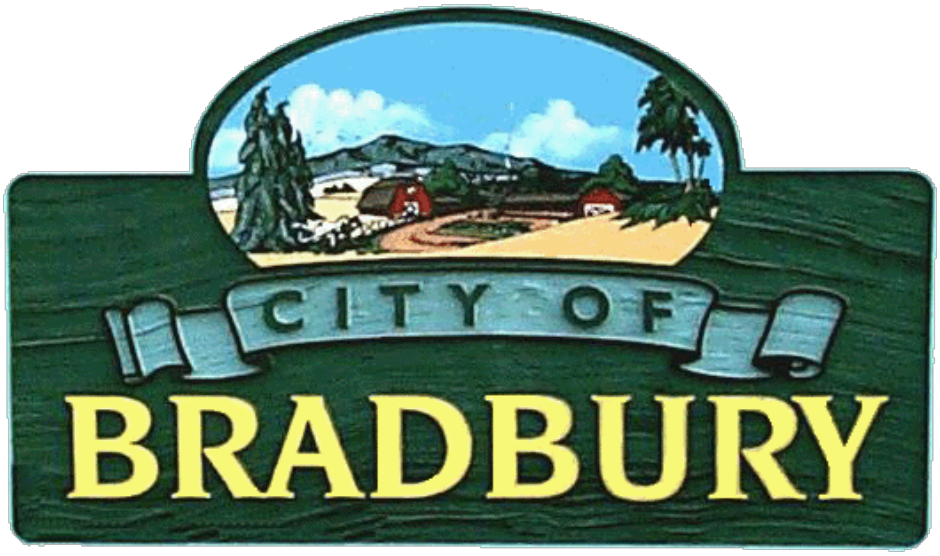

Local Hazard Mitigation Plan

Atlas Planning Solutions
City Council Adoption Version
February 2025

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CHAPTER 1 – INTRODUCTION

Plan Purpose and Authority

Hazard events are emergencies due to a natural or human-caused event that has the potential to cause harm. These events can lead to injuries or death, affect the overall health and safety of a community, damage or destroy public and private property, harm ecosystems, and disrupt key services. Although the hazard event often gets the most attention, it is only part of a larger emergency management cycle.

Emergency planners and responders can take steps during the cycle's response, recovery, mitigation, and preparedness phases to minimize the harm caused by a disaster. This Local Hazard Mitigation Plan (LHMP) focuses on optimizing the mitigation phase of the process.

Hazard mitigation is "any sustained action taken to reduce or eliminate long-term risk to people and property from natural or human-caused hazards and their effects."[1] This mitigation involves making a community more resilient so that when hazard events do ultimately occur, the community suffers minor damage and can recover more quickly and effectively. Mitigation differs from preparedness, which involves advanced planning for how best to respond when a disaster occurs or is imminent. For example, a policy to make homes structurally stronger so they suffer minor damage during an earthquake is a mitigation action, while fully equipping emergency shelters to accommodate people who lose their homes in an earthquake is a preparedness action. Some activities may qualify as both.

The Emergency Management Cycle

Resiliency is the "capacity of any entity—an individual, a community, an organization, or a natural system—to prepare for disruptions, to recover from shocks and stresses, and to adapt and grow from a disruptive experience."[2]

Like other communities, the City of Bradbury (City) could suffer severe harm from hazard events. Although large disasters may cause widespread devastation, minor disasters can have more substantial effects. The City cannot make itself completely immune to hazard events, but this LHMP can help make the community a safer place to live, work, and play. This LHMP provides a comprehensive assessment of the city's threats from natural and human-caused hazard events and a coordinated strategy to reduce these threats. It identifies resources and information to help community members, City staff, and local officials understand local threats and make informed decisions. The LHMP can also support increased coordination and

[1] California Governor's Office of Emergency Services. 2017. State of California Emergency Plan. https://www.caloes.ca.gov/wp-content/uploads/Preparedness/Documents/California_State_Emergency_Plan_2017.pdf

[2] Rodin, J. 2014. The Resilience Dividend: Managing Disruption, Avoiding Disaster, and Growing Stronger in an Unpredictable World. New York: Public Affairs.

collaboration between the City, other public agencies, local employers, service providers, community members, and other key stakeholders.

Federal Authority

The City is not required to prepare an LHMP, but state and federal regulations encourage it. The federal Robert T. Stafford Disaster Relief and Emergency Act, amended by the Disaster Management Act of 2000, creates a federal framework for local hazard mitigation planning. It states that jurisdictions that wish to be eligible for federal hazard mitigation grant funding must prepare a hazard mitigation plan that meets a certain set of guidelines and submit this plan to the Federal Emergency Management Agency (FEMA) for review and approval. The following regulations and guidelines apply to this plan:

FEDERAL LAWS

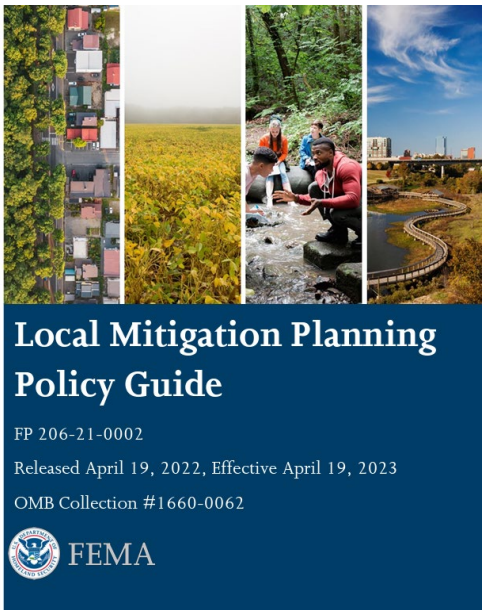
- Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act), as amended.

FEDERAL REGULATIONS

- 44 CFR Part 201 Mitigation Planning.
- 44 CFR, Part 60, Subpart A, including § 60.3 Flood plain management criteria for flood-prone areas.
- 44 CFR Part 77 Flood Mitigation Grants.
- 44 CFR Part 206 Subpart N. Hazard Mitigation Grant Program.

FEDERAL GUIDANCE

- FEMA Local Mitigation Planning Policy Guide (FP 206-21-0002), effective April 19, 2023



FEMA's Local Mitigation Planning Policy Guide

This guide provides the official policy and interpretation of the applicable statutes and mitigation planning regulation in 44 Code of Federal Regulations.

State Authority

CALIFORNIA GOVERNMENT CODE SECTIONS 8685.9 AND 65302.6

California Government Code Section 8685.9 (also known as Assembly Bill 2140) limits the State of California's share of disaster relief funds paid out to local governments to 75 percent of the funds not paid for by federal disaster relief efforts unless the jurisdiction has adopted a valid hazard mitigation plan consistent with the Disaster Management Act of 2000 and has incorporated the hazard mitigation plan into the jurisdiction's general plan. In these cases, the State may cover more than 75 percent of the remaining disaster relief costs.

All cities and counties in California must prepare a general plan, including a safety element that addresses various hazard conditions and other public safety issues. The safety element may be a stand-alone chapter or incorporated into another section, as the community wishes. California Government Code Section 65302.6 indicates that a community may adopt an LHMP into its safety element if the LHMP meets applicable state requirements. This allows communities to use the LHMP to satisfy state requirements for safety elements. As the General Plan is an overarching long-term plan for community growth and development, incorporating the LHMP into it creates a stronger mechanism for implementing the LHMP.

CALIFORNIA GOVERNMENT CODE SECTION 65302 (G)(4)

California Government Code Section 65302 (g)(4), also known as Senate Bill (SB) 379, requires that the safety element of a community's general plan 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 include measures to adapt and be more resilient to these anticipated changes.

Because the LHMP can be incorporated into the safety element, including these items in the LHMP can satisfy the state requirement. SB 379 requires that climate change be addressed in the safety element when the LHMP is updated after January 1, 2017, for communities that already have an LHMP or by January 1, 2022, for communities without an LHMP.

This LHMP is consistent with current standards and regulations, as outlined by the California Office of Emergency Services (Cal OES) and FEMA. It uses the best available science, and its mitigation actions/strategies reflect best practices and community values. It meets the requirements of current state and federal guidelines and makes the City eligible for all appropriate benefits under state and federal law and practices. Note that while FEMA is responsible for reviewing and certifying this LHMP, and Cal OES is responsible for conducting a preliminary review, it does not grant FEMA or Cal OES any increased role in the governance of the City or authorize either agency to take any specific action in the community.

Plan Organization and Use

The Bradbury LHMP is both a reference document and an action plan. It has information and resources to educate readers and decision-makers about hazard events and related issues and a comprehensive strategy that the City and community members can follow to improve its resilience. It is divided into the following chapters:

- **Chapter 1: Introduction.** This chapter describes the background of the Plan, its goals and objectives, and the process used in its development.
- **Chapter 2: Community Profile.** This chapter discusses the history of Bradbury, its physical setting and land uses, its demographics, and other important community characteristics.
- **Chapter 3: Hazard Assessment.** This chapter identifies and describes the hazards that pose a threat to Bradbury and discusses past and future events and the effects of climate change.

- **Chapter 4: Vulnerability Assessment.** This chapter describes the threat of each hazard on Bradbury's key facilities and community members, including socially vulnerable individuals.
- **Chapter 5: Mitigation Strategy.** This chapter lists the mitigation actions to reduce Bradbury's vulnerability to hazard events and provides an overview of the community's existing capabilities to improve hazard resilience.
- **Chapter 6: Plan Maintenance.** This chapter summarizes the process for implementing, monitoring, and updating the LHMP and opportunities for continued public involvement.

PREVIOUS BRADBURY LHMP

The Bradbury City Council adopted the 2019 Bradbury LHMP on February 21, 2019. This plan is active and will expire on February 21, 2024. An active plan allows the City to maintain its eligibility for FEMA hazard mitigation grant funding sources, which occur annually through FEMA Hazard Mitigation Grant Programs budgeted by Congress or periodically as a part of a federally declared disaster. As part of the TOP 2050 (Bradbury's General Plan) adoption that occurred on August 16, 2022, the 2018 LHMP was integrated into the Safety Element.

Key updated elements from the previous Bradbury LHMP include the following:

- Updated Plan Goals below, which were modified to better suit the changing priorities of the City, especially after the recent adoption of their General Plan Safety and Housing Elements.
- Updated hazard profiles and vulnerability assessment that integrates the recently adopted General Plan Safety and Housing Elements.
- Incorporation of updated demographics and development trends into the Community Profile.
- Updated hazard profiles with additional information on historical events.
- Updated Capabilities Assessment to meet new FEMA requirements and guidance.
- Updated Mitigation Actions and Strategies (**Table 5-3**), which includes progress on previous actions (**Table 5-4**).

Plan Goals

This Plan was developed to broadly increase resilience in Bradbury. The following key goals were developed for the City's LHMP:

1) **Protect Life and Property** - Implement activities that assist in protecting lives by making homes, infrastructure, critical facilities, and other property more resistant to losses from natural hazards in Bradbury.

2) **Enhance Public Awareness** - Develop and update public education and outreach programs to increase awareness of the risks associated with natural hazards in Bradbury.

3) **Preserve Natural Systems** - Support management and land use planning practices to preserve, rehabilitate, and enhance natural systems for Bradbury's hazard mitigation functions.

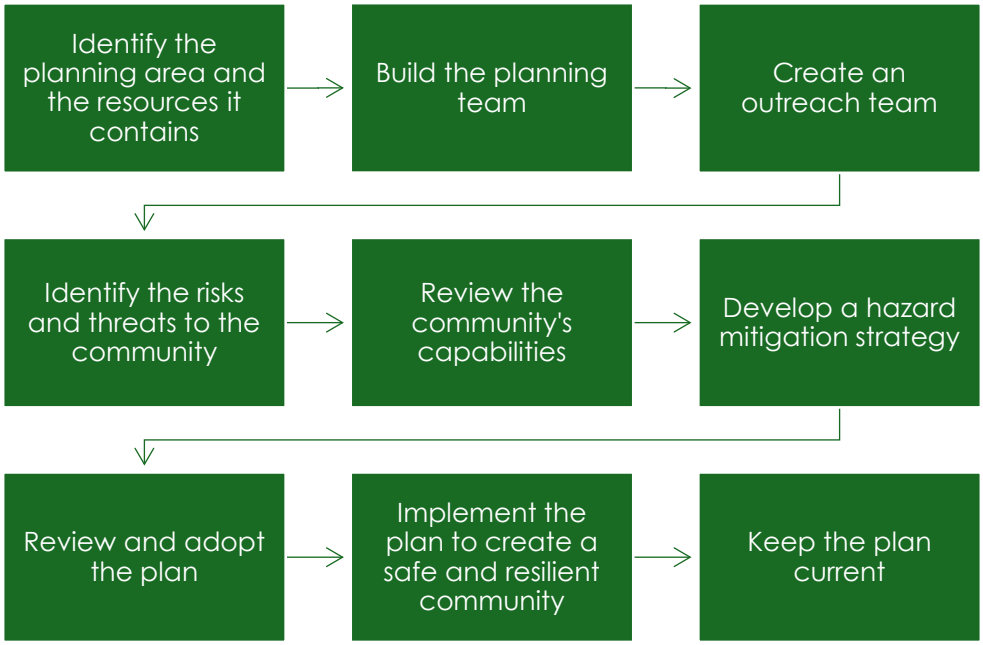
4) **Encourage Partnerships and Implementation** - Encourage City leadership to strengthen communication and coordinate participation between the City and public organizations to prioritize and implement local and regional hazard mitigation activities.

5) **Strengthen Emergency Services** - Strengthen emergency operations by increasing collaboration and coordination among emergency agencies, operations plans, and procedures while integrating hazard mitigation activities where appropriate.

These goals are very similar to the 2019 goals; however, some modifications were made to streamline the language, ensure greater consistency with the City's General Plan Safety Element, and align with the community's priorities identified during the LHMP update planning process.

Planning Process

State and federal guidance for LHMPs does not require that jurisdictions follow a standardized planning process. FEMA encourages communities to create their own planning process that reflects local values, goals, and characteristics. FEMA does suggest a general planning process that follows these general milestones:



For the City of Bradbury, the planning process used to create this plan is described below.

HAZARD MITIGATION PLANNING COMMITTEE

The City established a Hazard Mitigation Planning Committee (hereafter referred to as the HMPC). The HMPC comprises representatives from key City departments and stakeholder members, including representatives from local and regional agencies that are key to hazard mitigation activities. **Table 1-1** identifies the members who were invited and/or attended HMPC meetings.

TABLE 1-1: BRADBURY HMPC MEMBERS		
Name	**Title**	**Department**
Mario Flores (City POC)	Management Analyst	City of Bradbury
Kevin Kearney	City Manager	City of Bradbury
Jim Kasama	City Planner	City of Bradbury
Steve Cabrera	Acting Assistant Fire Chief	LA County Fire Department
Stevin Fiedler	Sergeant	LA County Sheriff's Department
Aaron Pfannenstiel	Project Manager	Atlas Planning Solutions
Crystal Stueve	Senior Planner	Atlas Planning Solutions
Robert Jackson	Associate Planner	Atlas Planning Solutions

The HMPC held two meetings throughout the plan update development process to lay out the methods and approach for the Plan, draft and review content, make revisions, and engage members of the public.

- **HMPC Meeting #1** (January 24, 2024): The HMPC members confirmed the project goals and their responsibilities. They revised the community engagement and outreach strategy, confirmed and prioritized the hazards to be included in the Plan, and identified critical facilities for the threat assessment.
- **HMPC Meeting #2** (February 28, 2024): The HMPC reviewed the mitigation strategies and actions developed to address potential vulnerabilities.

Invitations to HMPC meetings, as well as agendas/materials, were provided via email. **Appendix A** contains copies of HMPC meeting materials, including meeting agendas, sign-in sheets, and other relevant materials distributed to attendees for these meetings.

Public Engagement

Under FEMA guidelines, local hazard mitigation planning processes should create opportunities for members of the public to be involved in plan development—at a minimum, during the initial drafting stage and plan approval. The HMPC chose to go beyond minimum standards and conduct more extensive community outreach to help ensure that the LHMP reflects community values, concerns, and priorities. The HMPC developed a community engagement and outreach strategy to guide all public engagement activities. To ensure all residents were aware of the project, Bradbury staff promoted and included a description of the project and ways to get involved on the City's website; this is discussed in more detail in the online engagement section.

STAKEHOLDER ENGAGEMENT

The City conducted a virtual stakeholder meeting with representatives from surrounding cities (the City of Duarte and the City of Monrovia), the Duarte Unified School District, and Los Angeles County. Information regarding this opportunity to include key members from surrounding communities is located in **Appendix B**.

Although not all attended, the following is a list of stakeholders invited to the meeting.

- Los Angeles County
- City of Duarte
- City of Monrovia
- Duarte Unified School District
- US Forest Service
- SoCalGas
- Southern California Edison
- Royal Oaks (Senior Living Community in the Bradbury Area)
- Royal Oaks Skilled Nursing Facility

VULNERABLE POPULATIONS OUTREACH

In addition to the stakeholders, the City also conducted outreach to the following organizations that represent/ support vulnerable populations in the Bradbury area, to participate in the virtual stakeholder meeting (see stakeholder engagement above). In Bradbury, the most vulnerable population of concern is its senior citizens, especially those who reside in assisted living facilities. The following were invited to participate in the LHMP planning and review process:

- Royal Oaks (Senior Living Community in the Bradbury Area)
- Royal Oaks Skilled Nursing Facility

PUBLIC ENGAGEMENT OPPORTUNITIES

In-person engagement opportunities were another component of the City's engagement efforts. These meetings provide an opportunity for members of the public to learn about the hazards of concern identified by the HMPC during this update. Additionally, City staff advertised the survey in the city's e-newsletter. Notices of each meeting were distributed in advance in accordance with City notification requirements, the engagement strategy, legal requirements, and best practices.

- **Public Engagement Opportunity #1** (February 8, 2024): This engagement opportunity was conducted with the Public Safety Committee at Bradbury City Hall. The meeting was advertised on the agenda, which is publicly accessible. Four attendees were present for this meeting. Feedback from attendees included questions about the planning process, what the plan covered, and future steps in the update process.

Appendix B includes a copy of the materials used to promote these engagement opportunities.

ONLINE SURVEY

Another part of the engagement strategy was an online hazard mitigation survey. This survey asked community members about their experience and familiarity with emergency conditions, their level of preparedness for future emergencies, and preferred actions for the City to take to increase resiliency. The survey was made available to the residents of Bradbury via the March 2024 Bradbury Newsletter (an e-newsletter) with a direct link to the survey and received responses from approximately 1% of residents. A summary of some of the key responses is provided here:

- Approximately 83% of respondents have been impacted by a disaster in their current residence. Understanding this drove the City to expand outreach to residents as part of their emergency management preparedness.
- The respondents' top three hazards of concern were wildland fire, seismic hazards (Seismic shaking, liquefaction), and thunderstorms. These responses confirmed that the concerns identified by City staff during the planning process were similar to those of residents who responded.
- Approximately 83% of respondents showed concern regarding climate change affecting future hazards. The same 83% of respondents believe climate change will also threaten their health, property, livelihood, and overall wellbeing.
- Approximately 50% of respondents are familiar with the special needs of their neighbors in the event of a disaster situation (special needs may include limited mobility, severe medical conditions, and memory impairments).
- Approximately 67% of respondents feel that they have adequate homeowners' insurance to cover the hazards that could impact their homes.

As part of the outreach strategy, a QR code was created that could be used on promotional materials and handouts at fairs and booths used by City staff at community events. This QR Code provided quick access to the City's Online Survey.

Appendix B contains copies of all materials used for public outreach, including the full results of the community survey.

PUBLIC REVIEW DRAFT

On August 29, 2024, the City released a draft copy of the LHMP for public review and comment. The document was posted electronically on the City's website and included a Google form to accept comments from reviewers. 0 people completed the survey indicating they had reviewed the document. No public comments on the Draft Plan did not require any revisions.

PLAN REVISION AND ADOPTION

The public review period for the City's LHMP ended on September 13, 2024. Since no comments were received, the City submitted the plan to Cal OES and FEMA, initiating the agency review process on October 2, 2024.

Upon completing the formal agency review process, City staff submitted the LHMP for final adoption. The Bradbury City Council adopted the final LHMP on Month Day, 2024. **Appendix C** contains a copy of the adoption resolution.

Plan Resources

The City used several different plans, studies, technical reports, datasets, and other resources to prepare the plan's hazard assessment, mapping, threat assessment, and other components. **Table 1-2** provides some of the primary resources the HMPC used to prepare this Plan.

TABLE 1-2: KEY RESOURCES FOR PLAN DEVELOPMENT		
Section	**Key Resources Reviewed**	**Data Incorporated from Resource**
Multiple	• Cal-Adapt • California Department of Conservation • California Geological Survey • California Office of Emergency Services • California State Hazard Mitigation Plan • 2019 City of Bradbury Hazard Mitigation Plan. • Bradbury General Plan 2012-2030 Update • FEMA Local Hazard Mitigation Plan Guidance • National Oceanic and Atmospheric Administration • National Weather Service • US Geological Survey • FEMA National Risk Index	Science and background information on different hazard conditions Records of past disaster events in and around Bradbury Current and anticipated climate conditions in and around Bradbury Projections of future seismic conditions and events
Community Profile	• 2020 US Census Bureau Decennial Census • US Census Bureau 2017-2022 American Community Survey • Bradbury General Plan 2012-2030 Update • California Energy Commission	Demographic information for Bradbury and Los Angeles County History of the region Economic trends in Bradbury Commute patterns in Bradbury Local land-use patterns Background information on utilities serving Bradbury
Hazard Assessment (Flood Hazards)	• FEMA Map Service Center • Los Angeles County Flood Control District • California Levee Database	Records of past flood events in and around Bradbury Locations of flood-prone areas in Bradbury
Hazard Assessment (Seismic and Geologic Hazards)	• California Geological Survey • United States Geological Survey	Science and background information on seismic and geologic hazards Historical records of seismic and geologic hazard events in and around Bradbury
Hazard Assessment (Severe Weather Hazards)	• NOAA • National Weather Service	Records of past weather events
Hazard Assessment (Wildfire Hazards)	• California Department of Forestry and Fire Prevention • Fire and Resource Assessment Program	Records of past fire events Location of fire hazard zones in and around Bradbury
Note: Sections not individually identified in this table relied primarily on sources identified in multiple sections.		

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CHAPTER 2 – COMMUNITY PROFILE

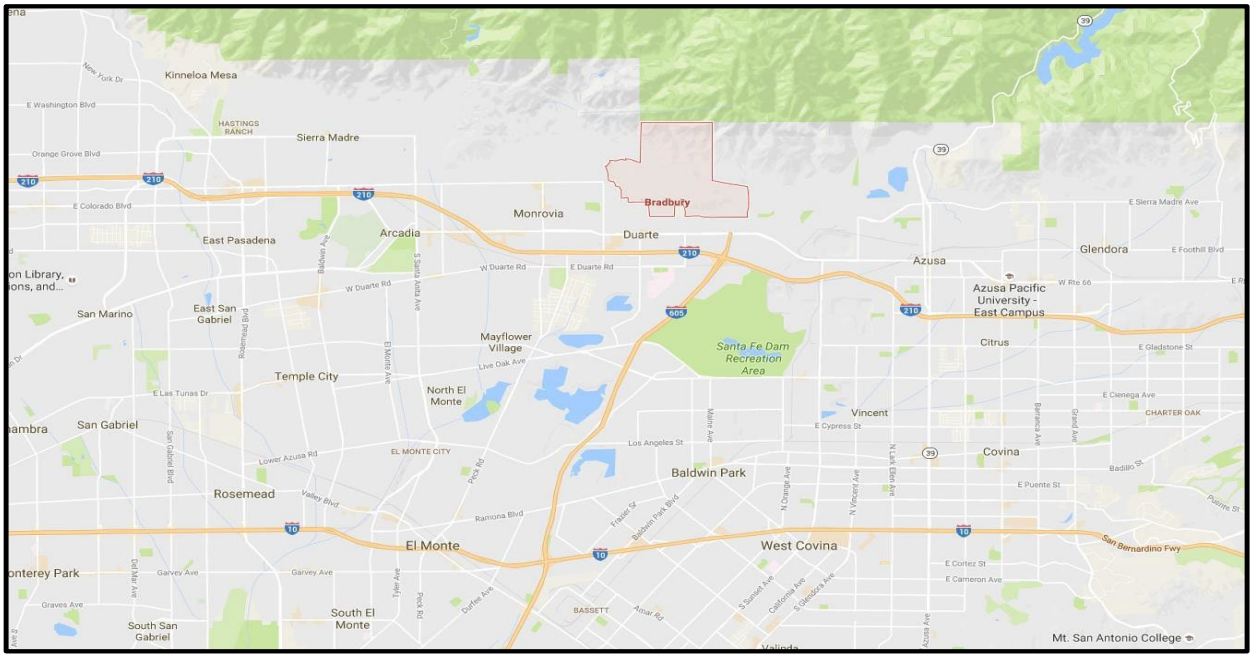
The Community Profile section of the LHMP is a summary of Bradbury, including information about the community's physical setting, history, economy and demographics, current and future land uses, and key infrastructure. The Community Profile helps to establish the baseline conditions in Bradbury, which inform the development of the hazard mitigation actions in **Chapter 5**.

BRADBURY QUICK FACTS
Elevation: 676 ft above sea level
Area: 1.96 square miles
Incorporated: July 26, 1957
Government Type: City Council/City Manager
Population (2020 Decennial Census): 921
Nearest cities: Duarte, CA – 0.63 miles Monrovia, CA – 1.61 miles Irwindale, CA – 3.43 miles Arcadia, CA – 3.72 miles Azusa, CA – 3.74 miles Baldwin Park, CA – 4.3 miles
Nearest city with population 200,000+*: Los Angeles, CA (16.93) miles, pop. 3.820 million)
Nearest city with population 1,000,000+*: Los Angeles, CA (16.93) miles, pop. 3.820 million)
* California Department of Finance

Setting and Location

The City of Bradbury is a small, residential/equestrian-oriented community of approximately 1.9 square miles, located in eastern Los Angeles County in the San Gabriel Valley region, approximately 17 miles east of the City of Los Angeles, located in the foothills of the San Gabriel Mountains below the Angeles National Forest. The City is bordered by the neighboring cities of Monrovia to the west and south and Duarte to the south and east.

FIGURE 2-1: CITY OF BRADBURY LOCATION



The City has three distinct areas:

1) Bradbury Estates, consisting mostly of 5-acre minimum estates, has a manned gate at its entrance;
2) Woodlyn Lane is also gated- with a keypad for entry- and is characterized by mostly 2-acre lots;
3) The remainder of the city is not gated, and lots generally range from 7500 square feet to two acres. There is a fairly large population of horses within the City, especially in gated areas.

History

The City of Bradbury is named after Louis Leonard Bradbury, who acquired 2,750 acres of the Rancho Azusa de Duarte, a Mexican land grant awarded to Andres Duarte before California became part of the United States in 1892. Louis Bradbury built an elegant home on his land, surrounded by a notable garden that is now the site of the Royal Oaks Manor. Entry to the Bradbury Estate was through either the impressive wrought-iron gates located on what is now called Deodar Lane or from the arched bridge above the historic Pacific Electric Railroad tracks, which stretches between Royal Oaks Drive, City of Duarte, and Royal Oaks Drive North, City of Bradbury.

Louis Bradbury made his fortune in gold and silver mining, primarily in Mexico, and is famous for constructing the Bradbury Building, a City of Los Angeles Historical Landmark. Mr. Bradbury also owned a smaller ranch located in the southeastern portion of the City of San Marino. After the passing of Louis Bradbury, his heirs lost control of both ranches during the 1930's. Prolonged legal battles between the family members resulted in foreclosure proceedings by the Security National Bank against most of the Bradbury Estate.

The conclusion of World War II brought new growth to what was once the Bradbury Estate and its surrounding area. Large parcels of it were sold to people seeking spacious building sites, which afforded privacy and country living in the foothills of the San Gabriel Mountains. The surrounding properties in the then unincorporated area, Duarte, were subdivided into tracts, providing modest and affordable living accommodations for returning service men and their families. The entire area changed rapidly from a sleepy agricultural area to a sprawling suburb of "GI" tract homes. Local development regulations were established and enforced by the County of Los Angeles. County Departments also provided Police and Fire protection.

In 1957, while the City of Duarte was considered for incorporation, the Bradbury Estate Property Owners Association realized that if development continued at the same pace in Bradbury, they would lose the ability to control their vision for the future of this special area. These residents valued the unique foothills and were fearful that they would become victims to the bulldozers of tract developers. In an effort to ease their fears and to control their vision for the future, the residents of the Bradbury Estates joined with property owners located within the area, surrounded by Woodlyn Lane, Bradbury Hills Road, Royal Oaks Drive North, Mount Olive Drive, and Lemon Avenue, to generate the 500 minimum number of registered voters required to create a new unincorporated City. The incorporation drive was successful, and upon approval of the Los Angeles County Board of Supervisors, the City of Bradbury became a municipal corporation on July 26, 1957.

Demographics

The data used in this section comes from the most comprehensive American Community Survey (ACS 5-Year Estimates 2022), administered by the United States Census Bureau (US Census) completed in 2021, the 2020 Decennial Census, and 2022 Census estimates. Based on these datasets, Bradbury's 2022 population was estimated to be 767, with a median age of 53.0, which is 15.6 years older than the rest of Los Angeles County (37.4 years old). Comparatively, the number of senior residents aged 65 and older is greater than the rest of Los Angeles County, while Bradbury residents have a much higher median income than the rest of the County. In addition, a much lower proportion of Bradbury residents rent compared to Los Angeles County. **Table 2-1** shows the basic demographics for Bradbury and Los Angeles County. It should be noted that more recent population estimates place the city's population at 767 residents, which is a decrease of about 26.8% from the last census in 2010, showing us the city has experienced population growth over the last decade. According to the 2022 Los Angeles County Continuum of Care Homeless Count and Survey, the city does not have a homeless population. The 2022 count shows that the homeless population remained the same since 2020 at zero.

TABLE 2-1: BASIC DEMOGRAPHICS, BRADBURY AND LOS ANGELES COUNTY

Demographic	Bradbury	Los Angeles County
Total Population	767	9,721,138
Percent of children who are less than 10 years old	7.5%	10.5%
Percent of residents who are senior citizens (65+)	18.8%	15.2%
Median Age	53.0	38.2
Total households	277	3,415,726
Median household income	$158,438	$82,516
Percent of rental households	7.6%	54.6%

Note: Percentage values are rounded to the nearest tenth decimal.
Source: 2020 US Decennial Census, US Census ACS Survey 5-Year Estimates 2022

In terms of its racial and ethnic composition, Bradbury has an ethnic composition of approximately 51.8% which identifies as White. The second-largest population is Asian, with 37.8% of all residents identifying as such. This population makeup is similar to that of Los Angeles County due to a higher proportion of white and some other race-alone populations. **Table 2-2** shows the racial and ethnic composition for all groups in Bradbury and Los Angeles County.

Bradbury residents have attained higher education levels than Los Angeles County residents. A larger proportion of the population has attained bachelor's and professional degrees, 52.6% of the city's residents versus roughly 35.6% of the County's residents. Other categories also differ, such as a smaller percentage of people not having education past 9th grade and a slightly smaller percentage of people not graduating high school. **Table 2-3** shows all levels of educational attainment of residents 25 years of age or older in both Bradbury and Los Angeles County.

TABLE 2-2: RACIAL AND ETHNIC COMPOSITION, BRADBURY AND LOS ANGELES COUNTY

Race or Ethnicity	Bradbury		Los Angeles County	
	Population	Percentage	Population	Percentage
White	397	51.8%	2,857,095	29.4%
Black	1	0.1%	739,392	7.6%
American Indian and Alaskan Native	0	0.0%	135,624	1.4%
Asian	290	37.8%	1,453,709	15.0%
Native Hawaiian and Other Pacific Islander	0	0.0%	24,450	0.3%
Some Other Race Alone	11	1.4%	2,510,738	25.8%
Two or more races	68	8.9%	2,000,130	20.6%
Hispanic or Latino (of any race) *	126	16.4%	4,766,616	49.0%
Total	**767**	**100%**	**9,721,138**	**100%**

* The US Census Bureau does not currently count persons who identify as Latinx as a separate racial or ethnic category. Persons who identify as Hispanic or Latinx are already included in the other racial or ethnic categories

Note: Percentage values are rounded to the nearest tenth decimal.

Source: 2020 US Decennial Census, US Census ACS Survey 2022 5-Year Estimates

TABLE 2-3: EDUCATIONAL ATTAINMENT OF RESIDENTS 25+ YEARS OF AGE

Educational Attainment	Bradbury		Los Angeles County	
	Number	Percentage	Number	Percentage
Less than 9th grade	27	4.4%	806,552	11.8%
9th grade to 12th grade (no diploma)	26	4.2%	521,036	7.6%
High school graduate or equivalent	72	11.7%	1,404,943	20.5%
Some college (no degree)	101	16.4%	1,200,796	17.5%
Associate's degree	65	10.6%	472,296	6.9%
Bachelor's degree	166	27.0%	1,554,735	22.7%
Graduate or professional degree	157	25.6%	885,445	12.9%
Total	**614**	**100%**	**6,845,803**	**100%**

Note: Percentage values are rounded to the nearest tenth decimal.

Source: 2020 US Decennial Census, US Census ACS Survey 2022 5-Year Estimates

Bradbury has a wide range of non-English languages spoken at home among its residents, with varying proficiency levels. Generally, Asian and Pacific Islanders are the second most-spoken languages at home other than English in Bradbury, with approximately 35.1% who are not fluent in English and speak it less than "very well." This is approximately 14.1% lower than the countywide population of Asian and Pacific Islander language speakers. Spanish is the third most-spoken language in Bradbury, with approximately 35.1% of these speakers unable to speak English fluently. This is similar to the rest of Los Angeles County, where approximately 42.2% of Spanish speakers cannot speak English fluently. **Table 2-4** shows the most spoken languages in Bradbury and the levels of fluency among speakers aged five and older in Bradbury and Los Angeles County.

TABLE 2-4: ENGLISH PROFICIENCY AND LANGUAGES SPOKEN AT HOME (2020)				
Languages	Bradbury		Los Angeles County	
	Number of Speakers	Percentage of speakers that speak English less than "Very Well"	Number of Speakers	Percentage of speakers that speak English less than "Very Well"
English only	450	-	4,169,105	-
Spanish	37	13 (35.1%)	3,480,588	1,468,305 (42.2%)
Indo-European*	68	2 (2.9%)	497,780	174,304 (35.0%)
Asian and Pacific Islander*	148	55 (37.2%)	975,054	500,122 (51.3%)
All other languages	36	0 (0.0%)	110,218	28,562 (25.9%)
Total	**739**	**70****	**9,232,745**	**2,171,293****

*Census data does not break down the specific languages for languages spoken in these regions

**Due to these figures only being a percentage of the overall number of speakers, they will not add up to 100%.

Note: Percentage values are rounded to the nearest tenth decimal.

Source: 2020 US Decennial Census, US Census ACS Survey 2016-2020

Economy and Commute Patterns

Bradbury is primarily a residential community with only a small token workforce employed within the City. As of 2021, 424 Bradbury residents are employed, with approximately four of these residents (0.9%) working within the city. This local workforce accounts for 6.2% of the city's entire workforce. There are approximately 65 employees who comprise the employee workforce within the city, four of whom live and work within the city, with the remaining workforce coming from surrounding cities throughout the region. **Table 2-5** shows the top five cities that contribute to Bradbury's workforce, which accounts for over 37% of those employed within the city.

While the majority of Bradbury's residents commute outside the city for work, most of those residents, 36.1%, travel less than 10 miles to reach their place of employment. Approximately 8.0% of commuters traveled 50 miles or more, with most of those trips heading into the Los Angeles area. The city boasts a convenient freeway, rail, and international air access to Los Angeles, Orange, San Diego, San Bernardino, and Riverside Counties. **Table 2-6** shows the outflow of workers from Bradbury to other regional worksites.

TABLE 2-5: TOP FIVE CITIES-OF-ORIGIN FOR BRADBURY'S WORKFORCE (2019)		
City of Origin	Number of Employees	Percentage
Los Angeles	7	10.8%
Monrovia	7	10.8%
Bradbury	4	6.2%
Azusa	3	4.6%
El Monte	3	4.6%
Total	**24**	**37%**

Source: https://onthemap.ces.census.gov/

TABLE 2-6: WORK COMMUTE DISTANCES FOR BRADBURY'S RESIDENTS (2019)		
Work Destination	**Number of Residents**	**Percentage**
Less than 10 miles	153	36.1%
10 to 24 miles	162	38.2%
25 to 50 miles	75	17.7%
Greater than 50 miles	34	8.0%
Total	**424**	**100%**
Source: https://onthemap.ces.census.gov/		

Development Trends

Bradbury is located within a dense part of Los Angeles County that has experienced significant growth and development over the past 30 years. Contrary to the trends within the County, the population of the City has decreased by approximately 211 residents (22%) since 2010. The City of Bradbury's General Plan identifies primarily residential land uses with other land uses consisting of open space and miscellaneous public uses. According to the General Plan's Land Use Element (Source), the City is predominantly a residential community with no land set aside for commercial or industrial development. The southern two-thirds of the City have been subdivided, with the remaining one-third to the north consisting of hillsides at the base of the San Gabriel Mountains. Those areas of the city that were developed as residential typically consist of lots ranging in size between one and five acres. Development densities in these areas are low largely because of the topography, lack of infrastructure, and other development constraints.

State Housing Law mandates the Regional Housing Needs Assessment (RHNA) as part of the periodic update of General Plan housing elements. Through the RHNA process, a community decides how to address existing and future housing needs resulting from population, employment, and household growth. [3]

The City of Bradbury has not experienced substantial population growth for several decades as it is a primarily built-out community. The lack of vacant parcels of land has limited the City's ability to build housing for new residents. Future growth is expected to remain relatively low because the number of developable parcels of land is continually diminishing. The City recently completed an update to their 2021-2029 Housing Element. This update highlights Bradbury's RHNA allocation responsibility and anticipated growth. **Table 2-7** depicts the City's RHNA allocation requirements.

[3] What is RHNA? https://scag.ca.gov/rhna

TABLE 2-7: RHNA ALLOCATION REQUIREMENTS			
Income Level	**Percent AMI***	**# of Units**	**Percent**
Extremely Low	0-30%	8	19.5%
Very Low	31-50%	8	19.5%
Low	51-80%	9	22%
Moderate	81-120%	9	22%
Above Moderate	>120%	7	17.0%
Total		**41**	**100%**

Source: The Bradbury Draft Housing Element 2021-2029, City of Bradbury

SCAG 6th Cycle Final RHNA Allocation Plan (approved by HCD on 3/22/21)

*AMI - Area Median Income

**State law also requires jurisdictions to project housing needs for extremely low-income households. SCAG does not differentiate between very low (VLI) and extremely low income (ELI) needs in the RHNA. Pursuant to State law, the City can evenly split the very low-income RHNA into very low and extremely low incomes.

Since there is only a minimal amount of vacant land in the City for new residential development, and the combination of land values and construction costs render these potential properties above market rate properties, future affordable housing needs must be provided primarily through the development of new accessory dwelling units. Natural hazards such as wildfires, earthquakes, earth movement, flooding, and windstorms are significant occurrences that constrain the City's land use and density opportunities. Narrow public and private roads, as well as marginal fire flows, have a direct bearing on the land uses and densities adopted by the community.

As part of Bradbury's General Plan 2012-2030 Update, the City reviewed and ratified the General Plan's land use patterns and development goals that have been in place since 1993. The General Plan establishes a maximum development build-out potential of 497 single-family residential dwelling units within the Bradbury City limits (Land Use Element, page 12). With a current housing stock of about 385 units, the build-out potential is adequate to accommodate the additional housing needs of 41 units, as projected by the RHNA.[4]

VULNERABILITY AND RISK REDUCTION

Most of the City of Bradbury is located within a Very High Fire Hazard Severity Zone as designated by the State of California and adopted by the Los Angeles County Fire Department, which provides contract fire service to the City. Therefore, to have the same building and safety codes that are utilized by the Fire Department, the City of Bradbury has adopted the 2020 Los Angeles County versions of the 2019 California Building Code (CBC) and 2019 Green Building Standards Code. Hazard mitigation is at the forefront of these development policies/regulations, further reducing the risk to people and property and should be a primary focus for developers and planners alike.

Major Community Elements

Virtually the entire City is single-family residential, with the exception of two large areas designated as Open Space. One area is owned by the Los Angeles County Flood Control

[4] City of Bradbury Housing Element 2021-2029, Housing Constraints & Resources.

District and used for flood control purposes. The Southern California Water District owns the other area, which is used as a domestic water reservoir. Other publicly owned lands include a 1-acre parcel owned by the City and used for City Hall facilities and a 13-acre site owned by the Duarte Unified School District. The Royal Oaks Elementary School is located on this site. The community of Bradbury, being largely residential, does not have any major commercial or industrial uses to speak of. Equestrian use and boarding, as well as some agricultural uses, are generally the extent of the community elements within Bradbury.

Infrastructure Assessment

Infrastructure plays a vital role in mitigating the effects of hazard events. When infrastructure fails, it can exacerbate the extent of certain hazards or create complications for rescue workers trying to reach victims. For example, because of strong winds or seismic activity, fallen utility poles can obstruct roadways and prevent emergency vehicles from reaching affected areas. The following are electrical, fossil fuel, hydrologic, and transportation infrastructure networks in Bradbury.

ELECTRICITY

Bradbury receives its electrical supply from Southern California Edison (SCE). One substation provides power to the city, the SCE Bradbury Substation; however, it is located just south of the city and is in neighboring Monrovia. Power is transmitted along transmission lines into the City itself. Power disruption could occur should something impact the functionality of the substation. However, a larger and more regional failure of the power grid would also likely disrupt power transmission to Bradbury for an extended time until power can be restored.

NATURAL GAS

Bradbury receives its natural gas from Southern California Gas Company (SoCalGas). To ensure sufficient natural gas transmission throughout the region, SoCalGas owns and operates transmission lines that transect the City. If these lines are damaged, there is a potential to interrupt the flow and delivery of natural gas throughout the City. Additionally, natural gas ignites very easily, and any rupture in a transmission line could cause additional damage to properties near the leak due to fire from the escaped natural gas. The presence of this infrastructure creates unique challenges for the city from an emergency management perspective. Including hazards associated with damage to this infrastructure is an important element of an effective response to future incidents involving natural gas use and transmission.

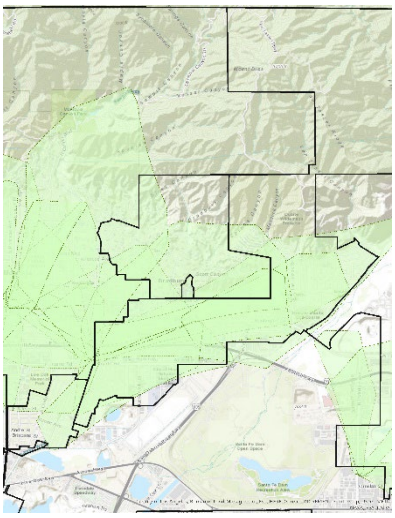
PUBLIC SAFETY POWER SHUTOFF

Under California law, the State's investor-owned utilities have general authority to shut off electric power to protect public safety. Utilities exercise this authority during severe wildfire threat conditions as a preventative measure of last resort through Public Safety Power Shutoffs (PSPS).[5]

The City began preparation for PSPS events by understanding the potential circuits that could be impacted (**Figure 2-2**) and the city needs and special populations that may be affected by these events. These incidents typically occur during high fire threat conditions (i.e., dry conditions and strong winds) and may affect communities located far away from any actively occurring fires. Although the few SCE circuits within the city have not been de-energized during recent PSPS events, the city must be prepared if a future PSPS event affects one of those circuits. Residents in these areas are sure to feel the impacts of these events if they do not have alternative options for electricity at their homes.

These events are also anticipated to affect City resources since some City facilities rely on electricity to function. As a result, the City has prioritized backup power generation at City facilities and for key infrastructure in these affected areas to ensure residents have a safe place to seek refuge, if needed, during these events.

FIGURE 2-2: SCE PUBLIC SAFETY POWER SHUTOFF CIRCUITS SURROUNDING THE CITY



WATER/WASTEWATER SERVICE

Drinking water and wastewater collection and processing services are provided to the City by California American Water Company. Cal-American provides all of the potable water to the city and collects, treats, disinfects, and distributes the wastewater generated in Bradbury. Cal-American uses the latest technology in their wastewater treatment processes, such as membrane bioreactors, biological nutrient removal of nutrients such as nitrogen and phosphorus, and UV disinfection, which replaces chlorine to treat water further.

TRANSPORTATION

Much of the transportation infrastructure in Bradbury consists of roadways for automobiles, but there are several modes of travel into and out of the city. These modes of travel are personal vehicles, bicycles, the Monrovia Transit service for (ADA passengers), and the LA Metro. The city has a network of pedestrian and equestrian trails and bicycle paths for non-motorized travel.

[5] Public Safety Power Shutoffs. https://www.cpuc.ca.gov/psps/

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CHAPTER 3 – RISK ASSESSMENT

This chapter discusses the types of hazards that might reasonably occur in Bradbury. It describes these hazards and how they are measured, where they may occur in Bradbury, a history of these hazards in and around Bradbury, and the future risks they pose. The discussion of future risks includes any changes to the frequency, intensity, and/or location of these hazards due to climate change. This chapter also discusses how the HMPC selected and prioritized the hazards in this Plan.

Hazard Identification

FEMA guidance identifies several hazards that communities should evaluate for inclusion in a hazard mitigation plan. Communities may also consider additional hazards for their plans. The HMPC reviewed the previous hazards in the 2018 plan and discussed other potential hazards, excluding ones that do not pose a threat or are not a significant concern to Bradbury. **Table 3-1** lists the hazards considered and explains the reasoning for inclusion/exclusion. For context, this table also shows if a hazard is recommended for consideration by FEMA if it is included in the 2018 California State Hazard Mitigation Plan (SHMP) and if it is included in the Los Angeles County Hazard Mitigation Plan (LAC HMP).

TABLE 3-1: HAZARD EVALUATION FOR BRADBURY LHMP

Hazard	Recommended for Consideration	Included in LHMP?	Reason for Inclusion or Exclusion
Agricultural Pests	SHMP	No	While historically, agricultural activities have occurred within portions of the City, there are no large agricultural areas in the community. The HMPC did not identify this as a hazard of concern for the City.
Air Pollution	SHMP	No	Air pollution is a state and regional issue addressed through plans and regulations administered by the South Coast Air Quality Management District and/or California Air Resources Board. Since the City does not regulate these resources, the HMPC did not identify this as a hazard of concern that should be addressed in this plan.
Aircraft Incident	SHMP	No	Given the lack of airport facilities and no past events associated with aircraft incidents within the City, the HMPC determined that this hazard should not be included in the plan.
Aquatic Invasive Species	SHMP	No	There are no major riparian environments in Bradbury where aquatic invasive species could endanger the community.
Avalanche	FEMA guidance SHMP	No	Bradbury is not located within potential avalanche zones.

TABLE 3-1: HAZARD EVALUATION FOR BRADBURY LHMP			
Hazard	**Recommended for Consideration**	**Included in LHMP?**	**Reason for Inclusion or Exclusion**
Civil Disturbance or Riot	SHMP	No	The HMPC determined that the City does not include any high-value areas of concern or areas where large groups of people gather. For this reason, the HMPC did not identify this as a hazard of concern.
Climate Change	SHMP LAC HMP	Yes	Climate change is discussed as a function of each relevant hazard and is mentioned throughout the Plan.
Coastal Flooding and Storm	FEMA guidance SHMP	No	Bradbury is not located along the coast of California. Coastal flooding and storms are not anticipated to impact the community.
Cyber Threats	SHMP	No	The HMPC acknowledges an increase in cyber threats occurring throughout California and the nation; however, due to Bradbury's small size and residential nature, this was not a hazard included in the plan.
Dam Failure	FEMA guidance SHMP LAC HMP	No	Bradbury is located downstream of dams that could inundate the community. However, the area in which the inundation zone overlaps the city does not pose any threat to people or critical infrastructure. The HMPC did not identify dam failure as a hazard of concern for the community.
Drought	SHMP LAC HMP	Yes	The HMPC is confident in the current hydrologic infrastructure and supply for the City. However, the HMPC does consider drought to be both a local issue and a regional one. It is addressed in both the State and Los Angeles County HMPs and is a hazard of concern for the plan.
Energy Shortage	SHMP	No	While energy shortages can potentially occur in Bradbury, the risks are similar to those in surrounding communities. While loss of power could occur, the bigger concern for the City is the effects this could have on communications infrastructure.
Epidemic, Pandemic, Vector-Borne Disease	SHMP	No	Bradbury is in Los Angeles County, which has experienced several health-related incidents. The City and the rest of the country have recently responded to the COVID-19 pandemic, which has impacted staff and resources. However, the HMPC felt it was best to address this issue in the City's Emergency Operations Plan (EOP).
Erosion	FEMA guidance SHMP	No	Due to the very low density nature of development within the City and application of building code requirements associated with land instability and erosion, the HMPC did not identify erosion as a hazard of concern for the City.

TABLE 3-1: HAZARD EVALUATION FOR BRADBURY LHMP			
Hazard	**Recommended for Consideration**	**Included in LHMP?**	**Reason for Inclusion or Exclusion**
Expansive Soil	FEMA guidance	No	The HMPC did not identify expansive soils as a hazard of concern. While they could exist, the City requires compliance with the California Building Code, which is intended to mitigate hazards associated with this condition.
Extreme Cold	FEMA guidance SHMP	No	Temperatures in Bradbury do not fall to a level considered dangerous to public safety. Due to this, the HMPC did not identify this as a hazard of concern.
Extreme Heat	FEMA guidance SHMP	No	Extreme heat has occurred within Bradbury and is expected to occur in the future. The HMPC did not identify this issue as a hazard of concern.
Fault Rupture	FEMA guidance SHMP SBC HMP	Yes	There are Alquist-Priolo fault zones located within Bradbury. As a result, the HMPC identified this as a hazard of concern to the City.
Flooding	FEMA guidance SHMP	Yes	FEMA has not identified flood hazard zones within the city. While large flooding events have not significantly affected properties within the City, the potential for local flooding to exacerbate other hazards is a concern for the City. The HMPC identified flooding as a hazard of concern.
Fracking	SHMP	No	Fracking does not occur in Bradbury.
Hail	FEMA guidance	No	Hail that is severe enough to threaten people and property is too rare in Bradbury to be included.
Hazardous Materials release	SHMP	No	As a residential city with no commercial or industrial zones, hazardous materials release was not identified as a hazard of concern for the City.
Hurricane	FEMA guidance SHMP	No	Hurricanes do not occur in Bradbury.
Infrastructure Failure	SHMP	No	Infrastructure failure can pose a threat to people and property in Bradbury. Infrastructure failure is discussed as a function of other hazards.
Landslide	FEMA guidance SHMP	Yes	The City of Bradbury has existing landslide areas and the potential for landslides to occur within the hillside areas of the City. The HMPC has identified this as a hazard of concern.
Levee Failure	SHMP	No	There are no levees located within the city that pose any threat to people or property. Based on this, the HMPC did not consider Levee failure to be a hazard of concern.

TABLE 3-1: HAZARD EVALUATION FOR BRADBURY LHMP			
Hazard	**Recommended for Consideration**	**Included in LHMP?**	**Reason for Inclusion or Exclusion**
Lightning	FEMA guidance	No	Although lightning occasionally occurs in Bradbury, it does not significantly threaten people or property.
Liquefaction	FEMA guidance SHMP LAC HMP	Yes	According to mapping prepared by the California Geological Survey, the city is located within liquefaction-prone areas. The HMPC identified this as a hazard of concern.
Methane-containing Soils		No	The city does not have methane-containing soil which pose a threat to the public health and safety of residents and businesses. The HMPC did not identify this as a hazard of concern to the City.
Natural Gas Pipeline Hazards	SHMP	No	Natural gas pipelines traverse Bradbury, posing a danger to people and property if they were to breach and release their contents. This condition is discussed in the Community Profile in Chapter 2 and in the vulnerability assessment where applicable.
Oil Spills	SHMP	No	There is no history of oil drilling and extraction within the city. Based on this, the HMPC did not identify this as a hazard of concern to the City.
Power Failure	SHMP	No	While power loss events can occur in the city, the HMPC determined that this hazard shouldn't be addressed within the LHMP and is better suited as a hazard addressed in the City's EOP.
Radiological Accidents	SHMP	No	There are no known major sources of radiation in Bradbury or the immediate surrounding area that could pose a serious threat to the community.
Sea-level Rise	FEMA guidance SHMP	No	The city is not located along the coast or near large bodies of seawater. The HMPC did not identify this as a hazard of concern for the City.
Seiche	FEMA guidance SHMP	No	There are no major bodies of water in Bradbury that could be subjected to seiche.
Seismic Shaking	FEMA guidance SHMP LAC HMP	Yes	Bradbury is in a seismically active area where shaking can be severe enough to damage property or cause loss of life. For this reason, the HMPC determined it should be addressed in this plan.
Severe Wind	FEMA guidance	Yes	Windstorms have been identified as an issue within the City and a hazard of concern within Bradbury.

TABLE 3-1: HAZARD EVALUATION FOR BRADBURY LHMP			
Hazard	**Recommended for Consideration**	**Included in LHMP?**	**Reason for Inclusion or Exclusion**
Severe Weather and Storms	FEMA guidance SHMP LAC HMP	No	Severe Weather includes discussions regarding extreme heat and rain, which are the most common weather-related hazards in Bradbury. Severe weather and storms were not identified as hazards of concern for the City.
Storm Surge	FEMA guidance	No	Bradbury is not a coastal community. The HMPC did not identify this as a hazard of concern to the City.
Subsidence	FEMA guidance	No	Significant subsidence does not occur within the City. Therefore, subsidence is not discussed as a hazard of concern for the City.
Terrorism	SHMP	No	The HMPC determined that the City does not include any high-value areas of concern or areas where large groups of people gather. For this reason, the HMPC did not identify this as a hazard of concern.
Thunderstorm	SHMP	No	Thunderstorms that cause damage and endanger public safety are rare in the Southern California region. The HMPC did not identify this as a hazard of concern.
Tornadoes	FEMA guidance SHMP	No	No tornadoes are known to have occurred in Bradbury. The HMPC did not identify this as a hazard of concern.
Transportation Accidents	SHMP	No	The City does not contain major highways, train tracks, or commercial or industrial buildings. This was not determined to be a hazard of concern for the City.
Tree Mortality	SHMP	No	The HMPC noted that the city has a significant number of trees; however, the City currently manages these resources effectively and did not feel it was necessary to specifically identify this as a hazard of concern.
Tsunami	FEMA guidance SHMP	No	Bradbury is not a coastal community. The HMPC did not identify this as a hazard of concern to the City.
Urban Fire	SHMP LAC HMP	Yes	The HMPC identified urban fires as a potential risk to property and life in Bradbury and is discussed in the wildfire profile.
Volcano	SHMP	No	There are no volcanoes near Bradbury that reasonably pose a threat. The HMPC did not identify this as a hazard of concern to the City.
Wildfire	FEMA guidance SHMP	Yes	The city has extensive very high fire hazard severity zones and is located next to a wildland-urban interface area in the San Gabriel foothills/mountains. Because of this, the HMPC identified this as a hazard of concern to the City.

After hazard evaluation and the organizational changes made by the HMPC, this Plan discusses seven broad hazard types with their respective sub-categories, listed in **Table 3-2**.

TABLE 3-2: HAZARD CATEGORIES AND SUB-CATEGORIES

Hazard Category	Sub-Categories
Wildfire	
Earthquake	Fault Rupture Liquefaction Seismic Shaking
Landslide	
Drought	
Windstorm	
Flooding	
Climate Change	(*Discussed in all relevant Hazard Categories)*

Hazard Scoring and Prioritization

Once the hazards for Bradbury have been identified, they are given a priority ranking. Utilizing the Calculated Priority Risk Index (CPRI) ranking technique, the Planning Team prioritized and ranked the hazards that pose a significant threat to the City of Bradbury. The hazard ranking system is described in **Table 3-3,** Calculated Priority Risk Index, while the actual ranking is shown in **Table 3-4,** Calculated Priority Risk Index Ranking for the City of Bradbury.

In addition to the simple prioritization exercise, the HMPC followed FEMA guidance (**Table 3-3**) for hazard mitigation plans and prioritized each of the hazards identified. In the initial step, it assigned a score of 1 to 4 for each of the hazards for the following criteria:

- **Probability:** The likelihood that the hazard will occur in Bradbury in the future.
- **Magnitude/Severity:** The size and severity of the area that the hazard would affect and the direct damage of the hazard to Bradbury.
- **Warning time:** The warning time the residents of Bradbury receive before the hazard.
- **Duration:** The amount of time the event occurs in Bradbury.

The HMPC assigned a weighting value to each criterion, giving a higher weight to the criteria deemed more important, and multiplied the score for each criterion by weighing the factor to determine the overall score for each criterion. The CPRI recommended these weighting values:

Probability:	Magnitude/Severity:	Warning Time:	Duration:
45%	30%	15%	10%

Table 3-3 shows the Criterion Scoring used to assign a score for each criterion.

After calculating the total impact score for each hazard, FEMA guidance recommends multiplying the total impact score by the overall probability to determine the final score for each hazard. In compliance with the Disaster Mitigation Act (and as further specified by Interim Final Rule 44 CFR Section 206.401(c)(2)(i)), this LHMP addresses, in substantial detail, the primary hazards facing the City. Lower-priority hazards are addressed at a lesser level of detail due to their relatively reduced impacts, as identified in the hazard assessment discussion.

TABLE 3-3: CRITERION SCORING

CPRI Category	Degree of Risk Chart			Assigned Weight Factor
	Level ID	Description	Index Value	
Probability	Unlikely	• Extremely rare with no documented history of occurrences or events. • Annual probability of less than 0.001	1	45%
	Possible	• Extremely rare with no documented history of occurrences or events. • Annual probability of between 0.01 and 0.001	2	
	Likely	• Occasional occurrence with at least two or more documented historic events. • Annual probability of between 0.1 and 0.01	3	
	Highly Likely	• Frequent events with a well-documented history of occurrence. • Annual probability of greater than 0.1	4	
Magnitude/Severity	Negligible	• Negligible property damages (less than 5% of critical and non-critical facilities and infrastructure) • Injuries or illnesses are treatable with first aid and there are no deaths • Negligible quality of life lost • Shut down of critical facilities for less than 24 hours	1	30%
	Limited	• Slight property damages (greater than 5% and less than 25% of critical and non-critical facilities and infrastructures) • Injuries and illnesses do not result in permanent disability and there are no deaths • Moderate quality of life lost • Shut down of critical facilities for more than 1 day and less than 1 week	2	
	Critical	• Moderate property damages (greater than 25% and less than 50% of critical and non-critical facilities and infrastructures) • Injuries or illnesses result in permanent disability and at least one death • Shut down of critical facilities for more than 1 week and less than 1 month	3	
	Catastrophic	• Severe property damages (greater than 50% of critical and non-critical facilities and infrastructure) • Injuries or illnesses result in permanent disability and multiple deaths • Shut down of critical facilities for more than 1 month	4	
Warning Time	Less than 6 hours	Population will receive less than 6 hours of warning	4	15%
	6 to 12 hours	Population will receive between 6-12 hours of warning	3	
	12 to 24 hours	Population will receive between 12-24 hours of warning	2	
	More than 24 hours	Population will receive greater than 24 hours of warning	1	
Duration	Less than 6 hours	Disaster event will last less than 6 hours	1	10%
	Less than 24 hours	Disaster event will last between 6-24 hours	2	
	Less than one week	Disaster event will last between 24 hours and 1 week	3	

	More than one week	Disaster event will last more than 1 week	4	

TABLE 3-4: CALCULATED PRIORITY RISK INDEX RANKING FOR THE CITY OF BRADBURY

Hazard	Probability	Weighted 45% (x0.45)	Magnitude Severity	Weighted 30% (x0.3)	Warning Time	Weighted 15% (x0.15)	Duration	Weighted 10% (x0.1)	CPRI Ranking
Wildfire	3	1.35	3	0.9	4	0.6	3	0.3	3.15
Earthquake – San Andreas M8.0	3	1.35	3	0.9	4	0.6	1	0.1	2.95
Earthquake – Sierra Madre M7.2	3	1.35	3	0.9	4	0.6	1	0.1	2.95
Earthquake – Puente Hills M7.5	3	1.35	3	0.9	4	0.6	1	0.1	2.95
Landslide	2	0.90	2	0.6	4	0.6	1	0.1	2.20
Drought	2	0.90	2	0.6	1	0.15	4	0.4	2.05
Windstorm	3	1.35	1	0.3	1	0.15	2	0.2	2.00
Flooding	1	0.45	1	0.3	2	0.30	1	0.1	1.15

Disaster Declaration Connections

Since the previous update, the following major disasters, emergency declarations, and fire management events have been issued by the FEMA. Past events identified in this plan have been identified in connection with these events in the "Past Events" sections within each Hazard Profile. **Table 3-5** lists the disaster declarations that have occurred in the region since the last update of the Bradbury LHMP in 2019.

TABLE 3-5: DISASTER DECLARATION – LOS ANGELES COUNTY (2019-2023)

Year	Declaration Number	Declaration Title	Incident Type	Affected Bradbury	*Activated EOC / Requested PA*
2023	DR-4699-CA	SEVERE WINTER STORMS, STRAIGHT-LINE WINDS, FLOODING, LANDSLIDES, AND MUDSLIDES	Severe Storm	No	No
2023	EM-3592-CA	SEVERE WINTER STORMS, FLOODING, LANDSLIDES, AND MUDSLIDES	Flood	No	No
2023	DR-4683-CA	SEVERE WINTER STORMS, FLOODING, LANDSLIDES, AND MUDSLIDES	Flood	No	No
2023	EM-3591-CA	SEVERE WINTER STORMS, FLOODING, AND MUDSLIDES	Flood	No	No
2021	DR-4569-CA	WILDFIRES	Fire	No	No
2020	FM-5374-CA	BOBCAT FIRE	Fire	Yes	Yes
2020	DR-4482-CA	COVID-19 PANDEMIC	Biological	No	No
2020	EM-3428-CA	COVID-19	Biological	Yes	Yes
2020	FM-5297-CA	GETTY FIRE	Fire	No	No
2020	FM-5296-CA	TICK FIRE	Fire	No	No
2020	FM-5293-CA	SADDLERIDGE FIRE	Fire	No	No

Hazard Profiles

WILDFIRE

Description

Wildfires are fires that burn in largely undeveloped and natural areas and are a regular feature of ecosystems throughout California. These fires help to clear brush and debris from natural areas and are necessary for the health of many ecosystems and various species' life cycles.

However, since the early twentieth century, the common practice was to suppress naturally occurring fires in wildland areas, allowing dry plant matter and other fuels to build up.

At the same time, human activity has caused changes in the buffer zone between urbanized and undeveloped areas, known as the wildland-urban interface (WUI). The more natural setting of a WUI can make these zones highly desirable places to live. In many parts of California, the WUIs have become developed, albeit at lower densities than in fully urbanized areas. However, this development activity has brought more people into wildfire-prone areas. The availability of fuel, increasing encroachment into the WUI, and a changing climate have made wildfires among California's most common and dangerous natural hazards.

Lightning, accidents, or arson can spark wildfires. The size and severity of any fire depend on fuel, weather conditions, and topography availability. However, wildfires in the WUI do not need to be large to be damaging. In Oakland, the 1991 Tunnel Fire was relatively small, only 1,600 acres, but it was one of California's deadliest and most destructive wildfires.[6] The flames from wildfires create severe risks to property and lives. Smoke and other particulate matter from wildfires pose a health risk, even to those not near the blaze. Burned areas can be more susceptible to flooding and landslides because wildfires destroy the vegetation that helps slow down water runoff and hold slopes together.[7] The ground may repel water rather than absorb it when faced with ash deposits. Due to the change in the landscape structure after a fire, repelled water can carry debris into water reservoirs.[8]

Location and Extent

Wildfires are not measured on a specific scale and are usually classified by size (e.g., acres burned) or impact (buildings destroyed or damaged, injuries or deaths, cost of damage, etc.). The California Department of Forestry and Fire Protection (Cal Fire) defines the wildfire hazard zones on a three-tier scale of fire hazard severity zones (FHSZs): very high, high, and moderate. These zone classifications do not correspond to a specific risk or intensity of fire but are qualitative terms that consider many factors. Fire-prone areas are also classified by the agency responsible for fire protection. Federal Responsibility Area (FRA) falls to federal agencies such as the US Forest Service, the Bureau of Land Management, and the National Park Service. State Responsibilities Area (SRA), which includes unincorporated land within counties with statewide watershed value, falls to the Cal Fire. Local Responsibility Area (LRA), which includes portions of incorporated cities with identified wildfire hazard zones, falls to local governments. Only the very high FHSZs located within the LRA are identified and mapped by Cal Fire. However, in the SRA, high and moderate FHSZs are also mapped by Cal Fire.

Due to the San Gabriel Mountains' topography, Bradbury is susceptible to wildfires. The community of Bradbury is located in the San Gabriel Mountains, and large portions of the city are located within the wildland-urban interface (WUI). The WUI is the zone of transition between the wilderness and human-developed lands. Wildfires present a significant threat to the city and the County located in or near the WUI, as it is a region of relatively high temperatures, low humidity, and low precipitation during the summer. The Fall season brings the Santa Ana winds, exacerbating the area's already dry conditions and increasing the foothills' susceptibility to

[6] Forest Service, USDA. The Oakland-Berkeley Hills Fire of 1991. 1995. https://www.fs.usda.gov/research/treesearch/27400

[7] EPA. 2019. "Wildfires: How Do They Affect Our Water Supplies?" https://www.epa.gov/sciencematters/wildfires-how-do-they-affect-our-water-supplies

[8] Bichell, R. 2019. "How Wildfires May Muck Up the West's Reservoirs." Colorado Public Radio. https://www.cpr.org/2019/09/25/how-wildfires-may-muck-up-the-wests-reservoirs/

wildfire. Fire threat assessment and Geographic Information System (GIS) mapping for Bradbury identifies the WUI as the area with the highest fire risk within the city. **Figure 3-1** identifies portions of the city located within the WUI and historic fire perimeters in the city.

According to Cal Fire FHSZ mapping of the city, the majority of the city (with the exception of the western city border and small portions along the southern and eastern city borders) is located within a Very High Fire Hazard Severity Zone (VHFHSZ) falling under the jurisdictional responsibility of the City as it is located in the LRA. The City currently contracts its fire protection with the Los Angeles County Fire Department (LACoFD) (specifically Division II). The potential for wildfire is even greater considering that these same northern, western, and eastern borders are also adjacent to the VHFHSZs and HFHSZs of the SRA along the city limits. The potential for a wildfire to begin in the SRA and spread into the city's LRA is highly probable if the fire cannot be contained within the SRA. **Figure 3-2** identifies the fire hazard severity zones within the city and the surrounding area, including the state responsibility areas (SRA) and the local responsibility areas (LRA). Both the LRA in Bradbury and the SRA in the surrounding unincorporated county are under the jurisdiction of the LACoFD.

The city's sphere of influence extends into the SRA and the Very High Fire Hazard Severity Zones (VHFHSZ) associated with this area. Development requirements within this area are regulated and must meet the development requirements for areas located within VHFHSZs.

A fire can only ignite if three elements are present: heat, fuel, and oxygen. If any of these elements is removed, the fire will extinguish itself. In Bradbury, copious amounts of fuel are given to the thousands of structures, which makes them extremely flammable. Activity that creates intense heat that is unmonitored or unregulated may lead to the ignition of a fire. The National Institute of Standards and Technology, Fire Research Division, has developed a scale that measures the increase in temperature and the kind of fire response that develops. **Table 3-6** shows the progression of temperature relative to fire response.

TABLE 3-6: FIRE SUSCEPTIBILITY BASED ON TEMPERATURE INCREASE

Temperature (°F)	Response
98.6 °F	Average normal human oral/body temperature.
101 °F	Typical body core temperature for a working firefighter.
109 °F	Human body core temperature that may cause death.
111 °F	Human skin temperature when pain is felt.
118 °F	Human skin temperature causing a first-degree burn injury.
130 °F	Hot water causes a scald burn injury with a 30-second exposure.
131 °F	Human skin temperature with blistering and second-degree burn injury.
140 °F	Temperature when burned human tissue becomes numb.
162 °F	Human skin temperature at which tissue is instantly destroyed.
212 °F	Temperature when water boils and produces steam.
482 °F	Temperature when charring of natural cotton begins.
>572 °F	Modern synthetic protective clothing fabrics begin to char.
≥752 °F	Temperature of gases at the beginning of room flashover.
≈1832 °F	Temperature inside a room undergoing flashover.

FIGURE 3-1: WILDLAND URBAN INTERFACE (WUI) AND HISTORIC WILDFIRE PERIMETERS IN BRADBURY

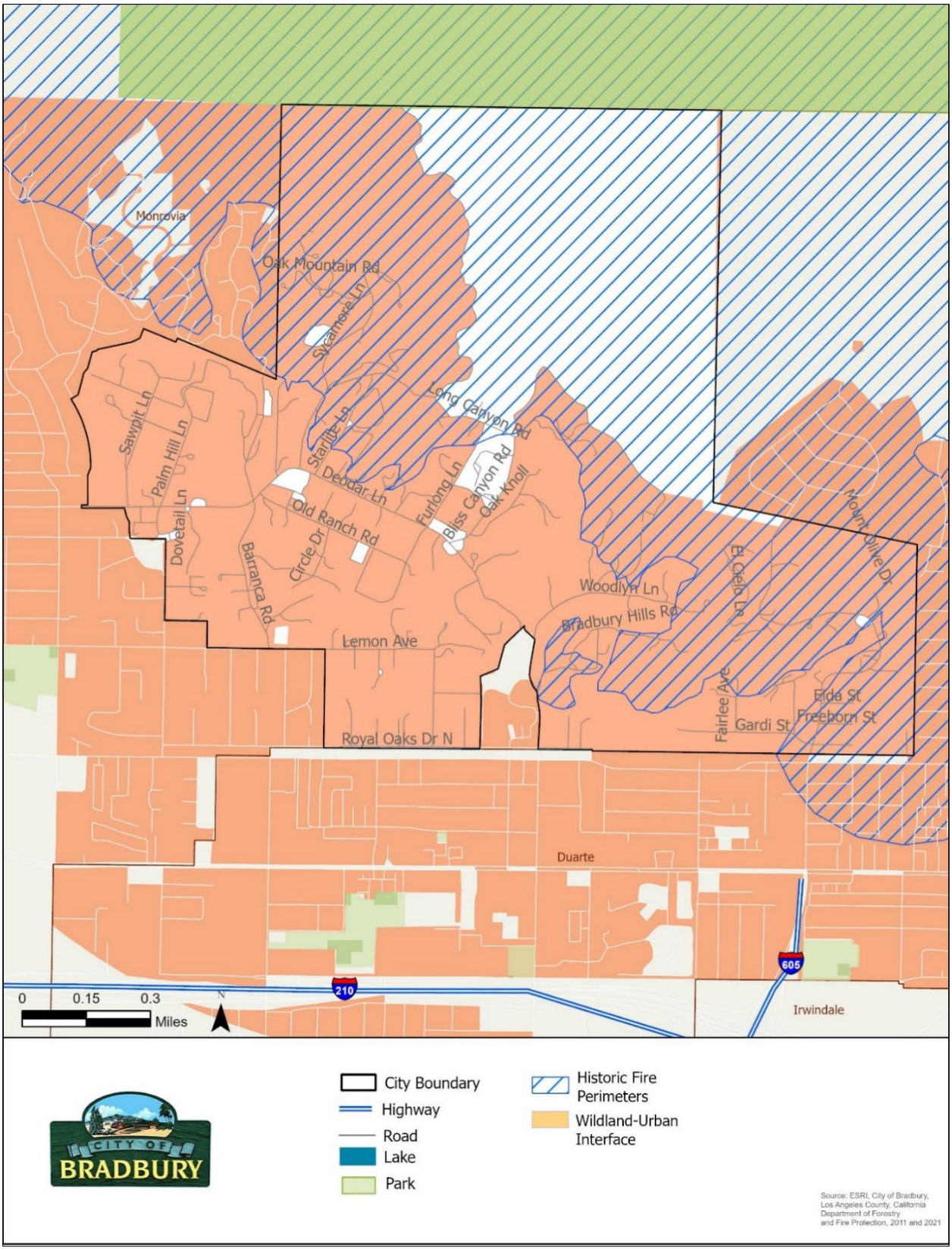
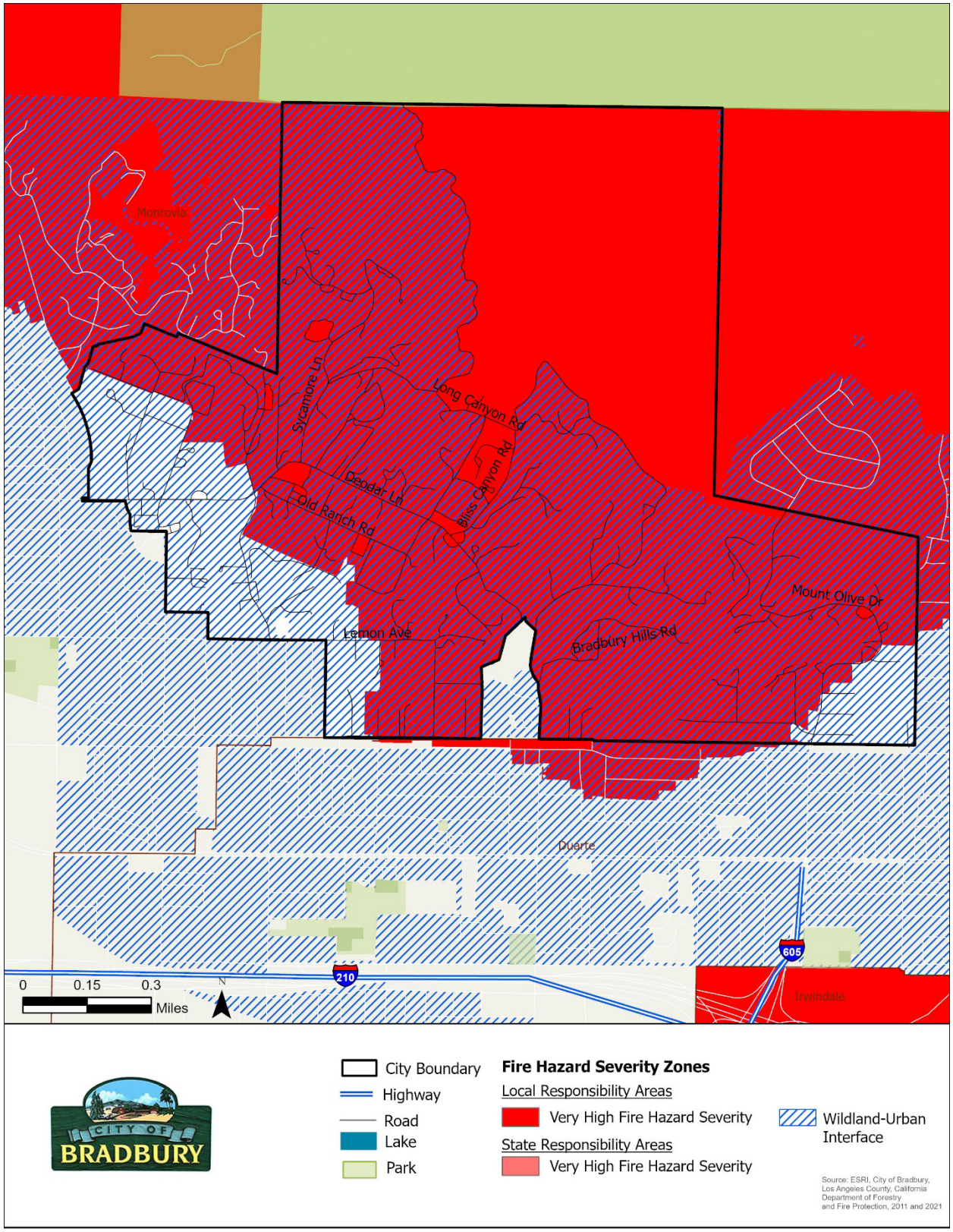


FIGURE 3-2: FIRE HAZARD SEVERITY ZONES IN BRADBURY



Once a fire has been ignited, it could conceivably grow to an indefinite size if abundant fuel and oxygen are available. For example, a fire that ignites in one house could hypothetically continue to expand and even spread to other adjacent houses if there was enough fuel to link the structures together. Fires in confined spaces may occasionally burn so intensely that they consume all the oxygen available and burn out before they can expand.

Past Events

Fortunately, there have been limited wildfire outbreaks within the City. However, bordering areas are highly prone to wildfires; therefore, the City is exposed to the threat of wildfires outside the City.

The most recent wildfire to affect the City was the Bobcat Fire, which began on September 6, 2020, and was finally contained on November 27, 2020. Days before the fire began, a heat wave developed in the area. High temperatures surpassed 100 degrees, relative humidity levels fell below 15%, and vegetation moisture hovered around critical levels.[9] The fire burnt primarily in the central San Gabriel Mountains, in the Angeles National Forest, and is one of the largest fires on record in Los Angeles County. The fire initially spread southward, which prompted evacuation orders/warnings for residents in Sierra Madre, Monrovia, Bradbury, Duarte, Arcadia, Pasadena, and Altadena. Containment difficulties were exacerbated by dry vegetation and rugged topography, making it difficult to access. In total, the fire burnt some 115,997 acres, destroyed 169 structures, and damaged 47 others; it injured six firefighters and cost over $100 million to contain. The blaze burnt over 180 sq miles, making it the second largest wildfire recorded in modern times in Los Angeles County. The air quality throughout the Los Angeles basin was poor for weeks as a result.

Other recent large wildfires to have affected the City include:

- **The San Gabriel Complex Fire (2016)** – A combination of two fires, the Reservoir Fire and the Fish Fire. Burned some 5,399 acres and resulted in the death of 3 civilians.
- **The Station Fire (2009)** – One of the largest wildfires in Los Angeles County history. The fire burned some 160,577 acres, destroyed 89 residences and 120 other structures, and resulted in the deaths of 2 firefighters.
- **Stable Fire (1980)** – Wildfire that spread through Bradbury fueled by high winds, burning some 6,600 acres and destroying 57 structures; the fire was believed to have been an act of arson.

Risk of Future Events

The history of wildfires in Los Angeles County, San Gabriel Mountains, Angeles National Forest, the area surrounding Bradbury, and continued development within the City's WUI, which includes the very high fire hazard severity zones (VHFHSZ), indicates that wildfire events are likely to occur in the future. Since 2001, several major wildfire events have affected the city, equating to a return interval of approximately one fire every seven years. This risk is expected to remain highest in the undeveloped land in the foothills and canyons within the city, the county's unincorporated areas, and the wilderness areas surrounding the city.

[9] NWS Los Angeles (January 31, 2021). "Bobcat Fire, Southern California". https://storymaps.arcgis.com/stories/22236f74214f419fae80dbdfc79190ed

Climate Change Considerations

Climate change is expected to cause an increase in temperatures and more frequent and intense drought conditions. This increase will likely increase the amount of dry plant matter available for fuel, increasing wildfire risk statewide. Climate change is expected to increase the number of acres burned annually in the San Gabriel Mountains and Angeles National Forest, which are already highly prone to wildfires. However, increases in fuel supplies could cause wildfires to move faster or spread into more developed areas, increasing the future threat to Bradbury and other surrounding communities.

EARTHQUAKE HAZARDS (SEISMIC SHAKING, FAULT RUPTURE, LIQUEFACTION)

Earthquake hazards of concern in Bradbury include fault rupture, seismic shaking, and liquefaction.

Description

An earthquake is a sudden slip on an active fault, and the resulting shaking and radiated seismic energy is caused by the slip (USGS, 2009). The majority of major active faults in the Bradbury area are strike-slip faults. For this type of fault, during an earthquake event, one side of a fault line slides past the other. The rupture from this type of fault extends almost vertically into the ground.

Earthquakes are a significant concern to the City of Bradbury. Earthquakes can cause serious structural damage to buildings, overlying aqueducts, transportation facilities, and utilities, leading to loss of life. In addition, earthquakes can cause collateral emergencies, including dam and levee failures, fires, and landslides.

Seismic Shaking

Seismic shaking is the shaking felt on the surface caused by an earthquake. In most cases, earthquakes are not powerful enough to feel the shaking. However, powerful earthquakes can generate significant shaking, causing widespread destruction and property damage.

Fault Rupture

Fault Rupture occurs when the earth's surface shifts and cracks along a fault line during a seismic event. While this phenomenon is not especially dangerous in natural environments, issues arise when structures are built near or on top of an active fault. Per the California Geological Survey (CGS), an active fault is one that has experienced surface movement in the past 11,700 years.

The shifting and movement of the earth's tectonic plates are responsible for seismic events. These tectonic plates can pull away from, move toward, or pass by each other. As they do, the plates sometimes lock together. This inability to move creates tension, and the built-up tension is eventually released like a springboard. The tension dissipates into the earth's crust. The location at which two tectonic plates join is called a fault line. Fault lines are sometimes visible on the earth's crust as sudden rifts or anomalies in the landscape's continuity. California's major north-south fault line is the San Andreas Fault; it is where the North American and Pacific Plates meet. However, constant friction between the two plates over the millennia has caused the areas where the two plates intersect to become fragmented, creating new, smaller faults.

The area near a fault line is at risk of damage due to the potential for a fault rupture—the deformation or displacement of land on either side of the fault—and may move a few inches to several feet in opposite directions. Buildings or infrastructure situated near a fault line could be severely damaged or destroyed. The fault rupture's direction depends on the fault type: dip-slip faults produce vertical shearing, strike-slip faults produce horizontal shearing, and oblique-slip faults produce both vertical and horizontal shearing. A fourth kind of fault, called a "blind" fault, produces virtually no visible land displacement.

Some faults have emerged recently in geologic history. Quaternary faults have developed between the Holocene Era and the present (within the last 1.8 million years). These faults are especially concerning since they are the most likely to be active and cause future earthquakes.

Liquefaction

Occurs when seismic energy is released within an area with low-density, fine-grain soil, like sand or silt, which is saturated with water. Liquefaction occurs when loosely packed, water-logged sediments at or near the ground surface lose their strength in response to strong ground shaking. During liquefaction events, the liquified soil can lose most of its stability, which can cause damage to buildings and infrastructure built upon it. In severe cases, some buildings may completely collapse. Pipelines or other utility lines running through a liquefaction zone can be breached during a liquefaction event, potentially leading to flooding or releasing hazardous materials.

Location and Extent

Seismic Shaking

The intensity of seismic shaking occurs in relation to the amount of energy discharged by the seismic event, which is dictated by the length and depth of the fault. The longer and nearer the surface the fault rupture is, the greater the seismic shaking. In most cases, areas nearest to the fault rupture experience the greatest seismic shaking, while areas more distant experience less shaking. Seismic shaking can damage or destroy structures, leading to partial or total collapse. The shaking of the ground can also damage or destroy underground utilities or pipelines, potentially leading to the release of hazardous materials and flooding if water lines are breached.

Southern California is a highly seismic area because of the major faults that run through the region and the frequency of seismic events in the region. The intensity of seismic shaking is usually measured with the Modified Mercalli Intensity (MMI) scale based on the amount of observed damage. Seismic shaking may also be measured using the more widely known 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 as more energy is released. This scale is based on 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 M_w 6.5 earthquake releases approximately 1.4 times as much energy as a M_w 6.4 earthquake and 1,000 times as much energy as a M_w 4.5 earthquake. The MMS replaces the Richter scale, which is similar but less reliable when measuring large earthquakes. Since the degree of shaking and consequential damage generally decreases as the seismic energy travels farther away from the event’s point of origin, different sections of a city or region can report different MMI measurements in different locations. Given Bradbury’s size, it is likely that different sections of the city would report different MMI measurements. The MMI scale depicted in **Table 3-7** uses Roman numerals on a

12-point scale to measure and describe the effects of the shaking event, while **Table 3-8** lists the earthquake faults that can impact the City. **Figure 3-3** shows seismic shaking potential within the city.

TABLE 3-7: MODIFIED MERCALLI INTENSITY SCALE[10]

Intensity	Description	Description
I	Instrumental	Felt only by 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 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 heavy 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: United States Geological Survey. 2019. The Modified Mercalli Intensity Scale. https://www.usgs.gov/media/images/modified-mercalli-intensity-mmi-scale-assigns-intensities

[10] United States Geological Survey. 2019. The Modified Mercalli Intensity Scale. https://www.usgs.gov/programs/earthquake-hazards/modified-mercalli-intensity-scale

TABLE 3-8: EARTHQUAKE FAULTS IMPACTING THE CITY OF BRADBURY			
Fault Name	**Magnitude**	**Modified Mercalli Ranking**	**Perceived Shaking**
San Andreas	7.8	IX	Ruinous - Severe
Sierra Madre	7.16	VIII	Severe
Puente Hills	7.08	VIII	Severe
San Joaquin Hills	6.6	VIII	Severe
Raymond	6.71	VIII	Severe
Newport - Inglewood	7.02	VII	Strong
Elysian Park	6.65	VII	Strong
Elsinore	6.8	VI	Strong
Palos Verde	7.1	VI	Strong
Whittier	6.8	VI	Strong
San Jacinto	6.7	V	Moderate
Source: USGS Earthquake Scenario Map (BSSC 2014)			

Fault Rupture

Earthquakes are considered a major threat to the City of Bradbury due to the proximity of several regional fault zones. Major fault zones in the region include the San Andreas Fault, located approximately 22 miles northeast of the city; the Sierra Madre Fault, which bisects the northern section of the city along the San Gabriel Mountains; the Duarte Fault (a segment of the Sierra Madre) which traverses the southern limits of the City, and the Puente Hills Fault which approximately 15 miles southwest of the city. All of these faults can produce earthquakes of magnitude 6.7 or greater. A significant earthquake along one of the major faults could cause substantial casualties, extensive damage, and other threats to life and property. The shaking of the ground can also damage or destroy underground utilities or pipelines, potentially leading to a loss of power, conceivable fires should any natural gas pipelines be damaged, and possible release of hazardous materials and flooding if water lines are breached. These fault zones are displayed in **Figure 3-4.**

Depending on the magnitude and duration of an earthquake along one of the faults in the region, Bradbury can expect varying degrees of damage citywide. The city's topography means there are areas of the community constructed on slopes, meaning these areas may be subject to earthquake-induced landslides (reference the landslide hazard profile for further discussion).

FIGURE 3-3: SEISMIC SHAKING POTENTIAL IN BRADBURY

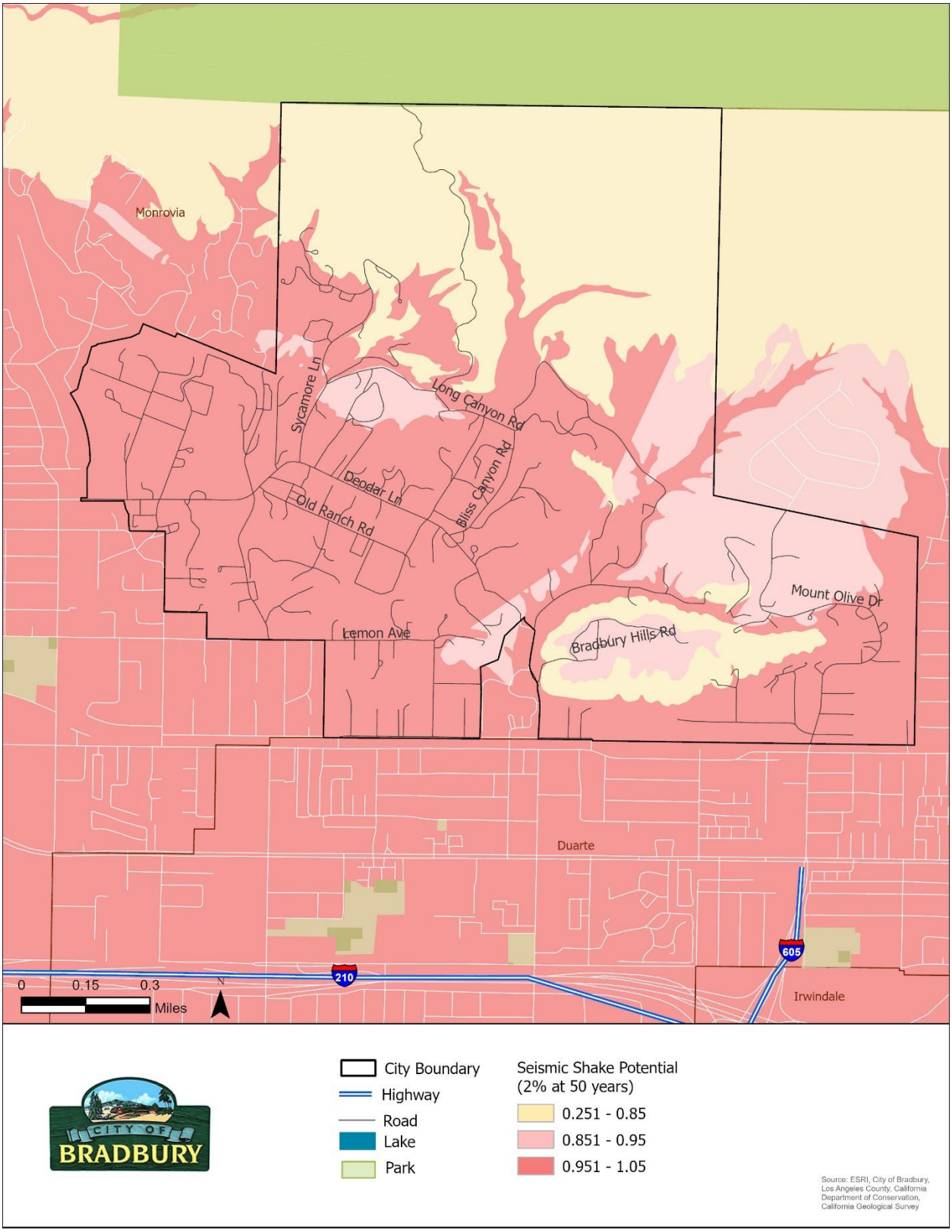
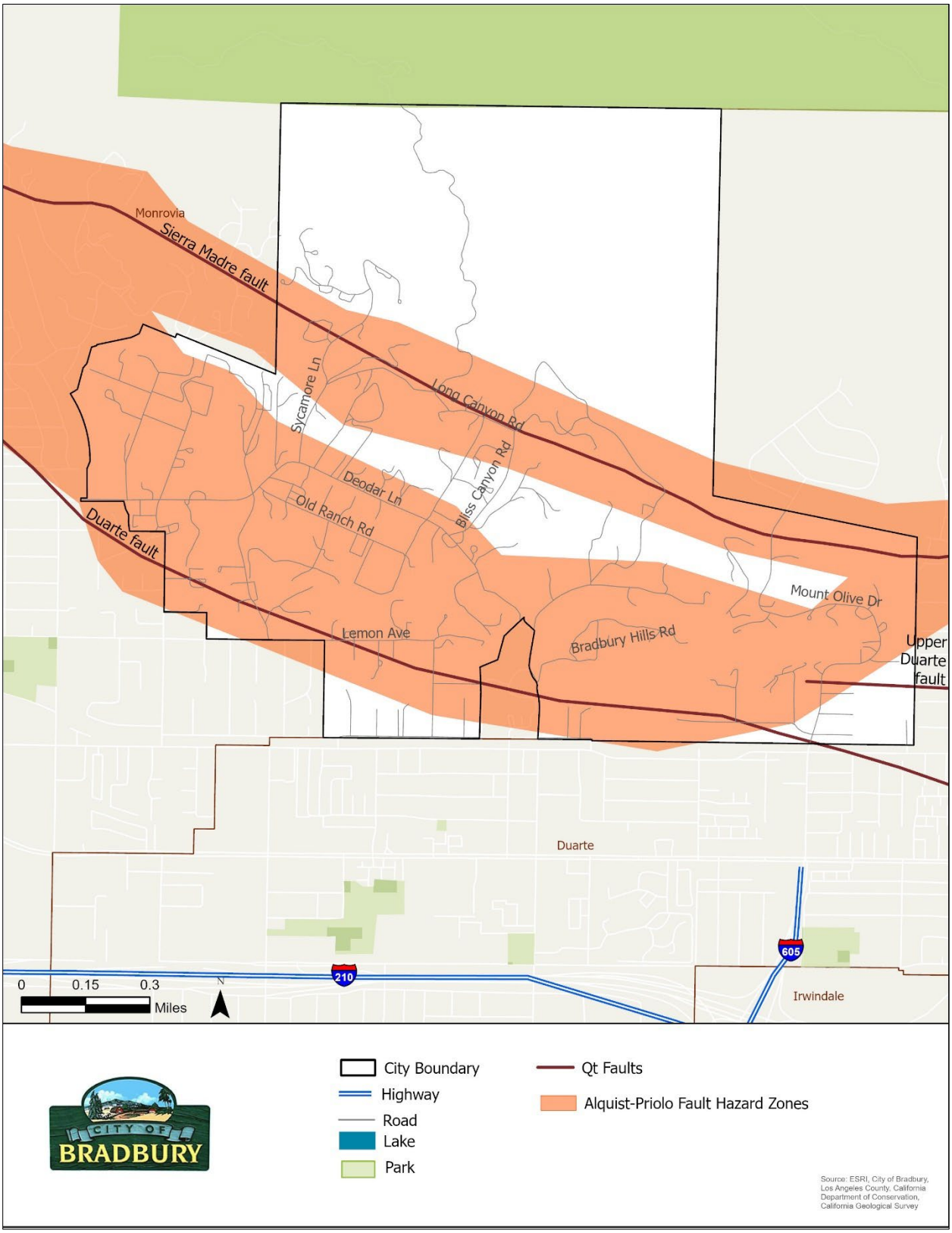


FIGURE 3-4: FAULT ZONES IN BRADBURY



According to the General Plan's Safety Element, 1993 (Source), the City lies within a metropolitan area that has historically been seismically active. Faults are prevalent throughout California and are commonly classified as either "active" or "potentially active." An active fault is a break that has moved in recent geologic time (the last 11,000 years) and is likely to move within the next approximately 100 years. Active faults are the primary focus of concern in attempting to prevent earthquake hazards. A potentially active fault has shifted but not in the recent geologic period (or between 11,000 and 3,000,000 years ago) and is therefore considered dormant or unlikely to move in the future.

The Alquist-Priolo Earthquake Fault Zoning Act enables the California State Geologist to designate zones surrounding active faults as Alquist-Priolo (AP) Special Study Zones, which is a special regulatory zone that requires additional study to determine the location of an active fault and define the limits where construction should be prohibited to reduce the placement of structures on top of an active fault. In some cases, the development of structures must be prohibited. Earthquakes that could affect the City would most likely originate from the San Andreas, Sierra Madre, and Puente Hills Faults. These faults are close enough in proximity or expected to generate strong enough shaking that could affect the City. **Figure 3-5** depicts the AP Special Study zones in Bradbury.

Liquefaction

Soil must be saturated with water for liquefaction to occur. Areas with high water tables generally have saturated soil since the distance between the shallowest aquifer and the surface is minimal. Areas with alluvial soils—soft sands, silts, and clays—are also susceptible to liquefaction as these soils are fine grains and generally do not bond together well. Liquefaction events do not have a scale of measurement; however, other factors can be used to assess the extent of damage associated with a liquefaction event, such as:

- Soil type
- Strength of shaking near liquefaction
- Size of the affected area
- Destruction due to liquefaction

According to the General Plan's Safety Element, 1993 (Source), the largest area in the City that may be subject to the occurrence of liquefaction is located near the Long Canyon and Spinks Canyon Debris Basins. The area includes Bliss Canyon Road and Woodlyn Lane from Mount Olive Drive to Royal Oaks Drive North. These areas with liquefaction susceptibility are depicted in **Figure 3-6**.

FIGURE 3-5: ALQUIST-PRIOLO SPECIAL STUDY ZONES IN BRADBURY

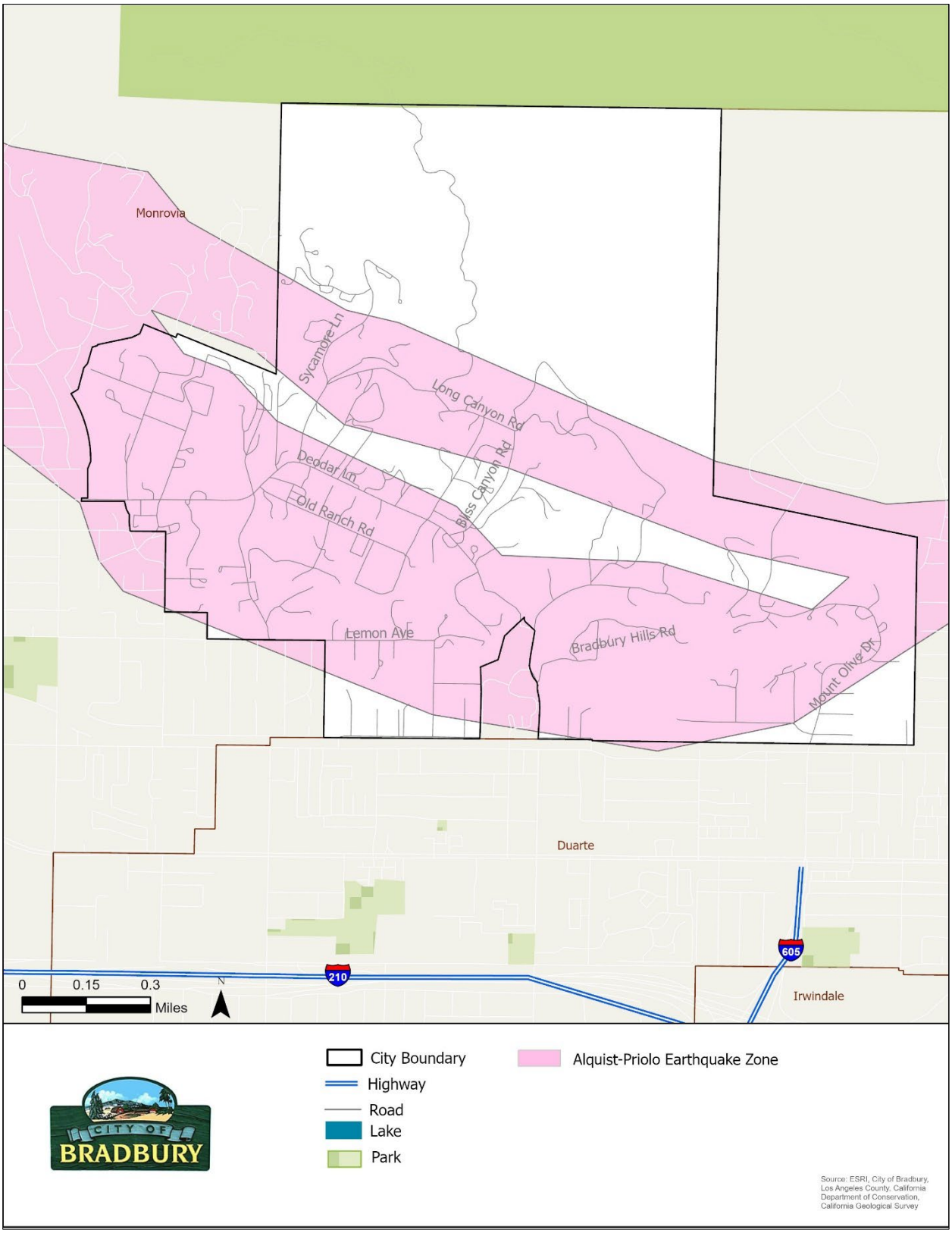
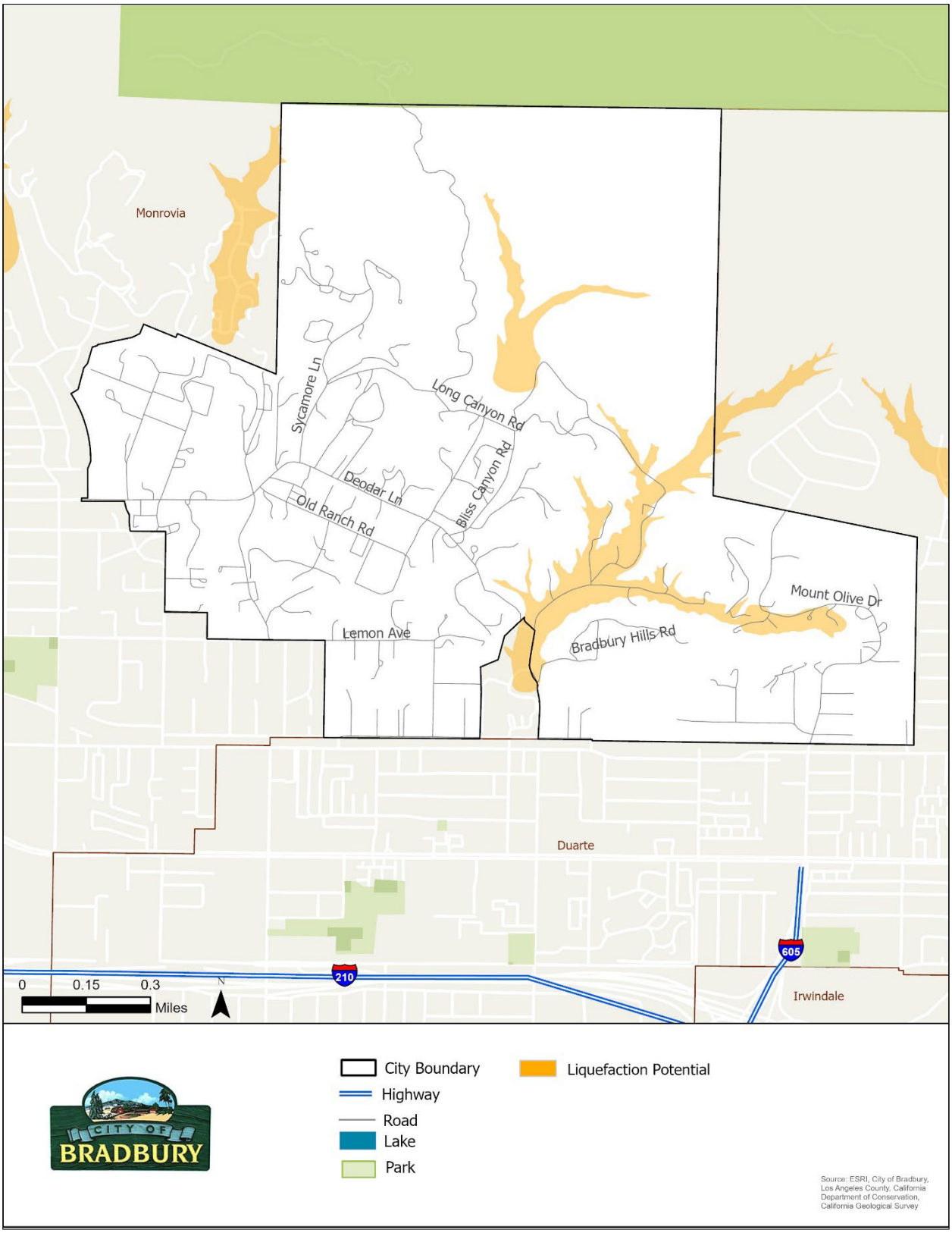


FIGURE 3-6: AREAS OF LIQUEFACTION POTENTIAL WITHIN BRADBURY



Past Events

Seismic Shaking

While no significant earthquake has originated within Bradbury within the last 100 years, the city has felt the shaking of regional earthquakes. The most recent major seismic shaking event near Bradbury was the Ridgecrest Sequence of Earthquakes on July 4, 2019. The event was a sequence of multiple earthquakes registered as an M_w 6.4 followed by an M_w 7.1.[11] The event caused over 25 injuries, resulted in one death, and caused over $5 billion in damage.[12] The next most recent event occurred on January 17, 1994, in Northridge, registering as an M_w 6.7,[13] causing 57 deaths, more than 8,700 injuries, and approximately $20 billion in damage costs, plus an additional economic loss of $40+ billion. On June 6, 1992, there were multiple large events in Big Bear and Landers, California, with a rating of M_w 6.5 and M_w 7.3, respectively. These events resulted in 3 deaths, nearly 500 injuries, and approximately $1.52 billion in damages.[14]

Many major faults are located throughout Southern California, including some well-known ones like the San Andreas and San Jacinto Fault Zones. Proximity to various active faults ensures that seismic hazards will continue to be a major concern for the city. **Table 3-9** identifies the major earthquakes that have occurred within 100 miles of the City. While populations may have felt the 2019 Ridgecrest earthquakes (EM-3415) within the city, these events were located over 100 miles away and thus were not added to **Table 3-9**. The LHMP Planning Team noted the following regional and local events for seismic activity in the City of Bradbury and the surrounding area. It should be noted that hundreds of smaller (<M_w 4.0) earthquakes within Los Angeles County were not listed.

TABLE 3-9: SIGNIFICANT EARTHQUAKES (5.0+ MW) WITHIN 100 MILES OF BRADBURY

Event Name	Magnitude
9/12/1970	M_w 5.2 - Lytle Creek
2/09/1971	M_w 6.6 - San Fernando
12/03/1988	M_w 5.0 - Pasadena
1/19/1989	M_w 5.2 - Malibu
2/28/1990	M_w 5.4 - Upland
6/28/1991	M_w 5.8 - Sierra Madre
6/28/1992	M_w 7.3 - Big Bear/Landers
1/17/1994	M_w 6.7 - Northridge
10/16/1999	M_w 7.1 - Hector Mine*
7/29/2008	M_w 5.4 - Chino Hills

Source: Los Angeles Almanac

*Over 100 miles away, a massive seismic event that was included for context.

[11] California Earthquake Authority. 2020. List of Notable and Major California Earthquakes. https://www.earthquakeauthority.com/California-Earthquake-Risk/California-Earthquake-History-Timeline

[12] National Centers for Environmental Information. 2020. Global Significant Earthquake Database, 2120 B.C. to present. https://www.ngdc.noaa.gov/hazard/earthqk.shtml

[13] California Department of Conservation. N.d. Northridge Earthquake, January 17, 1994. https://www.conservation.ca.gov/cgs/earthquakes/northridge

[14] National Centers for Environmental Information. 2020. Global Significant Earthquake Database, 2120 B.C. to present. https://www.ngdc.noaa.gov/hazard/earthqk.shtml

Fault Rupture

Seismic events involving fault rupture within the City have not occurred in the recent past. It should be noted that the Sierra Madre Fault has a historic rupture interval of several thousand years.

Liquefaction

There have been no instances of liquefaction within the City. However, an event could occur if soil conditions, shallow groundwater levels, and a strong seismic event coincide.

Risk of Future Events

Seismic Shaking

Bradbury is in a seismically active area with many faults in the surrounding area and region. There will be an ever-present danger posed by any seismic shaking, which could potentially cause damage to buildings and/or infrastructure. It is almost inevitable that an earthquake will occur along one of the adjacent or regional fault lines and cause a major seismic event. The Third Uniform California Earthquake Rupture Forecast (UCERF3) was released in 2015 and is the most recent assessment of the probability of a major earthquake on various faults between 2015 and 2044. **Table 3-10** shows the results for nearby and regional fault lines for Bradbury.

In addition to UCERF3 forecasts, which project the odds of a major earthquake on local and regional faults, the U.S. Geological Survey forecasts the severity of seismic shaking in different locations for various plausible earthquake scenarios.

The U.S. Geological Survey scenarios show that the Sierra Madre and Puente Hills faults could cause the strongest seismic shaking in Bradbury. However, the largest magnitude events are anticipated to come from the more distant San Jacinto and San Andreas faults, which could cause earthquakes with an overall higher magnitude than the Sierra Madre or Puente Hills faults. Due to the former faults' distance from Bradbury, the shaking intensity felt in Bradbury would be reduced compared to the shaking that would be felt nearer the earthquakes' epicenters. The overall magnitude of potential earthquake scenarios occurring along the Sierra Madre and Puente Hills faults is lower than some of the more regional faults, but their proximity to Bradbury means that the city would be subjected to high-intensity shaking from these earthquakes. In other words, these lower-magnitude earthquake scenarios may be more destructive in Bradbury than higher-magnitude earthquake scenarios that are more distant. As noted in **Table 3-10**, however, the likelihood of a powerful earthquake occurring along these faults within the next 25 years is exceptionally low.

Fault Rupture

Given the presence of the Sierra Madre Fault within the City, it is likely that fault rupture could occur in the future. The Sierra Madre Fault has a decreasing probability range from 1.13% to 0.03%, increasing in magnitude from 6.7 to 8.0.

Table 3-10: Earthquake Probabilities for Key Faults Near Bradbury (2015-2044)					
Fault	Distance (Miles*) from City Hall	Probability			
		6.7+ M*	7.0+ M*	7.5+ M*	8.0 M*
Sierra Madre	0.87	1.13	1.08	0.73	0.03
Raymond	1.83	1.36	0.91	0.32	<0.01
Clamshell-Sawpit	2.08	0.37	0.26	0.08	<0.01
Whittier Alt 2	10.78	0.80	0.69	0.42	<0.01
San Gabriel	11.61	0.46	0.42	0.18	<0.01
Elysian Park (Upper)	12.05	1.26	0.78	0.07	Negligible
Cucamonga	13.56	1.09	0.97	0.61	0.03
San Andreas	22.74	19.02	15.55	11.78	4.06
Whittier Alt 1	23.76	1.45	1.26	0.66	<0.01
Newport Inglewood Alt 1	24.15	0.97	0.74	0.39	Negligible
San Jacinto (Lytle Creek)	28.28	4.24	4.23	4.18	2.32
Elsinore (Glen Ivy)	31.28	3.19	1.68	0.89	
Palos Verdes	32.31	2.23	1.88	0.66	Negligible
Source: UCERF3 Mean Fault Model 3.1, 3.2					

Liquefaction

Since liquefaction events are triggered by seismic shaking, the probability of a liquefaction event occurring depends on an earthquake's likelihood. An earthquake could occur along the numerous local faults running through Los Angeles County, which may lead to a liquefaction event. Refer to **Table 3-10** for the probability of a major earthquake occurring in faults close to Bradbury. Like the Sierra Madres or Raymond, regional faults are more likely to experience a significant earthquake within the next quarter-century. Therefore, it is only possible to say that liquefaction could occur in the City, but it is impossible to say with certainty when and where it may occur.

Climate Change Considerations

Seismic Shaking

There is no direct link between climate change and seismic activity that could impact Bradbury, so climate change is not expected to cause any changes to the frequency or intensity of seismic shaking. Some research indicates that climate change could result in “isostatic rebounds,” or a sudden upward movement of the crust because of reduced downward weight caused by glaciers.[15] As glaciers are known to melt when overall global temperatures increase, climate

[15] National Centers for Environmental Information. 2020. Global Significant Earthquake Database, 2120 B.C. to present. https://www.ngdc.noaa.gov/hazard/hazards.shtml

change could indirectly lead to an increase in seismicity in Bradbury and the Southern California region.

Fault Rupture

Generally, there is no known direct connection between fault rupturing and climate change. Some evidence suggests that greater oceanic pressure on tectonic plates due to melting land ice could influence seismic events' behavior.[16] Still, little indicates that this would play a major factor in any seismic event, including fault rupture.

Liquefaction

Climate change is anticipated to change the usual precipitation patterns in Southern California. Periods of both rain and drought are anticipated to become more intense and frequent. Therefore, more precipitation will likely occur during rainy periods, and drought is expected to last even longer. As a result, the groundwater aquifer beneath Bradbury and Los Angeles County could rise during intense precipitation periods. Alternatively, a longer-lasting drought may lead to more groundwater withdrawal and could lower groundwater elevations. Consequently, depending on the circumstances, climate change could increase or decrease the future risk of liquefaction in Rancho Cucamonga.

Due to the variety of factors that lead to landslides, climate change could indirectly affect landslides' conditions. More frequent and more intense rains may cause more moisture-induced landslides. Warmer temperatures and more frequent drought conditions may lead to more fires, destabilizing soils and making future landslide events more likely.[17]

LANDSLIDE

Description

Landslides are a serious geologic hazard in almost every state in America. Nationally, landslides cause 25 to 50 deaths each year. The best estimate of direct and indirect costs of landslide damage in the United States ranges between $1 and $2 billion annually. As a seismically active region, California has had a significant number of locations impacted by landslides. Some landslides damage private property, and other landslides impact transportation corridors, fuel and energy conduits, and communication facilities. They can also pose a serious threat to human life.

Landslides occur when slopes become destabilized, typically after heavy rains. If precipitation saturates soils, they can become unstable, or landslides can occur when significant erosion from rainfall destabilizes the ground. Slopes that have recently burned face a greater risk from rain-induced landslides, as the loss of vegetation can destabilize the earth. Earthquakes may also be a source of landslides as the shaking can destabilize steep hillsides covered in loose soils and weak rock layers.

Landslides can be broken down into two categories: (1) rapidly moving (generally known as debris flows) and (2) slow-moving. Rapidly moving landslides or debris flows present the greatest risk to human life, and people living in or traveling through areas prone to rapidly

[16] National Centers for Environmental Information. 2020. Global Significant Earthquake Database, 2120 B.C. to present. https://www.ngdc.noaa.gov/hazard/hazards.shtml

[17] Center for Climate and Energy Solutions. n.d. Wildfires and Climate Change. https://www.c2es.org/content/wildfires-and-climate-change/

moving landslides are at increased risk of serious injury. Slow-moving landslides can cause significant property damage but are less likely to result in serious human injuries.

The primary effects of mudslides/landslides include abrupt depression and lateral displacement of hillside surfaces over distances of up to several hundreds of feet, disruption of surface drainage, blockage of flood control channels and roadways, displacement or destruction of improvements such as roadways, buildings, and water wells.

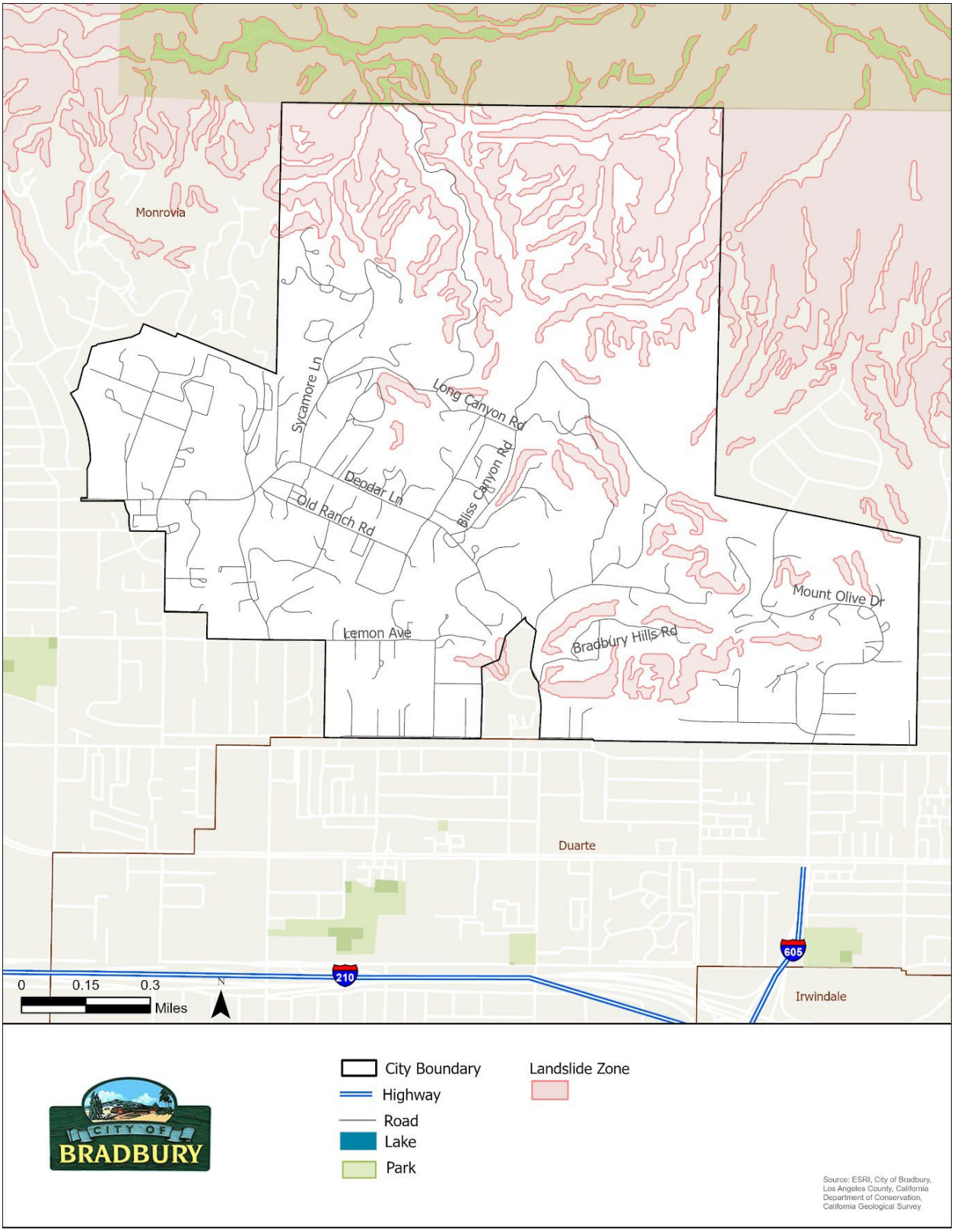
Location and Extent

Some portions of the hillside around Bradbury would be susceptible to landslides due to various events, whether they be long periods of rain or exposed hillsides resulting from fires or earthquakes. **Figure 3-7** identifies areas in the City of Bradbury considered at the highest risk for landslides, especially during seismic events. Identifying hazardous locations is an essential step toward implementing more informed mitigation activities. The city's foothill areas, as well as the structures and people in these areas, are vulnerable to slope instability. According to the California Department of Conservation, California Geologic Survey, slope instability is a concern in the Azusa quadrangle, which encompasses the entire City. Slope stability hazards in the city correspond primarily to the City's sloped and undeveloped areas, as grading activities and soil remediation techniques have been used to help mitigate these hazards before development.

Land sliding and debris flows are the dominant geologic hazard risks in the City of Bradbury. This is based on abundant shales and siltstones that underlie the City's highly porous hills and do not hold together well when wet. This can lead to slope instability and landslides. In addition, factors that contribute to slope instability and landslides include rainfall and earthquakes. Debris flows can occur rapidly and without warning during periods of exceptionally high rainfall. Although rockfall hazards are low in the city, mudflows are more likely to occur.

The potential for slope failure is dependent on many factors and their interrelationships. Some of the most important factors include slope height, slope steepness, sheer strength, orientation of weak layers in the underlying geologic unity, and poor water pressures. Joints and shears, which weaken the rock fabric, allow penetration of water leading to deeper weathering of the rock along with increasing the pressures, increasing the plasticity of weak clays, and increasing the weight of the landmass. These factors are combined in calculations to determine if a slope meets a minimum safety standard for engineering earth materials. The generally accepted standard is a factor of safety of 1.5 or greater, where (1.0 equilibrium and less than 1.0 is failure). Although existing landslides are not widespread in the area, it is probable that many of the steeper hillsides do not meet the minimum factor of safety, and slope stabilization may be needed if development or major redevelopment occurs in these areas. Natural slopes, graded slopes, or graded/natural slope combinations must meet these minimum engineering standards where they impact planned homes, subdivisions, or other types of developments. Slopes adjacent to areas where the risk of economic losses from land sliding is small, such as parks and mountain roadways, are often allowed a lesser safety factor.

FIGURE 3-7: AREAS OF LANDSLIDE POTENTIAL IN BRADBURY



While no definitive scale for measuring landslides exists, landslide events are usually measured using the amount of displaced material (i.e., the cubic feet of earth that moved). In addition to these landslide hazards, the California Geological Survey has mapped deep-seated landslide hazards, which uses 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. **Figure 3-8** identifies these categories and their location within the city. To make the map more accessible and easier to read, the risk values (0-10) were aggregated and placed into one of three categories: High Susceptibility (10-8), Medium Susceptibility (7-5), and Low Susceptibility (4-0).

Past Events

Below are past events that have impacted Bradbury and surrounding areas.

January 2017 - Following the June 2016 Fish and Reservoir fires, Bradbury was impacted by fire-related mudflows that filled the Bradbury/Bliss Canyon Debris Basin and Spinks Canyon Debris Basin. Los Angeles County is now in the process of removing over 85,000 cubic yards of debris material from the two basins and trucking it to a nearby disposal site.

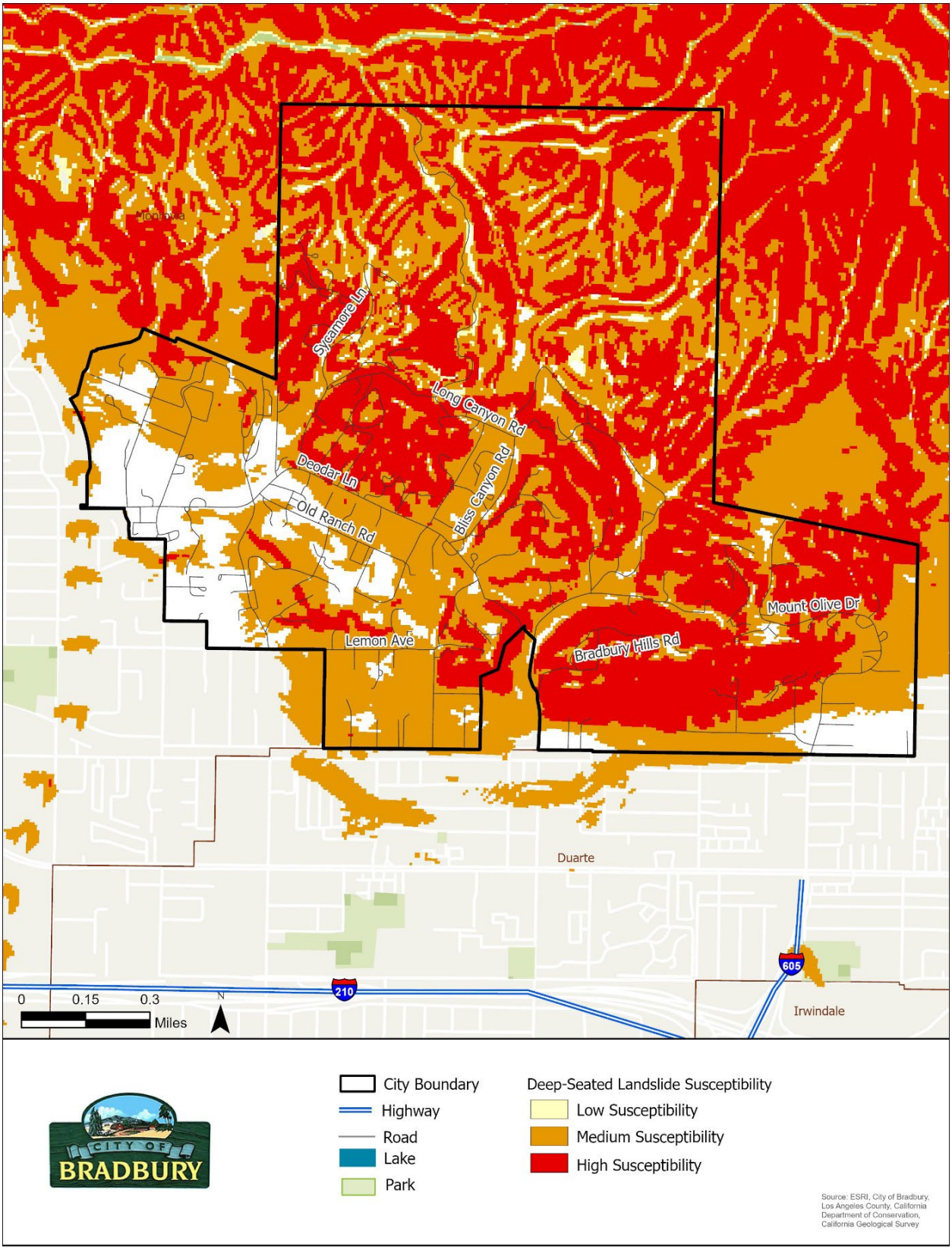
1980 Landslide - On November 16, 1980, the Stables Fire, fanned by Santa Ana Wind conditions, swept down from the foothills and destroyed 14 homes in the City of Bradbury. Reports indicated that the fire had moved from the City of Azusa, east of the San Gabriel River, to the Duarte and Bradbury homes in 8 to 10 minutes due to a strong shift in winds. The fire defoliated several steep slopes and exposed a residential subdivision to mudslides.

Immediately after the “Stable Fire,” City and County personnel began taking measures to deal with possible floods and mudslides. Mud diversion structures were constructed, 50,000 sandbags were distributed, and parking was restricted on streets with potential slides. Since the Stable Fire occurred during California’s rainy season, “Storm Watch” flyers were also issued to residents in Bradbury’s hillside areas. A Disaster Center was also established at City Hall to monitor weather reports and storm situations and to inform residents. If needed, the City prepared to mobilize personnel and equipment to clear mud flows from the public streets and parkways.

1952 Landslide - According to the U.S. Army Corp of Engineers, in September 1952, a fire burned 500 acres of watershed in the foothills north and northeast of the City of Bradbury. Of the 500 acres, approximately 150 acres of vegetation cover were destroyed in the Maddock Canyon Area just north of Duarte Mesa and Vineyard Avenue in the City of Duarte. Maddock Canyon is one of two small canyons located between Fish Canyon and Spinks Canyon, and it extends from the mountains toward Vineyard Avenue. In December 1952, four months after the fire, a light rainstorm caused post-fire canyon flows in Maddock Canyon. The debris flow caused considerable damage to a new residential subdivision and other residential properties along Vineyard Avenue, Conata Street, and Royal Oaks Drive. Due to the potential for more debris flow and mudslides, the area's residents sent a petition to the Los Angeles County Board of Supervisors requesting aid.

In July 1953, the County of Los Angeles committed to building a debris basin in Maddock Canyon. This was followed by the adoption of a U.S. Congress Bill that provided a million dollars in funding for the construction of five debris basins along the San Gabriel foothills and improvements for Sawpit Wash.

FIGURE 3-8: LANDSLIDE SUSCEPTIBILITY IN BRADBURY



Several temporary debris basins were constructed as quickly as possible, and existing debris basins were cleared and reinforced with sandbags. The city also provided erosion control consultations to residents. Major mudslide damage was averted that winter due to the quick actions of the residents and the strategic steps taken by the City of Bradbury, City of Duarte, and County Personnel. In the following months, the City encouraged re-seeding hillside areas.

Risk of Future Events

The potential for landslides will continue to exist in areas of the city, especially those areas in Bradbury located along the canyons and hillier sections. All expectations are that the probability of a landslide occurring again is likely. As discussed in **Table 3-4**, a probability of "possibly" indicates that this is a rare occurrence and that there is an annual probability of between 1 in 100 years and 1 in 1,000 years of a hazard event.

Climate Change Considerations

Due to the wide variety of factors that can lead to landslides, it is possible that climate change could indirectly affect the conditions for landslides. Increased frequency and more intense storms may cause more moisture-induced landslides. Warmer temperatures and more frequent drought conditions may lead to more fires, destabilizing soil on slopes and making future landslide events more likely.

DROUGHT

Description

A drought is a long period of time with substantially less precipitation than normal. The primary direct impact of a drought is that it reduces available water supplies. This is particularly concerning in agricultural areas and natural environments, but it can also affect urban areas. Droughts can harm landscapes because plants do not get the water they need to survive. In severe cases, droughts may lead to a human health risk if available water supplies are insufficient to meet basic needs.

Indirectly, drought causes soil to dry out, making it harder and less able to absorb water. When precipitation returns, the soil absorbs less water, increasing the amount of runoff, which can lead to flooding. Dry soil is more susceptible to erosion and landslides because it does not bind together as well. Drought causes many plants in natural areas to dry out, making them more susceptible to pests/diseases and increasing the risk of wildfires.

Location and Extent

Droughts are somewhat frequent in California and typically occur when precipitation is limited for an extended period. Rain arrives in California via atmospheric rivers (channels of moist air located high in the atmosphere) and the El Niño Southern Oscillation (ENSO) cycle (a regional meteorological phenomenon in the southern Pacific Ocean). This cycle typically gives rise to two distinct phases: El Niño, the warm and wet phase, and La Niña, the dry and cold phase. When California experiences a drought, it is typically the result of fewer atmospheric rivers or an active La Niña phase, resulting in lower-than-average precipitation levels. Drought may also occur when conditions in areas where water sources are located experience drought conditions, even though the local region does not. **Table 3-11** identifies the drought classifications used by the US Drought Monitor program. This classification system synthesizes multiple different scales into a descriptive index. Communities that rely on water supplies from other parts of the

State versus communities that source their water supplies locally may experience drought differently.

TABLE 3-11: US DROUGHT MONITOR CLASSIFICATION THEME

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 water use restrictions can be requested.
D2	Severe drought	• Likely crop and pasture losses. • Water shortages are common, and water restrictions can be imposed.
D3	Extreme drought	• Major crop and pasture losses. • Widespread water shortages and restrictions.
D4	Exceptional drought	• Exceptional and widespread crop and pasture losses. • Emergency water shortages develop.

Source: US Drought Monitor 2017a

* D0 areas are those under "drought watch" but not technically in a drought. They are potentially heading into drought conditions or recovering from drought but are not yet back to normal.

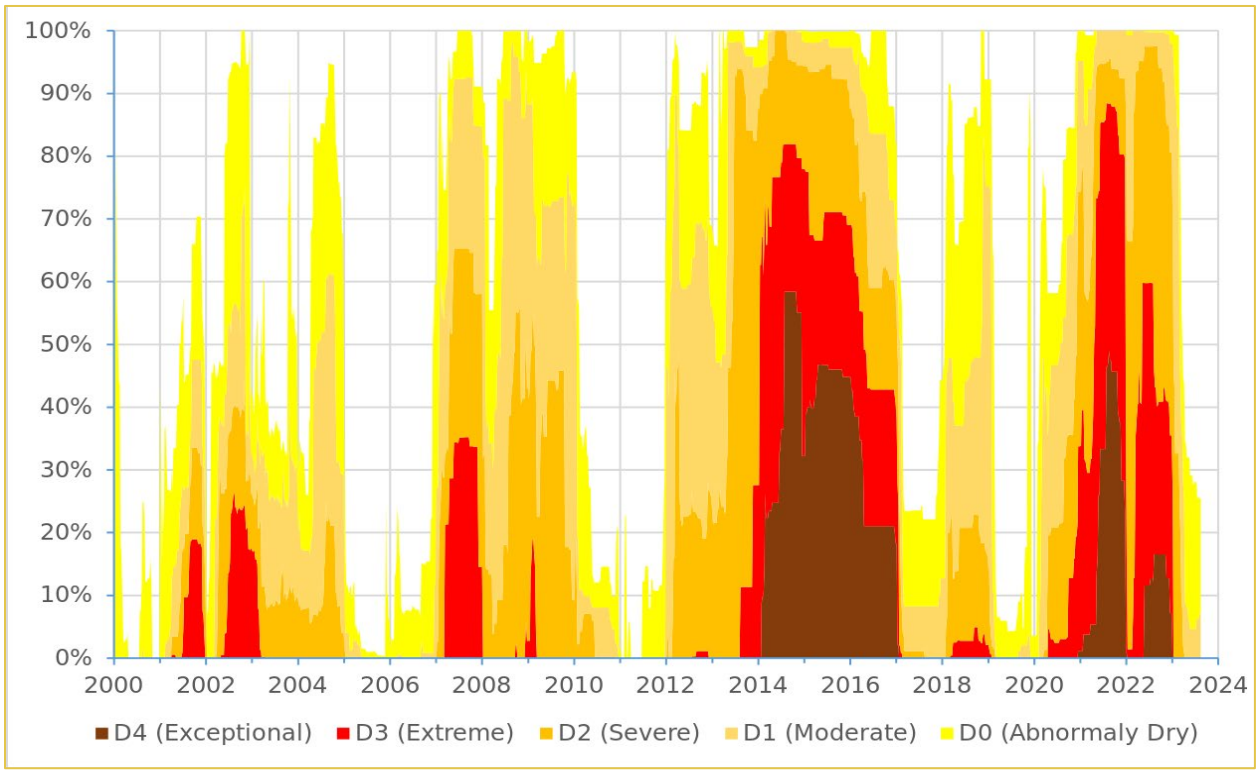
Droughts are regional events, so all parts of Bradbury face the same drought risk. However, urban areas will likely experience different effects than open-space areas. It is also possible for communities to experience a "long-distance drought" since many urban areas in California receive water supplies from great distances. If these distant areas experience drought, it may cause water shortages in the urban areas that rely on them, even if these areas are experiencing normal precipitation levels.

Past Events

Like the rest of California, Bradbury has experienced drought events throughout its history. Each event has been distinct, with varying lengths, severity, and frequency. One of the earliest recorded major droughts in state history is known as the "Great Drought," which occurred in 1863 and 1864. This drought killed 46 percent of the cattle in the state and ultimately led to the decline of cattle ranching. The Dust Bowl Droughts," lasting from 1928 to 1935, caused great impacts on the state's agriculture. The effects of this drought were so severe that it sparked the movement to create some of California's modern water irrigation infrastructure, such as the California Aqueduct. Another drought occurred in 1976 and 1977, leading to nearly $1 billion in agricultural losses. Implementation of water-saving practices resulted from this drought, which is still in effect today across the state. Further water conservation practices were enacted during a drought lasting from 1987 to 1993, which caused an estimated $250 million in agricultural damages each year.

California experienced its most recent drought, beginning in 2012 and lasting until 2017. All areas of the state were impacted, and by 2014, it was reported as the most severe drought in 1,200 years. **Figure 3-9** illustrates the severity of the drought conditions experienced over the past 23 years.

FIGURE 3-9: DROUGHT HISTORY 2000-2024

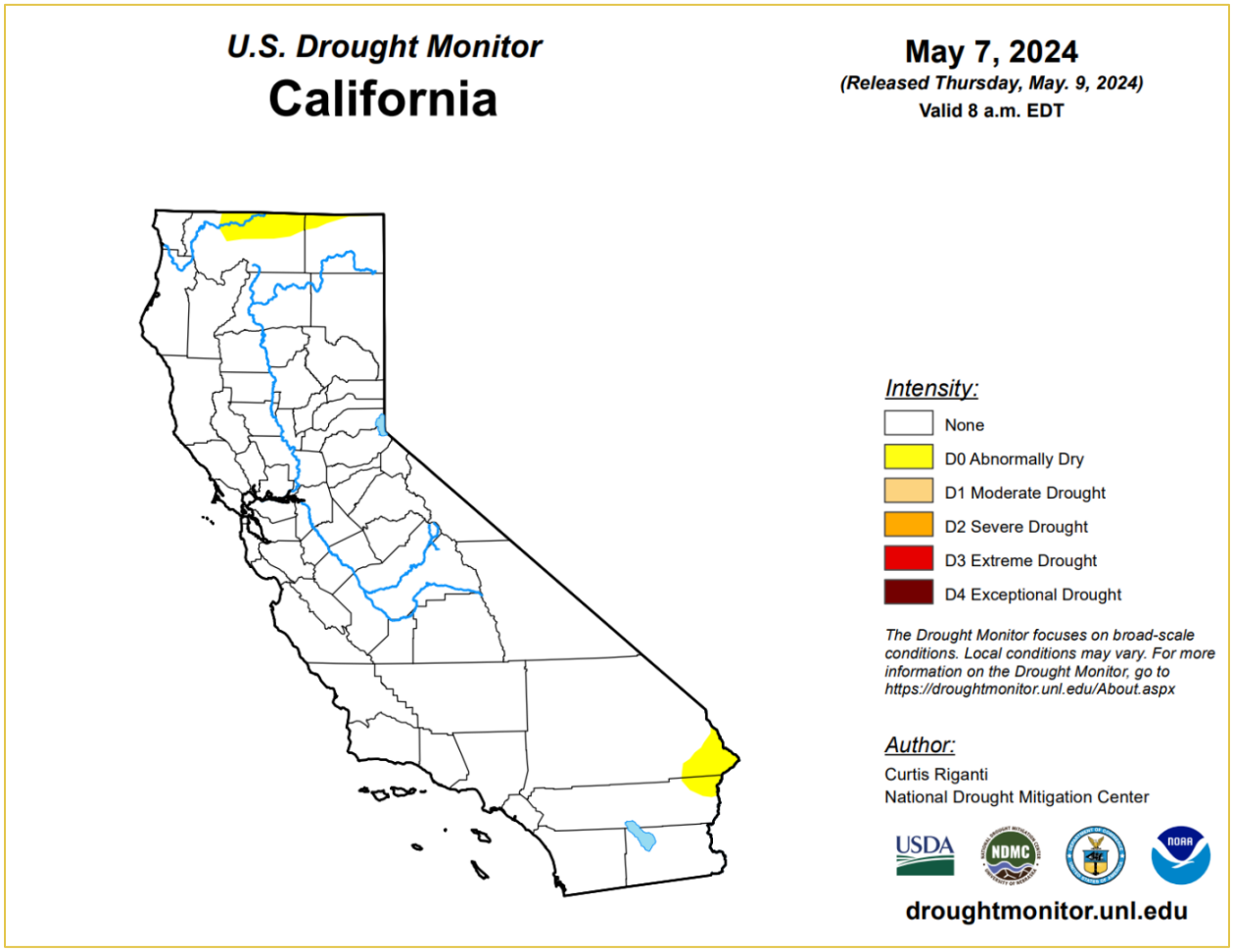


By the summer of 2014, almost all of California was experiencing D2 (Severe Drought) conditions. More than 75 percent of California was reported as experiencing the most intense level of drought conditions, D4 (Exceptional Drought). By 2015, emergency water-saving mandates were enacted, requiring all jurisdictions to reduce water use by at least 25 percent. In late 2016 and early 2017, successive heavy rains helped end the drought conditions in the state. The following winter, in late 2017 and early 2018, rains did not return in the same quantity, and slight drought conditions returned across California. This moderate drought again abated in late 2018 and early 2019 during the winter season when heavy rains ended any existing drought conditions.

In November 2022, the majority of the state was in D2 (Severe Drought) and D3 (Extreme Drought) conditions, with Central California falling into the D4 (Exceptional Drought) category. A series of atmospheric rivers that swept through California from December 2022 to March 2023, bringing more than 78 trillion gallons of water, eliminated the drought for most of the state. In August 2023, Tropical Storm Hilary brought enough rain to nearly eliminate all drought in the state.

As of May 2024, most of California is no longer in a drought, and some areas are experiencing “abnormally dry” conditions. Currently, Los Angeles County is experiencing no drought conditions. **Figure 3-10** identifies current drought conditions in California as of May 7, 2024.

FIGURE 3-10: US DROUGHT MONITOR



Risk of Future Events

Drought conditions are expected to continue to recur in Bradbury, as they do throughout California. California American Waters' Los Angeles County District's water supply sources include groundwater from the Central Basin, Main San Gabriel Basin (MSGB), and Raymond Basin; MSGB integrated right from the San Gabriel River; and imported water from West Basin Municipal Water District (WBMWD), Upper District, and Metropolitan Water District (MWD).

Groundwater is resilient to drought because groundwater basins can hold large volumes of water that have built up over an extended time. Groundwater basins are refilled by local precipitation that filters through the ground (a process called recharge). However, a prolonged drought slows natural recharge, which can reduce groundwater supplies. Drought conditions can also increase the likelihood that water suppliers will increase groundwater pumping to compensate for the loss of other supplies. However, new legislation to regulate groundwater can help prevent this.

Surface supplies, including those imported from other regions, are more vulnerable to drought conditions. Although groundwater supplies can potentially last forever if properly managed, surface supplies can run dry after a few years of drought conditions. In most droughts in California, surface water sources can typically supply only a reduced amount of water, and in some cases, supply may be depleted entirely.

The risk that future drought conditions would substantially affect Bradbury is, to some degree, lessened by the large volume of groundwater in local water supplies. However, a substantial portion of the community's water is imported and purchased from other parties, and these supplies can be more vulnerable to drought. Overall, Bradbury may be relatively unaffected by short-term droughts, but longer-term droughts that affect groundwater supplies will have more significant effects.

Climate Change Considerations

Overall, climate change is likely to decrease precipitation levels throughout the state. However, there will likely be significant variation in year-to-year rainfall, and some studies point to a minor increase in precipitation levels. In Bradbury, which historically receives about 24.1 inches of rainfall a year, annual precipitation levels are expected to range between 15.5 and 33.7 inches toward the end of the century.

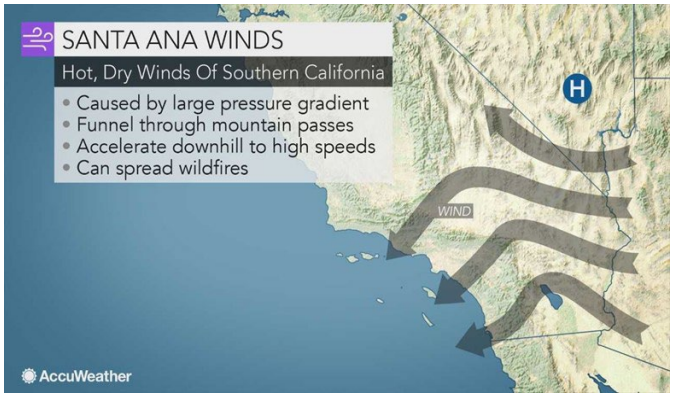
Although changes to precipitation levels may be unclear, climate change is projected to result in more frequent and severe droughts, partly due to the greater variability in precipitation levels. Warmer temperatures mean less precipitation will fall as snow, and any snow that does fall will melt faster. The accumulated snow of the winter (known as snowpack) is a major water source in California's dry season, but climate change is expected to reduce the water available from this source, particularly at the end of the dry season.

WINDSTORM

Description

Windstorms and severe weather pose a risk to life and property in the region by creating conditions that disrupt essential systems such as public utilities, telecommunications, and transportation routes. High winds can and do occasionally cause tornado-like damage to local homes and businesses. Severe windstorms can present a very destabilizing effect on the dry brush that covers local hillsides and urban-wildland interface areas. High winds can have destructive impacts, especially on trees, power lines, and other utility services. In Bradbury, severe weather patterns, such as Santa Ana Wind conditions, are recognized hazards.

Wind is simply the movement of air caused by differences in atmospheric temperature. High-pressure air will naturally move to areas of low pressure. Usually, the distance between these high- and low-pressure zones is far; however, these low- and high-pressure zones may occasionally be near one another. When this happens, air will flow dramatically, creating high-speed winds. The most common wind events in southern California are the "Santa Ana" wind conditions that typically occur in the fall and winter.



Typical Santa Ana Wind Event

Source: AccuWeather

When winds are fast enough, they can cause property damage to homes, public facilities, utilities, and other infrastructure. They can also uproot or topple mature trees or pick up debris and send it careening through the air. This debris can injure or even kill bystanders who may find themselves stranded outside. High-speed winds can also deposit this debris in the middle of rights-of-way, such as roads, freeways, and railways, blocking exit routes for would-be evacuees or impeding access to first responders trying to reach wounded people.

Location and Extent

In Southern California, the most common type of severe wind event is known as the Santa Ana wind. During the fall and winter months, high pressure over Nevada and Utah forces air currents down from the high desert toward the ocean. As the winds descend, they heat up and increase in speed, sometimes carrying particulate matter and aggravating the respiratory health of those with allergies.

The entirety of the City can be affected by windstorms. Usually, they cause minimal damage; however, severe storms can cause massive damage to the City and personal property. Santa Ana winds blowing through the San Gabriel Mountains and the Angeles National Forest often affect Bradbury. Santa Ana winds are a leading cause of wildfires in California.

Generally, winds are measured using the Beaufort scale, developed in 1805, categorizing wind events on a force scale from 0 to 12 using their speed and impacts. Any wind classified as force nine or above is generally considered a severe wind event. **Table 3-12** details how the Beaufort scale classifies wind events.

TABLE 3-12: BEAUFORT SCALE

Force	Speed (mph)	Description
1	0 to 1	**Calm:** Smoke rises vertically, and the sea is flat
2	1 to 3	**Light air:** The direction of wind is shown by smoke drift, but not wind vanes
3	4 to 7	**Light breeze:** Wind is felt on the face, leaves rustle, and wind vanes are moved. Small wavelets appear on the ocean, but do not break
4	8 to 12	**Gentle breeze:** Leaves and small twigs are in motion, and light flags are extended. Large wavelets appear on the ocean, and crests begin to break
5	13 to 18	**Moderate breeze:** Dust and loose paper become airborne, and small branches are moved. Small waves appear on the ocean
6	19 to 24	**Fresh breeze:** Small trees begin to sway and moderate waves form
7	25 to 31	**Strong breeze:** Large branches are in motion, and using an umbrella becomes difficult. Large waves begin to form
8	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
9	39 to 46	**Gale:** Walking is difficult, and twigs break off trees
10	47 to 54	**Severe gale:** Slight structural damage. Crests of waves begin to topple
11	55 to 63	**Storm:** Trees are uprooted and considerable damage to structures. Very high waves form in long, overhanging crests
12	63 to 72	**Violent storm:** Widespread damage. Exceptionally high waves form, and the ocean is completely covered in foam

*Source: https://www.weather.gov/mfl/beaufort

Past Events

Severe windstorms pose a significant risk to life and property in the City of Bradbury by creating conditions that disrupt essential systems such as public utilities, telecommunications, and transportation routes. High winds can and do occasionally cause tornado-like damage to local homes and businesses in and near the community. High winds have a destructive impact, especially on trees, power lines, and utility services.

According to the Planning Team (Source), the most damaging windstorm in Bradbury occurred in the winter of 1997. It was not related to Santa Ana wind conditions but rather was a short-duration wind event with wind gusts that caused power poles to lean, electrical lines to fall, roof tiles to fly off, and tree branches to break off. The City of Bradbury suffered approximately $310,000 loss in the windstorms of January 6 and 7, 1997. The Bradbury City Council proclaimed a local emergency after the 1997 windstorm and emergency support was sought from the California Office of Emergency Services (OES). However, the OES denied the request because it was not demonstrated that “the damage caused by the windstorms was beyond the City’s capability.”

Based on the 1997 windstorm, it is not difficult to assume that a future windstorm event could generate similar damage. It is also possible that a strong Santa Ana wind condition could cause substantial damage in the City of Bradbury.

Since the adoption of the 2007 Mitigation Plan, there has been one windstorm event in the City on November 30, 2011. The windstorm, which caused winds in excess of 90 mph in the Pasadena, Sierra Madre, Arcadia, Monrovia, and Bradbury areas, downed trees and resulted in extended power and utility outages. The City did not file a claim for any relief from damages as damage to city facilities was minimal.

The HMPC noted that while some trees within the City’s tree inventory are vulnerable to toppling from windstorms, the City will not actively replace these trees to reduce the city's potential vulnerability and financial obligation. According to the HMPC, the real concern from windstorms is the potential to dramatically increase the potency and destructiveness of wildfires in the Bradbury area.

Risk of Future Events

Given the region’s history of severe wind events in nearby cities, it is very likely that wind events will continue to impact the city. The most probable source of wind events in the future will likely originate from the Santa Ana winds or extreme storms. All expectations are that the probability of windstorm events occurring again in the future is highly likely. As discussed in **Table 3-4**, a probability of “likely” indicates an annual probability of a windstorm event occurring between 1 in 10 years and 1 in 100 years.

Climate Change Considerations

It is anticipated that the atmospheric rivers that deliver storms to Southern California may intensify because of climate change. While the average number of storms in Southern California will remain the same, storms are expected to increase in intensity between 10 and 20 percent.[18]

[18] Oskin, B. (2014). Atmospheric Rivers to Soak California as Climate Warms. Live Science. https://www.livescience.com/49225-atmospheric-rivers-double-climate-change.html

This increase in storm intensity may also bring more intense winds to the Southern California region, including Bradbury.

Studies indicate that climate change may affect Santa Ana wind events in varying ways, but it is unknown whether the frequency and intensity of events may be some of those ways. According to one study that examined two global climate models, there is a projected increase in future Santa Ana events. However, other studies have found that the number of Santa Ana events may decrease by about 20% in the future.[19] Given the anticipated increases in temperatures throughout the region, future events are anticipated to become more severe in some cases, even if the number of events decreases.

FLOOD

Description

Flooding occurs when an area becomes inundated with more water than it can drain in a specified period. This can range from a small, confined area, such as a grassy field in a park that floods for a few hours after a rainstorm, to whole city sections, such as streets becoming impassable because of floodwaters. When floods are small, they may only represent a minor inconvenience as some recreational pathways and curb cuts become flooded. These smaller instances of flooding where water collects into a pool of standing water are referred to as "ponding." On the other hand, larger flood events can hamper a city's operations. For example, if multiple streets flooded simultaneously, the results could prevent emergency workers from reaching victims in need of assistance. Flooding also has the destructive potential to damage critical infrastructure. For instance, unprotected electronic equipment can short-circuit if it becomes inundated by floodwaters. This could lead to outages in street lighting, traffic signals, and even city and government computer systems.

Flooding has the potential to occur from multiple sources. In Southern California, the primary cause of flooding is usually heavy rain occurring during the winter storm season. Most precipitation in California arrives either via atmospheric rivers or the ENSO cycle. Atmospheric rivers are channels of moist air located high in the atmosphere. The ENSO cycle is a regional meteorological phenomenon in the southern Pacific Ocean consisting of ocean water and air temperature variations. These variations give rise to two distinct phases: El Niño, the warm and wet phase, and La Niña, the dry and cold phase. When the El Niño phase is active, California will likely receive higher than normal precipitation levels. These higher-than-normal levels of rainfall can quickly overwhelm the capacity of certain sections of land to drain the precipitation before the rainwater begins to pool effectively.

A failure in infrastructure may also cause flooding. For example, a water main or sewage pipeline that bursts could cause flooding if left uncontained for a significant period of time. A more serious infrastructure failure, such as the failure of dams, reservoirs, or levees, could cause extensive flooding.

Location and Extent

Flood events are measured by their likelihood of occurrence. For instance, a 100-year flood is a flood that has a 1 in 100 (1.0 percent) chance of occurring in any given year. A 500-year flood

[19] Hall, Alex, Neil Berg, Katharine Reich. (University of California, Los Angeles). 2018. Los Angeles Summary Report. California's Fourth Climate Change Assessment. https://www.energy.ca.gov/sites/default/files/2019-11/Reg%20Report-%20SUM-CCCA4-2018-007%20LosAngeles_ADA.pdf

is a flood that has a 1 in 500 (0.2 percent) chance of occurring in any given year. The 100-year flood has been designated as the benchmark for major flood events. Thus, 100-year floods are referred to as “base floods.”

Floodplains are areas that are prone to flooding and often experience frequent flooding. While it is possible for areas outside of these designated floodplains to experience flooding, the most likely locations to experience future flooding are low-lying areas near bodies of water. FEMA is the governmental body responsible for designating which areas of the United States can be classified as floodplains.

The three most common designations are:

- **Special Flood Hazard Area:** The area within a 100-year floodplain.
- **Moderate Flood Hazard Area:** The area outside the 100-year floodplain but within the 500-year floodplain.
- **Minimum Flood Hazard Area:** The area outside of the 500-year floodplain.

FEMA has multiple floodplain categories for each unique environment within these three designations. **Table 3-13** shows these detailed floodplain categories. Two types of flooding primarily affect the City of Bradbury: slow-rise or flash flooding. Slow-rise floods in Bradbury may be preceded by a warning period of hours or days. Evacuation and sandbagging for slow-rise floods have often effectively lessened flood-related damage. Conversely, flash floods are most difficult to prepare for due to extremely limited, if any, advance warning and preparation time. Unlike most of California, the areas of Los Angeles County that are subject to slow-rise flooding are not associated with overflowing rivers, aqueducts, canals, or lakes. Slow-rise flooding in Bradbury is usually the result of one or a combination of the following factors: extremely heavy rainfall, saturated soil, an area recently burned in wildfires with inadequate new ground cover growth, or heavy rainfall with runoff from melting mountain snow.

Flooding has not been a serious hazard to Bradbury in several decades, and the risk of disastrous flooding in the City is considered minimal. Bradbury does not lie within a 100- or 500-year floodplain, as delineated by the Federal Emergency Management Agency (FEMA)., According to the NFIP Community Status Book, the City of Bradbury does not have an active FIRM map due to a No Special Flood Hazard Area (NSFHA) designation, therefore no FEMA Flood maps are available. However, the potential for a localized flood event still exists within Bradbury, and it is an important hazard to be addressed in the City’s Hazard Mitigation Plan. Since the writing of the 2018 Mitigation Plan, there have been no significant flooding events in the City of Bradbury.

Past Events

According to the City of Bradbury General Plan (Source), the San Gabriel River Channel lies east of the City of Bradbury and is designed to contain a 100-year flood. The Channel is fully operational and is maintained by the U.S. Army Corps of Engineers and the Los Angeles County Department of Public Works. The construction of San Gabriel River improvements in 1947 reduced the local area’s risk of flooding. Los Angeles County Drainage Area studies performed by the Corps have shown no deficiencies along the San Gabriel River. The elevated nature of the City removes Bradbury from flood danger from the San Gabriel River.

TABLE 3-13: FEMA FLOODPLAIN ZONES	
Zone	**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)
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.

Serious flooding has not been a recent problem in Bradbury because the low-density residential development has permitted the retention of natural ground cover, which retards serious floods. In addition to the natural ground cover, the Bradbury Debris Basin and the Spinks Debris Basin and check dams also protect the City from large-scale floods. As such, the residential areas within Bradbury rely heavily on the existence and maintenance of the debris basins. The City should continue to work closely with the Army Corps of Engineers and Los Angeles County Public Works Department to ensure maximum functionality of all flood control facilities.

Minor problems concerning water runoff occurred in the past during wet years. These problems tend to be localized and primarily relate to very small mudslides and small erosion problems in areas where the natural grade has been disturbed. Much of the soil in Bradbury Canyon areas is of an alluvium base material. It is susceptible to runoff problems if the natural ground cover has been removed and not replaced with landscaping or other mitigating measures. The City maintains a policy of investigating any localized runoff or mudslide problems through the assistance of the Los Angeles County Engineers Office.

Risk of Future Events

There is no indication that the severe rainfall that leads to flooding will abate in the future, either in Bradbury or the greater region of Southern California. While Bradbury may experience prolonged periods of dry or wet years, flood events will likely continue to impact the city. For areas within the 100-year and 500-year flood hazard zones, the likelihood of flooding occurring annually is 1% and 0.2%, respectively.

Because the City is vulnerable to flooding during the winter storm, it actively participates in the FEMA National Flood Insurance Program (NFIP). Through this program, “Special Flood Hazard Areas” within the city are identified and mapped on Flood Insurance Rate Maps (FIRMs), identifying the areas that require flood insurance. FIRMs generally describe flooding in terms of a 100- or 500-year flood event, which translates into the probability (1.0% or 0.2%, respectively) that flooding could occur within the designated zone in any given year. FIRMs classify Bradbury under two floodplain categories: Zone X and Zone D. Zone X is defined as the area outside the 500-year flood and protected by a levee from a 100-year flood. Zone D is defined as areas in which flood hazards are undetermined (no analysis of flood hazards has been conducted) but possible. In addition to the federal requirements within the NFIP, the City has adopted flood protection standards requiring minimum building elevation, flood-proofing, and anchoring of buildings in areas prone to flooding.

Since its incorporation, Bradbury has worked with Los Angeles County on flood management and mitigation projects. The City also takes steps on an annual basis to maintain and prepare for flood events, ensuring the existing infrastructure can effectively convey floodwaters. Flood events within the City can occur either due to large storms and flash flooding that overwhelms infrastructure or the failure of flood control facilities that inundate downstream communities.

Climate Change Considerations

Climate change is expected to affect California's precipitation patterns, likely influencing future flood events. A 2017 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, making it likely that flood events will become more frequent [20]. More flood events could increase the frequency of maintenance and repair activities and require operational changes to City function. Much of the City's infrastructure may require modification and retrofit to better accommodate changes anticipated from climate change. As a result, significant cooperation with utility providers and potential investment in future infrastructure may be necessary.

[20] Polade, S.D., Gershunov, A., Cayan, D.R., Dettinger, M.D., & Pierce, D.W. 2017. Precipitation in a warming world: Assessing projected hydro-climate changes in California and other Mediterranean climate regions. Scientific Reports. https://www.nature.com/articles/s41598-017-11285-y

CHAPTER 4 – THREAT AND VULNERABILITY

The threat assessment process looks at the potential harm of each hazard event discussed in **Chapter 3**.

Threat Assessment Process

The threat assessment process analyzes the harm Bradbury may experience from a hazard event but does not consider its likelihood, thus giving equal consideration to hazards that are more likely (e.g., wildfires and earthquakes) and less probable hazards (e.g., flood).

The threat assessment examines three aspects of each hazard: the physical threat to facilities, the social threat to vulnerable populations, and the threat to any other assets that may be affected.

Critical Facilities and Facilities of Concern

Critical facilities (CF) consist of properties and structures that play important roles in government operations and the services they provide to the community. Examples of CFs include local government offices and yards, community centers, public safety buildings like police and fire stations, schools, and other properties a city has deemed essential for its operations. Critical Facilities may also serve dual roles if a city designates them as public assembly points during an emergency. Critical Facilities are often owned by the City, but some may also be owned and operated privately, such as some utilities and telecommunication infrastructure. Facilities of concern (FOC) are similar to critical facilities; however, the City may not own them, or their purpose and function are not as important to the function of the City after a disaster. These facilities are identified to ensure the City understands their potential vulnerability to the hazards of concern.

The HMPC identified a total of 5 facilities [4 CFs and 1 FOC] in Bradbury that fall into several categories based on their function or characteristics. **Table 4-1** shows the number of CFs and FOC in each category, the total estimated replacement value (where available) for these facilities, and examples of the type of facility in each category. The only critical facility and facility of concern actually owned by the city is City Hall; the rest of the facilities, including the police and fire stations, elementary school, and hospital, are owned by other entities. **Appendix D** has a complete list of the CFs and FOC used in this analysis.

TABLE 4-1: CRITICAL FACILITIES AND FACILITIES OF CONCERN IN BRADBURY			
Category	**Number of Facilities**		**Potential Loss***
	Critical	**Concern**	
City Facilities (City Hall)	1	0	$1,109,287
Schools**	1	0	--
Hospitals**	1	0	--
Total	**3**	**0**	**$1,109,287**

* Potential loss data are estimates only, as replacement values for some facilities were not available. Actual losses may be greater than the estimate presented in this table.

** Replacement values for facilities not owned by the City were unavailable; the average elementary school ranges between $30-50 million in California.

The potential loss values identified in subsequent tables are based on the City's total insured value using the City's Insured Asset Inventory. It is intended to provide an estimate of the replacement cost if the property/ structure is completely or severely damaged. The data comes from the City's Insured Asset Inventory; any facilities not owned by the City will not have a replacement value listed. Where this occurs, "N/A" is used in the table. Based on the available data provided by the City, a minimum of $1,109,287 worth of City-owned assets were analyzed. The total potential loss value of all City-owned and non-City-owned assets is much higher but is unknown due to data limitations. The greatest potential for loss among City-owned assets comes from the City Facilities (City Hall, Fire, Police), including but not limited to City Hall, fire stations, and police stations. The next critical facility category with the greatest potential for loss would be the School and Hospitals categories.

To better understand the magnitude of impacts, this plan identifies representative percentages of potential impact based on the total valuation of City assets. For planning purposes, we identified different tiers of impact that could occur. It is reasonable to assume that impacts would not exceed 50% of the total asset value city-wide during a single event. The following are parameters to help understand how much a proposed investment/improvement compares to the existing assets within the City:

- **1% Impact** - $11,093
- **5% Impact** – $55,464
- **10% Impact** – $110,929
- **20% Impact** - $221,857
- **50% Impact** - $554,644

The possibility that all facilities will be completely damaged simultaneously is extremely rare. Based on the hazard, most impacts are anticipated to be isolated to certain locations. This estimate does not include the value of underground infrastructure and surface drainage facilities owned and operated by the City.

Vulnerable Populations

Factors such as age, physical and/or mental condition, socioeconomic status, access to key services, and many other factors affect the ability of people to prepare for and protect themselves and their property from a hazard event. Even though some hazard events may impact all parts of Bradbury with equal severity, different people may experience the impacts differently. Higher-income households, for instance, are likely more able to afford the cost of retrofitting their homes to resist flooding or move to a location that is less prone to flooding than a lower-income household. As a result, the higher-income household is less likely to experience significant damage during a flood event, even if the same amount of rain falls on both.

A social threat analysis examines how hazard events are likely to impact different demographic populations in Bradbury and where these different demographic populations live in the city. This includes assessing whether the people in an area of an elevated hazard risk are more likely than the average person to be considered a threatened population. The social threat analysis uses the following criteria to assess the threat to vulnerable populations:

1) **Disability status:** Persons with disabilities may often have reduced mobility and experience difficulties living independently. As a result, they may have little or no ability to prepare for and mitigate hazard conditions without assistance from others.

2) **Income levels:** Lower-income households are less likely to have the financial resources to implement mitigation activities on their residences. They may also struggle with having the necessary time to find and access educational resources discussing hazard mitigation strategies. Furthermore, lower-income households are less likely to be able to move to safer areas that are less at risk of being impacted by a hazard. The national poverty limit standard for the U.S. for a four-person family in 2023 is an income of approximately $30,000 or less. For Los Angeles County, the FY 2023 Low-Income Limit for a four-person family, according to the Housing Authority of the City of Los Angeles (HACLA), is $37,850.

3) **Seniors (individuals at least 65 years of age):** Seniors are more likely to have reduced mobility, physical and/or mental disabilities, and lower income levels, all of which may decrease their ability to prepare for and mitigate a hazard event.

Table 4-2 shows the amounts of people in Bradbury who meet at least one of the criteria for threatened, vulnerable populations. For more detailed demographic information, please refer to **Chapter 2**.

TABLE 4-2: BRADBURY THREATENED-POPULATION METRICS

Metric	City of Bradbury
Population	897
Households	305
Median household income	$157,750
Renter Households	40.0%
Percentage of households with at least one person living with a disability	34.1%
Percentage of households living under the poverty limit	5.1%
Percentage of households with one-member aged 65+	64.0%

Source: US Census Bureau, 2017-2021 American Community Survey and 2023 Estimates

The social threat analysis also shows the threat other populations may encounter. For example, people experiencing homelessness or people without access to lifelines (vehicles or communication networks) may experience greater hardship in evacuating or recovering from a disaster. Since data for these groups are not readily available, there is no definitive way to determine the amount of people in areas of elevated risk, so this assessment will discuss how these other threatened groups may be affected on a general level.

DATA LIMITATIONS AND NOTES ON VULNERABILITY TABLES

Due to data limitations, the data comparing the hazard zone population with the citywide population comes from two separate sources. The citywide data comes from the US Census Bureau's American Community Survey, and the hazard zone population data comes from ESRI's Business Analyst reports. As a result, there may be minor discrepancies when comparing the two data sets. The data that should be considered correct for this plan is the ACS data reported in **Chapter 2**.

Other Assets

In addition to the City's designated inventory of CFs/FOC and vulnerable populations, hazard events could threaten other important assets to Bradbury. These assets may include services, artistic or cultural landmarks, or local economic activities. The threat assessment describes the potential harm to these other assets based on available information.

Threat Profiles

WILDFIRE

Physical Threat

Structures and physical assets in Bradbury that are not equipped with fire suppression technology or design features that mitigate fire vulnerability are at risk of fire. Generally, these buildings are older, may not be well maintained, and may not meet current code requirements and regulations. While all structures can be impacted by wildland or urban fires, older buildings may have increased vulnerability to these hazards.

The California Department of Forestry and Fire Protection has mapped Very High Fire Hazard Severity Zones (VHFHSZ) within both the City's Local Responsibility Area (LRA) and the State Responsibility Area (SRA). The LRA is a government-designated area where a local agency, city, or county, NOT the State, is responsible for fire protection. An SRA is the opposite, where the State is responsible for wildland fire protection. **Table 4-3** identifies 1 CF and 1 FOC within these zones, which could result in a potential loss of approximately $1.1 million. While these areas have a high degree of vulnerability to wildfire, other areas of the city may also be susceptible due to ember cast. Sometimes, the ignition of a wildfire may occur because of power lines located around overgrown trees, causing a spark and catching the tree on fire.

TABLE 4-3: CRITICAL FACILITIES AND FACILITIES OF CONCERN IN LRA - VERY HIGH FIRE HAZARD SEVERITY ZONE			
Category	**Number of Facilities**		**Potential Loss***
	Critical	**Concern**	
City Facilities (City Hall, Fire, Police)	1	0	$1,109,287
Schools**	1	0	--
Hospitals**	0	0	--
Total	**2**	**0**	**$1,109,287**

* Potential loss data are estimates only, as replacement values for some facilities were not available. Actual losses may be greater than the estimate presented in this table.

** Replacement values for facilities not owned by the City were unavailable; the average elementary school ranges between $30-50 million in California.

Social Threat

A fire hazard immediately threatens seniors and persons with disabilities. These groups may have limited mobility or diminished environmental awareness. For example, a senior who lives alone may not know if a fire ignites in their house until a room fills with smoke or a flashover occurs, at which point escape may be more difficult or impossible. Therefore, a fire that starts in or spreads to senior residences in Bradbury could be highly threatening to those populations. Persons with disabilities may require special mobility devices or caregiver assistance to evacuate, which may not be readily available when a fire occurs. Other groups with increased threat levels include lower-income people and renters. These individuals may live in substandard housing with outdated materials that are known to be flammable. Renters and lower-income people may also live in housing units with improperly designed or unmaintained electrical or heating systems that could cause a fire. These groups may not have the financial resources to rebuild or relocate to new homes after a wildland or urban fire.

Bradbury has a significant portion of its residents located in the LRA, except on the western city border and small portions along the southern and eastern city borders. **Table 4-4** shows us that approximately 76.5% of the City's population is located within Bradbury's LRA and the identified VHFHSZ. Of these households, the vulnerable populations represent approximately 33.9% of these households having at least one person living there with a disability, 5.3% of these households live under the poverty limit, and 63.9% of these households have one member aged over 65+; these households also have a slightly lower median income than the City as a whole.

Bradbury also has a sizeable portion of its residents located within the Wildland Urban Interface (WUI). **Table 4-5** shows that approximately 97.5% of the City's population is within Bradbury's WUI. Of these households, the vulnerable populations represent approximately 34.3% of these households having at least one person living there with a disability, 5.2% of these households live under the poverty limit, and 64.1% of these households have one member aged over 65+; these households have a slightly lower median income than the City as a whole.

TABLE 4-4: VERY HIGH FIRE HAZARD SEVERITY ZONE THREATENED POPULATION		
Threatened Population Metric	**Very High Fire Hazard**	**City of Bradbury**
Population	686	897
Households	222	305
Median household income	$156,866	$157,750
Renter Occupied Households	39.6%	40.0%
Percentage of households with at least one person living with a disability	33.9%	34.1%
Percentage of households living under the poverty limit	5.3%	5.1%
Percentage of households with one-member aged 65+	63.9%	64.0%
Area Affected by Hazard (Square miles and Percent of City)	1.7 sq miles/86.7%	1.96 sq miles
Note: Percentage values are rounded to the nearest tenth decimal. Source: 2020 US Decennial Census, US Census ACS Survey 5-Year Estimates 2022		

TABLE 4-5: WILDLAND URBAN INTERFACE (WUI) THREATENED POPULATION		
Threatened Population Metric	**WUI**	**City of Bradbury**
Population	875	897
Households	303	305
Median household income	$156,806	$157,750
Renter Occupied Households	39.9%	40.0%
Percentage of households with at least one person living with a disability	34.3%	34.1%
Percentage of households living under the poverty limit	5.2%	5.1%
Percentage of households with one-member aged 65+	64.1%	64.0%
Area Affected by Hazard (Square miles and Percent of City)	1.45 sq miles/74.0%	1.96 sq miles
Note: Percentage values are rounded to the nearest tenth decimal. Source: 2020 US Decennial Census, US Census ACS Survey 5-Year Estimates 2022		

Other Threat

Wildfires and urban fires can consume power lines and force utility operators to shut off electrical and gas transmission activity, leading to utility outages in Bradbury homes and businesses. Any streets surrounded by blazes or blocked by burning debris would hinder transportation, prevent victims from escaping, and block emergency response crews from reaching the source of the fire. Anyone living towards the end of a cul-de-sac faces an elevated threat of being trapped if the fire occurs or spreads to the mouth of the street. Fires that destroy trees or vegetation (especially within parks and open space areas) could limit or prevent the use of these areas, affecting recreational opportunities for residents. Public Safety Power Shutoffs (PSPS) are a significant issue for many communities throughout California. There are circuits like these that can affect the city and have the potential for large-scale events affecting

residents, which is an ongoing concern. In the event of a PSPS outage in neighboring cities near Bradbury, the City's resources could be strained as residents of affected areas seek refuge in communities that have power. Outreach to residents to help them understand and prepare for these events will be an important aspect of the City's overall hazard mitigation strategy.

Changes in Population Patterns and Land Use Development

If a large wildfire were to occur, it is feasible that changes to population patterns could fluctuate. Future land use designations, re-development, or new development in these areas could be restricted or even prohibited, especially in the WUI and the VHFHSZ. Considering that Bradbury is a predominantly built-out city with a decreasing population trend, large changes in population may not be a concern. All development and redevelopment in the City would have to meet the current fire building standards and state code.

EARTHQUAKE HAZARDS (FAULT RUPTURE, SEISMIC SHAKING, LIQUEFACTION)

Physical Threat

Seismic Shaking

Many physical assets in the city are estimated to experience the same seismic shaking intensity, ranging from 85 to 95% g (shaking intensity in relation to the earth's gravity). Therefore, all facilities could be damaged during a significant seismic event, which would be extremely costly for the City. If all facilities were damaged simultaneously during a seismic shaking event, it can be assumed that the City would incur a percentage of the maximum potential loss of its physical assets. Assuming 20% of the City's assets are impacted, this potential loss could amount to over $221,000 (available values only reported). Underground physical assets, like pipelines or utilities, could be damaged if seismic shaking were strong enough to cause a rupture. In such a scenario, natural gas and water delivery service to Bradbury homes would be incapacitated until repairs are completed. **Table 4-6** displays these potential scenarios and losses that could be incurred should shaking reach the described threshold.

TABLE 4-6: CRITICAL FACILITIES AND FACILITIES OF CONCERN (SEISMIC SHAKE 0.9501 TO 1.05G)

Category	Number of Facilities		Potential Loss*
	Critical	Concern	
City Facilities (City Hall, Fire, Police)	1	0	$1,109,287
Schools**	1	0	--
Hospitals**	0	0	--
Total	**2**	**0**	**$1,109,287**

* Potential loss data are estimates only, as replacement values for some facilities were not available. Actual losses may be greater than the estimate presented in this table.

** Replacement values for facilities not owned by the City were unavailable; the average elementary school ranges between $30-50 million in California.

Fault Rupture

Earthquakes are considered a major threat to the City of Bradbury due to the proximity of several regional fault zones. The City has numerous faults mapped and identified in the San Gabriel Mountains and surrounding region. All of these faults can produce earthquakes of magnitude 6.7 or greater. A significant earthquake along one of the major faults could cause substantial casualties, extensive damage, and other threats to life and property. The presence of an Alquist Priolo (AP) Special Study Zone within the city limits (the Sierra Madre and the Duarte Fault) indicates an active fault system in Bradbury. This increases the potential for fault rupture in the City and the potential to damage critical facilities and infrastructure. **Table 4-7** identifies the CFs and FOC located within 500 feet of these mapped fault segments. Based on this table, potential losses associated with fault rupture could amount to over $1.1 million and affect 4 CFs and 18 FOC.

TABLE 4-7: CRITICAL FACILITIES AND FACILITIES OF CONCERN (FAULTS WITHIN 500 FT BUFFER OF ALQUIST PRIOLO SPECIAL STUDY ZONES)

Category	Number of Facilities		Potential Loss*
	Critical	Concern	
City Facilities (City Hall, Fire, Police)	1	0	$1,109,287
Schools**	1	0	--
Hospitals**	0	0	--
Total	**2**	**0**	**$1,109,287**

* Potential loss data are estimates only, as replacement values for some facilities were not available. Actual losses may be greater than the estimate presented in this table.

** Replacement values for facilities not owned by the City were unavailable; the average elementary school ranges between $30-50 million in California.

Liquefaction

Due to the City's location near so many regionally active faults capable of generating large earthquakes, the potential for CFs and FOCs to be affected by liquefaction is a concern. Like other cities in Los Angeles County, Bradbury is located in a geographical area where the soil makeup is conducive to liquefaction hazards in some areas. **Table 4-8** identifies that no CFs or FOCs are located within these areas.

TABLE 4-8: CRITICAL FACILITIES AND FACILITIES OF CONCERN (LIQUEFACTION)

Category	Number of Facilities		Potential Loss
	Critical	Concern	
City Facilities (City Hall, Fire, Police)	0	0	--
Schools**	0	0	--
Hospitals**	0	0	--
Total	**0**	**0**	**$0**

** Replacement values for facilities not owned by the City were unavailable; the average elementary school ranges between $30-50 million in California.

Social Threat

The risk of a seismic event is a danger to all groups in Bradbury, although some groups are more threatened than others.

Seismic Shaking

Seniors, pregnant women, and persons with disabilities are more threatened by seismic shaking since they may have limited mobility and may be unable to reach shelter in time. Even if these groups reach shelter in time, they may be trapped if furniture or building components have fallen around them. Renters and low-income people are also more threatened by seismic shaking since these groups may live in homes that are not properly retrofitted to survive the stresses of a seismic event. These groups may be unable to absorb the costs associated with repairing their homes or looking for new housing should their existing one be too damaged for occupancy. **Table 4-9** displays the threatened populations in Bradbury associated with seismic shaking scenarios. **Figure 3-3** depicts the seismic shaking potential scenarios in the City. The entire city is vulnerable to the potential dangers of seismic shaking during an earthquake.

TABLE 4-9: SEISMIC SHAKING THREATENED POPULATIONS

Threatened Population Metric	Seismic Shake (0.9501 to 1.05g)	City of Bradbury
Population	897	897
Households	305	305
Median household income	$157,750	$157,750
Renter Occupied Households	40.0%	40.0%
Percentage of households with at least one person living with a disability	34.1%	34.1%
Percentage of households living under the poverty limit	5.1%	5.1%
Percentage of households with one-member aged 65+	64.0%	64.0%
Area Affected by Hazard (Sq miles and Pct of City)	1.96 sq miles	1.96 sq miles

Note: Percentage values are rounded to the nearest tenth decimal.
Source: 2020 US Decennial Census, US Census ACS Survey 5-Year Estimates 2022

Fault Rupture

The City used fault rupture data sets, and the Alquist-Priolo Special Study zones mapped in **Figure 3-5** to analyze the social threat associated with fault rupture. These fault data sets provided by the California Geological Survey were then mapped and analyzed using a 500-foot buffer around each fault segment. **Table 4-10** identifies the threatened populations within fault rupture areas, including approximately 37.8% of residents, with a median household income slightly higher than the City average. In these areas, there is an equal percentage of persons living with a disability and a slightly lower percentage of households with one-member aged 65+. **Table 4-11** depicts the populations that are located near AP zones and are especially vulnerable to fault rupture. Approximately 61% of residents are located within these AP zones and have a slightly higher median income than the rest of the City, with approximately the same number of households with at least one person living with a disability and households with one-member aged 65+.

TABLE 4-10: FAULTS (500 FT BUFFER) THREATENED POPULATIONS		
Threatened Population Metric	**Faults**	**City of Bradbury**
Population	339	897
Households	121	305
Median household income	$158,600	$157,750
Renter Occupied Households	39.7%	40.0%
Percentage of households with at least one person living with a disability	34.1%	34.1%
Percentage of households living under the poverty limit	4.9%	5.1%
Percentage of households with one-member aged 65+	63.4%	64.0%
Area Affected by Hazard (Square miles and Percent of City)	.61 sq miles/31.1%	1.96 sq miles
Note: Percentage values are rounded to the nearest tenth decimal. Source: 2020 US Decennial Census, US Census ACS Survey 5-Year Estimates 2022		

TABLE 4-11: AP EARTHQUAKE ZONE THREATENED POPULATIONS		
Threatened Population Metric	**AP Earthquake Zone**	**City of Bradbury**
Population	547	897
Households	173	305
Median household income	$159,059	$157,750
Renter Occupied Households	39.9%	40.0%
Percentage of households with at least one person living with a disability	33.9%	34.1%
Percentage of households living under the poverty limit	5.1%	5.1%
Percentage of households with one-member aged 65+	63.8%	64.0%
Area Affected by Hazard (Square miles and Percent of City)	1.1 sq miles/56.1%	1.96 sq miles
Note: Percentage values are rounded to the nearest tenth decimal. Source: 2020 US Decennial Census, US Census ACS Survey 5-Year Estimates 2022		

Liquefaction

Approximately 5.6% of the City is potentially vulnerable to the effects of liquefaction. These areas are located in areas where there is no residential population. As a result, 0% of the population is threatened by liquefaction events in their residences.

Other Threat

Seismic Shaking

The goal of early earthquake warning systems is to afford utility providers additional time that they may use to shut off gas, water, and power transmission to try and control potential leaks following the event. Authorities may also have enough warning to halt the use of bridges or safely shelter or evacuate workers away from hazardous locations. Therefore, the goal is to

allow service providers to remain inactive, reducing further impact, until authorities determine it is safe for employees to return and reactivate utilities. The length of this time will vary depending on the event's magnitude. A significant earthquake would necessitate utilities to remain off for a few hours or several days. The city and the region could lose the economic activity that normally occurs. In addition, structures such as downed telephone poles or power transmission towers could block roadways and prevent first responders from reaching victims or evacuees who need assistance.

Fault Rupture

Seismic events that cause surface fault rupture tend to damage roads and structures in impact areas. The length of rupture is typically a component of the seismic event's magnitude. The stronger the event, the greater the distance that rupture can occur. Earthquakes that could affect the City would most likely originate from the San Andreas and Puente Hills Faults. These faults are close enough in proximity or expected to generate strong enough shaking that could affect the City. The faults located within the AP Zones (the Sierra Madre fault including the Duarte segment) in Bradbury are more likely to rupture than these faults. If a rupture were to occur, it could likely impact multiple areas within the city.

Liquefaction

Services and mobility may be disrupted during and following a liquefaction event. Due to the liquefying soils, sidewalks, roadways, and pipelines may become fractured and disjointed. Severe liquefaction events may render roads and sidewalks impassable until they are repaired. Broken gas and water pipelines could result in utility outages, with services delayed until the infrastructure is repaired or replaced. Damage to power lines is unlikely since they are not rigid structures and can move if any transmission towers experience slight leaning. Homes and mid-rise office buildings may be unsafe for occupancy if the soil loses substantial strength.

Changes in Population Patterns and Land Use and Development

Seismic Shaking

Based on the recent 2021-2029 Housing Element update, population patterns are not anticipated to change significantly over the next 20 years. While this may also be true concerning land use and development, if a strong earthquake impacts the city, there is the potential that older structures in the city may be impacted more severely than newer structures in other parts of the city. Any new development or major redevelopments, especially those within AP Zones, must meet current city and state seismic building codes. The City’s development review process will identify steps to mitigate or prevent future seismic events.

Fault Rupture

Based on the recent 2021-2029 Housing Element update, population patterns are not anticipated to change significantly over the next 20 years. While this may also be true concerning land use and development, if a strong earthquake impacts the city, there is the potential that older structures in the city may be impacted more severely than newer structures in other parts of the city. New developments or major redevelopments, especially those within AP Zones, must meet current city and state seismic building codes. The City’s development review process will identify steps to mitigate or prevent future seismic events.

Liquefaction

Liquefaction is being monitored throughout hazard-prone areas in the city; the impacts can cause damage to structures located within these zones. However, these zones are generally located in certain areas of the city, meaning that the damage potential is limited to these areas. Despite this potential, liquefaction is unlikely to cause changes in population patterns. However, land use designations and new development may be limited in these areas out of precaution or subject to policies developed in City documents such as the LHMP, Land Use, Housing, and Safety Elements. The City's development review process will identify steps to mitigate or prevent future liquefaction events.

LANDSLIDE

Physical Threat

Approximately 41.3% of the City is located within landslide susceptible areas, especially in those areas characterized by steep slopes and canyons, which are vulnerable to landslides during long periods of rainfall or seismic events. Fortunately, none of the city's current CFs or FOCs are located within these areas, so the potential for damage to these facilities is negligible.

Social Threat

As shown in **Table 4-12**, the dataset shows that approximately 41.3% of households are located within the deep-seated landslide hazard zone, which is approximately 41.6% of the city's population. The median household income is slightly lower in these zones, and the percentage of households living under the poverty limit is slightly higher than the city overall. However, households with at least one person living with a disability are slightly lower, while the percentage of households with one-member aged 65+ is also slightly lower when compared to the city overall.

TABLE 4-12: DEEP-SEATED LANDSLIDE (CATEGORY 7+) HAZARD ZONE THREATENED POPULATIONS

Threatened Population Metric	High Susceptibility	City of Bradbury
Population	373	897
Households	126	305
Median household income	$156,592	$157,750
Renter Occupied Households	39.7%	40.0%
Percentage of households with at least one person living with a disability	33.8%	34.1%
Percentage of households living under the poverty limit	5.4%	5.1%
Percentage of households with one-member aged 65+	63.8%	64.0%
Area Affected by Hazard (Square miles and Percent of City)	.81 sq miles/41.3%	1.96 sq miles

Note: Percentage values are rounded to the nearest tenth decimal.
Source: 2020 US Decennial Census, US Census ACS Survey 5-Year Estimates 2022

Other Threat

Landslides may block roadways, causing long-term disruptions to the roadway network, infrastructure systems, and city capabilities. Underground utility lines in slide-prone areas or above-ground lines built on or above them can be damaged in a landslide, causing service outages. Landslides could affect sensitive ecological areas around the community, causing localized harm to the region's ecosystem, although widespread disruptions are unlikely. 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. Utility lines, such as power lines or water pipes, may be broken by a landslide, interrupting important services.

Changes in Population Patterns and Land Use Development

Landsliding is being monitored throughout the hazard-prone areas in the city; the impacts can cause damage to structures located within these zones. However, these zones are generally located in certain areas of the city, meaning that the damage potential is limited to these areas. Despite this potential, landslides are unlikely to cause changes in population patterns. However, land use designations and new development may be limited in these areas out of precaution or subject to any policies developed in City documents such as the LHMP, Land Use, Housing, and Safety Elements. The City's development review process will identify steps to mitigate or prevent future landslide events.

DROUGHT

Physical Threat

Since the primary threat from drought is reduced water supply and availability, there are no foreseeable threats to any of the physical assets in the City. It is possible that any water delivery infrastructure that is not used or used less than usual may fall into some degree of disrepair if maintenance is deferred. Lower water pressures may cause some aged water pipes to release rust particles into the water supply.

Social Threat

Droughts are unlikely to cause serious social threats to Bradbury households, though City residents may experience financial costs associated with water conservation efforts. Those who have less access to financial resources, such as low-income households or seniors, could be harder hit if higher water fees are imposed during a severe drought event.

Other Threat

A typical drought is not anticipated to lead to any outages in service in Bradbury. An exceptional drought, however, may lead to restricted water use for residents in the City. Trees not properly adapted to lower irrigation levels could perish, altering the City's aesthetic appearance. Any open spaces with extensive lawns may start to die, turning brown, which could discourage residents from using these parks and open spaces.

Changes in Population Patterns and Land Use Development

Based on the recent 2021-2029 Housing Element update, population patterns are not anticipated to change significantly over the next 20 years. However, land use designations and new development may be subject to water conservation policies developed in City documents, such as the LHMP, Land Use, Housing, and Safety Elements. The City's development review process will identify steps to mitigate or prevent future drought events.

WINDSTORM

Physical Threat

Intense winds likely present the greatest threat to physical structures, particularly from trees or branches that fall on buildings/vehicles, causing substantial damage. Older structures that have deferred maintenance or have not been retrofitted for high wind conditions may suffer greater damage than newer/updated structures. Utility lines and wooden utility poles face an increased threat from wind, as do buildings without reinforced roofs. Utility poles and trees often suffer impacts during high wind events after a significant rain event. During these events, saturated soil around the base of the tree/pole may be unable to withstand the strains placed on it by strong winds, causing it to fall over.

Trees, tree branches, and other objects have the potential to fall on powerlines and other electrical infrastructure during a severe windstorm, causing power outages throughout the city. Another physical threat of severe wind is wildfire impacts and electric utilities' current practice of conducting Public Safety Power Shutoff activities. During high wind events, these shutoffs may impact structures that rely on electricity for normal operations.

Social Threat

Severe wind events can harm people throughout Bradbury but have a greater effect on the safety of people experiencing homelessness and those working outdoors. Severe wind events may impact populations that work outside or have respiratory illnesses as they can generate dust and other contaminants. Lower-income residents, who may not have the financial resources to purchase homes (or are renting homes) that are not built or retrofitted to withstand powerful winds, could also have difficulty recovering from wind events.

Other Threats

Southern California and the City of Bradbury will continue to suffer from seasonal Santa Ana Winds for the foreseeable future. Extreme wind events can worsen other risks, such as wildfire. It can also affect the take-off and landing of small aircraft at nearby airports, leading to an increased risk of aircraft incidents.

Changes in Population Patterns and Land Use and Development

Based on the recent 2021-2029 Housing Element update, population patterns are not anticipated to change significantly over the next 20 years. Severe winds occur periodically (primarily during the Fall months) and generally do not affect populations to the degree that they would need to migrate in and out of the city. It is unlikely that severe wind will affect land use and development because the development review process will take steps to mitigate or minimize the impacts of severe wind. There is the potential that older structures in the city may be impacted more severely than newer structures in the city.

FLOOD

Physical Threat

FEMA has not identified portions of the City within the 100-year flood zone (1.0% Annual Chance of Flooding) or the 500-year flood zone (0.2% Annual Chance of Flooding). However, that doesn't mean the potential for flooding doesn't exist in Bradbury. Any physical assets can potentially be inundated if enough precipitation falls, exceeding the storm drain infrastructure design capacity in these areas. Electronic or mechanical equipment on the ground could be impacted, causing it to fail. Fortunately for Bradbury, no CFs or FOCs are located in mapped FEMA flood zones.

Social Threat

Floodwater levels in both the 100-year and 500-year zones are anticipated to rise to a depth of no more than one foot above the base flood elevation. Flooding of this type would likely inundate curb cuts and sidewalks to some extent. People who walk or bike as their primary form of transportation may encounter difficulties if they do not have access to an alternative means of transportation. Seniors, persons with disabilities, and low-income persons are also likely to be impacted during these events. Persons experiencing homelessness who are outside during flood conditions may experience property damage or be unable to access shelter. Though floodwaters in Bradbury are not expected to exceed a depth of one foot in many areas, six inches of floodwater may render any makeshift structures uninhabitable during a flood event. Possessions such as sleeping bags or electronic devices may be damaged or swept away by these floodwaters. Fortunately, the lack of these zones in Bradbury means that no persons are at risk. This doesn't mean that residents of Bradbury are immune to flooding; it is simply that the potential is far less, as there are no FEMA-mapped flood zones in the city.

Other Threats

Flooding may temporarily stop any type of transportation in the City. Debris from floodwaters can block roadways, hinder vehicle access, and potentially affect emergency response services. Depending on the velocity, one foot of rushing water is enough to carry small vehicles. A severe flood may prevent people who own smaller vehicles from driving to work, reducing economic activity. Severe flooding that causes serious damage to homes and businesses may also reduce economic activity until repair work is completed.

Changes in Population Patterns and Land Use and Development

Flooding could affect population patterns within the city should a major event occur. However, this potential is extremely small, given the City's lack of FEMA flood zones. The residential nature, low population density, and naturally hilly geography create naturally low flooding potential. It is unlikely that flooding will affect land use and development patterns because the development review process ensures flood-related impacts are mitigated or minimized.

CHAPTER 5 – HAZARD MITIGATION STRATEGY

Strategy Development Process

Bradbury's hazard mitigation strategy is a comprehensive set of actions intended to reduce the impact of hazard events. These hazard mitigation actions will help to protect the safety and well-being of residents and visitors, CFs and FOC, other buildings and structures, key services, the local economy, and other important community assets. Some actions will also help with emergency preparedness, allowing for a more effective community response to hazard events. Preparedness actions are not required for an LHMP, but they support and complement mitigation activities; however, the HMPC chose to include them as part of the overall hazard mitigation strategy.

Use of Hazard and Threat Assessment

The HMPC relied in part on the hazard profiles and threat assessments in this Plan to develop the actions in the mitigation strategy. A comprehensive set of mitigation actions was prepared to respond to the relevant hazard situations and protect Bradbury residents, businesses, and community assets. The HMPC ensured that the mitigation actions would help reduce damage from the most frequent types of hazard events, the most significant that may reasonably occur, and those with the greatest potential to harm the community. The HMPC also drafted mitigation actions that will help protect the community's most vulnerable members and local assets.

Capabilities Assessment

As part of the effort to draft mitigation actions, the City completed a capabilities assessment, which included a review of existing policies, personnel, and technical resources that can support hazard mitigation activities in Bradbury. The hazard mitigation actions build off the existing success of these resources and leverage their capabilities to support improved resiliency in the community. The capabilities assessment looked at the following types of resources:

- **Personnel resources:** City employees, volunteers, and employees and volunteers at other agencies.
- **Plan resource:** Advisory or enforceable plans adopted by the City or other agencies.
- **Policy resource:** Policies adopted and implemented by the City or other agencies.
- **Technical resource:** Data and tools available to the City.
- **Financial resource:** Funding mechanisms available to the City that support mitigation activities.

CAPABILITIES IMPROVEMENT/EXPANSION

The ability to expand current mitigation capabilities will generally be reliant upon the budgeting allocated for each department/program for that fiscal year. The level at which these programs may or may not be expanded depends on the funding received. FEMA has released a series of guides over the past few years highlighting some ways jurisdictions can expand mitigation. Some strategies for increasing current mitigation capabilities may include:

- The city should actively identify, adopt, and enforce the most current set of development codes and standards available. Strongly encouraging new development to be constructed to higher standards than currently required, increasing resilience within the community.
- Engaging parts of the community that may not be actively involved in mitigation efforts.
- Expanding the number and types of organizations involved in mitigation planning and implementation, increasing both efficiency and bandwidth.
- Fostering new relationships to bring underrepresented populations and partners to the hazard mitigation planning process.
- During the annual LHMP review, the HMPC should look for opportunities to fund and expand/enhance the effectiveness of current mitigation actions.
- During annual budgeting processes, the City should identify new funding sources (bonds, grants, assessment districts, etc.) that can be used to support enhancements in existing capabilities.

Tables 5-1a through 5-1d show the capabilities assessment for Bradbury. Within each resource described, a section titled “Expansion and Improvement” is provided, which helps the City recognize specific areas where each capability may be modified to align with mitigation priorities and actions to be taken in the future.

TABLE 5-1A: CITY OF BRADBURY CAPABILITY ASSESSMENT			
Local Legal and Regulatory Capabilities			
Resource Name	**Version/ Date**	**Hazards Addressed**	**Description (Effect on Hazard Mitigation)**
City of Bradbury General Plan 2012-2030	Adopted 2014	All	The General Plan outlines the long-term direction for development and policy in Bradbury. There are opportunities to coordinate local hazard mitigation actions with policies governed by the General Plan. The next update to the General Plan Safety Element should include integration with the Hazard Mitigation Plan. Also, the General Plan is an excellent resource to assist with implementing many of the mitigation action items identified in the Hazard Mitigation Plan. **Expansion and Improvement:** The General Plan and its community profile will be aligned with the LHMP and describe the city and population.
City of Bradbury General Plan 2012-2030 Health and Safety Element	2023	All	The Health and Safety Element identifies the following: • Provides background on the history of hazards and the likelihood of future changes to these hazards. • Provides policies that increase the resilience of residents, businesses, workers, and visitors. • Provides policies to reduce the level of property loss due to a potential disaster. • Provides a framework for emergency management. Details of the Safety Element, including a discussion of the process to reduce the loss of life, injury, private property damage, infrastructure damage, economic losses, and social dislocation, can be found at: https://cms7files.revize.com/bradburyca/Bradbury_HealthandSafetyElement_PublicDraft_090823.pdf **Expansion and Improvement:** The HMP will be informed by referencing the Safety Element of the General Plan. The City will adopt the approved HMP as part of the General Plan Safety Element update to meet the requirements of AB 2140.

TABLE 5-1A: CITY OF BRADBURY CAPABILITY ASSESSMENT			
Local Legal and Regulatory Capabilities			
Resource Name	**Version/ Date**	**Hazards Addressed**	**Description (Effect on Hazard Mitigation)**
City of Bradbury General Plan 2012-2030 Land Use Element	Adopted 2014	Seismic, Fire, Flood, Wind	The Land Use Element is a guide to the ultimate development pattern for the city, both within its incorporated boundaries and sphere of influence. The Land Use Element: • Designates the distribution, location, and balance of land uses. • Describes the desired build-out of Bradbury • Describes building intensity standards for each land use. • Communicates population density. • Ensures compatibility between land uses. **Expansion and Improvement:** Focus on balancing community needs and ensuring compatibility of uses and development patterns.
City Emergency Operations Plan	Current	All	Explains how the City will respond to a major emergency or disaster and coordinate between the Emergency Operations Center (EOC) and field-level Incident Commanders; includes the hazards with a description of each; the concept of operations during a major emergency or disaster; the role of the EOC, and the coordination that occurs between the EOC and City's departments and other local, state, and federal governments in times of disaster. **Expansion and Improvement:** The hazards section of the Emergency Operations Plan (EOP) is informed by the HMP as the two are closely correlated.
City of Bradbury Title XVII, Chapter 1 Building Code	2022	Seismic, Fire, Flood, Wind	The Bradbury Building Code, Sec 17.01.010 – Adoption of Building Code. The full code can be found at: https://library.municode.com/ca/bradbury/codes/code_of_ordinances?nodeId=COOR_TITXVIIBURE_CH1BUCO **Expansion and Improvement:** Adherence to building codes, including local codes, regulates growth and controls land use patterns. As codes are updated, addressing known hazards results in lowered risk and potentially fewer losses.

TABLE 5-1A: CITY OF BRADBURY CAPABILITY ASSESSMENT			
Local Legal and Regulatory Capabilities			
Resource Name	**Version/ Date**	**Hazards Addressed**	**Description (Effect on Hazard Mitigation)**
City of Bradbury Title IX, Part V, Chapter 58 Zoning Ordinance	2023	All	The Zoning Ordinance implements the City's General Plan by establishing specific regulations for development. It includes standards for where development can be located, how buildings must be sized, shaped, and positioned, and what types of activities can occur in an area. Hazard mitigation actions that pertain to new or substantially redeveloped buildings can be adopted into the Zoning Ordinance. The current zoning ordinance and code can be found here: https://library.municode.com/ca/bradbury/codes/code_of_ordinances?nodeId=COOR_TITIXDECO_PTVZODIALLAUS **Expansion and Improvement:** Understanding land use policy and regulatory requirements is essential to developing mitigation strategies and activities. The land use components of the City Code will inform the development of the HMP mitigation actions.
California Standards Building Code	2022	Seismic, Fire, Flood, Wind	The California Building Standards Code is a compilation of three types of building standards from three different origins: • Building standards that state agencies have adopted without change from building standards contained in national model codes; • Building standards that have been adopted and adapted from national model codes to address California's ever-changing conditions; and • Building standards, authorized by the California legislature, that constitute amendments not covered by national model codes that have been created and adopted to address California concerns. The City enforces the 2022 California State Building Safety Codes, Los Angeles County 2023 amendments, and the 2024 Bradbury Municipal Code. **Expansion and Improvement:** Adherence to building codes, including local codes, regulates growth and controls land use patterns. As codes are updated, addressing known hazards results in lowered risk and potentially fewer losses. Building code policies should inform the HMP and the General Plan Land Use Element to provide guidance on developing structures that are compatible with and able to withstand hazards.

TABLE 5-1A: CITY OF BRADBURY CAPABILITY ASSESSMENT			
Local Legal and Regulatory Capabilities			
Resource Name	**Version/ Date**	**Hazards Addressed**	**Description (Effect on Hazard Mitigation)**
California American Water: 2020 Urban Water Management Plan	2021	Climate Change, Drought	The UWMP provides urban water suppliers (including the City) with a long-term resource planning document to ensure adequate water supplies are available to meet existing and future water supply needs. In addition, the 2020 UMWP incorporates water supply reliability determinations resulting from potentially prolonged drought, regulatory revisions, and/or changing climatic conditions. The plan can be found here: https://amwater.com/caaw/resources/PDF/Urban-Water-Management-Plans/California%20American%20Water%20Los%20Angeles%20County%20UWMP%20-%20FINAL%2007012021.pdf **Expansion and Improvement:** The UWMP and HMP will be aligned in describing and developing mitigation actions to address climate change and drought. Water demand reduction strategies contained in the UWMP should be considered for inclusion as mitigation activities in the HMP.

TABLE 5-1B: CITY OF BRADBURY CAPABILITIES ASSESSMENT		
Administrative and Technical Capabilities		
Resource Name	**Lead Department**	**Description (Effect on Hazard Mitigation)**
City Manager's Office	Management Services	The City Council appoints the City Manager. The City Manager is responsible for advising the Council on the needs of the City, carrying out Council policies, and administering the municipal corporation's personnel, financial affairs, and day-to-day functions. **Expansion and Improvement:** The City Manager is integral to the HMP development and adoption process.
City Clerk	Management Services	The appointed City Clerk is responsible to the electorate for keeping a complete and accurate record of City Council proceedings, maintaining official City records, and conducting municipal elections in accordance with state and federal law. The City Clerk stores and indexes official documents and City records for retrieval, administers Conflict of Interest disclosures and Campaign Disclosure Statements filed under the Political Reform Act and is the custodian of the seal of the City. **Expansion and Improvement:** The City Clerk is integral to the HMP adoption process. They make sure the adoption resolution meets all administrative requirements. The City Clerk can help prioritize new initiatives that support mitigation activities within the city.

TABLE 5-1B: CITY OF BRADBURY CAPABILITIES ASSESSMENT		
Administrative and Technical Capabilities		
Resource Name	**Lead Department**	**Description (Effect on Hazard Mitigation)**
City Attorney	Management and Legal Services	The City Council appoints the City Attorney. The City Attorney is the primary legal advisor to the City Council, its Commissions, and City staff. Major activities include providing accurate legal advice and direction to ensure that the City's operations conform to all federal, state, and City laws and representing the City in legal proceedings. The City Attorney also serves as the City Prosecutor when necessary. These services are provided on a contract basis by an outside legal firm. Requests for City Attorney opinions and advice are funneled through the City Manager. **Expansion and Improvement:** The City Attorney should review updates to regulatory information and provide expert review of city resolutions and ordinances that may address hazard mitigation as part of their future duties.
Planning	Community Development	The City of Bradbury contracts with a City Planner, who oversees all development applications until approved by the Planning Commission and ready for submittal to the Department of Building & Safety. The Planning Department provides direction and leadership in implementing the General Plan's goals, objectives, and policies as adopted by the City Council. The Department is also responsible for the orderly development of the City and the administration of various land use regulations, including the zoning code and design guidelines, and is the staff liaison to the Planning Commission. **Expansion and Improvement:** The City Planner should conduct continuing education for staff to maintain state-of-the-art knowledge of new code and regulatory requirements.
Planning Commission	Community Development Department	The Bradbury Planning Commission is a five-member volunteer citizen body. The Planning Commission conducts public hearings and makes decisions and/or recommendations on various land use applications, including use permits, variances, General Plan amendments, zone changes, and subdivision maps. The Planning Commission is responsible for the city's long-range planning and reviews and studies other land use and planning issues as assigned by the City Council. The responsibilities of the Planning Commission fall into two broad categories: • Consideration of current land use issues (i.e., applications for Development, General Plan amendment, zone changes, specific plans, conditional use permits, parcel maps, lot line adjustments, tract maps, variances, and appeals of staff land use decisions); and, • Advising the City Council on City-initiated amendments to the General Plan. **Expansion and Improvement:** Provide opportunities for continued education to members of the Planning Commission to maintain state-of-the-art knowledge of new code and regulatory requirements.

TABLE 5-1B: CITY OF BRADBURY CAPABILITIES ASSESSMENT		
Administrative and Technical Capabilities		
Resource Name	**Lead Department**	**Description (Effect on Hazard Mitigation)**
Police Services	Sherriff's Department	Law enforcement services are outsourced to the Los Angeles County Sheriff's Department. The Sheriff's Department is responsible for the protection of citizens, enforcement of laws, and crime prevention. Law enforcement services include patrol, general, and special crime investigations. Police Services preserve the quality of life throughout the community by enforcing the adopted local codes and ordinances that govern the proper use and maintenance of private properties. Police Services provides support for emergency management activities. **Expansion and Improvement:** Promote expanded training to Officers that serve the Bradbury community, to better enable them to see potential hazards and take action to report them.
Fire Services	Los Angeles County Fire Department	Fire-related services are outsourced to Los Angeles County Fire Department. The Los Angeles County Fire Department (LACoFD) provides firefighting and emergency medical services for the unincorporated parts of Los Angeles County, California, as well as 59 cities through contracting, including the city of La Habra, which is located in Orange County and is the first city outside of Los Angeles County to contract with LACoFD. As of 2021, the department is responsible for just over 4 million residents spread out in over 1.2 million housing units across an area of 2,305 square miles (5,970 km2). **Expansion and Improvement:** Promote expanded training to firefighters that serve the Bradbury community, to better enable them to see potential hazards and take action to report them. Encourage public outreach through educational programs in cooperation with the fire department.
Code Enforcement	Management Services	The State of California empowers the City of Bradbury's Code Enforcement Officer to enforce local, County, and State statutes adopted by the City or assigned to them. The City responds to anonymous complaints, neighborhood complaints, and complaints via email and telephone, in addition to performing routine patrols to locate violations. **Expansion and Improvement:** Provide opportunities for continued education to Code Enforcement staff to maintain advanced knowledge of new code & regulatory requirements.
Engineering	Engineering	The City of Bradbury contracts with RKA Consulting Group for City Engineer services. The City Engineer provides for the design, plan check, construction, and construction inspection of all infrastructure constructed within the public right-of-way and on city-owned property and coordinates National Pollution Discharge Elimination System requirements with Los Angeles County. Regional Water Quality Control Board, residents, developers, and City staff. **Expansion and Improvement:** Integrate mitigation actions and strategies into the Capital Improvements Program and annual budgeting.

TABLE 5-1B: CITY OF BRADBURY CAPABILITIES ASSESSMENT		
Administrative and Technical Capabilities		
Resource Name	**Lead Department**	**Description (Effect on Hazard Mitigation)**
Genasys EVAC	City Manager	During an emergency, Genasys EVAC, part of the Genasys Protect platform, enables responding agencies to react swiftly, make collaborative decisions, and communicate event status in real-time to other agencies, businesses, and the public. Determine and communicate the proper scope of a response or evacuation, replacing guesswork with data-driven intelligence. Genasys EVAC keeps the City ready to respond to any event, enhancing safety levels for first responders and communities, and enabling faster and more precise emergency response and evacuation. **Expansion and Improvement**: Refine evacuation zones, and train and exercise evacuation efforts annually.

TABLE 5-1C: CITY OF BRADBURY CAPABILITIES ASSESSMENT		
Financial Resources		
Financial Resource	**Administrator**	**Description (Effect on Hazard Mitigation)**
General Fund	Department Specific	Program operations and specific projects. Consists of property tax, sales tax, transient occupancy tax, and franchise tax that can be used for general purposes. **Expansion and Improvement:** Hazard mitigation projects may be considered during the annual budgeting process for funding from the general fund.
Enterprise Funds	Fund specific	The City operates a variety of Special Revenue Funds. Special Revenue Funds account for revenue derived from specific taxes, measures, or other revenue sources restricted by law or administrative action to be expended for specified purposes. **Expansion and Improvement:** Where permissible, Special Revenue Funds may be considered during the annual budgeting process for funding mitigation projects.
Hazard Mitigation Grant Program (HMPG)	Emergency Management	Provides support for pre- and post-disaster mitigation plans and projects. **Expansion and Improvement**: Train staff on notice of intent (NOI) procedures and track opportunities on the Cal OES mitigation website to initiate applications for grant funding.
Building Resilient Infrastructure and Communities (BRIC)	Grant Funding	Provides support for pre-disaster mitigation plans and projects. **Expansion and Improvement:** Train staff on notice of intent (NOI) procedures and track opportunities on the Cal OES mitigation website to initiate applications for grant funding.
Flood Mitigation Assistance Grant Program (FMA)	Grant Funding	Mitigates structures and infrastructure that have been repetitively flooded. **Expansion and Improvement:** Train staff on notice of intent (NOI) procedures and track opportunities on the Cal OES mitigation website to initiate applications for grant funding.

TABLE 5-1C: CITY OF BRADBURY CAPABILITIES ASSESSMENT		
Financial Resources		
Financial Resource	**Administrator**	**Description (Effect on Hazard Mitigation)**
Special Use Funds		Program operations and specific projects. Consists of property tax, sales tax, transient occupancy tax, and franchise tax that can be used for general purposes. **Expansion and Improvement:** Hazard mitigation projects may be considered during the annual budgeting process for funding from the general fund.

TABLE 5-1D: CITY OF BRADBURY CAPABILITIES ASSESSMENT		
Education and Outreach Resources		
Name	**Lead Organization**	**Description (Effect on Hazard Mitigation)**
Emergency Preparedness Information Site	Los Angeles County Office of Emergency Management	The City of Bradbury has links to the Los Angeles County OES website, which has educational material on making an emergency plan, stocking supplies, staying informed, and getting involved. https://www.cityofbradbury.org/community/public_safety/emergency_preparedness/index.php **Expansion and Improvement:** Provide links to the County and City websites.

Hazard Mitigation Strategies and Actions

HAZARD MITIGATION GOALS

The goals identified in **Chapter 1** help develop policies to protect community members, ecosystems, and other important assets from hazard events. These goals were developed to ensure consistency with the City of Bradbury General Plan 2012-2030 Health and Safety Element, which plays an important role in risk reduction within Bradbury. These goals informed the development of mitigation actions and acted as checkpoints to help City staff determine implementation progress.

EVALUATION OF POTENTIAL HAZARD MITIGATION ACTIONS

Based on the hazard profiles, threat assessment, capabilities assessment, community survey results, discussions among HMPC members, and existing best practices, a set of potential mitigation actions was developed and then evaluated based on the following criteria:

1) FEMA requires local governments to evaluate potential mitigation actions' monetary and non-monetary costs and benefits. Although local governments are not required to assign specific dollar values to each action, they should identify the general size of costs and benefits.

2) The HMPC may elect to include measures with a high cost or low benefits, but such measures should be clearly beneficial to the community and an appropriate use of local resources.

In addition, FEMA directs local governments to consider the following questions as part of the 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 impacts of the hazard will the action reduce or avoid?
- What benefits will the action provide to the community?

The HMPC also chose to review and revise the potential hazard mitigation actions using a third set of criteria (**Table 5-2**), known as STAPLE/E (Social, Technical, Administrative, Political, Legal, Economic, and Environmental). The HMPC did not formally assess every potential mitigation action under all STAPLE/E criteria but used the criteria to guide and inform the discussion. A discussion also occurred regarding how the criteria might be used to evaluate grant applications the City may submit in the future as part of plan implementation.

PRIORITIZATION

As part of the mitigation actions development and review, the HMPC also prioritized the actions. The prioritization efforts looked at the risks and threats from each hazard, financial costs and benefits, technical feasibility, and community values, among others. HMPC members were asked to identify their priority actions through a voting exercise. Items prioritized by at least three HMPC members are considered high priority, and those prioritized by one or two members are considered medium priority. Actions not prioritized by any HMPC member are considered low priority.

TABLE 5-2: STAPLE/E CRITERIA	
Issues	Criteria
Social	• Is the action socially acceptable to community members? • Would the action mistreat some individuals? • Is there a reasonable chance of the action causing a social disruption?
Technical	• Is the action likely to reduce the risk of the hazard occurring, or will it reduce the hazard's effects? • Will the action create new hazards or make existing hazards worse? • Is the action the most useful approach for the City to take, given the City and community members' goals?
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 measure, or can the City reasonably hire new staff for this role? • Does the City have enough staff, funding, technical support, and other resources to implement the action? • Are there administrative barriers to implementing the action?
Political	• Is the action politically acceptable to City officials, relevant jurisdictions, and political entities? • Do community members support the action?
Legal	• Does the City have the legal authority to implement and enforce the action? • Are there potential legal barriers or consequences that could hinder or prevent the implementation of the action? • Is there a reasonable chance that implementing the action would expose the City to legal liabilities? • Could the action reasonably face other legal challenges?
Economic	• What are the monetary costs of the action, and do the costs exceed the monetary benefits? • What are the start-up and maintenance costs of the action, including administrative costs? • Has the funding for action implementation been secured, or is a potential funding source available? • How will funding the action affect the City's financial capabilities? • Could the implementation of the action reasonably burden the City's economy or tax base? • Could there reasonably be other budgetary and revenue impacts on the City?
Environmental	• What are the potential environmental impacts of the action? • Will the action require environmental regulatory approvals? • 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?

POTENTIAL FUNDING SOURCES

Table 5-3 identifies the potential funding sources that may be used to implement mitigation strategies. These funding sources include the following federal and state sources:

- **Building Resilient Infrastructure and Communities (BRIC):** A competitive FEMA grant program to support states, local communities, tribes, and territories.
- **Flood Mitigation Assistance Program (FMA):** A competitive grant program that provides funding to states, local communities, federally recognized tribes, and territories. Funds can be used for projects that reduce or eliminate the risk of repetitive flood damage to buildings insured by the National Flood Insurance Program.
- **Hazard Mitigation Grant Program (HMGP):** Provides funding to state, local, tribal, and territorial governments to rebuild in a way that reduces or mitigates future disaster losses in their communities. This grant funding is available after a presidentially declared disaster.
- **Other Grants:** Other grants may include State of California grants associated with climate change, water infrastructure, homeland security, transportation, or other funding sources that periodically become available. The list below provides some common sources:
    - Climate Adaptation Planning Sustainable Transportation Planning Grant Program - Department of Transportation
    - Sustainable Communities Competitive – Department of Transportation
    - CAL FIRE Wildfire Prevention Grants Program – Department of Forestry and Fire Protection
    - Integrated Climate Adaptation and Resiliency Program's Climate Adaptation Planning Grant – Office of Planning and Research
    - Small Community Drought Relief Program – Department of Water Resources
    - Addressing Climate Impacts – Department of Fish and Wildlife
    - Cleanup Loans and Environmental Assistance to Neighborhoods (CLEAN) Program – Department of Toxic Substances Control
    - Clean Water State Revolving Fund (CWSRF) Program Construction – State Water Resources Control Board
    - Drinking Water State Revolving Fund (DWSRF) Construction – State Water Resources Control Board
    - Water Recycling Funding Program (WRFP) Construction Grant – State Water Resources Control Board
    - Equitable Community Revitalization Grants (ECRG) – Department of Toxic Substances Control
    - Water Recycling Funding Program (WRFP) Planning Grant – State Water Resources Control Board
    - Infrastructure State Revolving Fund (ISRF) Program - Infrastructure and Economic Development Bank

RESPONSIBLE DEPARTMENT

Table 5-3 includes the identification of key responsible departments that will be focused on future implementation of mitigation strategies and actions identified by the City.

COST ESTIMATES

To meet the cost estimation requirements of the hazard mitigation planning process, the HMPC identified relative cost estimates based on their understanding of the mitigation action intent and their experience developing identical or similar programs/implementing projects.

Three cost categories based on the City's typical cost criteria were used for budgeting purposes:

1) **Low cost ($):** $10,000 or less
2) **Medium cost ($$):** $10,001 to $99,999
3) **High cost ($$$):** Greater than $100,000

Based on the criteria and evaluation processes used during Plan development, the HMPC prepared a prioritized list of mitigation actions to improve Bradbury's resilience to hazard events. **Table 5-3** lists the mitigation actions, the prioritization of each action, and other details related to implementation. In addition to mitigation action and strategies, several preparedness activities were identified and denoted with the letter "P."

TIMEFRAMES

Table 5-3 includes timeframes that provide general timing durations due to the nature of the mitigation actions identified by the City. The following timeframes are used based on the following conditions:

- **Ongoing (Annually):** Actions that identify this timeframe are the types of actions that City staff would conduct annually.
- **Ongoing (As Needed):** Actions that identify this timeframe include activities that City staff would conduct in response to a request by internal (City Departments) or external (Property Owners) forces.
- **Future Planning Process:** Actions identified within this timeframe are considered low-priority actions that the City would like to continue to track but does not feel they would be able to implement in the current planning implementation timeframe.

PRIORITIZATION

As part of the mitigation actions development and review, the HMPC also prioritized the actions. The prioritization efforts looked at the risks and threats from each hazard, financial costs and benefits, technical feasibility, and community values. HMPC members were asked to identify their priority actions through a voting exercise. Items are prioritized based on the number of votes the HMPC members receive. These quantitative scores were then converted to qualitative categories of low, medium, and high priority

TABLE 5-3: MITIGATION ACTION IMPLEMENTATION PLAN						
Mitigation Action		**Potential Funding Sources**	**Responsible Department**	**Relative Cost***	**Time frame**	**Priority**
Preparedness Action Items						
P1	On City-owned property, construct a structure that would act as additional disaster supply storage, crisis center, and EOC.	General Fund, Grants	City Staff	$$$		High
P2	Evaluate and increase disaster preparedness supplies.	General Fund, Grants	City Staff	$$		High
P3	Expand emergency preparedness and response trainings for City staff and contracted support.	General Fund, Grants	City Staff	$$		High
P4	Increase disaster communications through the procurement of City-owned radios and related infrastructure needed for effective radio operation and communication.	General Fund, Grants	City Staff	$$		High
P5	Encourage individual and family preparedness through the City Newsletter and City emails.	General Fund, Grants	City Staff	$$		Low
P6	Establish opportunities for partnering with citizens, private contractors, and other jurisdictions to increase the availability of equipment and manpower for efficient response efforts.	General Fund, Grants	City Staff	$		High
P7	Work with the Los Angeles County Fire Department to increase CERT training and skills of volunteers belonging to the already established Bradbury Public Safety Committee.	General Fund, Grants	City Staff, Public Safety Committee	$$$		High
P8	Prepare a Debris Management Plan identifying debris removal procedures, resources, and funding.	General Fund, Grants	City Staff	$$		Low
P9	Periodically prepare an update to the Emergency Operations Plan.	General Fund, Grants	City Staff	$$		Low
Multi-Hazard Action Items						
MH-1	Integrate the goals and action items from the City of Bradbury's Hazard Mitigation Plan into existing regulatory documents and programs (e.g., City's General Plan, Safety Element, Housing Element), capital improvement projects, planning efforts, and project development standards to limit development in known hazard areas where appropriate and feasible.	General Fund, BRIC/ HMGP Grants, Other Grants	City Staff, HMPT	$	Ongoing (Annually)	High

TABLE 5-3: MITIGATION ACTION IMPLEMENTATION PLAN						
Mitigation Action		**Potential Funding Sources**	**Responsible Department**	**Relative Cost***	**Time frame**	**Priority**
MH-2	Develop outreach materials for mitigation, preparedness, response, and recovery to include the following: Hazard Types: wildfire, seismic hazards, geologic hazards, drought, windstorms, flooding, and climate change. Audiences: residents, property owners, utility providers, insurance providers, and real estate professionals. Mitigation Practices: wildfire defensible space, earthquake retrofitting, home hardening, erosion control, landslide protection, flood protection, windstorm risk reduction, and water conservation. Outreach Materials should be developed for electronic distribution using City-approved lists and hard copy distribution at City facilities and City-sponsored events.	General Fund, BRIC/ HMGP Grants, Other Grants	City Staff, Public Safety Committee	$$$	Initiate by 2025	High
MH-3	Maintain and enhance emergency evacuation capabilities and capacity based on coordination and collaboration with the following: • Identifying safe evacuation routes in hazard-prone areas. • Ensuring the development review process addresses evacuation requirements. • Ongoing communication with emergency response agencies. • Encouraging private property owners to upgrade their access roads and driveways to accommodate emergency vehicles. • Increasing communication and coordination between local, regional, state, and federal agencies to address hazard risks and identify mitigation actions to reduce community risks.	General Fund, BRIC/ HMGP Grants, Other Grants	City Staff	$$$	Initiate by 2024/2025	Medium
MH-4	Identify and pursue funding opportunities to develop and implement local and City mitigation activities.	General Fund, BRIC/ HMGP Grants, Other Grants	City Staff, HMPT	$	Initiate by 2025 and Continue Annually	High

TABLE 5-3: MITIGATION ACTION IMPLEMENTATION PLAN						
Mitigation Action		**Potential Funding Sources**	**Responsible Department**	**Relative Cost***	**Time frame**	**Priority**
MH-5	Provide hazard mitigation training for all staff and elected/appointed officials to stay current on developing natural hazard loss reduction issues.	General Fund, BRIC/ HMGP Grants, Other Grants	City Staff	$	Initiate by 2025 and Continue Annually	High
MH-6	Distribute information about flood, fire, earthquake, windstorms, landslides, and other forms of natural hazard insurance to property owners in areas identified to be at risk.	General Fund, BRIC/ HMGP Grants, Other Grants	Public Safety Committee	$	1-5 Years	Low
MH-7	Ensure the most current adopted version of City Plans and Programs (e.g., the City General Plan, Safety Element, and Local Hazard Mitigation Plan) are available on the City's website.	General Fund, BRIC/ HMGP Grants, Other Grants	City Staff	$	1-5 Years or Upon Update of Plans	Low
MH-8	Collaborate with LA County OEM, LA County Sheriff, and LA County Fire to update and enhance hazard mapping capabilities by maintaining a website that includes information specific to City of Bradbury residents, including site-specific hazard information, Building & Safety Codes information, and educational information on damage prevention.	General Fund, BRIC/ HMGP Grants, Other Grants	City Staff	$$	Initiate by 2025 and Continue Annually	High
MH-9	Use technical knowledge of natural ecosystems and mitigation activities and land use to support natural resource management, including: Pursue vegetation restoration practices that assist in enhancing and restoring the natural watershed. Develop education and outreach programs that focus on protecting natural watershed systems.	General Fund, BRIC/ HMGP Grants, Other Grants	City Engineer	$$$	Initiate by 2028 and Continue Annually	Low
MH-10	Develop outreach programs and recovery activities to respond to the community during and immediately following a hazard event (e.g., wildfire).	General Fund, BRIC/ HMGP Grants, Other Grants	Public Safety Committee	$$	2-5 Years	Low
MH-11	Attend Disaster Emergency Preparedness and response training.	General Fund, BRIC/ HMGP Grants, Other Grants	City Staff	$	1-5 Years	Medium

TABLE 5-3: MITIGATION ACTION IMPLEMENTATION PLAN						
Mitigation Action		**Potential Funding Sources**	**Responsible Department**	**Relative Cost***	**Time frame**	**Priority**
MH-12	Subscribe to Blackboard Connect, which allows for pre-recorded messages to inform the public of wildfire response and recovery activities.	General Fund, BRIC/ HMGP Grants, Other Grants	City Staff, Public Safety Committee	$	1-5 Years and Continue Annually	Low
MH-13	Obtain funding to expand the City's backup generator capacity with additional backup batteries and fuel cells.	General Fund, BRIC/ HMGP Grants, Other Grants	City Staff	$$$	Initiate by 2025	High
MH-14	Provide Hillside Development Standards handouts to property owners and contractors that describe the requirements to minimize and mitigate hazards during the development review process.	General Fund, BRIC/ HMGP Grants, Other Grants	City Planning, Building and Safety	$	1-5 Years and Continue Annually	Medium
MH-15	Identify, improve, and sustain collaborative programs focusing on the real estate and insurance industries, and private sector organizations, and individuals to avoid activity that increases risk to natural hazards.	General Fund, BRIC/ HMGP Grants, Other Grants		$	1-5 Years and Continue Annually	Low
MH-16	Research grant funding to plan and develop the City's Hazard Mitigation Plan.	General Fund, BRIC/ HMGP Grants, Other Grants	City Staff, Public Safety Committee	$	1-2 Years Prior to Plan Update	Low
Earthquake Action Items						
EQ-1	Integrate new information and mapping of natural hazards as they become available in the City's planning documents during the update process of planning documents (e.g., General Plan Safety Element and LHMP).	General Fund, BRIC/ HMGP Grants, Other Grants	Public Safety Committee	$$$	1-5 Years and Continue Annually	Low
EQ-2	Review Federal, State, Regional, and Local Guidelines on seismic safety standards and construction codes annually to reduce earthquake hazards to new buildings and infrastructure in the City.	General Fund, BRIC/ HMGP Grants, Other Grants	City Planning, Building and Safety	$	1-5 Years and Continue Annually	Low
EQ-3	Review the guidelines of the National Earthquake Hazards Reduction Program (NEHRP) and ensure that code requirements meet the latest state requirements and best practices.	General Fund, BRIC/ HMGP Grants, Other Grants	City Planning, Building and Safety	$	Initiate by 2026	Medium

TABLE 5-3: MITIGATION ACTION IMPLEMENTATION PLAN						
Mitigation Action		**Potential Funding Sources**	**Responsible Department**	**Relative Cost***	**Time frame**	**Priority**
Wildfire Action Items						
WF-1	Continue fire inspections, including defensible space inspections and brush clearance programs sponsored by the Los Angeles County Fire Department.	General Fund, BRIC/ HMGP Grants, Other Grants	City of Bradbury and Los Angeles County Fire Department	$$	Already Initiated and Continue Annually	High
WF-2	Enhance outreach and education programs aimed at mitigating wildfire hazards. Encourage residents to plant fire-resistant landscaping, clear dry brush, and consider fire-resistant building materials.	General Fund, BRIC/ HMGP Grants, Other Grants	City of Bradbury and Los Angeles County Fire Department	$	1-5 Years and Continue Annually	Medium
WF-3	Publish annual fire prevention articles related to fire evacuation, fire escape plans, and fire safety in the City Newsletter.	General Fund, BRIC/ HMGP Grants, Other Grants	City of Bradbury and Los Angeles County Fire Department	$	1-5 Years and Continue Annually	Medium
WF-4	Hold the Bradbury Night Out Emergency Expo to educate the residents on natural and human-caused hazard prevention methods.	General Fund, BRIC/ HMGP Grants, Other Grants	City of Bradbury and Los Angeles County Fire Department	$$	Initiate by 2025 and Continue Annually	High
WF-5	Enforce the City's property maintenance standards to curtail wildfire threats and hazards.	General Fund, BRIC/ HMGP Grants, Other Grants	City Staff, Public Safety Committee	$	Ongoing (Annually)	Low
WF-6	Incorporate and support wildfire mitigation strategies as outlined in the City of Bradbury Community Wildfire Protection Plan (CWPP).	General Fund, BRIC/ HMGP Grants, Other Grants	Public Works, Engineering	$$$	Initiate by 2025 and Continue	High
WF-7	Collaborate with LACoFD on identifying defensible space and other techniques that will protect the City's buildings and infrastructure from the impacts of wildfire.	General Fund, BRIC/ HMGP Grants, Other Grants	Public Works, Engineering	$$$	Ongoing (As Needed)	High

TABLE 5-3: MITIGATION ACTION IMPLEMENTATION PLAN						
Mitigation Action		**Potential Funding Sources**	**Responsible Department**	**Relative Cost***	**Time frame**	**Priority**
WF-8	Achieve Firewise Community, USA designation.	General Fund, BRIC/ HMGP Grants, Other Grants	City of Bradbury, Public Safety Committee and Los Angeles County Fire Department	$$	Initiate by 2025 and Continue Annually	Medium
WF-9	Collaborate and work with Southern California Edison to implement more wire coverings and undergrounding of utility infrastructure to reduce wildfire potential.	General Fund, BRIC/ HMGP Grants, Other Grants	Building and Safety, City Engineering	$$$	1-5 Years	Medium
WF-10	Collaborate and work with neighboring jurisdictions on wildland fire mitigation projects and operational concerns.	General Fund, BRIC/ HMGP Grants, Other Grants	Public Works, Engineering	$$$	Ongoing (As Needed)	High
WF-11	Research, apply, and secure grant funding that leads to increased community preparedness, response, and recovery from a wildfire, including but not limited to: • Fire safety grants for brush clearance; • Funding opportunities for wildland fire projects	General Fund, BRIC/ HMGP Grants, Other Grants	City Staff, Planning	$	Ongoing (As Needed)	Low
Flood Action Items						
FLD-1	Coordinate with stakeholders to establish early flood warning systems, communications methods, and protocols among all government agencies.	General Fund, BRIC/ HMGP Grants, Other Grants	City Manager, Los Angeles County Flood Control, LA County Public Works	$	1-5 Years and Continue Annually	Medium
FLD-2	Update flood management mapping and policies upon receipt of new information from local, regional, state, and federal agencies.	General Fund, BRIC/ HMGP Grants, Other Grants	City Engineer, FEMA	$$	1-5 Years	Low
FLD-3	Work with LA County Public Works to identify areas subject to urban flooding and develop mitigation projects to reduce or eliminate these impacts.	General Fund, BRIC/ HMGP Grants, Other Grants	City Manager, LA County Public Works	$$	1-5 Years and Continue Annually/As Needed	Medium

TABLE 5-3: MITIGATION ACTION IMPLEMENTATION PLAN						
Mitigation Action		**Potential Funding Sources**	**Responsible Department**	**Relative Cost***	**Time frame**	**Priority**
Landslide Action Items						
LS-1	Amend hillside development standards as needed to align with Bradbury LHMP and General Plan Safety Element updates.	General Fund, BRIC/ HMGP Grants, Other Grants	Planning Department	$$	1-5 Years and Continue Annually/As Needed	Medium
LS-2	Review existing soil stability construction practices and determine if additional measures are needed. Review hillside development standards to determine if additional grading regulation measures are needed to safeguard new construction and new buildings.	General Fund, BRIC/ HMGP Grants, Other Grants	City Engineer	$$	3-5 Years	Medium
LS-3	Review erosion control requirements pertaining to vegetation on slopes and other erosion control measures.	General Fund, BRIC/ HMGP Grants, Other Grants	City Engineer	$$	3-5 Years	Low
LS-4	Closely monitor mudflow potential resulting from recent wildfire incidents.	General Fund, BRIC/ HMGP Grants, Other Grants	City Engineer, Los Angeles County Fire Department	$$	3-5 Years	Medium
LS-5	Continue to monitor impacts from landslides and erosion in the areas prone to these hazards in Bradbury.	General Fund, BRIC/ HMGP Grants, Other Grants	City Engineer	$$	1-5 Years and Continue Annually/As Needed	Low
Windstorm Action Items						
WS-1	Perform an annual inspection of at-risk trees prior to wind and wildfire season. Identify trees in the City's right-of-way prone to damage during hazard events and implement measures to prevent trees from causing damage to property, public infrastructure, and lives.	General Fund, BRIC/ HMGP Grants, Other Grants	City Staff	$	1-5 Years and Continue Annually/As Needed	Low
WS-2	Collaborate on data sharing and mitigation implementation between the City, utility providers, and county agencies to document and map known hazard areas.	General Fund, BRIC/ HMGP Grants, Other Grants	City Staff, Utility Purveyors	$	1-5 Years and Continue Annually/As Needed	Low

TABLE 5-3: MITIGATION ACTION IMPLEMENTATION PLAN						
Mitigation Action		**Potential Funding Sources**	**Responsible Department**	**Relative Cost***	**Time frame**	**Priority**
WS-3	Expand and enhance the annual chipping program in coordination with CWPP mitigation actions.	General Fund, BRIC/ HMGP Grants, Other Grants	Spring/Fall Clean Up	$$	1-5 Years and Continue Annually/As Needed	Low
WS-4	Encourage utility companies and land developers to use underground utility methods where possible to reduce power outages from windstorms.	General Fund, BRIC/ HMGP Grants, Other Grants	City Staff, Utility Purveyors	$$	1-5 Years and Continue Annually/As Needed	Medium
WS-5	Collect and review data and structural damage reports related to windstorms in Bradbury.	General Fund, BRIC/ HMGP Grants, Other Grants	Building and Safety	$$	1-5 Years and Continue Annually/As Needed	Medium
WS-6	Review updated wind safety standards with the Chief Building Official and determine if additional measures are needed to protect new buildings and infrastructure.	General Fund, BRIC/ HMGP Grants, Other Grants	Building and Safety	$$	1-5 Years and Continue Annually/As Needed	Medium
WS-7	Remove dead trees located in the City's right-of-way.	General Fund, BRIC/ HMGP Grants, Other Grants	Building and Safety	$$	Annually/As Needed	Medium
Drought Action Items						
DR-1	Expand funding on water conservation education, enforcement of water conservation regulations, and other drought-related topics.	General Fund, BRIC/ HMGP Grants, Other Grants	City Staff	$	Ongoing (Annually)	Medium

2019 LHMP MITIGATION ACTION PROGRESS

The HMPC reviewed the mitigation actions from the 2019 plan. Since preparing the previous plan, City staff has recognized that many of the actions needed to be refined and integrated into the proposed mitigation actions matrix in **Table 5-3**. Some mitigation actions were completed and removed from the current table, while other mitigation actions were deemed no longer applicable by the HMPC to represent the City's current needs and were then removed from the plan. A complete list of actions that were completed or removed from the plan is provided in **Table 5-4.**

TABLE 5-4: 2019 MITIGATION ACTION IMPLEMENTATION STATUS		
Prior Plan #	**Mitigation Action**	**2024 LHMP Status**
MH-13	Establish protocol for communication between the City and the various utility purveyors.	Completed
MH-16	Develop strategies to mitigate risk to these facilities or to utilize alternative facilities should natural hazard events cause damages to the facilities in question.	Completed
MH-17	Identify the two bridges under the maintenance of the City that are at risk from flood or earthquake hazards and complete any necessary retrofits or repairs.	Completed
MH-26	Develop and complete a baseline survey to gather perceptions of private citizens regarding natural hazard risks and identify mitigation needs.	Completed
MH-30	Review ordinances that protect natural systems and resources to mitigate for natural Hazard for possible enhancements.	Completed
MH-36	Subscribe to Blackboard Connect that allows for pre-recorded message to inform public of wildfire response and recovery activities.	Completed
MH-37	During an emergency, post public information on the City web site and on the public access channel on cable television.	Completed
MH-39	Review the Los Angeles County Uniform Building Code and all other applicable City development codes with the Chief Building Official to update wind safety standards and construction codes to reduce windstorm hazards to new buildings and infrastructure.	Completed
EQ-2	Coordinate with the California Department of Conservation on obtaining new data and maps related to the Sierra Madre and Duarte Faults.	Completed
EQ-3	Update the City's General Plan Safety Element (1993) with new mapping information on the Sierra Madre and Duarte Faults.	Completed
EQ-4	Update all current zoning maps, development standards and guidelines to address all new information received from the California Department of Conservation related to earthquake fault zones.	Completed
EQ-5	Develop public education program related to earthquake hazard insurance.	Completed
EQ-6	Utilizing the City's newsletter, produce articles that will provide information to Bradbury residents on the availability of earthquake insurance.	Completed
EQ-12	Prepare Hillside Development Standards to incorporate all new information related to earthquake fault zones.	Completed
EQ-13	Update City's evacuation route map and distribute it to appropriate city departments.	Completed
EQ-14	Meet with representatives of the three local homeowner associations to access existing evacuation routes and plan secondary routes if possible.	Completed
EQ-16	Encourage reduction of nonstructural and structural earthquake hazards in homes, schools and government offices.	Completed
EQ-18	Obtain public information brochures produced by FEMA and state agencies related to earthquake safety and make brochures available to the public at City Hall.	Completed

EQ-19	Inspect all City-owned buildings and infrastructure with the purpose of identifying seismic repairs and retrofit recommendations.	Completed
WF-15	Seek grant funding for preparation of a Community Wildfire Protection Plan.	Completed
FLD-8	Develop sound floodplain management standards.	Completed
FLD-9	Revise zoning standards, development codes, and building codes, based on the Flood Hazard Study to address the construction of new buildings and infrastructure within the identified floodplain areas.	Completed
LS-1	Increase public awareness of Earthquake- Induced Landslide Hazard Areas as delineated on State of California Seismic Hazard Zones Official Map. (Safety Element)	Completed
MH-5	Develop incentives for citizens to pursue hazard mitigation projects.	Removed
MH-6	Establish measurable standards to evaluate mitigation policies and programs and provide a mechanism to update and revise the mitigation plan.	Removed
MH-12	Maintain communication between city departments to work together to prioritize and identify strategies to deal with road problems.	Removed
MH-14	Develop inventories of City-owned at-risk buildings and infrastructure in order to prioritize mitigation projects.	Removed
MH-15	Based on results of “at- risk inventory” above, develop priorities for retrofit, relocation, or other strategies to mitigate hazards impacting City-owned buildings and infrastructure.	Removed
MH-18	Strengthen emergency services preparedness and response by linking emergency services with natural hazard mitigation programs and enhancing public education.	Removed
MH-27	Use local cable television facilities as a conduit for advertising public forums.	Removed
MH-33	Purchase, install, and maintain generators for emergency power to pump water supply from City-owned wells.	Removed
MH-38	Purchase and encourage use of Nixle – a mass notification system.	Removed
EQ-20	Prioritize and seek funding for seismic repair and retrofit projects. (MH-4 covers this)	Removed
WF-1	Encourage Los Angeles County Fire Department (through contract services) to replace out- of-date apparatus and equipment on a scheduled basis.	Removed
WF-2	Identify alternative firefighting water sources and coordinate with Los Angeles County fire department on inventory of alternate sources.	Removed
WF-3	Identify all swimming pools to be used for emergency pumping.	Removed
WF-12	Coordinate and advocate with the U.S. Forest Service to install portable tanks filled with water or flame-retardant chemical in strategic locations in the forest areas north of Bradbury.	Removed
FLD-1	Coordinate with LA County Flood Control District on flood warning system for San Gabriel River and San Gabriel Canyon Dams and establish city procedures to handle early warnings.	Removed
FLD-3	Develop program for capping sewer inlets during major storms and flood events to prevent water surges in sewer lines.	Removed
FLD-7	Work with FEMA on identifying flood risk.	Removed

FLD-11	Work with LA County Public Works Department to conduct engineering studies to determine the appropriate size of storm drain facilities that are needed to alleviate urban flooding.	Removed
WS-5	Seek funding to collect windstorm risk analysis data including failure rates, frequency of events, and locations around the City that have the highest incidence of property damage from windstorm events.	Removed
WS-11	Conduct tree inventory	Removed

National Flood Insurance Program

Bradbury participates in the National Flood Insurance Program (NFIP), created by Congress in 1968 to provide flood insurance at subsidized rates to homeowners living in flood-prone areas. Individual communities can participate in the NFIP, although property owners who live in nonparticipating communities with flood-prone areas cannot buy flood insurance through the program. Additionally, nonparticipating communities with mapped floodplains cannot receive federal grants or loans for development activities in flood-prone areas and cannot receive federal disaster assistance to repair flood-damaged buildings in mapped floodplains. **Table 5-5** provides the City's NFIP participation information.

TABLE 5-5: BRADBURY NFIP PARTICIPATION INFORMATION

Initial Flood Hazard Boundary Map	11/21/75
Initial Flood Insurance Rate Map	09/26/08
NFIP Participation Date	12/02/1980
Current Effective Map Date	No Special Flood Hazard Area (NSFHA)

Although participation is not a dedicated hazard mitigation action, Bradbury will continue to participate in NFIP and comply with the program's requirements by enforcing the City's Floodplain Management Regulations (Municipal Code Chapter 5: Floodplain Management Ordinance). **Table 5-6** identifies the City's floodplain management regulations.

TABLE 5-6: BRADBURY FLOODPLAIN MANAGEMENT REGULATIONS	
Adoption of Minimum Floodplain Management Criteria and Implementation and Enforcement of Floodplain Management Regulations	Chapter 5: Floodplain Management adopted in 2016.
Designee to Implement NFIP	Article II. Administration, Sec. 4.05.210. Designation of the Floodplain Administrator. The City Manager fulfills this role, who may assign review of floodplain issues to the City Engineer or Business Official.
Implementation of Substantial Improvement/ Substantial Damages Provisions	Article III. Provisions for Flood Hazard Reduction
Note: Ordinances Hyperlinked	

These regulations apply to all areas of special flood hazards, flood-related erosion hazards, and mudslide (i.e., mudflow) hazards within the city. These regulations aim to promote public health, safety, and general welfare and minimize public and private losses due to flood conditions. This chapter also includes methods of reducing flood losses, the basis for establishing flood hazard areas, development permit requirements, duties and responsibilities of the City's Floodplain Administrator, the development standards that apply in flood-prone areas and required documentation and analysis for construction within these areas. As part of the City's efforts to comply with NFIP, Bradbury will make updates and revisions to these regulations periodically to ensure they are most effective at minimizing the threat of harm from flood events. These updates and revisions may be promoted by changes in local demographics, land use shifts, flood regime changes such as frequency and intensity of flood events, and other factors that may warrant municipal action. The City will also continue to incorporate any changes to the locations and designations of mapped floodplains into future planning documents, including future updates to this Plan.

The City of Bradbury contains no Special Flood Hazard Areas but currently has 1 policy in force, with approximately $2,013 in premiums. Total insurance coverage for these policies amounts to $350,000. According to FEMA, the City does not have repetitive loss properties, and FEMA identified no severe repetitive loss properties. The City does not have any type of property currently identified as a repetitive loss property by FEMA.

CHAPTER 6 – PLAN MAINTENANCE

For this LHMP to remain effective and useful to the community of Bradbury, it must remain up to date. An updated version of the LHMP will continue to guide Bradbury hazard mitigation activities and help keep the City eligible for state and federal hazard mitigation funding. The HMPC has structured this LHMP so individual sections can easily be updated as new information becomes available and as new needs arise, helping to keep this Plan current.

This chapter discusses how to update this Plan to keep it in compliance with applicable state and federal requirements. This chapter also describes how the City can incorporate the mitigation actions described in **Chapter 5** into existing programs and planning mechanisms and how public participation will remain an important part of Plan monitoring and future update activities.

Coordinating Body

The HMPC will remain responsible for maintaining and updating the Plan, including evaluating the Plan's effectiveness as needed. Members of the HMPC will also coordinate the implementation of the Plan through their respective positions. **Table 1-1** contains a list of current members. In future years, staff and representatives (either current HMPC members or other individuals) from the following City Departments should be included in maintenance and update activities:

- City Manager
- City Attorney
- City Clerk
- Management Analyst
- Engineering Department
- Building Department
- Finance Department
- Los Angeles County Fire Department
- Los Angeles County Sheriff's Department

The staff member currently serving as the HMPC leader (responsible for coordinating future updates) is the Management Analyst. He/ she will serve as the project manager during the update process or designate this role to another staff member. The HMPC leader or their designee will coordinate the maintenance of this Plan, lead the formal Plan review and evaluation activities, direct the Plan update, and assign tasks to other members of the HMPC to complete these activities. Such tasks may include collecting data, developing new mitigation actions, updating mitigation actions, making presentations to City staff and community groups, and revising sections of the Plan.

Plan Implementation

The effectiveness of the Plan depends on the successful implementation of the mitigation actions. This includes integrating mitigation actions into existing City plans, policies, programs, and other implementation mechanisms. The mitigation actions in this Plan are intended to reduce the damage from hazard events, help the City secure funding, and provide a framework for hazard mitigation activities.

HMPC members prioritized the hazard mitigation actions in **Table 5-3**. These priorities will guide the implementation of these actions through new or existing City mechanisms as resources are available. The LHMP project manager is responsible for overseeing this Plan's implementation, promotion, and maintenance, as well as facilitating meetings and other coordinating activities related to Plan implementation and maintenance.

The key City Plans that should incorporate content from this LHMP include the following:

1) **The City of Bradbury General Plan 2012-2030 Safety Element** – Content from the LHMP incorporated into the Safety Element will ensure the goals and policies of this plan are reinforced throughout future developments and projects proposed within the city.

2) **Bradbury Emergency Operations Plan** – This plan focuses on the effective preparedness and response to hazard events that occur within the city. Incorporating relevant content from this plan into the EOP ensures consistency regarding the hazards addressed in both plans.

3) **Bradbury Capital Improvements Program** – This program identifies key infrastructure investments throughout the City that may include hazard mitigation elements. Incorporating this plan into the CIP may enhance infrastructure investment through additional funding and/or modification of improvements to include hazard mitigation elements.

This integration of the LHMP into The City of Bradbury General Plan 2012-2030 Safety Element also allows the City to comply with AB 2140 requirements, as identified in **Chapter 1** of this plan.

Plan Maintenance Process

The City's plan maintenance process will rely on the Bradbury Mitigation Implementation Handbook, located in **Appendix F**. The handbook is intended to function as a stand-alone document that gives a concise and accessible guide to jurisdiction staff for implementing and maintaining the Plan. A key component of the handbook is the specific mechanisms the jurisdiction can use to integrate this plan into other City planning mechanisms.

PLAN MONITORING AND EVALUATION

When members of the HMPC are not updating the Plan, they should meet at least once a year to go over mitigation action implementation and evaluate the Plan's effectiveness. These meetings should include the following:

- Discussion of the timing of mitigation action implementation
- Mitigation action implementation evaluation and determination of success
- Mitigation action prioritization revisions, if deemed necessary

- Mitigation action integration into other mechanisms, as needed

The first of these meetings is expected to be held in the 2025-2026 fiscal calendar year. To the extent possible, HMPC meetings should be scheduled at an appropriate time in the City's annual budgeting process, which will help ensure that funding and staffing needs for mitigation actions are considered.

When the HMPC meets to evaluate the Plan, members should consider these questions:

- What hazard events, if any, have occurred in Bradbury in the past year? What were the impacts of these events on the community? Were the impacts mitigated, and if so, how?
- What mitigation actions have been successfully implemented? Have any mitigation actions been implemented but not successfully, and if so, why?
- What mitigation actions, if any, have been scheduled for implementation but have not yet been implemented?
- What is the schedule for implementing future mitigation actions? Is this schedule reasonable? Does the schedule need to be adjusted for future implementation, and are such adjustments appropriate and feasible?
- Have any new issues of concern arisen, including hazard events in other communities or regions that are not covered by existing mitigation actions?
- Are new data available that could inform updates to the Plan, including data relevant to the hazard profiles and threat assessments?
- Are there any new planning programs, funding sources, or other mechanisms that can support hazard mitigation activities in Bradbury?

PLAN UPDATES

The information in this Plan, including the hazard profiles, threat assessments, and mitigation actions, is based on the best available information, practices, technology, and methods available to the City and HMPC at the time this Plan was prepared. As factors change, including technologies, community demographics and characteristics, best practices, and hazard conditions, it is necessary to update the plan to remain relevant. Additionally, Title 44, Section 201.6(d)(3) of the Code of Federal Regulations requires that LHMPs be reviewed, revised, and resubmitted for approval every five years to remain eligible for federal benefits.

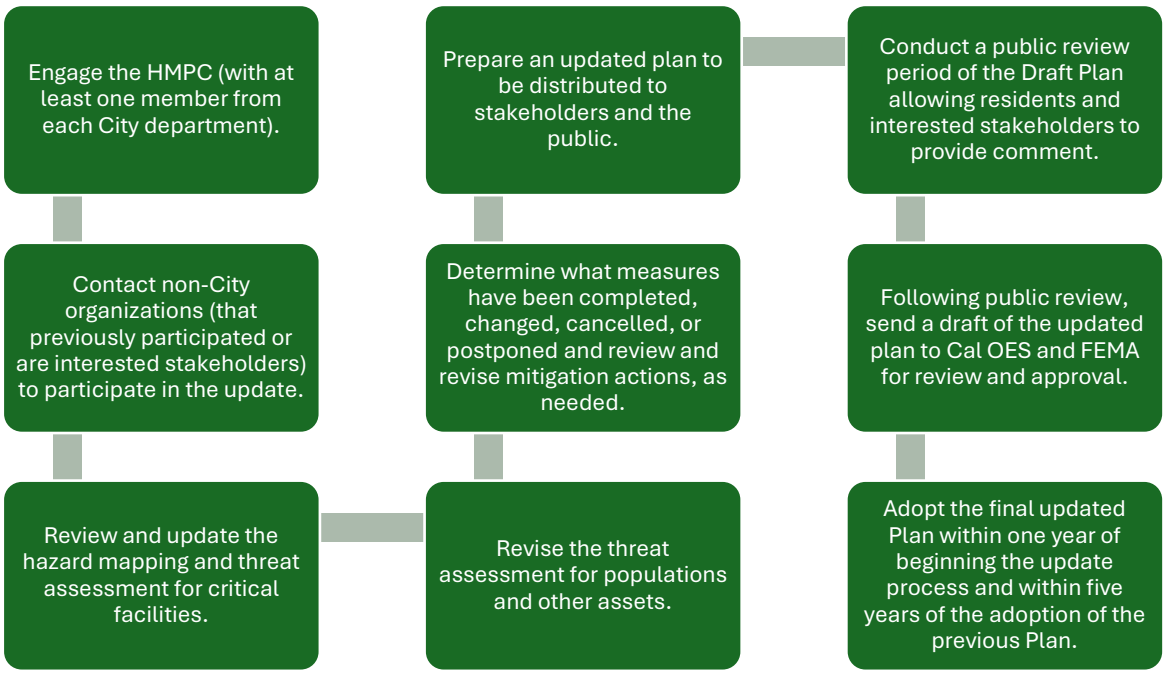
Update Method and Schedule

The update process should begin no later than four years after this Plan is adopted, allowing a year for the update process before the Plan expires. Depending on the circumstances, the LHMP project manager or their designee may also choose to begin the update process sooner. Some reasons for accelerating the update process may include the following:

- A presidential disaster declaration for Bradbury or an area that includes part or the entire city
- A hazard event that results in one or more fatalities in Bradbury

The update process will add new and updated methods, demographic data, community information, hazard data and events, considerations for threat assessments, mitigation actions, and other information, as necessary. This helps keep the Plan relevant and current. The HMPC will determine the best process for updating the Plan, including the steps within **Figure 6-1**.

FIGURE 6-1: STEPS FOR UPDATING THIS PLAN



Update Adoption

The Bradbury City Council is responsible for adopting this Plan and all future updates. As previously mentioned, adoption should occur every five years. To ensure the plan remains active, the City should begin the update process at least one year prior to expiration. If the City has a grant application that relies on the LHMP, an update to the plan should occur no later than 18 months before expiration. Adoption should take place after FEMA notifies the City that the Plan is Approved Pending Adoption. Once the City Council adopts the Plan, following its approval from Cal OES, the plan should be transmitted to FEMA.

CONTINUED PUBLIC INVOLVEMENT

The City will strive to continue to keep members of the public informed about the HMPC's actions to review and update the LHMP. The HMPC will develop a revised community engagement strategy that reflects the City's updated needs and capabilities. The updated strategy should include a tentative schedule and plan for public meetings, recommendations for using the City website and social media accounts, and content for public outreach documentation. These outreach opportunities will describe the actions taken by the City and ways that residents and businesses can help further the City's goals. These updates are anticipated to occur after the City's annual HMPC meeting.

Point of Contact

The HMPC leader for Bradbury is the primary point of contact for this Plan and future updates. At the time of writing, the HMPC leader is Mario Flores (Management Analyst), available at mflores@cityofbradbury.org | (626) 358-3218.

APPENDIX A - HMPC Meeting Materials

TABLE 1-1: BRADBURY HMPC MEMBERS		
Name	**Title**	**Department**
Mario Flores (City POC)	Management Analyst	City of Bradbury
Kevin Kearney	City Manager	City of Bradbury
Jim Kasama	City Planner	City of Bradbury
Steve Cabrera	Acting Assistant Fire Chief	LA County Fire Department
Stevin Fiedler	Sergeant	LA County Sheriff's Department
Aaron Pfannenstiel	Project Manager	Atlas Planning Solutions
Crystal Stueve	Senior Planner	Atlas Planning Solutions
Robert Jackson	Associate Planner	Atlas Planning Solutions

City of Bradbury

Local Hazard Mitigation Plan Update
HMPC Meeting #1 Agenda

- **Team Introductions**
- **Local Hazard Mitigation Plan Overview**
- **Review of Project Goals and Expectations**
- **Community Engagement and Outreach Strategy**
- **Review of Hazard Profiles**
- **Review of Critical Facilities**
- **Outstanding Data Needs**
- **Next Steps**

Hazard Mitigation Planning Process	**December 2023 – October 2024**
Community Outreach	Ongoing
Administrative Draft LHMP	Spring 2024
Public Review Draft LHMP Document	Summer 2024
Cal OES/FEMA Review Draft Document	Summer/Fall 2024

Criteria	*1*	*2*	*3*	*4*
Probability: *Estimated Likelihood that the hazard will occur in the future.*	**Unlikely**	**Occasionally**	**Likely**	**Highly Likely**
Location: *The size of the affected area from a typical future occurrence.*	**Negligible**	**Limited**	**Significant**	**Extensive**
Maximum Probable Extent: *The estimated damage to facilities from a typical failure.*	**Weak –** little to no damage	**Moderate –** some damage, loss of service for days	**Severe –** devastating damage, loss of service for months	**Extreme –** catastrophic damage, uninhabitable conditions
Secondary Impacts: *The effects to the community beyond physical damage*	**Negligible –** no loss of function, downtime, and/or evacuations	**Limited –** minimal loss of function, downtime, and/or evacuations	**Moderate –** some loss of function, downtime, and/or evacuations	**High –** major loss of function, downtime, and/or evacuations

City of Bradbury

Local Hazard Mitigation Plan Update
HMPC Meeting #2 Agenda

I. **Introductions**

II. **Review of Project Goals**

III. **Overview of Mitigation Strategies**

Plans and Regulations	• Ordinances, Regulations
Structural Projects	• Utility Undergrounding, Structural Retrofits
Natural Systems Protection	• Stream restoration, erosion control
Education Programs	• Outreach materials, websites, presentations
Preparedness and Response Actions	• Mutual aid agreements, equipment purchases, notification protocols

IV. **Discussion of STAPLE/E Criteria**

Issue	Criteria
Social	• Is the action socially acceptable to community members? • Would the action treat some individuals unfairly? • Is there a reasonable chance of the action causing a social disruption?
Technical	• Is the action likely to reduce the risk of the hazard occurring, or will it reduce the effects of the hazard? • Will the action create new hazards or make existing hazards worse? • Is the action the most useful approach for the City to take, given the City's goals 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 measure's implementation, or can the City reasonably hire new staff for this role? • Does the City have enough staff, funding, technical support, and other resources to carry out implementation? • Are there administrative barriers to implementing the action?
Political	• Is the action politically acceptable to City officials and other relevant jurisdictions and political entities? • Do community members support the action?
Legal	• Does the City have the legal authority to implement and enforce the action? • Are there potential legal barriers or consequences that could hinder or prevent the implementation of the action? • Is there a reasonable chance that implementation of the action would expose the City to legal liabilities? • Could the action reasonably face other legal challenges?
Economic	• What are the monetary costs of the action, and do the costs exceed the economic benefits? • What are the start-up and maintenance costs of the action, including administrative costs? • Has the funding for action implementation been secured, or is a potential funding source available? • How will funding the action affect the City's financial capabilities? • Could the implementation of the action reasonably burden the City’s economy or tax base? • Could there reasonably be other budgetary and revenue impacts to the City?
Environmental	• What are the potential environmental impacts of the action? • Will the action require environmental regulatory approvals? • 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?

V. Discussion of Relative Cost Estimates

Example Cost Categories: **City specific values will be determined with the HMPC in the meeting.**	
$	Less than $100,000
$$	$100,001 to $999,999
$$$	Greater than $1,000,000

VI. Review and Discussion of Draft Mitigation Strategies

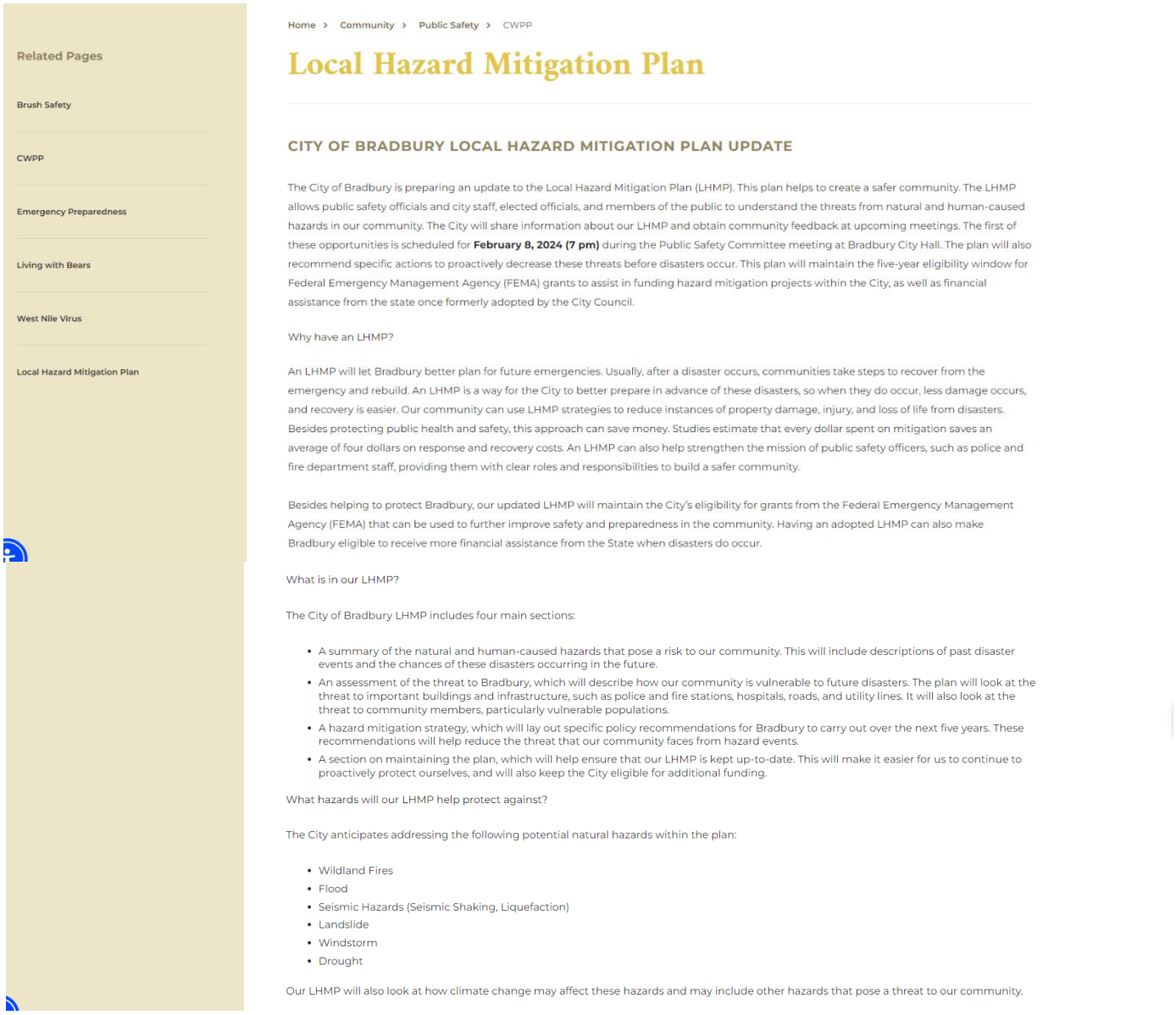
VII. Next Steps

Hazard Mitigation Planning Process	**December 2023 – October 2024**
Community Outreach	Ongoing
Administrative Draft LHMP	Spring 2024
Public Review Draft LHMP Document	Spring/Summer 2024
Cal OES/FEMA Review Draft Document	Summer 2024

APPENDIX B - Outreach Engagement Materials

City of Bradbury 2024 LHMP Update Project Website

https://www.cityofbradbury.org/community/public_safety/cwpp.php



Related Pages

Brush Safety

CWPP

Emergency Preparedness

Living with Bears

West Nile Virus

Local Hazard Mitigation Plan

Home > Community > Public Safety > CWPP

Local Hazard Mitigation Plan

CITY OF BRADBURY LOCAL HAZARD MITIGATION PLAN UPDATE

The City of Bradbury is preparing an update to the Local Hazard Mitigation Plan (LHMP). This plan helps to create a safer community. The LHMP allows public safety officials and city staff, elected officials, and members of the public to understand the threats from natural and human-caused hazards in our community. The City will share information about our LHMP and obtain community feedback at upcoming meetings. The first of these opportunities is scheduled for **February 8, 2024 (7 pm)** during the Public Safety Committee meeting at Bradbury City Hall. The plan will also recommend specific actions to proactively decrease these threats before disasters occur. This plan will maintain the five-year eligibility window for Federal Emergency Management Agency (FEMA) grants to assist in funding hazard mitigation projects within the City, as well as financial assistance from the state once formerly adopted by the City Council.

Why have an LHMP?

An LHMP will let Bradbury better plan for future emergencies. Usually, after a disaster occurs, communities take steps to recover from the emergency and rebuild. An LHMP is a way for the City to better prepare in advance of these disasters, so when they do occur, less damage occurs, and recovery is easier. Our community can use LHMP strategies to reduce instances of property damage, injury, and loss of life from disasters. Besides protecting public health and safety, this approach can save money. Studies estimate that every dollar spent on mitigation saves an average of four dollars on response and recovery costs. An LHMP can also help strengthen the mission of public safety officers, such as police and fire department staff, providing them with clear roles and responsibilities to build a safer community.

Besides helping to protect Bradbury, our updated LHMP will maintain the City's eligibility for grants from the Federal Emergency Management Agency (FEMA) that can be used to further improve safety and preparedness in the community. Having an adopted LHMP can also make Bradbury eligible to receive more financial assistance from the State when disasters do occur.

What is in our LHMP?

The City of Bradbury LHMP includes four main sections:

- A summary of the natural and human-caused hazards that pose a risk to our community. This will include descriptions of past disaster events and the chances of these disasters occurring in the future.
- An assessment of the threat to Bradbury, which will describe how our community is vulnerable to future disasters. The plan will look at the threat to important buildings and infrastructure, such as police and fire stations, hospitals, roads, and utility lines. It will also look at the threat to community members, particularly vulnerable populations.
- A hazard mitigation strategy, which will lay out specific policy recommendations for Bradbury to carry out over the next five years. These recommendations will help reduce the threat that our community faces from hazard events.
- A section on maintaining the plan, which will help ensure that our LHMP is kept up-to-date. This will make it easier for us to continue to proactively protect ourselves, and will also keep the City eligible for additional funding.

What hazards will our LHMP help protect against?

The City anticipates addressing the following potential natural hazards within the plan:

- Wildland Fires
- Flood
- Seismic Hazards (Seismic Shaking, Liquefaction)
- Landslide
- Windstorm
- Drought

Our LHMP will also look at how climate change may affect these hazards and may include other hazards that pose a threat to our community.

When will our LHMP be done?

The project team plans to release a first draft of the Bradbury LHMP for public review in Summer 2024 After members of the public provide comments and feedback, the City will revise the plan and send it to the California Office of Emergency Services (Cal OES) and FEMA for review and approval. Once approved by these agencies, the Bradbury City Council will adopt the final LHMP. We hope to have the plan ready for adoption in Winter 2024.

How can I get involved?

You can get involved in preparing our LHMP in different ways.

- The City will share information about our LHMP and obtain community feedback at upcoming meetings. The first of these opportunities is scheduled for February 8, 2024.
- The City will release an online survey to members of the public in asking for information about past experiences with natural hazards and how our LHMP can be the most useful. Take our survey when it comes out, and encourage your friends and family to do the same.
- The City will release a draft of the completed LHMP for public review. Please review and provide comments on this document, either at in-person meetings or in writing.
- Encourage members of the Bradbury City Council to adopt the plan and begin implementing it.
- Reach out to the project team lead for more ways to stay involved.

Mario Flores, Management Analyst
Email: mflores@cityofbradbury.org
Phone: (626) 358-3218

What can I do now to be better prepared for disasters?

- 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/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 the City of Bradbury Public Safety Committee 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.

2024 City of Bradbury Hazard Mitigation Plan Update Survey

Hazard Awareness

1. Have you been impacted by a hazard event in your current residence?

- Yes
- No

2. If you answered yes to the previous question, please select the type of hazard event that you have been impacted by (select all that apply).

Column 1

- Wildland Fire
- Flooding (Including Dam Failure)
- Seismic Hazards (Seismic Shaking, Liquefaction)
- Landslides
- Windstorms
- Other
- Wildland Fire
- Flooding (Including Dam Failure)
- Seismic Hazards (Seismic Shaking, Liquefaction)
- Landslides
- Windstorms
- Other

Please list any additional hazards that have previously impacted your neighborhood or home

3. The following hazards could potentially impact the City. Please mark the THREE (3) hazards that are of the greatest concern to your neighborhood or home.

Column 1

- Wildland Fire
- Flooding (Including Dam Failure)
- Seismic Hazards (Seismic Shaking, Liquefaction)
- Landslides
- Windstorms
- Other
- Wildland Fire
- Flooding (Including Dam Failure)
- Seismic Hazards (Seismic Shaking, Liquefaction)
- Landslides
- Windstorms
- Other

If you identified Other, please provide additional details of the hazard.

4. The planning team is using various data sources to identify hazards in your community. Unfortunately, some of these data sources do not provide data at a general citywide level. Are there any small-scale issues, such as ponding at a specific intersection during rain, that you would like the planning team to consider?

- No, I am not aware of local hazards
- Yes, I am aware of local hazards

If you indicated "I am aware of local hazards" above, please provide as much detail as possible, including the location and type of hazard.

5. How concerned are you that climate change may create new hazardous situations in Bradbury or make existing natural hazards worse?

- Very concerned
- Somewhat concerned
- Somewhat unconcerned
- Not at all concerned
- Unsure

6. When do you think climate change will pose a threat to your health, property, livelihood, or overall wellbeing?

- It already is
- Within the next 5 years
- In 5 to 20 years
- Not for at least another 20 years
- Never, or not in my lifetime

7. If you have taken any action to protect yourself against natural hazards, how confident are you that these actions will be sufficient to protect against more severe hazards that are expected in the future?

- Very confident
- Somewhat confident
- Somewhat unconfident
- Very unconfident
- Unsure

8. If you are a homeowner, do you have adequate homeowners' insurance to cover the hazards that could impact your home?

- Yes, my insurance coverage should be adequate.
- No, I don't believe my insurance coverage would be adequate for a major disaster.
- Unsure
- I do not have an insurance policy.
- Not applicable, I rent my current residence.

9. If you rent your residence, do you have renters' insurance?

- Yes
- No

10. Do you have flood insurance for your home?*

- Yes, I own my home and have flood insurance.
- Yes, I rent my home and have flood insurance.
- No, but I am interested in reviewing flood insurance options (http://www.floodsmart.gov/floodsmart/).

11. Have you done anything to your home to make it less vulnerable to hazards such as earthquakes, floods, and fires?*

- Yes
- No
- Not applicable; I rent my home.

If not, do you plan to?

12. If a severe hazard event occurred today such that all services were cut off from your home (power, gas, water, sewer) and you were unable to leave or access a store for 72 hours, which of these items do you have readily available?

Column 1

- Potable Water (3 gallons per person)
- Cooking and eating utensils
- Can opener
- Canned/nonperishable foods (ready to eat)
- Gas grill/camping stove
- Extra medications and contact lenses (if applicable)
- First aid kit/supplies
- Portable AM/FM radio (solar powered, hand crank, or batteries)
- Handheld "walkie-talkie" radios (with batteries)
- Extra batteries
- Important family photos/documentation in a water-fireproof container
- Extra clothes and shoes
- Blanket(s)/sleeping bag(s)
- Cash
- Flashlight (with batteries)
- Gasoline
- Charged battery packs
- Pet supplies
- Secondary source of heat
- Potable Water (3 gallons per person)
- Cooking and eating utensils
- Can opener
- Canned/nonperishable foods (ready to eat)
- Gas grill/camping stove
- Extra medications and contact lenses (if applicable)
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- Cash
- Flashlight (with batteries)
- Gasoline
- Charged battery packs
- Pet supplies
- Secondary source of heat

For more information on emergency kits, visit:
https://www.ready.gov/kit

What else do you have in your emergency kit?

13. Are you familiar with the special needs of your neighbors in the event of a disaster situation (special needs may include limited mobility, severe medical conditions, memory impairments)?

- Yes
- No

14. How can the city help you become better prepared for a disaster? (choose all that apply)

- Provide effective emergency notifications and communication.
- Provide training and education to residents and business owners on how to reduce future damage.
- Provide community outreach regarding emergency preparedness.
- Create awareness of special needs and vulnerable populations.

Other (Please specify)

If you answered "Other" above, please specify below.

Recommendations and Future Participation

15. Would you like to be contacted when the Draft 2024 Bradbury Hazard Mitigation Plan is available for review?

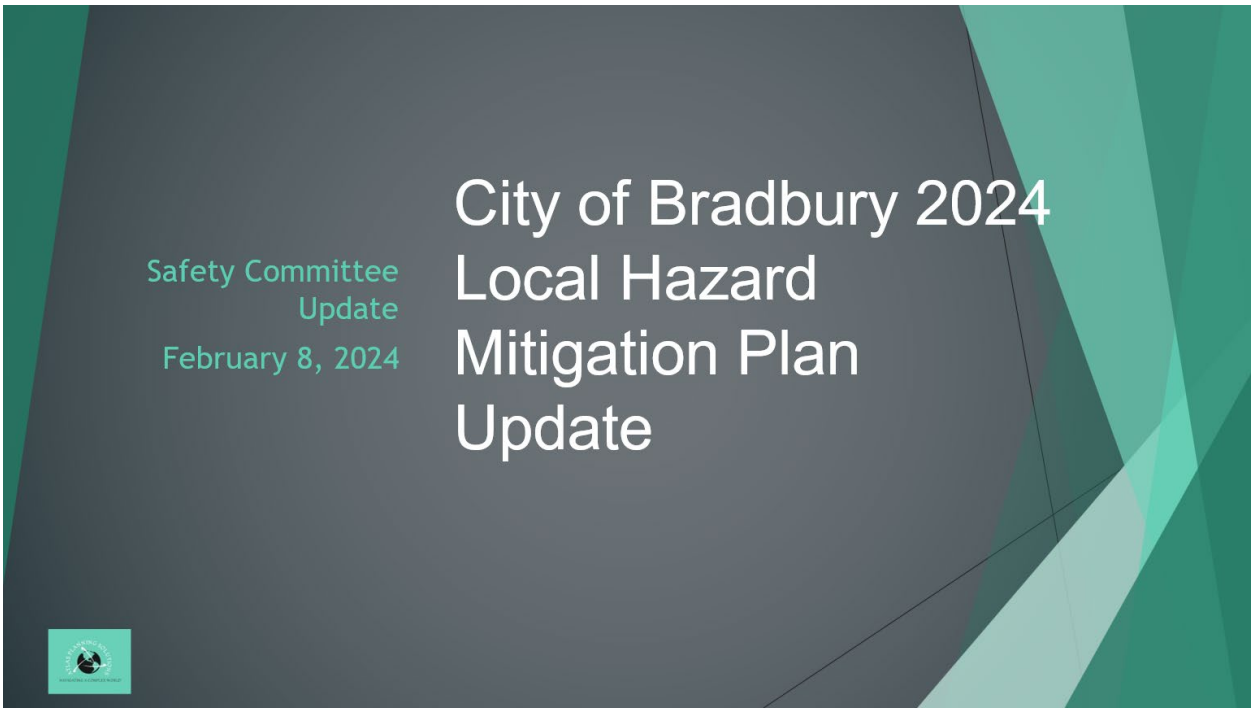
- Yes, please notify me using my contact information in the next question
- No

16. If you would like to be notified of future opportunities to participate in hazard mitigation and resiliency planning, please provide your name and e-mail address. If you do not have an e-mail address, please provide your mailing address.

17. Please provide us with any additional comments/suggestions/questions that you have regarding your risk of future hazard events.

Thank you for taking the time to complete this survey. If you have any questions, or if you know of other people/organizations that should be involved, please contact the City's Management Analyst at Mflores@cityofbradbury.org or call 626-358-3218.

Public Safety Committee Meeting held on 2/8/2024



Project Funding

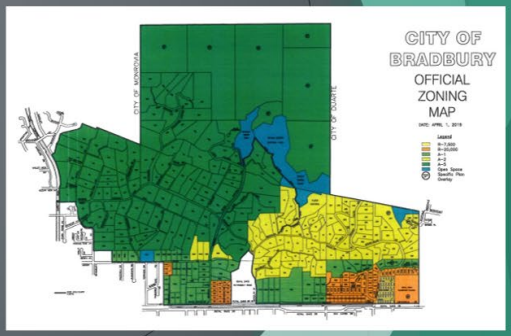
- Received a grant from the Federal Emergency Management Agency (FEMA)
- Local matching requirement met through City staff time (in-kind match).

Photo courtesy: naturecoaster.com

Fitting the Pieces Together

Works with the Safety Element to:

- Address Hazards of Concern
- Align funding with future actions



What is Hazard Mitigation?

Sustained actions taken to reduce or eliminate long-term risk to life and property from hazards

Actions that make the community less vulnerable to natural hazards before disasters strike

Communities reduce their vulnerability through the development of a Local Hazard Mitigation Plan (LHMP)

WHAT DOES AN LHMP DO?

Discuss Community hazards

Analyzes hazard risks

Identifies Policies / Projects to Reduce Risk

Provides direction to implement and monitor

WHO PARTICIPATES IN THE LHMP PLANNING PROCESS?

- City Manager's Office
- City Planner
- LA County Fire
- LA County Sheriff
- Elected/Appointed Officials
- City Residents
- Interested Stakeholders/ Community Organizations

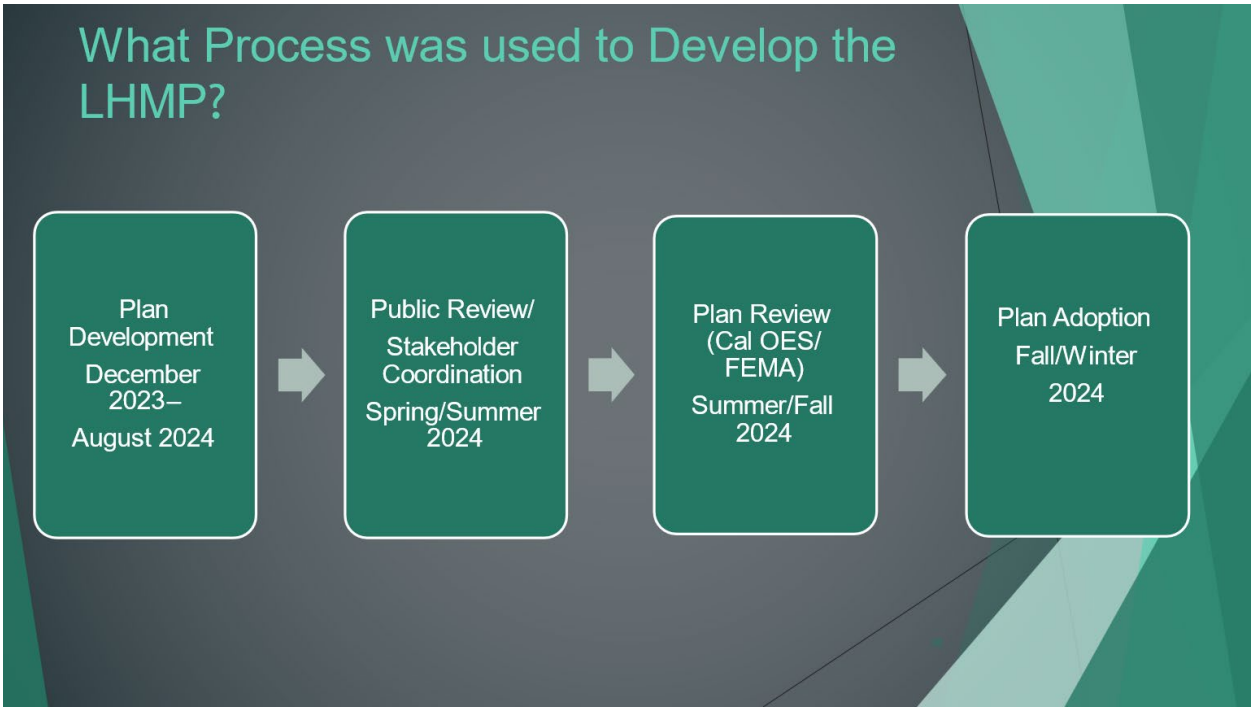
Why Prepare an LHMP?

Reduces injury, loss of life, property damage, and loss of services from natural disasters.

Eligibility for FEMA Grants:

- Building Resilient Infrastructure and Communities (BRIC) replaces Pre -Disaster Mitigation Grant Program
- Flood Mitigation Assistance (FMA)
- Hazard Mitigation Grant Program (HMGP)


What Hazards are in the LHMP?
Wildland Fire
Earthquake: Seismic Shaking
Climate Change*
Landslide
Earthquake: Liquefaction
Drought
Flooding
Windstorms
* Addressed under each relevant hazard
This Photo by Unknown Author is licensed under CC BY-SA-NC
These Photos courtesy of OCFA
This Photo by Unknown Author is licensed under CC BY -SA


What Process was used to Develop the LHMP?
Plan Development December 2023– August 2024
Public Review/ Stakeholder Coordination Spring/Summer 2024
Plan Review (Cal OES/ FEMA) Summer/Fall 2024
Plan Adoption Fall/Winter 2024

Public Participation

Online Engagement

- Online Survey
  - Set to release on 2/15/2024
- Online Promotion
  - Local Hazard Mitigation Plan Webpage
  - February 2024 Newsletter

In Person Engagement

- Public Meetings (2)
  - Public Safety Committee
    - (February 8, 2024)
  - City Council (Adoption)
    - (Fall/Winter 2024)

Home > Community > Public Safety > CWPP

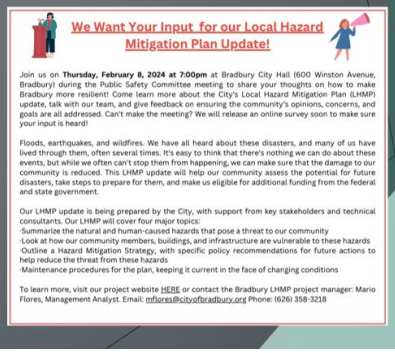
Local Hazard Mitigation Plan

CITY OF BRADBURY LOCAL HAZARD MITIGATION PLAN UPDATE

The City of Bradbury is preparing an update to the Local Hazard Mitigation Plan (LHMP). This plan helps to create a safer community. The LHMP allows public safety officials and city staff, elected officials, and members of the public to understand the threats from natural and human-caused hazards in our community. The City will share information about our LHMP and obtain community feedback at upcoming meetings. The first of these opportunities is scheduled for **February 8, 2024 (7 pm)** during the Public Safety Committee meeting at Bradbury City Hall. The plan will also recommend specific actions to proactively decrease these threats before disasters occur. This plan will maintain the five-year eligibility window for Federal Emergency Management Agency (FEMA) grants to assist in funding hazard mitigation projects within the City, as well as financial assistance from the state once formerly adopted by the City Council.

Why have an LHMP?

https://www.cityofbradbury.org/community/public_safety/cwpp.php



We Want Your Input for our Local Hazard Mitigation Plan Update!

Join us on **Thursday, February 8, 2024 at 7:00pm** at Bradbury City Hall (600 Winston Avenue, Bradbury) during the Public Safety Committee meeting to share your thoughts on how to make Bradbury more resilient! Come learn more about the City's Local Hazard Mitigation Plan (LHMP) update, talk with our team, and give feedback on ensuring the community's opinions, concerns, and goals are all addressed. Can't make the meeting? We will release an online survey soon to make sure your input is heard!

Floods, earthquakes, and wildfires. We have all heard about these disasters, and many of us have lived through them, often several times. It's easy to think that there's nothing we can 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. This LHMP update 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.

Our LHMP update is being prepared by the City, with support from key stakeholders and technical consultants. Our LHMP will cover four major topics:
·Summarize the natural and human-caused hazards that pose a threat to our community
·Look at how our community members, buildings, and infrastructure are vulnerable to these hazards
·Outline a Hazard Mitigation Strategy, with specific policy recommendations for future actions to help reduce the threat from these hazards
·Maintenance procedures for the plan, keeping it current in the face of changing conditions

To learn more, visit our project website HERE or contact the Bradbury LHMP project manager: Mario Flores, Management Analyst. Email: mflores@cityofbradbury.org Phone: (626) 358-3218

Questions?

Please Contact:

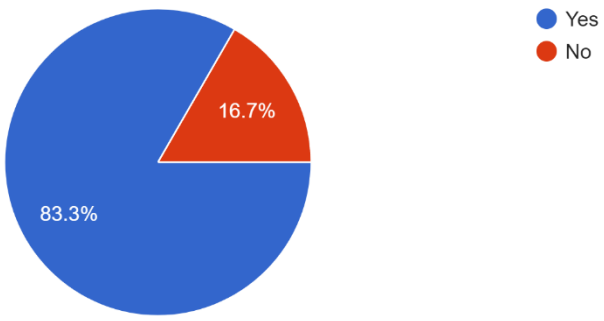
Mario Flores,
Management Analyst

mflores@cityofbradbury.org
626-358-3218

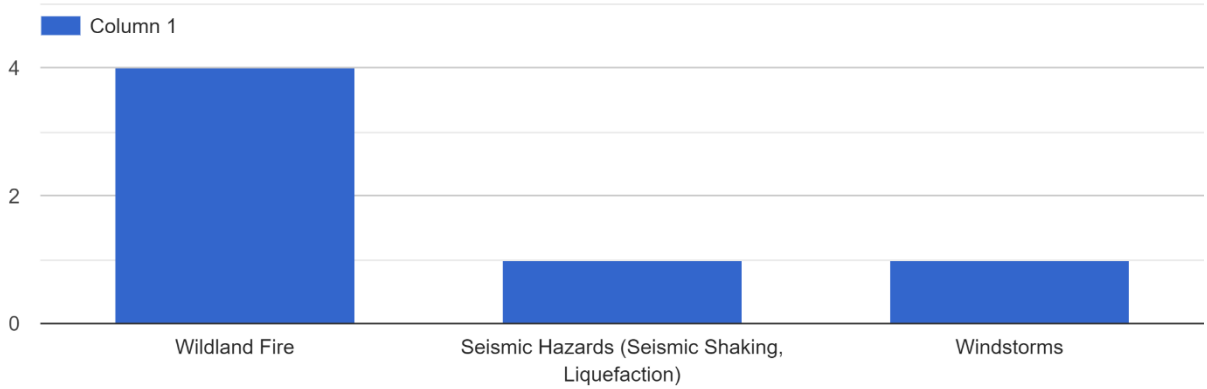
The City of Bradbury Hazard Mitigation Plan Survey Results

1. Have you been impacted by a hazard event in your current residence?

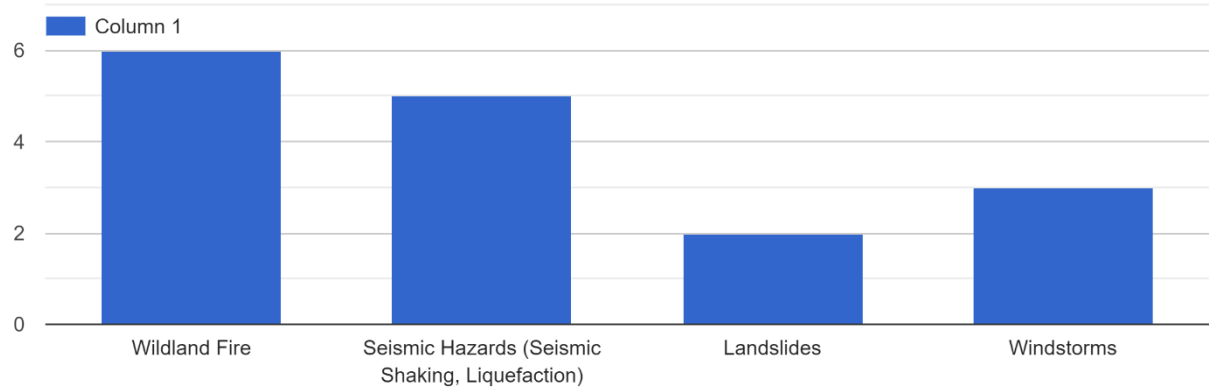
6 responses



2. If you answered yes to the previous question, please select the type of hazard event that you have been impacted by (select all that apply)..

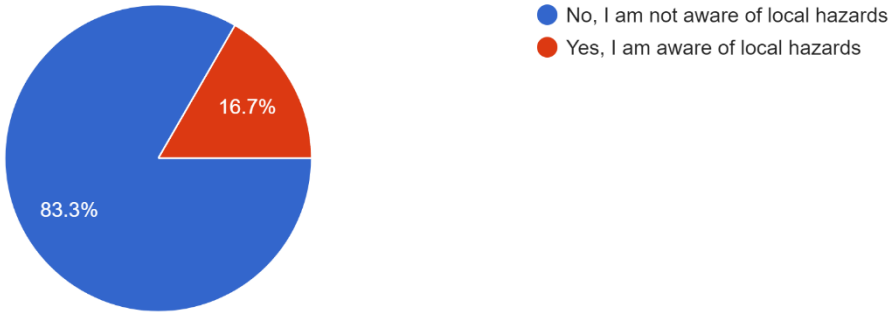


3. The following hazards could potentially impact the City. Please mark the THREE (3) hazards that are of the greatest concern to your neighborhood or home.



4. The planning team is using various data sources to identify hazards in your community. Unfortunately, some of these data sources do not p...that you would like the planning team to consider?

6 responses

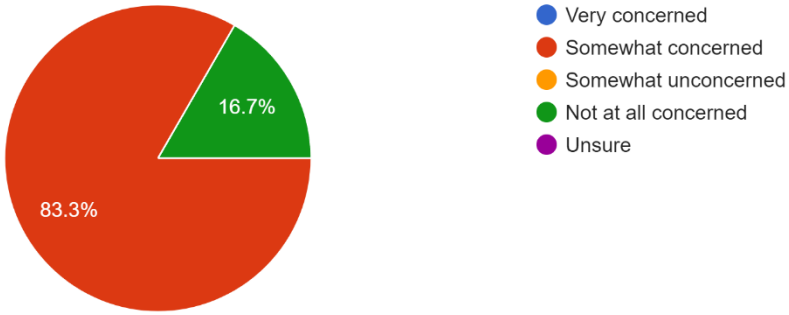


If you indicated "I am aware of local hazards" above, please provide as much detail as possible, including the location and type of hazard. 1 response

- Excessive plant growth due to rainfall past 2 years poses increased fire threat.

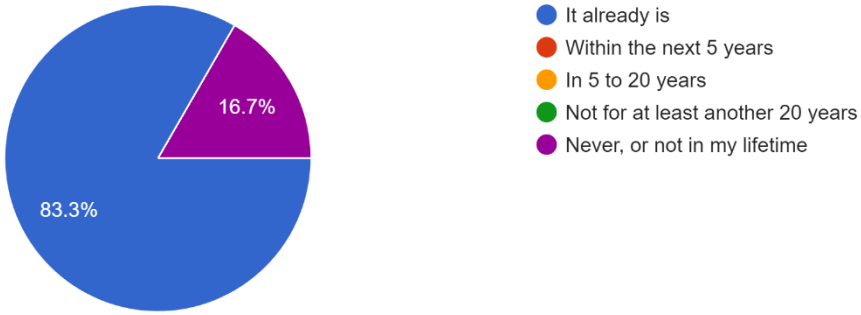
5. How concerned are you that climate change may create new hazardous situations in Bradbury or make existing natural hazards worse?

6 responses



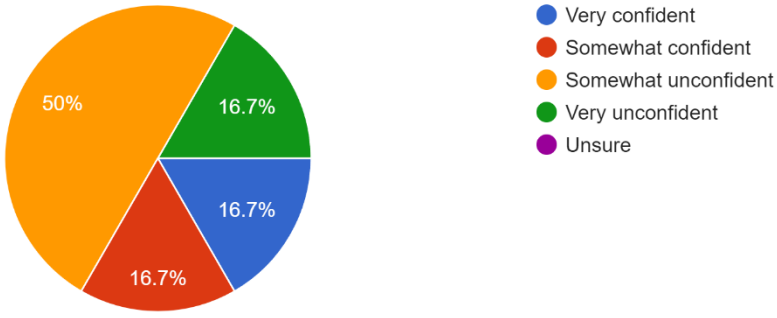
6. When do you think climate change will pose a threat to your health, property, livelihood, or overall wellbeing?

6 responses



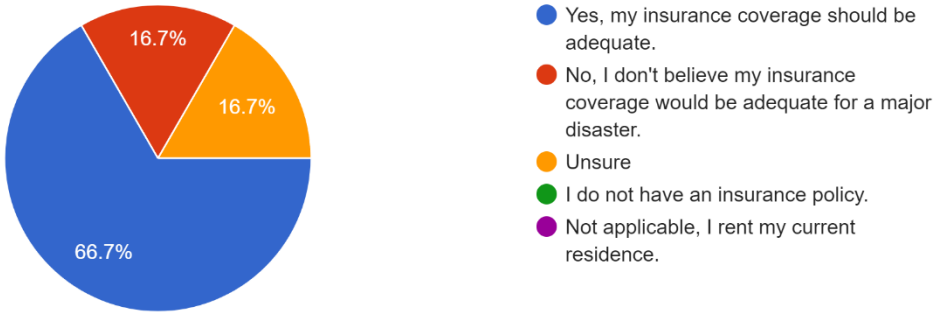
7. If you have taken any action to protect yourself against natural hazards, how confident are you that these actions will be sufficient to protect aga...ore severe hazards that are expected in the future?

6 responses



8. If you are a homeowner, do you have adequate homeowners' insurance to cover the hazards that could impact your home?

6 responses

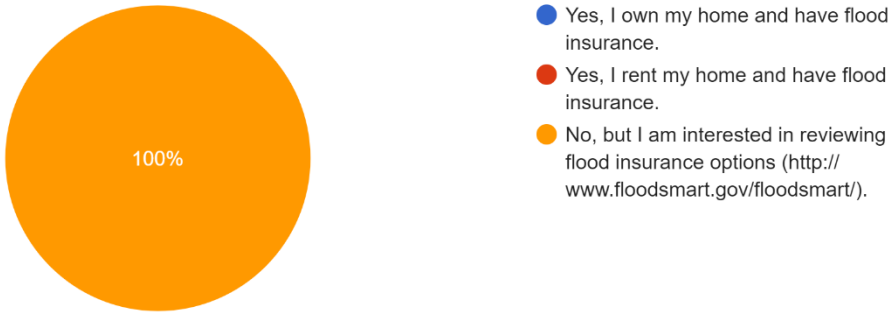


9. If you rent your residence, do you have renters' insurance?

- 0 responses
- No responses yet for this question.

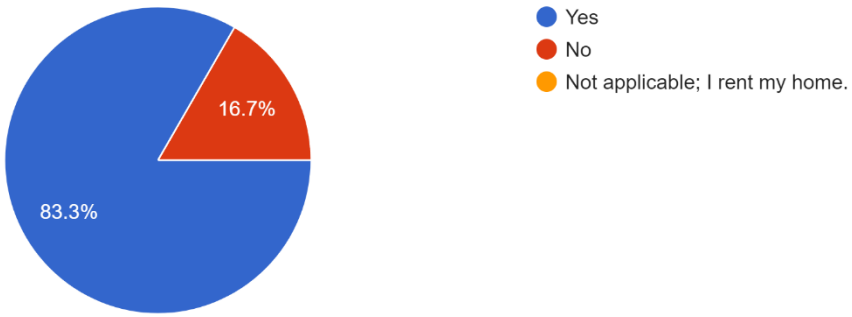
10. Do you have flood insurance for your home?

6 responses



11. Have you done anything to your home to make it less vulnerable to hazards such as earthquakes, floods, and fires?

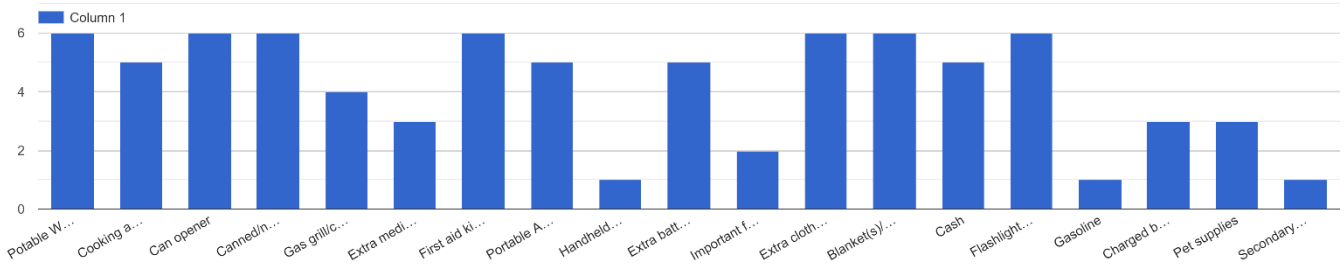
6 responses



If not, do you plan to?

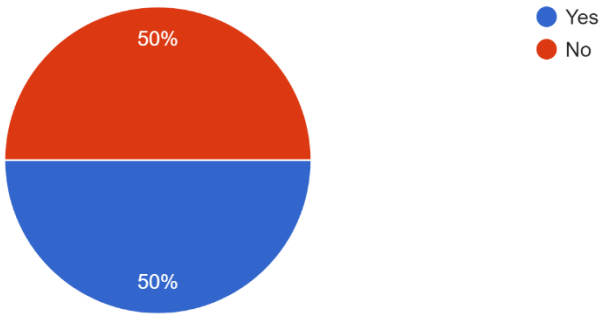
- 1 response
- No

12. If a severe hazard event occurred today such that all services were cut off from your home (power, gas, water, sewer) and you were unable to leave or access a store for 72 hours, which of these items do you have readily available?



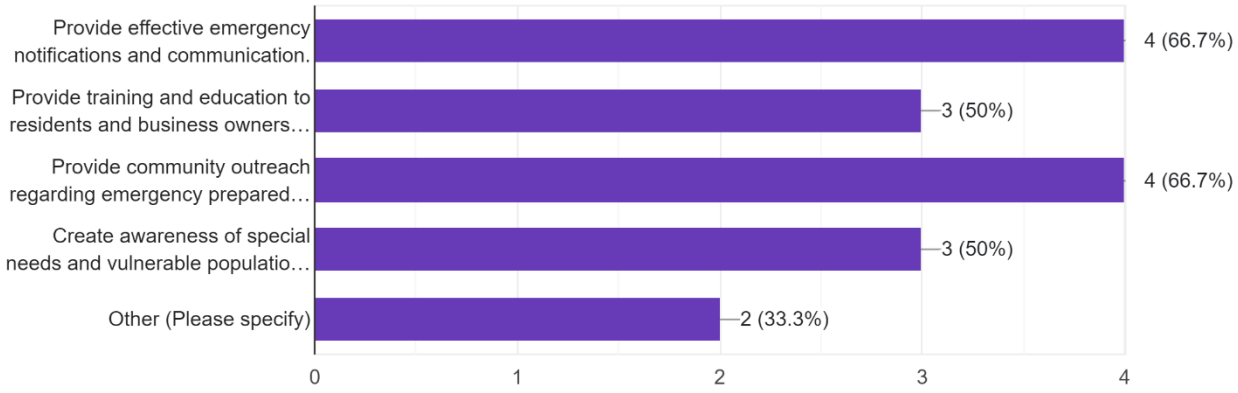
13. Are you familiar with the special needs of your neighbors in the event of a disaster situation (special needs may include limited mobility, severe medical conditions, memory impairments)?

6 responses



14. How can the city help you become better prepared for a disaster? (choose all that apply)

6 responses

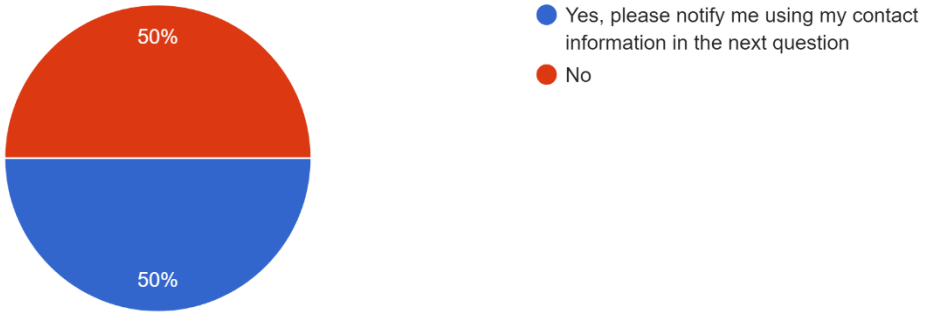


If you answered "Other" above, please specify below.

- 2 responses
- Home owners insurance is getting very expensive and difficult to get with many companies leaving the state. If California fair plan is all that becomes available the rates should be reduced.
- make an emergency plan for the city

15. Would you like to be contacted when the Draft 2024 Bradbury Hazard Mitigation Plan is available for review?

6 responses



16. If you would like to be notified of future opportunities to participate in hazard mitigation and resiliency planning, please provide your name and e-mail address. If you do not have an e-mail address, please provide your mailing address.

- 1 response
- *Omitted for respondees privacy*

17. Please provide us with any additional comments/suggestions/questions that you have regarding your risk of future hazard events.1 response

- What about nuclear blast?

Thank you for taking the time to complete this survey. If you have any questions, or if you know of other people/organizations that should be involved, please contact the City's Management Analyst at Mflores@cityofbradbury.org or call 626-358-3218.

APPENDIX C -Resolution of Adoption

(To be inserted after City Council Approval)

APPENDIX D - List of Key Facilities

CITY OF BRADBURY CRITICAL FACILITIES AND FACILITIES OF CONCERN

Asset Name	Critical Facility / Facility of Concern	Asset Type Category	Asset Type	Address
City Hall/Civic Center	X	City Facilities	City Facility (City Hall, Fire, Police)	600 Winston Avenue
Los Angeles County Fire Department – Fire Station #44 (not owned by City)	X	City Facilities	City Facility (City Hall, Fire, Police)	1105 Highland Avenue, Duarte
Los Angeles County Sheriff's Department – Temple Station (not owned by City)	X	City Facilities	City Facility (City Hall, Fire, Police)	8838 E. Las Tunas Dr., Temple City
Santa Teresita Hospital (not owned by City)	X	Hospital	Hospital	819 Buena Vista Street, Duarte
Royal Oaks Elementary School (not owned by City)	X	School	School	2499 Royal Oaks Drive

Not all critical facility locations are listed here. Only those locations that have been made accessible to public records have been listed to maintain facility site integrity and security.

APPENDIX E - Hazard Mitigation Implementation Handbook

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Local Hazard Mitigation Plan Implementation Handbook

August 2024

What Is This Handbook?

The Local Hazard Mitigation Plan (LHMP) for the City of Bradbury features an evaluation of the City's hazards as well as a variety of corresponding mitigation actions. 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 on hazard mitigation at an individual level. This Implementation Handbook (Handbook) is intended for use by City staff and decision-makers after the LHMP is adopted. It will:

- Give clear instructions following the adoption of the LHMP.
- Simplify future updates to the LHMP.
- Assist the City in preparing grant funding applications related to hazard mitigation.
- Guide annual plan review actions.

How do I Use This Handbook?

This Handbook 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 Handbook for advice on how best to proceed:

- A disaster proclamation has been issued by the Bradbury City Council
- A disaster proclamation has been issued by the State of California
- A disaster declaration has been signed by the Federal Government
- I want to apply for mitigation grant funding
- Bradbury is undergoing its budgeting process
- Bradbury is holding its annual meeting of the Hazard Mitigation Planning Committee
- Bradbury is updating the following 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 Handbook?

The Hazard Mitigation Planning Committee (HMPC) leader is responsible for maintaining this Handbook. At the time of writing, the current HMPC leader is Mario Flores, Management Analyst from the City of Bradbury. The HMPC may delegate this responsibility to someone else should they choose.

What to do when a disaster has been proclaimed or declared

Disasters may be proclaimed or declared by the Bradbury 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 Bradbury City Council

If the Bradbury 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 Bradbury.
- ☐ 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 in **Attachment 4**.
- ☐ **Chapter 6** of the Bradbury 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 the city. If there is a loss of life in Bradbury, consider updating the LHMP. Consult the section on updating the LHMP in this Handbook for details.

The State of California

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

- ☐ Update **Attachment 1** with information about the disaster. Include information about cumulative damage, including any damage outside of Bradbury.
- ☐ 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 in **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 6** of the Bradbury 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 Bradbury, even if there is no loss of life. Consider updating the LHMP. Consult the section on updating the LHMP in this Handbook for details.

The Federal Government

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

- ☐ Update **Attachment 1** with information about the disaster. Include information about cumulative damage, including any damage outside of Bradbury.
- ☐ Collaborate with Cal OES and FEMA representatives to assess the damage.
- ☐ Determine if Bradbury 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 in **Attachment 4**.
- ☐ The Hazard Mitigation Grant Program (HMGP) is a FEMA program that helps fund hazard mitigation activities after a disaster event. Bradbury may be eligible for funding because of the federal disaster declaration, although not all activities may meet the program's requirements. If Bradbury is eligible, work with FEMA to apply for this funding.
- ☐ **Chapter 6** of the Bradbury 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 Bradbury, even if there is no loss of life. Consider updating the LHMP. Consult the section on updating the LHMP in this Handbook 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 Building Resilient Infrastructure and Communities (BRIC) and Flood Mitigation Assistance (FMA) funding sources, are available to communities with an 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 BRIC 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.

Building Resilient Infrastructure and Communities (BRIC)

Building Resilient Infrastructure and Communities (BRIC) will support states, local communities, tribes, and territories as they undertake hazard mitigation projects, reducing the risks they face from disasters and natural hazards. BRIC is a FEMA pre-disaster hazard mitigation program that replaced the Pre-Disaster Mitigation (PDM) program.

The BRIC program's guiding principles are supporting communities through capability- and capacity-building; encouraging and enabling innovation; promoting partnerships; enabling large projects; maintaining flexibility; and providing consistency.

Development projects must be identified in a hazard mitigation plan that meets FEMA guidelines and has been 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 BRIC grant applications are processed through the State. To learn more, consult with Cal OES representatives or visit the FEMA webpage for the program. At the time of writing, this webpage is available at https://www.fema.gov/grants/mitigation/building-resilient-infrastructure-communities.

TAKE THE FOLLOWING STEPS TO APPLY FOR BRIC FUNDING:

- ☐ Confirm that the program is currently accepting funding applications. Check with representatives from Cal OES or consult the Cal OES webpage on the BRIC program. At the time of writing, this webpage is available at https://www.fema.gov/grants/mitigation/building-resilient-infrastructure-communities.
- ☐ 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 BRIC 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 participating in the National Flood Insurance Program (NFIP), which Bradbury currently does. Communities must also have a valid hazard mitigation plan that meets FEMA guidelines 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 BRIC 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 the time of writing, this webpage is available at https://www.fema.gov/grants/mitigation/floods.

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 the time of writing, this webpage is available at https://www.fema.gov/grants/mitigation/floods.
- ☐ 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.

Bradbury is going through the budgeting process

Bradbury'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. Bradbury currently operates on an annual budget cycle that runs from July 1st to June 30th.

During this process, City staff should take the following steps to incorporate hazard mitigation into Bradbury's annual budget:

- ☐ Include hazard mitigation activities into Bradbury'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 in the CIP or can support efforts within the CIP.
- ☐ Review the risk and threat assessments in the LHMP (Chapter 3 and Chapter 4) to ensure that all items in the CIP list are planned, designed, and constructed to minimize the threat from hazard events.
- ☐ Identify opportunities to identify stand-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 Committee (Planning Committee) considered a high priority.
- ☐ Set aside staff to conduct hazard mitigation activities, including time to participate in Planning Committee meetings and research, prepare, and submit BRIC and FMA grant opportunities (consult the "I Want to Apply for Mitigation Grant Funding" section above).
- ☐ Ensure hazard mitigation activities are reflected in each department's priorities and earmarked time for specific goals.

Bradbury is Conducting its Annual meeting of the Hazard Mitigation Planning Committee

The hazard mitigation planning process brings together representatives from multiple City departments as well as other relevant stakeholders. It provides a forum to discuss the hazards in Bradbury and how to mitigate them effectively. As mentioned in **Chapter 6** of the LHMP, the Planning Committee should meet at least once each year, beginning a year after the LHMP is adopted. During these meetings, the Planning Committee should discuss implementation progress and integration of hazard mitigation actions in other City documents. At these meetings, the Planning Committee 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 Committee to strategically plan for the upcoming year.

It may help for the Planning Committee to meet early in the year, in advance of annual budget activities. **Attachment 3** contains an example of a Planning Committee 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 current LHMP, the following individuals were part of the Planning Committee:

TABLE 1-1: BRADBURY HMPC MEMBERS		
Name	**Title**	**Department**
Mario Flores (City POC)	Management Analyst	City of Bradbury
Kevin Kearney	City Manager	City of Bradbury
Jim Kasama	City Planner	City of Bradbury
Steve Cabrera	Acting Assistant Fire Chief	LA County Fire Department
Stevin Fiedler	Sergeant	LA County Sheriff's Department
Aaron Pfannenstiel	Project Manager	Atlas Planning Solutions
Crystal Stueve	Senior Planner	Atlas Planning Solutions
Robert Jackson	Associate Planner	Atlas Planning Solutions

In advance of Planning Committee meetings, consider using **Attachment 1** to maintain an accurate list of recent disaster events that have occurred in and around Bradbury since the LHMP was adopted. At the Planning Committee 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 Committee members the opportunity to review the actions in the hazard mitigation strategy **(Attachment 4)** and ensure that they are implemented as intended.

Bradbury is updating its policy and regulatory documents

If Bradbury 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 Bradbury 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 Bradbury, or if a disaster leads to a loss of life in Bradbury (see the "What to Do When a Disaster Has Been Proclaimed or Declared" section), as discussed in **Chapter 6** of the LHMP.

Take the following steps to update the LHMP:

Assemble the Hazard Mitigation planning committee

- ☐ Convene a Planning Committee meeting no later than four years after the LHMP is adopted. Invite the regular Planning Committee 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 begins.
- ☐ Create and implement a community engagement strategy based on 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 Bradbury. Consider recent hazard events, new science associated with hazards and climate change, new development and land use patterns, and other recent changes in local conditions.

- ☐ Evaluate the status of all key facilities. Update this list if new facilities 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 to make them more feasible or remove them from the list of mitigation actions if they are no longer appropriate for Bradbury.
- ☐ Develop mitigation actions to improve the status of hazard mitigation activities in Bradbury by addressing any issues not covered by the existing LHMP.
- ☐ The ability to expand current mitigation capabilities will generally be reliant upon the budgeting allocated for each department/program for that fiscal year. The level at which these programs may or may not be expanded upon, will be dependent upon the amount of funding received. FEMA has released a series of guides over the past few years which highlight some of the ways in which jurisdictions can expand mitigation. Some strategies for increasing current mitigation capabilities may include:
  - City should actively identify, adopt, and enforce the most current set of development codes and standards available. Strongly encouraging new development to be constructed to higher standards than currently required, increasing resilience within the community.
  - Engaging parts of the community that may not be actively involved in mitigation efforts.
  - Expanding the number and types of organizations involved in mitigation planning and implementation, increasing both efficiency and bandwidth.
  - Fostering new relationships to bring underrepresented populations and partners to the hazard mitigation planning process.
  - During the annual LHMP review, the HMPC should look for opportunities to fund and expand/enhance the effectiveness of current mitigation actions.
  - During annual budgeting processes, the City should identify new funding sources (bonds, grants, assessment districts, etc.) that can be used to support existing capabilities enhancements.
- ☐ Ensure that the feedback from the community engagement activities is 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 the Planning Committee members and revise the plan to reflect any comments by Planning Committee members.

- ☐ Distribute the updated Plan to any appropriate external agencies not included in the Planning Committee 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 necessary revisions.
- ☐ Submit the plan to the Bradbury City Council for adoption.

The Safety Element of the General Plan

The Safety Element is a required component of Bradbury'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) of the California Government Code and for LHMPs in Section 65302.6. Ensure that both documents meet all state requirements.
- ☐ Ensure that the information in both plans does not contradict each other and that any inconsistencies are corrected to use the most accurate and appropriate information. This information should include a community description, a risk assessment, and a 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 Bradbury'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. Like an LHMP, state regulations require the Housing Elements to be updated regularly to remain current and valid.

The Housing Element is not required to contain any information or policies related 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 several 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 new Housing Element's adoption date, 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 Committee 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 Bradbury Municipal Code

Bradbury's Municipal Code 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 Municipal Code may include requirements that structures (particularly new structures or those undergoing substantial renovations) incorporate hazard-resistant features, be located outside 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 XVII, Chapter 1 Building Code, of Bradbury's Municipal Code contains building regulations and incorporates the BSC. Other sections of the Code adopt additional standards as desired by the City that adapts the BSC to Bradbury's local context.

As a participant in the National Flood Insurance Program (NFIP), Bradbury is required to incorporate Floodplain Management Requirements in its Zoning Code, which is located in the City’s Floodplain Management Regulations (Municipal Code Chapter 5: Floodplain Management Ordinance). These regulations establish standards for developing and operating facilities within mapped flood-prone areas. Other sections of the Bradbury Municipal Code may include additional standards related to hazard mitigation activities.

With the exception of the Floodplain Management Regulations and the minimum standards in the BSC, Bradbury is not required to incorporate hazard-related requirements in the Municipal Code.

However, the Municipal Code is an effective tool for implementing hazard mitigation measures related to the siting, construction, and operation of new buildings and other structures. Substantial updates to the Municipal Code, 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 Applicable Sections of the Bradbury 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, 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 the information about any disaster events that have occurred in Bradbury or nearby and have affected 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 Committee'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 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: Mitigation Strategy			
Chapter 6: Plan Maintenance			
Appendices			

Attachment 3: Sample Agenda and Topics for the Hazard Mitigation Planning Committee

This attachment includes a sample agenda and discussion topics for the annual meeting of the Planning Committee. 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 Committee will meet more frequently. The meetings of the Planning Committee 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 Bradbury or nearby in a way that affected the community?
- Identify events that caused loss of life or significant injury to Bradbury community members, significant property damage in Bradbury, or widespread disruption to Bradbury.
- 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 using 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 Committee last met? Is the 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, Orange County, and special districts? This should include information on district-specific hazard situations, mitigation actions, and other relevant information.

3.2. Is the City communicating with the appropriate state and federal agencies? Is the City receiving information about new regulations, best practices, and data related 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 Bradbury to support the 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 unavailable, 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 budgeted 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 Committee 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 Committee 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 Committee members coordinate efforts with those responsible for capital projects to take advantage of economies of scale that will make implementing hazard mitigation activities easier?

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 Committee. Identify if a technical consultant is needed and begin the contracting process.

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

ITEMS 6: NEW BUSINESS

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

Attachment 4: Hazard Mitigation Strategy

TABLE 5-3: MITIGATION ACTION IMPLEMENTATION PLAN						
Mitigation Action		**Potential Funding Sources**	**Responsible Department**	**Relative Cost***	**Time frame**	**Priority**
Preparedness Action Items						
P1	On City-owned property, construct a structure that would act as additional disaster supply storage, crisis center, and EOC.	General Fund, Grants	City Staff	$$$		High
P2	Evaluate and increase disaster preparedness supplies.	General Fund, Grants	City Staff	$$		High
P3	Expand emergency preparedness and response trainings for City staff and contracted support.	General Fund, Grants	City Staff	$$		High
P4	Increase disaster communications through the procurement of City-owned radios and related infrastructure needed for effective radio operation and communication.	General Fund, Grants	City Staff	$$		High
P5	Encourage individual and family preparedness through the City Newsletter and City emails.	General Fund, Grants	City Staff	$$		Low
P6	Establish opportunities for partnering with citizens, private contractors, and other jurisdictions to increase the availability of equipment and manpower for efficient response efforts.	General Fund, Grants	City Staff	$		High
P7	Work with the Los Angeles County Fire Department to increase CERT training and skills of volunteers belonging to the already established Bradbury Public Safety Committee.	General Fund, Grants	City Staff, Public Safety Committee	$$$		High
P8	Prepare a Debris Management Plan identifying debris removal procedures, resources, and funding.	General Fund, Grants	City Staff	$$		Low
P9	Periodically prepare an update to the Emergency Operations Plan.	General Fund, Grants	City Staff	$$		Low
Multi-Hazard Action Items						

TABLE 5-3: MITIGATION ACTION IMPLEMENTATION PLAN						
Mitigation Action		**Potential Funding Sources**	**Responsible Department**	**Relative Cost***	**Time frame**	**Priority**
MH-1	Integrate the goals and action items from the City of Bradbury's Hazard Mitigation Plan into existing regulatory documents and programs (e.g., City's General Plan, Safety Element, Housing Element), capital improvement projects, planning efforts, and project development standards to limit development in known hazard areas where appropriate and feasible.	General Fund, BRIC/ HMGP Grants, Other Grants	City Staff, HMPT	$	Ongoing (Annually)	High
MH-2	Develop outreach materials for mitigation, preparedness, response, and recovery to include the following: Hazard Types: wildfire, seismic hazards, geologic hazards, drought, windstorms, flooding, and climate change. Audiences: residents, property owners, utility providers, insurance providers, and real estate professionals. Mitigation Practices: wildfire defensible space, earthquake retrofitting, home hardening, erosion control, landslide protection, flood protection, windstorm risk reduction, and water conservation. Outreach Materials should be developed for electronic distribution using City-approved lists and hard copy distribution at City facilities and City-sponsored events.	General Fund, BRIC/ HMGP Grants, Other Grants	City Staff, Public Safety Committee	$$$	Initiate by 2025	High

TABLE 5-3: MITIGATION ACTION IMPLEMENTATION PLAN						
Mitigation Action		**Potential Funding Sources**	**Responsible Department**	**Relative Cost***	**Time frame**	**Priority**
MH-3	Maintain and enhance emergency evacuation capabilities and capacity based on coordination and collaboration with the following: • Identifying safe evacuation routes in hazard-prone areas. • Ensuring the development review process addresses evacuation requirements. • Ongoing communication with emergency response agencies. • Encouraging private property owners to upgrade their access roads and driveways to accommodate emergency vehicles. • Increasing communication and coordination between local, regional, state, and federal agencies to address hazard risks and identify mitigation actions to reduce community risks.	General Fund, BRIC/ HMGP Grants, Other Grants	City Staff	$$$	Initiate by 2024/2025	Medium
MH-4	Identify and pursue funding opportunities to develop and implement local and City mitigation activities.	General Fund, BRIC/ HMGP Grants, Other Grants	City Staff, HMPT	$	Initiate by 2025 and Continue Annually	High
MH-5	Provide hazard mitigation training for all staff and elected/appointed officials to stay current on developing natural hazard loss reduction issues.	General Fund, BRIC/ HMGP Grants, Other Grants	City Staff	$	Initiate by 2025 and Continue Annually	High
MH-6	Distribute information about flood, fire, earthquake, windstorms, landslides, and other forms of natural hazard insurance to property owners in areas identified to be at risk.	General Fund, BRIC/ HMGP Grants, Other Grants	Public Safety Committee	$	1-5 Years	Low
MH-7	Ensure the most current adopted version of City Plans and Programs (e.g., the City General Plan, Safety Element, and Local Hazard Mitigation Plan) are available on the City's website.	General Fund, BRIC/ HMGP Grants, Other Grants	City Staff	$	1-5 Years or Upon Update of Plans	Low

TABLE 5-3: MITIGATION ACTION IMPLEMENTATION PLAN						
Mitigation Action		**Potential Funding Sources**	**Responsible Department**	**Relative Cost***	**Time frame**	**Priority**
MH-8	Collaborate with LA County OEM, LA County Sheriff, and LA County Fire to update and enhance hazard mapping capabilities by maintaining a website that includes information specific to City of Bradbury residents, including site-specific hazard information, Building & Safety Codes information, and educational information on damage prevention.	General Fund, BRIC/ HMGP Grants, Other Grants	City Staff	$$	Initiate by 2025 and Continue Annually	High
MH-9	Use technical knowledge of natural ecosystems and mitigation activities and land use to support natural resource management, including: Pursue vegetation restoration practices that assist in enhancing and restoring the natural watershed. Develop education and outreach programs that focus on protecting natural watershed systems.	General Fund, BRIC/ HMGP Grants, Other Grants	City Engineer	$$$	Ongoing (As Needed)	Low
MH-10	Develop outreach programs and recovery activities to respond to the community during and immediately following a hazard event (e.g., wildfire).	General Fund, BRIC/ HMGP Grants, Other Grants	Public Safety Committee	$$	2-5 Years	Low
MH-11	Attend Disaster Emergency Preparedness and response training.	General Fund, BRIC/ HMGP Grants, Other Grants	City Staff	$	1-5 Years	Medium
MH-12	Subscribe to Blackboard Connect, which allows for pre-recorded messages to inform the public of wildfire response and recovery activities.	General Fund, BRIC/ HMGP Grants, Other Grants	City Staff, Public Safety Committee	$	1-5 Years and Continue Annually	Low
MH-13	Obtain funding to expand the City's backup generator capacity with additional backup batteries and fuel cells.	General Fund, BRIC/ HMGP Grants, Other Grants	City Staff	$$$	Initiate by 2025	High
MH-14	Provide Hillside Development Standards handouts to property owners and contractors that describe the requirements to minimize and mitigate hazards during the development review process.	General Fund, BRIC/ HMGP Grants, Other Grants	City Planning, Building and Safety	$	1-5 Years and Continue Annually	Medium

TABLE 5-3: MITIGATION ACTION IMPLEMENTATION PLAN						
Mitigation Action		**Potential Funding Sources**	**Responsible Department**	**Relative Cost***	**Time frame**	**Priority**
MH-15	Identify, improve, and sustain collaborative programs focusing on the real estate and insurance industries, and private sector organizations, and individuals to avoid activity that increases risk to natural hazards.	General Fund, BRIC/ HMGP Grants, Other Grants		$	1-5 Years and Continue Annually	Low
MH-16	Research grant funding to plan and develop the City's Hazard Mitigation Plan.	General Fund, BRIC/ HMGP Grants, Other Grants	City Staff, Public Safety Committee	$	1-2 Years Prior to Plan Update	Low
Earthquake Action Items						
EQ-1	Integrate new information and mapping of natural hazards as they become available in the City's planning documents during the update process of planning documents (e.g., General Plan Safety Element and LHMP).	General Fund, BRIC/ HMGP Grants, Other Grants	Public Safety Committee	$$$	1-5 Years and Continue Annually	Low
EQ-2	Review Federal, State, Regional, and Local Guidelines on seismic safety standards and construction codes annually to reduce earthquake hazards to new buildings and infrastructure in the City.	General Fund, BRIC/ HMGP Grants, Other Grants	City Planning, Building and Safety	$	1-5 Years and Continue Annually	Low
EQ-3	Review the guidelines of the National Earthquake Hazards Reduction Program (NEHRP) and ensure that code requirements meet the latest state requirements and best practices.	General Fund, BRIC/ HMGP Grants, Other Grants	City Planning, Building and Safety	$	Initiate by 2026	Medium
Wildfire Action Items						
WF-1	Continue fire inspections, including defensible space inspections and brush clearance programs sponsored by the Los Angeles County Fire Department.	General Fund, BRIC/ HMGP Grants, Other Grants	City of Bradbury and Los Angeles County Fire Department	$$	Future Planning Process	High
WF-2	Enhance outreach and education programs aimed at mitigating wildfire hazards. Encourage residents to plant fire-resistant landscaping, clear dry brush, and consider fire-resistant building materials.	General Fund, BRIC/ HMGP Grants, Other Grants	City of Bradbury and Los Angeles County Fire Department	$	1-5 Years and Continue Annually	Medium

TABLE 5-3: MITIGATION ACTION IMPLEMENTATION PLAN						
Mitigation Action		**Potential Funding Sources**	**Responsible Department**	**Relative Cost***	**Time frame**	**Priority**
WF-3	Publish annual fire prevention articles related to fire evacuation, fire escape plans, and fire safety in the City Newsletter.	General Fund, BRIC/ HMGP Grants, Other Grants	City of Bradbury and Los Angeles County Fire Department	$	1-5 Years and Continue Annually	Medium
WF-4	Hold the Bradbury Night Out Emergency Expo to educate the residents on natural and human-caused hazard prevention methods.	General Fund, BRIC/ HMGP Grants, Other Grants	City of Bradbury and Los Angeles County Fire Department	$$	Initiate by 2025 and Continue Annually	High
WF-5	Enforce the City's property maintenance standards to curtail wildfire threats and hazards.	General Fund, BRIC/ HMGP Grants, Other Grants	City Staff, Public Safety Committee	$	Ongoing (Annually)	Low
WF-6	Incorporate and support wildfire mitigation strategies as outlined in the City of Bradbury Community Wildfire Protection Plan (CWPP).	General Fund, BRIC/ HMGP Grants, Other Grants	Public Works, Engineering	$$$	Initiate by 2025 and Continue	High
WF-7	Collaborate with LACoFD on identifying defensible space and other techniques that will protect the City's buildings and infrastructure from the impacts of wildfire.	General Fund, BRIC/ HMGP Grants, Other Grants	Public Works, Engineering	$$$	Ongoing (As Needed)	High
WF-8	Achieve Firewise Community, USA designation.	General Fund, BRIC/ HMGP Grants, Other Grants	City of Bradbury, Public Safety Committee and Los Angeles County Fire Department	$$	Initiate by 2025 and Continue Annually	Medium
WF-9	Collaborate and work with Southern California Edison to implement more wire coverings and undergrounding of utility infrastructure to reduce wildfire potential.	General Fund, BRIC/ HMGP Grants, Other Grants	Building and Safety, City Engineering	$$$	1-5 Years	Medium

TABLE 5-3: MITIGATION ACTION IMPLEMENTATION PLAN						
Mitigation Action		**Potential Funding Sources**	**Responsible Department**	**Relative Cost***	**Time frame**	**Priority**
WF-10	Collaborate and work with neighboring jurisdictions on wildland fire mitigation projects and operational concerns.	General Fund, BRIC/ HMGP Grants, Other Grants	Public Works, Engineering	$$$	Ongoing (As Needed)	High
WF-11	Research, apply, and secure grant funding that leads to increased community preparedness, response, and recovery from a wildfire, including but not limited to: • Fire safety grants for brush clearance; • Funding opportunities for wildland fire projects	General Fund, BRIC/ HMGP Grants, Other Grants	City Staff, Planning	$	Ongoing	Low
Flood Action Items						
FLD-1	Coordinate with stakeholders to establish early flood warning systems, communications methods, and protocols among all government agencies.	General Fund, BRIC/ HMGP Grants, Other Grants	City Manager, Los Angeles County Flood Control, LA County Public Works	$	1-5 Years and Continue Annually	Medium
FLD-2	Update flood management mapping and policies upon receipt of new information from local, regional, state, and federal agencies.	General Fund, BRIC/ HMGP Grants, Other Grants	City Engineer, FEMA	$$	1-5 Years	Low
FLD-3	Work with LA County Public Works to identify areas subject to urban flooding and develop mitigation projects to reduce or eliminate these impacts.	General Fund, BRIC/ HMGP Grants, Other Grants	City Manager, LA County Public Works	$$	1-5 Years and Continue Annually/As Needed	Medium
Landslide Action Items						
LS-1	Amend hillside development standards as needed to align with Bradbury LHMP and General Plan Safety Element updates.	General Fund, BRIC/ HMGP Grants, Other Grants	Planning Department	$$	1-5 Years and Continue Annually/As Needed	Medium

TABLE 5-3: MITIGATION ACTION IMPLEMENTATION PLAN						
Mitigation Action		**Potential Funding Sources**	**Responsible Department**	**Relative Cost***	**Time frame**	**Priority**
LS-2	Review existing soil stability construction practices and determine if additional measures are needed. Review hillside development standards to determine if additional grading regulation measures are needed to safeguard new construction and new buildings.	General Fund, BRIC/ HMGP Grants, Other Grants	City Engineer	$$	3-5 Years	Medium
LS-3	Review erosion control requirements pertaining to vegetation on slopes and other erosion control measures.	General Fund, BRIC/ HMGP Grants, Other Grants	City Engineer	$$	3-5 Years	Low
LS-4	Closely monitor mudflow potential resulting from recent wildfire incidents.	General Fund, BRIC/ HMGP Grants, Other Grants	City Engineer, Los Angeles County Fire Department	$$	3-5 Years	Medium
LS-5	Continue to monitor impacts from landslides and erosion in the areas prone to these hazards in Bradbury.	General Fund, BRIC/ HMGP Grants, Other Grants	City Engineer	$$	1-5 Years and Continue Annually/As Needed	Low
Windstorm Action Items						
WS-1	Perform an annual inspection of at-risk trees prior to wind and wildfire season. Identify trees in the City's right-of-way prone to damage during hazard events and implement measures to prevent trees from causing damage to property, public infrastructure, and lives.	General Fund, BRIC/ HMGP Grants, Other Grants	City Staff	$	1-5 Years and Continue Annually/As Needed	Low
WS-2	Collaborate on data sharing and mitigation implementation between the City, utility providers, and county agencies to document and map known hazard areas.	General Fund, BRIC/ HMGP Grants, Other Grants	City Staff, Utility Purveyors	$	1-5 Years and Continue Annually/As Needed	Low
WS-3	Expand and enhance the annual chipping program in coordination with CWPP mitigation actions.	General Fund, BRIC/ HMGP Grants, Other Grants	Spring/Fall Clean Up	$$	1-5 Years and Continue Annually/As Needed	Low

TABLE 5-3: MITIGATION ACTION IMPLEMENTATION PLAN						
Mitigation Action		**Potential Funding Sources**	**Responsible Department**	**Relative Cost***	**Time frame**	**Priority**
WS-4	Encourage utility companies and land developers to use underground utility methods where possible to reduce power outages from windstorms.	General Fund, BRIC/ HMGP Grants, Other Grants	City Staff, Utility Purveyors	$$	1-5 Years and Continue Annually/As Needed	Medium
WS-5	Collect and review data and structural damage reports related to windstorms in Bradbury.	General Fund, BRIC/ HMGP Grants, Other Grants	Building and Safety	$$	1-5 Years and Continue Annually/As Needed	Medium
WS-6	Review updated wind safety standards with the Chief Building Official and determine if additional measures are needed to protect new buildings and infrastructure.	General Fund, BRIC/ HMGP Grants, Other Grants	Building and Safety	$$	1-5 Years and Continue Annually/As Needed	Medium
WS-7	Remove dead trees located in the City's right-of-way.	General Fund, BRIC/ HMGP Grants, Other Grants	Building and Safety	$$	Annually/As Needed	Medium
Drought Action Items						
DR-1	Expand funding on water conservation education, enforcement of water conservation regulations, and other drought-related topics.	General Fund, BRIC/ HMGP Grants, Other Grants	City Staff	$	Ongoing (Annually)	Medium