CITY OF COLTON

Local Hazard Mitigation Plan

FEMA Approved Plan

June 2019

Adopted August 6, 2019 - CC Resolution No. R-64-19

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Section 1. Introduction

1.1 Plan Purpose

A hazard event, such as an earthquake, flood, or wildfire, can have serious consequences. These events can cause injury or death, create public health risks, damage or destroy public and private property, harm ecosystems, and disrupt economies and key services. However, these events are only one part of a larger emergency management cycle:

- The event (the disaster)
- Response
- Recovery
- Mitigation
- Preparedness

During the response, recovery, mitigation, and preparedness phases of the cycle, emergency planners and responders can act to minimize the harm caused by future disasters. This updated Local Hazard Mitigation Plan (LHMP, or Plan) focuses on optimizing the mitigation phase of the cycle.

The Federal Emergency Management Agency (FEMA) defines mitigation as "any action taken to reduce or eliminate the long-term risk to human life and property from natural hazards." In other words, mitigation is the act of making a community more resilient to disasters so that when hazard events do occur, the community suffers less harm and is able to recover more effectively. It differs from preparedness, which is advanced planning for how to best respond when a disaster occurs or is imminent. For example, a policy requiring new homes in wildfire-prone areas to include flame-resistant materials in their construction is a mitigation action. Creating a traffic management plan that will make it easier for people in wildfire-prone areas to evacuate is a preparedness action. Some activities may qualify as both.

Colton, like all other communities, has the potential to be severely harmed by a hazard event. There is the possibility of a major disaster that could cause widespread devastation, but even smaller hazard events could create significant hardships. No community can make itself entirely immune to hazard events, but this LHMP can help make Colton a safer place to live, work, and visit. For instance, after a hazard event occurs, the recovery phase of the cycle often involves restoring the community to predisaster conditions. While this helps create a feeling of returning to normalcy, it does nothing to improve safety. If a house that burns down in a wildfire is rebuilt exactly the same way, it remains just as likely to be destroyed in a future wildfire. Rebuilding the house so that it is more resilient to flames does not eliminate the chance that the house will burn down, but it does decrease the risk. As mitigation activities reduce the threat of harm, they also make response and recovery easier and less expensive.

This Plan includes a comprehensive assessment of the threats that Colton faces from both natural and human-caused hazards, as well as a set of coordinated policy recommendations to reduce these threats. It identifies the resources that can be used to help community members, City staff, and local officials to understand threats and make informed decisions. The

Plan can also support increased coordination and collaboration between the City, surrounding communities, other public agencies, local employers and service providers, community members and groups, and other key stakeholders.

This updated LHMP update is a "living document" that should be reviewed, monitored, and updated to reflect changing conditions and new information. FEMA requires that an LHMP be updated every five years to remain in compliance with regulations and other conditions. Colton's previous LHMP was adopted on June 25, 2011.

1.2 Plan Authority

Colton is not legally required to have a valid LHMP, but doing so makes the City eligible for certain grants and other benefits under state and federal law. This LHMP is intended to meet all applicable state and federal standards and regulations. It uses the best available science, and its mitigation actions reflect current best practices and community values. This LHMP allows Colton to be eligible for all appropriate benefits under state and federal law. This Plan does not grant state or federal agencies any increased role in the governance of Colton, or authorize these agencies to take any specific action in the community.

1.2.1 Federal Authority

The federal Robert T. Stafford Disaster Relief and Emergency Act (Stafford Act), as amended by the Disaster Management Act of 2000 (DMA 2000), establishes a federal framework for local hazard mitigation planning. The Stafford Act states that any local community that wants to be eligible for hazard mitigation grant funds from federal agencies must prepare a hazard mitigation plan that is consistent with guidelines established by FEMA, and submit the plan to FEMA for review and approval. These guidelines are outlined in Title 44, Part 201 of the Code of Federal Regulations. They are also discussed in greater detail in FEMA's Local Mitigation Plan Review Tool.

1.2.2 State Authority

California Government Code Sections 8685.9

Section 8685.9 of the California Government Code, as enacted by Assembly Bill (AB) 2140, limits the share of disaster relief funds that the State of California will pay to local governments to 75 percent of the funds not paid for by federal disaster relief efforts. However, if the local government has adopted a valid hazard mitigation plan that is consistent with DMA 2000 and has incorporated the hazard mitigation plan into the jurisdiction's General Plan, the State may cover more than 75 percent.

California Government Code 65302

All cities and counties in California are required to have a General Plan, which is an overarching long-term strategy for community growth and development. This General Plan must include a Safety Element (either as a stand-alone chapter or incorporated into other sections) that addresses various hazard conditions and other public safety issues. Section 65302.6 of the California Government Code allows communities to adopt their LHMP into the Safety Element, as long as the hazard mitigation plan meets the appropriate state requirements. This allows communities to use their LHMP to satisfy the state requirements for a Safety Element. As General Plans inform overall community direction and priorities, incorporating the LHMP into a General Plan creates a stronger mechanism for implementing hazard mitigation activities.

Another section of the California Government Code, Section 65302(g)(4), as enacted by Senate Bill (SB) 379, requires that the Safety Element address the hazards created or exacerbated by climate change. The Safety Element must identify how climate change is expected to affect hazard conditions in the community, and must include measures to help the community adapt and

be more resilient to these anticipated changes. Because the LHMP can be incorporated into the Safety Element, including climate resiliency in the LHMP can satisfy this state requirement. SB 379 requires that climate change must be addressed in the Safety Element either when the LHMP is updated after January 1, 2017 (for communities that already have an LHMP), or by January 1, 2022 (for communities lacking an LHMP).

1.3 Plan Goals

The overarching intent of this updated LHMP is to increase resiliency to hazard events in Colton. This LHMP has six distinct goals to achieve this purpose:

- Save lives and reduce injuries among Colton community members and visitors.
- Avoid damage to public and private property and to environmental systems.
- Preserve key government functions and other critical services.
- Integrate hazard mitigation activities into City policies.
- Maintain the City's eligibility for increased hazard mitigation and disaster recovery funding.
- Support compliance with state laws that require addressing specific hazards and other items, including the effects of climate change.

1.4 Updates since Last Plan

This Plan contains a number of updates to the information in Colton's 2011 LHMP. These updates include:

- Updated demographic information for Colton residents.
- Descriptions of recent hazard events.
- An updated threat assessment that incorporates recent data.
- Updates to the Capabilities Assessment to reflect the most recent framework.
- New and revised hazard mitigation actions.

In addition to these updates, this Plan also includes several items of new content that were not included in the 2011 LHMP. As for the integration of the previous plan into other planning mechanisms, the only thing the City was able to integrate from the previous plan was the hiring of an emergency manager.

1.5 Plan Process

State and federal guidance for local hazard mitigation plans does not create a specific planning process that local communities are required to follow. FEMA encourages communities to create their own planning process that reflects local characteristics, values, and goals. However, FEMA does recommend a generalized procedure:

This section describes the process used by the City of Colton to develop this LHMP.

1.5.1 Hazard Mitigation Planning Team

To oversee development of this LHMP, the City created a Hazard Mitigation Planning Team (Planning Team), made of representatives from key City departments as well as representatives from major employers and surrounding jurisdictions. The members of the Planning Team are:

- **City Departments**
  - Dan Arjona, Community Emergency Response Team (Instructor)
  - Mario Arredondo, Collections Division (Supervisor)
  - Ouidiu Bostan, Water and Wastewater Department (Supervisor)
  - Ray Bruno, Fire Department (Fire Marshal)
  - Con Cendejas, Fire Department (Battalion Chief)
  - Deb Farrar, Community Services Department (Director)
  - Anthony Fernandez, Community Services Department (Recreation Coordinator)
  - Dan Harken, Fire Department (Deputy Fire Chief)
  - Regina Hawkins, Human Resources Department (Human Resources Specialist)
  - Ramon Hernandez, Building and Safety Division (Building Official)
  - Jim Jolliff, Police Department (Lieutenant)
  - Shannon Kendall, Emergency Services (Emergency Manager)

  - Paula Majors, Finance Division (Manager)
  - Tim McHargue, Fire Department (Fire Chief)
  - Nicole Mihld, Finance Division (Purchasing and Customer Services Manager)
  - Victor Ortiz, Public Works Department (City Engineer)
  - Danny Pagdilao, Public Works Department (Superintendent)
  - Bill Smith, Office of the City Manager (City Manager)
  - Mark Tomich, Development Services Department (Director)
- **Other organizations**
  - Chad Moxley, Cal FIRE (Battalion Chief)
  - Nicholas Novelich, Caltrans (Emergency Operations)
  - John Reddick, Arrowhead Regional Medical Center (Maintenance Supervisor)
  - John Sachs, Colton Joint Unified School District (Security/Safety Emergency Manager)
  - Scott Smith, Arrowhead Regional Medical Center (Emergency Manager)

Additionally, the City also invited representatives from the following external organizations to participate:

- BNSF Railway (formerly Burlington Northern and Santa Fe Railway)
- California Department of Forestry and Fire Protection (CAL FIRE)
- City of Grand Terrace
- Kinder Morgan
- San Bernardino County Flood Control District
- San Bernardino County Land Use Services Department
- San Bernardino County Public Works Department
- Union Pacific Railroad

1.5.2 Public Engagement

As part of the public engagement process, an online survey was distributed from April to May 2018 to City staff, City residents and businesses and other interested stakeholders. Feedback received during this process, included a total response from 14 participants. The following conclusions can be drawn from the feedback received:

- Approximately 35% of respondents live and work in the City and an additional 57% of respondents work within the City.
- Top three hazards of concern from respondents included Human-Caused Hazards, Seismic Hazards, and Severe Weather Hazards.
- When asked about actions that City Departments and key partners could take to reduce injury and damage in the City, the highest-ranking answer focused on maintaining infrastructure and government services to ensure that they are functional when a disaster occurs.
- 45% of respondents indicated that "Text Messaging" was the most effective communication method to provide disaster information.

Based on the low response ratio to the survey, the City identified the need to use other methods of engagement and information sharing to ensure community members are aware of this plan and process. Prior planning processes in the City

relied on public meetings, which typically had low turnout. Instead the City opted to conduct outreach at the 8th Annual Arrowhead Regional Medical Center 5K Walk/ Run. At this event the City provided bilingual post cards providing information on the project and where to find more information on the City's website. Responses and feedback from these activities verified the basic assumptions regarding community concerns and issues.

Appendix B provides both the online survey results as well as examples of the bilingual postcards used for public engagement activities.

1.5.3 Public Review Draft

On October 15, 2018, the Public Review Draft of the Plan was distributed to the residents and businesses of Colton for a 30 day public review period. Electronic copies of the plan were made available on the City's LHMP website (http://www.ci.colton.ca.us/index.aspx?NID=820). Hard copy versions of the plan were made available at the following locations:

DEVELOPMENT SERVICES DEPARTMENT	FRANK A. GONZALES CENTER	PETER S. LUQUE COMMUNITY CENTER
659 N. LA CADENA DRIVE	670 COLTON AVENUE	292 EAST "O" STREET
COLTON CA 92324	COLTON, CA 92324	COLTON, CA 92324

Zero comments were received by the City during this review period.

1.5.4 Plan Revision and Adoption

On January 23, 2019 the plan was submitted to Cal OES to initiate the review process with that state agency.

1.6 Plan Resources

The Hazard Mitigation Planning Team relied on a wide array of different plans, studies, technical reports, data sets, and other resources to compare the different sections of this Plan. **Table 1-1** gives some of the primary resources used in the preparation of the Colton LHMP.

TABLE 1-1: KEY RESOURCES FOR PLAN DEVELOPMENT

SECTION	KEY RESOURCES	EXAMPLE USES
Multiple sections	• California Department of Water Resources • City of Colton 2011 Hazard Mitigation Plan • City of Colton Climate Action Plan • City of Colton General Plan • City of Colton reports • FEMA Local Hazard Mitigation Plan Guidance • National Oceanic and Atmospheric Administration	• Science and background information on various hazard conditions. • General data about hazard mitigation plans. • Records of past disaster events in and around Colton and San Bernardino County. • Projected climate conditions in and around Colton.

SECTION	KEY RESOURCES	EXAMPLE USES
	• National Weather Service • San Bernardino Valley Municipal Water District • San Bernardino Valley Water Control District • US Census Bureau	• Information on the history and current demographics and characteristics of Colton.
Community Profile	• California Energy Commission • Western Regional Climate Center	• Information about utility services in Colton • Current climate conditions in and around Colton.
Hazard Profiles (Drought)	• Safeguarding California • US Drought Monitor	• History of drought events. • Current and projected future drought conditions.
Hazard Profiles (Flood)	• San Bernardino County Flood Control District • FEMA Map Service Center	• Records of past floods in and around Colton. • Locations of flood hazard zones in Colton.
Hazard Profiles (Human-Caused Hazards)	• California Department of Toxic Substances Control • California Office of Emergency Services spill release reports • Global Terrorism Database • State Water Resources Control Board • US Environmental Protection Agency	• Locations and status of hazardous material facilities. • Historic records of terrorism and hazardous material releases.
Hazard Profiles (Seismic Hazards)	• Southern California Earthquake Data Center • USGS Earthquake Archive • USGS ShakeMap scenarios • USGS Third Uniform California Earthquake Rupture Forecast	• Locations of fault zones and seismic hazard areas. • Records of past seismic events. • Future seismic event scenarios.
Hazard Profiles (Wildfires)	• California Department of Forestry and Fire Prevention	• Records of past fire events. • Locations of fire zones in and around Colton.

Sections that are not individually identified in this table relied largely on sources identified in the "Multiple sections" row of this table.

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Section 2. Community Profile

2.1 Physical Setting

Colton is located approximately 55 miles east of downtown Los Angeles in the San Bernardino Valley region, in southwestern San Bernardino County. It is bordered by the city of San Bernardino to the north, the city of Loma Linda to the east, the cities of Riverside and Grand Terrace (as well as the unincorporated community of Highgrove) to the south, and the city of Rialto to the west. Colton is part of the wider Inland Empire region of California.

The Santa Ana River runs through Colton, and the city is divided into four parts by two railroad lines. The community is predominately flat, with an average elevation of 1,000 feet above sea level. The La Loma Hills in southwest Colton rise to a height of over 1,400 feet. The Box Springs Mountains, which include southeast Colton, reach a height of over 2,400 feet.

The planning area for this LHMP is the city limits of Colton and unincorporated areas that are considered part of Colton's sphere of influence (SOI). These unincorporated areas are:

- Slover Mountain and the Cypress Avenue area north of Interstate 10.
- An unincorporated area between Colton and Grand Terrace, near Washington Street and Bluff Road.
- The unincorporated area surrounded by Colton on all sides, roughly bordered by Fern Lane, Dark Canyon Road, and Reche Canyon Road.
- The unincorporated area along Reche Canyon Road bordered mostly by Colton, roughly between Placid Lane and Malibu Court.

Figure 1 shows the location of Colton and its SOI.

2.2 History

The area that is now Colton was originally settled by the Tongva (Gabrielino) and Iviatim (Cahuilla) peoples. A third group, the Taaqtam (Serrano), lived nearby (DWR 2011). The Tongva were among one of the most populous groups of Native Americans in southern California, numbering 5,000 or more at the time of European contact, and they lived in villages throughout the wider Los Angeles region. The Iviatim numbered an estimated 2,500 people at one time, covering the San Bernardino Mountains and much of the western Mojave Desert (Kroeber 1925; DWR 2011).

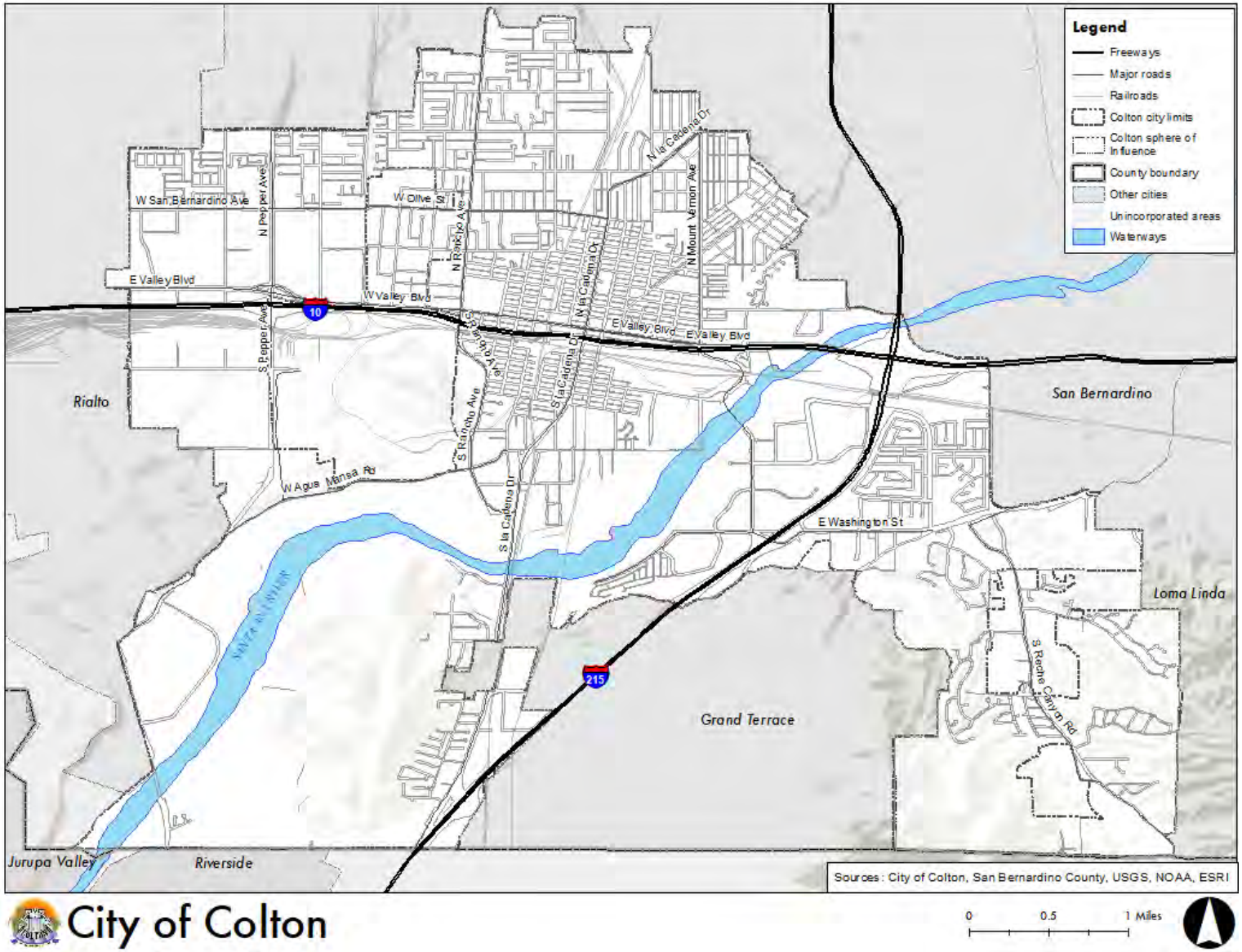
The Spanish became the first Europeans to permanently settle California, establishing a series of missions beginning in 1769. The San Bernardino Valley came under the area administered by Mission San Gabriel Arcángel, constructed in 1771 approximately 45 miles west of modern-day Colton. After Mexico (including California) achieved independence from Spain in 1821, the missions were secularized, and large portions of land were granted to prominent individuals. Part of what is now southern Colton was included in a grant called Rancho Jurupa, and modern-day eastern Colton was included in the Rancho San Bernardino grant (San Bernardino County 2016; San Bernardino 2018a). The western half of Colton was not included in any land grant.

After California became part of the United States, the area that is now Colton continued to be used for farming until the 1870s, when the Southern Pacific Railroad was extended into the area on the way to downtown Los Angeles. Five men from the Slover Mountain Colony Association purchased 2,000 acres of land and began to lay out a settlement, named Colton after Southern

Pacific Railroad executive David R. Colton. The railroad entered Colton in 1875, and the community incorporated in 1877 (San Bernardino 2018b).

Railroad activity quickly expanded following incorporation as the citrus groves that were common in the area began to be developed. The proximity of the railroads made Colton attractive to industrial activity, which continues in the community to this day. Construction of Interstate 10 through the city helped attract more transportation industries, along with extensive development of residential subdivisions (Colton 2018a).

FIGURE 1: COLTON OVERVIEW MAP



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2.3 Climate

Colton has a warm, Mediterranean-type climate, meaning that winters are mild and summers are dry. Precipitation levels are moderately low, and virtually all precipitation occurs in the winter. According to the nearest weather station, Colton has an average maximum temperature of approximately 80 degrees, an average minimum temperature of approximately 48 degrees, and average precipitation of approximately 16 inches. July and August are the hottest months, with average high temperatures of over 96 degrees and average low temperatures close to 60 degrees. The coldest months are December and January, with maximum temperatures below 68 degrees and low temperatures approximately 38 to 39 degrees. Precipitation levels are highest from January to March (WRCC 2016).

2.4 Demographics

The US Census estimates Colton's population to be 53,856 as of 2016, making it one of the less populous of the 14 cities in the San Bernardino Valley (only Montclair, Loma Linda, and Grand Terrace have fewer people) (US Census Bureau 2016a).

Compared to all of San Bernardino County, Colton residents are slightly younger, have a lower median income, and are more likely to rent their homes. **Table 2-1** shows the basic demographics for Colton and San Bernardino County.

TABLE 2-1: BASIC DEMOGRAPHICS, COLTON AND SAN BERNARDINO COUNTY (2016)

	COLTON	SAN BERNARDINO COUNTY
Total population	53,856	2,106,754
Percent of residents that are children (less than 10 years old)	18.20%	14.93%
Percent of residents that are senior citizens (at least 65 years old)	8.48%	10.36%
Median age	29.6	32.7
Total households	15,982	618,922
Median household income	$43,966	$54,469
Percent of rental households	49.77%	40.93%

Sources: US Census Bureau 2016a, 2016b, 2016c, 2016d. Data does not include people living outside of Colton's city limits but within the sphere of influence.

In both Colton and San Bernardino County, a majority of residents identify as Hispanic or Latino. However, Hispanic or Latino residents make up a much larger share of Colton residents than San Bernardino County residents. Similarly, a smaller share of Colton residents identify as white compared to San Bernardino County residents. **Table 2-2** shows the racial and ethnic composition in Colton and San Bernardino County.

TABLE 2-2: RACIAL AND ETHNIC COMPOSITION, COLTON AND SAN BERNARDINO COUNTY (2016)

	COLTON		SAN BERNARDINO COUNTY	
RACE OR ETHNICITY	POPULATION	PERCENTAGE	POPULATION	PERCENTAGE
White	8,986	16.69%	642,786	30.51%
Black or African-American	4,118	7.65%	170,376	8.09%
American Indian and Alaska Native	90	0.17%	6,840	0.32%
Asian	2,516	4.67%	138,751	6.59%
Native Hawaiian and Other Pacific Islander	330	0.61%	6,368	0.30%
Other race	36	0.07%	4,417	0.21%
Two or more races	561	1.04%	48,112	2.28%
Hispanic or Latino (of any race)	37,219	69.11%	1,089,104	51.70%
Total	53,856	100%	2,106,754	100%

Source: US Census Bureau 2016e. Data does not include people living outside of Colton's city limits but within the sphere of influence.

Colton and San Bernardino County have similar levels of educational attainment. More than a quarter of Colton residents do not have a high school diploma, and approximately 21 percent have a college degree. **Table 2-3** shows the educational attainment in Colton and San Bernardino County.

TABLE 2-3: EDUCATIONAL ATTAINMENT OF RESIDENTS 25+ YEARS OF AGE, COLTON AND SAN BERNARDINO COUNTY (2016)

	COLTON		SAN BERNARDINO COUNTY	
EDUCATIONAL ATTAINMENT	POPULATION	PERCENTAGE	POPULATION	PERCENTAGE
Less than 9th grade	3,426	11.14%	125,223	9.68%
9th grade to 12th grade (no diploma)	4,596	14.95%	149,158	11.53%
High school graduate or equivalent	9,001	29.27%	339,210	26.22%
Some college (no degree)	7,198	23.41%	323,744	25.02%
Associate's degree	2,470	8.03%	106,522	8.23%
Bachelor's degree	2,784	9.05%	162,213	12.54%
Graduate or professional degree	1,274	4.14%	87,709	6.78%
Total	30,749	100%	1,293,779	100%

Source: US Census Bureau 2016f. Data does not include people living outside of Colton's city limits but within the sphere of influence.

Close to half of Colton residents speak a language other than English at home, and most of these residents (approximately 44 percent of Colton's total population) speak Spanish. Approximately 2 percent of Colton's residents speak Tagalog or another Pacific Island language (US Census Bureau 2015).

For the Colton residents who do not speak English at home, approximately 20 percent say they speak English "not well" or "not well at all." Overall, approximately 9 percent of Colton residents say they do not speak English well. **Table 2-4** shows English proficiency in Colton and San Bernardino County.

TABLE 2-4: ENGLISH PROFICIENCY OF RESIDENTS 5+ YEARS OF AGE, COLTON AND SAN BERNARDINO COUNTY (2016)

	COLTON		SAN BERNARDINO COUNTY	
LANGUAGE SPOKEN AT HOME	PERCENT SPEAKING ENGLISH "VERY WELL" OR "WELL"	PERCENT SPEAKING ENGLISH "NOT WELL" OR "NOT WELL AT ALL"	PERCENT SPEAKING ENGLISH "VERY WELL" OR "WELL"	PERCENT SPEAKING ENGLISH "NOT WELL" OR "NOT WELL AT ALL"
Only English	100%	-	100%	-
Spanish	78.98%	21.02%	79.01%	20.99%
Other Indo-European languages	100%	-	89.99%	10.01%
Asian and Pacific Island languages	87.12%	12.88%	79.97%	20.03%
Other languages	77.39%	22.61%	86.92%	13.08%
All languages other than English	79.94%	20.06%	79.73%	20.27%
All languages	90.84%	9.16%	91.59%	8.41%

Source: US Census Bureau 2016g. Data does not include people living outside of Colton's city limits but within the sphere of influence.

2.5 Economy and Commute Patterns

Colton has a history of industrial and transportation-related economic activities, and while jobs in these industries remain, they are not as dominant as they used to be. More than a third (approximately 37 percent) of jobs in Colton are in health care and social assistance. Wholesale trade is the second-largest employer (providing approximately 11.3 percent of jobs), followed by retail trade (approximately 9.3 percent of jobs), educational services (approximately 7.9 percent), and manufacturing (approximately 6.4 percent) (US Census Bureau 2017). The list of the largest employers in the community, shown in **Table 2-5**, reflects this increasingly diverse economy.

TABLE 2-5: TEN LARGEST EMPLOYERS IN COLTON (2017)

EMPLOYER	INDUSTRY	NUMBER OF EMPLOYEES	PERCENTAGE OF TOTAL EMPLOYEES
Arrowhead Regional Medical Center	Health care	3,900	16.53%
Colton Joint Unified School District	Education	738	3.21%
Lineage Logistics	Warehousing	625	2.72%
Ashley Furniture	Retail trade and warehousing	400	1.74%
Reche Canyon Convalescent Center	Health care	388	1.69%
Best Brands Corp/CSM	Food manufacturing	330	1.43%
Wal-Mart	Retail trade	293	1.27%
City of Colton	Government administration	283	1.23%
County of San Bernardino	Government administration	280	1.22%
Stater Brothers Market	Retail trade	202	0.88%
Total (Top 10 employers)	-	6,839	29.74%
All other employers	-	16,158	68.47%
Total jobs	-	23,597	100%

Source: City of Colton 2017.

Although there are close to as many jobs in Colton as there are employed residents, commuting is very high in the community. Approximately 93 percent of Colton residents commute to other cities for work, primarily to San Bernardino, Riverside, Ontario, and other Inland Empire communities. Similarly, approximately 93 percent of people employed in Colton commute from other cities, mostly from San Bernardino, Riverside, Fontana, and other communities in the region. The highest concentrations of jobs in the community are at the Arrowhead Regional Medical Center in northwest Colton and in the Cooley Ranch neighborhood near the junction of Interstates 10 and 215 (US Census Bureau 2017)

2.6 Existing Land Use

The land use patterns in Colton are diverse and reflect a wide range of residential and nonresidential activities. Most residential land in Colton is low-density, single-family homes, although townhomes, condominiums, and apartments exist near the downtown. A range of commercial land uses exist in downtown, around the Cooley Ranch neighborhood, and along the La Cadena Drive and Mount Vernon Avenue corridors. Industrial facilities are common in Colton, mostly below Interstate 10, although some exist in northern Colton along the BNSF railway line. The Santa Ana River floodplain, along with many of the hilly areas in southern Colton, are protected open space (Colton 2013).

2.7 Development Trends

There are a number of development projects that are currently under construction or pending in Colton. As of March 2018, these development projects totaled approximately 4,760 dwelling units, approximately 1 million square feet of commercial space, and approximately 9.9 million square feet of industrial or office space. These under-construction or pending developments also included 413 new hotel rooms, enough school space to accommodate 2,200 students, and a 122.7-acre business park. Development of this plan has taken this new development into account and is helping City staff make better land use planning decisions as these projects continue through the entitlement process. As a result, no additional risk to the City from these developments has resulted since preparation of the previous LHMP.

2.8 Infrastructure Assessment

Colton's key infrastructure networks (energy, water/wastewater, and transportation) are critical to the community's health, safety, and welfare. Damage to these networks can deprive community members of key services and may also cause additional hazard events, such a downed power line that starts a wildfire.

2.8.1 Electricity

The City of Colton operates its own municipal electrical utility, supplying electricity to residents and businesses within the city limits as well as to unincorporated islands that lie within the community's boundaries. Additionally, there are 222 properties in Colton (mostly residential properties) that are served by the regional electric utility, Southern California Edison (SCE), which supplies electricity to most of southern California (Colton 2015). More than half of the community's electricity comes from the Agua Mansa Power Plant, a natural gas-burning facility owned by the City. Other major electrical suppliers are the Magnolia Generating Station natural gas power plant in Burbank, the Puente Hills landfill gas facility in the City of Industry, and the Astoria solar photovoltaic project near Rosamond in Kern County (Colton Electrical Department 2017; EPA 2017). There are three power plants currently operating in Colton: the City-owned Agua Mansa Power Plant, the Drews natural gas power plant, and the Century natural gas power plant (CEC 2018a).

Electricity is delivered to Colton through a series of high-capacity power lines called transmission lines, which convey electricity (usually over large distances) from power plants. Transmission lines connect to facilities called substations, which convert the electricity to a lower voltage and distribute it to individual customers. Several major transmission lines run through Colton, mostly in the southern part of the community. All transmission lines in Colton are owned by SCE. There are seven substations in Colton, three owned by SCE and four by other agencies, including the City's electrical utility (CEC 2014, 2018b). The presence of multiple transmission lines and substations throughout Colton provide redundancy against major power outages, although a significant hazard event that causes damage to multiple facilities could still result in a widespread loss of electrical service throughout the community.

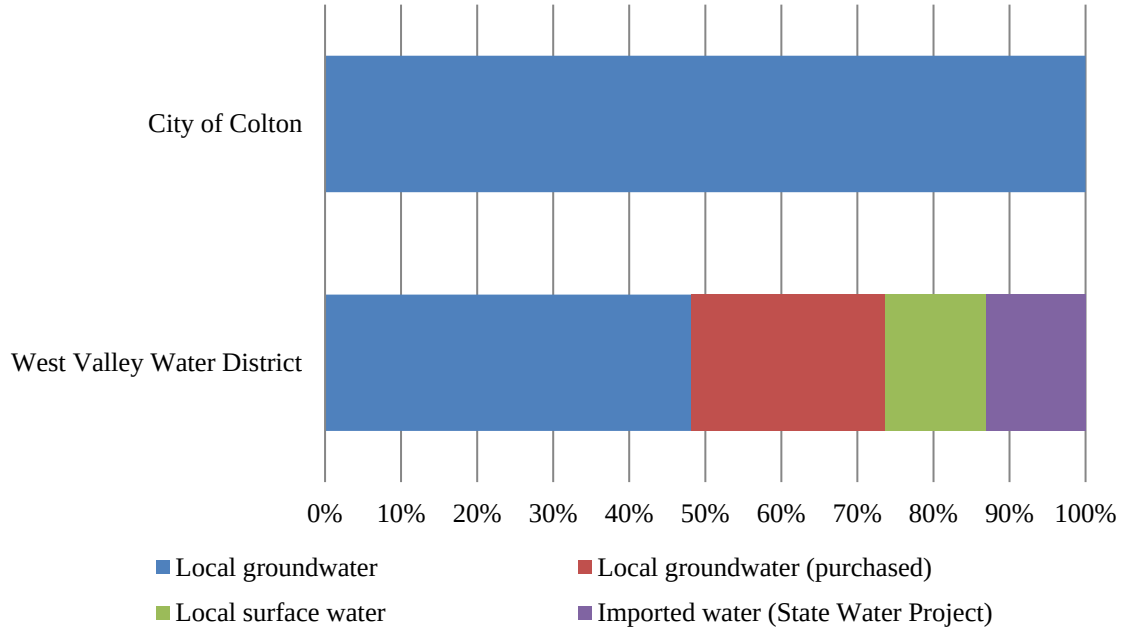
2.8.2 Natural Gas

Natural gas service in Colton is provided by the Southern California Gas Company (SoCalGas), an investor-owned private company. There is one major natural gas pipeline, owned by SoCalGas, running through northern Colton along Mill Street (CEC 2018c). Damage to this pipeline could reduce access to natural gas service in Colton and create a risk of a gas leak, which in turn could cause a further hazard due to the highly flammable and potentially explosive nature of natural gas. Various facilities, including three in the City of San Bernardino, help to keep natural gas running smoothly through these pipelines (CEC 2018d).

2.8.3 Water and Wastewater

Colton is served by two water providers. The City of Colton operates a municipal water agency that services approximately 90 percent of the city; another public agency, the West Valley Water District (WVWD), provides water service to the area west of Pepper Avenue. The City of Colton receives its water entirely from local groundwater basins. The WVWD serves parts of four cities in the region as well as unincorporated areas of San Bernardino County. It receives most of its water from local groundwater basins, but also purchases water from three other sources: water from the Sierra Nevada and delivered by the State Water Project, water from Lytle Creek near San Bernardino, and groundwater purchased from the San Bernardino Valley Municipal Water District. **Figure 2** shows the sources of water from both agencies.

FIGURE 2: WATER SOURCES IN COLTON



Source: SBVMWD 2016.

Most of the water used in Colton (all the water supplied by the City and approximately 74 percent of the water supplied by WVWD) comes from local groundwater basins. Groundwater basins are generally more resilient than other sources of water, but damage to wells and local pipelines may affect water service. Water from local surface water bodies is vulnerable to similar types of disruption. Imported water from the State Water Project has to travel many hundreds of miles through an extensive network of pipes, aqueducts, reservoirs, and pumping stations. This expands the opportunities for a hazard event to disrupt imported water service.

In the event of a catastrophic water shortage, the City is able to purchase water from surrounding agencies so that it can continue to provide some level of service (substantial water use regulations will likely be implemented). The WVWD has a sufficient supply to meet residential demand for 18 days (assuming all nonresidential water use is halted) or enough water to meet 4 days of total demand. The WVWD is also able to procure water from surrounding agencies through emergency connections (SBVMWD 2016).

Wastewater service in Colton is provided by the City, which also provides wastewater service for Grand Terrace and nearby unincorporated areas. Colton owns and operates the sewer lines that collect wastewater, the pump stations that convey it, and a wastewater treatment plant on South Rancho Avenue. The treated wastewater is pumped to a facility in San Bernardino, where it is treated further before being discharged into the Santa Ana River (Colton 2018b). Damage to the City-owned sewer system or treatment facilities could reduce treatment capacity or cause a leak, which could potentially create a human or environmental health hazard.

2.8.4 Transportation

There are two major freeways in Colton. Interstate 10 runs east-west through the middle of the city, with four lanes in each direction. To the west, Interstate 10 runs through the San Gabriel Valley and downtown Los Angeles before ending in Santa Monica. To the east, the freeway runs toward Redlands, Palm Springs and the Coachella Valley, and eventually to Arizona and states beyond. Interstate 215 runs north-south through southeast Colton, with five lanes in each direction. To the south, Interstate 215 connects to Interstate 15 near Temecula, providing access to the San Diego region. To the north, it connects to Interstate 15 north of San Bernardino, eventually running north to Victorville, Barstow, and Nevada and states beyond. Other prominent freeways in the region include Interstate 15, State Route 60, State Route 91, and State Route 210. Key east-west surface streets include Valley Boulevard and San Bernardino Avenue/Olive Street. Major north-south surface streets include Pepper Avenue, Rancho Avenue, La Cadena Drive, and Mount Vernon Avenue. **Figure 3** shows the major evacuation routes in Colton.

In the event of an emergency requiring evacuation, most Colton residents have multiple potential evacuation routes. This would help to expedite an evacuation, although if the need to evacuate occurs during peak commute times, congestion on the freeways could interfere with an effective evacuation. The Reche Canyon neighborhood is of greater concern, as Reche Canyon Road is the only route in and out of this area. If this road is blocked or otherwise inaccessible, evacuations would likely be constrained and could be impossible by car.

Public transit in Colton is primarily provided by Omnitrans, the regional agency that provides bus service throughout the San Bernardino Valley. There are seven Omnitrans bus routes that serve stops in Colton, connecting to key hubs in surrounding communities (Omnitrans 2018). The Victor Valley Transit Authority provides a bus route that stops at the Arrowhead Regional Medical Center and connects San Bernardino Valley communities to the Victor Valley and Barstow areas (VVTA 2017).

Railroads were instrumental to the establishment of Colton, and they remain an important presence in the community. There are two major rail lines in Colton: the east-west Union Pacific railroad running along Interstate 10, and the north-south BNSF railroad running parallel to La Cadena Drive. There are also smaller spur lines throughout Colton, connecting industrial facilities to the main rail lines. Union Pacific operates a rail yard in west Colton, and BNSF operates one north of the community in San Bernardino. Metrolink commuter trains and long distance Amtrak trains run through Colton, but do not stop. The nearest passenger train stations are in San Bernardino, Rialto, and Riverside.

There is no airport in Colton. Currently the nearest airport with commercial service is Ontario International Airport, approximately 16 miles west of Colton. San Bernardino International Airport is located approximately 4 miles northeast of Colton, but there is no commercial service operating out of this airport at the present time.

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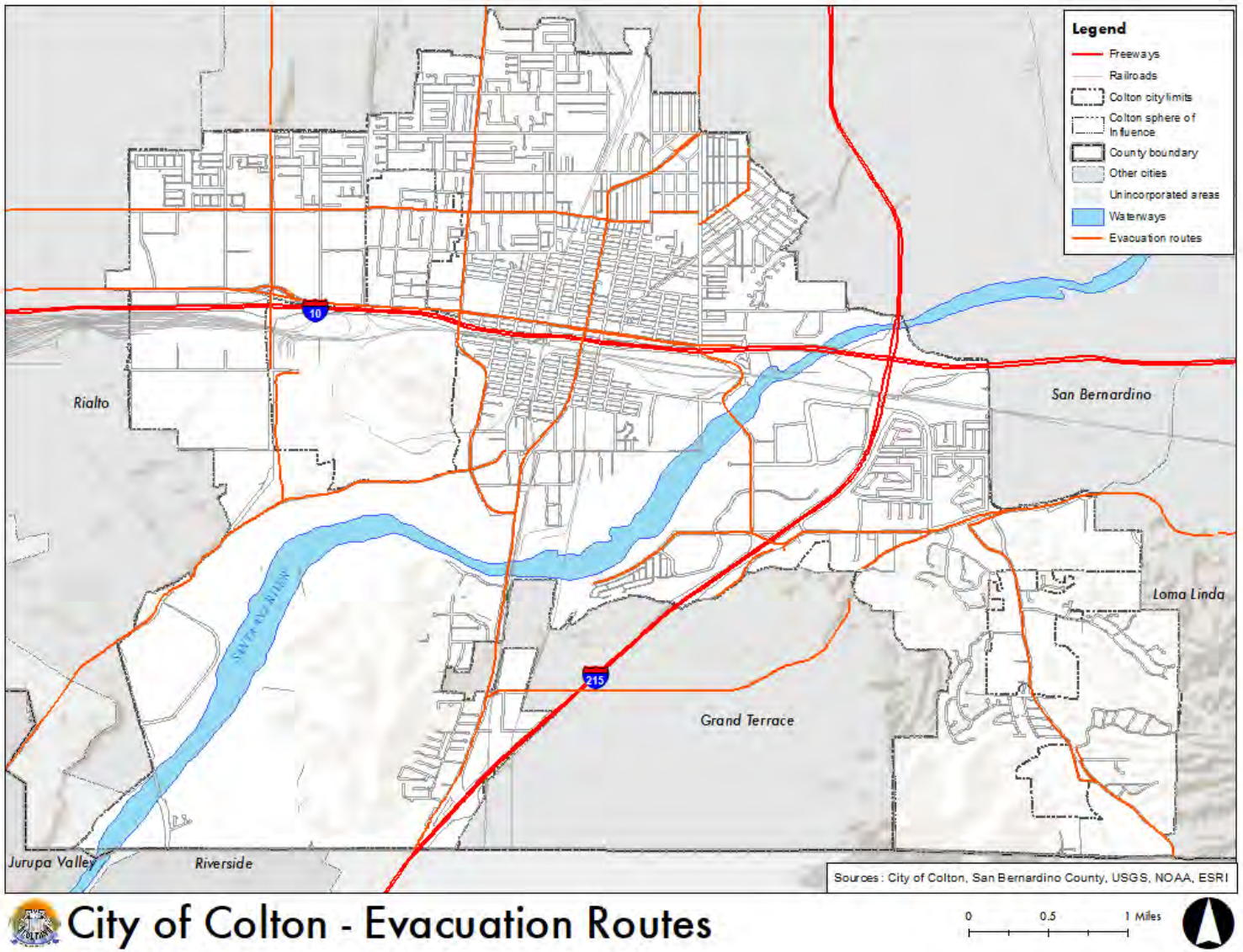
FIGURE 3: EVACUATION ROUTES



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Section 3. Risk Assessment

The risk assessment is the process of measuring the potential impact to life, property, and the economy resulting from natural hazards. The intent of the risk assessment is to identify, as much as practicable given existing/available data, the qualitative and quantitative vulnerabilities of a community. The results of the risk assessment allow for a better understanding of the impacts of natural hazards to the community and provide a foundation from which to develop and prioritize mitigation actions to reduce damage from natural disasters through increased preparedness and response times and better allocation of resources to areas of greatest vulnerability.

This risk assessment section evaluates the potential loss from a hazard event by assessing the vulnerability of buildings, infrastructure, and people. It identifies the characteristics and potential consequences of hazards, how much of the community could be affected by a hazard, and the impact on community population and assets. The risk assessment approach consists of two components:

- Hazard Identification. Identification and screening of hazards (Section 3.1)
- Hazard Profiles. Review of historical occurrences and assessment of the potential for future events (Section 3.2)

3.1 Hazard Identification

3.1.1 Hazard Screening Criteria

FEMA guidance identifies a number of hazards that communities should consider addressing in their hazard mitigation plans. The California Multi-Hazard Mitigation Plan (MHMP) contains a number of additional hazards that may be worth including. Other potential sources for hazards that should be considered are regional hazard plans and records of past disasters. The Planning Team (see Section 1.5.1) reviewed an extensive list of hazard events before deciding which ones to include in this LHMP, and which ones not to address. **Table 3-1** shows the hazards considered by the Planning Team, and why they were or were not included. The table also shows what source proposed the hazard for consideration, and whether it has been the subject of a disaster declaration in San Bernardino County.

TABLE 3-1: HAZARD EVALUATION FOR COLTON LHMP

HAZARD	SOURCE OF RECOMMENDATION	FEDERAL DISASTER? *	INCLUDED IN LHMP?	REASON FOR DECISION
Agricultural pests	California MHMP	No	No	There is no major agricultural activity in Colton.
Air pollution	California MHMP	No	No	Air pollution is a state and regional issue that is addressed through plans and regulations administered by the South Coast Air Quality Management District and the California Air Resources Board.
Avalanche	FEMA guidance	No	No	Avalanches do not occur in Colton.

HAZARD	SOURCE OF RECOMMENDATION	FEDERAL DISASTER? *	INCLUDED IN LHMP?	REASON FOR DECISION
Climate change	California MHMP Regional plans	No	**Yes** (as a component of other hazards)	Climate change can affect the frequency, intensity, and/or location of different hazards. It is not a stand-alone hazard and will be discussed as a factor of other hazards rather than as a distinct event.
Coastal flooding and storms	California MHMP	Yes	No	Colton is not a coastal city.
Dam failure	California MHMP FEMA guidance Regional plans	No	**Yes**	Colton lies within the inundation zone for dams.
Disease and pest management	California MHMP	No	No	The Planning Team did not consider the LHMP to be the appropriate place to address disease and pest management hazards.
Drought	California MHMP	No	**Yes**	Droughts are a recurring and potentially severe hazard in Colton.
Earthquake	California MHMP FEMA guidance Regional plans	Yes	**Yes**	Colton is in a seismically active area and has been impacted by earthquakes in the past.
Energy shortage	California MHMP	No	No	The Planning Team did not consider the LHMP to be the appropriate place to discuss energy shortages.
Erosion	California MHMP FEMA guidance	Yes	No	Erosion in Colton is not sufficient to be considered a hazard.
Expansive soil	FEMA guidance	No	No	There is no known expansive soil in Colton.
Extreme cold	California MHMP FEMA guidance	Yes	No	Temperatures in Colton do not typically become cold enough to pose a threat to the community.

HAZARD	SOURCE OF RECOMMENDATION	FEDERAL DISASTER? *	INCLUDED IN LHMP?	REASON FOR DECISION
Extreme heat	California MHMP FEMA guidance	No	**Yes**	Extreme heat events are a recurring hazard in Colton.
Flood	California MHMP FEMA guidance Regional plans	Yes	**Yes**	Floods are an occasional hazard in Colton.
Fracking	California MHMP	No	No	Fracking does not occur in Colton.
Hail	FEMA guidance	No	No	The Planning Team found that hail severe enough to constitute a hazard in Colton is too rare to be included in this Plan.
Hazardous materials release	California MHMP	No	**Yes**	Hazardous material facilities are present in Colton, and there is a risk of a hazardous materials release in the community.
Hurricane	California MHMP FEMA guidance	Yes	No	Hurricanes are too rare in Colton to be included in this Plan.
Infrastructure failure	California MHMP	No	**Yes**	Infrastructure failure may occur in Colton and pose a threat to the community.
Landslide	California MHMP FEMA guidance	Yes	**Yes**	Landslides have occurred in the past in Colton.
Levee failure	California MHMP	No	No	Levee failures are not a sufficient hazard to be addressed separately in this Plan. They may be discussed generally under infrastructure failure.
Lightning	FEMA guidance	No	No	Lightning is not a sufficient hazard to be addressed in this Plan.
Metal theft	California MHMP	No	No	The Planning Team did not consider this a sufficient threat in Colton.
Methane-containing soil	Regional plans	No	No	There are no known methane-containing soils in Colton.

HAZARD	SOURCE OF RECOMMENDATION	FEDERAL DISASTER? *	INCLUDED IN LHMP?	REASON FOR DECISION
Nuclear hazard	California MHMP	No	No	There are no known sources of nuclear material that could plausibly create a risk of a nuclear hazard in Colton.
Sea level rise	California MHMP FEMA guidance	No	No	Colton is not a coastal community and so is not susceptible to sea level rise.
Severe wind	FEMA guidance	Yes	**Yes**	Severe winds occur in Colton and may pose a threat to the community.
Severe winter weather	FEMA guidance	Yes	**Yes**	While this term typically refers to blizzards, ice storms, and related hazards, the Planning Team uses it for intense rainstorms that occur occasionally and may pose a threat to Colton.
Storm surge	FEMA guidance	No	No	Storm surge is a coastal hazard, and Colton is not a coastal community.
Subsidence	FEMA guidance	No	**Yes**	Subsidence has occurred in the past in Colton.
Terrorism	California MHMP	No	**Yes**	Since terrorism may happen anywhere, the Planning Team determined it should be addressed in the Plan.
Thunderstorm	California MHMP Regional plans	No	No	While thunderstorms may occasionally occur in Colton, the threat posed by these events is adequately addressed by other hazards.
Tornado	California MHMP FEMA guidance	No	No	There is some risk of tornadoes in Colton, but the threat posed by these events is adequately addressed by other hazards.
Transportation crashes	California MHMP	No	No	The Planning Team determined that this Plan is not the appropriate location to address transportation crashes.
Tsunami	California MHMP FEMA guidance	No	No	Tsunamis are a coastal hazard, and Colton is not a coastal community.

HAZARD	SOURCE OF RECOMMENDATION	FEDERAL DISASTER? *	INCLUDED IN LHMP?	REASON FOR DECISION
Volcano	California MHMP	No	No	There are no volcanoes near enough to Colton to reasonably pose a risk to the community.
Wildfire	California MHMP FEMA guidance Regional plans	Yes	**Yes**	Significant wildfires have occurred in the past in Colton.

* Disasters are declared at the county level. A disaster declared for San Bernardino County did not necessarily cause any harm to Colton.

The Hazard Mitigation Planning Team combined some hazards into a single category to streamline the list:

- Dam failure will be discussed as part of flooding.
- Landslides and subsidence will be combined into a single hazard, called "geologic hazards."
- Infrastructure failure, hazardous material release, and terrorism will be combined into a single hazard, called "human-caused hazards."
- Extreme heat, severe wind, and severe winter weather will be combined into a single hazard, called "severe weather."

Additionally, the Planning Team has renamed "earthquakes" to "seismic hazards" to better reflect the threat posed by factors other than ground shaking.

After evaluating potential hazards for inclusion and making the organizational changes identified by the Planning Team, this Plan discusses seven hazards:

- Drought
- Flooding
- Geologic hazards
- Human-caused hazards
- Seismic hazards
- Severe weather
- Wildfire

3.1.2 Hazard Prioritization

The Planning Team used a FEMA-recommended approach to prioritize the selected hazards. This prioritization process begins by assigning a score of 1 to 4 for four criteria in each of the included hazards. The four criteria are:

- Probability. The likelihood that the hazard event will occur in Colton in the future.
- Location. The size of the area in Colton that the hazard would affect.
- Maximum probable extent. The severity of the direct damage the hazard event would cause to Colton.
- Secondary impacts. The severity of the indirect damage the hazard event would cause to Colton.

Table 3-2 shows the rubric used to assign a score to each criterion.

TABLE 3-2: CRITERION SCORING

Probability		**Maximum Probable Extent (Primary Impact)**	
The estimated likelihood of occurrence based on historical data		The anticipated damage to a typical structure in the community	
Probability	**Score**	**Impact**	**Score**
Unlikely. Less than a 1 percent chance in a given year	1	Weak. Little to no damage.	1
Occasional. A 1 to 10 percent chance in a given year.	2	Moderate. Some damage, loss of service for days.	2
Likely. A 10 to 90 percent chance in a given year.	3	Severe. Devastating damage, loss of service for months.	3
Highly likely. More than a 90 percent chance in a given year.	4	Extreme. Catastrophic damage, uninhabitable conditions.	4
Location		**Secondary Impact**	
The project area of the community affected by the hazard.		The estimated secondary impacts to the community at large.	
Affected Area	**Score**	**Impact**	**Score**
Negligible. Affects less than 10 percent of the planning area.	1	Negligible. No loss of function, downtime, and/or evacuations.	1
Limited. Affects 10 to 25 percent of the planning area.	2	Limited. Minimal loss of functions, downtime, and/or evacuations.	2
Significant. Affects 25 to 75 percent of the planning area.	3	Moderate. Some loss of functions, downtime, and/or evacuations.	3
Extensive. Affects more than 75 percent of the planning area.	4	High. Major loss of functions, downtime, and/or evacuations.	4

The Planning Team assigned a weighing value to each of the four criteria, using values recommended by FEMA. Criteria deemed more important are given a higher weight. The assigned score of 1 to 4 for each criterion is multiplied by the weighing value to determine each criterion's overall score. The weighing values are:

- Probability: 2.0
- Location: 0.8
- Maximum probable extent: 0.7
- Secondary impacts: 0.5

After calculating the overall score for each criterion for each hazard, the scores for location, maximum probable extent, and secondary impact were summed to determine the total impact score for each hazard. FEMA guidance recommends multiplying this total impact score for each hazard by the hazard's probability score, resulting in a final score for each hazard between 4 and 64. A final score of less than 12 is considered a low-threat hazard, a score of 12.1 to 42 is a medium-threat hazard, and a score above 42 is considered a high-threat hazard. This final score determines hazard prioritization.

Table 3-3 shows the individual criterion scores, the final score, and the threat level for each hazard based on this prioritization process.

TABLE 3-3: HAZARD SCORES AND THREAT LEVELS

HAZARD	PROBABILITY (2.0)	IMPACT (2.0)			FINAL SCORE	THREAT LEVEL
		Location (0.8)	Primary Impact (0.7)	Secondary Impact (0.5)		
Drought	4 (Highly likely)	4 (Extensive)	3 (Severe)	3 (Moderate)	54.4	High
Flooding	2 (Occasional)	2 (Limited)	3 (Severe)	3 (Moderate)	20.8	Medium
Geologic hazards	3 (Likely)	2 (Limited)	2 (Moderate)	2 (Limited)	24.0	Medium
Human-caused hazards	2 (Occasional)	3 (Significant)	3 (Severe)	3 (Moderate)	24.0	Medium
Seismic hazards	4 (Highly likely)	4 (Extensive)	4 (Extreme)	4 (High)	64.0	High
Severe weather	3 (Likely)	4 (Extensive)	4 (Extreme)	4 (High)	48.0	High
Wildfire	4 (Highly likely)	3 (Significant)	3 (Severe)	3 (Moderate)	48.0	High

3.2 Hazard Profiles

3.2.1 Drought Profile

Description

A drought is a long period of time with precipitation levels that are significantly below normal. Most commonly, this makes less water available for natural environments, causing plants to dry out and making them more susceptible to pests or diseases. An abundance of dry plant matter may also increase the risk of wildfires or cause fires to be more intense. Agricultural areas, particularly those that do not rely on irrigation, can suffer during drought conditions.

In more severe instances, droughts can affect urban areas. A significant enough drought can lead to water shortages, which may force local water suppliers to institute mandatory restrictions on nonessential water use. In extreme cases, there may be not be enough water to meet basic health and hygienic needs, requiring communities to find alternative water supplies. Since many communities receive their water from far away sources, such as the Sierra Nevada or Colorado River, it is common in California to experience "long-distance droughts," where precipitation levels may be normal in the community itself, but low precipitation at the source of the community's water may result in water shortages.

Droughts can also, counterintuitively, cause an increase in flooding. Soil that has been dried out by drought conditions is harder and less able to absorb water. When the precipitation eventually does occur, more water remains on the surface rather than being absorbed, increasing the amount of runoff and potentially exacerbating flooding events. Dry soil also does not bind together as well as moister soils, which can increase the potential for landslides or erosion.

Location and Extent

Droughts are large-scale events, and so drought risks and conditions are generally equal across all of Colton, although the impacts to natural lands are generally different than impacts to urban areas.

There are many ways to measure drought conditions. One of the most common and easy to understand is the US Drought Monitor Classification Scheme, which combines multiple scales into a single descriptive index. **Table 3-4** shows the US Drought Monitor Classification Scheme.

TABLE 3-4: US DROUGHT MONITOR CLASSIFICATION SCHEME

CATEGORY	DESCRIPTION	POSSIBLE IMPACTS
D0 *	Abnormally dry	Slower growth of crops and pastures.
D1	Moderate drought	Some damage to crops and pastures. Water bodies and wells are low. Some water shortages may occur or may be imminent. Voluntary cutbacks to water use may be requested.
D2	Severe drought	Likely crop and pasture losses. Water shortages are common, and mandatory impacts may be imposed.
D3	Extreme drought	Major crop and pasture losses. Widespread water shortages and mandatory restrictions.
D4	Exceptional drought	Exceptional, widespread crop and pasture shortages. Water shortages reach emergency levels.

Source: US Drought Monitor 2018a.
* D0 areas are not technically in a drought, but are under "drought watch." These are areas that are potentially heading into drought conditions or are recovering from drought events but are not back to normal.

Past Events

Droughts are a regular feature of California's climate, although with varying lengths, intensities, and frequencies. They have occurred many times in the state's recorded history and frequently lead to changes to California's economy, infrastructure, or policies. One of the earliest recorded droughts, the "Great Drought" of 1863–1864, followed the largest flood in recorded history and caused widespread devastation to the state's cattle industry, hastening the selling off of the rancho land grants. Another series of droughts from 1928 to 1935, known as the "Dust Bowl Droughts," caused significant harm to California's agriculture and led to the creation of the federal Central Valley Project to ensure a reliable source of water for Central Valley farmers. Further droughts from 1947 to 1950 and from 1959 to 1960 helped encourage the creation of the State Water Project, which imports water from the Sierra Nevada to communities throughout the state, including Colton. A drought from 1976 to 1977 created emergency-level conditions across most of California and resulted in strong water conservation practices that continue

to this day. A drought from 1987 to 1992 caused significant statewide impacts, particularly to small rural communities and the timber industry, and led to stronger water conservation landscape standards. The statewide 2007 to 2009 drought caused further impacts and helped spur regulation for groundwater basins (Cal OES 2013; Kotin and Marion 2014; DWR 2015).

The most severe drought in California's recorded history (and considered the most severe in the past 1,200 years) occurred from 2012 to 2017 (Griffin and Anchukaitis 2014). At its peak, virtually all of California experienced D2 (severe drought) conditions, and close to 60 percent of California was classified in D4 (exceptional drought) conditions (US Drought Monitor 2014). Colton experienced D3 (extreme drought) conditions from July 2014 to January of 2017. Governor Brown declared a statewide emergency, and water conservation standards were strengthened throughout the state. The drought ended with the wet winter of 2016–2017, although a number of water conservation policies enacted during the drought remained in force.

Although the winter of 2016–2017 officially ended California's most recent significant drought, a single wet year was not enough to make up for five dry years. The 2017–2018 winter also saw less precipitation than normal across the state (NOAA 2018a). Drought conditions have returned because of this, although less intense than recent years. As of June 5, 2018, approximately 70 percent of California was at least abnormally dry, and approximately 37 percent of the state was in a state of at least moderate drought. Approximately 21 percent of California, including Colton, was experiencing at least severe drought conditions, and a small part of the state (approximately 3 percent, in far southeastern California), was experiencing extreme drought conditions (US Drought Monitor 2018). **Figure 4** shows the drought conditions in and around Colton as of June 5, 2018.

Risk of Future Events

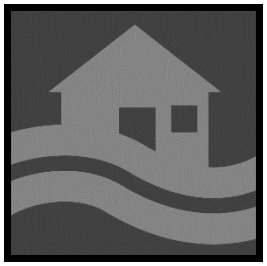
Drought events are almost certain to continue to occur in Colton, given the history of past drought events in the community and statewide. As most of Colton's water supply comes from local groundwater basins, the community is somewhat resilient to drought because groundwater supplies are built up over an extended period of time (a process called recharge), and intermittent droughts do not substantially interrupt this process. However, frequent and prolonged droughts can slow recharge, and excessive groundwater pumping can deplete supplies rather than allowing them to recover naturally. Additionally, the small amount of Colton's water that comes from local supplies or is imported is more vulnerable to droughts, as a period of dry years can substantially reduce the amount of water available from these supplies.

Climate Change Considerations

Climate change is expected to cause more frequent and severe droughts throughout California. Although climate scientists remain uncertain as to how total precipitation levels will shift as a result of climate change, warmer temperatures are projected to cause less precipitation to fall as snow, and snow that does fall is expected to melt faster (CNRA 2018). This is of particular concern for communities that receive water from rivers that originate in high mountains, as the gradual melting of accumulated snow throughout the year helps ensure consistent water supplies during dry months. Higher temperatures are also expected to increase evaporation rates from lakes and reservoirs, causing more water intended for local water supplies to be lost to the atmosphere.

3.2.2 Flood Hazard Profile

Description



Floods are a common hazard in many parts of California, including Colton. Ultimately, a flood occurs when there is too much water on the ground to be held within local water bodies or to be carried away by drainage channels, causing water to accumulate in normally dry areas. They are often caused by heavy rainfall, but can also occur after a long period of moderate rainfall, or if unusually warm weather causes mountain snow to melt faster than normal. Floods that develop very quickly, known as flash floods, are especially dangerous because there may be little warning that one is occurring, but floods can also build over a much longer period.

One subset of flood event is caused by the partial or complete failure of a piece of infrastructure that transports or stores water, such as a dam, pipeline, levee, or storage tank. Of particular concern to Colton is the risk of dam failure. When a dam fails, some or all of the water impounded by the dam is released in what resembles a flash flood. Dam failures can be caused by geologic or seismic events, such as an earthquake or landslide. Heavy precipitation or high stream flows can erode a dam or surrounding rock, weakening it and making it more prone to collapse. Dams may also be poorly located, designed, built, or maintained, increasing the risk of failure. Floods from dam failure are discussed in this section, and floods associated with other types of infrastructure failures are discussed in the "Human-Caused Hazards" section.

Floods are dangerous for several reasons. The floodwaters themselves can be deep enough for people to drown in, and may move fast enough to sweep people away. The moving water can damage buildings with its own force (in extreme cases it may move entire structures) or by carrying large debris that damages objects it collides with. When water gets into buildings it can cause extensive damage to personal property, ruining building materials, furniture, electronics, and numerous other items. Both standing and moving water can be a barrier to movement, isolating people and hindering evacuation, rescue, or relief efforts.

Location and Extent

In Colton, the 100-year flood plain covers the Santa Ana River, Reche Canyon Creek, and Warm Creek channels, along with several areas on either side of these channels. Notably, large areas of the Agua Mansa Industrial Corridor situated just north of the Santa Ana River and parts of the Reche Canyon Mobile Estates mobile home park are within the 100-year flood plain. There are isolated patches of 100-year flood plain at the N Street Underpass and around the intersection of Pennsylvania Avenue and Valley Boulevard. Areas outside of the 100-year flood plain on either side of the Santa Ana River and Reche Canyon Creek are within the 500-year flood plain, including much of the Cooley Ranch neighborhood and parts of downtown. Some parts of the 500-year flood plain are protected by levees, including the area south of the Santa Ana River near Pellisier Road and a residential area near Garcia Elementary School. **Figure 5** shows the flood-prone areas in Colton, although localized flooding may occur outside of these mapped areas.

FIGURE 4: REGIONAL DROUGHT CONDITIONS

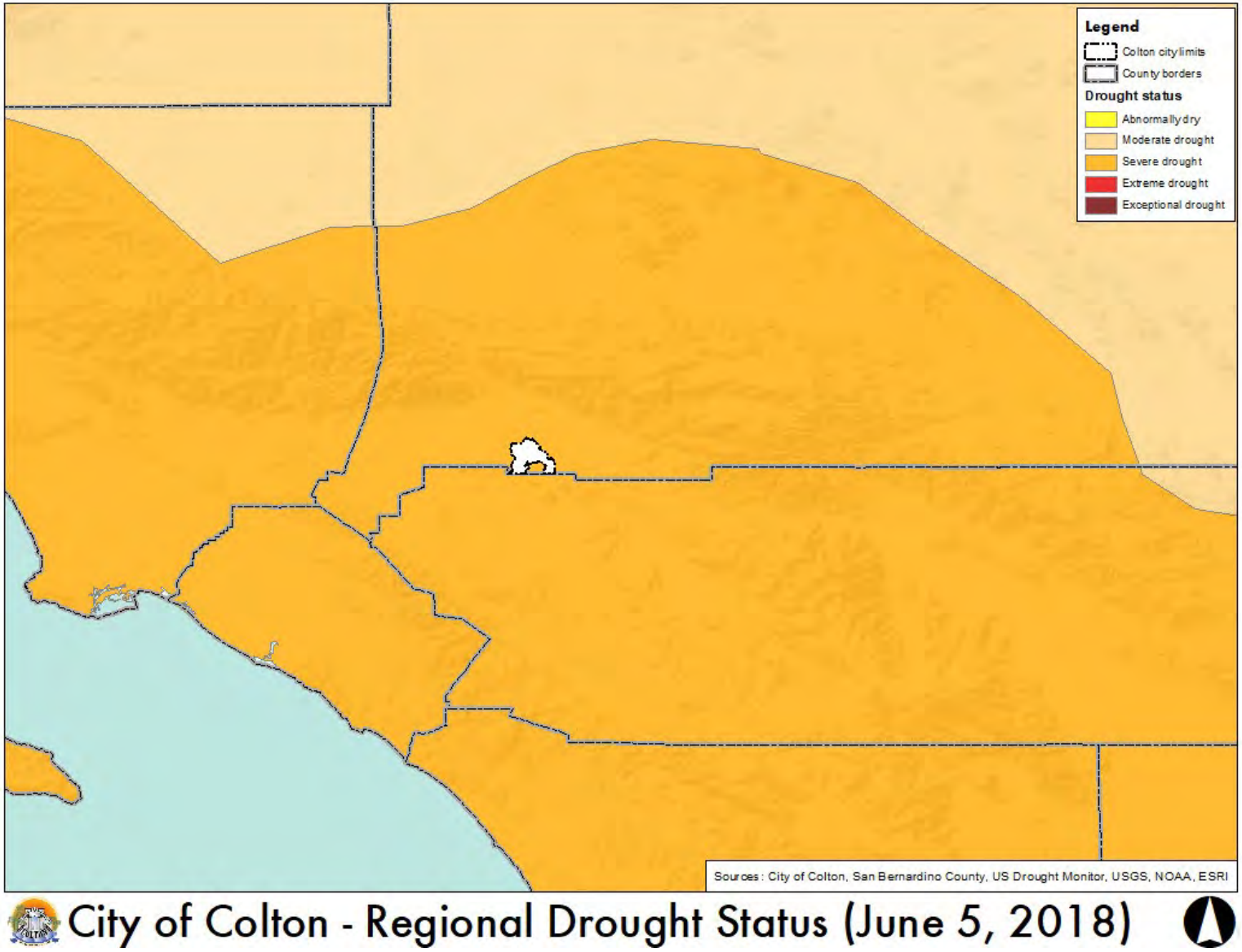


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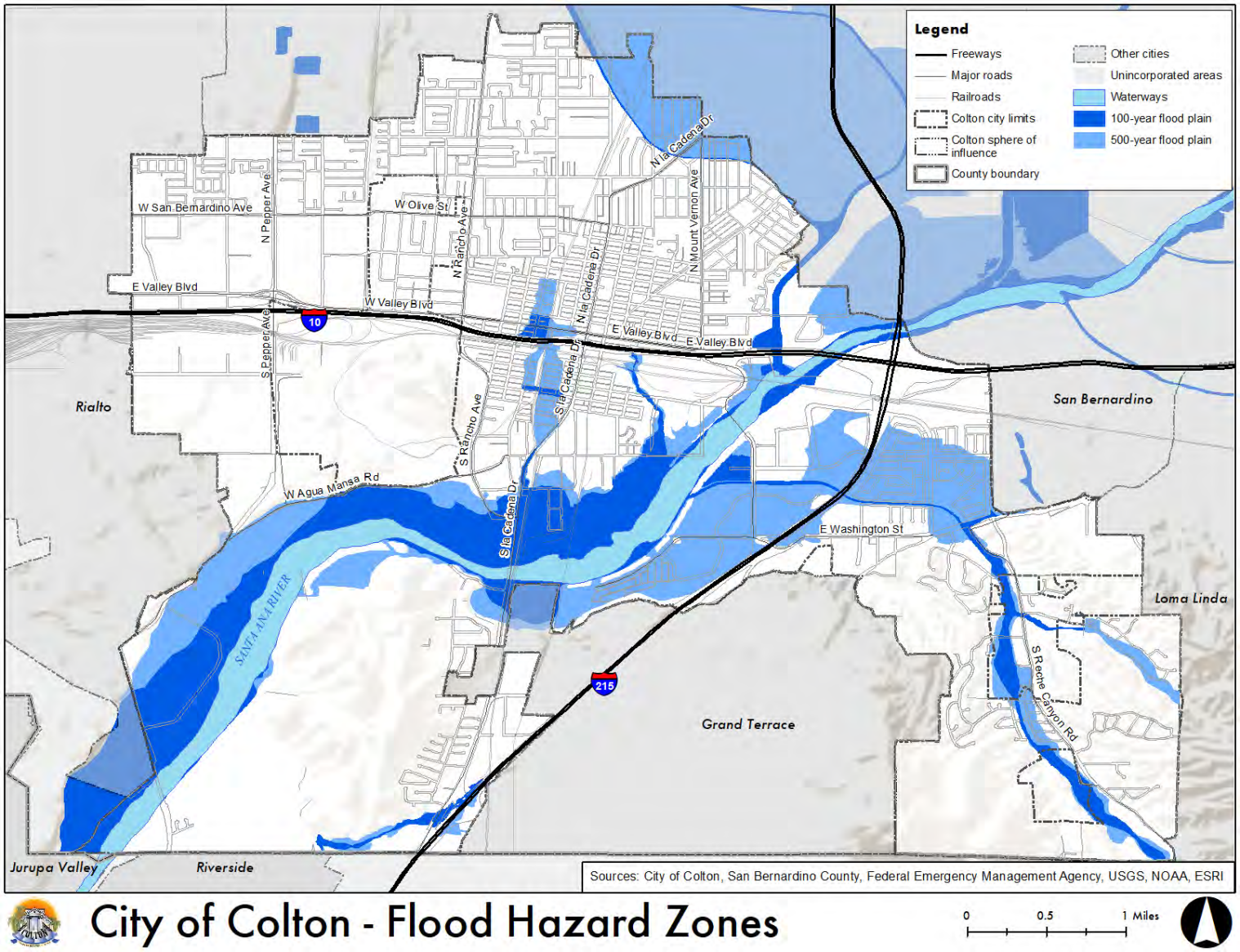
FIGURE 5: FLOOD HAZARD ZONES



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Floods are often described in years, such as a 100-year or 500-year flood. This refers to the average chance of an event occurring in any given year. For example, a 100-year flood is one of such magnitude that it has a 1 percent chance (one in 100) of occurring in any year, and a 500-year flood is one that has a 0.2 percent chance (one in 500) of occurring in any year. The greater the number of years used to describe the flood, the more intense it is. The statewide floods that struck California over the winter of 1861–1862, turning the Central Valley into a giant lake up to 300 miles long, were estimated at a 500- to 1,000-year event (USGS 2010). The number of years used to describe a flood is a long-term average, not a precise length of time between events. There may be multiple 100-year floods within a few years, or even in the same year.

Flood-prone areas are known as flood plains and are designated by the severity of the flood event that causes inundation there. For example, an area that is flooded by a 100-year flood is called the 100-year flood plain. Flood plains are defined by FEMA in the 100-year flood plain (the "special flood hazard zone"), the area within the 500-year flood plain but outside of the 100-year plain (the "moderate flood hazard area"), and the area outside of the 500-year flood plain (the "minimum flood hazard area"). Within these three categories are a number of more specialized categories. **Table 3-5** shows these detailed flood plain categories.

TABLE 3-5: FEMA FLOOD PLAIN CATEGORIES

CATEGORY	DESCRIPTION
A	Within a 100-year flood plain, but the water height of the 100-year flood is not known.
A1-30 or AE	Within a 100-year flood plain and the water height of the 100-year flood is known.
AO	Within a 100-year flood plain, and the water height of the 100-year flood is between one and three feet but not specifically known.
A99	Within a 100-year flood plain, protected by flood protection infrastructure such as dams or levees.
AH	Within a 100-year flood plain, and the water height of the 100-year flood is between one and three feet and is specifically known.
AR	Within a 100-year flood plain, protected by flood protection infrastructure that is not currently effective, but is being rebuilt to provide protection.
V	Within a 100-year flood plain for coastal floods, but the water height of the flood is not known.
V1-30 or VE	Within a 100-year flood plain for coastal floods and the water height of the flood is known.
VO	Within a 100-year flood plain for shallow coastal floods with a height between one and three feet.
B	Within a 500-year flood plain, or within a 100-year flood plain with a water height less than one foot (found on older maps).
C	Outside of the 500-year flood plain (found on older maps).

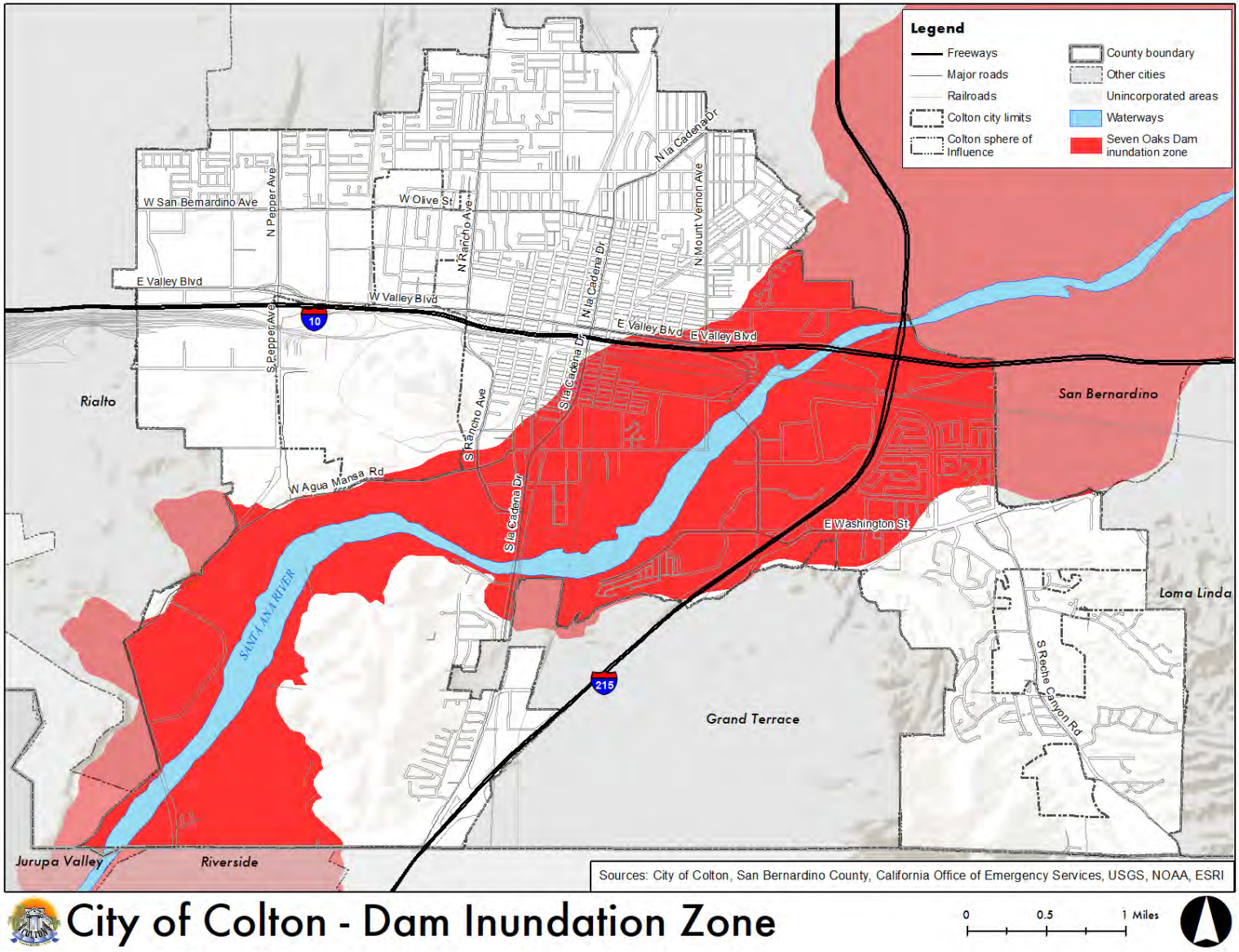
CATEGORY	DESCRIPTION
X	Outside of the 500-year flood plain (found on newer maps).
X500	Within a 500-year flood plain, or within a 100-year flood plain with a water height less than one foot (found on newer maps).
D	Within an area with a potential and undetermined flood hazard.
M	Within an area at risk of mudslides from a 100-year flood event.
N	Within an area at risk of mudslides from a 500-year flood event.
P	Within an area at risk of mudslides from a potential and undetermined flood event.
E	Within an area at risk of erosion from a 100-year flood event.

Source: 24 CFR, Section 64.3

There are no dams in Colton, although the city does face an inundation risk from the failure of the Seven Oaks Dam, located approximately 12 miles east of Colton on the Santa Ana River. It was constructed in 2000 by the US Army Corp of Engineers, and is operated jointly by the San Bernardino County Flood Control District and the Orange County Flood Control District. It stands 550 feet tall and is used mostly for flood control purposes. The dam allows the Santa Ana River to flow normally most of the time, only impounding water as necessary to protect Colton and other downstream communities from floods. It can hold back 145,600 acre-feet of water, or approximately 47 billion gallons (San Bernardino County 2015a).

The hazard zone for failure of the Seven Oaks Dam covers the Santa Ana River floodway and areas on either side. It includes the Cooley Ranch neighborhood as well as large sections of land on the north bank of the Santa Ana River. The actual area affected by any failure of Seven Oaks Dam would depend on the nature of the failure and the amount of water impounded by the dam at the time. **Figure 6** shows the areas of Colton within the maximum extent of the dam failure zone.

FIGURE 6: DAM INUNDATION ZONE



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Past Events

Colton's location on the Santa Ana River has historically placed it at greater risk from flooding. There are records of flood events dating as far back as 1769. Notable early floods include flooding over the winter of 1861–1862, which caused widespread devastation throughout California. Records from the time reported up to 50 feet of water in the Santa Ana River channel near Agua Mansa (San Bernardino County 2015b). The construction of the Seven Oaks Dam upriver in 2000 has helped to control flood events, if not prevent them entirely. There have been several flood events in Colton in the past since the community was first developed.

- During the winter of 1883–1884, record rainfall in the San Bernardino Valley caused extensive damage to the new railroad tracks in and around Colton and altered the mouth of the Santa Ana River by three miles.
- A storm in February of 1891 caused over 4.5 inches of rainfall in the area in a single day, resulting in widespread damage throughout the San Bernardino Valley.
- Heavy rainfall in 1894 caused flooding around the Santa Ana River in Colton, and destroyed railways in the area.
- Storms in January of 1909 flooded the Santa Ana River and other regional water bodies. Railroads in Colton reported damage.
- A heavy storm around New Years in 1910 created over 4.2 inches of rainfall around San Bernardino, leaving the Santa Ana River at its highest peak in 20 years. Colton was left isolated, and a train traveling through the community from Los Angeles fell into the Santa Ana River.
- Storms in early 1914 caused flooding of railroads, roadways, and orchards throughout the San Bernardino Valley area, including in Colton.
- Multiple storms in January of 1916 left cities isolated and destroyed numerous buildings, bridges, and roadways. An estimated 50 people died throughout southern California.
- Heavy rainfall over the winter of 1921–1922 caused flooding along the Santa Ana River, destroying railways, bridges, and roads.
- A major storm in early 1938 caused flooding throughout southern California, including along the Santa Ana River. In San Bernardino County, 14 people were killed, and the damage total is estimated at $12 million (approximately $210 million in 2018 values). Statewide, 210 people were reported dead or missing, and over 1,500 homes were destroyed. Flooding from this storm helped build support for flood control infrastructure in the region.
- In January of 1943, 150 families in San Bernardino and Colton had to evacuate due to an intense storm. Several roads and bridges in the area were damaged.
- Storms in December of 1965 caused flooding in the San Bernardino Mountains and the communities below them. In Colton, two boys fell into the Santa Ana River and had to be rescued.
- Floods in early 1969 resulted in substantial damage throughout San Bernardino County, including in and around Colton. Statewide, damages came to $300 million (over $2 billion in 2018).
- A strong storm in March of 1970 killed one person and caused extensive flooding all over the northern Inland Empire region. A series of storms later in the year caused more widespread flooding and washed out a number of roads.
- A series of storms in January of 1993 caused the Santa Ana River to overtop its banks, leading to widespread flooding in nearby communities.
- Storms in December of 2010 caused flooding throughout Colton, particularly in the Reche Creek neighborhood. Roads and bridges were also affected (Colton 2011; San Bernardino County 2015b; NWS 2017).

Colton has never experienced a dam failure event, although there have been three substantial dam failure events in the state's history. In 1916, heavy rainfall caused multiple dam failures in San Diego County, killing over 20 people (McGlashan and Ebert 1918). In 1928, the St. Francis Dam on the Los Angeles Aqueduct experienced a sudden and catastrophic failure, causing a flood that killed at least 430 people, if not more (ASDSO 2018a). In 1963, the Baldwin Hills Dam in a west Los Angeles neighborhood collapsed, killing five people and destroying 277 homes (ASDSO 2018b). More recently, in February of 2017, intense rainfall caused damage to the spillways at Oroville Dam in northern California. Although the dam itself was not threatened, collapse of the eroding spillways could have released billions of gallons of water. Approximately 188,000 people were evacuated, although ultimately there was no loss of life or damage beyond the dam itself and associated infrastructure (France et al. 2018).

Risk of Future Events

The community has an extensive history of flood events. While flood control infrastructure and drainage systems have helped to reduce the intensity of floods, they are not always able to fully contain floodwaters. Floods do not occur at regular times in most of California, including Colton. Flood events may occur in multiple successive years, or there may be decades between one flood and the next. However, all indications are that, eventually, Colton will experience another major flood event.

It is unknown how severe future flood events could be. The 1938 flood, the most severe since Colton was founded, is considered a 50-year storm and repeat of such an event is plausible (Romo 1988). The most severe flood event in California's recorded history, the 1861–1862 winter flood, is considered a 500- to 1,000-year event and is likely the most extreme of reasonably possible future events. If a repeat of this flood happens, scientists estimate that it would cause approximately $1.7 billion of damages in San Bernardino County and take two weeks to restore power and several days to restore communications (USGS 2011).

Dams are critical infrastructure pieces with potentially catastrophic consequences if they fail, and so dams are heavily engineered to minimize the risk, especially new dams such as Seven Oaks. Additionally, as Seven Oaks Dam only impounds water during flood events, dam failure would likely only create a substantial hazard during or shortly after a flood. There is some risk of Seven Oaks Dam experiencing a failure, but the risk is likely very low.

Climate Change Considerations

Climate change is expected to affect precipitation patterns in California, which are likely to influence future flood events. A recent study found that the number of very intense precipitation days in California is projected to more than double by the end of the century, increasing 117 percent (Polade et al. 2017) and making it likely that flood events will become more frequent. More flood events could somewhat increase the risk of dam failure, as it would require Seven Oaks Dam to be used more often and potentially to hold back more water.

The potential increase in intense precipitation days may be due at least in part to expected changes to phenomena called atmospheric rivers (ARs), which are bands of very moist air that can create intense storms. Although only approximately a dozen of these storms occur in an average year, 40 to 50 percent of California's precipitation is caused by AR events (Dyches 2017). These storms often cause flooding due to their intensity. In Southern California, the number of AR storms is expected to remain constant, although the storms are projected to become 10 to 20 percent more intense on average, increasing the odds that an individual AR storm will cause flooding (Oskin 2014).

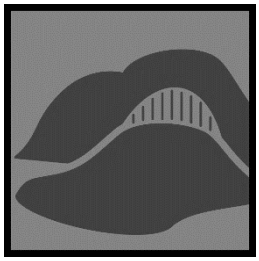
Another potentially contributing factor is the El Niño Southern Oscillation (ENSO, often called El Niño), a natural cycle in the water temperatures and wind in the eastern tropical Pacific Ocean. Conditions change between three states (warm, neutral,

and cold) as part of the regular ENSO cycle, which affects precipitation in California. The warm phase (also called El Niño) usually increases precipitation in California, and the cool phase (called La Niña) generally decreases it. Scientists have not yet identified if climate change may affect the ENSO cycle (Chen et al. 2016; Keupp et al. 2016), but there may be significant ramifications for flood events in Colton if there is a connection.

3.2.3 Geologic Hazards

For the purposes of this Plan, the term "geologic hazards" refers to landslides and subsidence. Earthquakes and other hazardous conditions related to seismic activity are discussed under the "seismic hazards" section.

Description



Landslide

A landslide occurs when a hillside or slope becomes unstable, and the material of the slope, such as soil and rocks, slides down the side. A landslide may be caused by the shaking of an earthquake, which can decrease the slope's stability or fracture the materials that making it up, causing it to become unstable. Alternatively, moisture-induced landslides occur when the ground soaks up enough water to lose its stability. This usually happens because of a period of long or intense rainfall, but leaking water pipes or even overwatering of landscapes may cause landslides. In these cases, the sliding material may become so waterlogged that it turns to mud, creating a type of landslide known as a mudslide or mudflow. Landslides are usually sudden, although some hillsides may slide very slowly over a long period of time.

Landslides typically occur on slopes with loose and fractured materials, and they are more likely to happen on steep slopes than those with shallow rises. Excavation of a slope may trigger a landslide or make one more likely to occur, since excavation can make a hillside weaker. Hillsides that have recently been burned by a wildfire are also more likely to experience landslides, due to the loss of plant cover—plants help hold a hillside together and allow water to more harmlessly infiltrate the soil—and physical changes to the soil from the intense heat that make it less able to absorb water (Gaud n.d.).

The moving material of a landslide can damage or destroy buildings or structures in its path. People caught in the landslide may be crushed or buried, causing injury or death. A landslide may also cover a roadway or rail line, blocking transportation service until the material can be cleaned up. Due to their fluid nature, mudslides may travel far beyond hilly areas and affect flat terrain.

Subsidence

Subsidence is when the surface of the ground becomes lower and the land appears to sink. It happens when soils compact or collapse into empty spaces. Subsidence is often caused by the extraction of groundwater or pumping fuels, as these materials help support the weight of the ground above them. When they are pumped out, the soil may be unable to hold itself up and collapses into the empty space, causing the surface to drop with it. Mining activities, natural cave collapses, and seismic activity may also cause soils to subside. Subsidence can occur quickly, although it is more commonly a gradual event that causes damage over a long period of time. Sinkholes are a small-scale, rapid form of subsidence.

Subsidence is hazardous to any structure built on or in the subsiding soils. Buildings built on the soil sink with it, sometimes causing the foundations, walls, or floors of the building to crack. This can damage the building or objects inside of it, and may make the building structurally unsound and prone to collapse. Roads, railways, utility lines, and other infrastructure on or in the

soil can be broken by subsidence, creating gaps in service networks and potentially causing released of wastewater, natural gas, or other substances that can create further hazards.

Location and Extent

Landslide

In Colton, the areas at the greatest risk of landslides are the hills of the Reche Canyon neighborhood, much of the La Loma Hills, and the slopes of Slover Mountain. There are areas of more limited landslide risk along the southern side of the La Loma Hills, the cliffs along West Agua Mansa Road and along the northern border of Grand Terrace, and the slopes above the Santa Ana River near Scenic Drive. **Figure 7** shows the areas in Colton at the greatest risk of landslides

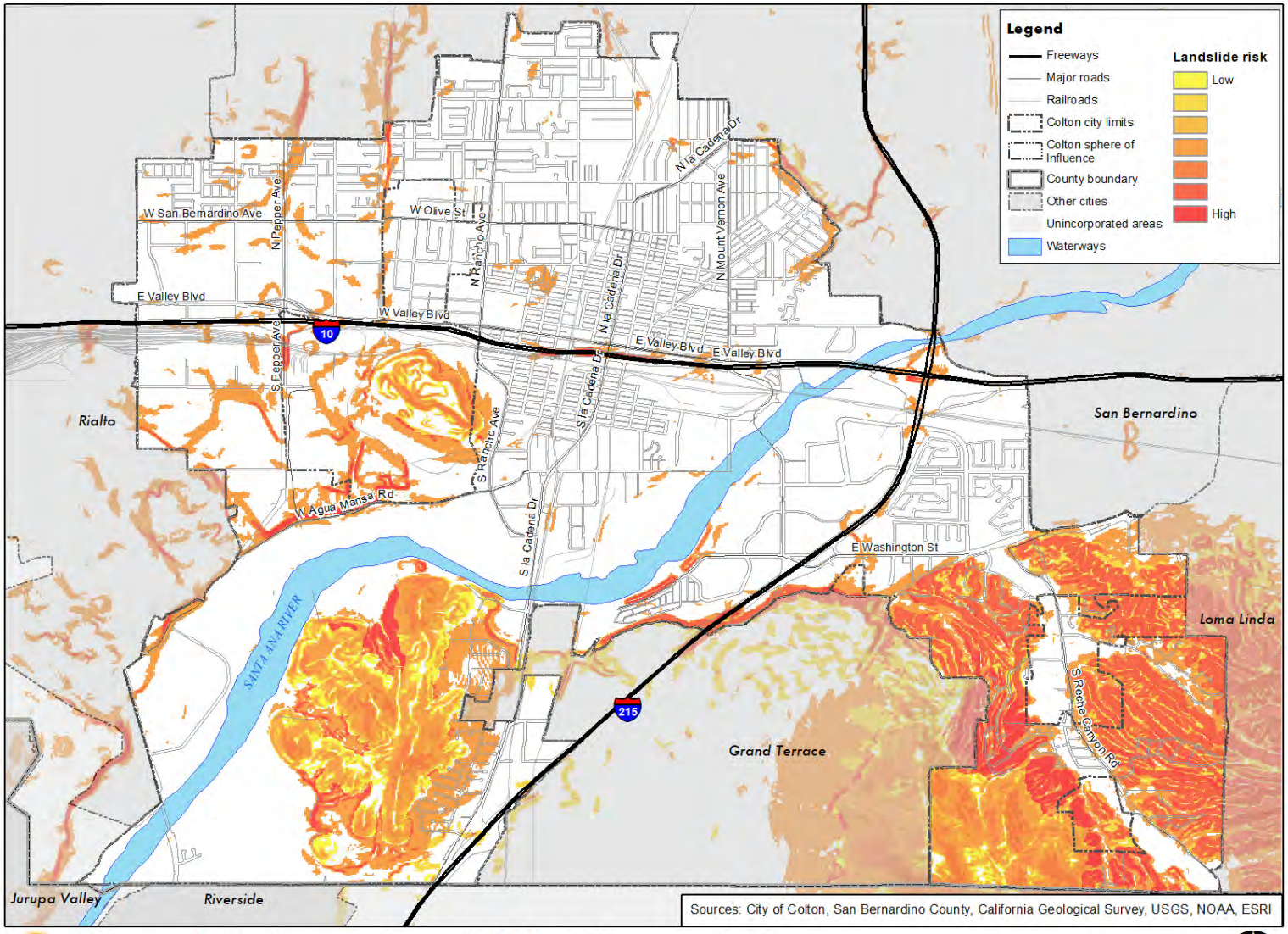
There is no standard scale for a landslide, and they are usually measured by how much material slid during the event. The California Geological Survey has followed a scale of landslide susceptibility that is based on slope steepness and the strength of the underlying rock, with 0 being no susceptibility and 10 being the highest susceptibility. For the purposes of this Plan, an area with a susceptibility of 7 or above is considered a high risk area.

Subsidence

All of Colton sits atop the Upper Santa Ana Valley groundwater basin, and specifically the Riverside-Arlington and Rialto-Colton subbasins. Since both subbasins are actively pumped for groundwater, subsidence remains a risk throughout the entire community.

Subsidence is generally measured by the distance that the land has sunk (e.g., in feet or inches) or in the rate of subsidence (e.g., inches per year).

FIGURE 7: LANDSLIDE HAZARD ZONES



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Past Events

Landslide

There is no record of substantial landslides in Colton, although major events have occurred in the region. The most significant landslide took place on December 25, 2003, after a strong storm dropped over two inches of rain on recently burned slopes in the San Bernardino Mountains. A series of mudslides covered parts of San Bernardino and Highland and made it as far as the runways of the closed Norton Air Force Base (now San Bernardino International Airport), depositing 18 feet of mud in the Santa Ana River basin. The mudslides killed 14 people, injured another 10, and caused over $5 million in damage. There have also been multiple landslides in the Waterman Canyon area, approximately seven miles north of downtown Colton (NOAA 2018b).

Subsidence

Subsidence has occurred in Colton, although at relatively low rates. Historical reports identify approximately 2.5 inches of subsidence in northern Colton between 1933 and 1960, and slightly more than 1.0 inch of subsidence near downtown Colton over the same time period (Fife et al. 1976). More significant levels of subsidence have been reported elsewhere in the Upper Santa Ana Valley groundwater basin, particularly northeast of Colton in San Bernardino. However, more recently, subsidence in Colton and the wider area has largely ceased (SBVWCD 2007).

Risk of Future Events

Landslide

Although substantive landslides have not occurred in Colton in recorded history, parts of the community do face an elevated risk from these events. It is likely that landslides will occur in Colton at some time in the future, although past records indicate that these events will be rare. Moisture-induced landslides will likely be somewhat more common than seismically induced ones.

Subsidence

Subsidence remains a possible hazard in Colton, although effective groundwater management has helped to reduce the risk level, and it is expected that continued effective management will help decrease the risk, although not eliminate it. The Rialto-Colton subbasin, which sits under north and east Colton, is considered at medium to high risk of future subsidence, although it is not currently subsiding. The Riverside-Arlington subbasin, which sits under south and west Colton, is not currently ranked due to a lack of available data (DWR 2014). However, given that it is farther from the areas that historically experienced high subsidence levels, combined with a lack of subsidence throughout the entire region in recent years, it is reasonable to assume that the risk level for this subbasin is the same or less as the Rialto-Colton subbasin.

Climate Change Considerations

Landslide

There is no evidence that climate change affects seismic activity to any appreciable degree, and so climate change is not expected to have any effect on seismically induced landslides. Climate change may increase the frequency and/or intensity of moisture-induced landslides, given a possible increase in the intensity of major storm systems (as discussed in the “Floods” section). Such an increase would likely cause higher precipitation levels, which could lead to slopes absorbing more moisture and becoming more unstable. As a result, landslides may become larger or could occur more often. Climate change may also

increase the amount of land burned by wildfires (as discussed in the "Wildfire" section), which could also increase the likelihood of substantial landslides in Colton.

Subsidence

Subsidence in and around Colton has historically been linked to excessive groundwater pumping causing a decline in groundwater levels and resulting in the above soil compacting into the now-empty space. Climate change is expected to cause an increase in the frequency and severity of drought conditions, which could potentially affect groundwater levels (thus increasing the risk of further soil compaction). However, groundwater is more resilient to the effect of climate change than other water resources, as discussed in the "Drought" section.

3.2.4 Human-Caused Hazards

This Plan defines human-caused hazards as hazards that are a direct consequence of human activity or structures. They may be caused by natural hazard events or by human actions. In this Plan, human-caused hazards refer to infrastructure failure, hazardous material release, or terrorism. Potential consequences of human-caused hazards, such as wildfires or floods, are discussed in separate sections.

Description

Infrastructure failure

Infrastructure failure is when an infrastructure component or network fails, creating a risk of harm to people, property, or other community assets. They often occur as a result of a natural hazard, such as an earthquake or flood. Infrastructure failures may also be caused by human error, deliberate sabotage, or because the infrastructure was not properly maintained and failed due to overuse or unrepaired damage.

One type of infrastructure failure, "active" failure, occurs when the failure releases a substance that is harmful or potentially harmful, or the failure directly causes damage or injury. For example, a break in a pipeline that releases flammable natural gas or the collapse of a bridge would be considered an active failure. Alternatively, infrastructure failure may be "passive," which occurs when the infrastructure fails in such a way that it cannot function as intended. The failure itself may not be dangerous, but the loss of function may create a hazardous situation. For example, a clogged storm drain is not itself dangerous, but it could cause flooding if this infrastructure failure happens during a heavy rainfall. Some infrastructure failures may qualify as both. For example, a leak in a water tank can be directly dangerous (it releases a large amount of water that could create a flood) and may cause an indirect risk by decreasing water supplies.

Hazardous materials

Hazardous materials are a wide-ranging category of substances that can cause death or serious harm to people, or may significantly damage human or environmental health. It includes materials that are toxic, flammable, explosive, corrosive, infectious, or radioactive. Some hazardous materials are only dangerous under specific circumstances (such as flammable materials that need to be exposed to a heat source to ignite), while others may be dangerous at all times. Hazardous materials can occur naturally or they may be manufactured.

Hazardous materials pose a risk when they are released into the environment or an uncontrolled setting. This typically happens when a storage container or piece of equipment containing the material breaks, releasing the substances inside. It can happen

through industrial accidents, transportation crashes, or other disasters (e.g., an earthquake that breaks a storage container). On occasion, hazardous materials may be released as a deliberate act.

Hazardous materials are widely used and in most cases are safe if used properly with the correct handling protocols. Some hazardous materials, such as cleaning supplies, may be found in almost all homes and businesses. Many businesses use hazardous materials regularly, and some manufacture hazardous materials for sale. Hazardous material that does not serve any useful role may be considered hazardous waste. This Plan is concerned with unusually harmful substances or large quantities of hazardous materials. It does not address the potential of small-scale hazardous material releases of common supplies, such as cleaning supplies under a sink or a spare can of gasoline in a shed.

Terrorism

Terrorism is the use of force or the threat of force to intimidate people or government agencies with the intent to achieve some specific social or political outcome. It may be used to achieve any number of objectives, such as changes to government policy or to influence an election. Terrorism may sometimes overlap with hate crimes or acts of war, and the boundaries between these acts and terrorism is not always clear.

Acts of terror may take many different forms. Commonly, terrorists will attempt to kill or injure people, damage or destroy property or infrastructure, disrupt government operations, interrupt key services, create mass uncertainty or fear, or some combination of these or other goals. Conventional firearms or explosives are the most common weapons for terrorists, although other methods may be used. Increasingly, terrorists may use computer viruses or other methods to steal information from databases or to disrupt or destroy computer networks and any infrastructure that may rely on these computers, a tactic known as cyberterrorism. The use of weapons of mass destruction (biological agents, chemical agents, radioactive materials, or high-yield explosives) is not unprecedented, but is extremely rare.

Location and Extent

Infrastructure failure

Infrastructure failure may occur anywhere in Colton, given the extent of infrastructure networks in modern society; however, some infrastructure networks only exist in some parts of the community, and therefore the risk of failure from these networks is limited to certain locations. Any infrastructure component may fail, although infrastructure that is well maintained and protected from damage is less likely to experience a failure. There is no scale for measuring infrastructure failure.

Hazardous materials

As discussed earlier, hazardous materials have become very commonly used, and there are many different ways to identify hazardous material sites. The United States Environmental Protection Agency (EPA) identifies 73 facilities that actively produce hazardous wastes in Colton. These facilities include mechanical dealerships and repair shops, gasoline and diesel fuel stations, industrial facilities, services such as pharmacies and dry cleaners, and institutional centers, among others (EPA 2018).

The California Department of Toxic Substances Control (DTSC) maintains records of hazardous waste facilities as well as sites that are currently known or suspected of having hazardous material contamination that fall under the state's jurisdiction, or have in the past,. There are 16 sites that the DTSC has investigated and found contamination at, most of which are also identified by the EPA. These sites are mostly industrial facilities, including railroad sites, iron and metalworking operations, and utility facilities (DTSC 2018). Additionally, the California State Water Resources Control Board keeps track of facilities that affect local

water quality, have the potential to do so, or have done so in the past. There are 36 such facilities in Colton, although only one is currently undergoing cleanup. Two other sites have not completed cleanup activities, but currently there are no active cleanups. A fourth site is being verified to ensure that cleanup activities have been successful, and the remaining 32 have successfully completed cleanup activities (SWRCB 2018).

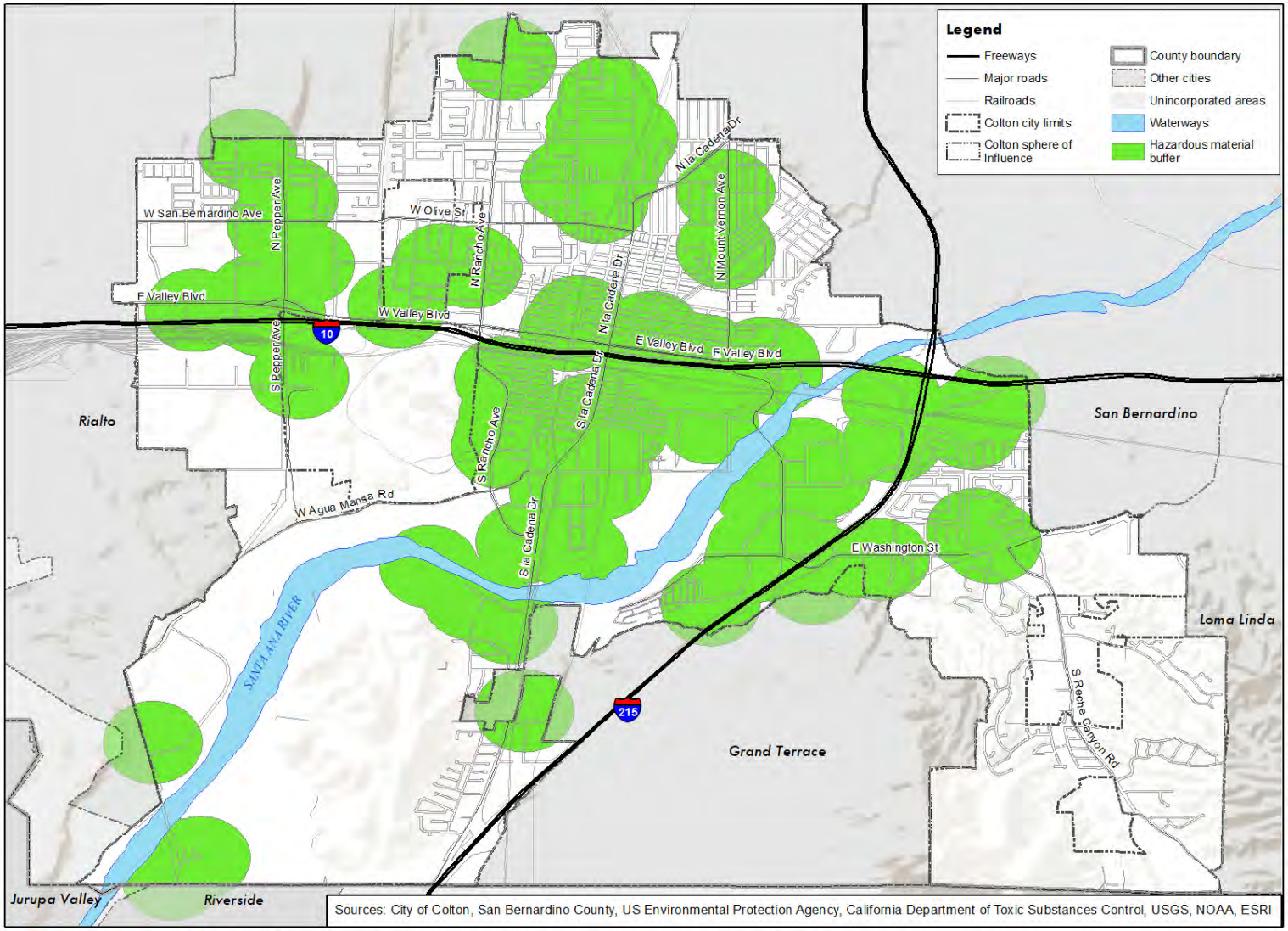
Hazardous material releases resulting from transportation crashes may happen anywhere. Crashes on Interstate 10 or Interstate 215 may cause the release of hazardous materials, but such crashes may also happen on roads between freeways and hazardous material sites, as hazardous materials are likely transported along these routes. The rail lines through Colton are also a potential source of crashes that could cause hazardous material releases. The main east-west Union Pacific line through Colton is identified as a high hazard area rail line. These areas make up 2 percent of the track length in California, but have experienced 18 percent of derailments. Therefore, rail lines through Colton have an elevated risk of crashes that could potentially release hazardous materials (IRSWG 2014).

It is common to consider areas within a quarter mile of a hazardous material facility as being at risk of hazardous material releases. However, depending on the type and quantity of material released and the nature of the event, dangerous concentrations of the material may be limited to a very close location or may spread to a much wider area. **Figure 8** shows the areas within a quarter mile of a hazardous material facility (not including areas vulnerable to a hazardous material release from roads or railways).

Terrorism

Terrorism may take place anywhere. Prominent locations, such as corporate or government headquarters, military bases, shopping malls, institutions, and key industrial and infrastructure sites are common targets. However, terrorists may also target festivals or large gatherings of people, or lower-profile sites such as homes or schools. While terrorist acts are often measured by the number of deaths or injuries, or by the amount of damage, there is no standard scale for terrorism.

FIGURE 8: HAZARDOUS MATERIAL ZONES


Legend
Freeways
Major roads
Railroads
Colton city limits
Colton sphere of Influence
County boundary
Other cities
Unincorporated areas
Waterways
Hazardous material buffer
W San Bernardino Ave
W Olive St
E Valley Blvd
W Valley Blvd
N Pepper Ave
S Pepper Ave
N Rancho Ave
S Rancho Ave
N la Cadena Dr
S la Cadena Dr
N Mount Vernon Ave
E Valley Blvd
E Valley Blvd
10
Rialto
San Bernardino
W Agua Mansa Rd
E Washington St
Loma Linda
S Reche Canyon Rd
SANTA ANA RIVER
215
Grand Terrace
Jurupa Valley
Riverside
Sources: City of Colton, San Bernardino County, US Environmental Protection Agency, California Department of Toxic Substances Control, USGS, NOAA, ESRI
City of Colton - Hazardous Material Zones
0
0.5
1 Miles

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Past Events

Infrastructure failure

There is no record of major infrastructure failure in Colton. Small-scale infrastructure failure events have happened, such as downed power lines from heavy winds, breaks in water and sewage lines from earthquakes or landslides, and ponding as a result of blocked or overwhelmed storm drains.

Hazardous materials

Due to the large number of industrial facilities in and around Colton, along with the railways and major freeways that run through the community, there have been a number of hazardous material releases in Colton. Since 1993, there have been 731 hazardous material releases or potential releases in the community, mostly associated with railroad operations. Petroleum fuels, such as diesel and gasoline, are among the most commonly released substances, although releases of acids, ammonia, and other industrial compounds have also occurred (Cal OES 2018). Although some releases or potential releases have prompted evacuations, there have been no major hazardous material releases in Colton's history.

Terrorism

The Global Terrorism Database, which tracks acts of terror since 1970, does not identify any terrorist acts in Colton. It does list 10 acts of terrorism in San Bernardino County, most notably on December 2, 2015, when two people pledging allegiance to the Daesh extremist group (also called ISIS, ISIL, or the Islamic State) attacked a holiday party in San Bernardino, killing 14 people and wounding 24 with firearms and pipe bombs before the terrorists fled and were killed by police (START 2016).

There has been one other terrorist attack in San Bernardino County that caused injury: on March 16, 1970, white extremists firebombed the house of Norris Gregory, San Bernardino's first African-American City Council member. Gregory suffered minor injuries putting out the fire, which caused an estimated $4,000 in damage. Other events include a 1970 firebombing of Redlands University that caused $40,000 in damage, a 2016 arson attack to a church in Redlands that caused $2,000 in damage, and a series of bombings and arson events in Trona in the spring of 1970 that may have been related to an ongoing strike at the American Potash Plant in the community (START 2016).

Risk of Future Events

Infrastructure failure

Infrastructure failures are expected to continue to occur in and around Colton. Clogged storm drains, broken water and wastewater pipes, and fallen power lines will likely continue to be caused by intense storm systems, landslides, and other factors. More significant infrastructure failure events are a possibility, particularly if such infrastructure is not well maintained, but the risk of these major events is unknown.

Hazardous materials

As long as hazardous materials are used in Colton and transported through the community, hazardous material releases will continue to occur. Based on past experiences, there will likely be several small release events each year. Although major events have not occurred, the possibility for such releases remains.

Terrorism

The risk of terrorism is generally a function of national or global conditions, such as social, political, and economic factors. The specific risk to an individual community cannot be accurately forecast. Colton is not a highly prominent city in the region, and so the risk is likely lower than for a number of other southern California communities. At the same time, the significant industrial presence in Colton may make it more likely to be a target, and as mentioned before, terrorism may happen anywhere. Terrorism in Colton is likely to be a rare event, but the possibility is likely higher than some other nearby communities.

Climate Change Considerations

Infrastructure failure

Some types of infrastructure failure may be affected by climate change. As discussed elsewhere in this chapter, climate change may cause floods, landslides, wildfires, and severe weather events to occur more frequently and/or to be more severe. These natural hazards may result in infrastructure failure, and so climate change may indirectly cause infrastructure failure events to occur more often and/or with greater severity.

Hazardous materials

As noted elsewhere, climate change may increase the frequency and/or severity of some types of natural hazards, such as floods and landslides, which may indirectly cause hazardous material releases. As a result, an increase to the frequency and/or severity of these climate change-related events may affect the frequency and/or intensity of hazardous material releases. For example, extreme heat events can buckle railways, which can lead to train derailments and potentially cause hazardous material releases. Due to an increase in the number of extreme heat events in Colton, it is possible that train derailments (and by extension, hazardous material releases) may increase as well.

Terrorism

Terrorism is caused by people, and so is not directly linked to climate factors the way that some natural hazards are. There are concerns that climate change will globally increase the rate of terrorism by causing food and resource shortages that result in economic and social upheaval (DoD 2015). However, it is unlikely (although not impossible) that these potential changes will have a meaningful impact on terrorism in Colton, as they are most likely to affect national and global trends.

3.2.5 SEISMIC Hazard Profile

Seismic hazards are those associated with earthquakes, and include fault rupture, liquefaction, and seismic shaking. Landslides, which are a potential consequence of earthquakes, are discussed separately under the “geologic hazards” section.

Description

Fault rupture

Earthquakes are caused by plate tectonics, which is the gradual movement of large sections of Earth’s surface, called plates. These plates move past each other along boundaries called faults, at speeds no faster than five inches a year and usually slower. Plates frequently “stick” together as a result of friction, causing stress as the pent-up force moving the plates accumulates. Eventually the stress becomes strong enough to overcome the friction holding the plates together, causing a sudden movement of the ground that is called a fault rupture. The rupture occurs at a specific location (called a hypocenter), but the released stress

causes a large section of the land bordering the fault to move. The sudden movement of the plate generates shaking, or an earthquake.

The constant deformation of plates and accumulation of stress causes fault lines to appear far from the main boundary of the plate. For example, California sits on the boundary between the North American and Pacific plates, and the boundary between them is the San Andreas Fault. However, the movement of these plates over millions of years has caused smaller fault lines to appear at distances more than 200 miles away from the San Andreas Fault. The various sections of these plates on either half of the fault lines do not all move at the same speed, creating the potential for fault rupture and other seismic hazards across most of California.

The danger of a fault rupture (independent of the ground shaking or other related hazard conditions) comes from the physical displacement of land on either side of the fault. This physical shearing of the land can cause severe damage to any building or structure that crosses the fault boundary. Buildings may be torn apart, or roads or utility lines may snap. Depending on the type of fault, the shearing may occur vertically (known as a dip-slip fault), horizontally (a strike-slip fault), or both (an oblique-slip fault). All three types may be found in California. Although all earthquakes involve a fault rupture, there is not always a visible displacement of land at the surface. Some faults rarely or never cause the physical shearing that creates a hazardous situation, although they may still capable of causing damaging earthquakes. These faults are known as “blind” faults.

Liquefaction

Liquefaction occurs when a loosely packed material (such as sand or silt) that is saturated with water is suddenly shaken, as in an earthquake. This causes the material to temporarily act less like solid ground and more like a liquid. The material loses much of its stability when this occurs, and may no longer be able to support any buildings or structures built either on or in it. Buildings, roadways, rail lines, or other structures built on the soil may be damaged or could collapse completely when liquefaction occurs. Liquefaction may also damage any underground structures, such as water or sewer lines.

Seismic shaking

Seismic shaking is the actual shaking from an earthquake, and is often the most damaging effect. The shaking is typically strongest at the epicenter, which is the point on the surface directly above the hypocenter, and remains strong along the part of the fault that slipped, decreasing with distance from the fault. However, local geology can also affect how severe the seismic shaking is. For example, an area located above firm bedrock may experience less shaking, while an area built on loose rocks and soil may experience more shaking, even if they are the same distance from the epicenter. The shaking can destroy buildings, roads, railways, power lines, utility pipes, and any other structure that is not able to resist the force of the earthquake. This damage may cause secondary hazards, such as fires from broken gas mains or downed power lines, floods and sinkholes from broken water pipes, or the release of hazardous materials, among others.

Location and Extent

Fault rupture

There is one fault in Colton that has the known potential to cause fault rupture: the San Jacinto Fault. This fault line passes along Colton’s eastern border with the cities of Loma Linda and San Bernardino. It extends to the northwest to Lytle Creek and to the southeast as far as the outskirts of El Centro in the Imperial Valley. The total length of the fault is approximately 130 miles (USGS 2015). A second fault, the Rialto-Colton Fault, also runs diagonally through the city from northwest to southeast, very roughly cutting Colton in half. Relatively little is known about the Rialto-Colton fault, although if it is active (and there is some evidence

suggesting that it is), there is a possibility that it could cause surface rupture (Gandhok et al. 2003). **Figure 9** shows the fault rupture hazard zones in Colton.

There is no particular scale for measuring the magnitude or severity of fault rupture. Typically, a fault rupture is measured by the length of the section of fault that moved, or how far land on one side of the fault moved relative to the other (known as the slip). The longer the length of the fault rupture, the more area is affected by the physical shearing. The magnitude of the damage is often a function of the size of the slip.

Liquefaction

The liquefaction risk in Colton is highest near the Santa Ana River between South La Cadena Drive and South Mt. Vernon Avenue. An area of medium liquefaction risk surrounds this zone, and includes the Cooley Ranch neighborhood between the Santa Ana River and Interstate 215, and in the upper parts of Reche Canyon south of Shane Drive. There is a lower (but still elevated) risk of liquefaction extending farther away from the Santa Ana River, out to Valley Boulevard and Washington Street, and in the other low-lying areas of Reche Canyon. The Rialto-Colton Fault acts as a barrier to groundwater flow, limiting the liquefaction risk zone to the areas around the Santa Ana River upstream of the fault line (DWR 2004). **Figure 10** shows the liquefaction hazard zones in Colton.

Liquefaction is not measured using any specific scale. The severity of a liquefaction event is linked to the type of ground material, the amount of water, the strength of the shaking, and the size of the affected area.

FIGURE 9: FAULT AND ALQUIST-PRIOLO ZONES

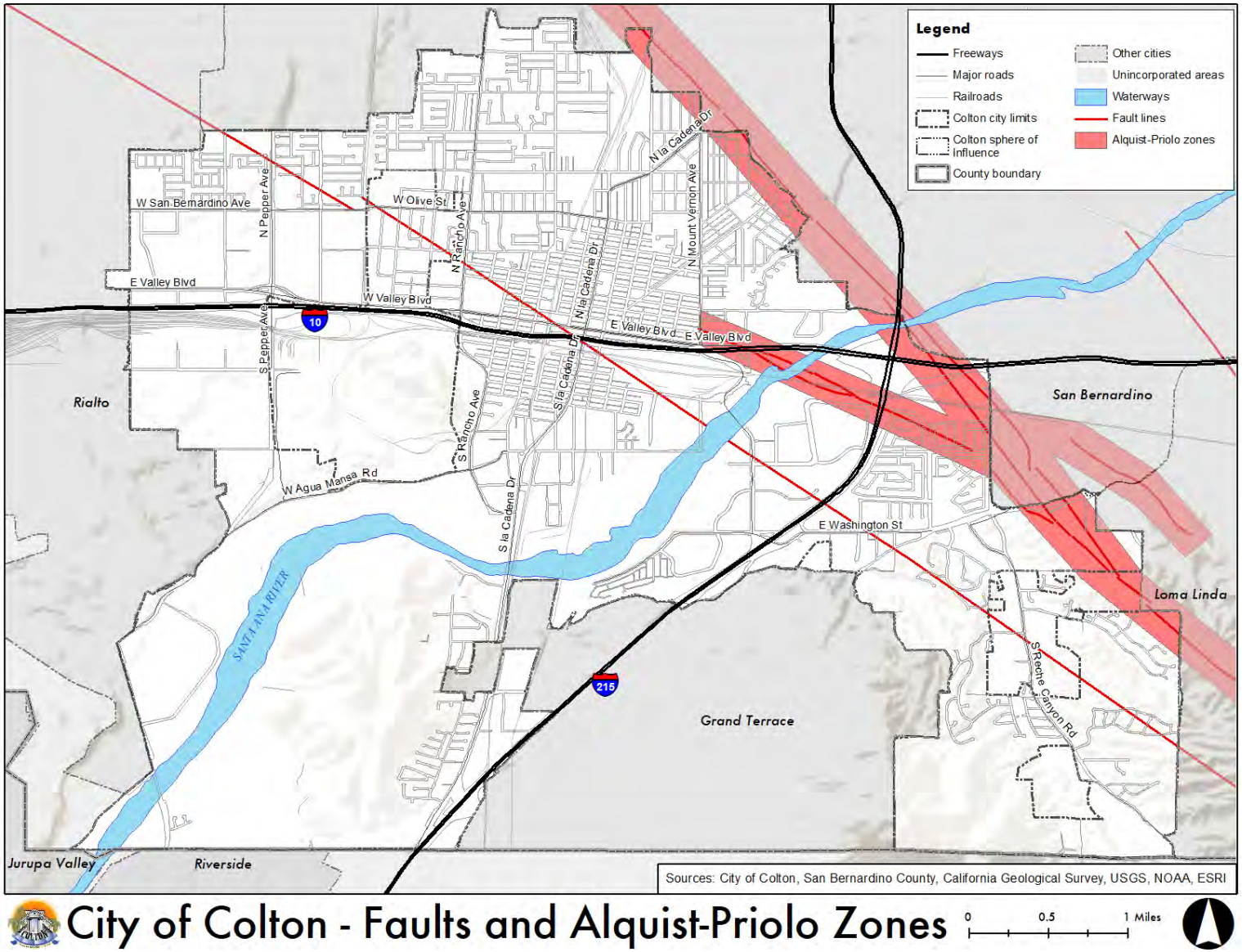

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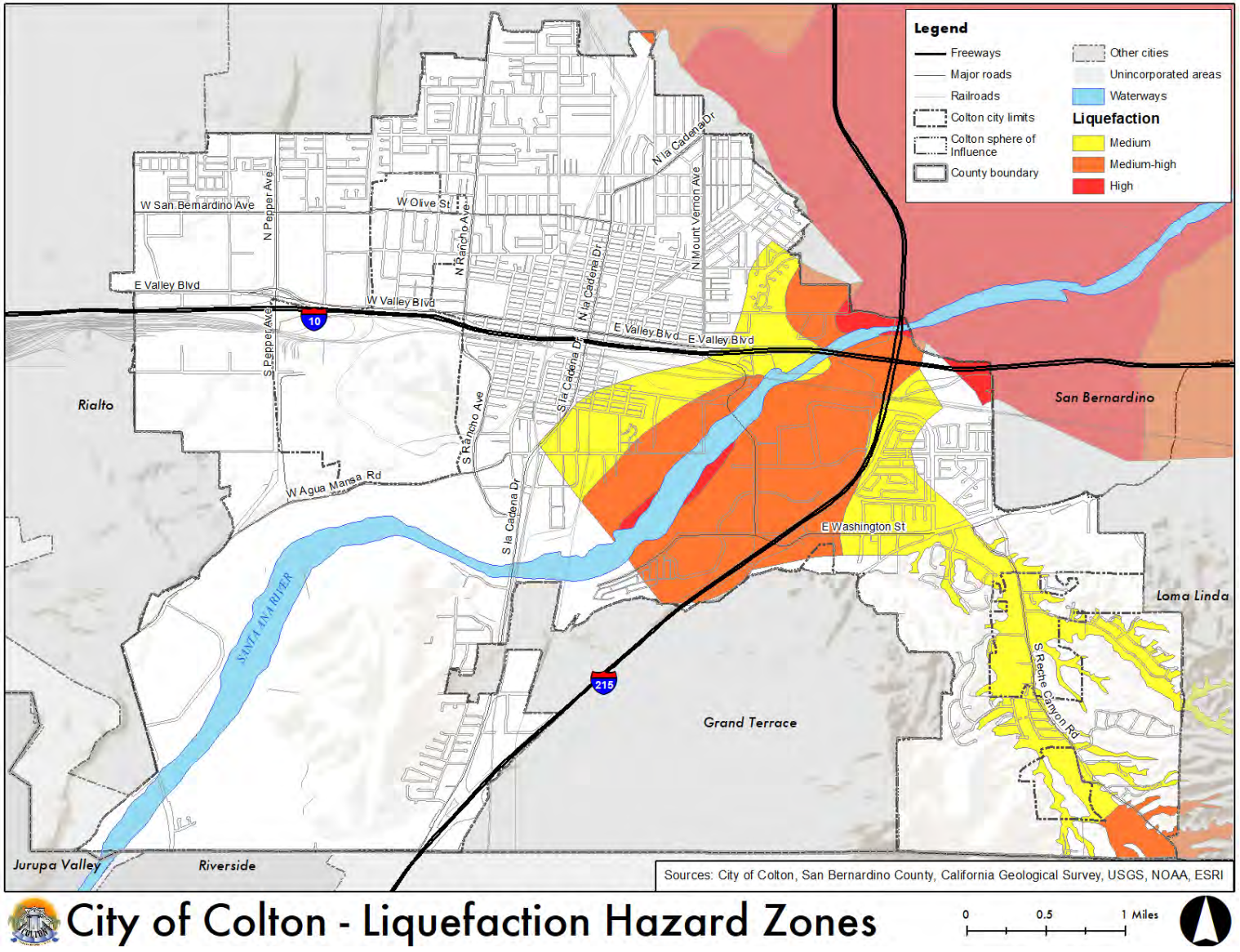
FIGURE 10: LIQUEFACTION HAZARD ZONES



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Seismic shaking

Colton is located in a seismically active area, and a number of different faults could cause seismic shaking in the community. There have been numerous past earthquakes that have affected the community to various degrees, and the wider Southern California region is well known for seismic activity. All locations in Colton are at risk of seismic shaking. **Figure 11** shows the fault lines around Colton.

The strength of seismic shaking is linked to a number of functions, including the amount of energy released by the fault rupture, the length of the fault rupture, and how shallow the hypocenter was. Generally the more energy released, the longer the section of fault that ruptured, and the closer to the surface the hypocenter was, the stronger the shaking. The strongest earthquake ever recorded, the 1960 Valdivia earthquake in Chile, experienced an estimated fault rupture length of approximately 500 miles (Kanamori and Cipar 1974), although a substantially smaller fault rupture can still cause significant damage, depending on other characteristics. The 1994 Northridge earthquake, one of the most damaging in southern California, ruptured along a length of approximately 9 miles (USGS and SCEC 1994).

The intensity of seismic shaking is usually measured with the Modified Mercalli Intensity (MMI) scale. This is based on the amount of observed damage rather than a physical measurement of the earthquake itself. Different locations will have different MMI measurements, depending on the amount of damage done. The MMI uses Roman numerals on a scale of I (1, the weakest) to XII (12, the strongest). **Table 3-6** shows the MMI scale.

TABLE 3-6: MODIFIED MERCALLI INTENSITY SCALE

INTENSITY	LABEL	DESCRIPTION
I	Instrumental	Felt only by a very few people, under especially favorable conditions.
II	Feeble	Felt only by a few people at rest, especially on the upper floors of buildings.
III	Slight	Noticeable by people indoors, especially on the upper floors, but not always recognized as an earthquake.
IV	Moderate	Felt by many indoors, and by some outdoors. Sleeping people may be awakened. Dishes, windows, and doors are disturbed.
V	Slightly strong	Felt by nearly everyone, and many sleeping people are awakened. Some dishes and windows broken, and unstable objects overturned.
VI	Strong	Felt by everyone. Some furniture is moved, and there is slight damage.
VII	Very strong	Negligible damage in well-built buildings, slight to moderate damage in ordinary buildings, and considerable damage in poorly-built buildings.
VIII	Destructive	Slight damage in well-built buildings, considerable damage and partial collapse in ordinary buildings, and great damage in poorly-built buildings.
IX	Ruinous	Considerable damage in specially designed structures. Great damage and partial collapse in substantial buildings, and buildings are shifted off foundations.
X	Disastrous	Most foundations and buildings with masonry or frames are destroyed, along with some well-built wood structures. Rail lines are bent.
XI	Very disastrous	Most or all masonry structures are destroyed, along with bridges. Rail lines are greatly bent.
XII	Catastrophic	Damage is total. The lines of sight are distorted, and objects are thrown into the air.

Source: USGS 1989.

Seismic shaking may also be measured using the moment magnitude scale (MMS, denoted as M_w or sometimes M), which measures the amount of energy the earthquake releases. The MMS begins at 1.0 and increases the more energy is released. It is what is known as a logarithmic scale, meaning that the difference in energy between two measurements is substantially greater than the difference between the measurements themselves. For example, a 6.5 M_w earthquake releases approximately 1.4 times as much energy as a 6.4 M_w earthquake, and 1,000 times as much energy as a 4.5 M_w earthquake. The MMS replaces the Richter scale, which is a similar scale but less reliable when measuring large earthquakes.

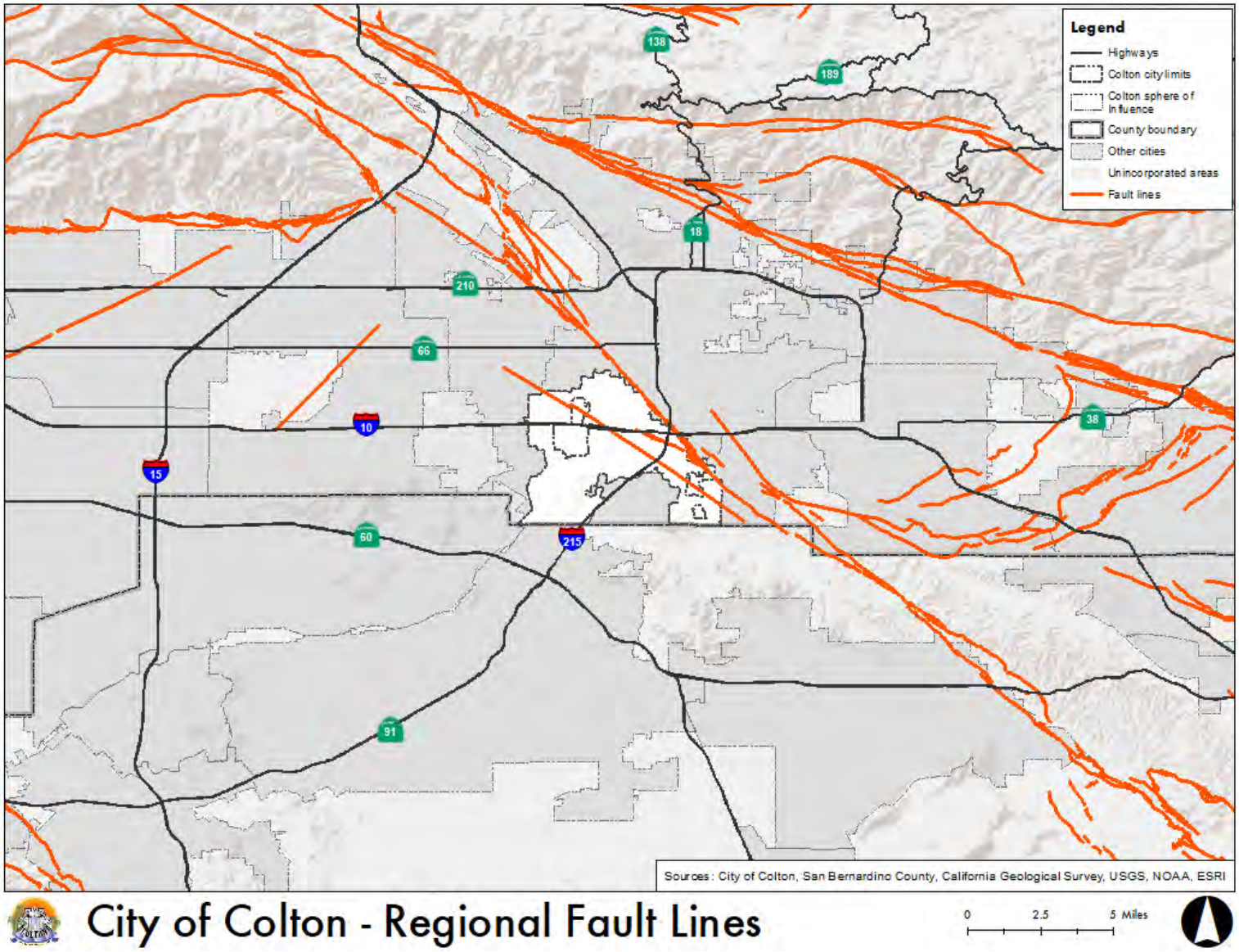
Past Occurrences

Fault rupture

Although the San Jacinto Fault runs through Colton and has ruptured in recorded history, there are no records of surface rupture in Colton. Surface ruptures on this fault outside of Colton have ranged from five inches to approximately three feet (SCEDC 2013a). There are no known records of fault rupture on the Rialto-Colton Fault, although there is some evidence the fault has been active in recent geologic times, and it may be capable of causing surface rupture (Gandhok et al. 2003).

Earthquakes on other faults in the region have resulted in measureable surface fault rupture. The 1999 Hector Mine earthquake north of Joshua Tree ruptured along a length of 26 miles and caused as much as 17 feet of displacement. The 1992 Landers earthquake near Yucca Valley ruptured along a 53-mile length and caused fault rupture of around 10 to 13 feet, although some areas saw as much as 20 feet of displacement. The 1971 San Fernando earthquake caused a surface rupture along 12 miles, with a maximum displacement of 6 feet. More historically, the 1857 Fort Tejon earthquake caused as much as 30 feet of displacement along its 225-mile length, stretching from northern San Luis Obispo County to the Cajon Pass (SCEDC 2013b, 2013c, 2013d, 2013e).

FIGURE 11: REGIONAL FAULT LINES



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Liquefaction

There is no historical record of liquefaction in Colton, although it has occurred in the wider region. Both the 1994 Northridge earthquake and the 1971 San Fernando earthquake caused liquefaction in the San Fernando Valley area (Bennet 1989; Holzer et al. 1999). After the 1992 Landers earthquake, liquefaction was observed east of Big Bear and in the Santa Ana River canyon of the San Bernardino Mountains (Barrows 1993). Liquefaction also likely occurred as a result of the 1857 Fort Tejon earthquake (Stover and Coffman 1993).

Seismic shaking

The most substantial major earthquake in Colton was the 1992 Landers earthquake, which had an epicenter approximately 51 miles east of Colton, north of Yucca Valley. The earthquake measured 7.3 M_w and had a maximum MMI of IX (Ruinous). In Colton the earthquake had an MMI of VI (Strong) and caused approximately $400,000 in damage (City of Colton 2011; USGS 2018a). The 1992 Big Bear earthquake, which occurred three hours after the Landers event, was centered approximately 29 miles northeast of Colton. It measured 6.3 M_w and had an MMI in Colton of VI (Strong), costing the community approximately $92,000 (City of Colton 2011; USGS 2018b).

There have also been a number of other earthquakes that did not cause substantial impacts to Colton, but were sufficient to register an MMI of at least V (Slightly Strong) in the community. **Table 3-7** shows these events.

TABLE 3-7: SIGNIFICANT HISTORICAL EARTHQUAKES IN COLTON

EARTHQUAKE NAME	DISTANCE (MILES) *	MAGNITUDE (M_W) †	INTENSITY (MMI) ‡	
			MAXIMUM	IN COLTON
1999 Hector Mine earthquake	70	7.1	VIII (Destructive)	V (Slightly Strong)
1994 Northridge earthquake	71	6.7	VIII (Destructive)	V (Slightly Strong)
1992 Big Bear earthquake	29	6.3	VIII (Destructive)	VI (Strong)
1992 Landers earthquake	51	7.3	IX (Ruinous)	VI (Strong)
1987 Whittier Narrows earthquake	57	5.9	VII (Very Strong)	V (Slightly Strong)
1971 San Fernando (Sylmar) earthquake)	65	6.6	VIII (Destructive)	V (Slightly Strong)
1968 Borrego Mountain earthquake	93	6.6	VIII (Destructive)	V (Slightly Strong)
1933 Long Beach earthquake	50	6.4	Unknown	Unknown
1923 North San Jacinto earthquake	6	6.3	Unknown	Unknown
1918 San Jacinto earthquake	30	Appx. 6.7	Unknown	Unknown
1910 Elsinore earthquake	24	Appx. 6.0	Unknown	Unknown
1899 San Jacinto Fault Zone earthquake	40	Appx. 6.5	Unknown	Unknown
1812 Wrightwood earthquake	Appx. 25–30	Appx. 7.5	Unknown	Unknown

Sources: SCEDC 2013f, 2013g, 2013h, 2013i; USGS 2018a, 2018b, 2018c, 2018d, 2018e, 2018f, 2018g, 2018h, 2018i.
* As measured from downtown Colton to the epicenter.
† Magnitudes before 1920 are measured using the Richter scale. Other magnitudes are measured in the MMS.
‡ The MMI from older earthquakes are unknown, but it is possible that these events measured at least a V (Slightly Strong), given their magnitude and proximity to Colton.

Risk of Future Events

Fault rupture

Although the San Jacinto Fault has not experienced surface rupture in Colton's boundaries in recorded history, there have been observed surface ruptures on this fault in other locations. There is therefore some risk that future earthquake events on this fault could result in a surface fault rupture in Colton, although the chances that this will occur in the foreseeable future are unknown. The risk of surface rupture on the Rialto-Colton Fault is unknown, as it is not clear if the fault is capable of surface rupture.

Liquefaction

Although there is no record of liquefaction events in Colton, there are parts of the community that are prone to liquefaction. Because of this, a sufficiently strong earthquake in the region could trigger liquefaction in Colton, particularly in the area close to the Santa Ana River. Earthquakes on the San Jacinto and San Andreas faults are most likely to trigger liquefaction, given their proximity to Colton and their potential to cause major earthquakes. Earthquakes from other faults are less likely to cause liquefaction, although it remains a possibility.

Seismic shaking

Seismic shaking is a virtual inevitability in Colton, given that the community is located in close proximity to multiple major fault lines and has experienced substantial seismic shaking from past earthquake events. The Third Uniform California Earthquake Rupture Forecast (UCERF3) was released in 2015 and provides the likelihood of a major earthquake on various faults between 2015 and 2044. **Table 3-8** shows the probabilities of a significant earthquake by magnitude on the key fault lines near Colton, as estimated by the UCERF3 forecast.

TABLE 3-8: SIGNIFICANT EARTHQUAKE PROBABILITIES FOR MAJOR FAULT LINES NEAR COLTON (2015–2044)

FAULT	DISTANCE * (MILES)	PROBABILITY †			
		6.7+ M_W	7.0+ M_W	7.5+ M_W	8.0+ M_W
San Jacinto Fault	Less than 1	6.52%	6.26%	5.20%	2.64%
San Andreas Fault (southern segments)	7	25.87%	22.06%	18.53%	6.81%
Cucamonga Fault	10	1.53%	1.27%	0.76%	0.03%
Whittier Fault	23	1.64%	1.47%	0.81%	<0.01%
Elsinore Fault	23	3.83%	1.95%	1.08%	<0.01%
Sierra Madre Fault	25	1.43%	1.12%	0.73%	0.03%
Pinto Mountain Fault	34	3.07%	2.98%	1.25%	Negligible
Lenwood-Lockhart-Old Woman Springs Fault	43	1.30%	0.96%	0.02%	Negligible
Newport-Inglewood Fault	48	1.08%	0.78%	0.16%	Negligible
Emerson-Copper Mountain Fault	54	1.01%	0.71%	0.08%	Negligible
Palos Verdes Fault	58	2.67%	2.37%	0.92%	Negligible
Calico-Hidalgo Fault	60	2.77%	2.40%	0.73%	Negligible
Santa Susana Fault	61	4.20%	2.71%	0.77%	<0.01%
Oak Ridge Fault	84	3.07%	2.78%	1.11%	<0.01%
Garlock Fault	91	4.82%	4.65%	2.78%	0.30%

Source: USGS 2015.
* As measured from downtown Colton to the closest part of the fault.
† UCERF3 presents odds of fault rupture by individual fault segment. The odds presented here are the highest odds given for any individual segment.

In addition to the UCERF3, the US Geological Survey (USGS) has also prepared a number of scenarios showing the potential intensity of different earthquakes depending on the location, fault, and magnitude of the earthquake. Several of these scenarios project shaking that would register at least VI (Strong) on the MMI scale. **Table 3-9** shows a sample of these scenarios.

TABLE 3-9: SELECTED EARTHQUAKE SCENARIOS

FAULT	MAGNITUDE (M_W)	DISTANCE (MILES) *	MMI IN COLTON
San Jacinto Fault	6.7	9	VII–VIII (Very Strong to Destructive)
	7.0	5	VIII–IX (Destructive to Ruinous)
	7.3	39	VII (Very Strong)
	7.8	64	VIII–IX (Destructive to Ruinous)
San Andreas	6.9	11	VII–VIII (Very Strong to Destructive)
	7.5	23	VIII (Destructive)
	7.8	54	VIII (Destructive)
	8.0	115	VIII (Destructive)
Elsinore Fault	6.9	25	VI (Strong)
	7.8	51	VII (Very Strong)
Pinto Mountain Fault	7.3	58	VI (Strong)

Source: USGS 2017.
* As measured from downtown Colton to the modeled epicenter.

Based on the probabilities of the UCERF3 and the various scenarios explored by the USGS, the faults of greatest concern for Colton are the San Jacinto and San Andreas faults. The San Jacinto Fault is less likely to rupture (it has approximately a 7 percent chance of causing a 6.7 M_w or greater earthquake by 2044), but since it runs directly under Colton, significant earthquakes have the potential to cause somewhat greater damage. The San Andreas Fault has a great chance of a major rupture (it has approximately a 26 percent chance of causing a 6.7 M_w or greater earthquake by 2044), but because it is more distant from Colton, the intensity of the earthquake in Colton may not be as high. However, although the San Andreas Fault is not likely capable of generating as strong a shaking in Colton as the San Jacinto Fault, it is still capable of causing highly damaging earthquakes in the community. Several other faults are capable of producing earthquakes strong enough to cause damage in Colton, and while the odds of these earthquakes experiencing a significant rupture is fairly low, it is still a possibility.

The Rialto-Colton Fault is not included in the UCERF3 study, nor has the USGS modeled potential earthquake events for this fault line. Although studies of the fault are limited, scientists at a 2003 conference noted that it "may present a significant earthquake hazard for the [San Bernardino Valley] region" (Gandhok et al. 2003). Given that the Rialto-Colton Fault is connected to the San Jacinto Fault, it is possible that an earthquake on the San Jacinto Fault could also cause the Rialto-Colton Fault to rupture.

Climate Change Considerations

Fault rupture

Fault rupture is caused by geologic processes. Although there is some evidence that melting land ice (a consequence of climate change) may affect seismic activity by redistributing weight from the land to the oceans, there is no reason yet to believe that

this relationship would have a substantive impact on faults in and around Colton. Thus, there are no reasonably expected changes to the community's fault rupture risk as a result of climate change.

Liquefaction

Changes to precipitation patterns as a result of climate change could potentially affect liquefaction by altering groundwater levels, which could make soils more or less prone to liquefaction during an earthquake event. However, it is unknown if these changes to groundwater levels will have any substantive impact on the liquefaction risk in Colton.

Seismic shaking

Climate change is generally unconnected to the tectonic forces that cause earthquakes, although there may be a limited relationship between melting ice and seismic activity. However, these relationships remain uncertain, and the effect may not be substantial enough to change the risk of earthquakes in a meaningful way (Johnson et al. 2017). Therefore, for all appreciable purposes, climate change is not expected to affect seismic shaking in Colton.

3.2.6 Severe Weather

Severe weather is a very broad term that could refer to any number of intense weather events. In this Plan, the term will be used to refer to extreme heat, severe wind, and severe winter weather.

Description

Extreme heat

Extreme heat refers to a time when temperatures are substantially higher than normal levels. For the purposes of hazard planning in California, extreme heat is more specifically defined as temperatures about 98 percent of the historic high temperatures for the area, as measured between April and October from 1961 to 1990. The threshold of extreme heat varies by location. For example, the extreme heat threshold in the northern California coast or the Lake Tahoe region may be considered normal temperatures in a desert community. A series of days with an extreme heat event is called a heat wave. Extreme heat events are a function of both temperature and humidity, as high humidity levels can make the air feel hotter than it really is. The perceived temperature from this effect is called the heat index, which may be much higher than the actual temperature. For example, an air temperature of 90°F with 90 percent humidity can make the temperature feel in excess of 120°F.

Extreme heat can cause a number of heat-related illnesses and other health risks, including heat cramps, heat exhaustion, and (more severely) heat stroke. These events can be particularly damaging to senior citizens, who have less ability to maintain a safe internal body temperature (and therefore can overheat more easily during extreme temperatures), and people who work outdoors or in other exposed areas, such as construction workers. Very high temperatures also reduce the effectiveness of power lines. In combination with increased demand for electricity (to run air conditioning units), extreme heat events can stress electrical infrastructure and increase the rate of failure.

Severe wind

Wind is the movement of air through the atmosphere due to differences in air pressure, caused by local and regional variations in temperature, topography, and Earth's rotation. Air flows from areas of high pressure to areas of lower pressure. Places where

the air pressure changes substantially over a short distance will generally experience the most severe wind, while places with more gradual pressure differences will see calmer breezes.

Severe wind is any wind that can harm people or property. This is generally winds with speeds at or above 47 miles per hour (mph), which is typically the threshold for structural damage (although damage is possible at a lower speed). The primary risk from severe wind is property damage, often caused by fallen tree limbs or airborne debris. People can be struck by debris or broken branches, causing injury or death. Additionally, severe wind can cause enough fallen or windblown material to block roads and railways, interrupting transportation networks and all activities depending on them. Power lines can be knocked down by severe wind, which may spark wildfires in addition to harming electrical service.

Winds may accompany storms (which are areas of low pressure), but may occur independent of storm systems. Many storm systems have some type of high wind event, including tornadoes, which are the most well known and can cause significant damage due to the extreme wind speeds involved (in excess of 200 mph in the most severe cases). Other types of severe winds associated with strong storm systems include downbursts, microbursts, and derechos. Severe winds that occur independent of storm systems include southern California's famous Santa Ana winds.

Severe winter weather

Severe winter weather, for the purposes of this Plan, refers to the intense storm systems that sometimes occur during the rainy winter season. There is no specific factor that separates a severe winter weather event from other storms, but in general these systems include strong wind, heavy rainfall, and occasionally lightning and hail. As noted in the "Floods" section, severe winter weather events are often associated with ARs and ENSO cycles. Severe winter storms are generally more common during the ENSO warm phase (Jong et al. 2016).

Location and Extent

Extreme heat

Extreme heat events may occur anywhere in Colton, and no part of the community is more or less at risk of extreme heat. The threshold for an extreme heat event in Colton is approximately 104° to 106°F (CEC 2018e). Extreme heat events may be measured using the temperature or heat index of the event

Severe wind

Strong winds can occur anywhere in Colton, although they may be strongest at the bottom of passes and canyons, such as in the Reche Canyon neighborhood. Some areas may be more sheltered from a particular wind event due to local topography and the specific conditions of the event, but such locations may be more exposed to high winds from another event.

Winds are usually measured using the Beaufort scale, developed in 1805. It categorizes winds on a scale of force 0 to force 12 based on their speed and observed effects. Winds that rank force 9 or higher on the Beaufort scale may be considered severe. **Table 3-10** shows the Beaufort scale.

TABLE 3-10: BEAUFORT SCALE

FORCE	SPEED (MPH)	DESCRIPTION
0	0 to 1	Calm. Smoke rises vertically and the sea is flat.
1	1 to 3	Light air. The direction of the wind is shown by drifting smoke, but not wind vanes.
2	4 to 7	Light breeze. Wind is felt on the face, leaves rustle, and wind vanes move. Small wavelets appear on the ocean, but do not break.
3	8 to 12	Gentle breeze. Leaves and small twigs are in motion, and light flags extend. Large wavelets appear on the ocean and crests begin to break.
4	13 to 18	Moderate breeze. Dust and loose paper becomes airborne, and small branches move. Small waves appear on the ocean.
5	19 to 24	Fresh breeze. Small trees begin to sway and moderate waves appear.
6	25 to 31	Strong breeze. Large branches are in motion, and holding an umbrella becomes difficult. Large waves begin to form.
7	32 to 38	Near gale. Whole trees are in motion, and walking against the wind can be hard. Foam from breaking waves is blown in streaks.
8	39 to 46	Gale. Walking is difficult and twigs break off trees.
9	47 to 54	Severe gale. There is slight structural damage, and the crests of waves begin to topple.
10	55 to 63	Storm. Trees are uprooted and there is considerable damage to structures. Very high waves form in long, overhanging crests.
11	63 to 72	Violent storm. There is widespread structural damage, exceptionally high waves form, and the ocean is completely covered in foam.
12	73 and above	Hurricane. There is devastating structural damage. On the ocean, the air is filled with foam and spray.

Source: NWS 2018.

Some very severe wind types are measured using more specialized scales. Hurricanes are measured with the Saffir-Simpson Hurricane Wind Scale, and tornadoes are measured with the Enhanced Fujita (EF) scale.

Severe winter weather

All areas of Colton face a generally equal risk of severe winter weather events, although variations in the storm may make the specific effects stronger or weaker in different parts of the community. There is no standard scale for classifying such events,

and they may be measured based on factors such as wind speed, precipitation amounts or rates, or the amount of damage done.

Past Events

Extreme heat

Historically, Colton experiences approximately four extreme heat days each year. Based on regional temperature records, between 1893 and 2004, there were 93 years in which August temperatures reached at least 104°F, followed by July (81 years), September (71 years), June (51 years), and May and October (12 years each). There is no record of extreme heat events between November and April. The highest recorded temperature in the area is 116°F, which was measured in June of 1917 and again in August of 1933 (WRCC 2016). Several notable extreme heat events have occurred in the region, including the July 2006 heat wave that killed approximately 140 people statewide (Cal OES 2013) and a series of heat waves from August to October of 2017 (NOAA 2018b).

Severe wind

There have been several high wind events reported in and around Colton in recent years:

- On May 5, 1998, strong thunderstorms across the region caused high winds that shredded the roof of an auto repair shop in Rialto.
- On March 4, 2005, a small tornado touched down in Fontana. The tornado blew shingles off of three homes, knocked down power lines and several trees, and ripped the roof off of a water well building.
- A strong Santa Ana wind event on December 28, 2006, knocked down trees and power lines throughout the region. Wind speeds as high as 56 mph were measured in Rialto.
- A storm in early December of 2011 caused wind speeds in excess of 65 mph, knocking down hundreds of trees, downing power lines, and overturning trucks throughout the San Bernardino Valley. Later that month, another strong storm caused winds of 45 to 65 mph, with one recorded gust of at least 70 mph.
- A storm system that hit the region in late January of 2012 caused wind gusts over 60 mph, knocking down power lines and blowing containers off of semi-trucks.
- In early March of 2012, strong winds affected the San Bernardino Valley region after a storm event, with gusts of over 60 mph.
- On February 28, 2014, wind speeds of 48 mph from a thunderstorm caused a tree to fall onto a car in San Bernardino, and caused a roof to collapse in Fontana.
- A Santa Ana wind event in November of 2014 caused winds of approximately 50 mph, with damage reported throughout the region.
- On August 1, 2017, a thunderstorm resulted in wind speeds of 52 mph, knocking a two-foot-diameter tree onto a house in San Bernardino.
- In January of 2017, a series of three storms caused strong winds that knocked down hundreds of trees throughout the region, causing millions of dollars in damage.
- On October 9, 2017, a strong Santa Ana wind event caused wind gusts of 70 mph (NOAA 2018b).

Severe winter weather

Severe winter weather events typically occur most years, with varying degrees of severity. Some particularly notable events from recent years include:

- A strong winter storm on November 10, 1997, caused rainfall totals of up to 1.5 inches in coastal regions and up to 3 inches in the mountains. Street flooding was reported throughout southern California.
- On February 10, 2001, a strong storm dropped up to 2.5 inches of rain in Orange and San Bernardino counties. The storm killed two people in the region and injured another three.
- An extended series of storms in February of 2005 caused rainfall totals up to 6 inches in the valley areas of southern California. Total damages reached $26 million in San Bernardino County, and $40 million statewide.
- A storm on January 19, 2010, caused extensive ponding in Colton and surrounding communities. The storm flooded a home in Fontana and damaged several cars in Redlands.
- On October 11, 2012, a storm gauge in the region recorded 1.02 inches of rain in a 25-minute period. A warehouse roof in Fontana collapsed from accumulated rainfall. Ten homes in Riverside, Colton, and Fontana were damaged by water, and the storm caused extensive street flooding.
- A late-season storm in May of 2016 caused a building to collapse in Ontario. At Ontario International Airport, a storm gauge recorded 2.7 inches of a rain per hour (NOAA 2018b).

Risk of Future Events

Extreme heat

As extreme heat events have occurred regularly in Colton's past, it is all but certain that they will continue to occur in the future. It is possible that the threshold for what constitutes an extreme heat event may change in the long-term.

Severe wind

High wind events will almost certainly continue to occur in and around Colton, given past events. It is likely that winter storms and Santa Ana wind events will continue to remain the most common types of severe winds. High winds from tornadoes and tropical storms may occur in Colton's future, but such events are expected to be very rare.

Severe winter weather

Severe winter weather events are a regular feature of Colton's climate, and all expectations are that they will continue to occur. Factors such as ARs and ENSO will very likely continue to play a role in the frequency and intensity of severe winter weather events.

Climate Change Considerations

Extreme heat

Climate change is expected to have a significant impact on extreme heat events, as warmer temperatures are projected to increase the frequency and intensity of these events. The specific number of extreme heat events is expected to vary depending on how severe climate change ends up being. Under more moderate projections, Colton is expected to see an average of approximately 31 extreme heat days (those above 104° to 106°F) each year between 2070 and 2099. If more severe projections

for climate change end up occurring, the expectations are for Colton to see 47 to 48 extreme heat days annually toward the end of the 21st century (CEC 2018).

Severe wind

Strong storms may become more intense with climate change (as discussed below). This may mean an increase in the number of storms that are accompanied by severe wind events and/or an increase in the average intensity of these high winds. It is not yet known if climate change will have any effect on Santa Ana winds. There is a possibility that the increase in storm intensity may lead to more storms that are strong enough to generate tornadoes, although given the rarity of tornadoes in the San Bernardino Valley region, it is unlikely that any such effects would be noticeable for the purposes of this Plan.

Severe winter weather

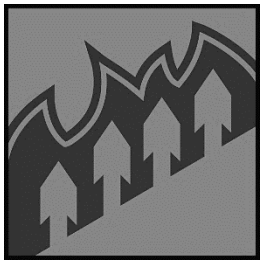
The specific impact of climate change on severe winter storm systems remains a subject of debate. It is likely that storms associated with ARs in southern California will become stronger. As discussed in the "Floods" section, the typical southern California AR storm is projected to become 10 to 20 percent more intense due to climate change, although the average number of AR storms affecting the region is not expected to change to a substantive degree (Oskin 2014).

Scientists are not yet clear if climate change will affect the ENSO cycle, and if so, what such effects would be. A 2014 study found that extreme warm periods of the ENSO cycle (which are strongly associated with frequent and intense storms in southern California) may occur twice as often due to climate change, although other studies found that ENSO will weaken (decreasing the frequency and intensity of the warm cycles), and still other studies found no risk of substantive change (Cho 2016).

3.2.7 Wildfire Hazard Profile

Description

Wildfires are fires that burn in undeveloped and natural areas. While they are relatively harmless to people when they burn in remote and uninhabited areas, they are dangerous when they move into areas known as the wildland-urban interface (WUI). These areas are the border between natural and urbanized areas and are increasingly developed because they are often desirable places to live. This type of development brings people and property into wildfire-prone areas, creating a significant hazard risk. Additionally, wildfires may move past the WUI into fully developed areas, and so may become urban fires. Development in the WUI throughout California, combined with the historical practice of suppressing naturally occurring wildfires (allowing dry fuel to accumulate), has made wildfires the most common type of hazard event in California. Since 1953 there have been 250 federally declared disasters in California, 183 of which have been associated with fires (FEMA 2017).



There are many things that can cause a wildfire, including lightning, a fallen power line, or improperly extinguished campfires. The size and severity of a fire relates to the local topography, weather conditions, and availability of fuel. However, fires do not need to be particularly large to be damaging. The Tunnel Fire in the Oakland Hills killed 25 people and destroyed 2,900 structures in 1991, but was only 1,600 acres in size. By contrast, the largest single wildfire in California's recorded modern history, the 2017–2018 Thomas Fire, reached close to 282,000 acres, killed 1 person, and destroyed 1,063 structures (CAL FIRE 2017a, 2017b).

Historically, wildfires have occurred most often in late summer and fall, when temperatures are high and it has been several months since significant precipitation. This is likely to remain the case, although wildfires can still occur in other months (for example, the Thomas Fire began in December, and multiple fatal wildfires have started as early as June) (CAL FIRE 2017a, 2017b).

Location and Extent

Wildfires are generally measured by their size (typically the number of acres burned), although they may also be measured by the number of buildings destroyed or damage, the number of injuries or deaths caused by the fire, the cost of the damage, or other impact-related metrics. Areas that are prone to wildfires are classified into three categories of fire hazard severity zones (FHSZs): very high, high, and moderate. There is no specific risk level or fire size/intensity that corresponds to each level of FHSZ. Rather, these are qualitative terms that take into account factors such as fire history, terrain, weather conditions, development, and fuel availability, among others (CAL FIRE 2012).

Fire-prone areas can also be classified by the agency responsible for fire protection. Land that is protected by federal agencies such as the US Forest Service or the Bureau of Land Management is considered a Federal Responsibility Area (FRA). Land that the California Department of Forestry and Fire Protection (CAL FIRE) is responsible for is called a State Responsibility Area (SRA), and local governments are responsible for fire protection services in Local Responsibility Areas (LRAs). These responsibility areas do not necessarily correspond to jurisdictional boundaries. For example, many local communities contract with CAL FIRE to provide fire protection services inside their boundaries, even for land that is under local jurisdiction.

The La Loma Hills and Box Springs Mountains areas in southern Colton are both Very High FHSZs. The flatter areas in southwest Colton near the La Loma Hills are considered a Moderate FHSZ, extending as far north as Slover Avenue, and there are limited areas that are classified as High FHSZ on the boundary of the Very High FHSZ that covers the La Loma Hills. There is a narrow band of Moderate and High FHSZs surrounding the Very High FHSZ that covers the Box Spring Mountains. There is also a Moderate FHSZ north of the Santa Ana River to the east of the Union Pacific railroad and south of Congress Street, another north of the Santa Ana River in western Colton as far north as Interstate 10, and a third near the intersection of Interstates 10 and 215. Most of Colton is considered an LRA, although the unincorporated areas in the Reche Canyon neighborhood are SRAs. **Figure 12** shows the wildfire hazard zones in Colton.

Past Events

There have been multiple wildfires in the Reche Canyon and La Loma Hills areas of Colton. The largest of these was the Colton Fire in June of 1981, which burned approximately 4,051 acres in the Box Springs Mountains to the south and west of Reche Canyon Road. Only a small portion of the burned acreage was in Colton, although this area includes what is now Reche Canyon Mobile Estates mobile home park and homes west of Cordillera Avenue. Other reported wildfires in Colton are:

- An unnamed 1962 fire that burned approximately 1,491 acres, mostly in the unincorporated areas of Riverside County, although a small portion of the burned area extended into the extreme southeast corner of Colton.
- An unnamed fire in 1968 that burned approximately 810 acres, including a small area of southwest Colton around Pellisier Road.
- The Blue Mountain Fire in 1969, which burned approximately 463 acres around Reche Canyon, including the area around Canyon Drive and Cordillera Avenue.
- The Blue Fire in 1980, which burned approximately 247 acres. A small part of the burnt acreage included the undeveloped area around Blue Mountain in southeast Colton.

- The Prado Fire in 1980, which burned approximately 1,729 acres. Most of the burnt area was east of Colton, but the fire did extend into Colton between Crystal Ridge Lane and Scotch Lane in the Reche Canyon neighborhood.
- An unnamed fire in 1986, which burned approximately 383 acres. Most of the burnt area was around Blue Mountain in southeast Colton.
- The Wick Fire in 1995, which burned approximately 453 acres of largely undeveloped land in the southwest area of Reche Canyon.
- The Reche Fire in 1996 burned approximately 280 acres, including the residential area around Tiffany Lane and Crystal Ridge Lane in the Reche Canyon neighborhood.
- The Scott Fire in 2010 burned approximately 98 acres, including the ridgeline behind Crystal Ridge Lane in the Reche Canyon neighborhood. (CAL FIRE 2017c)

Several other major wildfires have occurred in the region. Notable blazes include:

- The Williams Fire in 2002 burned approximately 38,119 acres in the San Gabriel Mountains behind Glendora and La Verne.
- The Grand Prix Fire in 2003 burned approximately 50,618 acres in the San Gabriel Mountains behind Rancho Cucamonga and Fontana.
- The Old Fire in 2003 burned approximately 91,428 acres in the San Bernardino Mountains between Interstate 15 and Running Springs.
- The 2006 Sawtooth Complex Fire burned approximately 61,767 acres in the San Bernardino Mountains behind Morongo Valley.
- The 2009 Station Fire burned approximately 160,833 acres in the San Gabriel Mountains behind Pasadena.
- The 2015 Lake Fire burned approximately 31,284 acres in the San Bernardino Mountains southeast of Big Bear. (CAL FIRE 2017c)

Based on historical records, most of Colton burns fairly rarely (approximately every 126 to 150 years). However, in the more fire-prone areas of the community, some locations burn as often as every 16 to 20 years, and other areas burn approximately every 50 years (USFS 2014).

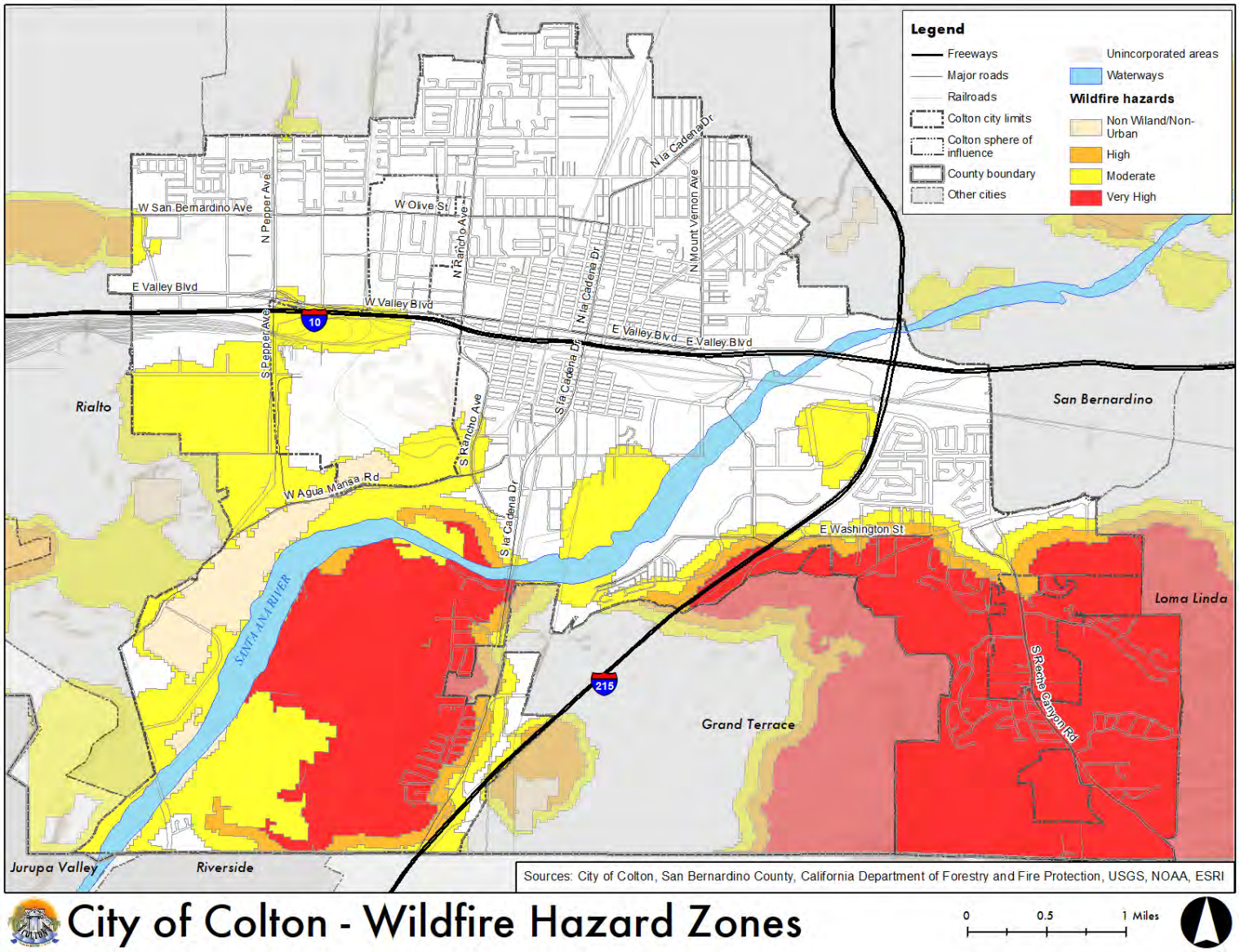
Risk of Future Events

Given that wildfires have occurred in Colton in the past and that substantial parts of the community remain classified as areas of elevated fire risk, it is very likely that wildfires will continue to occur in Colton. The areas of highest risk are expected to remain the La Loma Hills and Box Spring Mountains/Reche Canyon area, although it is possible that surrounding neighborhoods are also at risk. Vacant industrial land and the Santa Ana River bed may help to buffer other parts of the community from wildfire events, although under the right conditions a wildfire could jump these areas and threaten all of Colton.

Climate Change Considerations

Throughout the state, climate change is expected to increase temperatures, as well as causing more frequent and intense drought conditions. This will likely cause an increase the amount of dry brush, which can act as fuels for wildfires. Because of this, the overall size of areas burned by wildfires in California is expected to increase (CEC 2018).

FIGURE 12: WILDFIRE HAZARD ZONES



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Section 4. Threat Assessment

Each of the hazards discussed in Chapter 3 can have varying effects on different populations and community assets in Colton. For example, while an extreme heat event will be equally severe across all of Colton, some people may be harmed more than others. This chapter analyzes how various hazard conditions may affect Colton, and which populations and community assets face greater threats.

4.1 Threat Assessment Process

The threat assessment process looks at the harm that a hazard may cause to three different groups: the physical threat to key facilities, the threat to vulnerable populations, and the threat to any other community assets (noncritical facilities, key services, etc.).

4.1.1 Key Facilities

A key facility is a building or structure that plays an important role in protecting the health, safety, and well-being of Colton's community members. It includes major government and institutional facilities, care centers for vulnerable persons, and pieces of infrastructure. Some key facilities are owned by the City of Colton, while others are owned by other government agencies or private organizations. The Hazard Mitigation Planning Team has classified key facilities into three groups:

- Critical facilities. This includes public safety buildings such as fire stations and hospitals, schools, community centers (which can function as shelters or assembly points during a disaster), and facilities that keep vital services such as electricity and water systems operational. It also includes City administrative and maintenance centers.
- High potential loss. This category includes facilities that permanently or regularly house large numbers of vulnerable persons, including adult and senior residential care, child care, and foster agencies.
- Transportation and lifeline. This category includes pieces of infrastructure that help maintain transportation and communication systems in Colton. Cell phone towers, rail bridges, and highway and major road bridges are all included in this category.

Table 4-1 shows the number of key facilities by their category and specific function. **Appendix D** contains a complete list of all key facilities.

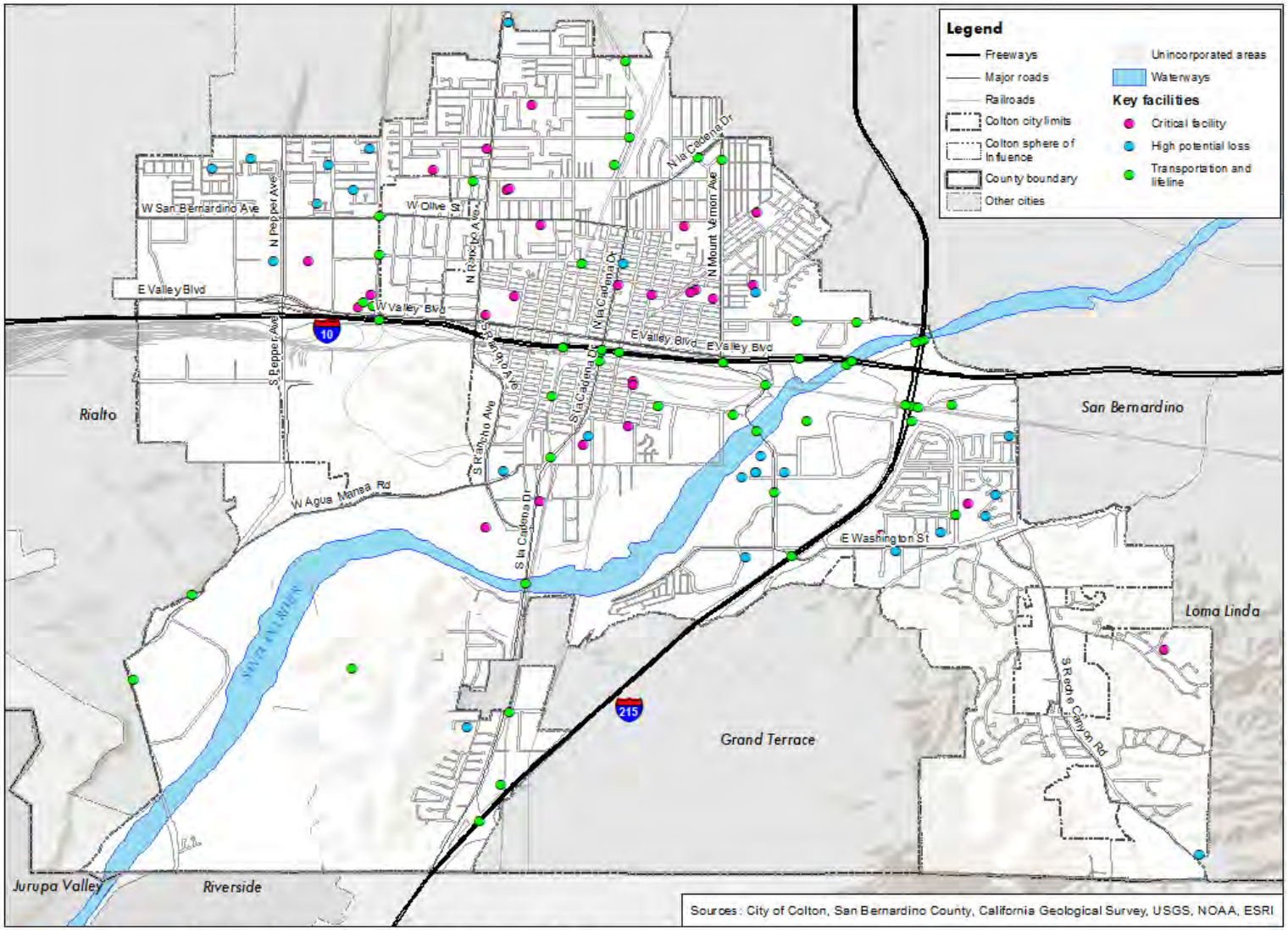
TABLE 4-1: KEY FACILITIES

CATEGORY		NUMBER OF FACILITIES
Critical Facilities	City facility	2
	Community center	4
	Electric power facility	8
	Fire station	4
	Hospital	1
	School	15
	Solar facility	3
	Wastewater facility	1
High Potential Loss	Adult residential care	10
	Child care center	7
	Elder residential care	5
	Foster family agency	2
	Home care organization	1
Transportation and Lifeline	Communication facility	16
	Highway bridge	14
	Rail bridge	7
	Road bridge	13
Total		113

The threat assessment looks at the number and types of key facilities that lie within the areas of elevated risks for different hazards. These facilities face the risk of damage or destruction during a hazard event, reducing their ability to function or rendering them entirely nonfunctional. Facilities outside of the elevated risk areas may still be affected by hazards, although the risk and chance for damage is lower. The threat assessment will also assess how key facilities may be harmed by hazard types that are not limited to specific risk areas, such as extreme heat. **Figure 13** shows the location of key facilities in Colton, except for those whose locations are restricted for security reasons.

If a hazard event causes the destruction of any key facility, the cost to replace the facility (paid by insurers, the City, other agencies, or private companies) will likely be considerable. The specific value of a handful of key facilities owned by the City is known. The threat assessment will identify the replacement costs of key facilities at risk of various hazards if any of the facilities with a known value are within a mapped hazard zone.

FIGURE 13: KEY FACILITIES


Legend
Freeways
Major roads
Railroads
Colton city limits
Colton sphere of Influence
County boundary
Other cities
Unincorporated areas
Waterways
Key facilities
Critical facility
High potential loss
Transportation and lifeline
W San Bernardino Ave
W Olive St
E Valley Blvd
W Valley Blvd
N Pepper Ave
S Pepper Ave
N Rancho Ave
S Rancho Ave
N Via Cadena Dr
S Via Cadena Dr
N Mount Vernon Ave
E Washington St
W Agua Mansa Rd
S Reche Canyon Rd
10
215
Rialto
San Bernardino
Loma Linda
Grand Terrace
Jurupa Valley
Riverside
Sources: City of Colton, San Bernardino County, California Geological Survey, USGS, NOAA, ESRI
City of Colton - Key Facilities
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1 Miles

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4.1.2 Vulnerable Populations

As previously mentioned, a hazard event that strikes Colton with equal severity may have very different impacts on different groups of people. Age, socioeconomic status, physical and mental condition, and many other factors can influence the ability of people to be more resilient to hazard events. For example, wealthier homeowners living in older homes are more likely to be able to afford seismic retrofitting, compared to homeowners in similar homes with lower income levels. As a result, lower-income households may suffer greater damage from an earthquake than those with higher income levels.

The threat analysis looks at how people with various characteristics may be more vulnerable to hazard events, and therefore may be considered vulnerable populations. This Plan assesses the following characteristics:

- Disability status. Persons with disabilities often have reduced mobility, and in some cases may have challenges taking care of themselves. This can reduce their ability to mitigate themselves, their homes, and their property against hazard events, particularly if they do not have assistance from others.
- Limited English proficiency. Persons who have a limited command of English can have a harder time obtaining information to help mitigate against hazard events, including information about financing opportunities and alerts about pending disasters.
- Income levels. Lower-income persons are less likely to have adequate financial resources to carry out mitigation activities on themselves, their homes, and property, particularly if assistance programs are not available. Limited financial resources can also make them more vulnerable to disruptions in the local economy from hazard events, which could cause significant financial hardship. Households that are under the poverty limit can face greater threats from hazard events.
- Senior citizens. Senior citizens who are at least 65 years of age are more likely to have reduced mobility and physical or mental disabilities, which can decrease their ability to mitigate hazard events. Physical and mental characteristics may also make senior citizens more likely to be injured and more likely to suffer health complications from any injuries during a hazard event. Senior citizens who live alone face even higher levels of vulnerability.

Table 4-2 shows how many people in Colton fall into one of the four groups of vulnerable populations. **Chapter 2** provides additional demographic details for the community.

TABLE 4-2: VULNERABLE POPULATION METRICS FOR COLTON

VULNERABLE POPULATION METRIC	COMMUNITY-WIDE DATA
Number of people	56,640
Percentage of households with a disabled individual	23.96%
Percent of persons with limited English proficiency (5+ years old)	10.50%
Median household income	$44,583
Percent of households under the poverty limit	22.23%
Percentage of senior citizens	7.56%
Percentage of senior citizens living alone.	19.66%

Source: ESRI 2018.
Note: Due to data limitations, the population data used for the threat assessment may not be consistent with the Census demographic figures given in Chapter 2. The demographic data are used in the threat assessment for comparative purposes only and are not meant to replace the more accurate demographic data in Chapter 2. The demographics shown in this table include people living in Colton's sphere of influence.

In addition to vulnerable populations who are included in Census counts, there are other vulnerable persons who cannot be as easily measured, but may face just as great a risk as other socially vulnerable groups. Persons without access to lifelines (such as cars and basic telecommunication service) can have a difficult time getting information about hazard mitigation and may not have the resources to adequately prepare for future hazard events. Although the homeless population in Colton is fairly small, estimated at 41 people in 2017 (San Bernardino County 2017), homeless persons are highly vulnerable. Without shelter, they are exposed to the direct impacts of natural hazards more than other populations; they have very few (if any) resources to help make themselves more resilient to hazard conditions; social services may be limited or nonexistent; and it can be difficult to effectively communicate information about potential hazard events to homeless persons. Undocumented persons also face increased vulnerability from natural hazard events. They frequently have lower income levels and may live in substandard housing, which can render their homes more susceptible to damage and make it more difficult for them to retrofit their homes to be more resilient. Distrust of government or other authority figures can mean that undocumented persons are less likely to participate in government-run hazard mitigation programs or less willing to listen to official notices about potential hazard events. Although there is no accurate count of undocumented persons in Colton, the total population in San Bernardino County is estimated at 140,000, 51 percent of whom have limited English proficiency and an estimated 35 percent of whom live below the poverty level (Migration Policy Institute 2018).

4.1.3 Other Community Assets

There are other assets in Colton that may also be harmed by hazardous events. These assets include structures and pieces of infrastructure not identified as key facilities, important economic drivers, vital services, and local ecosystems. This chapter will identify the potential threat to these other community assets to the extent information is available.

4.2 Threat Profiles

4.2.1 Drought

Key Facilities

The primary threat from drought events is a reduced water supply. There is not likely to be any damage to key facilities from drought events, although it is possible that any water delivery infrastructure that is not used or used less during drought conditions may fall into some degree of disrepair if regular maintenance is deferred.

Vulnerable Populations

Drought conditions are generally consistent across the community, so there is no specific hazard area to evaluate. In urbanized areas, drought conditions are highly unlikely to become severe enough that a lack of water supplies poses a health or safety risk.

The community members at greatest risk are likely to be lower-income persons, as droughts often bring increased water rates and fines for excessive water use. Depending on how these rates and fines are structured, they could have a disproportionately severe impact on lower-income persons, who may not have the financial resources to afford increased water bills and fines on top of other bills. This impact can be particularly severe if information about new rates and fines, as well as information about ways to conserve water, is not effectively communicated to community members. Additionally, community members who work

in businesses that suffer during drought (e.g., swimming pool services, some types of farming) or in industries that rely on large amounts of water may also face economic hardship.

Other Community Assets

During drought conditions, water service could be impacted. Although highly unlikely, it is possible that water supplies may need to be rationed or otherwise subjected to strict controls. Public and private landscapes that are not drought tolerant will likely be impacted by droughts, which could decrease the usability and enjoyment of parks, gardens, and playing fields.

4.2.2 Flooding

Key Facilities

There are 34 key facilities within the 100- or 500-year flood plain. This includes a number of bridges that may be damaged during a flood event, disrupting traffic flow and freight transport. Colton's Fire Station #3, which includes the Emergency Operations Center (EOC), is in the 100-year flood plain, and the city's Water Reclamation Facility is located partially in the 100-year flood plain and partially in the 500-year. There are also multiple electrical facilities in the 500-year flood plain, although a storm severe enough to qualify as a 500-year flood would likely disrupt electrical service regardless of where such facilities are located. In particularly extreme examples, facilities outside of the 500-year flood plain may be impacted. It is also possible that facilities outside of the 500-year flood plain could be damaged by ponding or other localized flooding. **Table 4-3** shows the types of key facilities in the flood hazard zones.

TABLE 4-3: KEY FACILITIES IN FLOOD HAZARD ZONES

	IN HAZARD ZONE		
FACILITY TYPE	100-YEAR FLOOD PLAIN	500-YEAR FLOOD PLAIN	NOT IN HAZARD ZONE
City facility	0	0	2
Community center	0	0	4
Electric power facility	0	3	5
Fire station	1	0	3
Hospital	0	0	1
School	0	1	14
Solar facility	0	1	2
Wastewater facility	1	0	0
Adult residential care	1	2	7
Child care center	0	1	6
Elder residential care	0	1	4
Foster family agency	1	0	1
Home care organization	1	0	0
Communication facility	0	2	14
Highway bridge	6	1	7
Rail bridge	2	0	5
Road bridge	6	3	4
Total	**19**	**15**	**79**

There are two key facilities in the flood hazard zone that have known replacement values, both in the 100-year flood plain. The total cost to replace these facilities is estimated at $22,513,198.

There are 51 key facilities in the Seven Oaks Dam failure inundation zone. A majority of Colton's electrical power facilities are in the dam failure hazard zone, along with several care facilities and two schools. Two fire stations are in the dam failure hazard zone, including Fire Station 3 and the EOC. A number of highway, rail, and road bridges are also in the inundation zone and face a high risk of being damaged if the Seven Oaks Dam fails. **Table 4-4** shows the types of key facilities in the dam failure hazard zone.

TABLE 4-4: KEY FACILITIES IN DAM FAILURE HAZARD ZONE

FACILITY TYPE	IN DAM FAILURE HAZARD ZONE	NOT IN HAZARD ZONE
City facility	1	1
Community center	1	3
Electric power facility	6	2
Fire station	2	2
Hospital	0	1
School	2	13
Solar facility	2	1
Wastewater facility	1	0
Adult residential care	3	7
Child care center	5	2
Elder residential care	2	3
Foster family agency	1	1
Home care organization	1	0
Communication facility	6	10
Highway bridge	10	4
Rail bridge	1	6
Road bridge	7	6
Total	**51**	**62**

There are seven key facilities in the dam failure hazard zone that have known replacement values. The total cost to replace these seven facilities is estimated at $62,608,592.

Vulnerable Populations

The 100-year flood plain is relatively limited and is home to a fairly small population. By contrast, the 500-year flood plain and the dam failure hazard zone are home to thousands of people who could be harmed by such an event. Persons in the 500-year flood plain and the dam failure hazard zone have a lower median income than the community at large, and so they may be less able to afford flood insurance premiums or make flood-proofing retrofits. Therefore, these persons could face disproportionate

harm from flood events. There is also an above-average level of senior citizens in the 100-year flood plain who are more likely to need assistance preparing their homes for floods or evacuating. **Table 4-5** shows the social vulnerability of residents in the flood hazard zones.

TABLE 4-5: FLOOD HAZARD ZONE VULNERABLE POPULATION METRICS

VULNERABLE POPULATION METRIC	100-YEAR FLOOD PLAIN	500-YEAR FLOOD PLAIN	DAM FAILURE HAZARD ZONE	CITY OF COLTON
Number of people	428	8,128	15,292	56,640
Percentage of households with a disabled individual	14.84%	19.19%	22.38%	23.96%
Percent of persons with limited English proficiency (5+ years old)	5.27%	6.66%	7.38%	10.50%
Median household income	$46,629	$40,772	$35,886	$44,583
Percent of households under the poverty limit	22.90%	22.93%	23.81%	22.23%
Percentage of senior citizens	10.28%	6.20%	4.56%	7.56%
Percentage of senior citizens living alone.	20.45%	21.03%	28.32%	19.66%

Source: ESRI 2018.
Note: Due to data limitations, the population data used for the threat assessment may not be consistent with the Census demographic figures given in Chapter 2. The demographic data are used in the threat assessment for comparative purposes only, and are not meant to replace the more accurate demographic data in Chapter 2. The demographics shown in this table include people living in Colton's sphere of influence.

Floods, particularly flash floods, can also be dangerous for other groups of socially vulnerable persons. Persons without access to lifelines can be unaware of impending flash floods and may not have the means to evacuate on their own. Homeless persons are more likely to suffer injuries during a flood event due to their greater exposure. Additionally, a lack of flood insurance for some people in the flood plains, especially among renters, can render them highly vulnerable to suffering economic harm if a flood event does occur.

Other Community Assets

Floods can cause extensive damage to homes, businesses, and other buildings in Colton, which could cause significant hardship to the community and affect Colton's economic growth. A number of major commercial districts, including areas in and around the Cooley Ranch neighborhood, are in flood-prone areas. Floodwaters or debris deposited by floods may block road or rail networks, impeding transportation and harming the assets that depend on transportation systems, such as public transit and emergency response services. Electrical and communication systems could be damaged by floods, interrupting these services. Serious floods could potentially cause breaks in pipelines such as water and natural gas pipes, leading to further service interruptions, although such events are rare.

4.2.3 Geologic Hazards

Key Facilities

There are 13 key facilities in the high landslide hazard zones. Most of these facilities are bridges along the Interstate 10 corridor and near the Interstate 10/215 interchange. Other vulnerable facilities include the Reche Canyon Elementary School, an elder residential care center, and a communication facility. **Table 4-6** shows the types of key facilities in the landslide hazard zone.

TABLE 4-6: KEY FACILITIES IN LANDSLIDE HAZARD ZONES

FACILITY TYPE	IN HIGH LANDSLIDE HAZARD ZONE	NOT IN HAZARD ZONE
City facility	0	2
Community center	0	4
Electric power facility	0	8
Fire station	0	4
Hospital	0	1
School	1	14
Solar facility	0	3
Wastewater facility	0	1
Adult residential care	0	10
Child care center	0	7
Elder residential care	1	4
Foster family agency	0	2
Home care organization	0	1
Communication facility	1	15
Highway bridge	8	6
Rail bridge	1	6
Road bridge	1	12
Total	**13**	**100**

None of the key facilities in the landslide hazard zone have known replacement values.

Subsidence is not ongoing in Colton, but there is some potential for it to resume if groundwater levels are not effectively managed. If such an event happens, it could pose a threat to all key facilities in the community, although the greatest threat would presumably be in areas with the fastest rate of subsidence. Since there has been no subsidence measured in Colton for several decades, it is not possible to say which parts of the city could face the greatest threat if this hazard were to resume.

Vulnerable Populations

The area of high landslide risk covers approximately 4.3 square miles and is home to an estimated 7,184 people. By most metrics, the residents of this area are not substantially more socially vulnerable than the average Colton resident. However, there is a somewhat higher proportion of senior citizens in the high landslide risk zone than there is in all of Colton. Senior citizens can have challenges evacuating an area, particularly given short notice, which is of particular concern for fast-moving landslide events. Similar challenges can affect persons who lack access to vehicles. **Table 4-7** shows the social vulnerability of residents in the high landslide risk zone.

TABLE 4-7: LANDSLIDE HAZARD ZONE VULNERABLE POPULATION METRICS

VULNERABLE POPULATION METRIC	HIGH LANDSLIDE RISK ZONE	CITY OF COLTON
Number of people	7,184	56,640
Percentage of households with a disabled individual	15.25%	23.96%
Percent of persons with limited English proficiency (5+ years old)	8.88%	10.50%
Median household income	$56,503	$44,583
Percent of households under the poverty limit	25.30%	22.23%
Percentage of senior citizens	10.94%	7.56%
Percentage of senior citizens living alone.	12.17%	19.66%

Source: ESRI 2018.
Note: Due to data limitations, the population data used for the threat assessment may not be consistent with the Census demographic figures given in Chapter 2. The demographic data are used in the threat assessment for comparative purposes only, and are not meant to replace the more accurate demographic data in Chapter 2. The demographics shown in this table include people living in Colton's sphere of influence.

Subsidence is a potential hazard throughout all of Colton. Although subsidence activity in Colton has effectively ceased in recent decades, there is some possibility that it could return. If subsidence activity did resume at a significant level, it would likely have an impact on lower-income residents, who are more likely to live in houses that are less well built and may lack the financial resources to prepare their homes for such impacts.

Other Community Assets

Homes and businesses are typically damaged or destroyed by landslides. In addition to potentially causing significant injuries or fatalities, this can cause economic harm and create a need for long-term emergency sheltering and temporary housing until these buildings can be reconstructed. Landslides often block roadways or railways and may do so for weeks or even months after the event takes place. Long-term disruption to Colton's transportation networks can increase roadway congestion, harm public transit, delay response time for emergency services, and harm the local economy. Utility lines, such as power lines or water pipes, may be broken by a landslide, interrupting important services.

If subsidence did resume in Colton, the impacts could be widespread. In addition to potentially damaging buildings throughout the community, subsidence could damage roads and rail lines as well as underground pipes such as water, wastewater, and natural gas. This could create more congestion on Colton's transportation networks and interrupt key utility services.

4.2.4 Human-Caused Hazards

Key Facilities

Infrastructure failure may occur anywhere in Colton, and therefore any key facility may be affected. Some key facilities, such as bridges, are themselves pieces of infrastructure that could experience a failure event.

Due to the nature of hazardous material releases, the material and its effects may be confined to the area immediately around the release site, or it could spread over a wide distance. For the purposes of this Plan, the areas vulnerable to hazardous material releases are those within a quarter-mile radius of hazardous material facilities, a distance commonly used for environmental analysis of hazardous materials. This does not include the possibility of a hazardous material spill from a road or railway vehicle.

There are 77 key facilities in Colton that are partially or entirely within a quarter-mile of hazardous material sites, although only a small part of some of these facilities are within the quarter-mile radius. Vulnerable facilities include most of Colton's electrical infrastructure, three of the four fire stations, a large number of schools and care facilities, and the Arrowhead Regional Medical Center. Hazardous material releases can pose a safety threat to people at key facilities and may require them to be shut down until cleanup activities are completed. Most hazardous materials are not dangerous to the structures themselves, although some highly corrosive or reactive materials could be. Hazardous material releases may also spark fires, which pose a greater threat to the structures of key facilities. **Table 4-8** shows the types of key facilities partially or entirely within the quarter-mile radius of hazardous material sites.

TABLE 4-8: KEY FACILITIES IN HAZARDOUS MATERIAL HAZARD ZONES

FACILITY TYPE	WITHIN ¼ MILE OF HAZARDOUS MATERIAL SITES	NOT IN HAZARD ZONE
City facility	2	0
Community center	2	2
Electric power facility	5	3
Fire station	3	1
Hospital	1	0
School	8	7
Solar facility	2	1
Wastewater facility	1	0
Adult residential care	7	3
Child care center	5	2
Elder residential care	2	3
Foster family agency	2	0
Home care organization	1	0
Communication facility	10	6
Highway bridge	11	3
Rail bridge	4	3
Road bridge	11	2
Total	**77**	**36**

There are 12 key facilities within a quarter mile of hazardous material sites that have known replacement values. The total cost to replace these facilities is estimated at $118,845,193.

Terrorism may occur anywhere, at any time. Any key facility in Colton could become a target of an act of terror. Such an act may directly seek to damage or destroy the key facility, or the structure may be damaged as a side effect of an act of terror that targets the people in the facility.

Vulnerable Populations

All persons are vulnerable to infrastructure failure. As with many other types of hazards, persons with lower income levels are more likely to live in housing that has been poorly built or poorly maintained (particularly if these persons rent their homes), and such structures are more likely to be damaged during an infrastructure failure event. Persons with mobility challenges are more likely to have difficulty evacuating if an infrastructure failure event requires it.

An estimated 30,000 people or more live within a quarter mile of hazardous material sites—more than half of Colton's population. The level of social vulnerability for persons within this quarter-mile radius compared to the city at large is similar, although people in the hazard zone have a household income level that is approximately 12 percent lower than the average income for all Colton households. Additionally, a greater proportion of senior citizens in the hazard zone live alone, and so could require additional assistance if evacuating or sheltering in place is necessary. Depending on the nature of the hazardous material, young children or persons with existing health problems may have a greater risk of being harmed by the material. Persons who face greater exposure, such as homeless persons or persons who work outside, are also more likely to be harmed by such an event if they are unable to seek shelter in time. **Table 4-9** shows the social vulnerability of residents within a quarter mile of hazardous material facilities.

TABLE 4-9: HAZARDOUS MATERIAL HAZARD ZONE VULNERABILITY METRICS

VULNERABLE POPULATION METRIC	WITHIN ¼ MILE OF HAZARDOUS MATERIAL SITES	CITY OF COLTON
Number of people	30,280	56,640
Percentage of households with a disabled individual	24.0%	23.96%
Percent of persons with limited English proficiency (5+ years old)	10.99%	10.50%
Median household income	$39,386	$44,583
Percent of households under the poverty limit	25.03%	22.23%
Percentage of senior citizens	6.66%	7.56%
Percentage of senior citizens living alone.	24.68%	19.66%

Source: ESRI 2018.
Note: Due to data limitations, the population data used for the threat assessment may not be consistent with the Census demographic figures given in Chapter 2. The demographic data are used in the threat assessment for comparative purposes only, and are not meant to replace the more accurate demographic data in Chapter 2. The demographics shown in this table include people living in Colton's sphere of influence.

Most Colton residents generally face a similar threat level from terrorism activities. Individuals who work in high-profile positions or at sites that are more likely to be targeted could face a somewhat greater threat, although it is unclear if such an increase in threat levels would be appreciably higher. No population group faces a greater threat from terrorism than others.

Other Community Assets

A substantial infrastructure failure event would likely disrupt a number of services in Colton depending on the nature of the event, potentially including electricity and natural gas delivery, telecommunications, and water and wastewater. Damage to roads or railways could affect transportation and freight-shipping activities. Any number of nonkey facilities, such as homes or businesses, could be damaged or destroyed by an infrastructure failure event that creates a flood, explosion, or fire.

The primary threat to other community assets from hazardous material releases is the disruption of transportation networks. Depending on the size, location, and nature of the release, large areas of the local road or rail system may be closed to keep people away from hazardous conditions and to allow for cleanup activities. The release of a highly corrosive hazardous material could cause direct damage to physical assets such as homes and businesses. Hazardous material releases could also be highly dangerous to local ecosystems and may cause harm to plants and animals in wildland areas.

Terrorism may threaten any number of community assets. Depending on the nature of the terrorism act, community assets such as energy or transportation infrastructure may be directly targeted, causing service outages in part or all of Colton. Service disruptions or damage to other community assets could also occur as an incidental consequence of an act of terror.

4.2.5 Seismic Hazards

Key Facilities

There are 9 key facilities in the Alquist-Priolo fault zone. Most of these facilities are highway bridges along Interstate 215, near the Santa Ana River and the interchange with Interstate 10. One elder care facility is also situated in this hazard zone. **Table 4-10** shows the types of key facilities in the Alquist-Priolo zone.

TABLE 4-10: KEY FACILITIES IN ALQUIST-PRIOLO FAULT ZONE

FACILITY TYPE	IN ALQUIST-PRIOLO ZONE	NOT IN HAZARD ZONE
City facility	0	2
Community center	0	4
Electric power facility	0	8
Fire station	0	4
Hospital	0	1
School	0	15
Solar facility	0	3
Wastewater facility	0	1
Adult residential care	0	10
Child care center	0	7
Elder residential care	1	4
Foster family agency	0	2
Home care organization	0	1
Communication facility	0	16
Highway bridge	8	6
Rail bridge	0	7
Road bridge	0	13
Total	**9**	**104**

None of the key facilities in the Alquist-Priolo fault have known replacement values.

There are 39 key facilities in the liquefaction hazard zone. Most of these are located in the medium-high or medium risk zones, although there are a few in the high risk zone. Vulnerable facilities include three schools, an electrical power facility, Fire Station 4, the City's Corporate Yard, and the Peter S. Luque Community Center. There are also several care facilities, communication centers, and bridges in the liquefaction hazard zones. **Table 4-11** shows the types of key facilities in the different liquefaction hazard zones.

TABLE 4-11: KEY FACILITIES IN LIQUEFACTION HAZARD ZONES

FACILITY TYPE	IN LIQUEFACTION HAZARD ZONE			NOT IN HAZARD ZONE
	HIGH	MEDIUM-HIGH	MEDIUM	
City facility	0	0	1	1
Community center	0	0	1	3
Electric power facility	0	1	0	7
Fire station	0	0	1	3
Hospital	0	0	0	1
School	0	0	3	12
Solar facility	0	0	0	3
Wastewater facility	0	0	0	1
Adult residential care	0	3	0	7
Child care center	0	1	2	4
Elder residential care	0	1	1	3
Foster family agency	0	1	0	1
Home care organization	0	1	0	0
Communication facility	1	3	2	10
Highway bridge	3	3	4	4
Rail bridge	0	0	0	7
Road bridge	0	3	3	7
Total	**4**	**17**	**18**	**74**

There are three key facilities in the liquefaction hazard zone that have known replacement values. One facility, located in the medium-high liquefaction hazard zone, has a replacement value of $12,865,454. The other two facilities, located in the medium liquefaction hazard zone, have a combined replacement value of $7,887,020.

Seismic shaking poses a threat to all key facilities. Any of them may face damage or destruction in a sufficiently strong earthquake. In general, facilities that are older and have not been well maintained, or facilities that were poorly constructed to begin with, face the greatest threat. Without a more detailed seismic evaluation of key facilities, it cannot be said which structures are more likely to be damaged or destroyed.

California law requires that hospitals undergo seismic retrofits or be built to seismically resilient standards so that after a significant earthquake both the structural and nonstructural elements of the hospital are capable of operating and providing medical care. The Arrowhead Regional Medical Center reports that most of the facility's buildings, including all that provide medical care, are rated as "reasonably capable" of providing medical care after a strong earthquake. The one exception is the facility's loading dock, which is rated as being vulnerable to a level of structural damage that "does not significantly jeopardize life," but may render it inoperable after a strong earthquake. All facilities at the Arrowhead Regional Medical Center, including the loading dock, are rated at the highest level of nonstructural performance, meaning that the hospital has onsite water supplies, energy supplies, and wastewater holding tanks sufficient to allow 72 hours of emergency operations without access to utility service (OSHPD 2018).

Vulnerable Populations

Residents in Colton's Alquist-Priolo zone, who face the risk of surface fault rupture from the San Jacinto Fault, do not have higher levels of social vulnerability than the average Colton resident. By some metrics, residents of the Alquist-Priolo zone are less socially vulnerable than the average Colton resident, such as household income and level of poverty. This does not mean that residents of the Alquist-Priolo zone are not socially vulnerable, and in particular the percentage of senior citizens living alone and people with limited English proficiency may create challenges for mitigation activities.

Although in effect no one lives in the zone of high liquefaction risk, an estimated 14,000-plus residents live in other areas with an elevated liquefaction risk. Residents in the medium-high liquefaction risk have a substantially lower level of household income (approximately 26 percent below Colton's average), decreasing their ability to harden their homes against liquefaction and making them more susceptible to economic damage from seismic activity. Additionally, both the medium and medium-high liquefaction risk zones have higher proportions of senior citizens living alone. Seniors living alone may have a harder time hardening their homes against liquefaction or receiving information about risk levels, particularly if they lack regular assistance from formal or informal support networks. **Table 4-12** shows the social vulnerability of residents in the seismic hazard zones.

TABLE 4-12: SEISMIC HAZARD ZONES VULNERABILITY METRICS

VULNERABLE POPULATION METRIC	ALQUIST-PRIOLO ZONE	HIGH LIQUEFACTION	MEDIUM-HIGH LIQUEFACTION	MEDIUM LIQUEFACTION	CITY OF COLTON
Number of people	2,643	1	5,646	8,441	56,640
Percentage of households with a disabled individual	17.99%	-	25.59%	23.80%	23.96%
Percent of persons with limited English proficiency (5+ years old)	9.90%	-	3.33%	7.68%	10.50%
Median household income	$51,337	-	$33,017	$49,242	$44,583
Percent of households under the poverty limit	15.57%	-	19.33%	22.92%	22.23%
Percentage of senior citizens	5.11%	-	4.61%	7.68%	7.56%
Percentage of senior citizens living alone.	20.59%	-	28.08%	26.08%	19.66%

Source: ESRI 2018.
Note: There are not enough people in the high liquefaction zone to estimate vulnerable population metrics.
Note: Due to data limitations, the population data used for the threat assessment may not be consistent with the Census demographic figures given in Chapter 2. The demographic data are used in the threat assessment for comparative purposes only, and are not meant to replace the more accurate demographic data in Chapter 2. The demographics shown in this table include people living in Colton's sphere of influence.

In addition to the defined zones for surface fault rupture and liquefaction, all residents of Colton are at risk of seismic shaking. Persons with limited English proficiency may have a difficult time receiving information about being prepared for earthquake

events if it is not made available in their language. Senior citizens (especially those living alone) and persons with disabilities could have a harder time strengthening their homes against seismic activity, and lower-income households and persons in poverty may not have the financial resources to do so. Persons with fewer financial resources are also more likely to be affected by the decrease in economic activity that would likely accompany a significant earthquake.

Other Community Assets

Surface fault rupture could damage any building or infrastructure within the rupture zone. This could include Interstates 10 and 215, as well as the Union Pacific railroad (the BNSF railroad also crosses the San Jacinto Fault's rupture zone immediately north of Colton). Surface roads could also be damaged, along with any utility lines or pipes that cross the fault line. This could create traffic congestion and block routes to the north and east of Colton, as well as causing widespread utility outages.

Liquefaction could also damage Interstates 10 and 215, the Union Pacific railroad line, and any utility lines that run through the liquefaction hazard zone. In addition to creating service outages, impacts to these pieces of infrastructure can cause regional traffic congestion. The Cooley Ranch neighborhood between the Santa Ana River and Interstate 215 is designated a medium-high liquefaction hazard zone, and in addition to damage to homes, liquefaction could harm the large number of retail stores in the neighborhood, affecting the local economy.

Seismic shaking may affect other community assets throughout Colton. Older buildings of all types that have not been seismically retrofitted may be harmed. As mentioned in Chapter 3, an earthquake on the San Jacinto Fault could cause shaking that would rank as IX (Ruinous) on the MMI scale, the same level of intensity as the 1994 Northridge earthquake at the areas of strongest shaking. Such shaking could damage or destroy roads or rail lines, bridges, and utility lines, creating transportation congestion and utility outages. There is also the possibility that a strong earthquake could rupture hazardous material storage containers, causing a hazardous material release.

4.2.6 Severe Weather

Key Facilities

Most key facilities are unlikely to be harmed by extreme heat. However, electrical facilities such as substations and power plants could be affected by very high temperatures, as such conditions place increased stress on the electrical grid. If demand is not properly managed, it is possible that electrical facilities may be damaged during extreme heat events. Severe wind and severe winter weather could cause damage to key facilities, particularly if they have not been well built or have been poorly maintained. This could range from relatively minor damage, such as some lost roofing material, to more significant structural damage or even some degree of destruction in extreme cases.

Vulnerable Populations

All types of severe weather events may occur anywhere in Colton, so there are no specific risk zones to analyze for social vulnerability. Extreme heat likely has the greatest potential to cause disproportionate harm to Colton's residents because extreme heat is very dangerous to senior citizens. This can create a significant health risk, particularly for seniors who do not live near a cooling center (or have no way of reaching one), seniors who do not live in a home with air conditioning, and seniors who rely on help from another person to ensure their basic needs are met. Other exposed persons, such as homeless individuals, also face an elevated risk from extreme heat events.

Severe wind may be harmful to people who live in housing that has not been well constructed or well maintained, or to people who live in mobile homes. Such housing is more likely to be damaged by strong winds. Persons in these homes who have limited financial resources may face further hardships if their homes are damaged, as reconstruction may be a significant economic burden.

Severe winter weather can also harm people in poorly built or maintained houses, as such buildings may be similarly vulnerable to damage from an intense storm system. If these weather systems create a need to evacuate, senior citizens, persons with disabilities, and persons without access to a vehicle may have difficulty doing so and could require assistance from formal or informal support groups.

Other Community Assets

Severe weather poses a particular threat to electrical service in Colton. Extreme heat events cause power lines and related infrastructure to function at reduced efficiency, and the increased electrical demand that is common during extreme heat events (due to greater air conditioning needs) can put further stress on the electrical grid. This may lead to blackouts in part or all of Colton. Severe wind and severe winter weather can topple power lines, leading to similar outages. Throughout Colton, there is a risk of severe wind damaging buildings, particularly those that are poorly built or have been poorly maintained. Even if such buildings are not considered key facilities, damage to these structures may pose a safety hazard and could affect the local economy.

4.2.7 Wildfire

Key Facilities

Although the wildfire hazard zone covers a sizeable part of Colton, most of the key facilities are located in urbanized or other nonwildland areas. As a result, there are only 18 key facilities in wildfire hazard areas. However the Moderate fire severity zone includes an electrical facility and Fire Station 4; the High fire severity zone includes a child care center and Colton's Water Reclamation Facility; and the Very High zone includes Reche Canyon Elementary School and multiple private care centers. **Table 4-13** shows the types of key facilities in the different fire severity zones.

TABLE 4-13: KEY FACILITIES IN WILDFIRE HAZARD ZONES

FACILITY TYPE	IN FIRE SEVERITY ZONE			NOT IN HAZARD ZONE
	VERY HIGH	HIGH	MODERATE	
City facility	0	0	0	2
Community center	0	0	0	4
Electric power facility	0	0	1	7
Fire station	0	0	1	3
Hospital	0	0	0	1
School	1	0	1	13
Solar facility	0	0	0	3
Wastewater facility	0	1	0	0
Adult residential care	0	0	0	10
Child care center	1	1	1	4
Elder residential care	2	0	1	2
Foster family agency	0	0	0	2
Home care organization	0	0	0	1
Communication facility	1	0	1	14
Highway bridge	0	0	0	14
Rail bridge	0	0	1	6
Road bridge	0	2	2	9
Total	**5**	**4**	**9**	**95**

There are three key facilities in the wildfire hazard zone that have known replacement values. One, located in the high fire severity zone, has a replacement value of $21,141,346. The other two, located in the moderate fire severity zone, have a combined replacement value of $17,166,478.

Vulnerable Populations

Colton's wildfire hazard zones are home to approximately 10,000 residents, most of who live in the Very High FHSZ. There are higher rates of senior citizens in all wildfire hazard zones, particularly in the High and Very High FHSZs. As senior citizens are more likely to have disabilities and reduced mobility, areas with higher percentages of senior citizens can have more challenges with evacuation and preparatory activities. Although households in the High and Very High FHSZs have income levels higher than all of Colton, the household income in the Moderate FHSZ is lower than average. Such households may have a harder time preparing their homes and properties to be more resilient to wildfires, which can increase the threat to lower-income households. **Table 4-14** shows the social vulnerability of residents in the wildfire hazard zones.

TABLE 4-14: WILDFIRE HAZARD ZONE VULNERABLE POPULATION METRICS

VULNERABLE POPULATION METRIC	MODERATE FIRE SEVERITY ZONE	HIGH FIRE SEVERITY ZONE	VERY HIGH FIRE SEVERITY ZONE	CITY OF COLTON
Number of people	2,106	222	7,685	56,640
Percentage of households with a disabled individual	11.16%	36.21%	31.79%	23.96%
Percent of persons with limited English proficiency (5+ years old)	2.24%	17.14%	10.00%	10.50%
Median household income	$38,708	$61,097	$63,992	$44,583
Percent of households under the poverty limit	23.90%	13.76%	17.19%	22.23%
Percentage of senior citizens	9.35%	11.71%	11.76%	7.56%
Percentage of senior citizens living alone.	19.80%	7.69%	17.37%	19.66%

Source: ESRI 2018.
Note: Due to data limitations, the population data used for the threat assessment may not be consistent with the Census demographic figures given in Chapter 2. The demographic data are used in the threat assessment for comparative purposes only, and are not meant to replace the more accurate demographic data in Chapter 2. The demographics shown in this table include people living in Colton's sphere of influence.

In addition to the impacts to persons living in the FHSZs, wildfires can have more widespread impacts on socially vulnerable persons. Children, senior citizens, and persons with respiratory conditions can be disproportionately affected by ash and smoke inhalations, creating or exacerbating health impacts throughout Colton and in the broader region.

Other Community Assets

The FHSZs in Colton include a large number of residential and commercial areas. Buildings of all types in wildfire-prone areas are at risk of significant damage or destruction from any blazes, requiring temporary housing and lengthy reconstruction activities. Wildfire events can interrupt transportation networks by burning too close to road or railways, requiring them to be closed off for public safety and so as to provide easy access for emergency responders. Interstate 215 runs through the Very High FHSZ and other areas of elevated risk for wildfires, and so could be vulnerable to closure during a wildfire event. In addition to creating significant congestion, such a move could hamper evacuation efforts. Wildfires often damage or destroy power lines, and may also interrupt natural gas pipelines or cause them to be shut down for safety reasons, creating energy service outages.

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Section 5. Community Capability Assessment

Hazard mitigation actions only benefit Colton when they are successfully put into effect. Actions that are written down on paper but never implemented do not provide any mitigation protections to the community. Before Colton can develop new hazard mitigation actions, it is important to understand the tools and resources that exist to support and implement mitigation activities. The community capability assessment is a review of Colton's current potential to put mitigation actions into place. It looks at existing local agencies, public policies, funding sources, individuals, and other resources that can help implement the actions in this Plan. Mitigation actions will build off of the success of these resources and leverage their capabilities to support increased resiliency in the community.

The community capabilities assessment looked at multiple types of resources:

- Financial resources. Funding opportunities available to the City.
- Personnel resources. City staff and volunteers.
- Plan resource. Plans adopted by the City or other government agencies, including advisory and enforceable ones.
- Policy resources. Policies adopted and implemented by the City or other agencies.
- Technical resources. Data, tools, and technical expertise available to the City.

Table 5-1 shows the capabilities assessment for Colton.

TABLE 5-1: CAPABILITIES ASSESSMENT

RESOURCE NAME	TYPE OF RESOURCE	ABILITY TO SUPPORT MITIGATION	WEBSITE
City Resources			
Building and Construction Regulations	Policy resource	Colton's Building and Construction Regulations are made up of several individual chapters, including the City's Building Code, Electrical Code, and Fire Code, which govern the construction of new and renovated buildings. These standards are published by the state and adopted by local communities, sometimes with amendments to address local issues. They are typically updated every three years, although more minor updates may occur in the interim. The Building and Construction Regulations can be updated with local amendments that require new or renovated buildings to better resist damage or harm to occupants during a flood event, and so may support hazard mitigation activities.	https://library.municode.com/ca/colton/codes/code_of_ordinances (Title 15, Chapters 15.04 to 15.16)
Capital Improvement Program	Plan resource	Colton's Capital Improvement Program is a set of planned construction projects at City-owned buildings, facilities, and infrastructure. Examples may include new or retrofitted City facilities, street repairs or modifications, and improvements to drainage systems. Colton's Capital Improvement Program was last updated during the budget process for the 2013/2014 fiscal year and is set to be updated every five years. Funding may come from grants or dedicated revenue sources. Mitigation actions that involve construction or retrofits to City buildings, facilities, and infrastructure may be implemented through inclusion in the Capital Improvement Program.	http://www.ci.colton.ca.us/DocumentCenter/View/1997
Community Emergency Response Team	Personnel resource	Colton's Community Emergency Response Team (CERT) is a group of volunteer residents who can provide assistance during an emergency event. CERT participants are trained in first aid and CPR, disaster preparedness, search and rescue, and other light emergency response duties. CERT volunteers can also assist with organizing and maintaining shelters for persons displaced by an emergency. Colton's CERT program is operated by the City's Fire Department. Mitigation actions that involve community training and education can be implemented through the CERT program, and CERT volunteers can assist with mitigation-related outreach activities.	http://www.coltonfire.com/index.cfm?section=22&pagenum=161

RESOURCE NAME	TYPE OF RESOURCE	ABILITY TO SUPPORT MITIGATION	WEBSITE
Development Services Department	Personnel resource	Colton's Development Services Department is responsible for conducting short-term and long-term planning activities in Colton, approving building permits and business licenses, and inspecting private properties. Through these activities, the Development Services Department enforces the City's Building and Construction Regulations and related standards, as well as all land use regulations. Any mitigation actions related to land use, construction of new structures or retrofits to existing ones, and operating conditions of private property, can be carried out through the actions of Development Services Department staff	http://www.ci.colton.ca.us/index.aspx?nid=160
Electric Utility Department	Personnel resource	Colton's Electric Utility Department provides electrical service to properties in the community and maintains the city's electricity distribution network. As a part of these duties, it is responsible for setting electrical rates and has purview over local renewable energy and electrical energy efficiency programs. Mitigation actions that relate to the resiliency of electrical service and electrical infrastructure will be implemented through Electric Utility Department staff.	http://www.ci.colton.ca.us/index.aspx?nid=162
Electric Utility Fund	Financial resource	The Electric Utility Fund is a dedicated amount of money from the fees charged to Colton Electric customers for electricity service. The money is used to pay for salaries for Electric Utility Department employees, maintenance and operations of the City's electricity network, and other charges related to running Colton Electric. Mitigation actions that improve resiliency of electrical services and infrastructure can be supported by the Electric Utility Fund.	https://www.ci.colton.ca.us/Archive.aspx?AMID=37

RESOURCE NAME	TYPE OF RESOURCE	ABILITY TO SUPPORT MITIGATION	WEBSITE
Emergency Communications Services	Personnel resource	The Emergency Communications Services (ECS) is a group of volunteer FCC-licensed amateur radio operators who can provide backup communication services if a disaster damages or destroys conventional communication networks. ECS volunteers can provide communication services for emergency response personnel and other key City staff, allowing for more effective response activities. The program is run out of the Colton Fire Department. Mitigation actions related to providing backup emergency communication systems may be implemented through the ECS. ECS volunteers may also be able to assist with community-wide outreach and education, particularly on issues of emergency communication.	http://www.coltonfire.com/index.cfm?section=22&pagenum=161
Finance Division	Personnel resource	Colton's Finance Division, part of the City's Management Services Department, is responsible for the City's financial operations. It conducts budgeting activities, handles the City's payroll, provides general accounting services, and prepares financial reports, among others. The Finance Division is unlikely to directly implement mitigation actions, but by integrating mitigation actions into the City budget and administering mitigation-related grants, staff in this division can support efforts to improve local resiliency.	http://www.ci.colton.ca.us/index.aspx?nid=167
Fire Department	Personnel resource	The Colton Fire Department, which shares resources and staff with the City of Loma Linda, is responsible for firefighting, fire protection, and emergency medical response services in the community. This includes mitigation activities that reduce the likelihood of fires or limit the damage from such events. Department activities also include efforts to prepare for local disasters and ensure a more effective response. Mitigation actions that involve resiliency to wildfire are the responsibility of the Fire Department. As the Fire Department is also responsible for more general emergency preparedness, it can coordinate with other agencies to implement mitigation actions that pertain to a wider variety of hazard events.	http://www.coltonfire.com

RESOURCE NAME	TYPE OF RESOURCE	ABILITY TO SUPPORT MITIGATION	WEBSITE
Floodplain Management Regulations	Policy resource	The Floodplain Management Regulations for the City of Colton are a required component of the City's participation in the National Flood Insurance Program (NFIP). Under the terms of these regulations, construction activities within the 100-year flood plain must feature flood-resilient design features. Additionally, the regulations limit the types of land use activities that can be conducted within the 100-year flood plain. Mitigation actions that address the vulnerability of buildings in the 100-year flood plain could be implemented through amendments to Colton's Floodplain Management Regulations.	https://library.municode.com/ca/colton/codes/code_of_ordinances (Title 15, Chapter 15.22)
General Fund	Financial resource	Colton's General Fund is revenue that the City collects from sales tax, property tax, other taxes, license and permit fees, fines, and various other sources. Unlike other sources of revenue, which are often restricted to specific types of projects or programs, General Fund revenue may be used for any City expenses. Currently, most General Fund revenue is spent on the salary and benefits of City staff. The General Fund can support mitigation actions by providing the financial resources to implement actions that cannot be feasibly funded through other mechanisms, including paying for additional staff as needed.	https://www.ci.colton.ca.us/Archive.aspx?AMID=37
General Plan	Plan resource	The City of Colton's General Plan is the community's comprehensive, long-range blueprint that guides how Colton will change and develop. It addresses topics such as land use, public safety, noise, and open space. Individual goals and policies in the General Plan create a framework for specific municipal programs and projects. The various sections of the General Plan have been updated between 1987 and 2014. Mitigation actions are supported by the goals and policies in the General Plan, and these actions can be directly integrated into the General Plan in future updates, providing a stronger enforcement mechanism.	http://www.coltononline.com/index.aspx?NID=778

RESOURCE NAME	TYPE OF RESOURCE	ABILITY TO SUPPORT MITIGATION	WEBSITE
Police Department	Personnel resource	The City of Colton Police Department is responsible for protecting public safety in the community. This includes investigating criminal activity, directing traffic, and responding to public safety emergencies. Mitigation actions that fall within the Police Department's purview include those related to the safe movement of traffic and the public safety of community members during emergency events.	http://coltonpd.org/
Public Works Department	Personnel resource	The City of Colton Public Works Department is responsible for maintaining City-owned buildings and parks, constructing and maintaining City streets and sidewalks (including street trees and other public landscaping), and maintaining the City vehicle fleet. The Department also provides engineering services to the City, oversees the Capital Improvement Program, and issues permits for engineering activities on private land. Mitigation activities that involve construction or maintenance activities of City facilities or on City-owned land, relate to the City fleet, or involve standards for other engineering activities, can be implemented through Public Works Department staff.	http://www.ci.colton.ca.us/index.aspx?nid=179
Seismic Strengthening for Unreinforced Masonry Buildings Regulations	Policy resource	Colton's Seismic Strengthening for Unreinforced Masonry Buildings Regulations are a set of standards requiring all existing buildings with an unreinforced masonry bearing wall to have a number of features that make the building more resistant to seismic shaking. Mitigation actions that relate to the seismic resiliency of unreinforced masonry buildings in Colton may be implemented through amendments to this set of regulations. Mitigation actions related to the resiliency of other building types (including to other hazards) may be implemented through a similar set of standards.	https://library.municode.com/ca/colton/codes/code_of_ordinances (Title 15, Chapter 15.20)

RESOURCE NAME	TYPE OF RESOURCE	ABILITY TO SUPPORT MITIGATION	WEBSITE
Water and Wastewater Department	Personnel resource	Colton's Water and Wastewater Department provides water service to approximately 90 percent of the community, and wastewater collection and some treatment services to all of Colton. This includes constructing, maintaining, and operating the infrastructure that sources and distributes most of the City's water and conveys the City's wastewater. Such systems include groundwater wells, pump stations, pipes, storage tanks, and wastewater treatment facilities. The Water and Wastewater Department is also responsible for water conservation activities within its service territory. Any mitigation actions that involve where Colton's water comes from, how much water the community uses, the City's water or wastewater-related infrastructure, or other issues related to water and wastewater services may be implemented by the Water and Wastewater Department staff.	http://www.ci.colton.ca.us/index.aspx?nid=180
Water and Wastewater Funds	Financial resource	The Water Utility Fund and Wastewater Utility Fund are two separate funds from the fees charged to City water and wastewater customers. Salaries for water and wastewater employees are paid from these funds, along with maintenance and operations of water and wastewater systems, capital improvements to water and wastewater infrastructure, and other charges related to these services. Mitigation actions that involve water or wastewater service or infrastructure in Colton may be supported by the Water and Wastewater utility funds.	https://www.ci.colton.ca.us/Archive.aspx?AMID=37
Zoning Code	Policy resource	The City of Colton Zoning Code is a set of regulations for different land uses in the community. It establishes standards for where different types of development and land use activity may occur (including defining hazard-prone areas where different development and land use standards may apply), how they look and how they can be operated, and the necessary permitting and approval processes for development. The Zoning Code is an implementation tool of Colton's General Plan, and plays a significant role in determining Colton's appearance and community characteristics. Mitigation actions that govern the siting, construction, and operation of new developments can be implemented through the Zoning Code.	https://library.municode.com/ca/colton/codes/code_of_ordinances (Title 18)

RESOURCE NAME	TYPE OF RESOURCE	ABILITY TO SUPPORT MITIGATION	WEBSITE
San Bernardino County Resources			
San Bernardino County Office of Emergency Services	Technical resource	The San Bernardino County Office of Emergency Services (OES) is responsible for emergency planning, hazard mitigation, and emergency response and recovery activities throughout the county, in collaboration with local communities. OES helps coordinate activities between the county and cities, conducts emergency training and exercises, manages emergency grants, among other activities. Mitigation actions involving coordination with county agencies or other cities may be facilitated through work with OES. Additionally, OES can support Colton's own hazard mitigation activities by providing funding or other resources.	http://www.sbcfire.org/oes/about.aspx
San Bernardino County Flood Control District	Technical resource	The San Bernardino County Flood Control District, part of the county's Department of Public Works, is responsible for constructing and maintaining flood control infrastructure in San Bernardino County, such as drainage basins and channels. The district also is a partial operator of the Seven Oaks Dam on the headwaters of the Santa Ana River. The courses of the Santa Ana River and Warm Creek, as well as various drainage channels throughout Colton, fall under the district's purview. Mitigation actions that involve changes to flood control infrastructure in Colton will likely require support and coordination with the County Flood Control District.	http://cms.sbcounty.gov/dpw/FloodControl.aspx
San Bernardino County General Plan	Plan resource	The General Plan for San Bernardino County guides the long-term growth and development of the County's unincorporated areas. This includes Slover Mountain and other unincorporated areas within Colton's sphere of influence. Hazard mitigation actions that require coordination with the County or action in these unincorporated areas may be integrated into the County's General Plan to provide a stronger framework and make them more enforceable.	http://cms.sbcounty.gov/lus/planning/generalplan.aspx

RESOURCE NAME	TYPE OF RESOURCE	ABILITY TO SUPPORT MITIGATION	WEBSITE
San Bernardino County Multi-Jurisdictional Hazard Mitigation Plan	Plan resource	The San Bernardino County Multi-Jurisdictional Hazard Mitigation Plan identifies hazard events present in the unincorporated areas of San Bernardino County and recommends mitigation actions to reduce the harm from these events. The county and Colton can share resources and best practices for hazard mitigation activities. Similar mitigation actions in the county's and Colton's plan can help create more regional consistency. Mitigation actions that require coordination with the County Office of Emergency Services or other county agencies may be integrated into the county's plan.	http://cms.sbcounty.gov/portals/58/Documents/Emergency_Services/Hazard-Mitigation-Plan.pdf
San Bernardino Valley Municipal Water District	Technical resource	The San Bernardino Valley Municipal Water District (SBVMWD) is a regional agency that is responsible for long-term water supply in the San Bernardino Valley. The district acts as a water wholesaler, obtaining water from various sources and distributing it to local water suppliers. The SBVMWD imports water from the State Water Project and managers most of the valley's groundwater basins. The city can work with SBVMWD on mitigation actions that relate to local water supply and water use.	http://www.sbvmwd.com/
West Valley Water District	Technical resource	The West Valley Water District (WVWD) is an agency that provides water services to various communities in San Bernardino County, including approximately 10 percent of Colton. Like Colton's own Water and Wastewater Department, the WVWD is responsible for sourcing water, maintaining water delivery infrastructure, and administering water conservation and related programs for its service territory. Mitigation actions involving water supply and use can be implemented throughout all of Colton in collaboration with the WVWD.	https://wvwd.org/

RESOURCE NAME	TYPE OF RESOURCE	ABILITY TO SUPPORT MITIGATION	WEBSITE
Regional, State, and Federal Resources			
Cal-Adapt	Technical resource	Cal-Adapt is an online tool to share information about climate change projections in California. It allows users to learn about expected climate conditions throughout the state, at a highly refined level, for a variety of factors such as temperature, precipitation, wind, wildfire, and sea level rise. The tool was created by the California Energy Commission and a host of institutional, governmental, and nonprofit partners. Cal-Adapt can be a tool to support implementation of this LHMP and future updates, providing the best available science on climate change to guide Colton's mitigation actions.	http://cal-adapt.org/
California Department of Transportation	Technical resource	The California Department of Transportation (Caltrans) is responsible for construction and maintenance of California's state-owned highways, including Interstates 10 and 215 in Colton. Caltrans also provides funding and other resources to local and regional governments to support other transportation-related projects. Mitigation actions related to Interstates 10 and 215 can be implemented in coordination with Caltrans. The agency can also provide support for other transportation-related mitigation actions.	http://www.dot.ca.gov/
California Governor's Office of Emergency Services	Technical resource	The California Governor's Office of Emergency Services (Cal OES) is the agency responsible for conducting statewide hazard mitigation and other emergency-related planning, supporting emergency response and recovery activities, and coordinating emergency-related activities (including disaster recovery funding) between local jurisdictions and the federal government. Cal OES can distribute grant funding, provide guidance on hazard mitigation, and share best practices. Mitigation actions in Colton may be funded through grant opportunities provided by Cal OES, and may be supported by Cal OES guidance or other resources.	http://www.caloes.ca.gov/

RESOURCE NAME	TYPE OF RESOURCE	ABILITY TO SUPPORT MITIGATION	WEBSITE
California Multi-Hazard Mitigation Plan	Plan resource	California's Multi-Hazard Mitigation Plan identifies and analyzes the various natural and human-caused hazards in California. It includes descriptions of these hazards, summaries of past hazards events, assessment of how these hazards may harm people and other assets in California, and projections of future hazard conditions. The Multi-Hazard Mitigation Plan was last updated in 2013, and a revised version is set to be adopted in the second half of 2018. Future updates to Colton's LHMP can be supported through the latest information and analyses available in the state Multi-Hazard Mitigation Plan.	http://www.caloes.ca.gov/for-individuals-families/hazard-mitigation-planning/state-hazard-mitigation-plan
Federal Emergency Management Agency	Technical resource	The Federal Emergency Management Agency (FEMA) is the federal agency responsible for hazard mitigation, emergency preparedness, and emergency response and recovery at the national level. FEMA provides hazard mitigation guidance to state and local governments, including information on best practices and compliance with federal requirements for hazard mitigation plans. It also provides a number of grants for hazard mitigation activities. Mitigation actions in Colton can be supported through FEMA grants and developed with assistance from FEMA. The agency also provides guidance that will be used in future updates to Colton's LHMP.	https://www.fema.gov
Private Resources			
American Red Cross	Technical resource	The American Red Cross is a humanitarian assistance organization that provides disaster relief services in the aftermath of major hazard events. This includes operating emergency shelters, distributing meals and relief supplies, and providing basic health services. Although the American Red Cross's services are more related to preparation than mitigation actions, there may be opportunities for the organization to support mitigation activities related to community engagement and education.	http://www.redcross.org/
BNSF Railway	Technical resource	The BNSF Railway is one of the country's major freight railroad companies. It owns the main north-south railway line in Colton, along with various spur lines, and operates a rail yard immediately north of the community. Mitigation actions that relate to the resiliency on Colton's railways and related issues will need to be implemented in coordination with BNSF.	http://www.bnsf.com/

RESOURCE NAME	TYPE OF RESOURCE	ABILITY TO SUPPORT MITIGATION	WEBSITE
Southern California Edison	Technical resource	Southern California Edison (SCE) is the primary electricity provider for most of southern California. Although it supplies electricity to only a small number of properties in Colton, it owns and operates the high-voltage electrical transmission lines and most of the electrical substations in the community. Mitigation actions that involve the resiliency of Colton's high-voltage transmission lines and other pieces of electrical infrastructure not owned by the city will need to be coordinated with SCE. SCE can also support other mitigation actions that involve electricity.	https://www.sce.com/
Southern California Gas Company	Technical resource	The Southern California Gas Company (SoCalGas) is the natural gas service provider for most of southern California, including Colton. In addition to providing natural gas service, it also owns and operates the natural gas infrastructure in and around the community. Mitigation actions that involve natural gas use or relate to the resiliency of natural gas infrastructure will need to be implemented in coordination with SoCal Gas.	https://www.socalgas.com/
Union Pacific Railroad	Technical resource	The Union Pacific Railroad is a major freight railroad company. It owns the primary east-west railway line in Colton, along with various spur lines, and operates a rail yard in west Colton. Mitigation actions related to railway resiliency in the community, as well as related issues, will require coordination with Union Pacific to implement.	https://www.up.com/index.htm

Section 6. Mitigation Strategy

6.1 Strategy Development Process

The hazard mitigation strategy is a set of efforts, called hazard mitigation actions, that are intended to reduce the impact of hazard events. The mitigation actions collectively will help protect the safety and well-being of Colton residents and other community members, key facilities and other structures, vital services, major economic drivers in Colton, community services, and other important assets in the community. Some mitigation actions reduce Colton's vulnerability to individual hazards, while others apply to more than one hazard type. There are also some actions that support increased emergency preparedness, which helps lead to a better community response when hazard events occur or are imminent. Preparedness actions are not required to be in this Plan, but they do support and complement the mitigation actions.

6.1.1 Mitigation Action Foundations

The hazard mitigation actions were developed based on the hazard profiles in Chapter 3 and threat assessment in Chapter 4. The overall mitigation strategy is meant to respond to the hazard types that are most frequent types of hazard events or have the potential to cause the greatest harm. While the actions are intended to protect all people in Colton and all community assets, particular care is given to protecting the most vulnerable community members and most critical key facilities.

The hazard mitigation actions are also based on the community capabilities assessment shown in Chapter 5. The capabilities assessment identifies what potential currently exists in Colton to implement hazard mitigation actions, and the types of actions that each individual community resource is able to support. The hazard mitigation strategy is crafted to respond to these existing resources, although the Plan will include actions that may require new resources if these actions are valuable for the community.

6.1.2 Mitigation Action Evaluation

Based on the hazard profiles, threat assessment, and capabilities assessment, the Hazard Mitigation Planning Team prepared a set of potential mitigation actions that also incorporated the results of the community survey, discussions among Planning Team members, and regional and industry-wide best practices. The Planning Team then evaluated these actions against a set of criteria.

FEMA requires that local governments, such as Colton, evaluate the costs and benefits of potential mitigation actions. These costs and benefits should be both monetary and nonmonetary. Local governments are not required to assign specific dollar values to each action, although they should identify the general range of costs and benefits. FEMA does not prevent local governments from including high-cost or low-benefit actions in an LHMP, but such actions should be an appropriate use of local resources and provide clear assistance to the community.

FEMA also directs local governments to consider the following questions as part of this financial analysis:

- What is the frequency and severity of the hazard type to be addressed by the action, and how vulnerable is the community to this hazard?
- What harm will be reduced or avoided by the action?
- What key facilities, if any, will benefit from the action?
- How many key facilities will benefit, and how critical are these facilities to Colton?
- What are the environmental benefits or impacts of the action?

The assessment process also included a review using a third set of criteria, known as STAPLE/E (Social, Technical, Administrative, Political, Legal, Economic, and Environmental). The Planning Team did not formally assess potential mitigation action under all STAPLE/E criteria, but used them to guide and inform discussion. The Planning Team also discussed how these criteria can be used to help evaluate grant applications that the City may submit to fund action implementation. **Table 6-1** shows the STAPLE/E criteria.

TABLE 6-1: STAPLE/E CRITERIA

ISSUE	CRITERIA
Social	• Is the action socially acceptable to Colton community members? • Would the action treat some individuals unfairly or inequitably? • Is there a reasonable chance that the action would cause a social disruption?
Technical	• Is the action likely to reduce the risk of the hazard occurring or will it reduce the impacts of the hazard? • Will the action create new hazards or make existing hazards worse? • Is the action the best approach for Colton to take, given the goals of the City and community members?
Administrative	• Does the City have the administrative capabilities to implement the action? • Are there existing City staff who can lead and coordinate the implementation of the action, or is it feasible for the City to hire new staff for this role? • Does the City have enough staff, funding, technical support, and other resources to carry out implementation of the action?
Political	• Is the action politically acceptable to City officials and to other relevant jurisdictions and political entities? • Do members of the community support the action?
Legal	• Does the City have the legal authority to implement and enforce the action? • Are there any potential legal barriers or consequences that could hinder or prevent the City from implementing the action? • Is there a reasonable chance that implementing the action would expose the City to legal liabilities?
Economic	• What are the monetary costs of the action, and do the costs exceed the benefits? • What are the initial and maintenance costs of the action, including any administrative costs? • Has funding for implementing the action been secured, or is a potential funding source available? • How will funding the action affect the City's financial capabilities? • Could implementing the action have a reasonable chance of burdening Colton's economy or tax base? • Could there reasonably be other budgetary or revenue impacts to the City?
Environmental	• What are the potential environmental impacts of the action? • Will the action require environmental regulatory approval? • Will the action comply with all applicable federal, state, regional, and local environmental regulations? • Will the action reasonably affect any endangered, threatened, or otherwise sensitive species of concern?

6.1.3 Prioritization

During the hazard mitigation development and review process, the Planning Team met to prioritize the proposed actions. The prioritization process looked at protections provided by each action, their costs and benefits, their technical and political feasibility, and their consistency with community values, among other factors. Planning Team members identified their priority actions through a voting exercise. Items prioritized by at least six members are considered high priority, and those prioritized by two to five members are considered medium priority. Actions prioritized by none or only one member are considered low priority.

6.1.4 Cost Estimates

To determine relative costs for potential mitigation action, the Planning Team identified three cost estimate categories based on typical budgeting parameters for the City. The categories used include:

$ (Low) – Less than $25,000

$$ (Medium) - $25,001 – $999,999

$$$ (High) – Greater than $1,000,000

6.2 Hazard Mitigation Actions

Based on the criteria and evaluation process described above, the Planning Team prepared a list of hazard mitigation actions that are consistent with the City's goals and are designed to improve resiliency to hazard events. These actions collectively form Colton's hazard mitigation strategy. **Table 6-2** lists the mitigation actions by the hazard they are intended to mitigate against, along with the action prioritization and other details related to implementation.

The list of actions also includes preparedness activities, which are intended to improve emergency response for the City and community members when hazard events occur or are imminent. Although these actions are not considered mitigation activities, they are expected to decrease the harm the community faces from hazard events, and so support the same goals as mitigation actions.

TABLE 6-2: MITIGATION ACTIONS

	MITIGATION ACTION	POTENTIAL FUNDING SOURCES	RESPONSIBLE AGENCY	RELATIVE COST	TIME FRAME	PRIORITY
Preparedness activities						
P.1	Identify an alternative location for the Emergency Operations Center.	General Fund, Grants, Community Facilities Districts, Bonds	Emergency Management	N/A	T.B.D.	Low
P.2	Conduct an evacuation study for Reche Canyon, including looking at opportunities to provide secondary access.	General Fund, Grants, Community Facilities Districts, Bonds	Emergency Management/ Development Services	N/A	T.B.D.	Low
P.3	Develop a backup communication system for critical City operations.	General Fund, Grants, Community Facilities Districts, Bonds	Emergency Management	N/A	2020-2021	High
P.4	Conduct regular emergency preparedness drills and training exercises for City staff.	General Fund, Grants, Community Facilities Districts, Bonds	Emergency Management	N/A	Ongoing	High
P.5	Continue to coordinate with local school districts to ensure that school facilities can act as evacuation sites during major emergencies.	General Fund, Grants, Community Facilities Districts, Bonds	Emergency Management	N/A	T.B.D.	Low
P.6	Work with Colton business groups to conduct regular workplace emergency preparedness drills.	General Fund, Grants, Community Facilities Districts, Bonds	Emergency Management	N/A	T.B.D.	Low

	MITIGATION ACTION	POTENTIAL FUNDING SOURCES	RESPONSIBLE AGENCY	RELATIVE COST	TIME FRAME	PRIORITY
P.7	Expand participation in the Colton Community Emergency Response Team (CERT) program for residents and businesses.	General Fund, Grants, Community Facilities Districts, Bonds	Emergency Management	N/A	T.B.D.	Low
P.8	Store critical emergency supplies and equipment in locations on both sides of the Santa Ana River, in case of bridge damage/failure.	General Fund, Grants, Community Facilities Districts, Bonds	Emergency Management	N/A	T.B.D.	Medium
P.9	Ensure that community evacuation plans include provisions for community members who do not have access to private vehicles or are otherwise unable to drive.	General Fund, Grants, Community Facilities Districts, Bonds	Emergency Management/ Development Services/ Community Services	N/A	T.B.D.	Low
P.10	Continue to ensure effective emergency notifications through multiple media, in English and Spanish, about pending, imminent, or ongoing emergency events. Ensure that information is accessible to persons with disabilities and functional needs.	General Fund, Grants, Community Facilities Districts, Bonds	Emergency Management/ Development Services/ Community Services	N/A	T.B.D.	Low
Multiple hazards						
1.1	Relocate Fire Stations 3 and 4 outside of mapped hazard zones or harden these facilities against hazardous situations if no feasible alternate locations exist.	General Fund, Grants, Community Facilities Districts, Bonds	Fire Department	$$$	T.B.D.	Medium
1.2	Install an emergency power system at the Water Reclamation Facility and harden the facility against hazardous events.	General Fund, Grants, Community Facilities Districts, Bonds	Water Department	$$$	2019-2020	High

	MITIGATION ACTION	POTENTIAL FUNDING SOURCES	RESPONSIBLE AGENCY	RELATIVE COST	TIME FRAME	PRIORITY
1.3	Install backup generators at community facilities that serve as cooling or evacuation centers.	General Fund, Grants, Community Facilities Districts, Bonds	Community Services/ Emergency Management	$$	2019-2020	High
1.4	Conduct educational campaigns for Colton residents that emphasize cost-effective mitigation efforts, making material available in English and Spanish. Distribute information online, through local media, at special events and in City facilities, and through other appropriate means.	General Fund, Grants, Community Facilities Districts, Bonds	Community Services/ Emergency Management	$	T.B.D.	Low
1.5	Continue to stabilize loose slopes as needed with geotextile fabric, deep-rooted vegetation, and other appropriate techniques, especially after a wildfire event.	General Fund, Grants, Community Facilities Districts, Bonds	Engineering/ Fire Department	$ - $$	T.B.D.	Low
1.6	Work closely with community groups to increase awareness of hazard events and resiliency opportunities among socially vulnerable community members.	General Fund, Grants, Community Facilities Districts, Bonds	Community Services/ Emergency Management	$	T.B.D.	Low
1.7	Avoid building new City-owned key facilities in mapped hazard areas. If no feasible sites outside of mapped areas exist, ensure that such facilities are hardened against hazards beyond any minimum building requirements/ mitigation standards.	General Fund, Grants, Community Facilities Districts, Bonds	Development Services	Variable	T.B.D.	Low
1.8	Install backup power systems for key City-owned water pumps.	General Fund, Grants, Community Facilities Districts, Bonds	Water Department	$$	2020-2021	High

	MITIGATION ACTION	POTENTIAL FUNDING SOURCES	RESPONSIBLE AGENCY	RELATIVE COST	TIME FRAME	PRIORITY
1.9	Coordinate with regional social service agencies and nonprofit care providers to obtain temporary shelter for homeless persons in advance of potential hazard events.	General Fund, Grants, Community Facilities Districts, Bonds	Community Services	$	T.B.D.	Low
1.10	Work with Caltrans and railroad operators to harden bridges against hazard events.	General Fund, Grants, Community Facilities Districts, Bonds	Engineering	$$$	T.B.D.	Low
1.11	Closely monitor changes in the boundaries of mapped hazard areas resulting from land use changes or climate change and adopt new mitigation actions or revise existing ones to ensure continued resiliency.	General Fund, Grants, Community Facilities Districts, Bonds	Development Services/ Fire Department	$	T.B.D.	Low
1.12	Explore the feasibility of a third sewer trunk line connection to Grand Terrace to increase system redundancy and capacity.	General Fund, Grants, Community Facilities Districts, Bonds	Water/ Wastewater Department	$$$	T.B.D.	Medium
1.13	Integrate policy direction and other information from this Plan into other City documents, including the General Plan, Emergency Operations Plan, and Capital Improvements Program.	General Fund, Grants, Community Facilities Districts, Bonds	Development Services/ Engineering/ Emergency Management	$	Ongoing	Medium
1.14	Monitor funding sources for hazard mitigation activities.	General Fund, Grants, Community Facilities Districts, Bonds	Emergency Management	$	T.B.D.	Low
Drought						

	MITIGATION ACTION	POTENTIAL FUNDING SOURCES	RESPONSIBLE AGENCY	RELATIVE COST	TIME FRAME	PRIORITY
2.1	Continue to aggressively search for and repair leaks in Colton's water infrastructure.	General Fund, Grants, Community Facilities Districts, Bonds	Water/ Wastewater	$$	T.B.D.	Low
2.2	Use drought-tolerant plants or xeriscaping when installing new or significantly redoing City-owned landscapes. Limit turf that is not drought tolerant to recreational fields and lawns, and only in instances where no feasible drought-tolerant alternatives exist.	General Fund, Grants, Community Facilities Districts, Bonds	Public Works	$ - $$	T.B.D.	Low
Flooding						
3.1	Use permeable paving and landscaped swales for new and replacement City-owned hardscaped areas.	General Fund, Grants, Community Facilities Districts, Bonds	Public Works	$$	Ongoing	Medium
3.2	Require new large developments and significant retrofits to use low-impact development strategies.	General Fund, Grants, Community Facilities Districts, Bonds	Public Works/ Development Services	$	T.B.D.	Low
3.3	Conduct frequent cleanings of storm drain intakes, especially before and during rainy seasons.	General Fund, Grants, Community Facilities Districts, Bonds	Water/ Wastewater/ Public Works	$-$$	T.B.D.	Low
3.4	Identify areas with known ponding or poor drainage during rain events and increase storm drain capacity in these areas.	General Fund, Grants, Community Facilities Districts, Bonds	Public Works/ Wastewater	$$-$$$	T.B.D.	Low

	MITIGATION ACTION	POTENTIAL FUNDING SOURCES	RESPONSIBLE AGENCY	RELATIVE COST	TIME FRAME	PRIORITY
3.5	Participate in FEMA's Community Rating System to reduce flood insurance premiums for Colton property owners.	General Fund, Grants, Community Facilities Districts, Bonds	Public Works/ Development Services	$$	T.B.D.	Low
3.6	Develop incentives to harden private buildings and structures in the flood plain against floodwaters.	General Fund, Grants, Community Facilities Districts, Bonds	Public Works/ Development Services	$$	T.B.D.	Low
3.7	Discourage new schools, child care centers, and adult and senior assisted living facilities from locating in 100-year and 500-year flood plains.	General Fund, Grants, Community Facilities Districts, Bonds	Development Services	$	T.B.D.	Low
3.8	Work with the US Army Corps of Engineers and the San Bernardino County Flood Control District to support safety assessments and any needed retrofits to Seven Oaks Dam.	General Fund, Grants, Community Facilities Districts, Bonds	Engineering	$	T.B.D.	Low
3.9	Encourage renters in flood plains to obtain rental insurance that includes flood protection.	General Fund, Grants, Community Facilities Districts, Bonds	Finance	$	T.B.D.	Low
3.10	Secure funding needed to complete the storm drain system from West Valley Boulevard and North Pepper Avenue extending east to South Rancho Avenue and Agua Mansa Road.	General Fund, Grants, Community Facilities Districts, Bonds	Public Works	$$$	Ongoing	High
Geologic Hazards						

	MITIGATION ACTION	POTENTIAL FUNDING SOURCES	RESPONSIBLE AGENCY	RELATIVE COST	TIME FRAME	PRIORITY
4.1	Work with private property owners to install and maintain drainage systems and stabilizing vegetation on and above steep slopes.	General Fund, Grants, Community Facilities Districts, Bonds	Public Works/ Development Services	$$	T.B.D.	Medium
4.2	Monitor changes in groundwater levels to remain aware of potential liquefaction and subsidence risks.	General Fund, Grants, Community Facilities Districts, Bonds	Water/ Wastewater	$	T.B.D.	Low
Human-Caused Hazards						
5.1	Discourage new sensitive land uses, including schools, parks, child care centers, adult and senior assisted living facilities, and community centers, from locating near identified hazardous material facilities. Discourage or prohibit new hazardous material facilities from locating near sensitive land uses.	General Fund, Grants, Community Facilities Districts, Bonds	Development Services	$	T.B.D.	Low
5.2	Continue to work with solid waste service contractors to educate Colton residents and businesses on safe disposal of small quantities of hazardous materials.	General Fund, Grants, Community Facilities Districts, Bonds	Public Works	$	T.B.D.	Low
5.3	Maintain relationships with Union Pacific and BNSF to improve rail safety, particularly the main east-west Union Pacific line designated a High Hazard Area Rail Line.	General Fund, Grants, Community Facilities Districts, Bonds	City Manager	$	T.B.D.	Low
Seismic Hazards						
6.1	Conduct an inventory of seismically vulnerable buildings and structures and pursue funding to incentivize retrofits of vulnerable buildings and structures not covered by the existing Seismic Strengthening for Unreinforced Masonry Buildings ordinance to be more resilient to earthquakes.	General Fund, Grants, Community Facilities Districts, Bonds	Public Works/ Development Services/ Building Department	$	T.B.D.	Low

	MITIGATION ACTION	POTENTIAL FUNDING SOURCES	RESPONSIBLE AGENCY	RELATIVE COST	TIME FRAME	PRIORITY
6.2	Promote small-scale seismic retrofits, such as window films to minimize shattering, anchors for rooftop-mounted equipment, and bracing for masonry chimneys.	General Fund, Grants, Community Facilities Districts, Bonds	Development Services	$	T.B.D.	Low
6.3	Conduct a seismic analysis of all City-owned key facilities and retrofit vulnerable facilities.	General Fund, Grants, Community Facilities Districts, Bonds	Engineering	$$$	T.B.D.	Medium
6.4	Consider the use of flexible water pipes, particularly near Alquist-Priolo fault zones, to enhance seismic resiliency.	General Fund, Grants, Community Facilities Districts, Bonds	Engineering	$$$	T.B.D.	Low
6.5	Explore amending the Colton Building Code to incorporate standards requiring new buildings to be safely habitable and functional following an earthquake.	General Fund, Grants, Community Facilities Districts, Bonds	Development Services	$$	T.B.D.	Low
6.6	Encourage community groups and industry representatives to conduct outreach about earthquake insurance to Colton community members, including renters.	General Fund, Grants, Community Facilities Districts, Bonds	Finance	$	T.B.D.	Low

	MITIGATION ACTION	POTENTIAL FUNDING SOURCES	RESPONSIBLE AGENCY	RELATIVE COST	TIME FRAME	PRIORITY
Severe Weather						
7.1	Strengthen power lines to be more resistant to intense winds.	General Fund, Grants, Community Facilities Districts, Bonds	Electric Department	$$$	T.B.D.	Medium
7.2	Encourage significant retrofits to existing buildings to meet wind speed design specifications in the Colton Building Code.	General Fund, Grants, Community Facilities Districts, Bonds	Development Services	$$	T.B.D.	Low
7.3	Plant street trees and other vegetation to provide shade and green spaces throughout Colton, particularly around senior and medical facilities. Emphasize drought-tolerant and wind-resistant species.	General Fund, Grants, Community Facilities Districts, Bonds	Public Works	$$	T.B.D.	Low
7.4	Encourage replacing dark roofs on homes and businesses with light-colored roofs.	General Fund, Grants, Community Facilities Districts, Bonds	Development Services/ Public Works	$	T.B.D.	Low
7.5	Promote light-colored pavement for new or significantly renovated hardscapes, such as parking lots and driveways.	General Fund, Grants, Community Facilities Districts, Bonds	Development Services/ Public Works	$	T.B.D.	Low
Wildfire						
8.1	Conduct brush clearing and other fuel modification programs in areas with an elevated wildfire risk.	General Fund, Grants, Community Facilities Districts, Bonds	Fire Department	$$	T.B.D.	Medium

	MITIGATION ACTION	POTENTIAL FUNDING SOURCES	RESPONSIBLE AGENCY	RELATIVE COST	TIME FRAME	PRIORITY
8.2	Develop new water reservoirs in areas of north Colton outside of mapped wildfire hazard zones.	General Fund, Grants, Community Facilities Districts, Bonds	Engineering/ Water Department	$$$	T.B.D.	Low
8.3	Develop a fire inspection program for residents and businesses in fire-prone areas and provide information regarding ways to retrofit buildings and landscapes to improve resiliency.	General Fund, Grants, Community Facilities Districts, Bonds	Fire Department	$$	T.B.D.	Medium

6.3 National Flood Insurance Program

The National Flood Insurance Program (NFIP) provides property owners in flood-prone areas with flood insurance at subsidized rates. Individual communities can chose to participate in the program, and property owners in flood-prone areas of participating communities can purchase discounted insurance. Property owners in nonparticipating communities cannot buy subsidized insurance, even if they live in a mapped flood plain. Nonparticipating communities are also not eligible for federal grants or loans in flood-prone areas and cannot receive federal disaster assistance to repair flood-damaged structures in a mapped flood plain (FEMA 2018a). Colton currently participates in the NFIP (FEMA 2018b).

Continued participation in the NFIP is not a dedicated hazard mitigation action, although Colton will continue to do so and will remain in compliance with the program's requirements through continued enforcement of the City's Floodplain Management Regulations (Chapter 15.22 of the Colton Code of Ordinances). The Floodplain Management Regulations act as Colton's flood plain management ordinance, which all participating communities in the NFIP must adopt. These regulations apply to land within the mapped 100-year flood plain and limit the types of development and construction activities that can occur in this area. New construction must meet a number of flood-resistant standards, such as being anchored to better resist damage from moving floodwaters. Other standards apply to new subdivisions, utility projects, and manufactured homes (Colton 2018). As part of the City's commitment to complying with the requirements of the NFIP, the City will make updates and revisions as needed to the Floodplain Management Regulations. These changes may be made because of changes in best practices, shifts in flood-prone areas, or other factors that allow the City to better protect against the threat of flood events. The City will also continue to incorporate changes in the location and designations of mapped flood plains into future planning documents, including future updates to this Plan.

As of May 2018 there were 58 properties in Colton insured under the NFIP, with a total insured value of approximately $22.7 million. There have been 11 claims filed for these insured properties. One property is known as a repetitive loss property, meaning that it has filed claims for flood damage at least twice (Lohmann 2018).

6.4 Existing Mitigation Measures

Colton's previous LHMP was adopted in 2011. Most of the mitigation actions in the previous LHMP have been incorporated into the mitigation strategy presented in this updated Plan. In many cases, the 2011 actions have either been directly copied into the updated Plan or have been integrated through multiple actions in the new Plan. Some 2011 actions are not part of the updated mitigation strategy because they have been addressed elsewhere in the LHMP planning process or are more general LHMP goals that are not suitable as a specific mitigation action under current best practices.

Table 6-3 shows the 2011 mitigation actions and how they have been addressed in this updated LHMP.

TABLE 6-3: STATUS OF MITIGATION ACTIONS IN 2011 LHMP

2011 MITIGATION ACTIONS	STATUS IN UPDATED LHMP
Discourage development in high hazard areas.	Addressed in a more limited way in Action 3.7 and Action 5.1
Encourage property protection measures for all structures located in hazard areas.	Addressed through Action 1.4, Action 1.5, Action 1.6, Action 3.6, Action 4.1, Action 6.1, Action 6.2, Action 7.2, Action 7.4, Action 7.5, and Action 8.3.
Reduce or eliminate all repetitive property losses due to flood, fire, and earthquake.	Not specifically called out as an objective, but intent is integrated throughout the mitigation strategy.
Research, develop, and adopt cost-effective codes and standards to protect properties beyond the minimum of protecting life safety.	Addressed directly through Action 6.5, and in a more limited way through various other mitigation actions.
Establish a partnership among all levels of government and the business community to improve and implement methods to protect property.	Addressed through Action 1.5, Action 3.6, Action 4.1, Action 6.1, Action 6.2, Action 7.2, Action 7.4, Action 7.5, and Action 8.3.
Provide effective response in a disaster, for life-saving and the curtailment of property damage and social dislocation; enhance emergency preparedness through community education and self-help programs; and prevent serious damage and injuries through effective hazard mitigation.	Addressed through various preparedness activities.
Integrate hazard mitigation policies into local general plans.	Carried forward into Action 1.13.
Update the City's Multi-Hazard Mitigation Plan annually to integrate local hazard mitigation plans and the results of hazard-specific planning efforts.	Intent addressed through the update process described elsewhere in the LHMP.

2011 MITIGATION ACTIONS	STATUS IN UPDATED LHMP
Increase understanding of the importance of hazard mitigation among the general public and the business sector, stressing the benefits of reduced losses to life and property, the reduced cost of disaster recovery, and the increased benefit of the continuity of operations of business and government.	Addressed through Action P.6, Action P.7, Action 1.4, Action 1.6, Action 1.9, Action 3.5, Action 3.9, Action 5.2, Action 6.6, and Action 8.3. Other actions may address this item more indirectly.
Strengthen the message of hazard mitigation in disaster preparedness programs.	Intent carried forward as a general concept behind the LHMP.
Ensure that all mitigation projects are reviewed for compliance with all applicable environmental laws.	Not carried forward. Compliance with environmental laws and other requirements is considered applied.
Encourage hazard mitigation measures that result in the least adverse effect on the natural environment and that use natural processes.	Addressed through the hazard mitigation action screening process.
Ensure that the city's hazard mitigation planning efforts reflect the goal of protecting the environment.	Addressed through the hazard mitigation action screening process.
Develop and implement wildfire mitigation and watershed protection strategies that reduce losses to wildlife and habitat and protect water while also reducing damage to development.	Addressed through fire mitigation strategies and the hazard mitigation action screening process.
Continually improve the understanding of the location and potential impacts of natural hazards, the vulnerability of building types, and community development patterns and the measures to protect life safety.	Addressed through Action 1.11 and through the update process described elsewhere in the LHMP.
Continually provide citizens with updated information about hazards, vulnerabilities, and mitigation measures.	Addressed through Action P.6, Action P.7, Action 1.4, Action 1.6, Action 1.9, Action 3.5, Action 3.9, Action 5.2, Action 6.6, and Action 8.3. Other actions may address this item more indirectly.
Ensure that all city codes and standards ensure the protection of life.	Addressed directly through Action 6.5, and in a more limited way through various other mitigation actions.
Ensure that all structures in the city meet minimum standards for life safety.	Addressed through Action 1.4, Action 1.5, Action 1.6, Action 3.6, Action 4.1, Action 6.1, Action 6.2, Action 7.2, Action 7.4, Action 7.5, and Action 8.3.
Ensure that all development in high-risk areas is protected by mitigation measures that provide for life safety.	Addressed directly through Action 6.5, and in a more limited way through various other mitigation actions.

2011 MITIGATION ACTIONS	STATUS IN UPDATED LHMP
Identify and mitigate all imminent threats to life safety.	Overall intent of the LHMP, and addressed by various hazard mitigation actions.
Perform a structural engineering survey of City critical facilities to identify mitigation measures that can add to the seismic safety of the structures.	Addressed through Action 6.3.
Weed Abatement Program.	Addressed through Action 8.1.
Design and construct a storm drain system from Valley and Pepper extending east to Rancho and Agua Mansa.	The project has been partially completed. An additional $20 to $30 million is needed to complete the drain. Action 3.10 addresses this item.
Create a GIS database of each parcel and structure in the City of Colton, to include size, use, construction, and hazards.	The City has begun to assemble this data.
Move the existing EOC that is co-located with a fire station to an area outside of the 100-year floodplain and earthquake liquefaction zone.	Carried forward into Action P.1.
Secure funding for a full time Emergency Services Coordinator.	Colton has a part-time (50 percent) Emergency Services Coordinator, shared with the City of Loma Linda. Both Colton and Loma Linda retain separate fire departments for their own communities, but share common administration and command staff.

Section 7. Plan Maintenance

This chapter discusses how to update the Colton LHMP so as to keep it in compliance with state and federal requirements. This chapter also describes how the City can incorporate the mitigation actions described in Chapter 6 into existing programs and planning mechanisms, and how public participation will continue to be an important component of future monitoring and Plan update activities. A key element of plan maintenance, implementation, and monitoring is the Local Hazard Mitigation Plan Implementation Workbook contained in Appendix E.

7.1 Monitoring, Evaluating and Updating the HMP

This LHMP must remain up to date to stay effective and useful for Colton and to keep the City eligible for state and federal hazard mitigation funding. This Plan has been developed so that individual sections can be updated as new information becomes available and new needs for updates arise. This will make it easier for the City to keep this plan current.

7.1.1 Plan Adoption

The Colton City Council is responsible for updating this Plan as well as all future update. LHMPs are subject to review by FEMA, to ensure that the Plan meets all applicable federal requirements and thus provides additional funding benefits to Colton. Once the Plan is consistent with FEMA's requirements, FEMA will notify the City that the Plan is Approved Pending Adoption. At this point, the City Council can formally adopt the Plan. Following adoption, the Colton Fire Department will send a copy of the adopted Plan, including the resolution of adoption, to FEMA.

7.1.2 Implementation

As mentioned before, a successful plan is one that can be effectively implemented. Implementation will be the responsibility of the individual City departments and other agencies tasked with each mitigation action, as identified in the overall mitigation strategy. Implementation will be coordinated through the Hazard Mitigation Planning Team. A list of current Planning Team members is given in Chapter 1. In future years, representatives from the following City organizations (either current Planning Team members or others) should be included in meetings of the Planning Team:

- Building and Safety Division
- Collections Division
- Community Emergency Response Team
- Community Services Department
- Development Services Department
- Emergency Services
- Finance Division
- Fire Department
- Human Resources Department
- Office of the City Manager
- Police Department
- Public Works Department
- Water and Wastewater Department

Staff from other organizations who sat on the Planning Team during the preparation of this Plan should be invited to participate in future Planning Team meetings, plus any other applicable agencies. Based on the composition of the Planning Team during the preparation of this Plan, the other organizations that should be asked to participate are:

- Arrowhead Regional Medical Center
- Caltrans
- Colton Joint Unified School District

The Emergency Services Coordinator, a position in the Colton Fire Department (and shared with the Loma Linda Fire Department), is the staff member responsible for coordinating implementation of the LHMP and future meetings of the Planning Team. The Emergency Services Coordinator may designate this role to another staff member.

7.1.3 Plan Evaluation

The Planning Team should meet regularly following Plan adoption, at least once a year, to go over the implementation of the mitigation actions and to evaluate the Plan's effectiveness. To assist with this process, the City can refer to the Implementation Workbook (Appendix E) for guidance on how to conduct and track these activities. During these meetings, the members of the Planning Team should discuss:

- Timing of mitigation action implementation.
- Evaluation of the mitigation actions that are currently being implemented or have been implemented, and determining if these actions are successful.
- Any needed revisions to the prioritization of the mitigation actions.
- Integration of the mitigation actions into City planning mechanisms.

The first of these evaluation meetings should be held in the 2019 calendar year. If possible, meetings of the Planning Team should be held at an appropriate time in the City's annual budgeting process. This will help ensure that the budgeting process considers the funding and staffing needs to implement the mitigation actions.

During the evaluation process, the Planning Team members should consider the following questions:

- What hazard events (if any) have taken place in Colton in the past year? What were the impacts of these hazard events, and were any impacts unexpected for such an event? How well did mitigation efforts work?
- What mitigation actions have been implemented? Have any been implemented but are not considered successful, and if so, why?
- What mitigation actions (if any) have been scheduled for implementation but not yet implemented?
- What is the schedule for implementing future mitigation actions? Is the schedule reasonable or does it need to be adjusted? Are the suggested adjustments feasible and appropriate?
- Have any new issues of concern arisen, including hazard events or impacts not covered by existing mitigation actions?
- Are any new data available that could inform future Plan updates, including data relevant to the hazard profiles or threat assessments?
- Are there any new planning programs, funding sources, or other actions that can support implementation of hazard mitigation actions in Colton?

7.1.4 Update Schedule

The content in this Plan, including the hazard profiles, threat assessment, and mitigation actions, are based on best available information, technology, and methods and practices available to the City and the Planning Team at time of writing. Changes such as improvements in technology, shifts in community demographics and characteristics, new and revised best practices, and alterations to hazard conditions may all require updates to the Plan so it remains accurate and relevant. Title 44, Section 201.6(d)(3), of the Code of Federal Regulations also requires that LHMPs be reviewed, revised, and resubmitted to FEMA for approval every five years to remain eligible for federal benefits.

The update process should begin no later than four years after the Colton City Council adopts this Plan. This will allow a year for the update process to take place, which should be sufficient time for a new update to be adopted before the older Plan expires. The Emergency Services Coordinator or their designee may choose to begin the update process sooner if it makes sense to do so. The reasons for doing so may include a presidential disaster declaration that covers part or all of Colton, or a hazard event that results in one or more fatalities in the community.

7.1.5 Update Process

When updating the Plan, the Planning Team should consider changes to demographics and other community conditions, new science or information related to hazards, recent hazard events, new or altered methods for threat assessments, the status of existing mitigation actions, new best practices, and other information as necessary. These updates will keep the Plan relevant and current. The Planning Team will lay out a process for updating the Plan. This process should include the following actions:

- Involve at least one member from each City department on the Planning Team or in a supporting role to contribute as needed.
- Contact external organizations, including those that sat on the Planning Team during preparation of the older Plan, to involve them in the update process if they are interested.
- Review and update the hazard mapping and threat assessment for key facilities.
- Review the threat assessment for vulnerable persons, and other populations and assets.
- Review and revise the mitigation strategies as needed, considering actions that have been completed, changed, postponed, or cancelled.
- Send a draft of the updated Plan to appropriate external agencies for notification and comment.
- Make a draft of the updated Plan widely available to members of the public for comment.
- After public review, send a draft of the updated Plan to Cal OES and FEMA for review and approval.
- Adopt the final updated Plan within five years of the adoption of the older Plan, ensuring that Colton always has an approved and current Hazard Mitigation Plan

Colton's City Council is responsible for adopting updates to this Plan within five years of adoption of the older version of the Plan.

7.2 Incorporation into Existing Planning Mechanisms

Incorporating the mitigation strategy into existing City plans, policies, programs, and other efforts helps to ensure successful implementation. This Plan works in concert with the Colton General Plan, particularly the General Plan's Safety Element. The Safety Element establishes a community-wide framework for hazard mitigation and preparation activities, and integrates with

the goals of this Plan. The LHMP expands on the topics and issues in the Safety Element and other applicable sections of the General Plan, translating the high-level community objectives into specific mitigation actions. Future updates to the General Plan should ensure that General Plan policies are consistent with the mitigation actions in the LHMP.

In addition to the General Plan, this LHMP should be incorporated into other City documents as applicable. Mitigation actions that involve construction of new City buildings or infrastructure, or major retrofits to existing structures, should be reflected in updates to the Capital Improvement Program. Mitigation actions that improve resiliency in new construction by increasing the standards for new construction should be reflected in updates to Colton's Building and Construction Regulations. Revisions to requirements for new construction activities specifically within flood plains should result in changes to the City's Floodplain Management Regulations, and requirements related to seismic retrofits to existing buildings may be implemented through amendments to the City's Seismic Strengthening for Unreinforced Masonry Buildings Regulations. Any mitigation actions that change where different developments and land use activities can occur, how they should be sited, and how they can be constructed or operated should be integrated as applicable into the City of Colton Zoning Code. Appendix E provides guidance on best practices to accomplish this integration.

7.3 Continued Public Involvement

The City will continue to keep members of the public informed about the Planning Team's actions to review and update the Plan. When updating the Plan, the Planning Team will develop a revised community engagement strategy that reflects the City's updated needs and capabilities. This updated strategy should include a schedule and plan for public meetings, recommendations about the appropriate use of the City website and social media accounts, and any sample content for public outreach documentations. The Planning Team should also consider distributing annual progress reports about Plan implementation to Colton community members. Options for receiving feedback shall include a comment portal on the City's website as well as an email address for individuals to submit their comments to the City.

7.4 Point of Contact

The Emergency Services Coordinator for Colton is the primary point of contact for this Plan and for future updates. At the time of writing, the Emergency Services Coordinator is Shannon Kendall, who can be contacted at (909) 799-2860 or skendall@lomalinda-ca.gov.

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CITY OF COLTON

APPENDICES

LOCAL HAZARD MITIGATION PLAN

June 2019

APPENDIX A
MEETING MATERIALS

Hazard Mitigation Planning Committee invitation

Hazard Mitigation Planning Committee Meeting #1 Agenda and Sign-In Sheet

Hazard Mitigation Planning Committee Meeting #2 Agenda and Sign-In Sheet

Hazard Mitigation Planning Committee Meeting #3 Agenda and Sign-In Sheet

Hazard Mitigation Planning Committee Meeting #4 Agenda and Sign-In Sheet

You are invited to make a difference!

The City of Colton has begun the process to prepare the 2016 update to the Hazard Mitigation Plan (HMP) and we invite you to participate. The HMP will serve as a blueprint for reducing property damage and saving lives from the effects of future natural disasters in the City of Colton, To guide this process, the City has established two groups: The Planning Committee who will work most closely to shape the plan; and the Stakeholder Group to give a broad perspective during plan development. You are receiving this because you or your agency has been identified as a key participant at the "Stakeholder Group" level. If interested, we welcome you (or other interested parties) to assist the HMP Project Management Team to update our natural hazard mitigation documents for the City of Colton. This would involve periodic review of documentation and feedback during certain points of the planning process.

To provide solidarity in the planning process, we would like to inform you that our project will be starting soon with a kick-off meeting. You are more than welcome to join this meeting but attendance in this meeting is not a requirement by any means. The strategy of this meeting is to have members meet, organize and provide input on the hazards, mitigation strategies, and other components of the HMP planning process. Later in the planning process, we will start engaging a larger group of stakeholders through various means of engagement. We anticipate the HMP development process to last about 6 to 8 months.

The kick-off meeting will be on **Wednesday, November 30, 2016 at 11:30 a.m.** at the Fire Station 211 Conference Room. The address is: 303 E. "E" Street, Colton 92324.

DON'T WORRY A LIGHT LUNCH WILL BE PROVIDED!

More information about the HMP process background and history behind the program can be found here:

Cal OES Local Hazard Mitigation Planning Program (LHMP):
http://hazardmitigation.calema.ca.gov/plan/local_hazard_mitigation_plan_lhmp

FEMA's Website on Hazard Mitigation Planning Resources:
http://www.fema.gov/hazard-mitigation-planning-resources

FEMA's Guide on Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards:
http://www.fema.gov/library/viewRecord.do?id=6938

FEMA's Guide on Integrating Hazard Mitigation Into Local Planning: Case Studies and Tools for Community Officials:
http://www.fema.gov/library/viewRecord.do?id=7130

Please respond to this e-mail and advise if you will be participating in this process, and who will be assigned to represent your agency. If you are unable to attend this meeting but still wish to participate in the planning process, additional information regarding future meetings, draft

documents for review, and other project milestones will be provided through e-mails and the County website project page coming soon!!!

If you have any additional questions, please do not hesitate to contact me at 909-799-2860 or skendall@lomalinda-ca.gov

Thank you for your time and consideration,

Shannon Kendall

Joint Emergency Services Coordinator

East Valley Fire

Serving the Communities of Loma Linda & Colton

City of Colton
Local Hazard Mitigation Plan

Hazard Mitigation Planning Team Meeting #1

February 15, 2018, 9:00-11:00 am

Colton Emergency Operations Center
Fire Station 213
1100 South La Cadena
Colton, CA 92324

Agenda

1. Introductions (5 minutes)
2. Project Overview (5 minutes)
3. HMPT Purpose and Responsibilities (10 minutes)
4. Preliminary Project Goals (10 minutes)
5. Critical Facilities (15 minutes)
6. Community Engagement Strategy (15 minutes)
7. Hazards of Concern (25 minutes)
8. Hazard Prioritization Exercise (30 minutes)
9. Next Steps (5 minutes)

City of Colton
Hazard Mitigation Plan Planning Meeting Sign-In
February 15, 2018

Name and Department	Title	Signature
Frank Navarro City of Colton City Council	City Council Member	
Bill Smith City Manager's Office (City of Colton)	City Manager	
Shannon Kendall Emergency Services (City of Colton)	Emergency Manager	
Deb Farrar Community Services Department (City of Colton)	Director	
Mark Tomich Development Services Department (City of Colton)	Director	
Ramon Hernandez Building and Safety Division (City of Colton)	Building Official	
David Kolk Electric Department (City of Colton)	Director	
Stacey Dabbs Finance Division (City of Colton)	Director	
Altheia Franklin Finance Division (City of Colton)	Senior Accountant	
Paula Majors Finance Division (City of Colton)	Manager	Paula Majors
Nicole Mihld Finance Division (City of Colton)	Purchasing and Customer Services Manager	

February 15, 2018

Name and Department	Title	Signature
Tim McHargue Fire Department (City of Colton)	Fire Chief	RAY BRUNO
Con Cendejas Fire Department (City of Colton)	Battalion Chief	
Daniel Harker Fire Department (City of Colton)	Deputy Fire Chief	
Paul Evans Information Technology Division (City of Colton)	IT Supervisor	
Jay Jarrin Planning Division (City of Colton)	Senior Planner	
Mark Owens Police Department (City of Colton)	Chief of Police	
Rich Randolph Police Department (City of Colton)	School Resource Officer	
Mike Cory Water and Wastewater Department (City of Colton)	Water Utility Manager	
Nicole Van Winkle Recreation Services Division (City of Colton)	Recreation Manager	
Tim Lunt Electric Department (City of Colton)	Transmission/Distribution Superintendent	
Scott Smith Arrowhead Regional Medical Center	Emergency Manager ARMC	
James Farner BNSF Railway		
Sandra Molina City of Grand Terrace	Planning and Development Services Director	

February 15, 2018

Name and Department	Title	Signature
Haida Aguirre City of Grand Terrace	Emergency Manager	
John Sachs Colton Joint Unified School District	Security/Safety Emergency Manager	John A-Sachs
Dan Arjona Colton Community Emergency Response Team (CERT)	CERT Leader/CERT Instructor	
Gene Congiardo Kinder Morgan	Manager	
Robert Bavier Union Pacific Railroad	Manager	
John Reddick Arrowhead Regional Med.	Maint. Supervisor Plant Operations	
Larry Banks CALTRANS HAZMAT	HAZARDOUS MATERIALS SPECIALIST, DISTRICT HAZMAT MANAGER	
Ramon Hdez. PB & S	Building official	

February 15, 2018

City of Colton
Local Hazard Mitigation Plan

Hazard Mitigation Planning Team Meeting #2

March 15, 2018, 9:00-11:00 am

Colton Emergency Operations Center
Fire Station 213
1100 South La Cadena
Colton, CA 92324

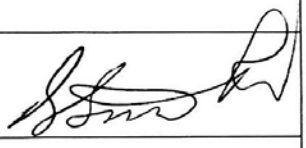
Agenda

1. Introductions (5 minutes)
2. Review of Hazards of Concern/ Project Goals (10 minutes)
3. Review of Hazard Profiles (60 minutes)
4. Review of Critical Facilities (15 minutes)
5. Next Steps (5 minutes)

City of Colton
Hazard Mitigation Plan Planning Meeting Sign-In
March 15, 2018

Name and Department	Title	Signature
Frank Navarro City of Colton City Council	City Council Member	
Bill Smith City Manager's Office (City of Colton)	City Manager	
Shannon Kendall Emergency Services (City of Colton)	Emergency Manager	
Deb Farrar Community Services Department (City of Colton)	Director	
Mark Tomich Development Services Department (City of Colton)	Director	
Ramon Hernandez Building and Safety Division (City of Colton)	Building Official	
David Kolk Electric Department (City of Colton)	Director	
Stacey Dabbs Finance Division (City of Colton)	Director	
Altheia Franklin Finance Division (City of Colton)	Senior Accountant	
Paula Majors Finance Division (City of Colton)	Manager	Paula Majors
Nicole Mihld Finance Division (City of Colton)	Purchasing and Customer Services Manager	Nicole Mihld

March 15, 2018

Name and Department	Title	Signature
Tim McHargue Fire Department (City of Colton)	Fire Chief	
Con Cendejas Fire Department (City of Colton)	Battalion Chief	
Daniel Harker Fire Department (City of Colton)	Deputy Fire Chief	
Paul Evans Information Technology Division (City of Colton)	IT Supervisor	
Jay Jarrin Planning Division (City of Colton)	Senior Planner	
Mark Owens Police Department (City of Colton)	Chief of Police	
Rich Randolph Police Department (City of Colton)	School Resource Officer	
Mike Cory Water and Wastewater Department (City of Colton)	Water Utility Manager	
Nicole Van Winkle Recreation Services Division (City of Colton)	Recreation Manager	
Tim Lunt Electric Department (City of Colton)	Transmission/Distribution Superintendent	
Scott Smith Arrowhead Regional Medical Center	Emergency Manager	
James Farner BNSF Railway		
Sandra Molina City of Grand Terrace	Planning and Development Services Director	

March 15, 2018

Name and Department	Title	Signature
Haida Aguirre City of Grand Terrace	Emergency Manager	
John Sachs Colton Joint Unified School District	Security/Safety Emergency Manager	
Dan Arjona Colton Community Emergency Response Team (CERT)	CERT Leader/CERT Instructor	
Gene Congiardo Kinder Morgan	Manager	
Robert Bavier Union Pacific Railroad	Manager	
John Reddick Arrowhead Regional Medical Center	Maintenance Supervisor Plant Operations	
Larry Banks Caltrans HazMat	Hazardous Materials Specialist, District HazMat Manager	
Chris Rymer ECE Manager		
HENRY DOMINGUEZ COLTON PD	LIEUTENANT	
RUBEN BRIONES ELECTRIC	Foreman	
Victor Ortiz Colton PW	City Engr.	
Georgette Chavez for Haydee Sainz –	HR Specialist Human Resources	
Chad Moxley CALFIRE	Battalion chief CSR- Landuse Program chad.moxley@fire.ca.gov	

March 15, 2018

City of Colton
Local Hazard Mitigation Plan

Hazard Mitigation Planning Team Meeting #3

April 19, 2018, 9:00-11:00 am

Colton Emergency Operations Center
Fire Station 213
1100 South La Cadena
Colton, CA 92324

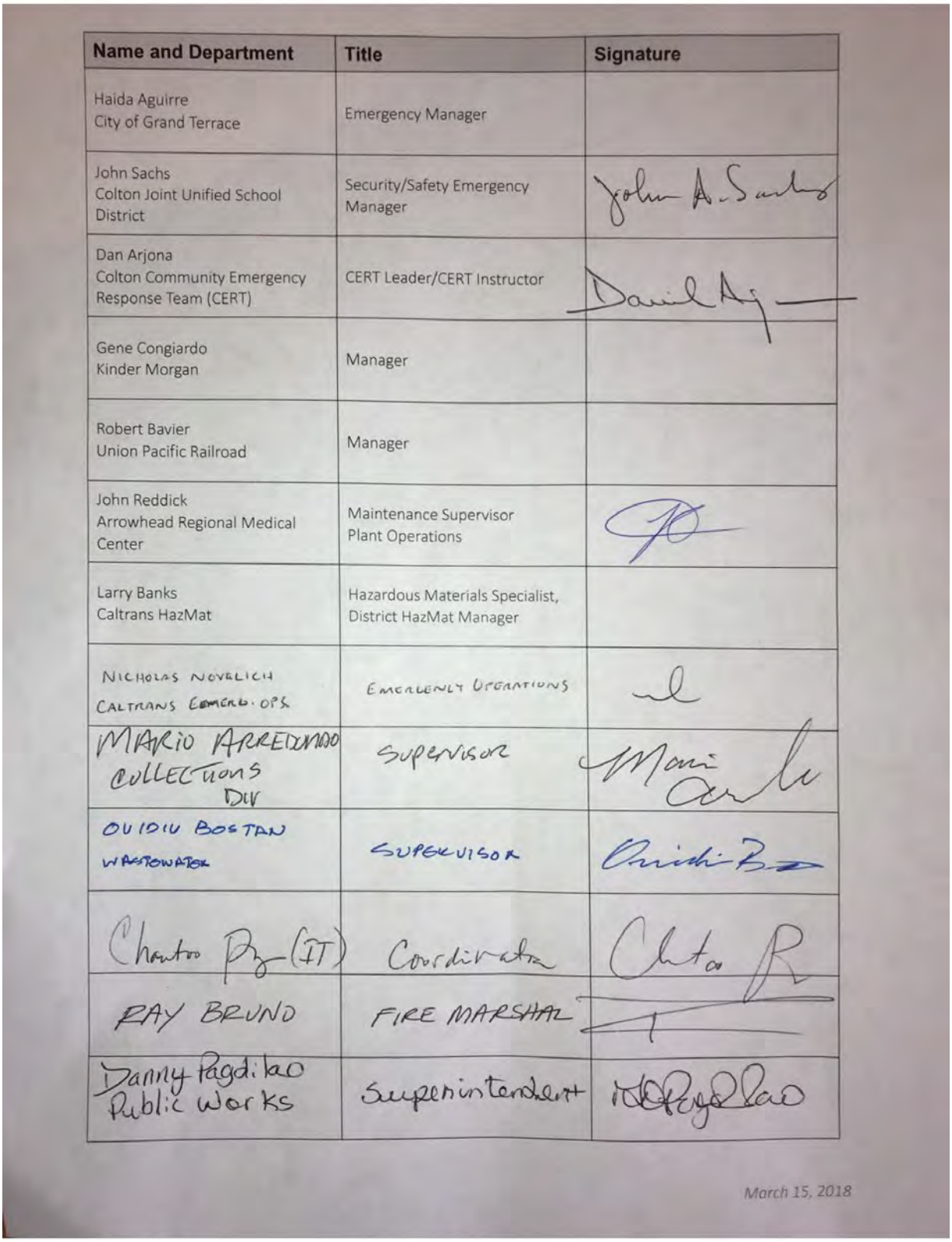
Agenda

1. Introductions (5 minutes)
2. Review of Hazards of Concern/ Project Goals (10 minutes)
3. Review of Risk Assessment Results (60 minutes)
4. Mitigation Issues/Strategies (40 minutes)
5. Next Steps (5 minutes)

City of Colton
Hazard Mitigation Plan Planning Meeting Sign-In
April 19, 2018

Name and Department	Title	Signature
Frank Navarro City of Colton City Council	City Council Member	
Bill Smith City Manager's Office (City of Colton)	City Manager	
Shannon Kendall Emergency Services (City of Colton)	Emergency Manager	
Deb Farrar Community Services Department (City of Colton)	Director	
Mark Tomich Development Services Department (City of Colton)	Director	
Ramon Hernandez Building and Safety Division (City of Colton)	Building Official	
David Kolk Electric Department (City of Colton)	Director	
Stacey Dabbs Finance Division (City of Colton)	Director	
Altheia Franklin Finance Division (City of Colton)	Senior Accountant	
Paula Majors Finance Division (City of Colton)	Manager	
Nicole Mihld Finance Division (City of Colton)	Purchasing and Customer Services Manager	

March 15, 2018



Name and Department	Title	Signature
Haida Aguirre City of Grand Terrace	Emergency Manager	
John Sachs Colton Joint Unified School District	Security/Safety Emergency Manager	John A. Sachs
Dan Arjona Colton Community Emergency Response Team (CERT)	CERT Leader/CERT Instructor	
Gene Congiardo Kinder Morgan	Manager	
Robert Bavier Union Pacific Railroad	Manager	
John Reddick Arrowhead Regional Medical Center	Maintenance Supervisor Plant Operations	
Larry Banks Caltrans HazMat	Hazardous Materials Specialist, District HazMat Manager	
NICHOLAS NOVELICH CALTRANS EMERG. OPS	EMERGENCY OPERATIONS	
MARIO ARREDONDO COLLECTIONS DIV	SUPERVISOR	
OVIDIU BOSTAN WASTEWATER	SUPERVISOR	
Chantra Ry (IT)	Coordinator	
RAY BRUNO	FIRE MARSHAL	
Danny Pagdilao Public Works	Superintendent	

March 15, 2018

Name and Department	Title	Signature
Tim McHargue Fire Department (City of Colton)	Fire Chief	
Con Cendejas Fire Department (City of Colton)	Battalion Chief	
Daniel Harker Fire Department (City of Colton)	Deputy Fire Chief	
Paul Evans Information Technology Division (City of Colton)	IT Supervisor	
Jay Jarrin Planning Division (City of Colton)	Senior Planner	
Mark Owens Police Department (City of Colton)	Chief of Police	
Rich Randolph Police Department (City of Colton)	School Resource Officer	
Mike Cory Water and Wastewater Department (City of Colton)	Water Utility Manager	
Nicole Van Winkle Recreation Services Division (City of Colton)	Recreation Manager	
Tim Lunt Electric Department (City of Colton)	Transmission/Distribution Superintendent	
Scott Smith Arrowhead Regional Medical Center	Emergency Manager	
James Farner BNSF Railway		
Sandra Molina City of Grand Terrace	Planning and Development Services Director	

March 15, 2018

Name and Department	Title	Signature
Anthony Fernandez Community Services City of Colton	Recreation Coordinator	
Jason Penuelari Electric Substation	Substation Superintendent	
VICTOR ORTIZ PW	Crew Mgr.	
JIM JOLLIFF POLICE	LIEUTENANT	
Haydee Sainz	Human Resources Director	
Steve Contreras		

March 15, 2018

City of Colton
Local Hazard Mitigation Plan

Hazard Mitigation Planning Team Meeting #4

May 17, 2018, 9:00-11:00 am

Colton Emergency Operations Center
Fire Station 213
1100 South La Cadena
Colton, CA 92324

Agenda

1. Introductions (5 minutes)
2. Review of Draft Mitigation Actions (90 minutes)
3. Prioritization Exercise (20 minutes)
4. Next Steps (5 minutes)

5-17-18 Colton LHMP Meeting #4

Name	Dept	Email
Bill Smith	City Manager	BSMITH @ COLTONCA.GOV
Tim McHargue	Fire	tmchargue@confire.o
Dan Harker	Fire	dharker@confire.org
John Sachs	CJUSD	John_Sachs@CJUSD.NET
Tom Ledesma	Colton Water	WPRODUCTION1@COLTONCA.GO
Mario Arredondo	Colton Collections	marredondo@coltonca.gov
Scott Smith	ARMC	Smithw@ARMC.SBCounty.gov
John Reddick	ARMC	reddickJ@ARMC.SBcounty.gov
Regina Hawkins	Human Resources	rhawkins@coltonca.gov
Danny Pagdilao	Public Works	Dpagdilao@ColtonCa.gov
Ovidiu Bostan	Wastewater	obostan@coltonca.gov
Mark Tomich	Development Service	mtomich@coltonca.gov

City of Colton
Sign-In Sheet

Date: May 17, 2018 (9:00 am to 11:00 am
Event Name: LHMP Planning Team Mtg #4

Date	Name	Department	Depart. Title	Time In	Time Out
17 MAY 2018	BILL SMITH	CITY MANAGER	CITY MANAGER	0850	
5/17/18	Tim McHargue	Fire	Fire Chief	0900	
5/17/18	DAN HARLICK	FIRE	Dep. Fire Chief	0900	
5/17/18	Paula Majors	Finance	Finance Mgr	9:00	
17 May 2018	Deb Farrar	Com. Services	Director	9am	
5.17.18	John Reddick	ARMC	Plant Operations	9 Am	
5/17/18	Scott Smith	ARMC	Emergency Mgr	0900	
5.17.18	DAN ARJONA	CERT-	CHAPLAIN	0900	
051718	JOHN SACHS	CJUSD	SECURITY MGR	0900	
05/17/18	JIM JOLLIFF	COLTON PD	LIEUTENANT	0930	

City of Colton
Sign-In Sheet

Date: May 17, 2018 (9:00 am to 11:00 am
Event Name: LHMP Planning Team Mtg #4

Date	Name	Department	Depart. Title	Time In	Time Out
5-17-18	TOM REDESMA	WATER	S.W.P.O	9:00	
5-17-18	MARIO ARREDONDO	COLLECTIONS	SUPERVISOR	9:00 am	
5-17-18	Danny Pagdilao	Public Works	Superintendent	9:00 AM	
5/17/18	OVIDIU BOSTAN	WASTEWATER	SUPERVISOR	9:00 AM	
5-17-18	Regina Hawkins	Human Resources	H.R. Analyst	9:00 am	

APPENDIX B
COMMUNITY OUTREACH MATERIALS

COMMUNITY ENGAGEMENT STRATEGY

CITY OF COLTON LHMP WEBSITE

COLTON LHMP OUTREACH FLYER

COLTON LHMP ONLINE SURVEY RESULTS

COMMUNITY ENGAGEMENT STRATEGY

The City of Colton is currently developing an update to Local Hazard Mitigation Plan (LHMP). This plan will assess and reduce the threats that the community faces from current and future hazard conditions and suggest policies to improve resiliency to these hazards. Based on preliminary discussions and an analysis of conditions in the city, these hazards are:

- Drought
- Flooding (incl. dam failure)
- Geologic hazards (incl. landslide and subsidence)
- Man-Made Hazards (incl. infrastructure failure, hazardous materials, terrorism)
- Seismic hazards (incl. earthquake, fault rupture, liquefaction)
- Severe weather (incl. extreme heat, severe wind, severe winter weather)
- Wildfires

The updated LHMP will also address climate change, not as a distinct hazard, but as a component of other hazards that may affect their frequency, intensity, or location.

Key Terms

Hazard: A natural or human-caused event with the potential to cause damage.

Resiliency: The ability of a population or asset to reduce a threat.

Risk: The chance that a hazard, especially one of a particular size or intensity, will occur.

Threat: The potential of a hazard to do harm.

Vulnerability: A weakness that increases the threat posed to a population or asset

The Federal Emergency Management Agency's (FEMA) guidelines for LHMPs requires that local governments create opportunities for members of the public to be involved in the development of the plan. At a minimum, members of the public should be involved during its initial drafting and plan approval stages, and that such opportunities are documented. This process helps ensure that the LHMP reflects community values, concerns, and priorities. The City of Colton will follow these guidelines when preparing its LHMP.

The overarching goals of the LHMP document as are follows:

- Save lives and reduce injuries among Colton community members and visitors.
- Avoid damage to public and private property, and to environmental systems.
- Preserve key government functions and other critical services.
- Integrate hazard mitigation activities into City policies.
- Maintain the City's eligibility for increased hazard mitigation and disaster recovery funding.
- Support compliance with state laws that require addressing specific hazards and other items, including the effects of climate change.

These goals will also guide the community outreach process, which will educate community members and collect feedback to help develop the LHMP. The engagement process will be transparent and respectful for all participants, allowing community members to express themselves in a productive way. This Community Engagement Strategy describes how the City of Colton will conduct outreach to members of the local community and other stakeholders of importance, in a flexible and outcome-oriented manner.

PROJECT TEAM AND RESPONSIBILITIES

The LHMP is being prepared by a project team, comprised of members from the City's Hazard Mitigation Planning Team (HMPT) with support from technical consulting firm PlaceWorks. The HMPT members consist of representatives from the following City agencies:

- Community Services Department
- Development Services Department
- Electric Department
- Finance Division
- Fire Department
- Information Technology Division
- Police Department
- Public Works Department
- Water and Wastewater Department

The members of the HMPT will be responsible for reviewing all proposed methods, materials, and content for outreach activities. As the local experts, they will provide valuable information about how best to reach community members, and to share information and receive feedback effectively. It is likely that at least one member of the HMPT will participate in outreach activities to serve as a representative of the City. HMPT members will serve as the primary liaisons with community members on the project, which may include answering public inquiries about the LHMP and being responsible for distributing content about the Plan.

Members of the project team from PlaceWorks will help prepare materials and content for outreach activities. This may include digital and print materials, as well as any other items used for community engagement. At least one member of the PlaceWorks team will attend outreach events, helping to speak with members of the public and serving as technical experts as needed. PlaceWorks will also be responsible for collecting and analyzing the results of engagement activities, and sharing these results with other members of the project team.

HAZARD MITIGATION PLANNING TEAM STAKEHOLDERS

The following organizations are additional stakeholders invited to participate during plan development, which includes Hazard Mitigation Planning team meetings and community engagement meetings. These key stakeholders represent non-City agencies, businesses, or other organizations that are present in the community or are otherwise important to local health, safety, and quality of life.

- Arrowhead Regional Medical Center
- BNSF Railway
- California Department of Forestry and Fire Protection (Cal Fire)
- City of Grand Terrace
- Colton Joint Unified School District
- Colton Community Emergency Response Team (CERT)
- Kinder Morgan
- San Bernardino County Flood Control District
- San Bernardino County Land Use Services Department

- San Bernardino County Public Works Department
- Union Pacific Railroad

During the development of the updated LHMP this list of stakeholders may change.

COMMUNITY ENGAGEMENT

The project team will engage members of the general public, which includes people who live and/or work in Colton, as well as those who own property or run businesses in the community. The following are the two main forms of engagement:

IN-PERSON ENGAGEMENT

In-person engagement events allow members of the Colton community to learn about the LHMP, including the process of plan development, hazards of concern, and feasible steps the City and community members can take to improve resiliency. These opportunities allow for members of the community to speak directly to City staff and other stakeholders about the project, and to provide useful feedback. Discussions at these in-person events can be more detailed and involved than those through online media.

In-person events will emphasize the project goals and the City's intent in preparing the updated LHMP, as discussed above. These events will also provide an opportunity for members of the project team to address any misconceptions about the LHMP. Educational material to correct misconceptions could also be distributed through other means, such as the City's website and social media accounts. Example misconceptions may include:

- "Colton must have an LHMP to receive disaster relief funding". In actuality, communities are eligible for federal disaster relief funding regardless of whether they have an LHMP or not. However, the State of California limits its share of disaster relief funding to 75 percent of the costs not paid by the federal government unless the community has a valid LHMP, at which point the State may pay more than 75 percent.
- "The LHMP must analyze all potential hazards". An LHMP is only required to look at natural hazards. Human-caused hazards may be included for the sake of improving overall community safety, but are not required. FEMA only provides funding to help mitigate natural hazards.

The project team discussed the potential for stand-alone in-person events, and determined that there likely would not be significant community interest in such activities. As an alternative, the project team is exploring conducting outreach (pop-up) at existing community events. A pop-up would involve a booth or table at the event, staffed by members of the project team. Members of the public would be able to talk about the Colton LHMP, learn about the project, and participate in basic activities. Depending on the timing and available space, potential community events that could host a pop-up include:

- Arrowhead Regional Medical Center Annual 5K
- City of Colton Birthday Celebration
- Relay for Life
- Taste of Colton

Other events as identified by City staff could be used for engagement purposes.

ONLINE AND MEDIA ENGAGEMENT

Engagement through online systems and media outlets allows the City to reach a wide audience without requiring extensive effort by project staff. Online methods are well suited to receive community input on specific issues, and allow community members to participate who may be unable to attend in-person meetings. Local media outlets allow the City to easily send out notifications and other information that reaches a large segment of the community. With a significant amount of Colton residents that speak a different language than English at home, online and media engagement also allows for easy distribution of materials in other languages, such as Spanish.

There are multiple elements of online and media engagement that will be used during the development of the updated Colton LHMP.

Project Website

The project website will be a simple, one-stop location for community members to learn about the update to the LHMP. It will contain information about what an LHMP is, why the City is preparing an update, and how community members can get involved, along with other topics. The website will also include links to materials and plan documents as they become available, and will contain notifications about upcoming events related to the plan development. The City already has a site that will require minor updates to ensure relevant project content is provided during plan development. The web address for this site is:

http://ca-colton.civicplus.com/index.aspx?NID=820

Social Media

The use of social media accounts allows City agencies to send quick notifications or information bursts to residents and other community members. This can include information about upcoming public engagement opportunities, ways community members can protect themselves during upcoming hazard events, and notifications about the release of draft documents. Multiple City agencies use social media accounts. The Community Services, Electric, Fire, and Police departments are among those who maintain Facebook accounts. The Colton Police Department maintains a Twitter account. City agencies may also use the NextDoor social media system to send out information to residents in all communities or in select neighborhoods.

Online Survey

An online survey is an effective way to collect information and comments from community members about issues of importance to the LHMP. The survey will include questions about community members' past experience and familiarity with emergency conditions, level of preparedness for future emergencies, and preferred actions for the City to take to increase community resiliency, along with other questions added by the project team. Links to the survey can be posted on the project website and distributed through social media announcements. The project team can also distribute paper copies of the survey during community events or meetings, if desired.

Press Releases

Press releases allow the City to send out information about upcoming project milestones or other notifications to local media outlets, including print media, television, and radio. The City can use these documents to alert members of the public about the status of the project and upcoming events, often in conjunction with postings on social media and on the project website. The number of press releases should be limited, as too many press releases will likely be ignored. The release of the public draft LHMP update and the beginning of the public comment period, for example, may be a good time for a press release.

CONTENT FOR ONLINE AND MEDIA ENGAGEMENT

The following material can be used for the online and media engagement components of the community engagement strategy. It can also be adapted and revised as the project proceeds and specifics change.

PROJECT WEBSITE CONTENT

The City currently has a website for its previous LHMP update process. While a good amount of the existing content can be preserved, some will need to be updated to include new information. Additionally, information on the LHMP is split across eight separate web pages, which can make it challenging for users. It is suggested that content be consolidated onto a smaller number of pages.

Page 1: Local Hazard Mitigation Plan (project overview page)

The City of Colton is preparing an update to our Local Hazard Mitigation Plan, or LHMP. This plan will inform members of the public, elected officials, and City staff on ways to make Colton a safer place to live, work, and play.

What is the purpose of the LHMP?

The updated LHMP will describe the threats that Colton faces from natural and human-caused hazards, and provide steps that the City and community members can take to decrease these threats proactively, before disasters occur. This will help reduce injury, property damage, economic harm, and other impacts of natural and human-caused disasters. The updated LHMP will cover nine hazards:

- Drought
- Flooding (incl. dam failure)
- Geologic hazards (incl. landslide and subsidence)
- Man-Made Hazards (incl. infrastructure failure, hazardous materials, terrorism)
- Seismic hazards (incl. earthquake, fault rupture, liquefaction)
- Severe weather (incl. extreme heat, severe wind, severe winter weather)
- Wildfires

In addition to helping protect Colton against these hazards, an LHMP makes our City eligible for future grant funding opportunities from the federal government that can be used to implement activities in the community that enhance safety and emergency preparedness. An updated and valid LHMP also provides greater flexibility in receiving financial help from the State when a disaster does occur.

What is hazard mitigation?

Hazard mitigation recognizes that, while we can't stop disasters or other hazardous situations from happening, governments and community members can work to reduce the harm that these events cause. Mitigation is taking action before a hazardous event occurs, such as an earthquake or wildfire, so that the community suffers less damage. This helps protect against injury and loss of life, saves public and private property from harm, reduces the time to recover from a disaster, and decreases the impact to the quality of life that we enjoy.

In addition, hazard mitigation saves money. By making our homes, businesses, and public spaces more resilient to hazards so they suffer less damage, less money is necessary to repair or rebuild our community when a disaster eventually happens. Studies have shown that every dollar spent on mitigation activities saves an average of four dollars on response and recovery costs.

Mitigation activities can take many forms. Some examples include:

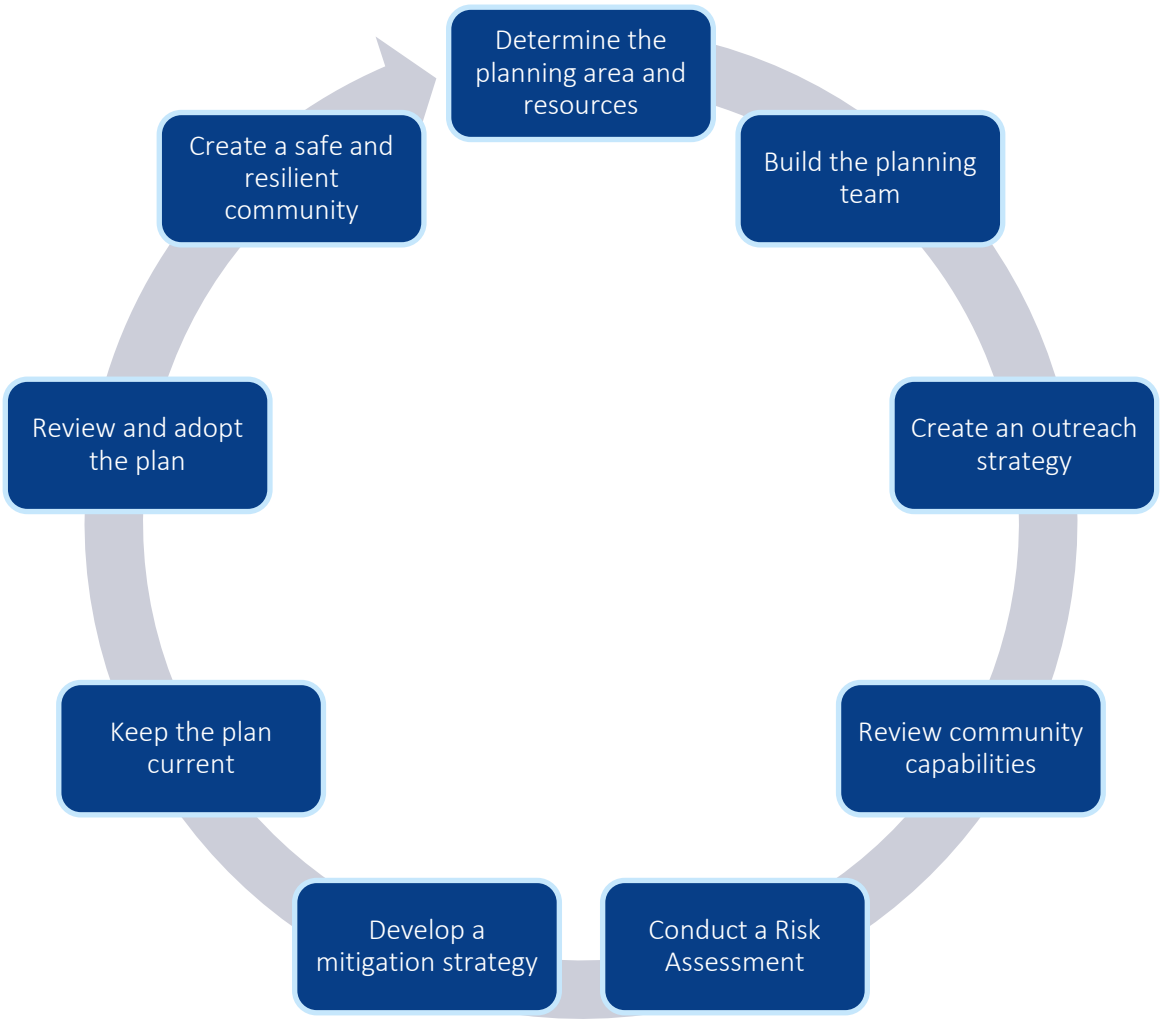
- Construction projects, such as retrofitting existing homes, businesses, and infrastructure so they are less likely to be damaged by a disaster.
- Changing land use and building codes, helping to ensure that new buildings are constructed outside of dangerous areas and are better able to resist damage from a hazard event.
- Maintaining infrastructure and government services, ensuring that they are working at their best when a disaster occurs.
- Conducting educational campaigns so that community members know about the potential for hazards and what they can do to be safer.
- Protecting open space and other natural resources, using the benefits of local ecosystems to help protect our community.

Don't we already have an LHMP?

Colton prepared an LHMP in 2011. However, these plans need to be updated every five years, to remain eligible for FEMA grant funding. This helps ensure that they include the best available information, contain new ideas and best practices to improve safety, and comply with all new laws.

Page 2: Planning Process

The Federal Emergency Management Agency (FEMA) outlines a nine-step process it recommends for developing LHMPs. Colton's LHMP will follow this process, allowing our plan to be consistent with all official guidance.



Step 1: Determine the Planning Area and Resources

The planning area will be the city limits of Colton. The City has secured the resources we need to prepare the updated LHMP, including funding, staff time, and assistance from a consultant.

Step 2: Build the Planning Team

The Hazard Mitigation Planning Team (HMPT) is the group responsible for preparing the update to the LHMP, with involvement from members of the public and supported by a consultant. The HMPT members come from the following City agencies:

- Community Services Department
- Development Services Department
- Electric Department
- Finance Division
- Fire Department
- Information Technology Division
- Police Department

- Public Works Department
- Water and Wastewater Department
- Additional Stakeholders

Step 3: Create an outreach strategy

It is very important that Colton community members have the chance to be involved in preparing the updated LHMP. The City will be reaching out to community members to provide ideas for making Colton safer and to review draft sections of the LHMP. We will provide updates about public outreach opportunities at the "Get Involved" page [PROVIDE LINK], and on the City's social media accounts.

Step 4: Review community capabilities

The HMPT will look at Colton's existing ability to conduct hazard mitigation, allowing us to identify areas of potential improvement.

Step 5: Conduct a Risk Assessment

The Risk Assessment will be a technical analysis to figure out how Colton could be harmed by natural and human-caused hazards. This assessment looks at areas of risk within Colton, populations that are potentially vulnerable, and property and infrastructure that could be damaged as a result of a hazard related event.

Step 6: Develop a mitigation strategy

The mitigation strategy is a set of policies to improve mitigation in our community. The HMPT will create mitigation policies that reduce the threats identified in the risk assessment, enhance community capabilities, and are supported by members of the public.

Step 7: Keep the plan current

An LHMP should be updated every five years, to keep it current and consistent with federal requirements. Colton's LHMP will include a set of actions and detailed guidance to help future City staff update the plan when it nears expiration.

Step 8: Review and adopt the plan

The updated LHMP will be reviewed by members of the public, as well as by state and federal officials. Once this review is complete, the plan will be adopted by the Colton City Council.

Step 9: Create a safe and resilient community

After the updated LHMP is adopted, City staff and elected officials, along with key partners and community members, will put the mitigation strategies into effect.

Page 3: Get Involved

The updated City of Colton LHMP will depend on input and feedback from our community members. There will be multiple opportunities for community members to get involved:

- The City will prepare an online survey for community members, asking for information about existing hazards, steps community members have already taken, and suggestions for future mitigation activities. All survey results will be anonymous and confidential. This survey will be available shortly. [WHEN SURVEY IS POSTED, REVISE TEXT AND PROVIDE LINK. NOTE IF SURVEY IS AVAILABLE AT ANY IN-PERSON LOCATIONS]
- The City will have a booth at the upcoming Arrowhead Regional Medical Center Annual 5K Walk and Run. Community members can talk to City staff about the LHMP update, learn more about hazard mitigation, and participate in interactive activities to help inform the plan.
- We hope to release a draft of the updated LHMP in July of 2018. When the plan is available, members of the public will be able to read it in-person or online at the "Documents and Resources" page [PROVIDE LINK]. Community members can provide comments to help revise the plan and make it better.

In the meantime, consider taking personal steps to be more prepared for a disaster. Here are some of the things you can do now:

- Know the hazards that may affect you at your home, work, or school. You can find out more at http://myhazards.caloes.ca.gov/.
- Assemble an emergency kit for your home. In a disaster, you may have to rely on supplies in your emergency kit for at least three days. Be sure to include supplies for any pets and anyone in your home with special needs. Learn more at https://www.ready.gov/build-a-kit.
- Have a disaster plan for your household, including how people should contact each other if a disaster occurs and where you should meet.
- Learn about your neighbors and how to help them. In a disaster, emergency responders may not be able to reach your neighborhood for a while. Know if your neighbors have any special needs, and be sure to check on them as soon as you can.
- Make sure your homeowner's or renter's insurance covers you from disasters such as earthquakes and floods. If these disasters occur, having good insurance coverage will help you recover easier.
- Volunteer with an emergency response or community service organization that does work on disaster education and preparation.
- Speak to your employer about creating a disaster recovery, workforce communication, and/or business continuity plan. If they already have one or more of these plans in place, make sure you and your co-workers know it.

Documents and Resources

[PROVIDE LINKS HERE AS APPROPRIATE].

SOCIAL MEDIA POSTS

Facebook

Project/meeting announcement

The City of Colton is preparing a Local Hazard Mitigation Plan. This plan helps us identify areas of the city vulnerable to disasters, and ways we can reduce this threat. Come to [LOCATION] at [TIME] on [DATE] to learn more and get involved. Additional information is located here: [PROJECT WEBSITE]. We need your help to create a safer Colton!

Survey

Let your voice be heard as we plan for a safer Colton! Our city is looking for engaged community members to take a quick survey on hazards and emergency preparations. Your responses will help in the preparation of our Local Hazard Mitigation Plan. All survey responses are completely anonymous. Take the survey at [SURVEY LINK] and learn more about the plan at [PROJECT WEBSITE].

Public plan release

With the help of our active and involved community members, we have prepared a first draft of our updated Local Hazard Mitigation Plan. This plan will help our community learn about and prepare for future emergencies, building a safer Colton for everyone. You can read the plan at [LINK], and submit comments and/or questions at [COMMENT FIELD/WEBSITE/EMAIL ADDRESS]. You can also make in-person comments at our public meeting at [LOCATION] at [TIME] on [DAY]. Help us make a safer Colton!

Twitter

Outreach announcement

Colton is writing a new plan to help us create a safer Colton. Come talk to us at [EVENT] to learn more and get involved! [Link to webpage announcement – use URL shortener]

Survey

We want your opinion to help us create a safer Colton! Take a few minutes to take our Local Hazard Mitigation Plan survey at [Link to survey – use URL shortener].

Public plan release

The first draft of our plan to help us build a safer Colton is out! Read the plan and comment online or in person. Learn more at [Link to website post – use URL shortener].

BLOG/NEWSLETTER POSTS

Project/meeting announcement

Most of us know what it's like to live through a natural disaster, like an earthquake, flood, or wildfire. It's easy to feel that there's nothing we can really do about these events, but while we often can't stop them from happening, we can make sure that the damage to our community is reduced.

At the City of Colton, we want to make our community as safe as it can be, which is why we're preparing an update to our Local Hazard Mitigation Plan (LHMP). These plans will help our community assess the potential for future disasters, take steps to prepare for them, and make us eligible for additional funding from the federal and state government. Hazard mitigation helps make us safer in several ways:

- It saves lives and reduce injuries among Colton community members and visitors.
- It lets us reduce damage to public and private property, and to environmental systems.
- It preserves key government functions and other critical services during and after emergencies.
- It keeps our city eligible for increased hazard mitigation and disaster recovery funding from state and federal sources.

Our LHMP is being prepared by City staff, with support from members of the public, key stakeholders, and technical consultants. Public input is very important to ensure that our plan reflects the opinions, concerns, and goals of the community. Staff will be at [EVENT] at [TIME] at [PLACE], ready to talk to you about the project. Learn more about hazard mitigation and share your thoughts about how we can make Colton more resilient.

Can't make it to [EVENT]? We'll be releasing an online survey soon that will let you weigh in on our plan. We'll also be hosting future engagement opportunities and events to get feedback and raise awareness about reducing the threat from disasters. To learn more, visit our project website at [WEBSITE] or contact [CONTACT PERSON] at [CONTACT INFORMATION].

Survey

The City of Colton recently started work on an update to our Local Hazard Mitigation Plan (LHMP), a five-year strategy to identify and reduce the threats from natural and human-caused disasters to our community. This plan is being prepared by City staff, with support from members of the public, key stakeholders, and technical consultants. It's vital to us that our LHMP reflects the opinions, concerns, and goals of our community members, which is why we want your input.

We've posted an online survey for all community members, which will help us better understand the issues important to you, how prepared we are as a community, and what actions we should take to be better prepared in the future. The survey should only take ten minutes of your time, and all responses are completely anonymous. Take the survey at [LINK], and encourage your family and friends in Colton to do the same.

To learn more about the Colton LHMP, visit our project website at [WEBSITE] or contact [CONTACT PERSON] at [CONTACT INFORMATION].

Public plan release

Since December of 2017, the City has been working on an update to our Local Hazard Mitigation Plan (LHMP), a five-year strategy to identify and reduce the threats from natural and human-caused hazards and disasters within our community. This plan is being prepared by City staff, with support from members of the public, key stakeholders, and technical consultants. Feedback and comments from other Colton community members have helped make sure that the plan reflects the opinions, concerns, and goals of our residents and businesses.

A first draft of the completed plan is now available, and we want your input. Tell us what you think about the plan and ways we can improve it. We want to hear all your ideas.

We'll integrate public comments into the plan prior to transmittal to state and Federal agencies. Comments will be taken until [DATE], and access to the plan is provided here, [LINK]. Please send your comments to [Contact] via [EMAIL] or hard copy [ADDRESS]. You can also come to our public meeting at [TIME] on [DATE] at [LOCATION] to share your thoughts directly with the City Council and City staff.

SAMPLE PRESS RELEASE

The City of Colton has begun preparation of an update to the City's Local Hazard Mitigation Plan (LHMP), a five-year strategic plan to improve local resilience to hazard events. This plan is being prepared by City staff, with support from members of the public, key stakeholders, and technical consultants. It will also incorporate regular feedback from Colton community members and key stakeholders. The City plans to release a draft of the plan for public review July of 2018, with final adoption planned for January of 2019 following approval from the California Office of Emergency Services and FEMA.

The Colton LHMP update will summarize the natural and human-caused hazards that pose a threat to the community, including flooding, earthquakes, landslides, and wildfires. As a part of this process, the plan will identify how climate change is expected to affect future hazards in Colton. The updated LHMP will analyze how community members, buildings, and infrastructure are vulnerable to the threats posed by these hazards and outline strategies to improve overall resiliency to hazard events. The plan will also include steps to keep it updated and maintained through the changing conditions of the community.

In addition to protecting Colton from current and future hazards, having an LHMP will allow the City to remain eligible for grants from FEMA for additional hazard mitigation efforts, under the provisions of the federal Robert T. Stafford Act and the Disaster Mitigation Act of 2000. It will also continue to make Colton eligible to receive additional disaster relief funding from the State of California, per California Government Code Section 8685.9.

CITY OF COLTON LHMP WEBSITE

Local Hazard Mitigation Plan

The City of Colton is preparing an update to our Local Hazard Mitigation Plan, or LHMP. This plan will inform members of the public, elected officials, and City staff on ways to make Colton a safer place to live, work, and play.

What is the purpose of the LHMP?

The updated LHMP will describe the threats that Colton faces from natural and human-caused hazards, and provide steps that the City and community members can take to decrease these threats proactively, before disasters occur. This will help reduce injury, property damage, economic harm, and other impacts of natural and human-caused disasters. The updated LHMP will cover nine hazards:

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In addition, hazard mitigation saves money. By making our homes, businesses, and public spaces more resilient to hazards so they suffer less damage, less money is necessary to repair or rebuild our community when a disaster eventually happens. Studies have shown that every dollar spent on mitigation activities saves an average of four dollars on response and recovery costs.

Mitigation activities can take many forms. Some examples include:

- Construction projects, such as retrofitting existing homes, businesses, and

infrastructure so they are less likely to be damaged by a disaster.

- Changing land use and building codes, helping to ensure that new buildings are constructed outside of dangerous areas and are better able to resist damage from a hazard event.
- Maintaining infrastructure and government services, ensuring that they are working at their best when a disaster occurs.
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Don't we already have an LHMP?

Colton prepared an LHMP in 2011. However, these plans need to be updated every five years, to remain eligible for FEMA grant funding. This helps ensure that they include the best available information, contain new ideas and best practices to improve safety, and comply with all new laws.

To view City of Colton's 2011 Hazard Mitigation Plan. Click here

Help our community by completing an important survey that will be used for the 2018 LHMP update at the links below.

Click Here to take our Hazard Mitigation Project Survey - English Version

Click Here to take our Hazard Mitigation Project Survey - Spanish Version

If you have comments or questions pertaining to natural hazard mitigation and the planning process, please send them to: skendall@lomalinda-ca.gov

COLTON LHMP OUTREACH FLYER

A SAFE AND PREPARED COLTON

Local Hazard Mitigation Plan and Safety Element Update

In January 2018, the City of Colton kicked off a project to update how it addresses public safety issues. The project has two pieces:

The **Safety Element** is a long-term plan for enhancing public safety and will serve as an adopted element of the General Plan, forming part of the city's blueprint for future growth and development.

The **Local Hazard Mitigation Plan** is a five-year strategic plan that studies natural disasters which could affect the city and identifies actions to reduce their impacts.

The two pieces will work together to create a safer Colton. You can help make the plan more accurate, suggest strategies to make the city safer, and learn more about public safety by visiting the following website:
http://www.ci.colton.ca.us/index.aspx?NID=820

A SAFE AND PREPARED COLTON

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UNA SEGURA Y PREPARADA COMUNIDAD DE COLTON

Plan de Mitigación de Riesgo Local y Actualización del Elemento de Seguridad

En Enero de 2018, la Ciudad de Colton inició un proyecto para actualizar cómo aborda temas de seguridad pública. El proyecto tiene dos piezas:

El **Elemento de Seguridad** es un plan a largo plazo para mejorar la seguridad pública y servirá como un elemento adoptado del Plan General, formando parte del plano de la Ciudad para el futuro crecimiento y desarrollo.

El **Plan de Mitigación de Riesgo Local** es un plan estratégico de cinco años que estudia los desastres naturales que podrían afectar a la Ciudad e identifica acciones para reducir sus impactos.

Las dos piezas trabajarán juntas para crear un Colton más seguro. Usted puede ayudar a hacer el plan más preciso, sugerir estrategias para que la ciudad sea más segura y aprender más sobre seguridad pública visitando el siguiente enlace:
http://www.ci.colton.ca.us/index.aspx?NID=820

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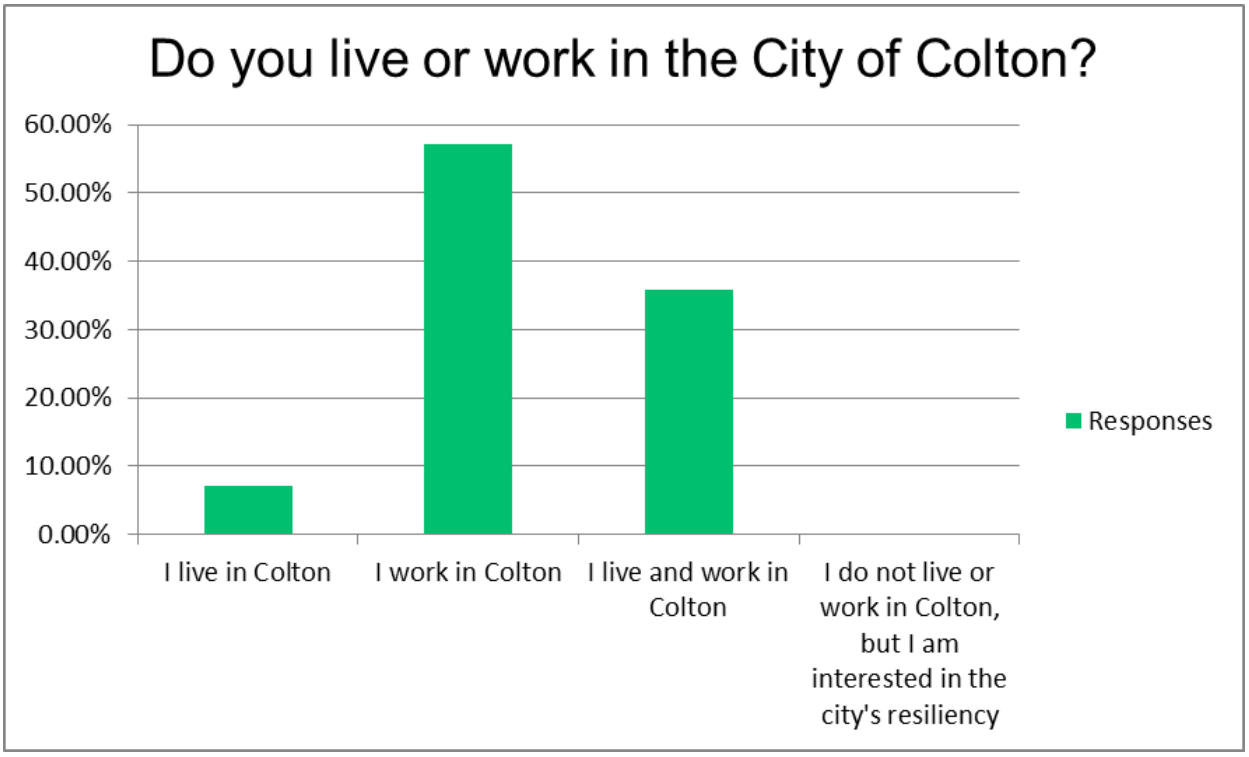
COLTON LHMP ONLINE SURVEY RESULTS

Colton 2018 Hazard Mitigation Plan survey (English)

Do you live or work in the City of Colton?

Answer Choices	Responses	
I live in Colton	7.14%	1
I work in Colton	57.14%	8
I live and work in Colton	35.71%	5
I do not live or work in Colton, but I am interested in the city's resiliency	0.00%	0
	Answered	**14**
	Skipped	**0**



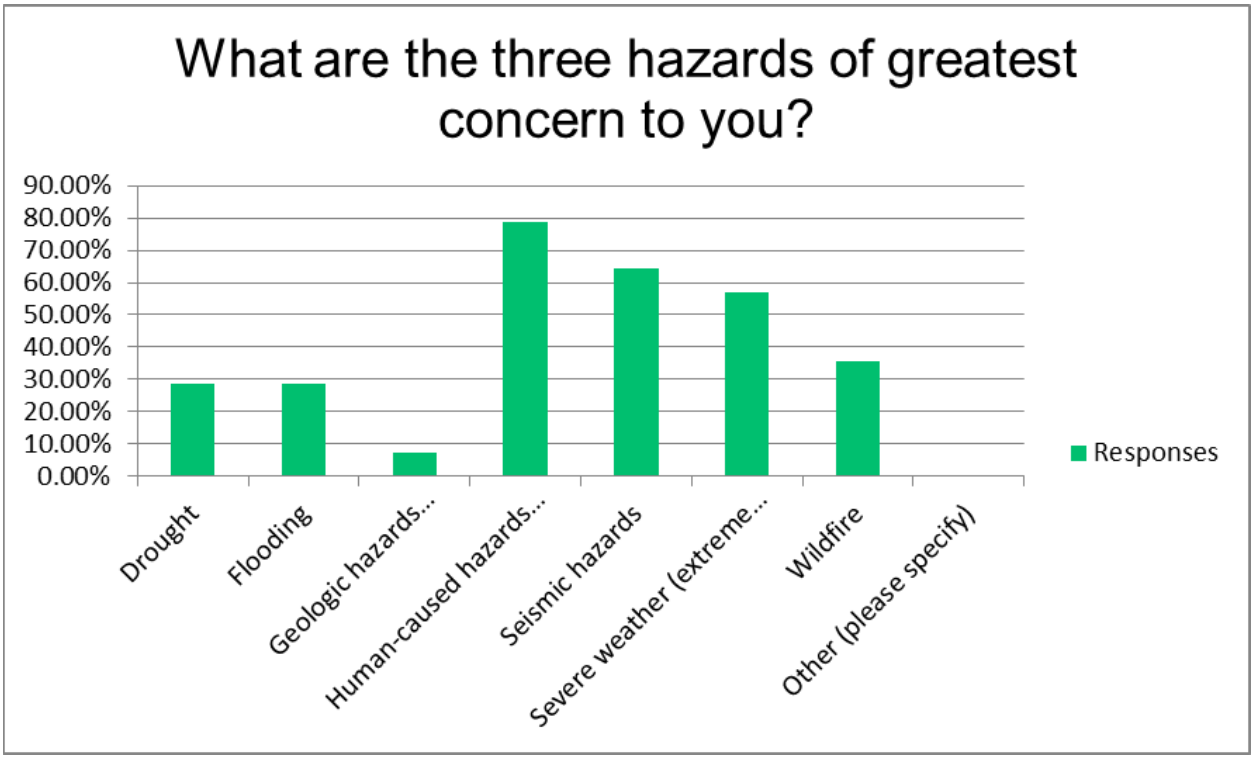
What is the ZIP code of your home?

Answered 14
Skipped 0

Respondents	Response Date	Responses
1	Apr 29 2018 11:40 PM	92324
2	Apr 29 2018 09:19 AM	92376
3	Apr 29 2018 12:39 AM	92324
4	Apr 28 2018 06:25 PM	92324
5	Apr 19 2018 09:57 AM	92324
6	Apr 19 2018 09:46 AM	92324
7	Apr 18 2018 12:22 PM	92374
8	Apr 18 2018 09:22 AM	92371
9	Apr 17 2018 04:34 PM	92346
10	Apr 17 2018 04:23 PM	92407
11	Apr 17 2018 04:02 PM	92324
12	Apr 17 2018 03:59 PM	92405
13	Apr 17 2018 03:58 PM	91762
14	Apr 17 2018 03:56 PM	92374

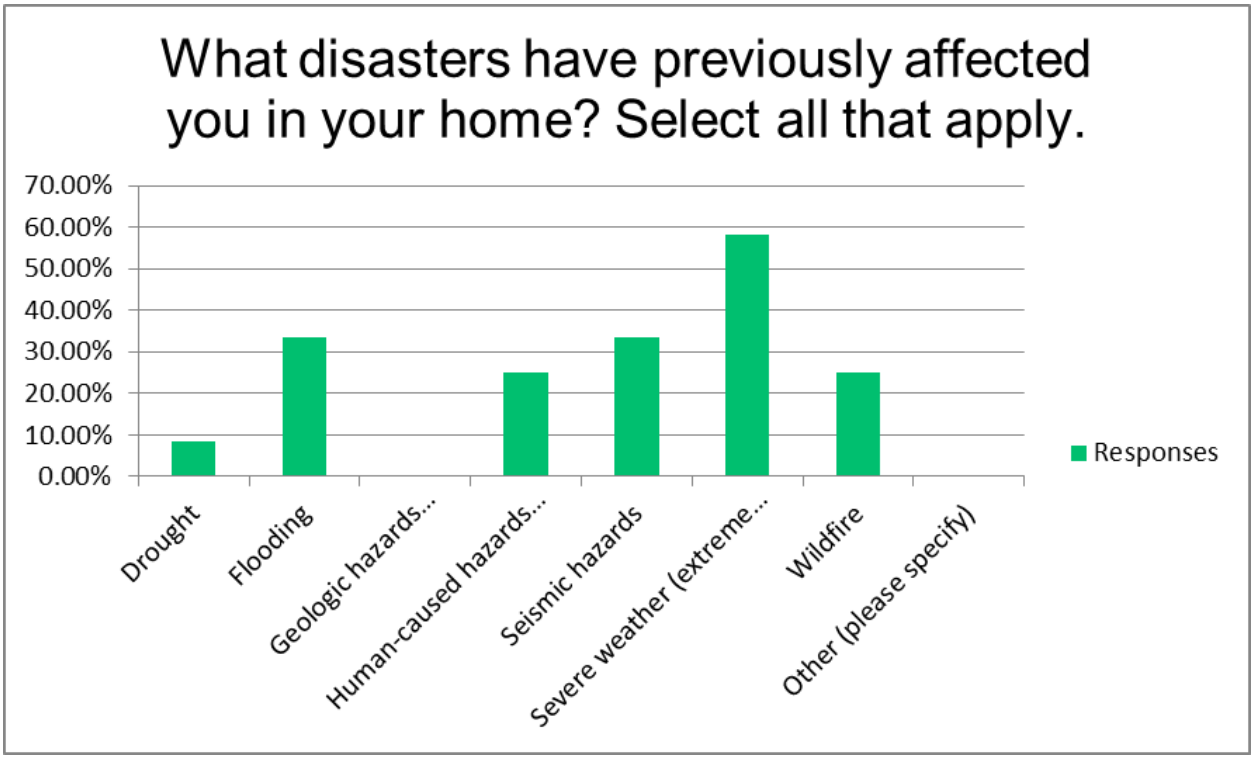
What are the three hazards of greatest concern to you?

Answer Choices	Responses	
Drought	28.57%	4
Flooding	28.57%	4
Geologic hazards (landslides and subsidence)	7.14%	1
Human-caused hazards (infrastructure failure, hazardous material release, and terrorism)	78.57%	11
Seismic hazards	64.29%	9
Severe weather (extreme heat, severe wind, and severe winter weather)	57.14%	8
Wildfire	35.71%	5
Other (please specify)	0.00%	0
	Answered	**14**
	Skipped	**0**



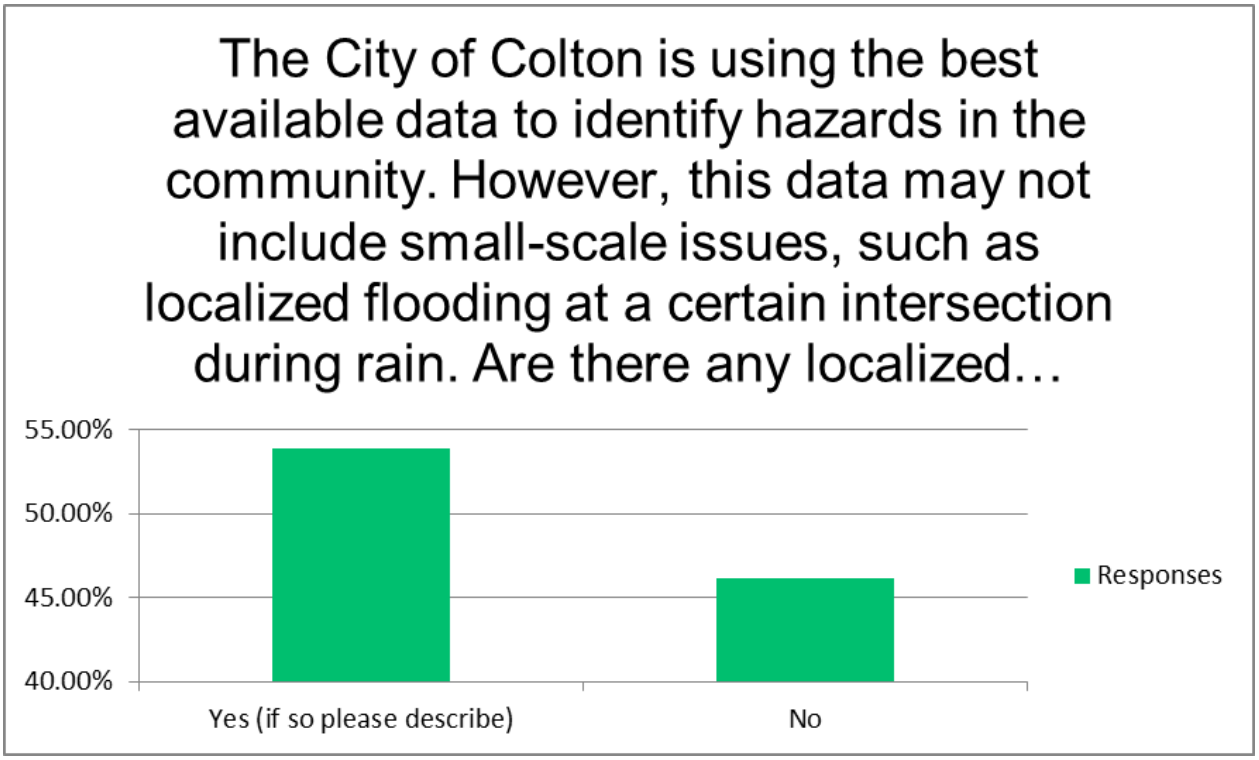
What disasters have previously affected you in your home? Select all that apply.

Answer Choices	Responses	
Drought	8.33%	1
Flooding	33.33%	4
Geologic hazards (landslides and subsidence)	0.00%	0
Human-caused hazards (infrastructure failure, hazardous material release, and terrorism)	25.00%	3
Seismic hazards	33.33%	4
Severe weather (extreme heat, severe wind, and severe winter weather)	58.33%	7
Wildfire	25.00%	3
Other (please specify)	0.00%	0
	Answered	**12**
	Skipped	**2**



The City of Colton is using the best available data to identify hazards in the community. However, this data may not include small-scale issues, such as localized flooding at a certain intersection during rain. Are there any localized issues that you would like to make sure the City aware of?

Answer Choices	Responses	
Yes (if so please describe)	53.85%	7
No	46.15%	6
Please describe any localized issues		7
	Answered	**13**
	Skipped	**1**

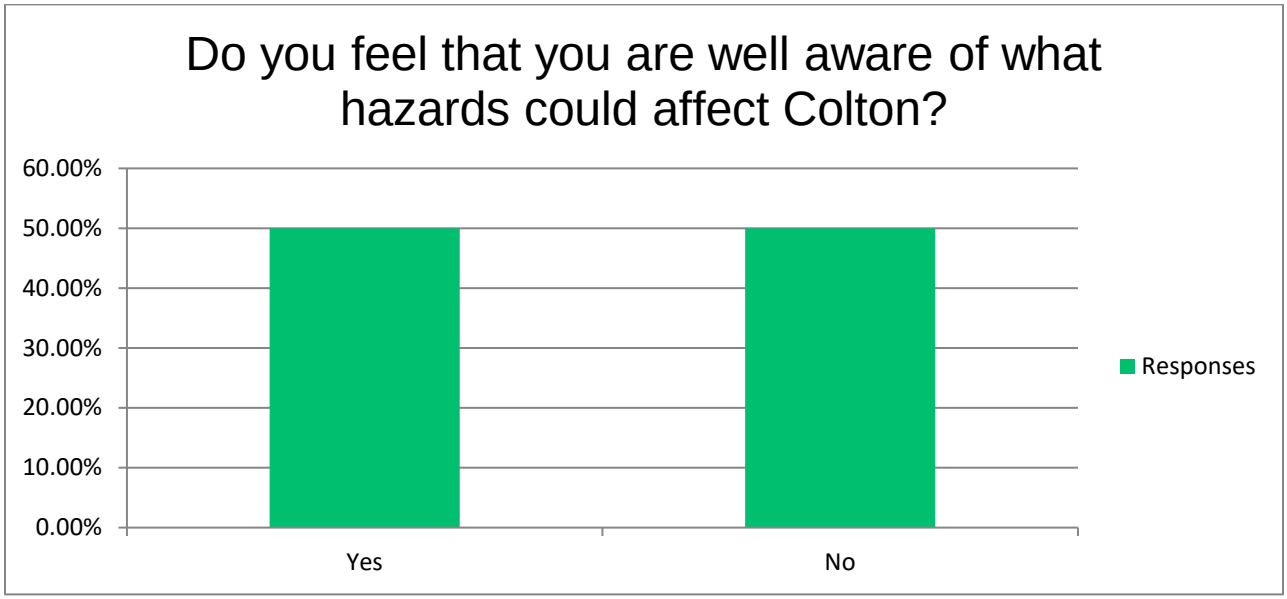


Respondents	Response Date	Please describe any localized issues
1	Apr 29 2018 11:40 PM	Homelessness
2	Apr 28 2018 06:25 PM	C street bridge

3	Apr 19 2018 09:46 AM	Reche Canyon floods every time it rains making the drive home difficult and dangerous more than it already is. Also, Prado Lane floods right at the park as well making it difficult to drive through the road with low profile vehicles. One year the park flooded almost to the top of the gazebo. There is permanently mud in the Prado Park because it does not drain properly.
4	Apr 17 2018 04:34 PM	We do not have a blast wall near a daycare by our substation.
5	Apr 17 2018 04:02 PM	C Street Underpass
6	Apr 17 2018 03:59 PM	If the bridges go down in a seismic event the immediate area surrounding Vet's park will be an island that medical cannot get to.
7	Apr 17 2018 03:56 PM	Plans for those near the jet fuel line.

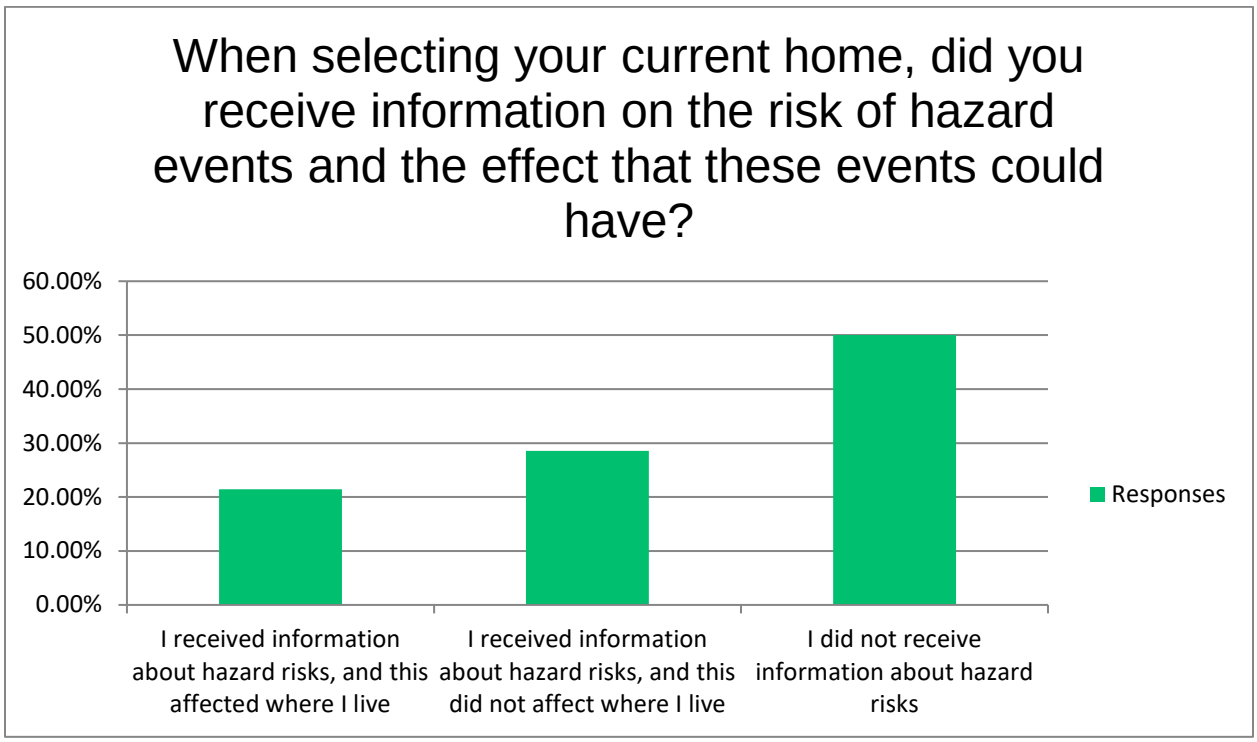
Do you feel that you are well aware of what hazards could affect Colton?

Answer Choices	Responses	
Yes	50.00%	7
No	50.00%	7
	Answered	**14**
	Skipped	**0**

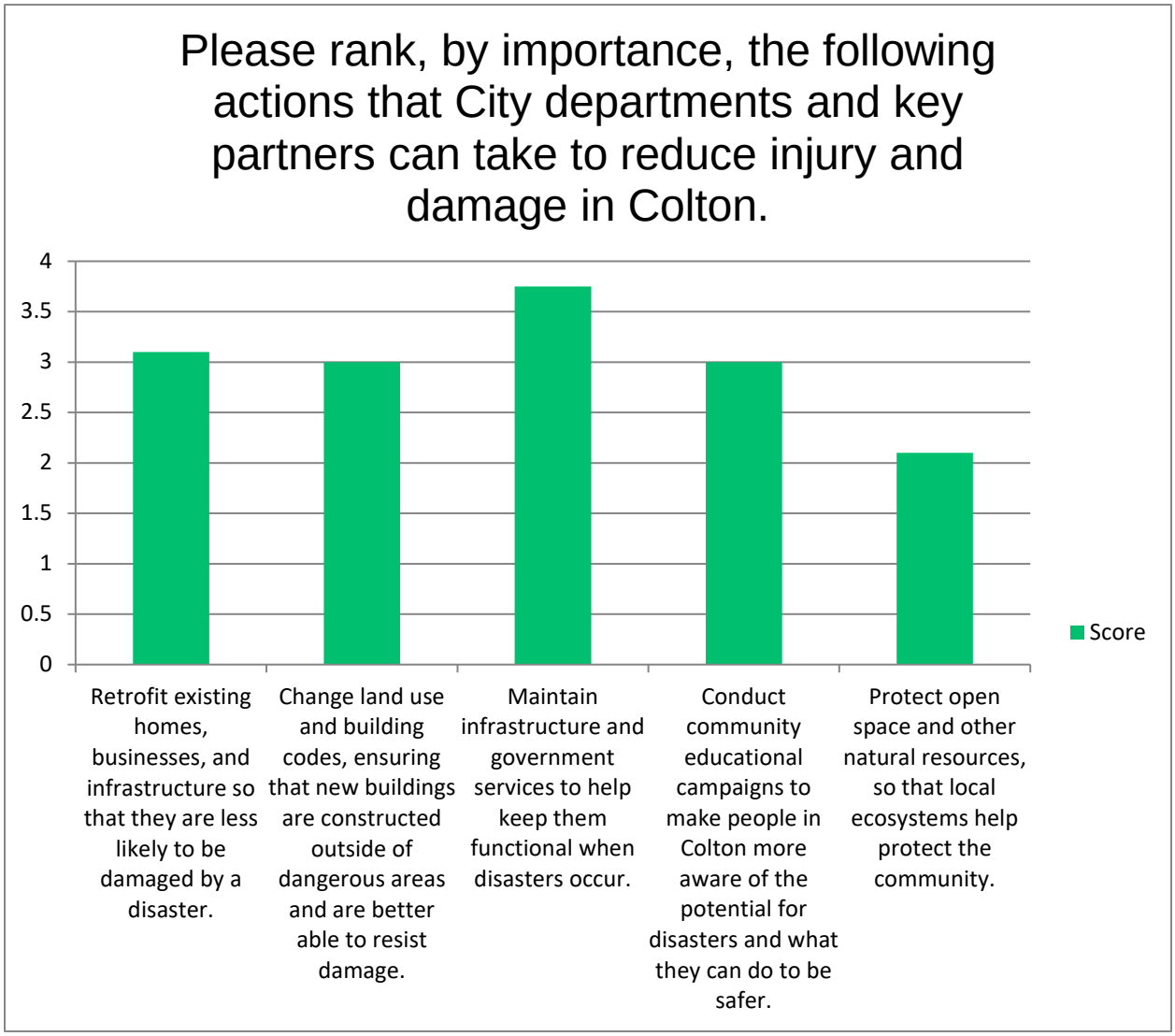


When selecting your current home, did you receive information on the risk of hazard events and the effect that these events could have?

Answer Choices	Responses	
I received information about hazard risks, and this affected where I live	21.43%	3
I received information about hazard risks, and this did not affect where I live	28.57%	4
I did not receive information about hazard risks	50.00%	7
	Answered	**14**
	Skipped	**0**



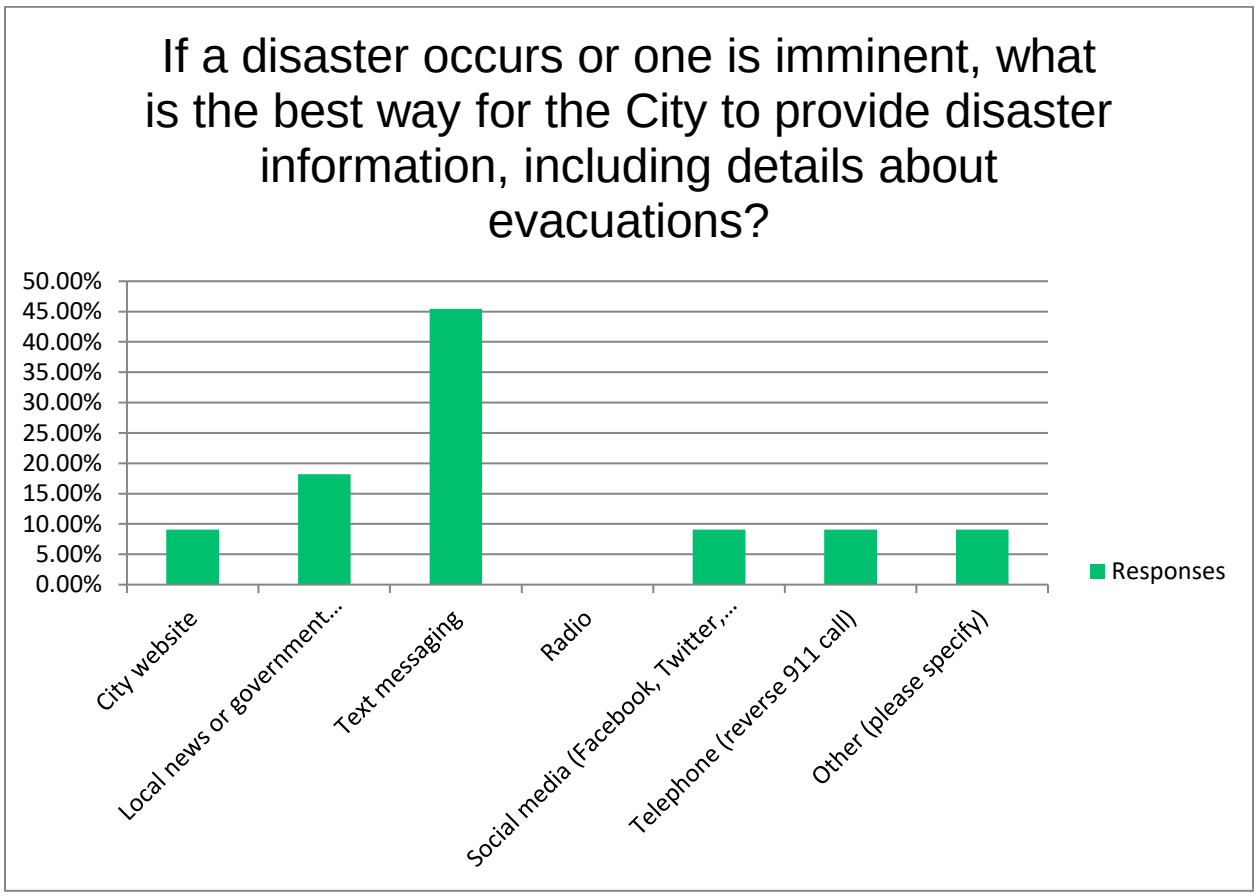
Please rank, by importance, the following actions that City departments and key partners can take to reduce injury and damage in Colton.	1		2		3		4		5		Total	Score
Retrofit existing homes, businesses, and infrastructure so that they are less likely to be damaged by a disaster.	0.00%	0	40.00%	4	30.00%	3	30.00%	3	0.00%	0	10	3.1
Change land use and building codes, ensuring that new buildings are constructed outside of dangerous areas and are better able to resist damage.	11.11%	1	33.33%	3	22.22%	2	11.11%	1	22.22%	2	9	3
Maintain infrastructure and government services to help keep them functional when disasters occur.	62.50%	5	0.00%	0	12.50%	1	0.00%	0	25.00%	2	8	3.75
Conduct community educational campaigns to make people in Colton more aware of the potential for disasters and what they can do to be safer.	11.11%	1	11.11%	1	44.44%	4	33.33%	3	0.00%	0	9	3
Protect open space and other natural resources, so that local ecosystems help protect the community.	10.00%	1	20.00%	2	0.00%	0	10.00%	1	60.00%	6	10	2.1
											Answered	11
											Skipped	3



If a disaster occurs or one is imminent, what is the best way for the City to provide

disaster information, including details about evacuations?

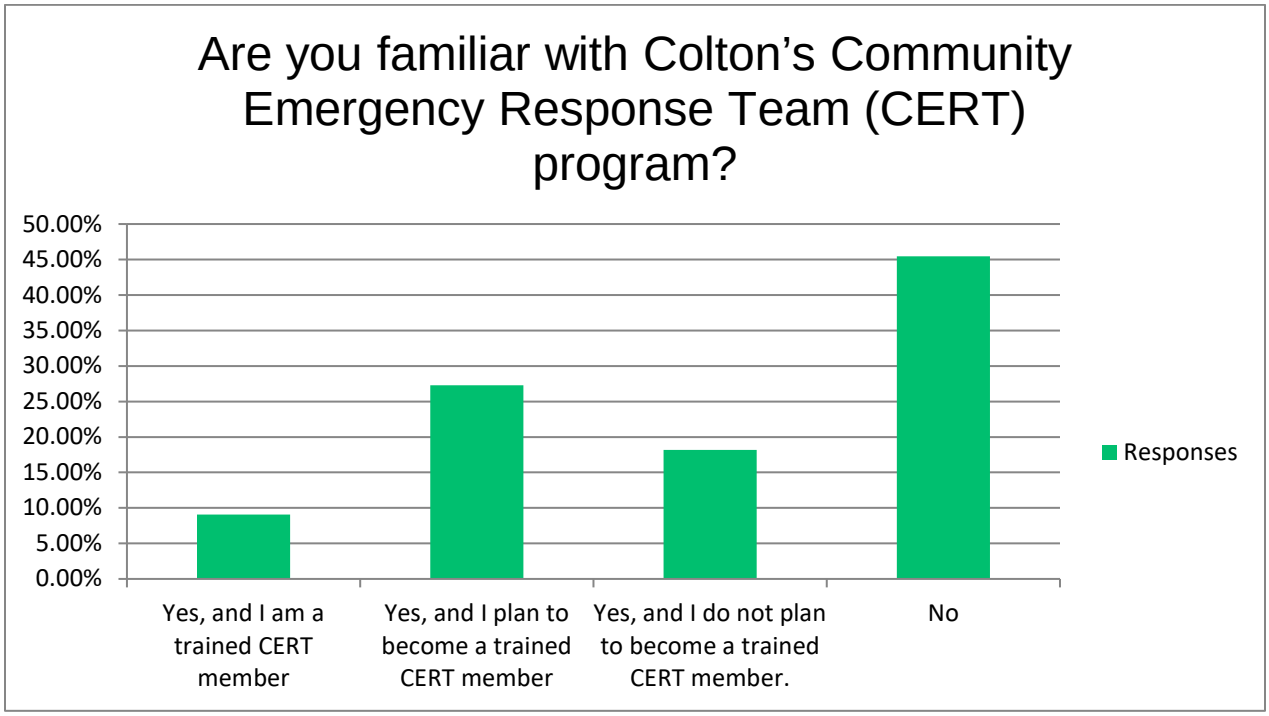
Answer Choices	Responses	
City website	9.09%	1
Local news or government television channel	18.18%	2
Text messaging	45.45%	5
Radio	0.00%	0
Social media (Facebook, Twitter, or NextDoor)	9.09%	1
Telephone (reverse 911 call)	9.09%	1
Other (please specify)	9.09%	1
	Answered	**11**
	Skipped	**3**



Respondents	Response Date	Other (please specify)
1	Apr 17 2018 04:03 PM	Social Media Community Services Facebook, SnapChat, & You know your from Colton if Facebook

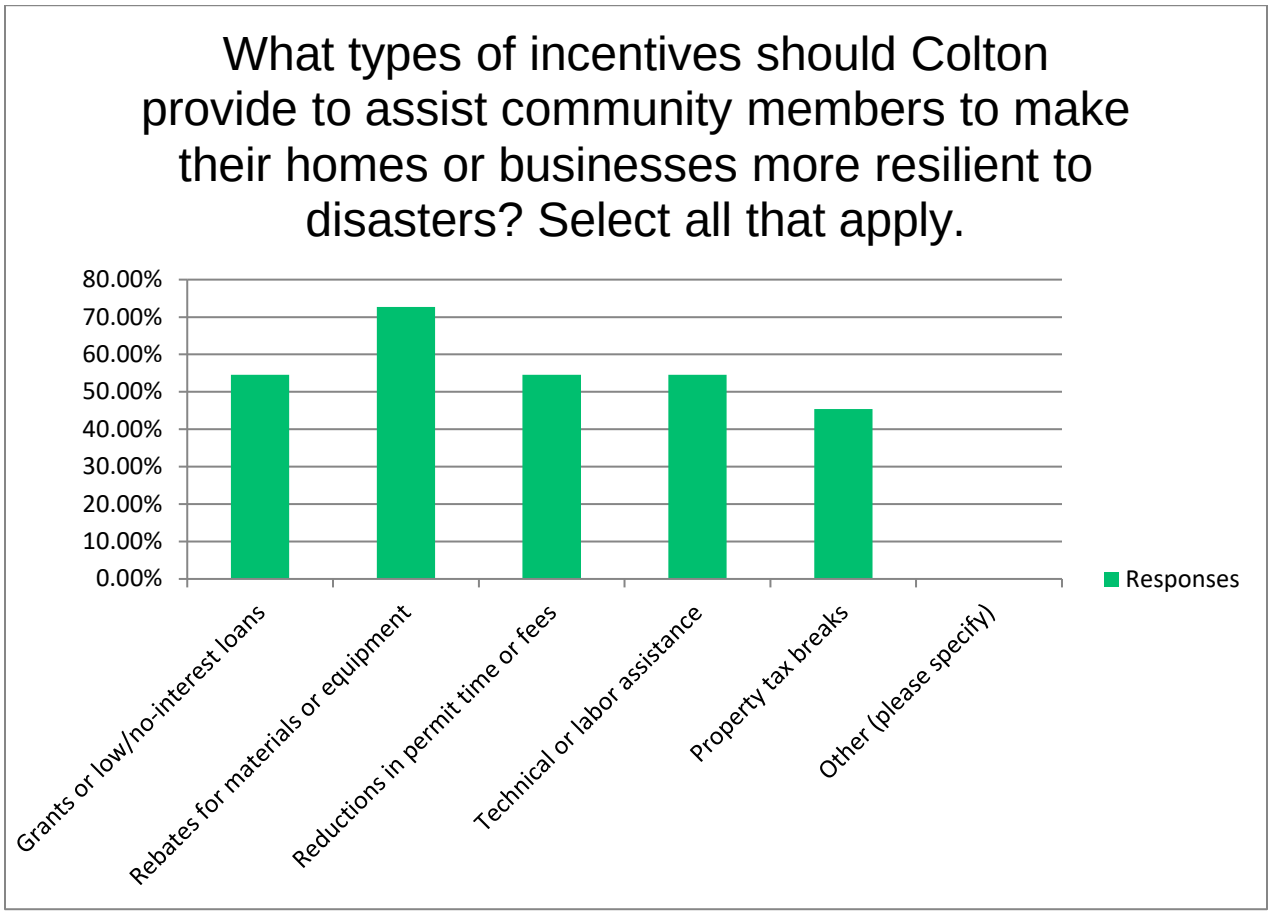
Are you familiar with Colton's Community Emergency Response Team (CERT) program?

Answer Choices	Responses	
Yes, and I am a trained CERT member	9.09%	1
Yes, and I plan to become a trained CERT member	27.27%	3
Yes, and I do not plan to become a trained CERT member.	18.18%	2
No	45.45%	5
	Answered	**11**
	Skipped	**3**



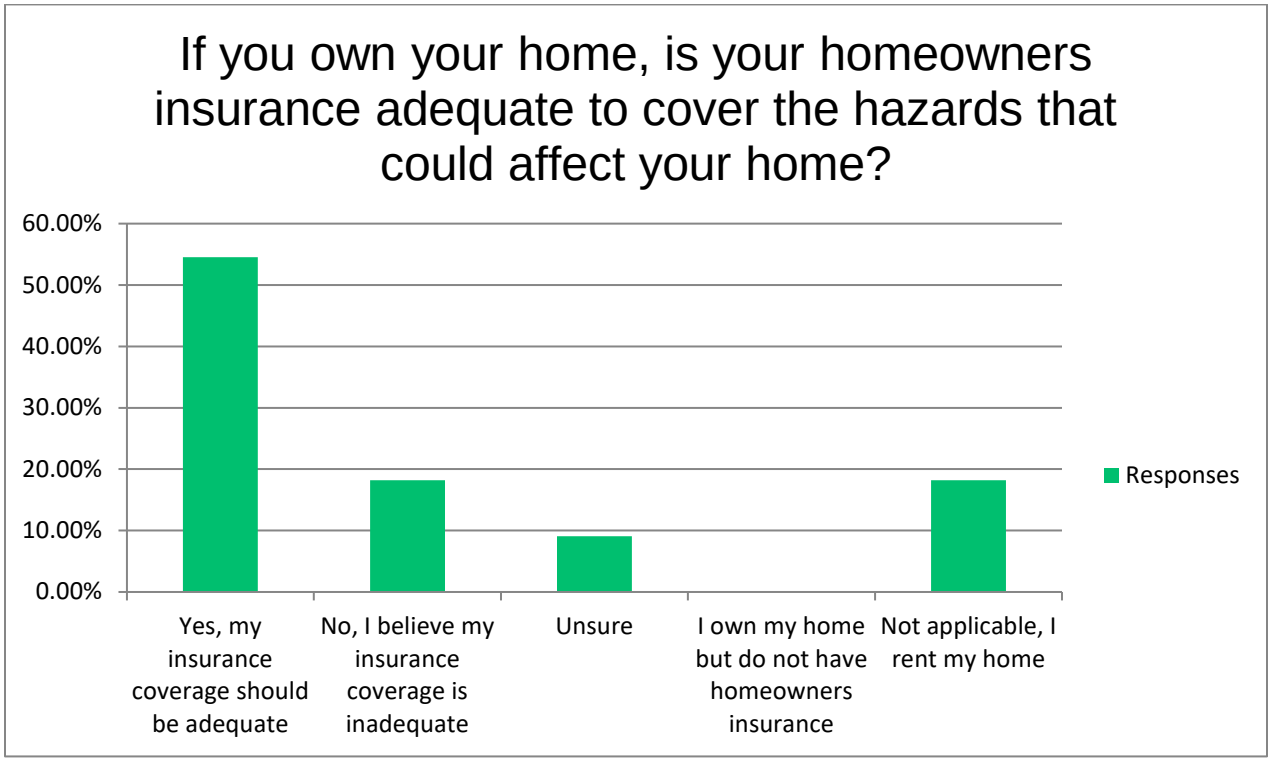
What types of incentives should Colton provide to assist community members to make their homes or businesses more resilient to disasters? Select all that apply.

Answer Choices	Responses	
Grants or low/no-interest loans	54.55%	6
Rebates for materials or equipment	72.73%	8
Reductions in permit time or fees	54.55%	6
Technical or labor assistance	54.55%	6
Property tax breaks	45.45%	5
Other (please specify)	0.00%	0
	Answered	**11**
	Skipped	**3**



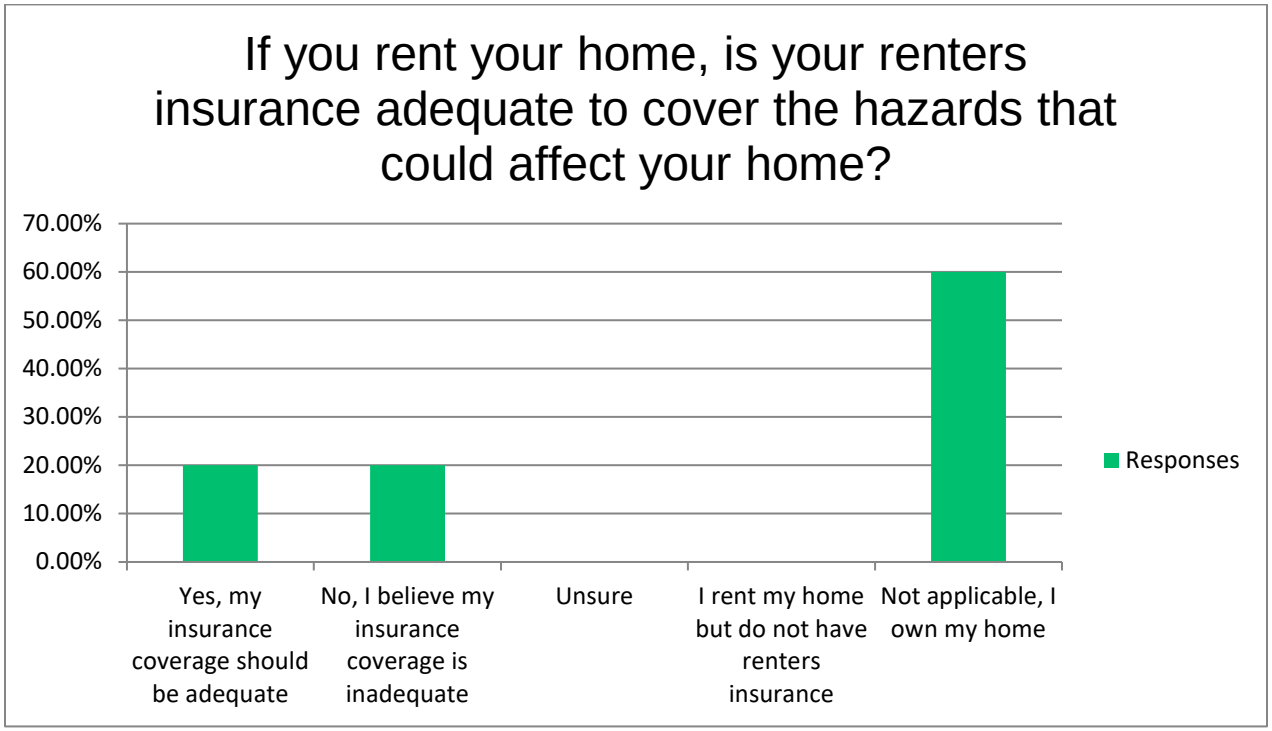
If you own your home, is your homeowners insurance adequate to cover the hazards that could affect your home?

Answer Choices	Responses	
Yes, my insurance coverage should be adequate	54.55%	6
No, I believe my insurance coverage is inadequate	18.18%	2
Unsure	9.09%	1
I own my home but do not have homeowners insurance	0.00%	0
Not applicable, I rent my home	18.18%	2
	Answered	**11**
	Skipped	**3**



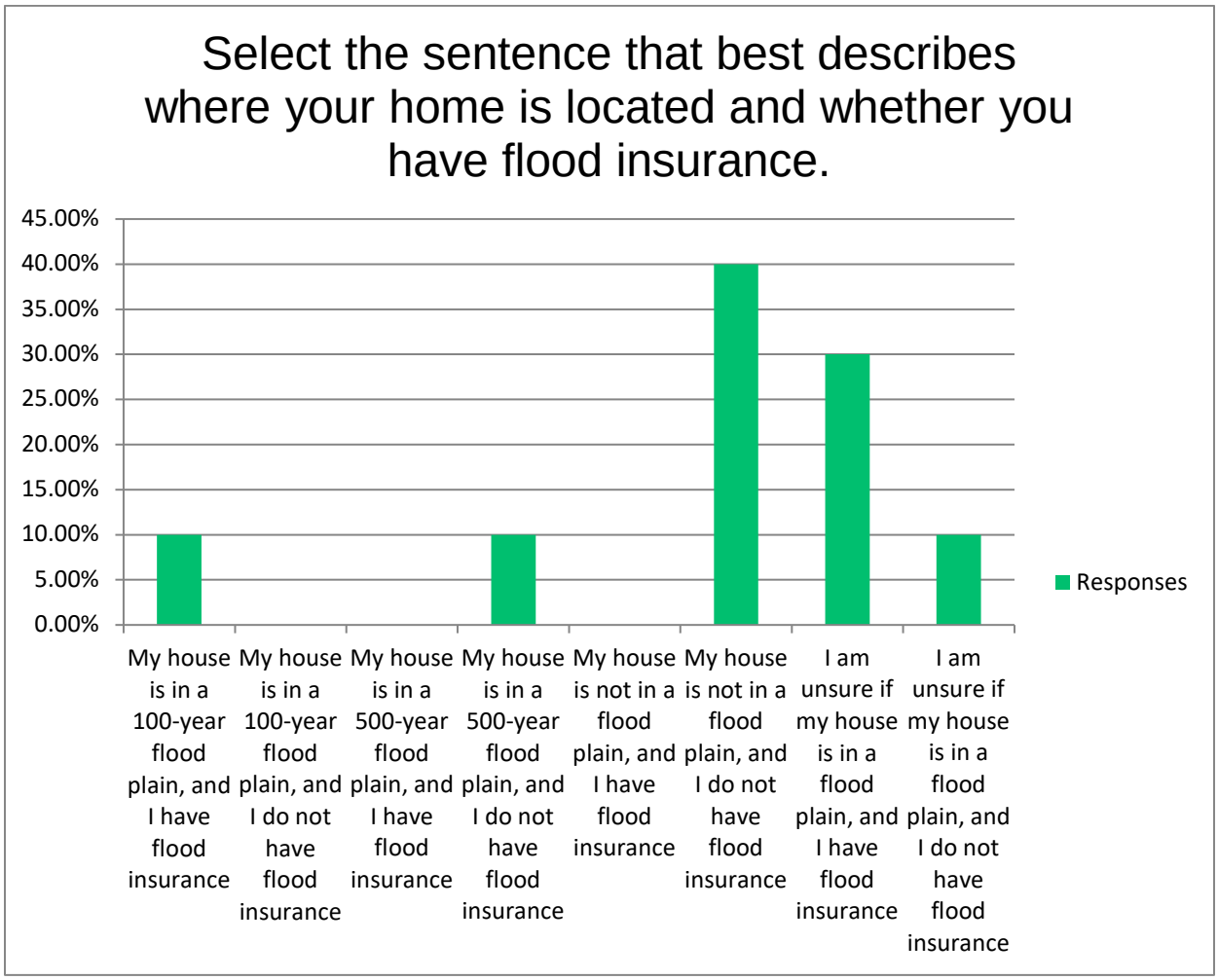
If you rent your home, is your renters insurance adequate to cover the hazards that could affect your home?

Answer Choices	Responses	
Yes, my insurance coverage should be adequate	20.00%	2
No, I believe my insurance coverage is inadequate	20.00%	2
Unsure	0.00%	0
I rent my home but do not have renters insurance	0.00%	0
Not applicable, I own my home	60.00%	6
	Answered	**10**
	Skipped	**4**



Select the sentence that best describes where your home is located and whether you have flood insurance.

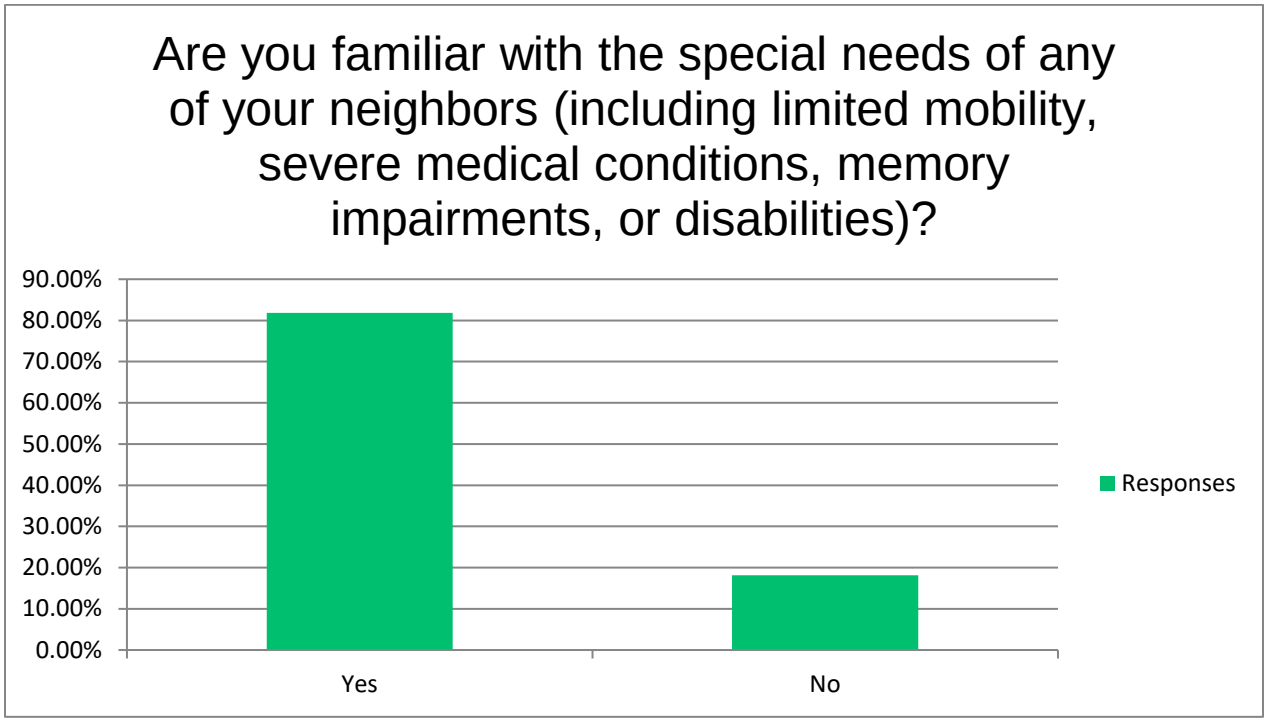
Answer Choices	Responses	
My house is in a 100-year flood plain, and I have flood insurance	10.00%	1
My house is in a 100-year flood plain, and I do not have flood insurance	0.00%	0
My house is in a 500-year flood plain, and I have flood insurance	0.00%	0
My house is in a 500-year flood plain, and I do not have flood insurance	10.00%	1
My house is not in a flood plain, and I have flood insurance	0.00%	0
My house is not in a flood plain, and I do not have flood insurance	40.00%	4
I am unsure if my house is in a flood plain, and I have flood insurance	30.00%	3
I am unsure if my house is in a flood plain, and I do not have flood insurance	10.00%	1
	Answered	**10**
	Skipped	**4**



Are you familiar with the special needs of any of your neighbors (including limited mobility, severe medical conditions, memory impairments, or

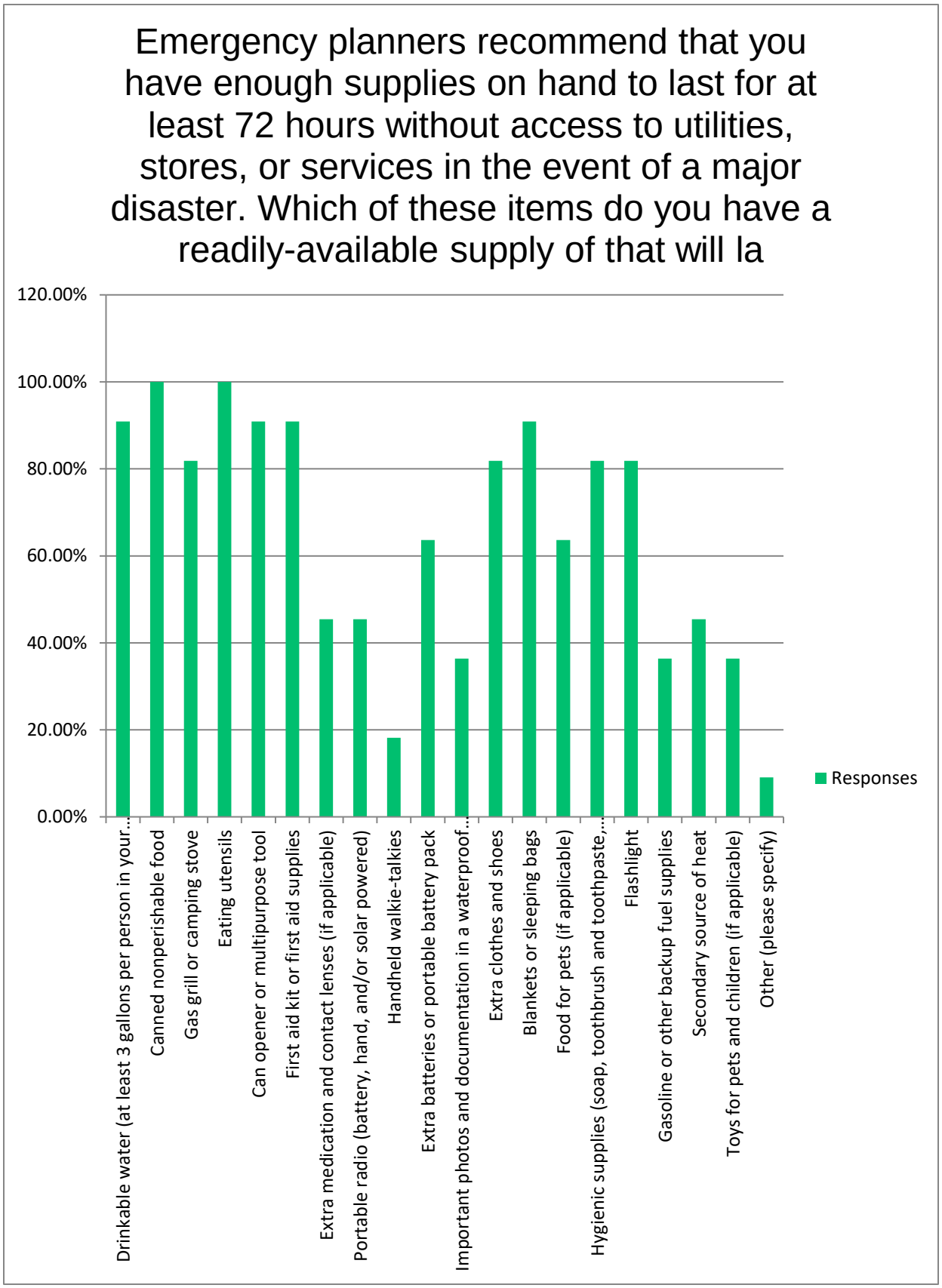
disabilities)?

Answer Choices	Responses	
Yes	81.82%	9
No	18.18%	2
	Answered	**11**
	Skipped	**3**



Emergency planners recommend that you have enough supplies on hand to last for at least 72 hours without access to utilities, stores, or services in the event of a major disaster. Which of these items do you have a readily-available supply of that will last at least 72 hours?

Answer Choices	Responses	
Drinkable water (at least 3 gallons per person in your home, plus any extra for pets)	90.91%	10
Canned nonperishable food	100.00%	11
Gas grill or camping stove	81.82%	9
Eating utensils	100.00%	11
Can opener or multipurpose tool	90.91%	10
First aid kit or first aid supplies	90.91%	10
Extra medication and contact lenses (if applicable)	45.45%	5
Portable radio (battery, hand, and/or solar powered)	45.45%	5
Handheld walkie-talkies	18.18%	2
Extra batteries or portable battery pack	63.64%	7
Important photos and documentation in a waterproof and fire-resistant container	36.36%	4
Extra clothes and shoes	81.82%	9
Blankets or sleeping bags	90.91%	10
Food for pets (if applicable)	63.64%	7
Hygienic supplies (soap, toothbrush and toothpaste, baby wipes, etc.)	81.82%	9
Flashlight	81.82%	9
Gasoline or other backup fuel supplies	36.36%	4
Secondary source of heat	45.45%	5
Toys for pets and children (if applicable)	36.36%	4
Other (please specify)	9.09%	1
	Answered	**11**
	Skipped	**3**


Emergency planners recommend that you have enough supplies on hand to last for at least 72 hours without access to utilities, stores, or services in the event of a major disaster. Which of these items do you have a readily-available supply of that will la
120.00%
100.00%
80.00%
60.00%
40.00%
20.00%
0.00%
Drinkable water (at least 3 gallons per person in your...
Canned nonperishable food
Gas grill or camping stove
Eating utensils
Can opener or multipurpose tool
First aid kit or first aid supplies
Extra medication and contact lenses (if applicable)
Portable radio (battery, hand, and/or solar powered)
Handheld walkie-talkies
Extra batteries or portable battery pack
Important photos and documentation in a waterproof...
Extra clothes and shoes
Blankets or sleeping bags
Food for pets (if applicable)
Hygienic supplies (soap, toothbrush and toothpaste,...
Flashlight
Gasoline or other backup fuel supplies
Secondary source of heat
Toys for pets and children (if applicable)
Other (please specify)
Responses

Have you taken any other steps to make your home more resistant to hazard events?

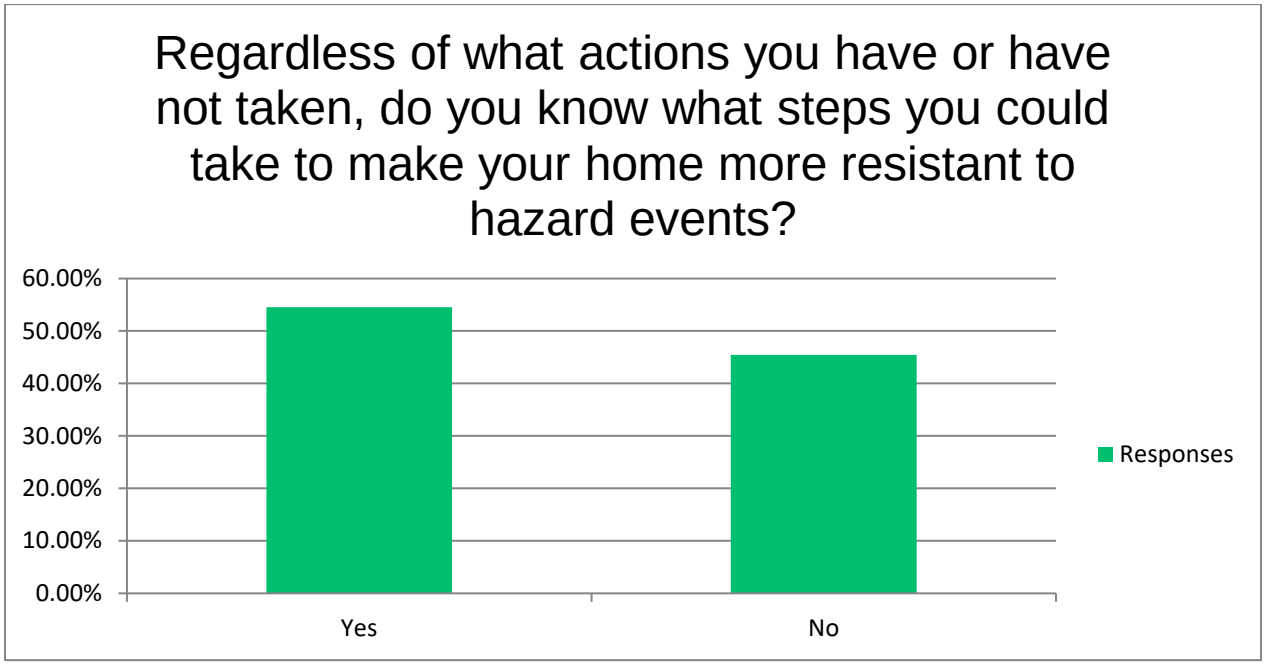
Answer Choices	Responses	
Yes (if so, please describe)	33.33%	3
No, but I plan to (if so, please describe)	55.56%	5
No, and I do not plan to	11.11%	1
Please describe any steps		4
	Answered	**9**
	Skipped	**5**

Respondents	Response Date	Please describe any steps
1	Apr 19 2018 09:51 AM	We live against the hills in reche canyon so we maintain a 25foot fire break around our house keeping the weeds cut and have sprinklers that we can use if fire strikes.
2	Apr 18 2018 09:26 AM	Removed all brush and flammable items from around the house.
3	Apr 17 2018 04:36 PM	fire sprinklers
4	Apr 17 2018 04:20 PM	create a safe room, purchase & hide an outside vault (water proof/fire proof) for small valuables, cash, important documents & photos, purchase a small generator...

Regardless of what actions you have or have not taken, do you know what steps

you could take to make your home more resistant to hazard events?

Answer Choices	Responses	
Yes	54.55%	6
No	45.45%	5
	Answered	**11**
	Skipped	**3**



What is the ZIP code of your workplace?

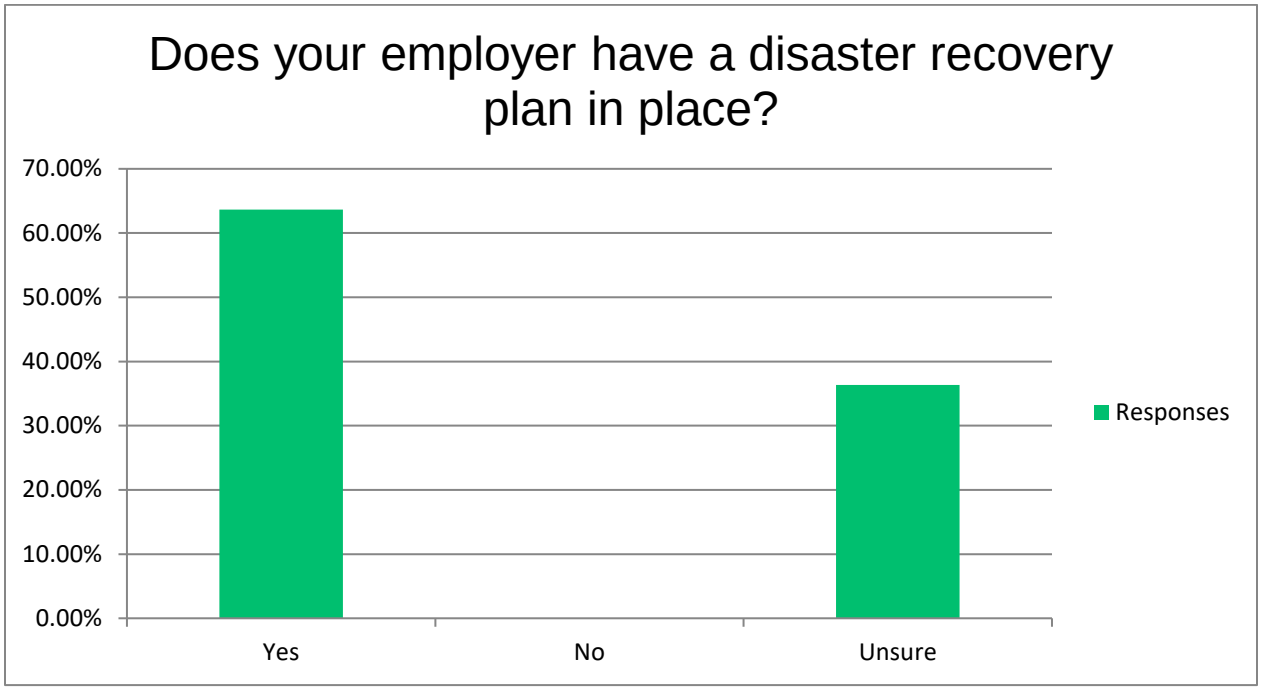
Answered	**11**
Skipped	**3**

Respondents	Response Date	Responses
1	Apr 29 2018 12:46 AM	92324
2	Apr 28 2018 06:28 PM	92324
3	Apr 19 2018 10:04 AM	92324
4	Apr 19 2018 09:51 AM	92324
5	Apr 18 2018 12:25 PM	92324
6	Apr 18 2018 09:26 AM	92324
7	Apr 17 2018 04:36 PM	92324
8	Apr 17 2018 04:27 PM	92324
9	Apr 17 2018 04:20 PM	92324
10	Apr 17 2018 04:02 PM	92324
11	Apr 17 2018 04:00 PM	92324

Does your employer have a disaster recovery plan in place?

Answer Choices	Responses

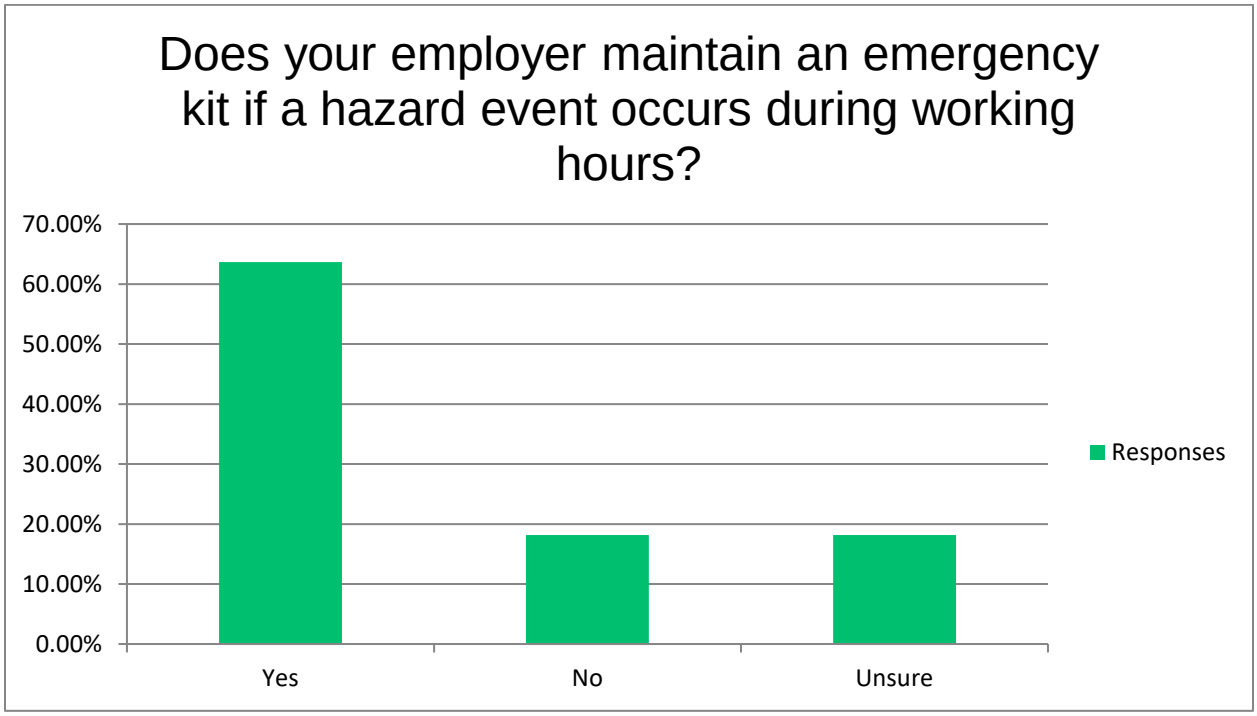
Yes	63.64%	7
No	0.00%	0
Unsure	36.36%	4
	Answered	**11**
	Skipped	**3**



Does your employer maintain an emergency kit if a hazard event occurs during working hours?

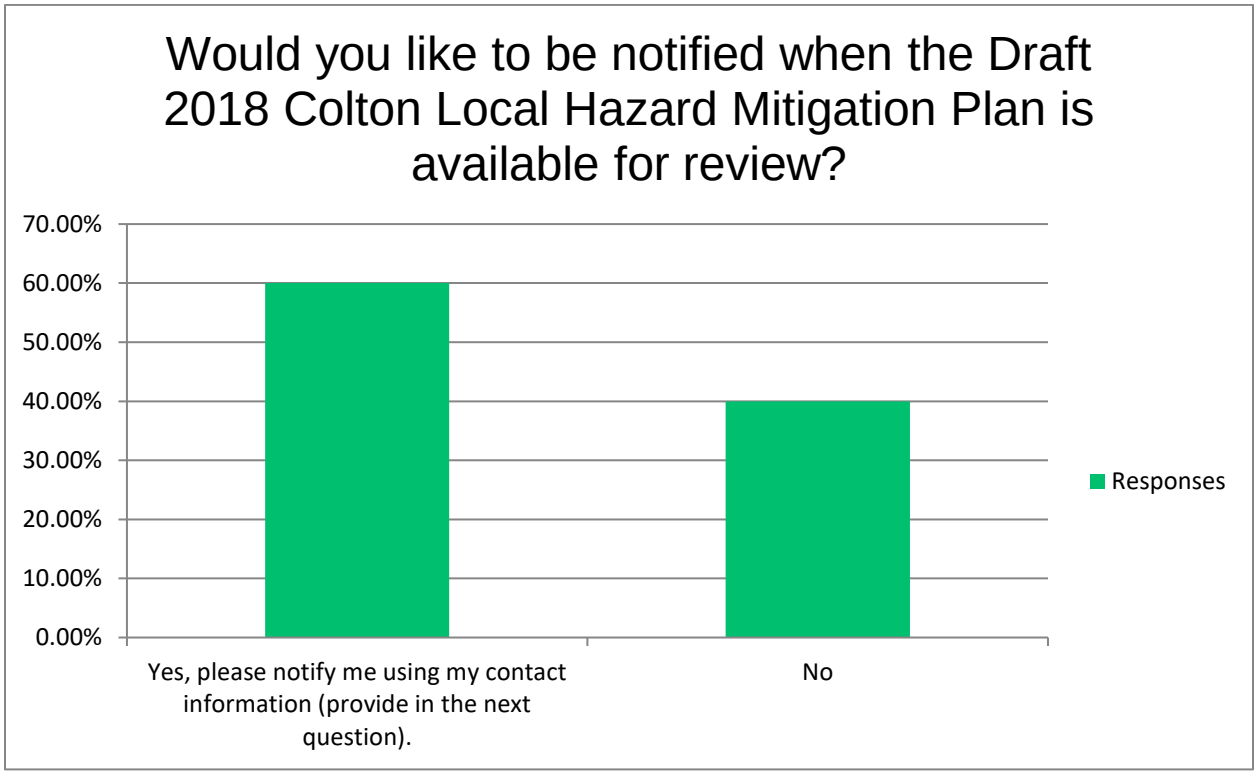
Answer Choices	Responses

Yes	63.64%	7
No	18.18%	2
Unsure	18.18%	2
	Answered	**11**
	Skipped	**3**



Would you like to be notified when the Draft 2018 Colton Local Hazard Mitigation Plan is available for review?

Answer Choices	Responses	
Yes, please notify me using my contact information (provide in the next question).	60.00%	6
No	40.00%	4
	Answered	**10**
	Skipped	**4**



If you would like to be notified when the Draft 2018 Colton Local Hazard Mitigation Plan is available for review, please provide your name and email address. If you do not have an email address or would prefer a physical notification, please provide your mailing address.

Answer Choices	Responses	
Full name	50.00%	2
E-mail address	100.00%	4
Street address	25.00%	1
City, state, and ZIP code	25.00%	1
	Answered	**4**
	Skipped	**10**

If you have any other comments, suggestions, or questions related to the risk and threat of hazards in Colton, please provide them here.

Answered	**1**
Skipped	**13**

Respondents	Response Date	Responses
1	Apr 17 2018 04:22 PM	Happy to see Colton taking the lead on this and looking forward to the out come. I would suggest reaching out to local Churches. I know Centerpoint has plans. I am sure others do.

APPENDIX C
ADOPTION RESOLUTION

RESOLUTION NO. R-64-19

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF COLTON, CALIFORNIA, ADOPTING THE 2019 COLTON LOCAL HAZARD MITIGATION PLAN UPDATE, AUTHORIZING FUTURE NON-SUBSTANTIVE AMENDMENTS TO THE PLAN, AND RESCINDING RESOLUTION R-99-11

WHEREAS: The preservation of life and property is an inherent responsibility of local, State, and Federal government; and

WHEREAS: The City is charged and entrusted with the protection of persons and property prior to and during emergencies, and/or disaster conditions; and

WHEREAS: The goal of a Local Hazard Mitigation Plan is to minimize, reduce, or eliminate loss of life and/or property; and

WHEREAS: This Local Hazard Mitigation Plan represents a comprehensive description of the City's commitment to reducing, preventing, or eliminating potential impacts of disasters caused by natural and human-caused hazards; and

WHEREAS: The City of Colton previously adopted its Local Hazard Mitigation Plan with the adoption of Resolution No. R-99-11; and

WHEREAS: The City Council desires to rescind Resolution No. R-99-11 and adopt the updated Local Hazard Mitigation Plan in compliance with the Disaster Mitigation Act of 2000; and

WHEREAS: This Local Hazard Mitigation Plan, has been prepared in compliance with California Government Code Sections 8685.9 and 65302.6, which integrates this plan with the Colton General Plan Safety Element; and

WHEREAS: The City has undertaken a comprehensive planning effort in developing the Local Hazard Mitigation Plan by organizing resources, assessing risks, and developing and implementing a mitigation plan and monitoring process; and

WHEREAS: City staff has collaborated with numerous partner agencies, community stakeholders, and hazard experts to develop the Local Hazard Mitigation Plan;

and

WHEREAS: On October 15, 2018, the community, surrounding Cities, and all City commissions and boards were invited to provide feedback on the Public Review Draft Local Hazard Mitigation Plan; and

WHEREAS: On November 29, 2019, the public review period was completed, and zero comments were received during this period; and

WHEREAS: On January 23, 2019, the City transmitted the LHMP document to the California Office of Emergency Services, initiating the formal review process; and

WHEREAS: On March 27, 2019, City staff submitted the LHMP to the Federal Emergency Management Agency (FEMA) for review; and

WHEREAS: On May 6, 2019, FEMA determined the plan to be eligible for final approval pending its adoption by the Colton City Council; and

WHEREAS: The City has received a letter from FEMA identifying the City's Local Hazard Mitigation Plan as eligible for approval pending final adoption; and

WHEREAS: City Council adoption of a current Local Hazard Mitigation Plan will make the City eligible to receive earmarked mitigation grant funding, as well as eligible to apply for additional federal mitigation grants; and

WHEREAS: The City of Colton agrees to adopt this Local Hazard Mitigation Plan and urges all officials, employees, public and private organizations, and citizens, individually and collectively, to do their share in furthering the goals and objectives of hazard mitigation within the City of Colton.

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF COLTON DOES HEREBY RESOLVE AS FOLLOWS:

SECTION 1. Resolution No. R-99-11 is hereby rescinded.

SECTION 2. The City Council approves the 2019 Local Hazard Mitigation

Plan of the City of Colton

SECTION 3. The City Council authorizes the Fire Chief to make necessary administrative and operational changes to the plan that are in keeping with the intent of the plan as approved.

SECTION 4. The City Council authorizes the Fire Chief, or their duly appointed representative, to perform all duties required to carry out the Local Hazard Mitigation Plan.

SECTION 5. The staff report accompanying this resolution is found to be true, adopted as findings, and incorporated into this resolution.

PASSED, APPROVED, AND ADOPTED this 6th day of August, 2019.

FRANK J. NAVARRO, Mayor

ATTEST:

CAROLINA R. PADILLA, City Clerk

APPENDIX D
KEY FACILITIES INVENTORY

This is a list of the names, address, and categorization of the 113 key facilities in Colton. The specific location of energy-related facilities and their vulnerabilities are not disclosed for security reasons. Additionally, addresses are not given for some other facilities, predominately bridges.

KEY FACILITIES INVENTORY

CATEGORY	TYPE	NAME	ADDRESS
Critical facility	City facility	Colton City Hall	650 North La Cadena Drive, Colton, CA, 92324
Critical facility	City facility	Colton Corporate Yard	160 South 10th Street, Colton, CA, 92324
Critical facility	Community center	Gonzales Community Center	670 Colton Avenue, Colton, CA, 92324
Critical facility	Community center	Lawrence Hutton Community Center	660 Colton Avenue, Colton, CA, 92324
Critical facility	Community center	Peter S. Luque Community Center	294 East O Street, Colton, CA, 92324
Critical facility	Community center	Thompson Teen Center	651 North Mount Vernon Avenue, Colton, CA, 92324
Critical facility	Electric power facility	Agua Mansa Power Plant	Not disclosed
Critical facility	Electric power facility	Agua Mansa Switchyard	Not disclosed
Critical facility	Electric power facility	Century Substation	Not disclosed
Critical facility	Electric power facility	Colton Electric	150 South 10th Street, Colton, CA, 92324
Critical facility	Electric power facility	Drews Substation	Not disclosed

CATEGORY	TYPE	NAME	ADDRESS
Critical facility	Electric power facility	Hub Substation	Not disclosed
Critical facility	Electric power facility	North Substation	Not disclosed
Critical facility	Electric power facility	West Substation	Not disclosed
Critical facility	Fire station	Fire Station 1 (Station 211)	303 East E Street, Colton, CA, 92324
Critical facility	Fire station	Fire Station 2 (Station 212)	1511 North Rancho Avenue, Colton, CA, 92324
Critical facility	Fire station	Fire Station 3 (Station 213) and EOC	1100 South La Cadena Drive, Colton, CA, 92324
Critical facility	Fire station	Fire Station 4 (Station 214)	1151 South Meadow Lane, Colton, CA, 92324
Critical facility	Hospital	Arrowhead Regional Medical Center	400 North Pepper Avenue, Colton, CA, 92324
Critical facility	School	Birney Elementary School	1050 East Olive Street, Colton, CA, 92324
Critical facility	School	Colton High School	777 West Valley Boulevard, Colton, CA, 92324
Critical facility	School	Colton Joint Unified School District	1212 North Valencia Drive, Colton, CA, 92324
Critical facility	School	Colton Middle School	670 West Laurel Street, Colton, CA, 92324
Critical facility	School	Cooley Ranch Elementary School	1000 South Cooley Drive, East, Colton, CA, 92324
Critical facility	School	Grant Elementary School	550 West Olive Street, Colton, CA, 92324
Critical facility	School	Lincoln Elementary School	444 East Olive Street, Colton, CA, 92324

CATEGORY	TYPE	NAME	ADDRESS
Critical facility	School	McKinley Elementary School	600 West Johnston Street, Colton, CA, 92324
Critical facility	School	Reche Canyon Elementary School	3101 Canyon Vista Drive, Colton, CA, 92324
Critical facility	School	Rogers Elementary School	955 West Laurel Street, Colton, CA, 92324
Critical facility	School	School Maintenance and Operations Warehouse	1313 West Valley Boulevard, Colton, CA, 92324
Critical facility	School	School Transportation Yard	451 North 3rd Street, Colton, CA, 92324
Critical facility	School	Slover Mountain High School	325 North Hermosa Avenue, Colton, CA, 92324
Critical facility	School	Washington Alternative High School	900 East C Street, Colton, CA, 92324
Critical facility	School	Wilson Elementary School	750 South 8th Street, Colton, CA, 92324
Critical facility	Solar facility	Agua Mansa Solar Site	Not disclosed
Critical facility	Solar facility	Arbor Terrace Solar Site	Not disclosed
Critical facility	Solar facility	Walnut Solar Site	Not disclosed
Critical facility	Wastewater facility	Colton Water Reclamation Facility	1201 South Rancho Avenue, Colton, CA, 92324
High potential loss	Adult residential care	Charter Hospice	1012 East Cooley Drive, Colton, CA, 92324
High potential loss	Adult residential care	Helping Hearts Visconti	1288 Visconti Drive, Colton, CA, 92324
High potential loss	Adult residential care	In-Roads Creative Programs	851 South Mount Vernon Avenue, Colton, CA, 92324
High potential loss	Adult residential care	Marques Family Home	1096 Cantara Street, Colton, CA, 92324

CATEGORY	TYPE	NAME	ADDRESS
High potential loss	Adult residential care	Marques Family Home II	2105 Harris Street, Colton, CA, 92324
High potential loss	Adult residential care	Montana Care Home	1360 North Coro Drive, Colton, CA, 92324
High potential loss	Adult residential care	Pairo's Adult Residential II	1233 Michael Darcy Street, Colton, CA, 92324
High potential loss	Adult residential care	Tomorrow's World	1861 West Westwind Street, Colton, CA, 92324
High potential loss	Adult residential care	Tomorrow's World - North Northstar	1334 North Northstar Avenue, Colton, CA, 92324
High potential loss	Adult residential care	VDDA Global Ventures	930 South Mount Vernon Avenue, Colton, CA, 92324
High potential loss	Child care center	CJUSD San Salvador Children's Center	471 Agua Mansa Road, Colton, CA, 92324
High potential loss	Child care center	Kindercare Learning Center	1730 East Washington Street, Colton, CA, 92324
High potential loss	Child care center	Sierra Vista State Preschool	2300 North Rancho Avenue, Colton, CA, 92324
High potential loss	Child care center	St. John's Lutheran Child Care Center	820 North La Cadena Drive, Colton, CA, 92324
High potential loss	Child care center	Tutor Tots	1020 East Washington Street, Colton, CA, 92324
High potential loss	Child care center	Washington State Preschool	900 East C Street, Colton, CA, 92324
High potential loss	Child care center	Wilson State Preschool	750 South 8th Street, Colton, CA, 92324
High potential loss	Elder residential care	JC's Divine Home Care	2180 Miles Court, Colton, CA, 92324
High potential loss	Elder residential care	Lelita Ico Unlicensed	2356 Mountain Woods Street, Colton, CA, 92324

CATEGORY	TYPE	NAME	ADDRESS
High potential loss	Elder residential care	Milam Manor	12787 Reche Canyon Road, Colton, CA, 92324
High potential loss	Elder residential care	Valley Spring Elderly Care	1170 Valley Spring Lane, Colton, CA, 92324
High potential loss	Elder residential care	Zion Homecare	2165 Stewart Street, Colton, CA, 92324
High potential loss	Foster family agency	Bright Horizons Foster Family Agency	1003 East Cooley Drive, Colton, CA, 92324
High potential loss	Foster family agency	LDS Family Services	791 North Pepper Avenue, Colton, CA, 92324
High potential loss	Home care organization	Senior Home Caregivers	1003 East Cooley Drive, Colton, CA, 92324
Transportation and lifeline	Communication facility	AT&T Cell Phone Tower I	1650 North 8th Street, Colton, CA, 92324
Transportation and lifeline	Communication facility	AT&T Cell Phone Tower II	360 South Mount Vernon Avenue, Colton, CA, 92324
Transportation and lifeline	Communication facility	Citicasters Company	None given
Transportation and lifeline	Communication facility	Colton Hub/Verizon/AT&T Cell Phone Tower	600 West Litton Avenue, Colton, CA, 92324
Transportation and lifeline	Communication facility	Public storage/Sprint Cell Phone Tower II	1600 Fairway Drive, Colton, CA, 92324
Transportation and lifeline	Communication facility	Sprint Cell Phone Tower II	209 West Laurel Street, Colton, CA, 92324
Transportation and lifeline	Communication facility	Sprint Cell Phone Tower III	1850 South Riverside Avenue, Colton, CA, 92324
Transportation and lifeline	Communication facility	T-Mobile Cell Phone Tower I	1750 North 8th Street, Colton, CA, 92324
Transportation and lifeline	Communication facility	T-Mobile Cell Phone Tower II	661 South Hunts Lane, Colton, CA, 92324

CATEGORY	TYPE	NAME	ADDRESS
Transportation and lifeline	Communication facility	T-Mobile Cell Phone Tower III	1405 East Washington Street, Colton, CA, 92324
Transportation and lifeline	Communication facility	T-Mobile/Verizon Cell Phone Tower	1205 West Valley Boulevard, Colton, CA, 92324
Transportation and lifeline	Communication facility	TowerCo Assets	671 East Cooley Drive, Colton, CA, 92324
Transportation and lifeline	Communication facility	Verizon Cell Phone Tower I	259 North Hermosa Avenue, Colton, CA, 92324
Transportation and lifeline	Communication facility	Verizon Cell Phone Tower II	2640 South La Cadena Drive, Colton, CA, 92324
Transportation and lifeline	Communication facility	Verizon Cell Phone Tower III	460 East M Street, Colton, CA, 92324
Transportation and lifeline	Communication facility	Verizon Cell Phone Tower IV	1291 North Rancho Avenue, Colton, CA, 92324
Transportation and lifeline	Highway bridge	10 and BNSF Railroad Bridge	None given
Transportation and lifeline	Highway bridge	10 and Lytle Creek Bridge	None given
Transportation and lifeline	Highway bridge	10 and North 9th Street bridge	None given
Transportation and lifeline	Highway bridge	10 and Santa Ana River Bridge	None given
Transportation and lifeline	Highway bridge	10 and South La Cadena Drive Bridge	None given
Transportation and lifeline	Highway bridge	10 Offramp and South La Cadena Drive Bridge	None given
Transportation and lifeline	Highway bridge	215 and East Cooley Drive Bridge	None given
Transportation and lifeline	Highway bridge	E 10 to N 215 and Santa Ana River Bridge	None given

CATEGORY	TYPE	NAME	ADDRESS
Transportation and lifeline	Highway bridge	N 215 and Santa Ana River Bridge	None given
Transportation and lifeline	Highway bridge	N 215 and Union Pacific Railroad Bridge	None given
Transportation and lifeline	Highway bridge	N 215 to E 10 and Union Pacific Railroad Bridge	None given
Transportation and lifeline	Highway bridge	S 215 and Santa Ana River Bridge	None given
Transportation and lifeline	Highway bridge	S 215 and Union Pacific Railroad Bridge	None given
Transportation and lifeline	Highway bridge	S 215 to 10 and Santa Ana River Bridge	None given
Transportation and lifeline	Rail bridge	10 and Union Pacific Railroad Bridge	None given
Transportation and lifeline	Rail bridge	South La Cadena Drive and BNSF Railroad Bridge	None given
Transportation and lifeline	Rail bridge	UP Railroad and La Cadena Drive Railroad Bridge	None given
Transportation and lifeline	Rail bridge	W Olive Street and Union Pacific Railroad Bridge	None given
Transportation and lifeline	Rail bridge	West C Street and BNSF Railroad Bridge	None given
Transportation and lifeline	Rail bridge	West C Street and Union Pacific Railroad Bridge	None given
Transportation and lifeline	Rail bridge	West N Street and BNSF Railroad Bridge	None given
Transportation and lifeline	Road bridge	Barton Road and BNSF Railroad Bridge	None given
Transportation and lifeline	Road bridge	East Washington Street and 215 Bridge	None given

CATEGORY	TYPE	NAME	ADDRESS
Transportation and lifeline	Road bridge	Fairway Drive and Lytle Creek Bridge	None given
Transportation and lifeline	Road bridge	North La Cadena Drive and Lytle Creek Bridge	None given
Transportation and lifeline	Road bridge	North Mount Vernon Avenue and Lytle Creek Bridge	None given
Transportation and lifeline	Road bridge	S Mount Vernon Avenue and Drainage Channel Bridge	None given
Transportation and lifeline	Road bridge	S Mount Vernon Avenue and Santa Ana River Bridge	None given
Transportation and lifeline	Road bridge	S Mt. Vernon Avenue and UP Railroad Bridge	None given
Transportation and lifeline	Road bridge	South Cooley Drive and Drainage Channel Bridge	None given
Transportation and lifeline	Road bridge	South Iowa Avenue and 215 Bridge	None given
Transportation and lifeline	Road bridge	South La Cadena Drive and Santa Ana River Bridge	None given
Transportation and lifeline	Road bridge	South Mount Vernon Avenue and 10 Bridge	None given
Transportation and lifeline	Road bridge	West Mill Street and BNSF Rail Yard Bridge	None given

CITY OF COLTON

Local Hazard Mitigation Plan Implementation Workbook

June 2019

WHAT IS THIS WORKBOOK?

The Local Hazard Mitigation Plan (LHMP) for the City of Colton features an evaluation of Colton's hazards as well as a variety of hazard mitigation actions corresponding to each hazard type. These actions are intended to preserve public safety, maintain critical municipal government operations and services when hazard events emerge, and empower community members to take hazard mitigation actions on an individual level. This Implementation Workbook (Workbook) is intended for use by City staff and decision makers after the LHMP is adopted. It will:

- Give clear instructions as to what to following adoption of the LHMP.
- Simplify future updates to the LHMP.
- Assist the City in receiving grant funding relating to mitigation action.
- Guide annual plan review actions.

HOW DO I USE THIS WORKBOOK?

This Workbook can help City staff and decision makers in several different situations. If and when the events listed below occur, consult the respective sections of this Workbook for advice on how best to proceed:

- A disaster declaration has been announced
    - By the Colton City Council
    - By the State of California
    - By the federal government
- I want to apply for mitigation grant funding
- Colton is undergoing its budgeting process
- Colton is holding its annual meeting of the Hazard Mitigation Planning Team
- Colton is updating its annual policy and regulatory documents
    - The Local Hazard Mitigation Plan
    - The Safety Element of the General Plan
    - The Housing Element of the General Plan
    - The Zoning Code

WHO MAINTAINS THIS WORKBOOK?

Colton's Emergency Services Coordinator, a staff position in the Colton Fire Department, is responsible for maintaining this Workbook. The Emergency Services Coordinator may choose to delegate this responsibility to other City staff members.

WHAT TO DO WHEN A DISASTER HAS BEEN PROCLAIMED OR DECLARED

Disasters may be proclaimed or declared by the Colton City Council, the State of California, or the federal government. Responsibilities may differ depending on who proclaims or declares the disaster. If multiple organizations proclaim or declare a disaster, consult all applicable lists.

THE COLTON CITY COUNCIL

If the Colton City Council (or the Director of Emergency Services, if the City Council is not in session) proclaims a Local Emergency, take the following steps:

- ☐ Update Attachment 1 with information about the disaster. Include information about cumulative damage, including any damage outside of Colton.
- ☐ Discuss opportunities for local assistance with the representatives from the California Office of Emergency Services (Cal OES).
- ☐ If the disaster damages local infrastructure or City-owned facilities, repair or rebuild the structure to be more resilient, following applicable hazard mitigation actions. A list of actions, organized by hazards, is included as Attachment 4.
- ☐ Chapter 7 of the Colton LHMP states that the City should consider updating the LHMP if a disaster causes a loss of life in the community, even if there is no state disaster proclamation or federal disaster declaration that includes part or all of Colton. If there is a loss of life in Colton, consider updating the LHMP. Consult the section on updating the LHMP in this Workbook for details.

THE STATE OF CALIFORNIA

If the State of California proclaims a disaster for Colton, or an area that includes part or all of Colton, take the following steps:

- ☐ Update Attachment 1 with information about the disaster. Include information about cumulative damage, including any damage outside of Colton.
- ☐ Collaborate with representatives from Cal OES to assess the damage from the event.
- ☐ Discuss opportunities for local assistance with representatives from Cal OES.
- ☐ If the disaster damages local infrastructure or City-owned facilities, repair or rebuild the structure to be more resilient, following applicable hazard mitigation actions. A list of actions, organized by hazards, is included as Attachment 4.
- ☐ If the disaster may escalate into a federal disaster declaration, begin any necessary coordination with representatives from the Federal Emergency Management Agency (FEMA).
- ☐ Chapter 7 of the Colton LHMP states that the City should consider updating the LHMP if a disaster leads to a state disaster proclamation or federal disaster declaration that includes

part or all of Colton, even if there is no loss of life. Consider updating the LHMP. Consult the section on updating the LHMP in this Workbook for details.

THE FEDERAL GOVERNMENT

If the federal government declares a disaster for Colton, or any area that includes part or all of Colton, take the following steps:

- ☐ Update Attachment 1 with information about the disaster. Include information about cumulative damage, including any damage outside of Colton.
- ☐ Collaborate with representatives from Cal OES and FEMA to assess the damage from the event.
- ☐ Determine if Colton will be eligible for public assistance funds related to the federal disaster declaration. These funds can be used to reimburse the City for response and recovery activities. If the City is eligible, work with FEMA and Cal OES representatives to enact the necessary requirements and receive funding.
- ☐ If the disaster damages local infrastructure or City-owned facilities, repair or rebuild the structure to be more resilient, following applicable hazard mitigation actions. A list of actions, organized by hazards, is included as Attachment 4.
- ☐ The Hazard Mitigation Grant Program (HMGP) is a FEMA program that helps fund hazard mitigation activities after a disaster event. Colton may be eligible for funding because of the federal disaster declaration, although not all activities may meet the program's requirements. If Colton is eligible, work with FEMA to apply for this funding.
- ☐ Chapter 7 of the Colton LHMP states that the City should consider updating the LHMP if a disaster leads to a state disaster proclamation or federal disaster declaration that includes part or all of Colton, even if there is no loss of life. Consider updating the LHMP. Consult the section on updating the LHMP in this Workbook for details.

I WANT TO APPLY FOR MITIGATION GRANT FUNDING

There are three potential grant funding programs that FEMA administers for hazard mitigation activities. Two of these programs, the Pre-Disaster Mitigation (PDM) and Flood Mitigation Assistance (FMA) funding sources, are available to communities with a LHMP that complies with FEMA guidelines and has been adopted within the past five years. The third funding program is the Hazard Mitigation Grant Program (HMGP), which is available for communities that are part of a federal disaster declaration. This section discusses the PDM and FMA programs, and how to apply for them. The HMGP is discussed under the "Federal Government" subsection of the above "What to Do When a Disaster Has Been Proclaimed or Declared" section.

PRE-DISASTER MITIGATION

The PDM grant program is a competitive, nation-wide program that awards funding for planning activities and physical development programs that mitigate against future natural hazards. Development projects

must be identified in a hazard mitigation plan that meets FEMA guidelines and was adopted within the past five years. When applying to this program, review the list of hazard mitigation actions in Attachment 4 to see which projects may be eligible. Planning efforts for communities that lack a valid hazard mitigation plan may be eligible for funding if the effort would create a valid hazard mitigation plan. All PDM grant applications are processed through the State. To learn more, consult with Cal OES representatives or visit the FEMA webpage on the program. At time of writing, this webpage is available at https://www.fema.gov/pre-disaster-mitigation-grant-program.

Take the following steps to apply for PDM funding:

- ☐ Confirm that the program is currently accepting funding applications. Check with representatives from Cal OES or consult the Cal OES webpage on the PDM program. At time of writing, this webpage is available at http://www.caloes.ca.gov/cal-oes-divisions/hazard-mitigation/pre-disaster-flood-mitigation.
- ☐ Identify the actions from the hazard mitigation strategy (see Attachment 4) that call on the City to pursue funding or list grants as a potential funding source. Confirm that the actions are consistent with the requirements of the PDM grant.
- ☐ Coordinate with Cal OES representatives to compile and submit materials for the grant application.

FLOOD MITIGATION ASSISTANCE

The FMA grant program is a competitive, national program that awards funding for physical development projects and planning efforts that mitigate against long-term damage from flooding. The funding is only available to communities that participate in the National Flood Insurance Program (NFIP), which Colton currently does. Communities must also have a valid hazard mitigation plan that meets FEMA guidelines in order to be eligible, and all projects must be consistent with the list of actions in the hazard mitigation strategy. When applying to this program, review the list of hazard mitigation actions in Attachment 4 to see which projects may be eligible. As with the PDM program, applications for the FMA program must be processed through the State. To view more information, consult with Cal OES representatives or visit the FEMA webpage on the program. At time of writing, this webpage is available at https://www.fema.gov/flood-mitigation-assistance-grant-program.

Take the following steps to apply for FMA funding:

- ☐ Confirm that the program is currently accepting funding applications. Check with representatives from Cal OES or consult the Cal OES webpage on the FMA program. At time of writing, this webpage is available at http://www.caloes.ca.gov/cal-oes-divisions/hazard-mitigation/pre-disaster-flood-mitigation.
- ☐ Identify the actions from the hazard mitigation strategy (see Attachment 4) that call on the City to pursue funding or list grants as a potential funding source. Confirm that the actions are consistent with the requirements of the FMA grant.
- ☐ Coordinate with Cal OES representatives to compile and submit materials for the grant application

COLTON IS GOING THROUGH THE BUDGETING PROCESS

Colton's budget process is an ideal opportunity to secure funding for hazard mitigation actions, and to ensure that hazard mitigation efforts are incorporated into the City's fiscal priorities. Colton currently operates on an annual budget cycle that runs from July 1 to June 30. During this process, City staff should take the following steps to incorporate hazard mitigation into Colton's annual budget:

- ☐ Include hazard mitigation activities into Colton's list of Capital Improvement Projects (CIP). Review the list of hazard mitigation actions in Attachment 4 and identify the projects that can be included into the list of CIP or can support efforts in the list of CIP.
- ☐ Review the risk and threat assessments in the LHMP (Chapter 3 and Chapter 4) to ensure that all items in the list of CIP are being planned, designed, and constructed so as to minimize the threat from hazard events.
- ☐ Identify opportunities to identify state-alone hazard mitigation actions through the annual budget process. Include appropriate items from Attachment 4 in the budget as stand-alone line items, particularly items that the Hazard Mitigation Planning Team (Planning Team) considered a high priority.
- ☐ Set aside staff to conduct hazard mitigation activities, including time to participate in Planning Team meeting and time to research, prepare, and submit PDM and FMA grant opportunities (consult the "I Want to Apply for Mitigation Grant Funding" section above).
- ☐ Ensure that hazard mitigation activities are reflected in each department's priorities and earmarked time for specific goals.

COLTON IS CONDUCTING ITS ANNUAL MEETING OF THE HAZARD MITIGATION PLANNING TEAM

The hazard mitigation planning process brings together representatives from multiple City agencies, as well as other relevant stakeholders, and provides a forum to discuss the hazards in Colton and how to mitigate them effectively. As mentioned in Chapter 7 of the LHMP, the Planning Team should meet at least once each year, beginning a year after the LHMP is adopted. During these meetings, the Planning Team should discussed implementation progress and integration of hazard mitigation actions in other City documents. At these meetings, the Planning Team can review the status of the hazard mitigation actions and discuss whether completed or in-progress actions are working as expected. These meetings also allow the Planning Team to strategically plan for the upcoming year.

It may help for the Planning Team to meet early in the year, in advance of annual budget activities. Attachment 3 contains an example of Planning Team meeting agenda.

The annual meeting should include representatives from City departments and other organizations that originally prepared the LHMP. Representatives from other relevant organizations should also be invited. During the preparation of the LHMP, the following individuals were part of the Planning Team:

HAZARD MITIGATION PLANNING TEAM MEMBERS

AGENCY	REPRESENTATIVE
Arrowhead Regional Medical Center	John Reddick
Arrowhead Regional Medical Center	Scott Smith
Building and Safety Division	Richard Hernandez
Caltrans	Nicholas Novelich
Collection Division	Mario Arredondo
Colton Joint Unified School District	John Sachs
Community Emergency Response Team	Dan Arjona
Community Services Department	Anthony Fernandez
Community Services Department	Deb Farrar
Development Services Department	Mark Tomich
Emergency Services	Shannon Kendall
Finance Division	Nicole Mihld
Finance Division	Paula Majors
Fire Department	Con Cedejas
Fire Department	Dan Harken
Fire Department	Ray Bruno
Fire Department	Tim McHargue
Human Resources Department	Regina Hawkins
Office of the City Manager	Bill Smith
Police Department	Jim Jolliff
Public Works Department	Danny Pagilao
Public Works Department	Victor Ortiz

AGENCY	REPRESENTATIVE
Water and Wastewater Department	Tom Ledesma
Water and Wastewater Department	Ouidiu Bostan

In advance of Planning Team meetings, consider using Attachment 1 to maintain an accurate list of recent disaster events that have occurred in and around Colton since the LHMP was adopted. At the Planning Team meeting, review the Plan Maintenance Table (Attachment 2) to identify any gaps in the LHMP or any other component of the Plan that needs updating. This also allows Planning Team members the opportunity to review the actions in the hazard mitigation strategy (Attachment 4) and ensure that they are implemented as intended.

COLTON IS UPDATING ITS POLICY AND REGULATORY DOCUMENTS

If Colton is updating the LHMP, the Safety Element or Housing Element of the General Plan, or the Zoning Code, consult the following applicable section.

LOCAL HAZARD MITIGATION PLAN

All LHMPs should be updated every five years. This helps keep the plan up to date and ensures that it reflects the most recent guidance, requirements, science, and best practices. An updated LHMP also helps keep Colton eligible for hazard mitigation grants that require a valid, recent LHMP (see "I Want to Apply for Mitigation Grant Funding"), along with an increased amount of post-disaster recovery funds.

The update process for the LHMP takes approximately one year. To ensure that a new LHMP comes into effect before the previous one expires, the update process should begin no later than four years after the plan is adopted. Updates may occur sooner at the City's discretion. Potential reasons for updating the LHMP sooner may include a state disaster proclamation or federal disaster declaration that covers part or all of Colton, or if a disaster leads to a loss of life in Colton (see the "What to Do When a Disaster Has Been Proclaimed or Declared" section), as discussed in Chapter 7 of the LHMP.

Take the following steps to update the LHMP:

ASSEMBLE THE HAZARD MITIGATION PLANNING TEAM

- ☐ Convene a Planning Team meeting no later than four years after the LHMP is adopted. Invite the regular Planning Team members, along with representatives from other organizations that may have a role to play in the update process.
- ☐ Review the current status of mitigation actions, including if there are any that are not being implemented as planned or are not working as expected. Determine if there have been any

changes in hazard events, regulations, best practices, or other items that should be incorporated into an updated LHMP.

- ☐ Decide if there is a need for a technical consultant to assist with the LHMP update, and conduct consultant selection activities if needed. If a consultant is desired, the selection process should begin a few months before the update gets underway.
- ☐ Create and implement a community engagement strategy, building off of the strategy prepared for the existing LHMP. Describe in-person and online engagement strategies and materials, including ideas for meetings and workshops, draft community surveys, content for websites and press releases, and other materials that may be useful.

UPDATE THE RISK AND THREAT ASSESSMENTS

- ☐ Review and update the risk assessment to reflect the most recent conditions in Colton. Consider recent hazard events, new science associated with hazards and climate change, new development and land use patterns, and other recent changes on local conditions.
- ☐ Evaluate the status of all key facilities. Update the list if new facilities that have been constructed, or if existing facilities have been decommissioned. Re-assess the threat to key facilities.
- ☐ Review the demographics of community residents, and update the threat assessment for vulnerable populations and other community members.
- ☐ Assess any changes to the threat to all other community assets, including key services, other facilities, and economic drivers.

UPDATE THE MITIGATION ACTIONS

- ☐ Update the existing hazard mitigation actions to reflect actions in progress. Remove actions that have been completed, or revise them to increase their effectiveness. Revise actions that have been abandoned or delayed so as to make them more feasible, or remove them from the list of mitigation actions if they are no longer appropriate for Colton.
- ☐ Develop mitigation actions to improve the status of hazard mitigation activities in Colton by addressing any issues not covered by the existing LHMP.
- ☐ Ensure that the feedback from the community engagement activities are reflected in the new and updated mitigation actions.

REVIEW AND ADOPT THE UPDATED PLAN

- ☐ Review the other chapters and appendices of the LHMP to reflect any changes made through the update process.
- ☐ Release the updated Plan to Planning Team members, and revise the Plan to reflect any comments by Planning Team members.
- ☐ Distribute the updated Plan to any appropriate external agencies not including in the Planning Team, and revise the plan as appropriate in response to any comments.

- ☐ Release the updated Plan publicly for review, and make revisions to the Plan to reflect public comments.
- ☐ Submit the plan to Cal OES and FEMA for approval, and make any revisions as needed.
- ☐ Submit the plan to the Colton City Council for adoption.

THE SAFETY ELEMENT OF THE GENERAL PLAN

The Safety Element is a required component of Colton's General Plan. It can be updated as a stand-alone activity, or as part of a more comprehensive process to update multiple sections or all of the General Plan. The Safety Element does not need to be updated on any set schedule, but updates should be frequent enough for the element to remain current and applicable to the community.

Local communities can incorporate their LHMP into their Safety Element as allowed under Section 65302.6 of the California Government Code, as long as the LHMP meets minimum federal guidelines. This allows communities to be eligible for an increased share of post-disaster relief funding from the State if a hazard situation occurs, as per Section 8685.9 of the California Government Code.

Take the following steps to incorporate the LHMP into the Safety Element:

INCORPORATE NEW REQUIREMENTS INTO THE SAFETY ELEMENT, AND ENSURE THAT THE LHMP IS CONSISTENT WITH THE SAFETY ELEMENT

- ☐ Review the requirements for Safety Elements in Section 65302(g)(1) of the California Government Code, and for LHMPs in Section 65302.6 of the California Government Code. Ensure that both documents meet all state requirements.
- ☐ Ensure that the information in both plans do not contradict each other, and that any inconsistencies are corrected to use the most accurate and appropriate information. This information should include community descriptions, risk assessment, and threat assessment.
- ☐ Ensure that the policies in the Safety Element support the LHMP and provide a planning framework for specific hazard mitigation actions.

THE HOUSING ELEMENT OF THE GENERAL PLAN

The Housing Element is a required component of Colton's General Plan. Section 65583 of the California Government Code requires a Housing Element to analyze and plan for new residential growth in a community, including residential growth for households with an annual income below the area median. Similar to an LHMP, state regulations require that the Housing Elements be updated regularly to remain current and valid.

The Housing Element is not required to contain any information or policies that relate to hazards, although it may include policies that address retrofitting homes to improve resiliency. However, state law links the regular schedule of Housing Element updates to mandatory revisions to other General Plan elements. For example, Section 65302(g)(2) of the California Government Code requires that communities that update their Housing Element on or after January 1, 2009 also update their Safety Element to include

specific information and policies related to flood protection. As the LHMP is incorporated into the Safety Element, updates to the Housing Element may indirectly trigger updates to the LHMP.

To update the LHMP concurrent with updates to the Housing Element, take the following steps:

ENSURE THAT THE LHMP MEETS ANY NEW REQUIREMENTS FOR THE SAFETY ELEMENT THAT MAY BE TRIGGERED BY A HOUSING ELEMENT UPDATE

- ☐ Section 65302(g) of the California Government Code lists a number of requirements for the Safety Element of the General Plan. Some of these requirements are triggered by updates to the Housing Element. Check to see if there are any new requirements of this nature. Note that the requirement is linked to the date of adoption of the new Housing Element, not the date the update process begins.
- ☐ Because the LHMP is incorporated into the Safety Element, any amendments or revisions to the Safety Element triggered by the Housing Element update may be made directly in the LHMP. Requirements triggered by the Housing Element are unlikely to require a full rewrite of the LHMP, but the process should fully involve the Planning Team and include appropriate community engagement.
- ☐ Adopt the updated LHMP and incorporate it into the Safety Element. If necessary, amend the Safety Element to ensure the two documents are consistent (review the "Incorporate New Requirements Into the Safety Element, and Ensure that the LHMP is Consistent with the Safety Element" subsection above).

THE COLTON CODE OF ORDINANCES

Colton's Code of Ordinances contains a set of standards that guide land uses and development in the community. These standards include where different types of buildings and land use activities may be located, how these structures must be built, and how they must be operated or maintained. The Code of Ordinances may include requirements that structures (particularly new structures or those undergoing substantial renovations) incorporate hazard-resistant features, be located outside of the most hazard-prone areas, or take other steps to reduce hazard vulnerability.

All communities in California are required to adopt the minimum state Building Standard Code (BSC), which includes some hazard mitigation requirements for new or significantly renovated structures. The BSC is generally updated every three years, with supplemental code updates halfway into each update cycle. Title 15 of Colton's Code of Ordinances (Buildings and Construction) incorporates the BSC, along with additional standards as desired by the City that goes beyond the state minimum. For example, a number of clauses in Title 15 of the Code of Ordinances include stricter standards for fire protection sprinklers in new or significantly renovated buildings.

As a participant in the National Flood Insurance Program (NFIP), Colton is required to include a Floodplain Management section in its Code of Ordinances, which is included in the Code of Ordinances, Chapter 15.22, as the City's Floodplain Management Regulations. These regulations establish standards for development and operation of facilities within mapped flood-prone areas. In addition to this section, Colton (like all other communities) has a Zoning Code as part of its Code of Ordinances, which implements

the land use and development standards of the General Plan. Other sections of the Colton Code of Ordinances may include additional standards related to hazard mitigation activities.

With the exception of the Floodplain Management Regulations and the minimum standards in the BSC, Colton is not required to incorporate hazard-related requirements in the Code of Ordinances. However, the Code of Ordinances is an effective tool for implementing hazard mitigation measures that relate to the siting, construction, and operation of new buildings and other structures. Substantial updates to the Code of Ordinances, including the Buildings and Construction and Zoning Code sections, should be done in a way that is consistent with the LHMP.

INCLUDE HAZARD-RELATED REQUIREMENTS IN APPICABLE SECTIONS OF THE COLTON CODE OF ORDINANCES

- ☐ If the BSC is being updated, evaluate the hazard-related requirements of all sections in the new BSC. Identify any areas where it may be feasible to add or revise standards to help reduce the threat from hazard events. Ensure that these standards are consistent with the LHMP. Consider whether standards should be applied to all structures, or to specific types of structures or to structures in a limited area (such as a flood plain).
- ☐ If the Zoning Code is being updated, ensure that all requirements do not expose community members or community assets to an excessive risk of harm. Where feasible, use the requirements to strengthen community resiliency to hazard events. Ensure that these standards are consistent with the LHMP. Consider possible standards such as overlay zones that strengthen zoning requirements in hazard-prone areas, landscaping and grading requirements that buffer development from hazards, siting and design standards that make structures more resilient, and other strategies as appropriate.

ATTACHMENT 1: DISASTER INFORMATION TABLE

Use this table to fill out information about any disaster events that have occurred in Colton or nearby, and have had an effect on the community. Include the date and location of the disaster event, the damages associated with the event, and any information about disaster proclamations or declarations resulting from the event.

DATE	LOCATION	DAMAGES *	DECLARATION DETAILS †

* Includes number and type of injuries, number of deaths, and cost of physical damage
† If the disaster was proclaimed or declared by the local, state, and/or federal government

ATTACHMENT 2: PLAN MAINTENANCE TABLE

Use this table when reviewing the LHMP as part of the Planning Team's annual activities. For each section of the LHMP, note if any changes should be made to make the Plan more effective for the community. This includes noting if anything in the LHMP is incorrect or if any important information is missing. Make revisions that are consistent with these notes as part of the next update to the LHMP.

SECTION	IS ANYTHING INCORRECT?	IS ANYTHING MISSING?	SHOULD ANY OTHER CHANGES BE MADE?
Multiple sections or throughout			
Chapter 1: Introduction			
Chapter 2: Community Profile			
Chapter 3: Risk Assessment			
Chapter 4: Threat Assessment			
Chapter 5: Community Capability Assessment			
Chapter 6: Mitigation Strategy			
Chapter 7: Plan Maintenance			
Appendices			

ATTACHMENT 3: SAMPLE AGENDA AND TOPICS FOR THE HAZARD MITIGATION PLANNING TEAM

This attachment includes a sample agenda and discussion topics for the annual meeting of the Planning Team. Meetings do not have to follow this order or structure, but the items included in this attachment should be addressed as part of the annual meeting. During the update process for the LHMP, it is likely that the Planning Team will meet more frequently. The meetings of the Planning Team during the update process will involve different discussion topics.

Item 1: Recent hazard events

1.1. What hazard events have occurred this past year in Colton, or nearby in a way that affected the community?

- Identify events that caused loss of life or significant injury to Colton community members, significant property damage in Colton, or widespread disruption to Colton.
- More minor events should also be identified if there is a need for a community response to mitigate against future such events.

1.2. What are the basic facts and details behind any such hazard events?

- Consider the size and location of the affected area, any measurements of severity, any injuries and deaths, the cost of any damage, the number of people displaced or otherwise impacted, and other relevant summary information.
- Ensure that these facts and details are clearly recorded for future Plan updates, including through use of the Disaster Information Table (Attachment 1).

Items 2: Mitigation action activities

2.1. What mitigation actions have been fully implemented? Are they working as expected, or do they need to be revised?

2.2. What mitigation actions have started to be implemented since the Planning Team last met? Is implementation of these actions proceeding as expected, or are there any barriers or delays? If there are barriers or delays, how can they be removed?

2.3. What mitigation actions are scheduled to begin implementation in the next year? Are there any factors that could delay implementation, or weaken the effectiveness of the actions? How can these factors be addressed?

2.4. What resources are needed to support planned, in-process, or ongoing mitigation actions? Does the City have access to these resources? If not, how can the City obtain access to these resources?

Item 3: Information sharing

3.1. Is the City communicating with all appropriate local jurisdictions, including neighboring communities, San Bernardino County, and special districts? This should include information on district-specific hazard situations, mitigation actions, and other relevant information.

3.2. Is the communicating with the appropriate state and federal agencies? Is the City receiving information about new regulations, best practices, and data that relates to hazard mitigation activities?

3.3. Are there opportunities for the City to improve coordination with local, state, and federal jurisdictions and agencies?

Item 4: Budgetary planning

4.1. What are the financial needs for Colton to support implementation of planned and in-process mitigation actions, including ongoing items? Is there sufficient funding for all measures in the LHMP that are planned for the next year, including in-process and ongoing items? If sufficient funding is not available, how can the City obtain these funds?

4.2. If it is not feasible for the City to support all planned, in-process, or ongoing mitigation actions, which ones should be prioritized?

4.3. Are there hazard-related activities not included in the LHMP that should be budget for? Can the City obtain the necessary funding for these activities?

Item 5: Strategic planning

5.1. Which grants are available for hazard mitigation activities, and which activities are best positioned to secure funding?

5.2. How should the agencies and other organizations represented on the Planning Team coordinate to maximize the chances of receiving funding?

5.3. Are there any scheduled or anticipated updates to other City documents that could relate to hazard mitigation activities? How can the Planning Team share information with staff and any technical consultants responsible for these updates, and ensure that the updates will enhance community resiliency?

5.4. What capital projects are scheduled or anticipated? Are these capital projects being designed and built to be resistant to hazard events? Are there opportunities for these projects to support hazard mitigation activities?

5.5. How can Planning Team members coordinate efforts with those responsible for capital projects to take advantage of economies of scale that will make hazard mitigation activities easier to implement?

5.6. Has it been four years since the adoption of the LHMP? If so, lay out a timeline for Plan update activities, including additional meetings of the Planning Team. Identify if a technical consultant is needed, and begin the contracting process if so.

5.7. Are there any other opportunities for Planning Team members and the organizations they represent to coordinate efforts?

Items 6: New business

6.1. Are there any other items related to the Planning Team's mission?

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ATTACHMENT 4: HAZARD MITIGATION STRATEGY

	MITIGATION ACTION	POTENTIAL FUNDING SOURCES	RESPONSIBLE AGENCY	RELATIVE COST	TIME FRAME	PRIORITY
Preparedness activities						
P.1	Identify an alternative location for the Emergency Operations Center.	General Fund, Grants, Community Facilities Districts, Bonds	Emergency Management	N/A	T.B.D.	Low
P.2	Conduct an evacuation study for Reche Canyon, including looking at opportunities to provide secondary access.	General Fund, Grants, Community Facilities Districts, Bonds	Emergency Management/ Development Services	N/A	T.B.D.	Low
P.3	Develop a backup communication system for critical City operations.	General Fund, Grants, Community Facilities Districts, Bonds	Emergency Management	N/A	2020-2021	High
P.4	Conduct regular emergency preparedness drills and training exercises for City staff.	General Fund, Grants, Community Facilities Districts, Bonds	Emergency Management	N/A	Ongoing	High
P.5	Continue to coordinate with local school districts to ensure that school facilities can act as evacuation sites during major emergencies.	General Fund, Grants, Community Facilities Districts, Bonds	Emergency Management	N/A	T.B.D.	Low
P.6	Work with Colton business groups to conduct regular workplace emergency preparedness drills.	General Fund, Grants, Community Facilities Districts, Bonds	Emergency Management	N/A	T.B.D.	Low

	MITIGATION ACTION	POTENTIAL FUNDING SOURCES	RESPONSIBLE AGENCY	RELATIVE COST	TIME FRAME	PRIORITY
P.7	Expand participation in the Colton Community Emergency Response Team (CERT) program for residents and businesses.	General Fund, Grants, Community Facilities Districts, Bonds	Emergency Management	N/A	T.B.D.	Low
P.8	Store critical emergency supplies and equipment in locations on both sides of the Santa Ana River, in case of bridge damage/failure.	General Fund, Grants, Community Facilities Districts, Bonds	Emergency Management	N/A	T.B.D.	Medium
P.9	Ensure that community evacuation plans include provisions for community members who do not have access to private vehicles or are otherwise unable to drive.	General Fund, Grants, Community Facilities Districts, Bonds	Emergency Management/ Development Services/ Community Services	N/A	T.B.D.	Low
P.10	Continue to ensure effective emergency notifications through multiple media, in English and Spanish, about pending, imminent, or ongoing emergency events. Ensure that information is accessible to persons with disabilities and functional needs.	General Fund, Grants, Community Facilities Districts, Bonds	Emergency Management/ Development Services/ Community Services	N/A	T.B.D.	Low

	MITIGATION ACTION	POTENTIAL FUNDING SOURCES	RESPONSIBLE AGENCY	RELATIVE COST	TIME FRAME	PRIORITY
Multiple hazards						
1.1	Relocate Fire Stations 3 and 4 outside of mapped hazard zones or harden these facilities against hazardous situations if no feasible alternate locations exist.	General Fund, Grants, Community Facilities Districts, Bonds	Fire Department	$$$	T.B.D.	Medium
1.2	Install an emergency power system at the Water Reclamation Facility and harden the facility against hazardous events.	General Fund, Grants, Community Facilities Districts, Bonds	Water Department	$$$	2019-2020	High
1.3	Install backup generators at community facilities that serve as cooling or evacuation centers.	General Fund, Grants, Community Facilities Districts, Bonds	Community Services/ Emergency Management	$$	2019-2020	High
1.4	Conduct educational campaigns for Colton residents that emphasize cost-effective mitigation efforts, making material available in English and Spanish. Distribute information online, through local media, at special events and in City facilities, and through other appropriate means.	General Fund, Grants, Community Facilities Districts, Bonds	Community Services/ Emergency Management	$	T.B.D.	Low
1.5	Continue to stabilize loose slopes as needed with geotextile fabric, deep-rooted vegetation, and other appropriate techniques, especially after a wildfire event.	General Fund, Grants, Community Facilities Districts, Bonds	Engineering/ Fire Department	$ - $$	T.B.D.	Low

MITIGATION ACTION		POTENTIAL FUNDING SOURCES	RESPONSIBLE AGENCY	RELATIVE COST	TIME FRAME	PRIORITY
1.6	Work closely with community groups to increase awareness of hazard events and resiliency opportunities among socially vulnerable community members.	General Fund, Grants, Community Facilities Districts, Bonds	Community Services/ Emergency Management	$	T.B.D.	Low
1.7	Avoid building new City-owned key facilities in mapped hazard areas. If no feasible sites outside of mapped areas exist, ensure that such facilities are hardened against hazards beyond any minimum building requirements/ mitigation standards.	General Fund, Grants, Community Facilities Districts, Bonds	Development Services	Variable	T.B.D.	Low
1.8	Install backup power systems for key City-owned water pumps.	General Fund, Grants, Community Facilities Districts, Bonds	Water Department	$$	2020-2021	High
1.9	Coordinate with regional social service agencies and nonprofit care providers to obtain temporary shelter for homeless persons in advance of potential hazard events.	General Fund, Grants, Community Facilities Districts, Bonds	Community Services	$	T.B.D.	Low
1.10	Work with Caltrans and railroad operators to harden bridges against hazard events.	General Fund, Grants, Community Facilities Districts, Bonds	Engineering	$$$	T.B.D.	Low

	MITIGATION ACTION	POTENTIAL FUNDING SOURCES	RESPONSIBLE AGENCY	RELATIVE COST	TIME FRAME	PRIORITY
1.11	Closely monitor changes in the boundaries of mapped hazard areas resulting from land use changes or climate change and adopt new mitigation actions or revise existing ones to ensure continued resiliency.	General Fund, Grants, Community Facilities Districts, Bonds	Development Services/ Fire Department	$	T.B.D.	Low
1.12	Explore the feasibility of a third sewer trunk line connection to Grand Terrace to increase system redundancy and capacity.	General Fund, Grants, Community Facilities Districts, Bonds	Water/ Wastewater Department	$$$	T.B.D.	Medium
1.13	Integrate policy direction and other information from this Plan into other City documents, including the General Plan, Emergency Operations Plan, and Capital Improvements Program.	General Fund, Grants, Community Facilities Districts, Bonds	Development Services/ Engineering/ Emergency Management	$	Ongoing	Medium
1.14	Monitor funding sources for hazard mitigation activities.	General Fund, Grants, Community Facilities Districts, Bonds	Emergency Management	$	T.B.D.	Low
Drought						
2.1	Continue to aggressively search for and repair leaks in Colton's water infrastructure.	General Fund, Grants, Community Facilities Districts, Bonds	Water/ Wastewater	$$	T.B.D.	Low

	MITIGATION ACTION	POTENTIAL FUNDING SOURCES	RESPONSIBLE AGENCY	RELATIVE COST	TIME FRAME	PRIORITY
2.2	Use drought-tolerant plants or xeriscaping when installing new or significantly redoing City-owned landscapes. Limit turf that is not drought tolerant to recreational fields and lawns, and only in instances where no feasible drought-tolerant alternatives exist.	General Fund, Grants, Community Facilities Districts, Bonds	Public Works	$ - $$	T.B.D.	Low
Flooding						
3.1	Use permeable paving and landscaped swales for new and replacement City-owned hardscaped areas.	General Fund, Grants, Community Facilities Districts, Bonds	Public Works	$$	Ongoing	Medium
3.2	Require new large developments and significant retrofits to use low-impact development strategies.	General Fund, Grants, Community Facilities Districts, Bonds	Public Works/ Development Services	$	T.B.D.	Low
3.3	Conduct frequent cleanings of storm drain intakes, especially before and during rainy seasons.	General Fund, Grants, Community Facilities Districts, Bonds	Water/ Wastewater/ Public Works	$-$$	T.B.D.	Low
3.4	Identify areas with known ponding or poor drainage during rain events and increase storm drain capacity in these areas.	General Fund, Grants, Community Facilities Districts, Bonds	Public Works/ Wastewater	$$-$$$	T.B.D.	Low

	MITIGATION ACTION	POTENTIAL FUNDING SOURCES	RESPONSIBLE AGENCY	RELATIVE COST	TIME FRAME	PRIORITY
3.5	Participate in FEMA's Community Rating System to reduce flood insurance premiums for Colton property owners.	General Fund, Grants, Community Facilities Districts, Bonds	Public Works/ Development Services	$$	T.B.D.	Low
3.6	Develop incentives to harden private buildings and structures in the flood plain against floodwaters.	General Fund, Grants, Community Facilities Districts, Bonds	Public Works/ Development Services	$$	T.B.D.	Low
3.7	Discourage new schools, child care centers, and adult and senior assisted living facilities from locating in 100-year and 500-year flood plains.	General Fund, Grants, Community Facilities Districts, Bonds	Development Services	$	T.B.D.	Low
3.8	Work with the US Army Corps of Engineers and the San Bernardino County Flood Control District to support safety assessments and any needed retrofits to Seven Oaks Dam.	General Fund, Grants, Community Facilities Districts, Bonds	Engineering	$	T.B.D.	Low
3.9	Encourage renters in flood plains to obtain rental insurance that includes flood protection.	General Fund, Grants, Community Facilities Districts, Bonds	Finance	$	T.B.D.	Low
3.10	Secure funding needed to complete the storm drain system from West Valley Boulevard and North Pepper Avenue extending east to South Rancho Avenue and Agua Mansa Road.	General Fund, Grants, Community Facilities Districts, Bonds	Public Works	$$$	Ongoing	High

	MITIGATION ACTION	POTENTIAL FUNDING SOURCES	RESPONSIBLE AGENCY	RELATIVE COST	TIME FRAME	PRIORITY
Geologic Hazards						
4.1	Work with private property owners to install and maintain drainage systems and stabilizing vegetation on and above steep slopes.	General Fund, Grants, Community Facilities Districts, Bonds	Public Works/ Development Services	$$	T.B.D.	Medium
4.2	Monitor changes in groundwater levels to remain aware of potential liquefaction and subsidence risks.	General Fund, Grants, Community Facilities Districts, Bonds	Water/ Wastewater	$	T.B.D.	Low
Human-Caused Hazards						
5.1	Discourage new sensitive land uses, including schools, parks, child care centers, adult and senior assisted living facilities, and community centers, from locating near identified hazardous material facilities. Discourage or prohibit new hazardous material facilities from locating near sensitive land uses.	General Fund, Grants, Community Facilities Districts, Bonds	Development Services	$	T.B.D.	Low
5.2	Continue to work with solid waste service contractors to educate Colton residents and businesses on safe disposal of small quantities of hazardous materials.	General Fund, Grants, Community Facilities Districts, Bonds	Public Works	$	T.B.D.	Low

	MITIGATION ACTION	POTENTIAL FUNDING SOURCES	RESPONSIBLE AGENCY	RELATIVE COST	TIME FRAME	PRIORITY
5.3	Maintain relationships with Union Pacific and BNSF to improve rail safety, particularly the main east-west Union Pacific line designated a High Hazard Area Rail Line.	General Fund, Grants, Community Facilities Districts, Bonds	City Manager	$	T.B.D.	Low
Seismic Hazards						
6.1	Conduct an inventory of seismically vulnerable buildings and structures and pursue funding to incentivize retrofits of vulnerable buildings and structures not covered by the existing Seismic Strengthening for Unreinforced Masonry Buildings ordinance to be more resilient to earthquakes.	General Fund, Grants, Community Facilities Districts, Bonds	Public Works/ Development Services/ Building Department	$	T.B.D.	Low
6.2	Promote small-scale seismic retrofits, such as window films to minimize shattering, anchors for rooftop-mounted equipment, and bracing for masonry chimneys.	General Fund, Grants, Community Facilities Districts, Bonds	Development Services	$	T.B.D.	Low
6.3	Conduct a seismic analysis of all City-owned key facilities and retrofit vulnerable facilities.	General Fund, Grants, Community Facilities Districts, Bonds	Engineering	$$$	T.B.D.	Medium
6.4	Consider the use of flexible water pipes, particularly near Alquist-Priolo fault zones, to enhance seismic resiliency.	General Fund, Grants, Community Facilities Districts, Bonds	Engineering	$$$	T.B.D.	Low

	MITIGATION ACTION	POTENTIAL FUNDING SOURCES	RESPONSIBLE AGENCY	RELATIVE COST	TIME FRAME	PRIORITY
6.5	Explore amending the Colton Building Code to incorporate standards requiring new buildings to be safely habitable and functional following an earthquake.	General Fund, Grants, Community Facilities Districts, Bonds	Development Services	$$	T.B.D.	Low
6.6	Encourage community groups and industry representatives to conduct outreach about earthquake insurance to Colton community members, including renters.	General Fund, Grants, Community Facilities Districts, Bonds	Finance	$	T.B.D.	Low
Severe Weather						
7.1	Strengthen power lines to be more resistant to intense winds.	General Fund, Grants, Community Facilities Districts, Bonds	Electric Department	$$$	T.B.D.	Medium
7.2	Encourage significant retrofits to existing buildings to meet wind speed design specifications in the Colton Building Code.	General Fund, Grants, Community Facilities Districts, Bonds	Development Services	$$	T.B.D.	Low
7.3	Plant street trees and other vegetation to provide shade and green spaces throughout Colton, particularly around senior and medical facilities. Emphasize drought-tolerant and wind-resistant species.	General Fund, Grants, Community Facilities Districts, Bonds	Public Works	$$	T.B.D.	Low

MITIGATION ACTION		POTENTIAL FUNDING SOURCES	RESPONSIBLE AGENCY	RELATIVE COST	TIME FRAME	PRIORITY
7.4	Encourage replacing dark roofs on homes and businesses with light-colored roofs.	General Fund, Grants, Community Facilities Districts, Bonds	Development Services/ Public Works	$	T.B.D.	Low
7.5	Promote light-colored pavement for new or significantly renovated hardscapes, such as parking lots and driveways.	General Fund, Grants, Community Facilities Districts, Bonds	Development Services/ Public Works	$	T.B.D.	Low
Wildfire						
8.1	Conduct brush clearing and other fuel modification programs in areas with an elevated wildfire risk.	General Fund, Grants, Community Facilities Districts, Bonds	Fire Department	$$	T.B.D.	Medium
8.2	Develop new water reservoirs in areas of north Colton outside of mapped wildfire hazard zones.	General Fund, Grants, Community Facilities Districts, Bonds	Engineering/ Water Department	$$$	T.B.D.	Low
8.3	Develop a fire inspection program for residents and businesses in fire-prone areas and provide information regarding ways to retrofit buildings and landscapes to improve resiliency.	General Fund, Grants, Community Facilities Districts, Bonds	Fire Department	$$	T.B.D.	Medium