**167.7**	**100.00%**

Source: CAL FIRE

Table 1-34 City of Isleton – Geographical Fire Threat Area Extents

Fire Hazard Severity Zone	Total Acres	% of Total Acres	Improved Acres	% of Total Improved Acres	Unimproved Acres	% of Total Unimproved Acres
Very High	0	0.00%	0	0.00%	0	0.00%
High	3.4	1.46%	0.1	0.17%	3.3	1.97%
Moderate	16.2	6.96%	2.2	3.32%	14.0	8.37%
Low	46.4	19.88%	4.6	6.99%	41.8	24.91%
No Threat	167.2	71.70%	58.6	89.52%	108.6	64.74%
Total	**233.2**	**100.00%**	**65.5**	**100.00%**	**167.7**	**100.00%**

Source: CAL FIRE

Past Occurrences

There has been no state and one federal disaster declaration due to fire, as shown in Table 1-35. It should be noted that this fire disaster was from an explosion in Roseville, and not from an actual wildfire.

Table 1-35 Sacramento County – State and Federal Wildfire Disaster Declarations 1950-2020

Disaster Type	Federal Declarations		State Declarations	
	Count	Years	Count	Years
Fire	1	1973	0	–

Source: Cal OES, FEMA

Vulnerability to and Impacts from Wildfire

Fuel loads in the City can 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 wildfire prone 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.

Isleton is not immune to numerous types of grass and brush fires and any one of them may accelerate into an urban interface wildfire. Such a situation could lead to evacuation of large portions of the population and the potential for significant loss of personal property, structures, and rangeland. The natural fuels available in or near the City vary greatly in the rate and intensity of burning. Fires in heavy brush and stands of trees burn with great intensity but more slowly than in dry grass and leaves. Dense fuels will propagate fire better than sparse fuels. This is the case at The Village on the Delta site at the east side.

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 a PSPS 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.

Assets at Risk

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

Values at Risk in Fire Hazard Severity Zones

GIS was used to determine the possible impacts of wildfire within the City of Isleton. The methodology described in Section 4.3.19 of the Base Plan was followed in determining structures and values at risk in fire hazard severity zones. Summary analysis results for Isleton are shown in Table 1-36, which summarizes total parcel counts, improved parcel counts and their structure values by fire hazard severity zone.

Table 1-36 City of Isleton – Count and Value of Parcels by Fire Hazard Severity Zone

Fire Hazard Severity Zone	Total Parcel Count	Improved Parcel Count	Total Land Value	Improved Structure Value	Estimated Contents Value	Total Value
Isleton						
Non-Wildland/Non-Urban	70	4	$717,781	$1,041,625	$520,813	$2,280,218
Urban Unzoned	466	334	$21,999,430	$40,226,654	$25,532,743	$87,758,826
Isleton Total	**536**	**338**	**$22,717,211**	**$41,268,279**	**$26,053,556**	**$90,039,044**

Source: Sacramento County 2020 Parcel/Assessor's Data, CAL FIRE

Table 1-37 breaks out the Table 1-36 by adding the property use details by fire hazard severity zone for the City. As shown in both of these tables, the City has no properties in the very high or high fire hazard

severity zone. All of the City falls within the non-wildland/non-urban and urban unzoned fire hazard severity zones.

Table 1-37 City of Isleton – Count and Value of Parcels by Fire Hazard Severity Zone and Property Use

Fire Hazard Severity Zone / Property Use	Total Parcel Count	Improved Parcel Count	Total Land Value	Improved Structure Value	Estimated Contents Value	Total Value
Non-Wildland/Non-Urban						
Agricultural	1	0	$32,472	$0	$0	$32,472
Care/Health	0	0	$0	$0	$0	$0
Church/Welfare	0	0	$0	$0	$0	$0
Industrial	0	0	$0	$0	$0	$0
Miscellaneous	5	0	$150	$0	$0	$150
Office	0	0	$0	$0	$0	$0
Public/Utilities	1	0	$0	$0	$0	$0
Recreational	0	0	$0	$0	$0	$0
Residential	4	4	$336,256	$1,041,625	$520,813	$1,898,693
Retail / Commercial	1	0	$10	$0	$0	$10
Unknown	0	0	$0	$0	$0	$0
Vacant	58	0	$348,893	$0	$0	$348,893
Non-Wildland/Non-Urban Total	**70**	**4**	**$717,781**	**$1,041,625**	**$520,813**	**$2,280,218**
Urban Unzoned						
Agricultural	0	0	$0	$0	$0	$0
Care/Health	0	0	$0	$0	$0	$0
Church/Welfare	8	8	$208,114	$1,009,072	$1,009,072	$2,226,258
Industrial	5	5	$2,126,988	$1,224,909	$1,837,364	$5,189,260
Miscellaneous	15	0	$883,988	$0	$0	$883,988
Office	5	4	$447,754	$693,344	$693,344	$1,834,442
Public/Utilities	27	1	$44,163	$32,966	$32,966	$110,095
Recreational	0	0	$0	$0	$0	$0
Residential	256	253	$12,719,462	$30,595,135	$15,297,571	$58,612,168
Retail / Commercial	59	58	$2,600,068	$6,662,426	$6,662,426	$15,924,920
Unknown	0	0	$0	$0	$0	$0
Vacant	91	5	$2,968,893	$8,802	$0	$2,977,695
Urban Unzoned Total	**466**	**334**	**$21,999,430**	**$40,226,654**	**$25,532,743**	**$87,758,826**

Fire Hazard Severity Zone / Property Use	Total Parcel Count	Improved Parcel Count	Total Land Value	Improved Structure Value	Estimated Contents Value	Total Value
Isleton Total	**536**	**338**	**$22,717,211**	**$41,268,279**	**$26,053,556**	**$90,039,044**

Source: Sacramento County 2020 Parcel/Assessor's Data, CAL FIRE

Values at Risk in Fire Threat Areas

GIS was used to determine the possible impacts of wildfire within the City of Isleton. The methodology described in Section 4.3.19 of the Base Plan was followed in determining structures and values at risk in fire threat area. Summary analysis results for Isleton are shown in Table 1-38, which summarizes total parcel counts, improved parcel counts and their structure values by fire threat area. Table 1-39 breaks out the Table 1-38 by adding the property use details by threat areas for the City.

Table 1-38 City of Isleton – Count and Value of Parcels by Fire Threat Area

Fire Threat Class	Total Parcel Count	Improved Parcel Count	Total Land Value	Improved Structure Value	Estimated Contents Value	Total Value
Very High	0	0	$0	$0	$0	$0
High	1	0	$45,900	$0	$0	$45,900
Moderate	9	0	$539,519	$0	$0	$539,519
Low	27	6	$1,846,908	$990,414	$494,473	$3,331,796
No Threat	499	332	$20,284,884	$40,277,865	$25,559,083	$86,121,829
Isleton Total	**536**	**338**	**$22,717,211**	**$41,268,279**	**$26,053,556**	**$90,039,044**

Source: Sacramento County 2020 Parcel/Assessor's Data, CAL FIRE

Table 1-39 City of Isleton – Count and Value of Parcels by Fire Threat Area and Property Use

Fire Threat Class / Property Use	Total Parcel Count	Improved Parcel Count	Total Land Value	Improved Structure Value	Estimated Contents Value	Total Value
High						
Agricultural	0	0	$0	$0	$0	$0
Care/Health	0	0	$0	$0	$0	$0
Church/Welfare	0	0	$0	$0	$0	$0
Industrial	0	0	$0	$0	$0	$0
Miscellaneous	0	0	$0	$0	$0	$0
Office	0	0	$0	$0	$0	$0
Public/Utilities	0	0	$0	$0	$0	$0
Recreational	0	0	$0	$0	$0	$0
Residential	0	0	$0	$0	$0	$0
Retail/ Commercial	0	0	$0	$0	$0	$0

Fire Threat Class / Property Use	Total Parcel Count	Improved Parcel Count	Total Land Value	Improved Structure Value	Estimated Contents Value	Total Value
Unknown	0	0	$0	$0	$0	$0
Vacant	1	0	$45,900	$0	$0	$45,900
High Total	**1**	**0**	**$45,900**	**$0**	**$0**	**$45,900**
Moderate						
Agricultural	0	0	$0	$0	$0	$0
Care/Health	0	0	$0	$0	$0	$0
Church/Welfare	0	0	$0	$0	$0	$0
Industrial	0	0	$0	$0	$0	$0
Miscellaneous	0	0	$0	$0	$0	$0
Office	0	0	$0	$0	$0	$0
Public/Utilities	2	0	$180	$0	$0	$180
Recreational	0	0		$0	$0	$0
Residential	0	0	$0	$0	$0	$0
Retail/ Commercial	0	0	$0	$0	$0	$0
Unknown	0	0	$0	$0	$0	$0
Vacant	7	0	$539,339	$0	$0	$539,339
Moderate Total	**9**	**0**	**$539,519**	**$0**	**$0**	**$539,519**
Low						
Agricultural	0	0	$0	$0	$0	$0
Care/Health	0	0	$0	$0	$0	$0
Church/Welfare	0	0	$0	$0	$0	$0
Industrial	0	0	$0	$0	$0	$0
Miscellaneous	5	0	$814,337	$0	$0	$814,337
Office	0	0	$0	$0	$0	$0
Public/Utilities	4	0	$9	$0	$0	$9
Recreational	0	0	$0	$0	$0	$0
Residential	4	4	$255,889	$979,150	$489,575	$1,724,615
Retail/ Commercial	1	1	$3,050	$4,898	$4,898	$12,846
Unknown	0	0	$0	$0	$0	$0
Vacant	13	1	$773,623	$6,366	$0	$779,989
Low Total	**27**	**6**	**$1,846,908**	**$990,414**	**$494,473**	**$3,331,796**
No Threat						
Agricultural	1	0	$32,472	$0	$0	$32,472
Care/Health	0	0	$0	$0	$0	$0

Fire Threat Class / Property Use	Total Parcel Count	Improved Parcel Count	Total Land Value	Improved Structure Value	Estimated Contents Value	Total Value
Church/Welfare	8	8	$208,114	$1,009,072	$1,009,072	$2,226,258
Industrial	5	5	$2,126,988	$1,224,909	$1,837,364	$5,189,260
Miscellaneous	15	0	$69,801	$0	$0	$69,801
Office	5	4	$447,754	$693,344	$693,344	$1,834,442
Public/Utilities	22	1	$43,974	$32,966	$32,966	$109,906
Recreational	0	0	$0	$0	$0	$0
Residential	256	253	$12,799,829	$30,657,610	$15,328,809	$58,786,246
Retail/ Commercial	59	57	$2,597,028	$6,657,528	$6,657,528	$15,912,084
Unknown	0	0	$0	$0	$0	$0
Vacant	128	4	$1,958,924	$2,436	$0	$1,961,360
No Threat Total	**499**	**332**	**$20,284,884**	**$40,277,865**	**$25,559,083**	**$86,121,829**
Isleton Total	**536**	**338**	**$22,717,211**	**$41,268,279**	**$26,053,556**	**$90,039,044**

Source: Sacramento County 2020 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 Isleton – 2.70. According to this analysis, there is a total population of 0 residents of Isleton at risk to moderate or higher FHSZs, while there is a total of 0 in the moderate or higher fire threat areas. This is shown in Table 1-40 and Table 1-41, respectively.

Table 1-40 City of Isleton – Count of Improved Residential Parcels and Population by Fire Hazard Severity Zone

Jurisdiction	Very High		High		Moderate	
	Improved Residential Parcels	Population at Risk	Improved Residential Parcels	Population at Risk	Improved Residential Parcels	Population at Risk
Isleton	0	0	0	0	0	0

Source: CAL FIRE, US Census Bureau Average Household Sizes: Isleton (2.7)

Table 1-41 City of Isleton – Count of Improved Residential Parcels and Population by Fire Threat Area

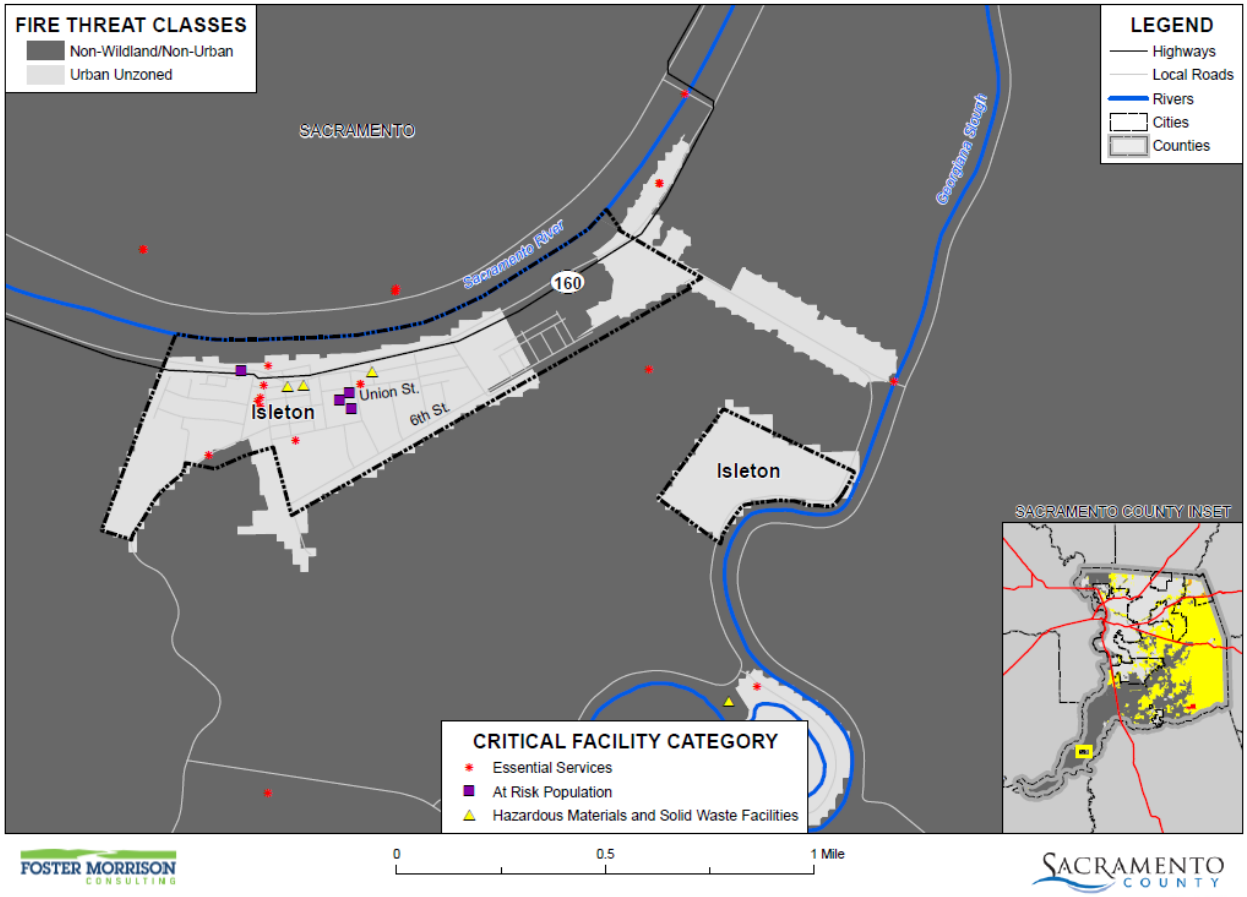
Jurisdiction	Very High		High		Moderate	
	Improved Residential Parcels	Population at Risk	Improved Residential Parcels	Population at Risk	Improved Residential Parcels	Population at Risk
Isleton	0	0	0	0	0	0

Source: CAL FIRE, US Census Bureau Average Household Sizes: Isleton (2.7)

Critical Facilities at Risk

An analysis was performed on the critical facility inventory in Isleton in identified FHSZs. Critical facilities in a FHSZ in the City of Isleton are shown in Figure 1-21 and detailed in Table 1-42. Critical facilities in a fire threat area in the City of Isleton are shown in Figure 1-22 and detailed in Table 1-43. Details of critical facility definition, type, name and address and jurisdiction by fire hazard severity zone are listed in Appendix F.

Figure 1-21 City of Isleton – Critical Facilities in Fire Hazard Severity Zones



Data Source: Cal-Fire 2017 (Draft 9/2007 - c34fhszl06_1, Adopted 11/2007 - fhsz06_3_34, Recommended 10/2008 - c34fhszl06_3), Sacramento County GIS, Cal-Atlas; Map Date: 08/2021.

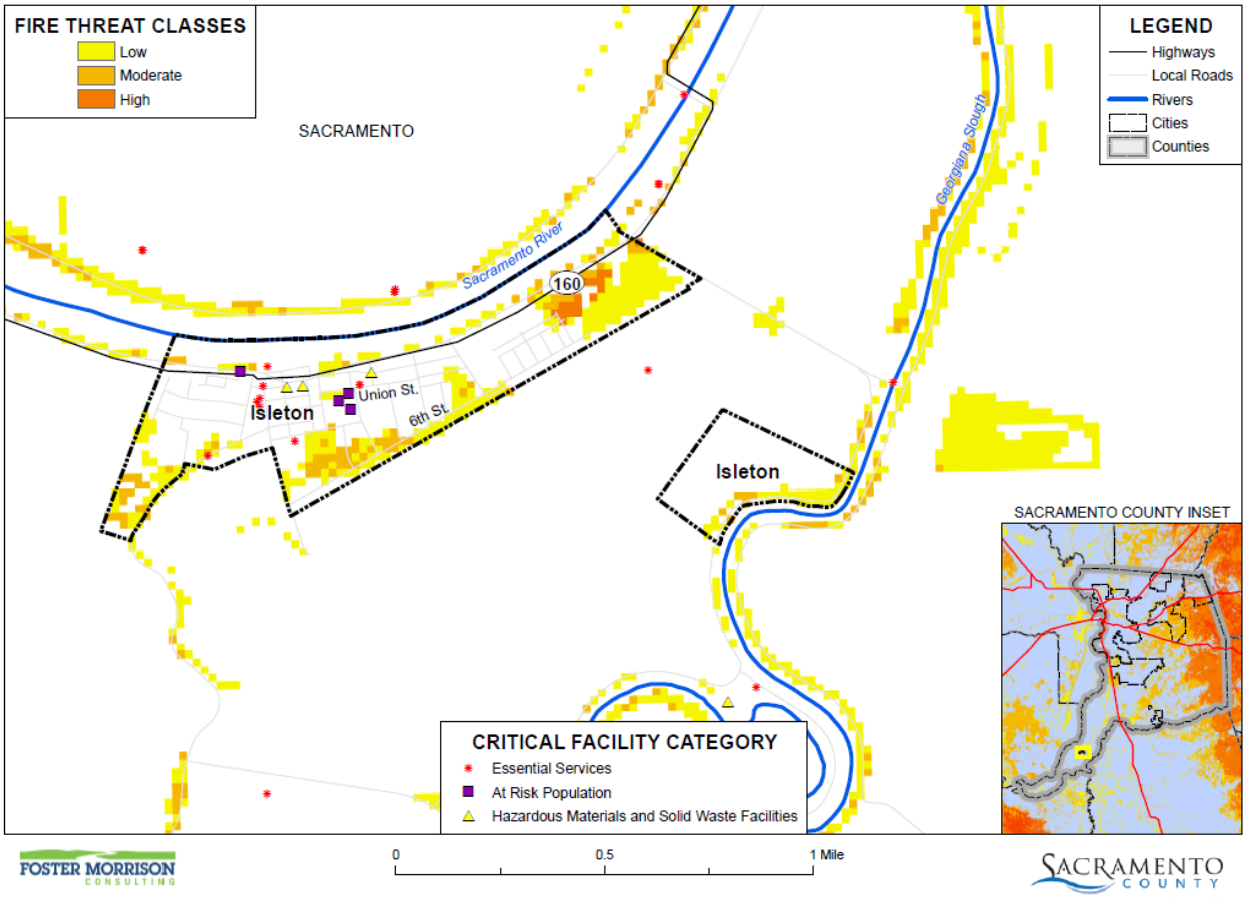
Table 1-42 City of Isleton – Critical Facilities by Fire Hazard Severity Zone by Category and Type

Fire Hazard Severity Zone/Critical Facility Category	Critical Facility Type	Facility Count
Urban Unzoned		
Essential Services Facilities	Emergency Evacuation Center	1
	EMS Stations	1
	Fire Station	2

Fire Hazard Severity Zone/Critical Facility Category	Critical Facility Type	Facility Count
	Law Enforcement	1
	Microwave Service Towers	2
	Water Well	2
	Total	**9**
At Risk Population Facilities	Day Care Center	1
	Mobile Home Parks	1
	School	2
	Total	**4**
Hazardous Materials and Solid Waste Facilities	Leaky Underground Storage Tank	3
	Total	**3**
Urban Unzoned Total		**16**
Isleton Total		**16**

Source: CAL FIRE, Sacramento County

Figure 1-22 City of Isleton – Critical Facilities in Fire Threat Areas



Data Source: Cal-Fire 2017 Fire Threat Data (fthrt14_2), Sacramento County GIS, Cal-Atlas; Map Date: 08/2021.

Table 1-43 City of Isleton – Critical Facilities by Fire Threat Areas by Category and Type

Fire Threat/ Critical Facility Category	Critical Facility Type	Facility Count
Moderate		
Essential Services Facilities	Emergency Evacuation Center	1
	Total	**1**
Moderate Total		**1**
No Threat		
Essential Services Facilities	EMS Stations	1
	Fire Station	2
	Law Enforcement	1
	Microwave Service Towers	2
	Water Well	2
	Total	**8**
At Risk Population Facilities	Day Care Center	1
	Mobile Home Parks	1
	School	2
	Total	**4**
Hazardous Materials and Solid Waste Facilities	Leaky Underground Storage Tank	3
	Total	**3**
No Threat Total		**15**
Isleton Total		**16**

Source: CAL FIRE, Sacramento County

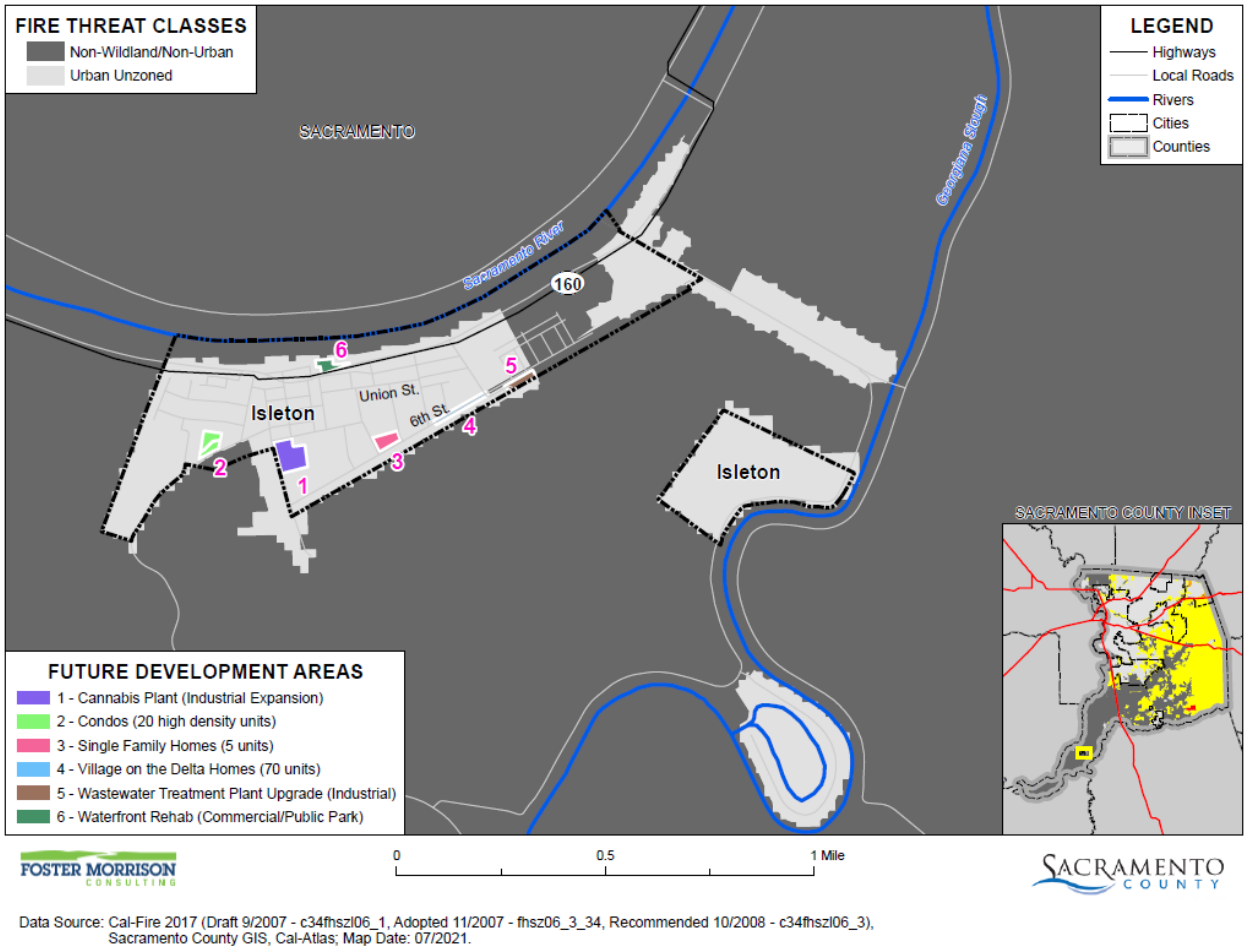
Future Development

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.

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 areas and 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 1-23 shows the locations of future development areas the City is planning to develop on the FHSZs. Table 1-44 shows the parcels and acreages of each future development area in the City in each FHSZ. Figure 1-24 shows the locations of future development areas the City is planning to develop on the Fire Threat Area. Table 1-45 shows the parcels and acreages of each future development area in the City in each Fire Threat Area.

Figure 1-23 City of Isleton – Future Development in FHSZs



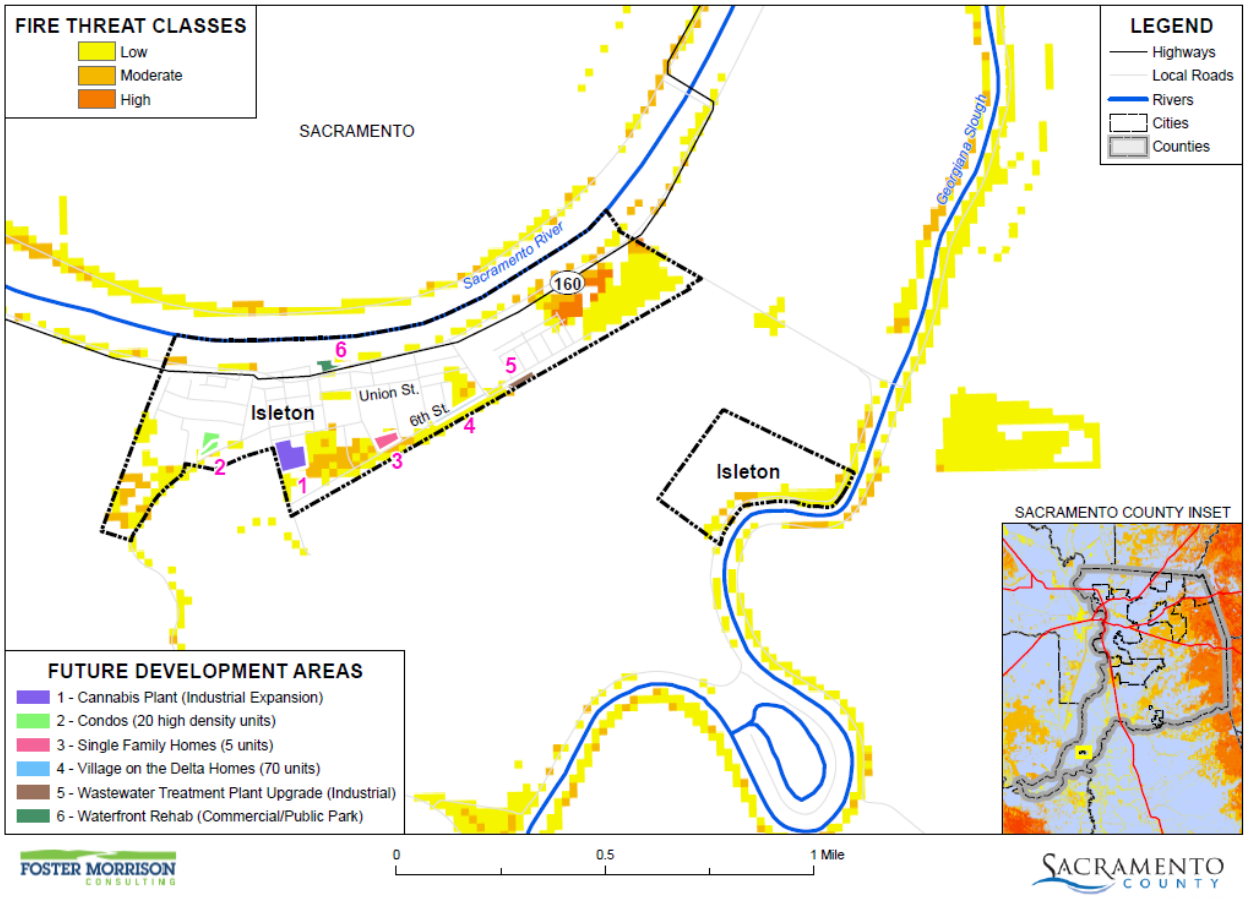
Data Source: Cal-Fire 2017 (Draft 9/2007 - c34fhszl06_1, Adopted 11/2007 - fhsz06_3_34, Recommended 10/2008 - c34fhszl06_3), Sacramento County GIS, Cal-Atlas; Map Date: 07/2021.

Table 1-44 City of Isleton – Future Development Parcels and Acres in FHSZs

Fire Hazard Severity Zones/ Future Development	Total Parcel Count	Improved Parcel Count	Total Acres
Urban Unzoned			
Cannabis Plant (Industrial Expansion)	1	1	3.00
Condos (20 high density units)	2	0	1.42
Single Family Homes (5 units)	1	0	1.15
Village on the Delta Homes (70 units)	1	0	1.03
Wastewater Treatment Plant Upgrade (Industrial)	1	0	0.90
Waterfront Rehab (Commercial/Public Park)	1	0	0.96
Grand Total	**7**	**1**	**8.47**

Source: City of Isleton, CAL FIRE

Figure 1-24 City of Isleton – Future Development in Fire Threat Areas



Data Source: Cal-Fire 2017 Fire Threat Data (fthrt14_2), Sacramento County GIS, Cal-Atlas; Map Date: 07/2021.

Table 1-45 City of Isleton – Future Development Acres and Parcels by Fire Threat Areas

Fire Threat/ Future Development	Total Parcel Count	Improved Parcel Count	Total Acres
Moderate			
Single Family Homes (5 units)	1	0	1.15
Moderate Total	**1**	**0**	**1.15**
Low			
Condos (20 high density units)	1	0	0.59
Village on the Delta Homes (70 units)	1	0	1.03
Waterfront Rehab (Commercial/Public Park)	1	0	0.96
Low Total	**3**	**0**	**2.58**

Fire Threat/ Future Development	Total Parcel Count	Improved Parcel Count	Total Acres
No Threat			
Cannabis Plant (Industrial Expansion)	1	1	3.00
Condos (20 high density units)	1	0	0.84
Wastewater Treatment Plant Upgrade (Industrial)	1	0	0.90
No Threat Total	**3**	**1**	**4.74**
Grand Total	**7**	**1**	**8.47**

Source: City of Isleton, CAL FIRE

1.6 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.

1.6.1. Regulatory Mitigation Capabilities

Table 1-46 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 Isleton.

Table 1-46 City of Isleton Regulatory Mitigation Capabilities

Plans	Y/N Year	Does the plan/program address hazards? Does the plan identify projects to include in the mitigation strategy? Can the plan be used to implement mitigation actions?
Comprehensive/Master Plan/General Plan	Y 2000	Yes it address hazards and mitigation measures to address such hazards. Yes it may be implemented
Capital Improvements Plan	Y 2019	The capital improvement plan is in development
Economic Development Plan	Y In Process	Yes to all aspects of the questions above
Local Emergency Operations Plan	Yes	The City of Isleton follows the State of California's Plan
Continuity of Operations Plan	No	
Transportation Plan	Yes	Only identifies mitigation strategy and actions
Stormwater Management Plan/Program	Y In Process	It will address all aspects of above requirements

Engineering Studies for Streams	N	No streams inside city limits
Community Wildfire Protection Plan	No	City's fire dept doesn't cover any SRA or wildland coverage
Other special plans (e.g., brownfields redevelopment, disaster recovery, coastal zone management, climate change adaptation)		
Building Code, Permitting, and Inspections	**Y/N**	**Are codes adequately enforced?**
Building Code	Y	Version/Year: 2015 IBC
Building Code Effectiveness Grading Schedule (BCEGS) Score	N	Score:
Fire department ISO rating:	Y	Rating: 5/9 (urban/rural)
Site plan review requirements	Y	Through the building official.
Land Use Planning and Ordinances	**Y/N**	**Is the ordinance an effective measure for reducing hazard impacts? Is the ordinance adequately administered and enforced?**
Zoning ordinance	Y	Yes through the planning commission and building official
Subdivision ordinance	Y	
Floodplain ordinance	Y	Yes through the building dept
Natural hazard specific ordinance (stormwater, steep slope, wildfire)	Y	Yes through the building dept
Flood insurance rate maps	Y	Yes
Elevation Certificates	Y	Yes
Acquisition of land for open space and public recreation uses	Y	Yes through the planning commission
Erosion or sediment control program	N	
Other		
How can these capabilities be expanded and improved to reduce risk?		
With education incentives for employees and furthering education we can make sure that we improve in all aspects concerning the above departments. The planning commission is now fully appointed; they have started working with staff to improve in these fields.		

Source: City of Isleton

City of Isleton General Plan (2000)

Under the body of statutory and case law which has evolved in California, including Guidelines issued by the State Office of Planning and Research, the General Plan for Isleton functions as a "constitution" in much the same way as a state or national constitution. The Plan reflects the City's long-range aspirations of physical form and amenity and provides guidance to the substance of development regulations such as zoning and subdivision ordinances, and to other programs approved by the City, such as the Redevelopment Program, which combine as the package of tools necessary to carry out the General Plan over time.

Mitigation related goals and policies from the General Plan are:

- Inventory all buildings which are unsound under conditions of "moderate" seismic activity; buildings having questionable structural resistance ·should be considered for either rehabilitation or demolition.

Structures determined by the City's Building Official to be structurally unsound are to be reported to the owner and recorded with the County Recorder to ensure that future owners are made aware of hazardous conditions and risks.

- All new building construction shall conform to the latest seismic requirements of the Uniform. Building Code as a minimum standard. A building height limit of 50 feet shall be maintained, with a maximum of four stories.
- Soil compaction tests, and geotechnical analysis of soil conditions and behavior under seismic conditions shall be required of all subdivisions and of all commercial, industrial and institutional structures over 6,000 square feet in area (or in the case of institutional structures, those which hold 100 or more people).
- The City should adopt an Earthquake Disaster Plan in coordination with Sacramento County and local special districts (school, levee maintenance, reclamation and irrigation). The Plan should identify hazards that may occur as the result of an earthquake of major magnitude, and should designate evacuation routes and means to coordinate all local government agencies in assisting local residents in the event of a major earthquake, fire or explosion, or hazardous chemical spill or release of hazardous air-borne gas.
- All lines which are part of the domestic water distribution system should be looped to assure adequate pressure in the event of major fire, earthquake, or explosion. Emergency standby power generation capability should be available at all water wells to assure water availability in the event of a major power failure.
- The City will continue to give high priority to the support of police protection, and to fire suppression and prevention functions of the Isleton Fire Department.
- The City will work to maintain a fire flow standard of 3,000 gpm for all commercial and industrial areas of the community, and 1,000 gpm for residential areas, to assure the capability to suppress urban fires.
- The City will maintain a street system which is capable of providing access to any fires that may develop within the urban area, and which is capable of providing for the adequate evacuation of residents in the event of an emergency condition of magnitude.
- In the event that any part of the levee system protecting Isleton was to fail, the most expedient evacuation routes would be east and north along the Sacramento River levee roads toward Walnut Grove, and then east toward Interstate 5.

1.6.2. Administrative/Technical Mitigation Capabilities

Table 1-47 identifies the City department(s) responsible for activities related to mitigation and loss prevention in Isleton.

Table 1-47 City of Isleton's Administrative and Technical Mitigation Capabilities

Administration	Y/N	Describe capability Is coordination effective?
Planning Commission	Y	Effective
Mitigation Planning Committee	N	
Maintenance programs to reduce risk (e.g., tree trimming, clearing drainage systems)	Y	No, through measure A funds and HUT funds work is done to reduce these risks, Still behind in labor capacity.
Mutual aid agreements	N	
Other		

Staff	Y/N FT/PT	Is staffing adequate to enforce regulations? Is staff trained on hazards and mitigation? Is coordination between agencies and staff effective?
Chief Building Official	PT	No
Floodplain Administrator	N	
Emergency Manager	N	
Community Planner	N	
Civil Engineer	Y/PT	No
GIS Coordinator	N	
Other	N	
Technical		
Warning systems/services (Reverse 911, outdoor warning signals)	N	
Hazard data and information	Y	
Grant writing	N	
Hazus analysis	N	
Other		
How can these capabilities be expanded and improved to reduce risk?		
With new people filling these positions we will ensure that we do everything possible within budgetary means to reduce all risks posed to the public within our jurisdiction. By working in conjunction with county services we can expand our capabilities to provide the best coverage. Need more budget to address personnel deficiencies.		

Source: City of Isleton

1.6.3. Fiscal Mitigation Capabilities

Table 1-48 identifies financial tools or resources that the City could potentially use to help fund mitigation activities.

Table 1-48 City of Isleton's Fiscal Mitigation Capabilities

Funding Resource	Access/ Eligibility (Y/N)	Has the funding resource been used in past and for what type of activities? Could the resource be used to fund future mitigation actions?
Capital improvements project funding	Y	Measure A and HUT funds are used on a regular basis to mitigate all hazards posed to the City of Isleton
Authority to levy taxes for specific purposes	Y	Yes a special tax was just passed 2015 to buy new equipment for the fire dept. Yes
Fees for water, sewer, gas, or electric services	Y	Sewer income is used to mitigate hazards and can be used to fund future actions but is not adequate to cover all costs.
Impact fees for new development	Y	Very little impact fees are paid to the city due to limited building being done inside city limits
Storm water utility fee	N	

Funding Resource	Access/ Eligibility (Y/N)	Has the funding resource been used in past and for what type of activities? Could the resource be used to fund future mitigation actions?
Incur debt through general obligation bonds and/or special tax bonds	Y	General Bonds were used to improve the sewer system. Due to the high costs and low revenue
Incur debt through private activities	N	
Community Development Block Grant	Y	No possibly could be used for mitigation actions
Other federal funding programs	Y	Depends on what funding was dispersed
State funding programs	Y	Depends on what funding was dispersed
Other		
How can these capabilities be expanded and improved to reduce risk?		
Need capital and personnel to administer capital programs.		

Source: City of Isleton

1.6.4. Mitigation Education, Outreach, and Partnerships

Table 1-49 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 1-49 City of Isleton's Mitigation Education, Outreach, and Partnerships

Program/Organization	Yes/No	Describe program/organization and how relates to disaster resilience and mitigation. Could the program/organization help implement future mitigation activities?
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	N	
Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Y	This is handled through CalAm water and the cities fire dept. Yes could be possibly used to mitigate activities
Natural disaster or safety related school programs	Y	River Delta Unified School District
StormReady certification	N	
Firewise Communities certification	N	
Public-private partnership initiatives addressing disaster-related issues	N	
Other		
How can these capabilities be expanded and improved to reduce risk?		
Need fiscal support to conduct education and outreach.		

Source: City of Isleton

1.6.5. Other Mitigation Efforts

The City has performed numerous mitigation projects citywide. One is the change out of old storm water grates that were causing localized flooding during heavy rain due to foliage clogging them. The City has also taken steps yearly to bring a vac truck to clean out the catch basins in the storm water drainage inlets to keep them from clogging the drainage pipes. The City has also taken steps to remove the brush from all stormwater drainage ditches that lead to the reclamation ditch in an effort to keep the flow unobstructed. Isleton has a leaf and branch collection program to prevent the clogging of drains.

1.7 Mitigation Strategy

1.7.1. Mitigation Goals and Objectives

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

1.7.2. NFIP Mitigation Strategy

The City of Isleton joined the National Flood Insurance Program (NFIP) on December 1, 1975. As a participant of the NFIP, the City of Isleton 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 Isleton will continue to comply with the requirements of the NFIP in the future.

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

The City of Isleton General Services 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 General Services Department provides information about our stormwater management program and up-to-date information related to the maintenance of our drainage system.

The NFIP's 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 Isleton is not a current participant in the CRS program.

More information about the floodplain administration in the City of Isleton can be found in Table 1-50.

Table 1-50 City of Isleton Compliance with NFIP

NFIP Topic	Comments
Insurance Summary	
How many NFIP policies are in the community? What is the total premium and coverage?	110 policies $255,191 in premiums $24,037,600 in coverage
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?	23 claims $467,013.07 in claims paid 7 substantial damage claims
How many structures are exposed to flood risk within the community?	329 in 1% annual chance 0 in 0.2% annual chance
Repetitive Loss (RL) and Severe Repetitive Loss Properties (SRL)	1 RL properties 0 SRL properties
Describe any areas of flood risk with limited NFIP policy coverage	None
Staff Resources	
Is the Community Floodplain Administrator or NFIP Coordinator certified?	No
Provide an explanation of NFIP administration services (e.g., permit review, GIS, education or outreach, inspections, engineering capability)	Due to budgetary shortfalls, there is no staff for NFIP coordination.
What are the barriers to running an effective NFIP program in the community, if any?	Budgets for staff.
Compliance History	
Is the community in good standing with the NFIP?	Y
Are there any outstanding compliance issues (i.e., current violations)?	No
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	CAV 5/13/2010 CAC 1/1/2001
Is a CAV or CAC scheduled or needed?	No
Regulation	
When did the community enter the NFIP?	12/1/1975
Are the FIRMs digital or paper?	Digital
Do floodplain development regulations meet or exceed FEMA or State minimum requirements? If so, in what ways?	The City's standards meet FEMA and state standards by applying all regulations in the permitting process.
Provide an explanation of the permitting process.	Planning and building departments review permits for compliance with floodplain requirements.
Community Rating System	
Does the community participate in CRS?	N
What is the community's CRS Class Ranking?	N/A
What categories and activities provide CRS points and how can the class be improved?	N/A

NFIP Topic	Comments
Does the plan include CRS planning requirements?	N/A

1.7.3. Mitigation Actions

The planning team for the City of Isleton 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 & Water Shortage
- Floods: 1%/0.2% annual chance
- Floods: Localized Stormwater
- Levee Failure
- Severe Weather: Extreme Heat
- Severe Weather: Heavy Rains and Storms

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

Hazards Addressed: Multi-hazard (Climate Change, Drought & Water Shortage, Floods: 1%/0.2% annual chance, Floods: Localized Stormwater, Levee Failure, Severe Weather: Extreme Heat, Severe Weather: Heavy Rains and Storms)

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 Isleton Planning Department

Cost Estimate: Jurisdictional board/staff time

Potential Funding: Local budgets

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.

Schedule: As soon as possible

Priority (H, M, L): High

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

Hazards Addressed: Multi-hazard (Climate Change, Drought & Water Shortage, Floods: 1%/0.2% annual chance, Floods: Localized Stormwater, Levee Failure, Severe Weather: Extreme Heat, Severe Weather: Heavy Rains and Storms)

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 Isleton 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

Schedule: Ongoing/Annual public awareness campaign

Priority (H, M, L): High

Action 3. Support climate change mitigation laws

Hazards Addressed: Climate Change

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

Issue/Background: Mitigating Climate Change

Project Description: Support climate change mitigation laws

Other Alternatives: No action.

Existing Planning Mechanisms through which Action will be Implemented: Council resolution

Responsible Office: City of Isleton

Cost Estimate: Low – mostly staff time.

Potential Funding: Local funding.

Benefits (avoided Losses): Reduced risk to the City, County, and State from climate change effects.

Schedule: Ongoing

Priority (H, M, L): Low

Action 4. Support drought mitigation laws. Establish RWIP (Redundant Water for Isleton Plan).

Hazards Addressed: Drought and Water Shortage

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

Issue/Background: State is in water drought. City needs to develop secondary source of water.

Project Description: Find and acquire rights to a secondary water source

Other Alternatives: Third water source

Existing Planning Mechanisms through which Action will be Implemented:

Responsible Office: City of Isleton

Cost Estimate: $25,000

Potential Funding: Grants from Cal OES, FEMA, CA DWR

Benefits (avoided Losses): Avoids water shortages in City

Schedule: within 10 years.

Priority (H, M, L): High

Action 5. Levee Reinforcement Projects

Hazards Addressed: Severe Weather: Heavy Rains and Storms, Flood, Levee Failure

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

Issue/Background: The City is protected from flooding by levees. The levees are not certified by FEMA as providing protection from 1% annual chance flooding.

Project Description: Reinforcement of levees

Other Alternatives: Implement Isleton Flood Management Agency

Existing Planning Mechanisms through which Action will be Implemented: No current mechanism.

Responsible Office: City of Isleton

Cost Estimate: $1,000,000

Potential Funding: Grants from Cal OES, FEMA, CA DWR

Benefits (avoided Losses): Flood losses to the City could be avoided.

Schedule: Within 5 years

Priority (H, M, L): High

Action 6. Implement IFIP (Isleton Flood Improvement Plan) and create and activate IFMA (Isleton Flood Management Agency)

Hazards Addressed: Severe Weather: Heavy Rains and Storms, Flood, Levee Failure

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

Issue/Background: Stormwater and flooding adversely impact lives and facilities in City.

Project Description: Create and activate Isleton Flood Management Agency (IFMA) and implement Isleton Flood Improvement Plan (IFIP)

Other Alternatives: No action

Existing Planning Mechanisms through which Action will be Implemented: Form a flood management agency with operations goals and capital goals.

Responsible Office: City of Isleton

Cost Estimate: $100,000

Potential Funding: Grants from Cal OES, FEMA, CA DWR

Benefits (avoided Losses): Will mitigate floods both actively and passively.

Schedule: within 10 years

Priority (H, M, L): High

Action 7. Create and activate IFMA (Isleton Flood Management Agency)

Hazards Addressed: Severe Weather: Heavy Rains and Storms, Flood, Levee Failure

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

Issue/Background: Levee failure can cause catastrophic loss to residents and businesses in City.

Project Description: Create and activate Isleton Flood Management Agency (IFMA)

Other Alternatives: No action

Existing Planning Mechanisms through which Action will be Implemented: Obtain grant to study and develop plan to reinforce levee. Create and activate Isleton Flood Management Agency (IFMA)

Responsible Office: City of Isleton

Cost Estimate: $100,000

Potential Funding: Grants from Cal OES, FEMA, CA DWR

Benefits (avoided Losses): Will mitigate levee damage after failure.

Schedule: within 10 years

Priority (H, M, L): High

Action 8. Activate Emergency Operation Plan (Cooling Center)

Hazards Addressed: Extreme Heat, Climate Change

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

Issue/Background: Severe heat can cause local residents to be overwhelmed with heat exhaustion.

Project Description: Use City community center as a cooling center.

Other Alternatives: Build swimming pool.

Existing Planning Mechanisms through which Action will be Implemented: City emergency operational plan to be activated.

Responsible Office: City of Isleton

Cost Estimate: $20,000 per year

Potential Funding: Grants from Cal OES, FEMA, CA DWR

Benefits (avoided Losses): Reduced risk to local residents from heat stroke and heat exhaustion. This is a life safety issue.

Schedule: 3 years

Priority (H, M, L): Medium

Action 9. Storm Water Runoff Rehabilitation Project

Hazards Addressed: Flood, Localized Storm water flooding, Severe Weather: Heavy Rains and Storms

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

Issue/Background: City of Isleton has several locations where the storm water causes ponding in the streets and along hwy 160 due to inadequate drainage on aging storm water drainage system. The drainage system we have drains on one side of the street and bubbles up across the street and drains down the gutter. These gutters get overwhelmed which causes debris from yards and streets to clog up downstream drains.

Project Description: To change the flow of the storm water from running down gutters along the street to creating drains that take the flow under the streets to the reclamation ditch.

Other Alternatives: No action

Existing Planning Mechanism(s) through which Action Will Be Implemented: Stormwater program

Responsible Office/Partners: City of Isleton Department of Public Works

Project Priority: High priority

Cost Estimate: $3M

Benefits (Losses Avoided): The potential of car accidents due to heavy storm water ponding. The potential of flooding homes due to nowhere for the storm water to go.

Potential Funding: FEMA grants, Measure "A", or other grants

Timeline: As soon as funding is available/ 1-3 years

Action 10. Wastewater Treatment Plant Pond Levee Elevation Raise to 200-year Flood Standard

Hazards Addressed: Climate Change, Flood, Localized Flood, Severe Weather: Heavy Rains and Storms

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

Issue/Background: There is a possibility that if the City has a 200-year flood event that the levees around the wastewater treatment plant ponds will not be sufficient, due to the fact they were made to protect against a 100-year flood. This action is intended to address the possible spillover of wastewater from the sewer ponds due to levee elevation under 200-year flood standard

Project Description: Levee elevation increase around wastewater treatment plant ponds

Other Alternatives: None

Existing Planning Mechanism(s) through which Action Will Be Implemented: Capital Improvement Projects for the City of Isleton Wastewater treatment plant

Responsible Office/Partners: City of Isleton Department of Public Works

Project Priority: High Priority

Cost Estimate: $1M

Benefits (Losses Avoided): The benefit would be that if a flood happened there would be adequate protection to keep wastewater from contaminating drinking water and the public's health and safety

Potential Funding: FEMA grants, other grants, and impact fees from new homes built within the City of Isleton

Timeline: 1 - 3 years