



CITY OF BELL, CALIFORNIA

2026 LOCAL HAZARD MITIGATION PLAN




CITY HALL
BELL CALIFORNIA
6330

1) EXECUTIVE SUMMARY

Hazard mitigation is sustained action taken to reduce or eliminate impacts of natural or human-made hazards including preventing loss of life and damage to property. It is a process that identifies, and profiles hazards, analyzes people and facilities at risk because of these hazards, and develops mitigation actions to reduce or eliminate hazard risk and create a stronger, more resilient community. This is the first iteration of the hazard mitigation plan for the City of Bell.

The 2026 City of Bell Local Hazard Mitigation Plan (LHMP) is designed to function as a roadmap for the coordination and execution of hazard mitigation policies and initiatives for the City of Bell. It describes the characteristics of hazards which threaten the community, as well as mitigation goals, strategies, and associated actions to aid the City and its community in reducing risks and minimizing damages by taking proactive steps before disaster strikes. This not only decreases risk to lives and properties but also reduces the social, economic, and environmental aftereffects which often follow hazardous events.

There are 18 unique hazards detailed in this plan. The findings for each of the 18 hazards are presented in separate, dedicated profiles within the Hazard Identification and Risk Assessment (HIRA) section. Within these profiles, the location and extent, range of magnitude, past occurrences, possible future occurrences, and vulnerability assessment of each hazard is laid out. The potential impacts of changing climate conditions are factored into the assessment of all future probabilities. The vulnerability assessments specifically examine the consequences for people, systems, and natural, cultural, and historic assets.

After outlining the mitigation goals, objectives, and approaches, the 2026 City of Bell Local Hazard Mitigation Plan delves into a comprehensive assessment of the capabilities of Bell. This section begins with a review of administrative and technical capacities, such as the presence of in-house engineers and the utilization of Geographic Information Systems (GIS). It then transitions to a review of financial strengths, followed by an evaluation of policy-driven and programmatic capabilities. The section wraps up with a synthesis of the capabilities for Bell and how the City plans to strengthen each of the capabilities.

Once approved by the FEMA Region IX and adopted by the City, plan implementation will occur over the next five years as City departments begin to implement the actions identified in this plan. Full implementation of the recommendations of this plan will require time and resources. The measure of the plan's success will be its ability to adapt to changing conditions. The City of Bell assumes responsibility for adopting the recommendations of this plan and committing resources toward implementation. A plan maintenance strategy was developed to include annual progress reporting, a strategy for continued public involvement, a commitment to plan integration with other relevant plans and programs, and continued oversight from City officials.

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2) INTRODUCTION

Hazard mitigation is sustained action taken to reduce or eliminate impacts of natural or human-made hazards including preventing loss of life and damage to property. It is a process that identifies, and profiles hazards, assesses people and facilities at risk due to such hazards, and develops mitigation actions to reduce or eliminate hazard risk and create a stronger, more resilient community.

Primary responsibility for hazard mitigation rests with local jurisdictions, which are tasked with developing and implementing risk-reduction strategies and policies within their communities. However, effective mitigation is inherently a shared effort that relies on coordination among multiple partners including regional organizations, state and federal agencies, special districts, private entities, and the public. In California, numerous state agencies are involved in hazard mitigation planning, funding, regulation, and technical assistance, supporting local governments.

The City of Bell Local Hazard Mitigation Plan (LHMP) is dedicated to enhancing public safety and protection against both natural and human-caused hazards. The goal of the LHMP is to educate the public, outline resources for reducing risks and losses, and direct the City towards a more resilient future. This plan sets clear goals towards mitigating hazard risks which include the following:

1. Protect lives and reduce injuries.
2. Support economic stability, recovery, and maintain community continuity and social connections.
3. Minimize property and infrastructure damages, downtime, and accelerate recovery.
4. Promote public awareness of hazard mitigation through outreach and education.

To achieve these goals, this plan establishes realistic mitigation actions that are tailored to the City of Bell's needs and compatible with its capabilities. These actions were formulated through a detailed process that included reviewing mitigation best practices and exploring mitigation actions in hazard mitigation plans for other nearby communities. Potential actions were further refined with information from the hazard profiles and input from City officials, community stakeholders, and members of the public.

The Plan Maintenance Section outlines the continuous updating and relevance of the plan, emphasizing annual reviews, five-year revisions, public involvement, and integration with City planning efforts such as the General Plan, Urban Forest Management Plan, Strategic Plan, Opportunity Zones, building codes, and more. Adoption of the Hazard Mitigation Plan by the City Council is crucial for the plan's success. The Council, as the community's governing body, provides the authority and policy support necessary to implement mitigation actions and integrate them into other local plans and programs.

3) PLANNING PROCESS

The 2026 City of Bell Local Hazard Mitigation Plan was completed in March, 2026. The development of this plan was undertaken not only to meet the requirements of the Disaster Mitigation Act of 2000, ensuring eligibility for hazard mitigation grant opportunities, but also to support a clearer understanding of the hazards facing the City of Bell, enabling more informed decision-making around hazard mitigation and risk reduction. This plan includes resources and information to assist City residents, public and private sector organizations, and others interested in participating in planning for both natural and human-caused hazards. Additionally, the Plan includes a list of mitigation actions that were selected by the Hazard Mitigation Planning Team (HMPT) as potential strategies for reducing losses from future hazard events.

A) THE PLANNING TEAM

The HMPT is the core group of people responsible for developing and reviewing drafts of the plan, informing the risk assessment, developing the mitigation goals and strategies, and submitting the plan for local adaptation. The HMPT is comprised of individuals from several departments within the City of Bell to provide their unique expertise and knowledge to the entire planning process. Members of the HMPT were identified by the Assistant to the City Manager. All members were invited to meetings, copied on email communications, and provided input during development of the plan. A list of the HMPT members is described in **Table 1**. The HMPT members were involved in the development of the plan from the beginning of the process and were instrumental in determining what hazards were profiled, how the public would be engaged, identifying community stakeholders, selecting mitigation actions, and formulating a maintenance plan.

Table 1. Hazard Mitigation Planning Team Members

NAME	TITLE & DEPARTMENT
Javier Ochiqui	Interim Community Development Director
Gina Skibar	Deputy Director, Human Resources and Risk Management Planning Team lead
Rickey Manbahal	Financial Director
Rita Montalvo	Public Works Director
Norma Gamez	Accounting Specialist
Mark Dumford	GIS – INFTechnologies
David Marquez	Consultant – California Consulting
Chelsea Morganti	Director for Hazard Mitigation – Witt O'Brien's
Mark Duffy	Hazard Mitigation Planner – Witt O'Brien's

B) PUBLIC PARTICIPATION

Public input played a key role in shaping the City of Bell's Hazard Mitigation Plan. Consistent with the requirements of 44 CFR §201.6(b)(1) and FEMA's Local Mitigation Plan Review Tool (Elements A3 and A4), the City provided multiple opportunities for the public and interested stakeholders to participate in the development and review of the Hazard Mitigation Plan.

Feedback from community members helped the planning team confirm that no significant local hazards were overlooked and informed how each hazard was characterized in the plan. For example, responses from the first public survey emphasized strong community concern about how future climate conditions could influence the frequency and severity of hazards. Public engagement also guided the selection and prioritization of mitigation actions, ensuring they reflected community support and local needs.

Public Surveys

Online surveys were selected as an outreach strategy by the planning team because they offered the greatest opportunity for wide participation among community members, including underserved and socially vulnerable populations. The online surveys allowed members of the public to provide their feedback, which offered greater flexibility for community members. Second, online surveys do not require participants to travel. Requiring respondents to travel to a specific location may be burdensome for a range of people including but not limited to, those who lack access to a personal vehicle, have limited mobility or physical disabilities, or have dependents that cannot be left alone. Third, online surveys can be completed over multiple sessions, which gives individuals an opportunity to participate without feeling rushed.

While no strategy is perfect, the planning team ultimately felt that the chosen approach would offer the best chance to generate wide participation among the public, particularly in a post-COVID-19 era that has resulted in a boom of virtual communication. The planning team's assumption is partially supported by peer-reviewed research, which found that virtual settings "enable a diverse audience of people from different locations, creating a more robust participation and exchange of ideas"¹.

Public Survey #1

Public input was sought through virtual participation across two public surveys to solicit feedback regarding hazard mitigation from City of Bell residents. On August 15, 2025, the first survey was conducted to the public to develop a clearer understanding of which hazards community members are most concerned about. The survey contained 24 questions and was translated into Spanish and Lebanese-Arabic. The survey was open to the public until August 31,

¹ GUETTER, CAMILA R., MARIA S. ALTIERI, MARION C.W. HENRY, ELIZABETH A. SHAUGHNESSY, SADIA TASNIM, YANGYANG R. YU, AND SANDA A. TAN. "IN-PERSON VS. VIRTUAL CONFERENCES: LESSONS LEARNED AND HOW TO TAKE ADVANTAGE OF THE BEST OF BOTH WORLDS." AMERICAN JOURNAL OF SURGERY 224, NO. 5 (NOVEMBER 2022): 1334–36.
[HTTPS://DOI.ORG/10.1016/J.AMJSURG.2022.07.016](https://doi.org/10.1016/j.amjsurg.2022.07.016).

2025. The survey was promoted to members of the public through official city posts on Facebook, Instagram, and X (previously Twitter).

25 responses were collected, and the results of the survey are described further below and can be viewed in Appendix B.

- Respondents are either very concerned or somewhat concerned about natural hazards.
- Earthquakes, Extreme Temperatures, Fire (Urban and Wildfires) are the top three hazards that residents are most concerned about.
- Respondents are concerned about potential impacts of climate change.
- Respondents are very concerned about man-made hazards.
- Hazardous Materials Incidents, Utility and Infrastructure Failure, Transportation Accidents are the top three hazards that residents are most concerned about Man-Made Hazards.
- Pandemic/Epidemic, Extreme Temperatures, Utility and Infrastructure Failure are the top three natural or man-made Hazards that have impacted residents.
- Some respondents do not have enough food and water to go 72 hours (3 days) without aid.
- Most respondents receive severe weather warnings through text/app alerts, social media, and television.
- Most respondents have not taken any actions to mitigate impacts of natural hazards.
- Many respondents are interested in insurance discounts, property tax breaks, low interest loans, and property retrofit reimbursements for home or business mitigation.
- Most respondents had a “Neutral” stance on how well prepared the City is for natural and man-made hazards.

The feedback received during the first public survey was communicated to the HMPT via a summary file emailed to members after the survey closed on August 31st, 2025. Additionally, the responses were discussed among the HMPT members in the Hazards and Actions Workshop Part I. It was determined through this discussion that the current list of hazards to be profiled in the plan was appropriate, and the feedback from community members was unsurprising to HMPT members.

Public Survey #2

The second survey was opened to the public on November 17, 2025. The survey included 29 questions regarding mitigation strategies for each of the profiled hazards and was translated to Spanish and Lebanese-Arabic. The survey guided the identification of mitigation strategies for the City of Bell based survey feedback. The survey was opened to the public until December 8,

2025. In total, 12 responses were collected through the second public survey. Summary takeaways from these 12 responses are described below, while full details of the responses for public survey #2 can be viewed in Appendix B.

- Most respondents supported pursuing mitigation actions to reduce future impacts of disasters
- Across all hazards, respondents largely supported mitigation actions that focused on public education and hazard awareness
- A majority of respondents supported working with neighboring jurisdictions to better understand and mitigate the impacts of dam and levee failures, sea level rise, and tsunamis
- Respondents largely supported physical improvements and retrofitting public infrastructure to better withstand potential impacts of tornadoes, fires, and other hazards
- None of the respondents identified any personal disabilities that they would want first responders to be aware of in the event of an emergency

Like the first survey, opportunities to participate in the second public survey were promoted through the City's website and official social media accounts on Facebook, Instagram, and X (previously Twitter). Additionally, Spanish and Lebanese-Arabic versions of the survey were created and made available to the public. Survey results and copies of the social media activity promoting the surveys are available in Appendix B.

Community feedback gathered through the second public survey was communicated to the HMPT via a summary file emailed to members after the second survey closed on December 8th, 2025. The planning team also spend considerable time reviewing the feedback during the HMPT meeting held on January 7th, 2026. In particular, discussions centered around whether the feedback was sufficient to narrow down the list of proposed hazard mitigation actions. Ultimately, the HMPT determined that, while respondents indicated different levels of support for different proposed actions, there were no actions that clearly lacked community support based on survey feedback. Therefore, no proposed actions were removed.

Public Survey #3

The draft City of Bell Hazard Mitigation Plan was uploaded by the City of Bell's website for public review from March 12, 2026 to April 6, 2026. At the same time, the third public survey was opened and promoted by the City of Bell. Like the previous two surveys, the third public survey had versions in English, Spanish, and Arabic-Lebanese. The survey included a link to the plan on the City's website, and the questions in the third survey asked respondents to provide feedback about whether the plan addressed all of the relevant actions, if the proposed mitigation actions were satisfactory, and whether respondents had feedback to provide for consideration in future planning efforts. Unlike the previous two surveys, there were no comments or feedback

provided by respondents, and therefore no additional changes were made to the draft plan. The HMPT considered extending the open period for the third survey by an additional week, but it was decided that this was unlikely to produce significant additional public engagement.

Survey Integration

The feedback process was iterative and followed each round of public outreach. The planning team reviewed and refined the plan to confirm that it accurately addressed public concerns and evolving perspectives. Multiple rounds of engagement helped the team identify shifts in community sentiment and emerging issues, providing valuable context for ongoing and future mitigation planning efforts. The results of the surveys were presented to the members of the planning team in multiple HMPT meetings and integrated into discussions regarding the risk assessment and development on mitigation actions.

C) STAKEHOLDER INVOLVEMENT

FEMA guidance directs local hazard mitigation planning efforts to create opportunities for the participation of community stakeholders. In plain terms, community stakeholders are entities that contribute to the community and have an interest in its long-term prosperity. These entities may be affected by community decisions—including those around hazard mitigation—and can be helpful resources. Unlike members of the HMPT, community stakeholders are not fully engaged in every step of the hazard mitigation plan development process, and this distinction is important for a few reasons. Community stakeholders can be major employers, academic institutions, and other entities that may not have the capacity to be involved as closely as the HMPT, and situations may arise where it could be considered inappropriate for decisions to be made by entities whose primary function is not hazard mitigation planning. While community stakeholders represent valuable partners, key decision-making responsibilities are retained by the HMPT, which consists of individuals specifically tasked with this work. FEMA guidance organizes community stakeholders into the following five categories:

1. Local or regional entities involved in hazard mitigation activities
2. Agencies that have the authority to regulate development
3. Neighboring communities
4. Represent area businesses, academic institutions, or other private organizations
5. Represent nonprofit organizations or community-based organizations that work directly with and/or provide support to underserved communities and socially vulnerable populations

The need to involve community stakeholders was discussed early in the planning process. HMPT members were encouraged to informally engage city departments, businesses, non-profit organizations, and other community stakeholders throughout the planning process to

encourage them to participate in community surveys. From the results of the first and second public surveys, the HMPT determined that the third public survey should be shared directly with individual community stakeholders to increase the likelihood of participation. On March 23, 2026, each community stakeholder listed in Table 2 was contacted via email. The emails explained that the City of Bell was developing a hazard mitigation plan, as well as the purpose of these plans. The emails further explained that the entities who received these emails were identified as community stakeholders, and the team hoped to get their input on the plan. To help each community stakeholder provide feedback, the emails contained a direct link to a draft copy of the plan and the third public survey. A copy of the email sent to community stakeholders is included in Appendix B. The HMPT was prepared to expand content in the plan based on feedback from community stakeholders, with the possibility of additional discussions, if necessary. However, none of the stakeholders chose to complete the third public survey or otherwise provide feedback. The planning team considers the planning process to be ongoing until the draft is finalized. The draft had not been finalized before stakeholder engagement was sought.

Many of these community stakeholders exhibit more than one of the five stakeholder characteristics outlined by FEMA guidance for local hazard mitigation planning. **Table 2** describes the functions of the community stakeholders relevant to the 2026 City of Bell Local Hazard Mitigation Plan.

Table 2. Community Stakeholders by Group

COMMUNITY STAKEHOLDER NAME	CORRESPONDING FEMA STAKEHOLDER GROUP
City of Maywood – Planning Division	Neighboring Jurisdiction/Agencies that have the authority to regulate development/Local and regional entities involved in hazard mitigation activities
City of Bell - City Clerk	Local and regional entities involved in hazard mitigation activities
City of Bell – Community Development	Agencies that have the authority to regulate development
City of Bell – Police Department	Local and regional entities involved in hazard mitigation activities

COMMUNITY STAKEHOLDER NAME	CORRESPONDING FEMA STAKEHOLDER GROUP
City of Huntington Park – Planning and Zoning Division	Neighboring Jurisdictions/Agencies that have the authority to regulate development/Local and regional entities involved in hazard mitigation activities
City of Cudahy – Planning and Zoning	Neighboring Jurisdictions/Agencies that have the authority to regulate development/Local and regional entities involved in hazard mitigation activities
City of Bell Gardens	Neighboring Jurisdictions/Agencies that have the authority to regulate development
City of Commerce – Planning Division	Neighboring Jurisdictions/Agencies that have the authority to regulate development/Local and regional entities involved in hazard mitigation activities
Bell High School	Private Institutions and Academia
Bell Adult School AC2T Program	Private Institutions and Academia
CEMEX Bell	Private Institutions and Academia
307th Chemical Company	Private Institutions and Academia
AsendiaUSA	Private Institutions and Academia
CA-NY Express Cross Country Movers	Private Institutions and Academia
Amuse Cosmetics	Private Institutions and Academia

COMMUNITY STAKEHOLDER NAME	CORRESPONDING FEMA STAKEHOLDER GROUP
HNS Supply Company	Private Institutions and Academia
Bell Shelter Partnership	Non-Profit Organizations
Salvation Army	Non-Profit Organizations
Foundation Shelter Resource Bank	Non-Profit Organizations
Southland Christian Church	Non-Profit Organizations

D) INCORPORATION OF EXISTING PLANS, STUDIES, AND REPORTS

Development of the 2026 City of Bell Local Hazard Mitigation Plan drew upon multiple existing plans, studies, and reports. Information from these sources helped shape the community profile, describe local hazards, and assess risks and vulnerabilities. They also guided the selection of mitigation actions and informed the development of a maintenance, evaluation, and update process consistent with existing planning mechanisms and delegated authorities. The following plans, studies, and reports were incorporated in the 2026 City of Bell Local Hazard Mitigation Plan.

- City of Bell General Plan
- City of Bell Urban Forest Management Plan
- California State Hazard Mitigation Plan
- Annual 2022 Drought Report, National Centers for Environmental Information (NCEI)
- UC Davis Center for Watershed Sciences. A Retrospective Economic Analysis: 2012-2016 Drought.
- LA River Master Plan
- LA County Climate Vulnerability Assessment
- California's Fourth Climate Change Assessment
- Drought Assessment in a Changing Climate, November 2023
- Rapid Intensification of the Emerging Southwestern North American Megadrought in 2020-2021, February 2022
- County of Los Angeles All Hazards Mitigation Plan
- Extreme Heat & Public Health Report
- Scientific American, Increasing Power Outages Don't Hit Everyone Equally, August 2023
- Climate Change Suppresses Santa Ana Winds of Southern California and Sharpens Their Seasonality, January 2019
- Identifying and Managing Conjoint Threats: Earthquake-induced Hazardous Materials Releases in the US, September 1996
- Natural and Technologic Hazardous Materials Releases During and After Natural Disasters: A Review, April 2004
- A Safety Function Deployment Approach to Risk Management of HazMat Highway Transportation, July 2021
- Landslide Sensitivity and Response to Precipitation Changes in Wet and Dry Climates, June 2022
- Social and Environmental Impacts of Landslides, September 2018
- Stability Analysis of Pumped Storage Hydropower Plant in Abandoned Open pit Mine Affected by Dynamic Surface Subsidence of Combined Mining, February 2014

- Past, Present, and Future: California Provides Insight on the Severity of the Drought and 2022 Guidance, 2022
- County of Los Angeles Emergency Medical Services (EMS) Agency, Incident After-Action Report (AAR): COVID-19 Pandemic, April 2022
- Pew Research, Black Americans’ Views about Health Disparities, Experiences with Health Care, April 2022
- Duke Global Health, Statistics Say Large Pandemics are More Likely Than We Thought, August 2021
- FHI 360, Secondary Impacts of the COVID-19 Pandemic in the United States
- County of Los Angeles Public Health, COVID-19 Pandemic Response Interim Review, December 2022
- Accelerated COVID-19 Vaccine Development: Milestones, Lessons, and Prospects, August 2021
- Wildfire Smoke: A Guide for Public Health Officials, 2019
- Flood Risks Increase After Fires, November 2020

These sources informed multiple components of the plan, including the risk assessment, capability assessment, and mitigation strategy. Rather than duplicating content, relevant information was synthesized and integrated into the appropriate sections of this document. References to these materials are reflected throughout the plan in the form of adapted data, summarized findings, and aligned mitigation actions. For example, hazard identification and vulnerability discussions incorporate data derived from prior technical studies, while mitigation actions align with recommendations and policies established in existing local and regional plans. Some specific examples include the use of the City of Bell General Plan—particularly the housing element—to inform much of the vulnerability analyses regarding the ages and types of the city’s building stock; California’s Fourth Climate Change Assessment informed the plan’s assessment of future probabilities for meteorological hazards (severe storms, tornadoes, winter weather, etc.); the County of Los Angeles All Hazards Mitigation Plan and the California State Hazard Mitigation Plan helped generate mitigation action ideas; the City of Bell Urban Forest Management Plan helped contextualize the extent of trees in the city that could provide shade or be sources of debris during windstorms; and the LA River Master Plan helped the planning team understand the history and original intent of the Los Angeles River. This approach ensures the plan remains cohesive and readable while demonstrating that existing planning efforts were actively considered and incorporated into the overall mitigation strategy.

E) LOCAL METHODOLOGY AND UPDATE PROCESS

The 2026 City of Bell Local Hazard Mitigation Plan is intended to help the community better understand the hazards that pose a risk to the community and support the City’s planning and preparedness efforts in addressing and reducing risk. This plan update it is intended to support all residents, including individuals with access and functional needs, cultural groups, limited English-speaking populations, children, the elderly, economically distressed, and other disadvantaged communities. The plan utilizes a whole community approach, and input was sought from the City’s HMPT, community stakeholders, and the public to help guide the development of the plan.

The City of Bell Local Hazard Mitigation Plan is the result of a collaborative planning effort between City of Bell citizens, public agencies, non-profit organizations, the private sector, and regional and state organizations. Public participation played a key role in the development of goals and action items. The HMPT guided the process of developing the plan and consisted of multiple community representatives.

The preparation of the Local Hazard Mitigation Plan was the responsibility of the individuals gathered together to form the HMPT, which consisted of representatives from multiple departments from the City of Bell as well as private consultants that assist the community with Geographic Information Systems (GIS) and other technical aspects. Members of the planning team understood how their jurisdiction’s organizational structure and how the jurisdiction might be affected by hazard events. The HMPT guided the development of the Plan, and assisted in developing plan goals and mitigation action, identifying external stakeholders and plan reviewers, and sharing local expertise to create a more comprehensive plan.

i) Timeline

Development of the City of Bell Hazard Mitigation Plan was shaped by a series of milestones from 2025 to the Spring of 2026. These milestones mark the progression from securing resources to drafting, reviewing, and finalizing the plan. **Table 3** provides a summary of the milestones throughout the planning process demonstrating the continued dedication among HMPT members to produce a high-quality hazard mitigation plan for the community.

Table 3. Planning Process Timeline

DATE	MILESTONE
5/13/22	Grant awarded to the City of Bell to develop a hazard mitigation plan
10/7/2024	City of Bell puts out a solicitation for a consultant to help develop the hazard mitigation plan

DATE	MILESTONE
4/2/25	City of Bell and Witt O'Brien's enter into a contract
4/18/25	HMPT Meeting 1 – City of Bell Project Management meeting
7/1/25	HMPT Meeting 2 – Project Kick-off Meeting
8/19/25	HMPT Meeting 3 – City of Bell August Check-In Meeting
8/11/25	Public Survey #1 opened for public participation
9/30/25	HMPT Meeting 4 – Hazards and Actions Workshop Part I
10/21/25	HMPT Meeting 5 – Hazards and Actions Workshop Part II
11/17/25	Public Survey #2 opened for public participation
1/7/26	HMPT Meeting 6 – Bell HMP Final Draft Review
3/6/26	HMPT Meeting 7 – Bell HMP Finalizing Mitigation Actions and Wrap Up
3/12/26	Public Survey #3 opened for public participation
3/23/26	Plan draft shared with community stakeholders for their feedback
4/8/26	Plan draft submitted to Cal OES for State review
TBD	Plan draft submitted to FEMA for review and approval

ii) Meetings

In total, the HMPT met seven times during plan development. The following meetings were facilitated by the City's consultant Witt O'Brien's. All meetings were hosted virtually via Microsoft Teams:

Meeting #1: City of Bell Project Management Meeting – April 18th, 2025

On April 18th, 2025, the City of Bell and the Witt O'Brien's Team held a preliminary call to begin discussions about developing a hazard mitigation plan for the City. During this call, the two parties discussed what the general process would look like, who would be involved, what hazards should be profiled, and how public participation should be facilitated. The meeting was facilitated by Chelsea Morganti and input from the City was provided by Javier Ochiqui, Gina Skibar, Rickey Manbahal, and Sheetal Talwar, with support from David Marquez.

Based on feedback from the City, the kickoff was scheduled to take place in July following several deadlines. The Witt O'Brien's team assembled the draft plan and conducted the majority of the research associated with the content in the intervening months. Direction on the timeline and sub-grant compliance was also provided by CalOES during this period.

Meeting #2: City of Bell Project Kick Off – July 1st, 2025

On July 1st, 2025, the official project kick off meeting took place. This meeting was attended by members of the HMPT and the Witt O'Brien's Team. During this meeting, participants discussed potential hazards and determined which ones warranted inclusion in the Plan, elements of how public engagement would be most effective, and the upcoming project schedule and dates for future meetings.

Meeting #3: City of Bell August Check-In – August 19th, 2025

Members of the HMPT met virtually on August 19th, 2025, to discuss several items pertaining to the development of the City's Hazard Mitigation Plan. First, the team discussed the general timeline and the status of Public Survey #1, which was posted online on August 12th, 2025. The HMPT then reviewed the City's mitigation capabilities—these include planning mechanisms, City staff and personnel, fiscal resources, programs, and technical resources. Next, the planning team determined how hazards and actions would be prioritized. Lastly, the team spoke about how data from the National Flood Insurance Program (NFIP) should be requested. This information would be used to complete the risk assessment for flooding and meet FEMA requirements.

Meeting #4: City of Bell Hazards and Actions Workshop Part I – Sept. 30th, 2025

On September 30th, 2025, members of the HMPT met for the first of two Hazards and Actions Workshops. During these workshops, the HMPT reviewed information compiled on hazard risks and vulnerabilities. The hazards reviewed during the first workshop were dam and levee failure, drought, extreme temperatures, fires – urban and wild, land subsidence, karsts, sinkholes, severe thunderstorms, tornadoes, tsunamis, and windstorms. Additionally, the planning team discussed potential mitigation goals and actions that could be used to reduce the risk of loss of life, injury, and property damage.

Meeting #5: City of Bell Hazards and Actions Workshop Part II – Oct. 21st, 2025

On October 21st, 2025, the HMPT met for the second Hazards and Actions Workshop. During this workshop, the planning team reviewed risk and vulnerability information for the following hazards: earthquakes, landslides, and mudflows, flooding, sea level rise, civil unrest, cyber-attacks, hazardous materials releases, pandemics, transportation accidents, and utility failures. Additionally, the planning team discussed potential mitigation goals and actions that could be used to reduce the risk of loss of life, injury, and property damage.

Meeting #6: City of Bell HMP Final Review – Jan. 7th, 2026

On January 7th, 2026, the HMPT met to review and discuss the final draft of the City of Bell Local Hazard Mitigation Plan. During the meeting, the planning team also worked to finalize, prioritize and identify funding sources, responsible departments, timeline, and other information for each of the mitigation actions. Additionally, the meeting was used to address other outstanding items in order to finalize the draft plan for public review and comment before submitting to the State.

Meeting #7: Bell HMP Finalizing Mitigation Actions and Wrap Up – March 6, 2025

On March 6th, 2026, the HMPT met to review and discuss outstanding items of the draft LHMP which include finalizing the mitigation actions and reviewing the Plan Maintenance section. The HMPT reviewed the list of mitigation actions and determined the appropriate cost estimates, responsible entities and agencies, potential funding sources, general timelines, and more information necessary to keep the activities realistic and actionable. The HMPT also discussed the timeline for the public comment period and state submission of the LHMP.

4) COMMUNITY PROFILE

The City of Bell is a small, urban community situated within the Greater Los Angeles Metropolitan Area, approximately 10 miles southeast of downtown Los Angeles. The City of Bell is part of the Gateway Cities region, which is a group of 27 cities that serve as a “gateway” between Los Angeles and Orange County. The City of Bell is bounded by the cities of Maywood, Vernon, Huntington Park, Commerce, Bell Gardens, and Cudahy. The City of Bell has an estimated population of 32,830². The City is divided into two distinct sections by the Los Angeles River. The southwestern portion is known as the “Central City,” which contains the majority of Bell’s residential development. This area is also home to most of the City’s government buildings, educational institutions, and recreational facilities, along with some light commercial uses. The northeastern part of Bell is referred to as the “Cheli Area,” and this area is primarily dedicated to industrial and manufacturing uses, with warehouses, distribution centers, and light industrial facilities. A map of the City of Bell is displayed in **Figure 1**.

Figure 1. Map of the City of Bell



2 STATES, UNITED. 2025. “EXPLORE CENSUS DATA.” CENSUS.GOV. 2025. [HTTPS://DATA.CENSUS.GOV/TABLE/ACSDP5Y2023.DP05?Q=BELL](https://data.census.gov/table/ACSDP5Y2023.DP05?Q=BELL).

A) HISTORY

The area that now forms Los Angeles County was likely first inhabited by the Tongva (also known as the Gabrielino) People. This indigenous group may have resided in the area for thousands of years before the arrival of Spanish explorers and settlers in the 18th century. Settlement of the area was encouraged by the Spanish Crown, which continued under Mexican authorities after Mexico gained independence in 1821. Following the Mexican-American War and California's statehood in 1850, American settlers utilized the area for ranching and agricultural purposes. Among the early American settlers was James George Bell, who established a small farming community in the 1870s. By the early 20th century, the expansion of railroads and streetcars connected the community to the City of Los Angeles and other neighboring communities, resulting in increased urbanization.

The City of Bell was officially incorporated as a City on November 7th, 1927. The community continued to grow at a steady pace as economic activity gained steam in the Greater Los Angeles Metropolitan Area. In the 1940's, the region saw a surge in activity, driven partly by the increased importance of the west coast during World War II. In 1943, The U.S. Army Air Forces established the Maywood Army Air Forces Specialized Storage Depot in Bell. The facility was used for storage and distribution of aircraft parts. After the creation of the U.S. Air Force as a separate branch in 1947, the depot was renamed Cheli Air Force Station in honor of Major Ralph Cheli, a Medal of Honor recipient who was killed in action during the war. Activity at Cheli Air Force Station gradually dwindled after World War II, and the City of Bell annexed large portions of the site and began to transform the site into what is now the Cheli District.

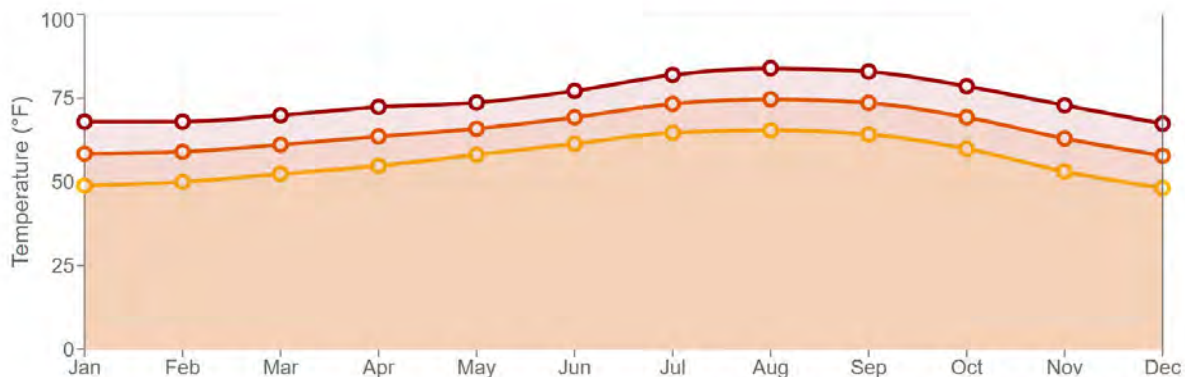
In the 1960s, the construction of the Long Beach Freeway (Interstate 710) further enhanced Bell's connectivity to neighboring cities and to the broader Southern California region. The freeway provided improved access to industrial zones, ports, and distribution networks, reinforcing Bell's role as a working-class, industrially active community within the Los Angeles basin. Towards the end of the 20th century, Bell had become a majority-Latino City, with a growing number of multi-lingual speakers. However, like many small industrial cities in Southeast Los Angeles County, Bell also faced economic pressures during this period, including the decline of manufacturing, aging infrastructure, and rising service needs. The City's small geographic size also limited housing growth. Still, the community remains resilient, anchored by local businesses, religious institutions, public schools, and a strong civic spirit that sets the stage for a bright in the 21st century.

B) CLIMATE

Situated less than 20 miles from the Pacific Ocean, the City of Bell enjoys a mild Southern California climate. While the City of Bell does not have an official National Oceanic and Atmospheric Administration (NOAA) weather station within its jurisdiction, publicly available data and information from nearby NOAA weather stations show that the City typically experiences long, warm summers and short, temperate winters. In Bell, summer temperatures often climb into the upper 80s and low 90s°F, whereas winter daytime highs generally settle in the upper 50s to lower 60s °F. However, these temperatures can fluctuate, especially under the influence of the Santa Ana winds, which can bring hotter conditions and lower humidity.

The City of Bell receives approximately 14 inches of precipitation each year, most of which occurs between December and March. Snow is extremely rare in the area, and there are no recorded instances of snow accumulation in the City of Bell. This region is occasionally hit by atmospheric rivers, which can lead to immense precipitation in a short period of time. As recently as 2024, the National Weather Service reported rainfall rates of 1.2 inches per hour in parts of the greater Los Angeles Metropolitan Area³. **Figure 2** shows monthly temperature and precipitation data recorded at the NOAA Los Angeles Downtown USC Campus weather station (USW00093134) between 1991 and 2020. This is the closest active NOAA weather station to the City of Bell. Similarly, **Figure 3** shows the monthly precipitation normals. **Table 4** summarizes the monthly climate normal for temperature and precipitation.

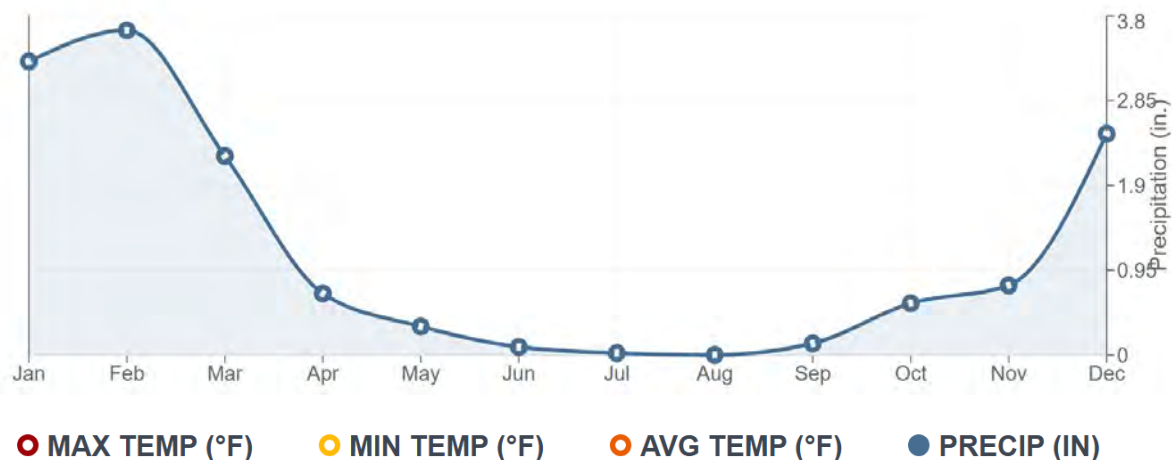
Figure 2. 1991-2020 Monthly Climate Normals Temperature: Los Angeles DWTN USC Campus Station



Source: National Weather Service

³ "SOCAL HIT BY MUDSLIDES, FLOODING AS POWERFUL STORM SLAMS REGION." 2025. ABC7 LOS ANGELES. ABC OTV WEBSITE. FEBRUARY 15, 2025. [HTTPS://ABC7.COM/LIVE-UPDATES/LOS-ANGELES-RAIN-EVACUATION-WARNINGS-ISSUED-PALISADES-EATON-FIRE-AREAS-STORM-MOVES/15901724/ENTRY/15906405/](https://abc7.com/live-updates/los-angeles-rain-evacuation-warnings-issued-palisades-eaton-fire-areas-storm-moves/15901724/entry/15906405/). [HTTPS://WWW.CITYOFBELL.ORG/?NAVID=2736](https://www.cityofbell.org/?NAVID=2736)

Figure 3. 1991-2020 Monthly Climate Normals Precipitation: Los Angeles DWTN USC Campus Station



Source: National Weather Service (NWS)

Table 4. Monthly Climate Normals 1991-2020: Los Angeles DWTN USC Campus Station

MONTH	MAX TEMP (°F)	MIN TEMP (°F)	AVG TEMP (°F)	PRECIPITATION (IN.)
January	68.0	48.9	58.4	3.29
February	68.0	50.0	59.0	3.64
March	69.9	52.4	61.1	2.23
April	72.4	54.8	63.6	0.69
May	73.7	58.1	65.9	0.32
June	77.2	61.4	69.3	0.09
July	82.0	64.7	73.3	0.02
August	84.0	65.4	74.7	0.00
September	83.0	64.2	73.6	0.13
October	78.6	59.9	69.3	0.58
November	72.9	53.1	63.0	0.78
December	67.4	48.2	57.8	2.48

Source: National Weather Service (NWS)

C) ECONOMY

The current economy of the City of Bell is shaped by the community's industrial past, a network of small but resilient local businesses, and its strategic location within the Greater Los Angeles Metropolitan Area. According to the 2023 American Community Survey 5-Year Estimates, the three largest industries by employment are: educational services, health care, and social assistance (2,457 jobs), manufacturing (2,022 jobs), and retail trade (1,977 jobs). Other significant industries in the City of Bell include transportation, warehousing, and utilities (1,544 jobs) and construction (1,340 jobs).

These figures illustrate a community that blends “blue-collar” jobs and service-oriented employment, supported in part by strong transportation infrastructure. The segment of Long Beach Freeway (Interstate 710) that passes through the City of Bell carries an average of 399,000 vehicles per day according to the California Department of Transportation. Additionally, both Union Pacific (UP) and Burlington Northern Santa Fe (BNSF) own sections of active railway in the community. The Los Angeles Junction Railway (LAJ), which is a wholly owned subsidiary of BNSF, also operates on these railways and provides rail switching services and facilitates interchange between BNSF and UP. While Bell currently lacks passenger rail service, proposals such as Los Angeles Metro Rail's Southeast Gateway Line could bring future transit connections to the area.

In March 2024, residents of the City of Bell approved Measure I, which was a citywide 0.75% sales tax. This measure is intended to generate additional revenue to support essential city services and infrastructure projects. It is estimated that the measure will generate approximately \$1.5 million each year⁴. The passage of Measure I reflects a commitment from the City of Bell to secure financial stability and continue investing in community development. Additional initiatives like the Commercial Rehab program and Business Boost Assistance Program further support efforts to revitalize underutilized spaces, foster a business-friendly environment, and expand economic opportunity for all residents. City officials also understand the importance of promoting sustainable economic growth and minimizing exposure to harsh boom-and-bust cycles.

D) LAND USE AND DEVELOPMENT

The City of Bell spans approximately 2.6 square miles and, like many communities in the area, is considered fully developed. According to the City of Bell's 2030 General Plan, residential development occupies the largest portion of the City's land, followed by industrial development and streets/freeways. **Table 5** presents the distribution of land use categories as identified in the 2030 General Plan, and **Figure 4** shows the City's current zoning map.

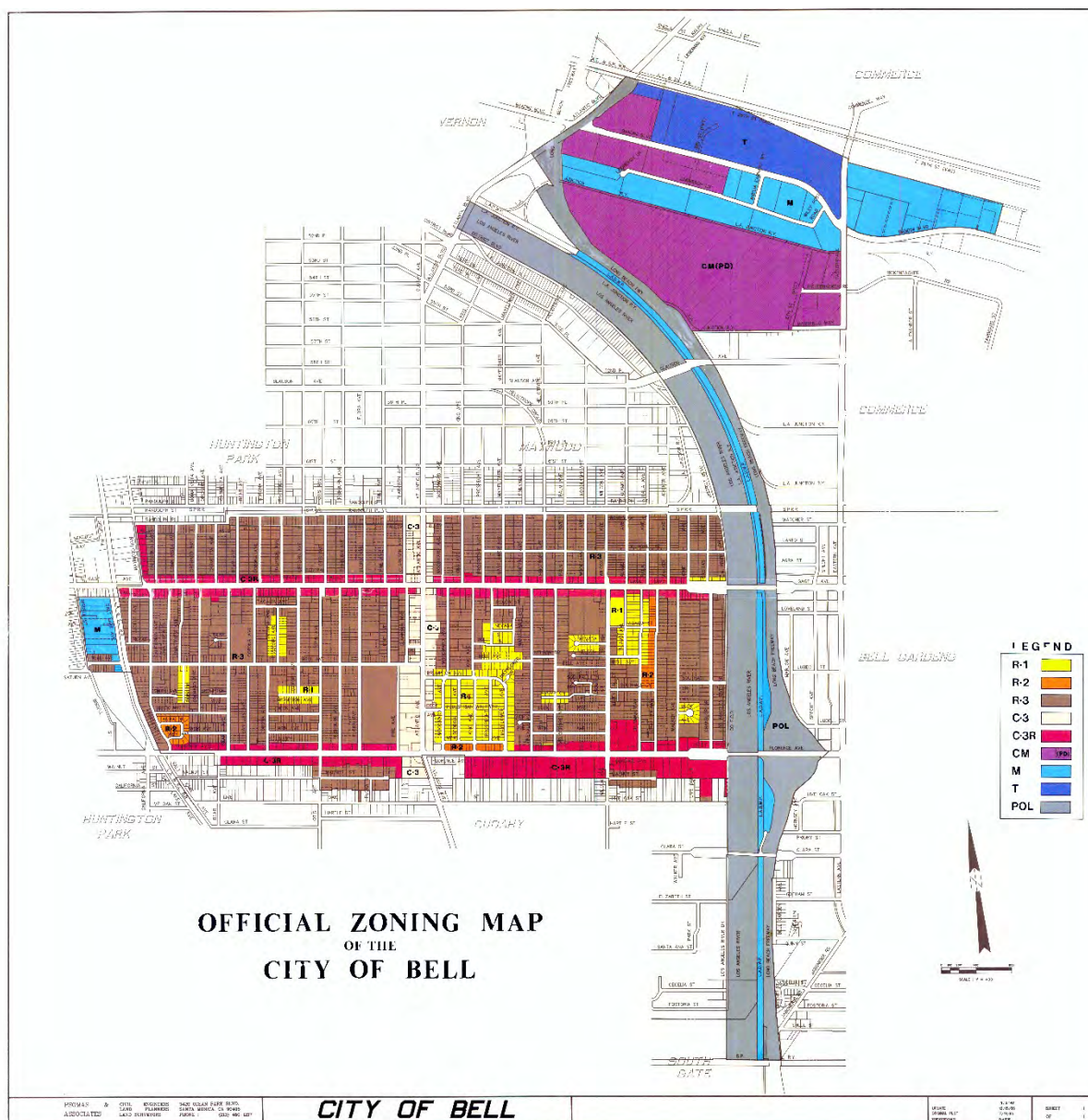
⁴ “ABOUT US.” N.D. SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS. SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS. ACCESSED 2025. [HTTPS://SCAG.CA.GOV/ABOUT-US](https://scag.ca.gov/about-us).

Table 5. Distribution of Existing Land Use in the City of Bell

CDDD	ACRES	PERCENT OF CITY
Single-family	65	3.6%
Multi-family	545	30.3%
Commercial	148	8.2%
Industrial	390	21.7%
Vacant	48	2.7%
Streets/Freeway	414	23.1%
Los Angeles River	186	10.4%
Total	1,796	100.0%

Source: 2030 General Plan

Figure 4. Current City of Bell Zoning Map



Since the majority of the City of Bell is built out, future growth will rely heavily on redevelopment and adaptive reuse. This includes repurposing underutilized properties, such as blighted or vacant structures, into mixed-use developments or higher-density housing. The City may also be able to use “road diets” to slim sections of roadway and utilize the freed-up space for other purposes. A more ambitious project would involve constructing a cap over portions of the Los Angeles River, allowing for new surface-level uses while preserving the river’s essential flood control function. Although this type of project has only been attempted in a few other places, typically to create additional parking or green space, it represents a long-term

opportunity. If deemed feasible, such a project could reclaim approximately 10% of the City's total land area.

i) Housing

According to the 2020 U.S. Census, there were 9,468 housing units in the City of Bell, with 9,253 (97.7%) being occupied and 215 (2.3%) vacant. The City of Bell's Housing Element found that, in 2020, the most prevalent housing type in the City was single-family detached homes, accounting for 51.2% of the City's housing stock. The next most prevalent housing type was multi-family 5+ units (25.1% of the total stock), followed by multi-family 2-4 units (10.6% of the total stock). Furthermore, the stock of single-family homes increased by 517 units between 2000 and 2020, while multi-family homes decreased by 362 during that same time period. The Housing Element suggests that the reduction of multi-family housing units is at least partly due to the construction of several schools and recreational facilities which involved the demolition of multi-family homes.

The Housing Element also determined that the City of Bell's housing stock is significantly older than the average across the Southern California Association of Governments (SCAG) region, which includes 191 cities in six counties⁵. Approximately 21% of housing units in Bell were built in 1939 or earlier which is more than double the SCAG-wide average. Nearly 63.2% of Bell's housing units were constructed before 1960, compared to 36.8% across all SCAG jurisdictions. In contrast, only 0.1% of Bell's housing stock was built in 2010 or later, notably less than the average of 2.5% in the SCAG region. An aging housing stock can pose challenges due to higher maintenance costs, outdated construction methods, and potential environmental hazards like lead-based paint and asbestos. Despite these conditions, single-family home values in Bell have continued to rise, with the average cost increasing from approximately \$497,000 in January 2020 to over \$712,000 in January 2025. Increased housing costs are not unique to Bell, Los Angeles County, or even California, but it nevertheless creates affordability challenges for Bell's residents.

ii) Atlantic Avenue Corridor

The Atlantic Avenue Corridor is an approximately one mile stretch of Bell's Central City area along Atlantic Avenue between Randolph Street and Florence Avenue. An outline of the Atlantic Avenue Corridor is displayed in **Figure 5**. This area is considered one of the primary business and commercial hubs inside the community, and it is an important source of revenue for the local economy. Due to this, the City of Bell has initiated preparation of the Atlantic Avenue Specific Plan and a related environmental analysis. The intent of the Atlantic Avenue Specific Plan is to identify strategies for improving the shopping and pedestrian experience along the

⁵ STATES, UNITED. 2025. "EXPLORE CENSUS DATA." CENSUS.GOV. 2025. [HTTPS://DATA.CENSUS.GOV/TABLE/ACSDP5Y2023.DP05?Q=BELL](https://data.census.gov/table/ACSDP5Y2023.DP05?Q=BELL).

Atlantic Avenue Corridor. In particular, the Plan should recommend appropriate zoning and development regulations, infrastructure improvements, and environmental considerations to best support future commercial and mixed-use development along the corridor.

Figure 5. Outline of the Atlantic Avenue Corridor

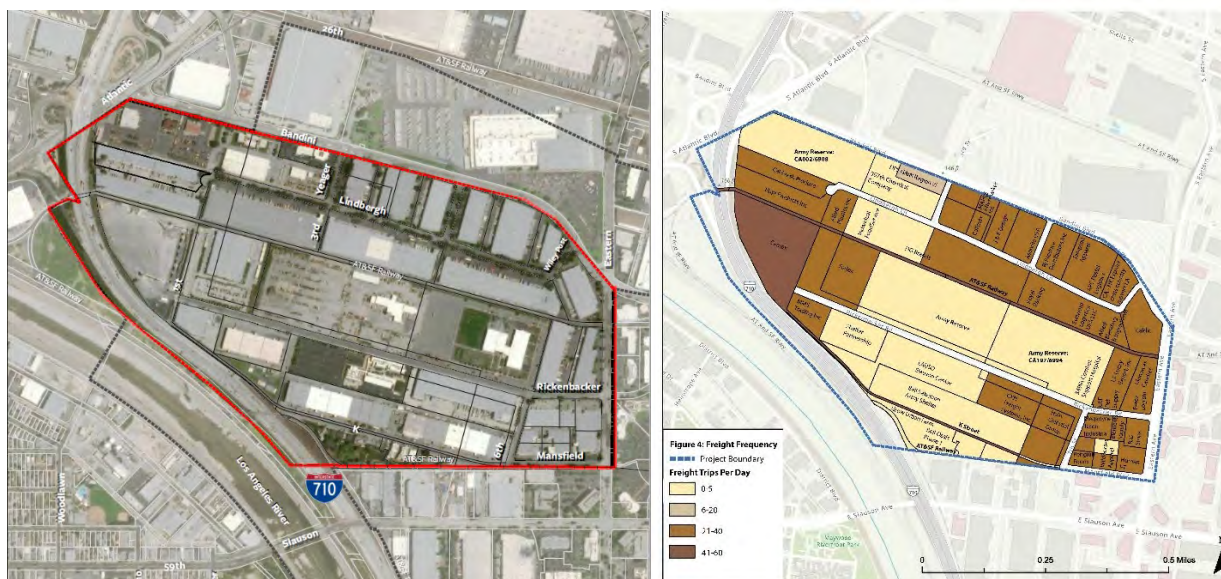


Source: ESRI

iii) Cheli District

The Cheli District, as informally known as the “Duck Head area”, is a 25-acre section of land on the northeast side of the Los Angeles River, shown in **Figure 6**. This area was previously part of the Cheli Air Base. The base closed in 1961, and the City of Bell acquired the land from the Federal government. The City initially intended to acquire 100 acres, but Federal land disposition policy meant that the City ultimately acquired only 25 acres. Today, the Cheli District is zoned entirely for industrial land use, supporting a number of distribution and manufacturing businesses. These businesses benefit from access to Interstate 710 and railway infrastructure, but the unplanned adjacency of industrial and residential uses in neighboring jurisdictions created challenges that remain unresolved.

Figure 6. Cheli District Map



Source: 2030 General Plan

The City of Bell has initiated the preparation of the Cheli Specific Plan to develop strategies for strengthening the industrial productivity in the Cheli District, while simultaneously reducing conflicts with other land uses and neighboring communities. The *Cheli Specific Plan Baseline Studies Report* outlines four goals that align with the City’s 2030 General Plan:

1. Allowing industrial and residential uses within the Cheli District in a manner which minimizes conflict and ensure the success of industrial uses.
2. Working with the Bell Salvation Army Shelter to continue to provide a continuum of housing and services that help people experiencing homelessness within the Cheli District.
3. Addressing environmental hazards within the Cheli District.
4. Expanding access to active transportation and public transportation within the Cheli District.

It is important to recognize that the character of the Cheli District may evolve in the coming years, and such changes could alter the community’s exposure to hazard threats—particularly those that are human-caused. While not the only source of risk, industrial areas are often associated with an increased likelihood of hazardous materials incidents, urban fires, and transportation-related accidents.

E) HISTORICAL, CULTURAL, AND NATURAL RESOURCES

Historic and cultural resources are the physical and spiritual reminders of historical moments, people, and places. While there is evidence of the human inhabitants residing in Los Angeles County dating back thousands of years, there are no known paleontological resources or prehistoric sites in the City of Bell, according to both the Los Angeles County Museum of Natural History and the UCLA Archaeology Center. Currently, there are no sites in the City of Bell listed on the National Register of Historic Places. The James George Bell House was previously listed, but it was removed from the list in 1989 when the structure was relocated. However, the property is currently listed on the California State Historical Resources register. This structure was built in 1887 by the City's founder, James Bell. Although there are no other properties in the community listed on the California State Historical Resources register, the City of Bell's 2030 General Plan identifies multiple structures as historic resources. The address and noted historic features of these resources are listed in **Table 6**.

Table 6. Historic Resources in the City of Bell

ADDRESS	FEATURES
4401 Gage Ave.	1887 California Block Farm
3550 Gage Ave.	Decorative brick
3923 Gage Ave.	Decorative masonry and tile
4000 Gage Ave.	Decorative tile, stained glass
4035 Gage Ave.	Decorative vertical masonry
4053 Gage Ave.	Decorative vertical masonry, shields
4054 Gage Ave.	Decorative brick
4063 Gage Ave.	Decorative vertical and curved masonry
4069 Gage Ave.	Decorative vertical masonry
4071 Gage Ave.	Decorative vertical masonry, spiked
4111 Gage Ave.	Decorative brick
4121 Gage Ave.	Decorative masonry
4356 Gage Ave.	Decorative brick
4411 Gage Ave.	Façade design
4400 Gage Ave.	Decorative brick, masonry
4612 Gage Ave.	Oasis brick service station
4722 Gage Ave.	Decorative masonry, façade

Source: City of Bell 2030 General Plan, Table 3-1

City of Bell Urban Forest Management Plan

The City of Bell developed an Urban Forest Management Plan in January 2025 to improve public health and safety by reducing the urban heat island effect, improve flood management, and air quality in the City. The plan sets forth a strategic plan with goals and actions to become a Tree City by 2030 and achieve 15% of tree canopy in the City by 2075⁶. Increased tree canopy is a great tool to reduce impacts to hazard such as dam failures, flood, and extreme heat. However, an increase tree canopy increases risk to urban fires due to increased vegetation.

F) CRITICAL FACILITIES

Critical facilities are those that are vital to the continuity of government functions, the delivery of essential City services, and supporting effective disaster mitigation, response, and recovery. These may include 911 dispatch centers, emergency operations centers, police and fire stations, communication infrastructure, hospitals and medical facilities, major transportation routes, dams, bridges, and more. Additionally, some facilities may be identified as critical by a community because of their importance to the community's long-term stability or prosperity. For example, schools, recreational sites, and major tourist attractions are not required for immediate life safety, but they may be treated as critical or near-critical if they serve a role that would be extremely difficult or impossible to replace. All critical facilities identified by the City of Bell through are illustrated in **Figure 7** and outlined in **Table 7** below.

⁶ <https://www.cityofbell.gov/files/sharedassets/city/v/1/training/urban-forest-management-plan.pdf>

Figure 7. Critical Facilities in Bell



Table 7. City of Bell Critical Facilities

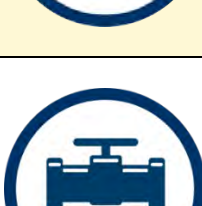
TYPE OF CRITICAL FACILITY	NUMBER OF CRITICAL FACILITIES
Communications	3
Cultural or Gathering Place	3
EOC	1
Fire Stations	1
Government	12
Police Stations	1
Protective Services	1
Residential	17
Schools	10
Transportation	1

Source: City of Bell, FEMA

Many critical facilities identified by communities can be categorized according to FEMA's Community Lifelines, which represent the essential services that support the functioning of society. According to the Department of Homeland Security, community lifelines enable the continuous operations of critical government and business functions and are essential to human health and safety or economic security. **Table 8** lists the eight Community Lifelines identified by FEMA, along with their corresponding FEMA icons and general descriptions of each.

Table 8. FEMA Community Lifelines

COMMUNITY LIFELINE	FEMA ICON	DESCRIPTION
Communications		The Communications lifeline encompasses infrastructures and services necessary for the exchange of information. It includes 911 systems, public alerts and warning systems, landline and cellular networks, internet services, and emergency responder communications.
Energy (Power & Fuel)		This lifeline involves the generation, distribution, maintenance, and restoration of electrical power and fuel supplies. It includes electricity utilities, gas lines, fuel transportation, backup power systems, and other elements supporting energy access.

COMMUNITY LIFELINE	FEMA ICON	DESCRIPTION
Food, Hydration, Shelter		This lifeline ensures that people have access to the most basic necessities for survival during and after a disaster. It includes the provision of meals, clean drinking water, and safe shelter.
Health and Medical		This lifeline supports the full range of emergency medical services and public health operations required to save lives and prevent further harm. It includes hospital services, EMS, medical equipment supply chains, patient evacuation, disease surveillance, and more.
Hazardous Materials		The Hazardous Materials lifeline includes assets and operations that ensure safe handling, containment, and response to hazardous substances including chemical, biological, and radiological materials.
Safety and Security		The Safety and Security lifeline ensures that people are protected from physical harm and that communities remain orderly and securing during and after an incident. It includes law enforcement, fire services, search and rescue, community/public safety services, emergency management, and more.
Transportation		This lifeline supports the movement of people and goods via roadways, railways, air transportation, and maritime routes. Transportation is essential for evacuations, access for first responders and emergency services, delivery of critical resources, and removal of debris.
Water Systems		The Water Systems lifeline primarily involves the infrastructure which supports distribution of clean drinking water and safe disposal of wastewater and stormwater. It includes water utilities, wastewater treatment facilities, distribution infrastructure, and water quality monitoring.

Source: FEMA

Building Codes

The City of Bell enforces the 2022 California Building Code (CBC), Title 24, Part 2, along with the 2022 California Existing Building Code, both of which adopt and amend the International Building Code for use statewide. These codes establish minimum standards for structural strength, fire and life safety, energy efficiency, and accessibility, and they incorporate provisions from ASCE 7 for loads related to wind, seismic activity, and other hazards. Under the CBC, all new construction, major renovations, and additions in Bell must comply with these standards, with requirements varying depending on the type and function of the structure. One important aspect of the code is the assignment of buildings into Risk Categories I through IV, which determine the level of design criteria that must be applied. **Table 9** summarizes these categories.

Table 9. ASCE 7 Structure Risk Categories

RISK CATEGORY	DESCRIPTION	EXAMPLES
I	Buildings and structures that represent a low risk to human life in the event of failure	Agricultural facilities, certain temporary structures, minor storage buildings
II	Buildings and other structures except those listed in Risk Categories I, III, and IV	Houses, apartments, office buildings, retail stores, most commercial buildings
III	Buildings and structures that represent a substantial hazard to human life in the event of failure	Schools, assembly halls, jails/prisons, some health care facilities (not providing emergency care), large public facilities
IV	Essential facilities, needed for post-disaster response	Hospitals with emergency treatment, fire, rescue, ambulance, and police stations, Emergency Operations Centers, power-generating stations, water treatment, and fuel facilities

Source: ASCE

G) POPULATION AND DEMOGRAPHICS

According to the most recent data collected by the U.S. Census Bureau's American Community Survey (ACS), the estimated population of the City of Bell was 32,830 in 2023. This represents a 2.19% decrease from the City's estimated population as recorded by the 2020 Census (33,561) and an 8.05% decrease over the past decade, when the City's population was 35,704 according to the 2013 ACS data. The average median age of the City of Bell has increased slightly over the same time period, going from 30.5 to 33.9. However, this is still below the median age across all

of California, which was 37.6 in 2023. The relative youth of Bell’s population when compared to California as a whole is also noticeable when looking at the portion of individuals 24 or younger. Approximately 37.6% of Bell’s population is 24 or younger, which is above the percentage of California’s overall population younger than 24, at 31.3%.

Estimates from 2023 ACS data show that Bell’s demographic profile is notably different from that of California overall. Compared to statewide figures, Bell has a smaller share of residents who identify as White, Black or African American, Asian, or Native Hawaiian or Other Pacific Islander. In contrast, the City has a higher proportion of individuals who identify as “some other race” or as belonging to two or more races. The percentage of residents who identify as American Indian or Alaska Native is roughly the same in both Bell and California. Additionally, the City of Bell’s population is overwhelmingly Hispanic or Latino—a category that the U.S. Census Bureau classifies as an ethnicity, rather than a race. In 2023, approximately 91.5% of Bell residents identified as Hispanic or Latino, nearly two and half times the statewide proportion of 37.9 percent. **Table 10** details the demographic information for the City of Bell and the State of California ⁷.

Table 10. 2023 Demographics in the City of Bell and California

RACE	CITY OF BELL	CALIFORNIA
White	31.7%	44.0%
Black or African American	2.1%	5.5%
American Indian or Alaska Native	1.1%	1.1%
Asian	1.3%	15.3%
Native Hawaiian or Other Pacific Islander	0.2%	0.4%
Some Other Race	24.4%	17.4%
Two or More Races	39.2%	16.3%
Total	100.0%	100.0%

Source: 2023 ACS Survey

As of 2023, approximately 25,277 Bell residents are 16 years of age or older, with about 15,254 of them participating in the labor force. One notable workforce shift that emerged from the COVID-19 pandemic has been the increase in remote work. In 2023, an estimated 4.0% of Bell’s labor force worked from home, which is more than double the 1.9% reported in 2019. While the increase is significant locally, it is modest compared to statewide trends. Across California, the share of people working from home rose from 5.9% in 2019 to 15.5% in 2023. Some potential reasons for this difference include the type of jobs available in and around Bell, local policy and

⁷ STATES, UNITED. 2025. “EXPLORE CENSUS DATA.” CENSUS.GOV. 2025. [HTTPS://DATA.CENSUS.GOV/TABLE/ACSDP5Y2023.DP057Q=BELL](https://data.census.gov/table/ACSDP5Y2023.DP057Q=BELL).

regulations, accessibility of reliable internet service, and personal preferences. Additionally, the COVID-19 pandemic forced many workers to work from home to decrease the rate of transmission and to protect public health. This alone could be one of the main driving factors from increased telework. Of the 13,264 Bell residents who commute to work, approximately 90.9% drive or carpool, while 4.7% take public transportation, 2.7% walk, and 1.7% use other means to commute. The average commute time for Bell residents is 31.1 minutes⁸.

Across all households in the City of Bell in 2023, the median household income is \$60,641 and the mean household income is \$73,549. Both metrics have decreased since 2013 when accounting for inflation. the City's median household income was \$35,985 (\$50,172 in 2025) and the mean household income was \$43,447 (\$60,575 in 2025). City of Bell residents are making approximately on average \$13,000 less in 2025 than in 2013. This in part could be from wages not increasing at the same rate as inflation, thus creating an environment where workers are making less money over time which can contribute to financial struggles.

An estimated 2,533 Bell households received social security benefits in 2023, with a mean social security income of \$15,900. Additionally, an estimated 1,838 households, or about 20.8% of all households in Bell, received Food Stamps/SNAP benefits in the past 12 months. This is higher than the statewide average of 11.4% in California.

CalEnviroScreen

California Senate Bill 535 gave the California Environmental Protection Agency the responsibility for identifying "Disadvantaged Communities" (DACs). The California Environmental Protection Agency's Office of Environmental Health Hazard Assessment (OEHHA) developed a tool called CalEnviroScreen to identify and quantify communities most impacted by poverty and pollution, and this tool is also used to identify DACs, which also supports compliance with California Senate Bill 1000 when incorporated into a General Plan as permitted by California Assembly Bill 2140. In 2022, the agency formally designated four categories of geographic areas as disadvantaged:

1. Census tracts receiving the highest 25% of overall scores in CalEnviroScreen 4.0.
2. Census tracts lacking overall scores in CalEnviroScreen due to data gaps but receiving the highest 5% of CalEnviroScreen 4.0 cumulative pollution burden scores.
3. Census tracts identified through previous efforts in 2017 as DACs, regardless of their scores in CalEnviroScreen 4.0.
4. Lands under the control of federally recognized Tribes.

According to the latest available information from the CalEnviroScreen tool, all census tracts encompassing the City of Bell are classified as DACs. Some of the largest factors contributing to

⁸ "DISASTER LIST." N.D. WWW.BOE.CA.GOV. CALIFORNIA STATE BOARD OF EQUALIZATION. ACCESSED 2025. [HTTPS://WWW.BOE.CA.GOV/PROPTAXES/DISASTER-LIST.HTM](https://www.boe.ca.gov/proptaxes/disaster-list.htm).

the high impact scores of these census tracts include exposure to lead from housing, exposure to particulate matter 2.5mm, proximity to hazardous materials sites, relatively low education rates, and relatively high poverty rates.

5) HAZARD IDENTIFICATION AND RISK ASSESSMENT

This section outlines the City of Bell's Hazard Identification & Risk Assessment (HIRA) conducted in updating this Local Hazard Mitigation Plan. Risk assessments measure the potential impact of hazards on people, the economy, and both built and natural environments. They involve:

1. Identifying and profiling concerning hazards.
2. Cataloging community assets.
3. Analyzing hazard risks.
4. Summarizing the community's vulnerability to these hazards.

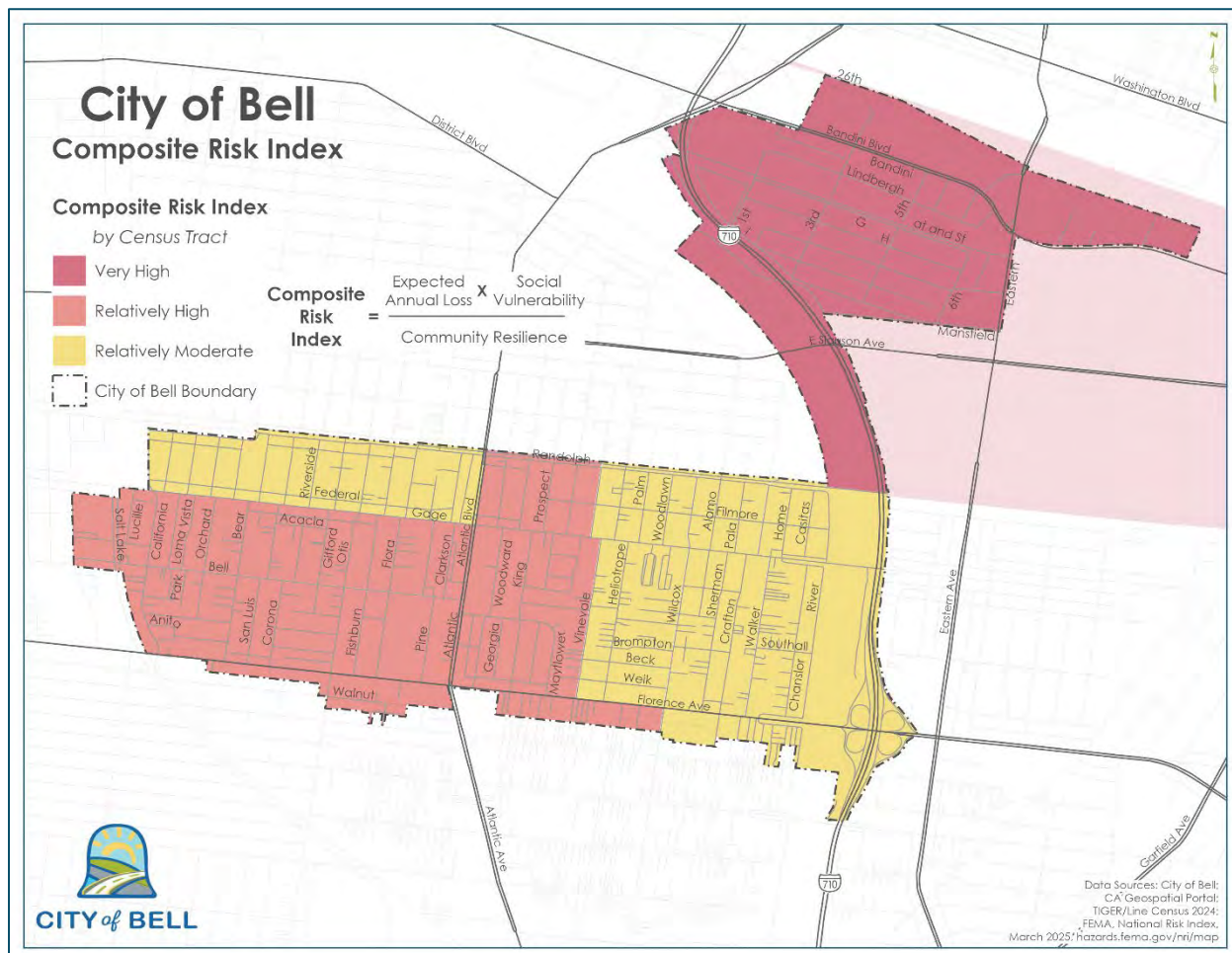
This assessment forms the foundation for our mitigation planning, aiming to prioritize actions that reduce risk from these hazards.

The HIRA is a strategy for evaluating risk based on the likelihood of a hazard event, its exposure to people and property, and the resulting consequences. Various methodologies, from qualitative to quantitative, are employed for this purpose.

The City of Bell faces numerous hazards. Those highlighted in this section are deemed genuine threats by the HMPT. They align with hazards recognized by the State of California and FEMA for this state and region.

The National Risk Index is a dataset and online tool that help spatially represent risk across communities in the United States for 18 natural hazards. It was designed and built by FEMA in close collaboration with diverse stakeholders and partners within academia, local, state, and federal government, and the private sector. The risk index can be calculated at the census tract level, which is shown for the City of Bell in **Figure 8**. The risk index for the City of Bell is relatively moderate to very high in the industrial portion of the City.

Figure 8. FEMA Composite Risk Index for Census Tracts in Bell



A) SUMMARY OF HAZARDS

As part of the planning process, the City of Bell HMPT reviewed the hazards identified in the 2023 California State Hazard Mitigation Plan and examined other hazard mitigation plans in Southern California to identify any commonly omitted hazards. Through this review, the HMPT determined that avalanches and volcanic hazards do not pose a reasonable threat to the City of Bell. Accordingly, these hazards were excluded from this plan. The final list of hazards profiled in the City's Hazard Mitigation Plan was confirmed during the HMPT meeting held on July 22, 2025. The 18 hazards identified for the 2026 plan are provided in **Table 11**, along with hazard descriptions.

Table 11. Descriptions of Profiled Hazards

#	HAZARD	DESCRIPTION
Natural Hazards		
1	Dam and Levee Failure	Dam and levee failure can lead to sudden and catastrophic flooding, threatening lives, damaging property, and disrupting infrastructure. The impacts can be widespread, especially in downstream communities, and may require large-scale emergency response and long-term recovery efforts.
2	Drought and Water Shortage	A drought is a deficiency of precipitation over an extended period resulting in a water shortage.
3	Earthquakes, Landslides, and Mudflows	An earthquake is a shaking of the earth's surface by energy waves emitted by slowly moving tectonic plates overcoming friction with one another underneath the earth's surface. A landslide is the movement of a mass of rock, debris, or earth down a slope.
4	Extreme Temperatures	Extreme heat is a period of abnormally and uncomfortably hot and unusually humid weather typically lasting two or more days with temperatures outside the historical averages for a given area. Extreme heat is responsible for the highest number of annual deaths among all weather-related hazards. Extreme cold is a rapid fall in temperature and extremely low temperatures by local standards for an extended period, generally around 24 hours.
5	Fires – Urban and Wild	For the purposes of this plan, urban fires are considered to be uncontrolled burning in a residence or building from natural (except wildfires), human, or technical causes. These fires have the potential to spread to adjoining structures. Local city and county fire departments are tasked with the response and control of urban fires. A wildfire is an unplanned fire burning in natural or wildland areas such as forests, shrub lands, grasslands, or prairies.
6	Flooding	Flooding occurs when the existing channel of a stream, river, canyon, or other watercourse cannot contain excess runoff from rainfall or snowmelt, resulting in overflow onto adjacent lands. In coastal areas, flooding may occur when high winds or tides result in a surge of seawater into areas that are above the normal high tide line.
7	Land Subsidence, Karsts, and Sinkholes	Land subsidence is a gradual settling or sudden sinking of the Earth's surface due to removal or displacement of subsurface earth materials. Karst is a type of landscape where the

#	HAZARD	DESCRIPTION
		dissolving of the bedrock has created sinkholes, sinking streams, caves, springs, and other characteristic features.
8	Sea Level Rise	Sea level rise is a long-term environmental hazard. As sea levels increase, coastal communities face heightened risks of flooding, erosion, saltwater intrusion, and damage to infrastructure and ecosystems. Over time, this hazard can lead to displacement of populations, loss of land, and significant economic and environmental impacts.
9	Severe Thunderstorms	Severe storms refer to any dangerous meteorological phenomena with the potential to cause damage, serious social disruption, or loss of human life such as thunderstorms and lightning. NOAA classifies a thunderstorm as a storm with lightning and thunder produced by cumulonimbus clouds, usually producing gusty winds, heavy rain, and sometimes hail. Thunderstorms are usually short in duration but can cause significant damage. Lightning is an electrical discharge that results from the build of positive and negative charges within a thunderstorm. When the buildup becomes strong enough, lightning appears as a “bolt.” This flash of light usually occurs within the clouds or between the clouds and the ground.
10	Tornadoes	A tornado is a narrow, violently rotating column of air that extends from the base of a thunderstorm to the ground and is visible only if it forms a condensation funnel made up of water droplets, dust, and debris.
11	Tsunamis	A tsunami is a wave or series of waves generated by an Earthquake, Landslide, volcanic eruption, or even a large meteor hitting the ocean and causing a rise or mounding of water at the ocean surface. A tsunami can travel across an open ocean at about 500 mph and slow down to about 30 mph as it approaches land, causing it to grow significantly in height.
12	Windstorms	Windstorms consist of damaging winds, often originating from thunderstorms, that are classified as exceeding 58 mph.
Human-Caused Hazards		
13	Cyber Attacks	Cyber-attacks are a modern hazard that involve malicious attempts to disrupt, damage, or gain unauthorized access to computer systems, networks, or data. These attacks can target individuals, businesses, or government entities, leading to data breaches, financial loss, operational disruption, and threats to public safety.
14	Hazardous Materials Releases	A hazardous materials release is the uncontrolled discharge of substances that pose risks to human health, property, and the environment. These materials can be chemical, biological, or

#	HAZARD	DESCRIPTION
		radiological in nature and are often regulated due to their potential dangers.
15	Civil Unrest	Civil unrest is a community hazard that arises when normal civil functions are disrupted due to social, political, or economic grievances. It can lead to public safety risks, property damage, and interruptions to essential services, often requiring a coordinated community response.
16	Pandemic/ Epidemic	A pandemic is a global outbreak of disease that occurs when a new virus emerges in the human population, spreading easily in a sustained manner, and causing serious illness. An epidemic describes a smaller-scale infectious outbreak, within a region or population, that emerges at a disproportional rate. Infectious disease outbreaks may be widely dispersed geographically, impact large numbers of the population, and could arrive in waves lasting several months at a time.
17	Transportation Accidents	A transportation accident refers to any unexpected event involving a vehicle or mode of transport that results in damage, injury, or disruption. These accidents can occur across various transportation systems.
18	Utility and Infrastructure Failure	The failure of essential utilities and infrastructure can disrupt daily life, hinder emergency response, and pose risks to health and safety, especially during extreme weather or disaster events. Prolonged outages may lead to cascading impacts across sectors, affecting everything from healthcare and commerce to public safety and sanitation.

B) PREVIOUS DISASTERS

Southern California has experienced multiple disasters resulting from many different hazards that pose a risk to the region. While FEMA disaster declarations cannot be sorted by individual communities, they can be examined at the county level. The list of disasters declarations that have been issued for Los Angeles County, and therefore may have impacted the planning area, are described in **Table 12**. The list includes all 88 disasters declarations covering Los Angeles County between January 1953 and August 2025. Wildfires are by far the hazard most commonly associated with these declarations, accounting for 60 of the 87 declarations (69%). **Figure 9** illustrates the number of FEMA disaster declarations for Los Angeles County by incident category.

Table 12. Los Angeles County FEMA Disaster Declarations (1953-2025)

DISASTER NUMBER	DESCRIPTION	DECLARATION DATE & INCIDENT PERIOD	ASSISTANCE PROVIDED TO LOS ANGELES COUNTY
FM-5605	Wildfire	08-08-2025 (08-07-2025)	Public Assistance
DR-4856	Wildfires and Straight-line Winds	01-08-2025 (01-07-2025 to 01-31-2025)	Individual Assistance, Public Assistance
FM-5550	California Eaton Fire	01-08-2025 (01-07-2025)	Public Assistance
FM-5551	California Hurst Fire	01-08-2025 (01-07-2025)	Public Assistance
FM-5549	California Palisades Fire	01-07-2025 (01-07-2025)	Public Assistance
FM-5548	California Franklin Fire	12-10-2024 (12-10-2024 to 12-18-2024)	Public Assistance
FM-5537	California Bridge Fire	9-11-2024 (9-10-2024 to 9-24-2024)	Public Assistance
DR-4769	California Severe Winter Storms, Tornadoes, Flooding, Landslides, and Mudslides	04-13-2024 (01-31-2024 to 02-09-2024)	N/A
DR-4699	California Severe Winter Storms, Straight-line Winds, Flooding, Landslides, and Mudslides	04-03-2023 (02-21-2023 to 07-10-2023)	Individual Assistance, Public Assistance, Hazard Mitigation Assistance
DR-3592	California Severe Winter Storms, Flooding, Landslides, and Mudslides	03-10-2023 (03-09-2023 to 07-10-2023)	N/A
DR-4683	California Severe Winter Storms, Flooding, Landslides, and Mudslides	01-14-2023 (12-27-2022 to 01-31-2023)	Individual Assistance, Public Assistance, Hazard Mitigation Assistance

DISASTER NUMBER	DESCRIPTION	DECLARATION DATE & INCIDENT PERIOD	ASSISTANCE PROVIDED TO LOS ANGELES COUNTY
EM-3591	California Severe Winter Storms, Flooding, and Mudslides	01-09-2023 (01-08-2023 to 01-31-2023)	N/A
DR-4569	California Wildfires	10-16-2020 (09-04-2020 to 11-17-2020)	Individual Assistance, Public Assistance, Hazard Mitigation Assistance
FM-5374	California Bobcat Fire	11-13-2020 (11-13-2020)	N/A
DR-4482	California COVID-19 Pandemic	03-22-2020 (01-20-2020 to 05-11-2023)	Individual Assistance, Public Assistance, Hazard Mitigation Assistance
EM-3428	California COVID-19	03-13-2020 (01-20-2020 to 05-11-2023)	Public Assistance
FM-5297	California Getty Fire	10-28-2019 (10-28-2019)	Public Assistance
FM-5296	California Tick Fire	10-24-2019 (10-24-2019)	Public Assistance
FM-5293	California Saddleridge Fire	10-11-2019 (10-10-2019)	Public Assistance, Hazard Mitigation Assistance
DR-4407	California Wildfires	11-12-2018 (11-8-2018 to 11-25-2018)	Individual Assistance, Public Assistance, Hazard Mitigation Assistance
EM-3409	California Wildfires	11-9-2018 (11-8-2018 to 11-25-2018)	N/A
FM-5280	California Woolsey Fire	11-9-2018 (11-8-2018)	N/A
DR-4353	California Wildfires, Flooding, Mudflows, and Debris Flows	01-02-2018 (12-4-2017 to 01-31-2018)	Individual Assistance, Public Assistance, Hazard

DISASTER NUMBER	DESCRIPTION	DECLARATION DATE & INCIDENT PERIOD	ASSISTANCE PROVIDED TO LOS ANGELES COUNTY
			Mitigation Assistance
EM-3396	Wildfires in California	11-8-2017 (12-4-2017 to 11-29-2017)	N/A
FM-5227	California Skirball Fire	12-6-2017 (12-6-2017 to 12-15-2017)	Public Assistance
FM-5226	California Rye Fire	12-5-2017 (12-5-2017 to 12-14-2017)	Public Assistance
FM-5225	California Creek Fire	12-5-2017 (12-5-2017 to 12-14-2017)	Public Assistance
FM-5201	California Ia Tuna Fire	9-2-2017 (9-1-2017 to 9-10-2017)	Public Assistance
DR-4305	Severe Winter Storms, Flooding, and Mudslides in California	03-16-2017 (01-18-2017 to 01-23-2017)	Public Assistance, Hazard Mitigation Assistance
FM-5135	California Sand Fire	07-23-2016 (07-22-2016 to 08-01-2016)	Public Assistance
FM-5132	California Sage Fire	07-09-2016 (07-09-2016 to 07-14-2016)	Public Assistance
FM-5129	California Fish Fire	06-21-2016 (06-20-2016 to 06-30-2016)	Public Assistance
FM-5124	California Old Fire	06-05-2016 (06-04-2016 to 06-10-2016)	Public Assistance
FM-5051	California Colby Fire	01-16-2014 (01-16-2014 to 01-22-2014)	N/A
FM-5025	California Power House Fire	06-02-2013 (05-31-2013 to 06-08-2013)	Public Assistance
FM-2851	California Crown Fire	07-30-2010 (06-29-2010 to 08-03-2010)	Public Assistance
DR-1884	Severe Winter Storms, Flooding, and Debris and Mud Flows in California	03-08-2010 (01-17-2010 to 02-06-2010)	Public Assistance
FM-2828	California Pv Fire	08-28-2009	Public Assistance

DISASTER NUMBER	DESCRIPTION	DECLARATION DATE & INCIDENT PERIOD	ASSISTANCE PROVIDED TO LOS ANGELES COUNTY
		(08-27-2009 to 08-29-2009)	
FM-2830	California Station Fire	08-28-2009 (08-27-2009 to 09-25-2009)	Public Assistance
DR-1810	Wildfires in California	11-18-2008 (11-13-2008 to 11-28-2008)	Individual Assistance, Public Assistance
FM-2792	California Freeway Complex Fire	11-15-2008 (11-15-2008 to 11-20-2008)	Public Assistance
FM-2791	California Sayre Fire	11-15-2008 (11-14-2008)	N/A
FM-2789	California Sesnon Fire	10-13-2008 (10-13-2008 to 10-19-2008)	Public Assistance
FM-2788	California Mareck Fire	10-12-2008 (10-12-2008 to 10-17-2008)	Public Assistance
FM-2763	California Santa Anita Fire	04-27-2008 (04-26-2008 to 05-02-2008)	Public Assistance
DR-1731	California Wildfires	10-24-2007 (10-21-2007 to 03-31-2008)	Individual Assistance, Public Assistance
EM-3279	Wildfires in California	10-23-2007 (10-21-2007 to 03-31-2008)	N/A
FM-2736	California Ranch Fire	10-22-2007 (10-20-2007)	N/A
FM-2733	California Buckweed Fire	10-21-2007 (10-21-2007)	N/A
FM-2732	California Canyon Fire	10-21-2007 (10-21-2007)	N/A
FM-2708	California Canyon Fire	07-08-2007 (07-07-2007 to 07-10-2007)	Public Assistance
FM-2694	California Island Fire	05-10-2007 (05-10-2007 to 05-15-2007)	Public Assistance
FM-2691	California Griffith Park Fire	05-09-2007 (05-08-2007 to 05-11-2007)	Public Assistance

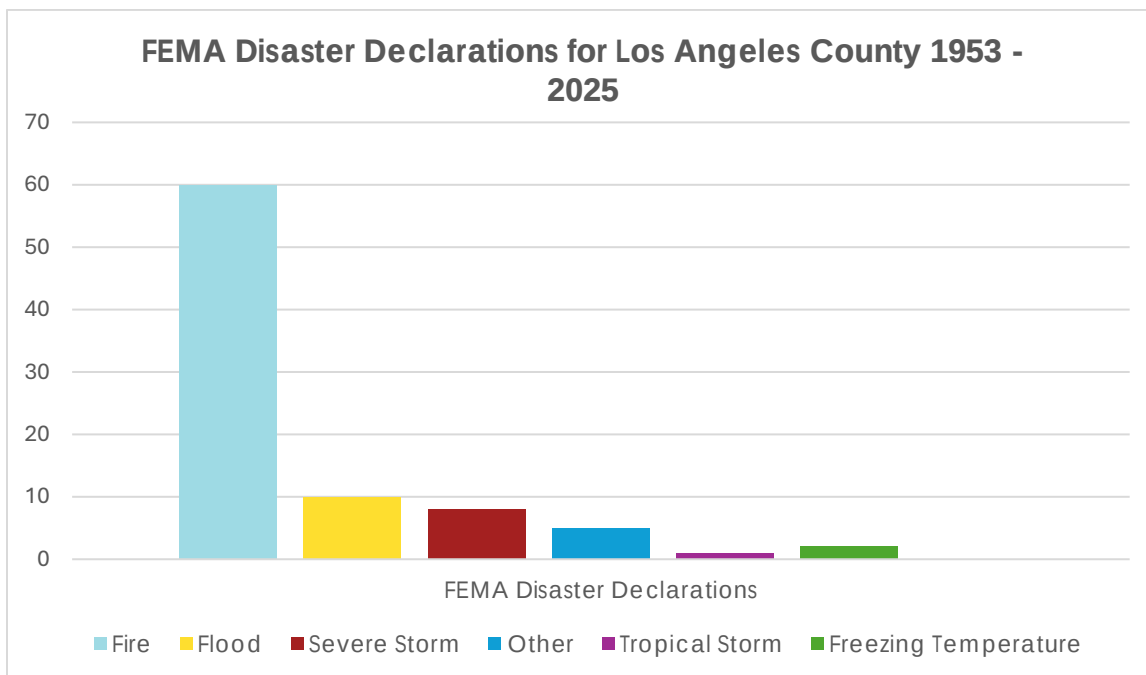
DISASTER NUMBER	DESCRIPTION	DECLARATION DATE & INCIDENT PERIOD	ASSISTANCE PROVIDED TO LOS ANGELES COUNTY
DR-1689	Severe Freeze in California	03-13-2007 (01-11-2007 to 01-17-2007)	N/A
FM-2583	California Topanga Fire	09-28-2005 (09-28-2005 to 10-10-2005)	Public Assistance
EM-3248	California Hurricane Katrina Evacuation	09-13-2005 (08-29-2005 to 10-01-2005)	Public Assistance
DR-1585	California Severe Storms, Flooding, Landslides, and Mud and Debris Flows	04-14-2005 (02-16-2005 to 02-23-2005)	Public Assistance
DR-1577	Severe Storms, Flooding, Debris Flows, and Mudslides in California	02-04-2005 (12-27-2004 to 01-11-2005)	Individual Assistance, Public Assistance
FM-2535	California Crown Fire	07-21-2004 (07-20-2004 to 07-23-2004)	Public Assistance
FM-2534	California Foothill Fire	07-18-2004 (07-17-2004 to 07-23-2004)	Public Assistance
FM-2528	California Pine Fire	07-14-2004 (07-12-2004 to 07-21-2004)	Public Assistance
DR-1498	Wildfires in California	10-27-2003 (10-21-2003 to 03-31-2004)	Individual Assistance, Public Assistance
FM-2502	California Verdale Fire	10-25-2003 (10-24-2003 to 10-29-2003)	N/A
FM-2466	California Pacific Fire	01-07-2003 (01-06-2003 to 01-10-2003)	Public Assistance
FSA-2464	California Williams Fire	09-24-2002 (09-22-2002 to 09-29-2002)	Public Assistance
FSA-2462	California Leona Fire	09-04-2002 (09-03-2002 to 09-12-2002)	Public Assistance
FSA-2417	California Copper Fire	06-06-2002 (06-05-2002 to 06-14-2002)	Public Assistance

DISASTER NUMBER	DESCRIPTION	DECLARATION DATE & INCIDENT PERIOD	ASSISTANCE PROVIDED TO LOS ANGELES COUNTY
DR-1203	California Severe Winter Storms and Flooding	02-09-1998 (02-02-1998 to 04-30-1998)	N/A
EM-3120	California Severe Fires	10-23-1996 (10-21-1996 to 10-31-1996)	Public Assistance
DR-1046	California Severe Winter Storms, Flooding, Landslides, Mud Flows	03-12-1995 (02-13-1995 to 04-19-1995)	N/A
DR-1044	California Severe Winter Storms, Flooding, Landslides, Mud Flows	01-10-1995 (01-03-1995 to 02-10-1995)	N/A
DR-1008	California Northridge Earthquake	01-17-1994 (01-17-1994 to 11-30-1994)	N/A
DR-1005	California Fires, Mud and Landslides, Soil Erosion, Flooding	10-28-1993 (10-26-1993 to 04-22-1994)	N/A
DR-979	California Severe Storm, Winter Storm, Mud and Landslides, Flooding	02-03-1993 (01-05-1993 to 03-20-1993)	N/A
DR-942	California Fire During a Period of Civil Unrest	05-02-1992 (04-29-1992 to 05-28-1992)	N/A
DR-935	California Snow Storm, Heavy Rain, High Winds, Flooding, Mudslide	02-25-1992 (02-10-1992 to 02-18-1992)	N/A
DR-894	California Severe Freeze	02-11-1991 (12-19-1990 to 01-03-1991)	N/A
DR-872	California Fires	06-30-1990 (06-26-1990 to 07-03-1990)	N/A
DR-812	California Severe Storms, High Tides, Flooding	02-05-1988 (01-17-1988 to 01-22-1988)	N/A
DR-799	California Earthquake, Aftershocks	10-07-1987 (10-01-1987 to 11-20-1987)	N/A
DR-677	California Coastal Storms, Floods, Slides, Tornadoes	02-09-1983 (01-21-1983 to 03-30-1983)	N/A

DISASTER NUMBER	DESCRIPTION	DECLARATION DATE & INCIDENT PERIOD	ASSISTANCE PROVIDED TO LOS ANGELES COUNTY
DR-635	California Brush, Timber Fires	11-27-1980 (11-27-1980)	N/A
DR-615	California Severe Storms, Mudslides, Flooding	02-21-1980 (01-08-1980)	N/A
EM-3067	California Brush Fires	10-29-1978 (10-29-1978)	N/A
DR-547	California Coastal Storms, Mudslides, Flooding	02-15-1978 (02-15-1978)	N/A
DR-299	California San Fernando Earthquake	02-09-1971 (02-09-1971)	N/A
DR-295	California Forest, Brush Fires	09-29-1970 (09-29-1970)	N/A
DR-253	California Severe Storms, Flooding	01-26-1969 (01-26-1969)	N/A

Source: FEMA

Figure 9. FEMA Disaster Declarations for Los Angeles County 1953-2025



Source: OpenFEMA data

In addition to the disaster declarations from FEMA, Los Angeles County has been covered by multiple California disaster proclamations. Governor-proclaimed disasters covering Los Angeles County since 1991 are listed in **Table 13**. The dates and types of disasters listed in the following table are sourced directly from the California State Board of Equalization's Chronological List of Governor-Proclaimed Disasters for Property Tax Purposes⁹.

Table 13. California State Disaster Proclamations for Los Angeles County 1991-2025

DATE OF DISASTER	TYPE OF DISASTER
January 7, 2025	Fires and windstorm conditions (Palisades, Eaton, Hurst, Lidia, Sunset, Woodley fires)
September 8, 2024	Fire (Bridge)
March 2024	Storms
February 2024	Severe Winter Storms
August 20, 2023	Hurricane Hilary
February-March 2023	Severe Winter Storms

⁹ U.S. GEOLOGICAL SURVEY. 'WHEN DOES A DROUGHT BEGIN AND END?' U.S. GEOLOGICAL SURVEY, U.S. DEPARTMENT OF THE INTERIOR. [HTTPS://WWW.USGS.GOV/FAQS/WHEN-DOES-A-DROUGHT-BEGIN-AND-END](https://www.usgs.gov/faqs/when-does-a-drought-begin-and-end).

DATE OF DISASTER	TYPE OF DISASTER
December 27, 2022 – January 2023	Severe Winter Storms
September 9, 2022	Tropical Storm Kay
August 31, 2022	Fire (Route Fire)
December 2021	Winter Storms
October 2021	Drought
September 2020	Fires (Slater, Bobcat, and Oak Fires)
August 2020	Fires
October 27, 2019	High winds and wildfires
October 25, 2019	Wildfires (Kincade and Tick Fires)
October 10, 2019	Wildfire (Saddleridge Fire)
January-February 2019	Winter Storms
November 2018	Wildfire (Hill & Woolsey Fires)
December 2017	Wildfires (Creek and Rye Fire)
September 2017	Wildfire (La Tuna Fire)
January 2017	Storm System
July 22, 2016	Wildfire (Sand Fire)
October 23, 2015	Aliso Canyon natural gas leak
October 2015	Rainstorms
June-July 2015	Wildfires
July 18, 2015	Rainstorms
January 2014	Drought
May 30 – June 11, 2013	Wildfire (Powerhouse Fire)
November 30, 2011	Windstorms
December 2010 – January 2011	Winter Storms
January 17-21, 2010	Winter Storms
August – September 2009	Wildfires
November 2008	Wildfires
October 2008	Wildfires
October 21, 2007	Wildfires
January 2007	Freeze
November 12, 2003	Flash Flooding
October – November 2003	Wildfires
February 2, 1998	El Nino

DATE OF DISASTER	TYPE OF DISASTER
October 1996	Firestorms
February 1995	Late Winter Storms
January 1995	Severe Winter Storms
January 17, 1994	Earthquake
October 27 – 28, 1993	Firestorms
December 1992	Late Winter Storms
April 29, 1992	Civil Disorder
February 1992	Winter Storms

Source: California State Board of Equalization, Chronological List of Governor-Proclaimed Disasters

C) DATA LIMITATIONS

Wherever possible, the following hazard profiles draw on quantitative data from established, consistently maintained sources. The National Centers for Environmental Information (NCEI) Storm Events Database serves as the primary reference for documenting past occurrences, assessing potential magnitude and extent, and estimating the probability of future events. This dataset is supplemented by high-quality sources such as the U.S. Geological Survey (USGS), the National Oceanic and Atmospheric Administration (NOAA), and the National Weather Service (NWS), which provide additional context and data for hazards not covered within the Storm Events Database.

Some data limitations constrain the extent to which quantitative analysis can be applied in this plan. Areas where improved data would enhance future hazard mitigation planning include engineering specifications for critical infrastructure, records of cyber incidents, detailed documentation of flash flood events, and high-resolution citywide topography. The City of Bell may be able to address these gaps through continued collaboration with state and county partners such as Cal OES, CAL FIRE, and the Los Angeles County Office of Emergency Management. These partners may maintain complementary datasets and technical resources that can be utilized in future planning efforts. Targeted use of local resources and partnerships could further strengthen the City's hazard data foundation and support more precise risk analysis in future updates.

D) DAM AND LEVEE FAILURE

i) Hazard Profile

Dam and levee failures are extraordinarily rare events, but they have the potential for devastating effects. Dams and levees are typically constructed to control water for reduced flooding, consistent irrigation, drinking water, and hydroelectric power generation.

Dams can fail in a number of ways. A rainy day failure occurs when heavy rain exceeds the storage capacity of the dam and overflows the dam. A sunny day (or piping) failure occurs due to slope failure, smaller structural faults, or a controlled spillway release done to prevent full failure of overflowing water. Sunny day failures release a dam's water over a period of time based on the size of the leak. In these scenarios, it is assumed the dam is holding its normal water volume. A full or sudden failure caused by a major structural integrity issue is classified as a percentage of the probable maximum precipitation (PMP), 50% PMP Breach. A 50% PMP Breach means there was a sudden release of water while the dam is holding 50% of its maximum volume. In each instance, an overwhelming amount of water, and potentially debris, is released.

Common causes for dam failure include:

- Sub-standard construction materials/techniques
- Spillway design error
- Geological instability caused by changes to water levels during filling or poor surveying
- Sliding of a mountain into the reservoir
- Poor maintenance, especially of outlet pipes
- Human, computer or design error
- Internal erosion, especially in earthen dams
- Earthquakes

(1) Duration

When dams or levees fail, the breach typically occurs within seconds to minutes. The resulting release of water can reach speeds comparable to vehicles on a highway, leaving nearby communities with only minutes to evacuate. In extreme cases, such as large dam failures involving massive volumes of water, floodwaters may travel for hours, giving some distant communities a longer, but still limited, window to respond.

(2) Seasonality

Dam and levee failures do not have an inherent seasonality, but they are more likely to occur during times of prolonged hydrologic stress. In California, the "wet" season is typically between November and April. This period is characterized by infrequent but intense storms, sometimes

fueled by atmospheric rivers that can drop several inches of rain in short time spans. The sudden accumulation of runoff during these events can place significant stress on both dams and levees, particularly in urban and foothill areas where drainage is limited. This can be compounded by rapid snowmelt in the Sierra Nevada and debris-laden runoff from wildfire burn scars, both of which can increase hydraulic pressure and sediment load on downstream infrastructure.

(3) Speed of Onset

The speed of onset for dam and levee failures in California varies depending on the nature of the failure, but the actual breach, once initiated, often occurs within seconds to minutes. However, the conditions leading to failure usually develop over a longer period of time. Structural stresses build up due to factors like prolonged rainfall, sustained high reservoir levels, seepage, internal erosion, or debris accumulation, and these stresses can occur over days, weeks, months, or even years before the structure fails.

(4) Location

According to inundation modeling from the California Division of Safety of Dams and the U.S. Army Corps of Engineers, portions or most of the City fall within the projected inundation area for the Garvey, Hansen, and Sepulveda dams. The extent of the Garvey Reservoir failure inundation area is shown in **Figure 10**. The Hansen and Sepulveda Dams would also inundate a portion or the entire City of Bell depending on the type of breach. For both dams there are three breach scenarios which include the High Pool Breach, Top of Storage Breach and Maximum Height Breach. Descriptions for each breach are listed below for the Hansen and Sepulveda Dams. **Figure 11** to **Figure 16** shows the inundation maps for Hansen and Sepulveda dam failures.

- **Hansen Dam High Pool Breach:** the dam inundation only spans within the Los Angeles River. The risk to the City of Bell from a Hansen Dam High Pool Breach would be low.
- **Hansen Dam Top of Storage:** the dam inundation would impact the eastern side of the City and the Cheli District. Flood depths range from 0.5 feet to 23.3 feet mostly along the Los Angeles River and parts of the Cheli District.
- **Hansen Dam Maximum Height Breach:** the inundation would similarly impact the City described in the Top of Storage breach scenario. In the Maximum height Breach scenario, additional portions of the western side of the City would experience flooding. However, those additional areas would experience less flood depths.
- **Sepulveda High Pool Breach:** the dam inundation would include areas along the Los Angeles River, spilling over into portion of southeast corner of the City.
- **Sepulveda Top of Storage Breach:** the dam inundation would include the majority of the City of Bell with the largest flood depths near the Los Angeles River. The middle of the City along Atlantic Boulevard would be clear of dam inundation.

- **Sepulveda Maximum Height Breach:** the dam inundation would include the entire City of Bell with the largest flood depths near the Los Angeles River. This scenario would impact the entire City and would be worst case scenario out of all three dams and all of their scenarios.

Figure 10. Garvey Dam Inundation Areas

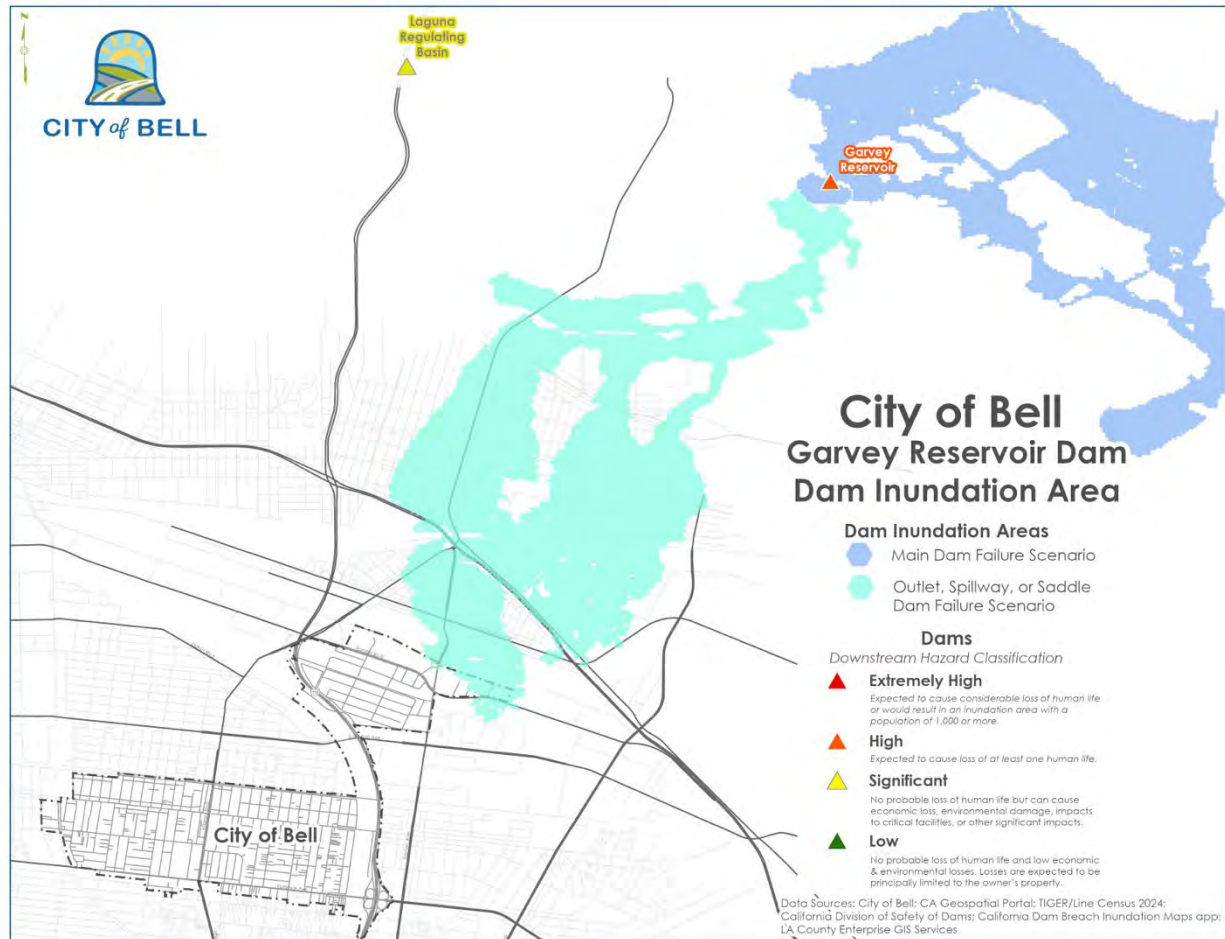


Figure 11. Hansen Dam Inundation Area – High Pool Breach



Figure 12. Hansen Dam Inundation Area – Top of Storage Breach

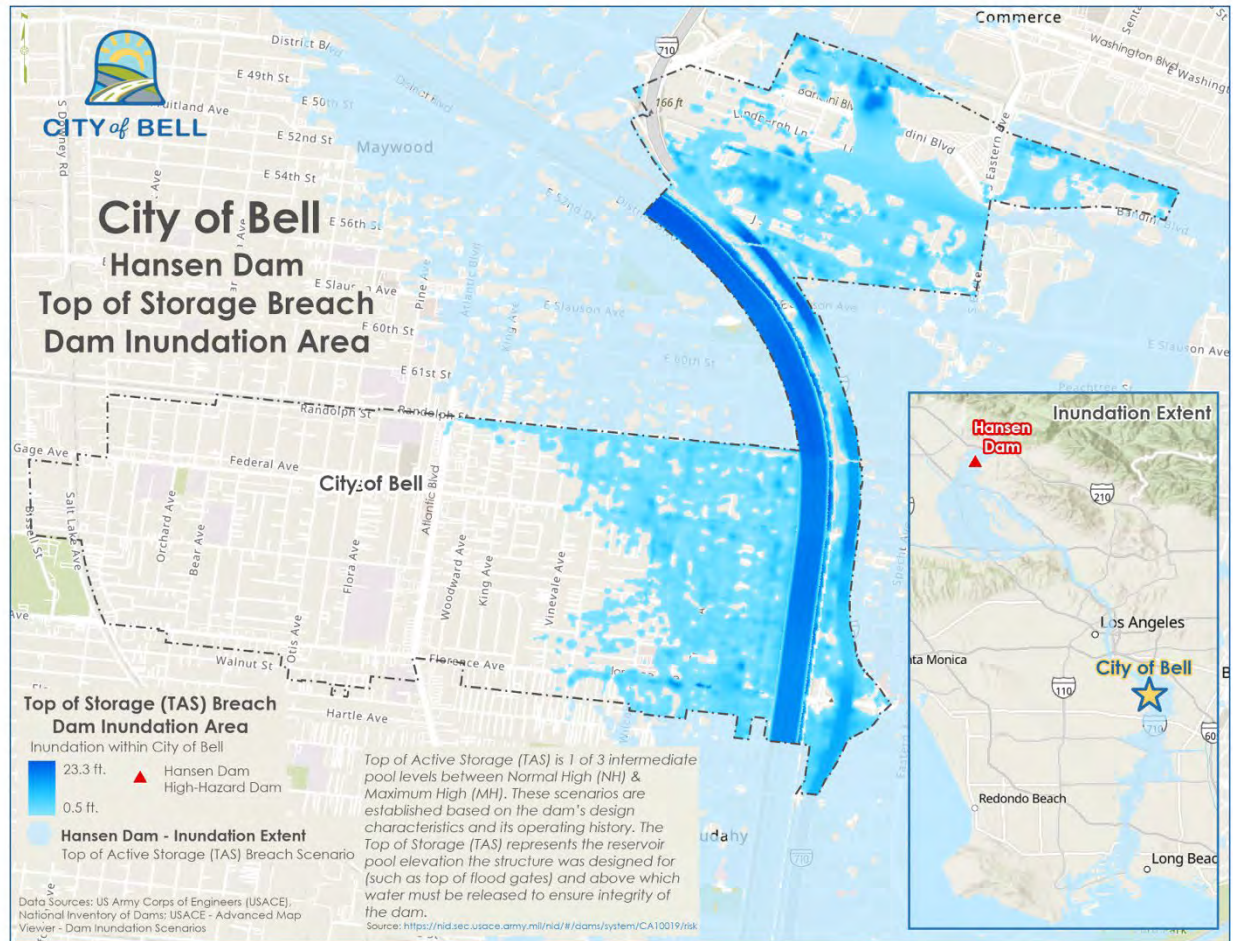


Figure 13. Hansen Dam Inundation Area – Maximum Height Breach

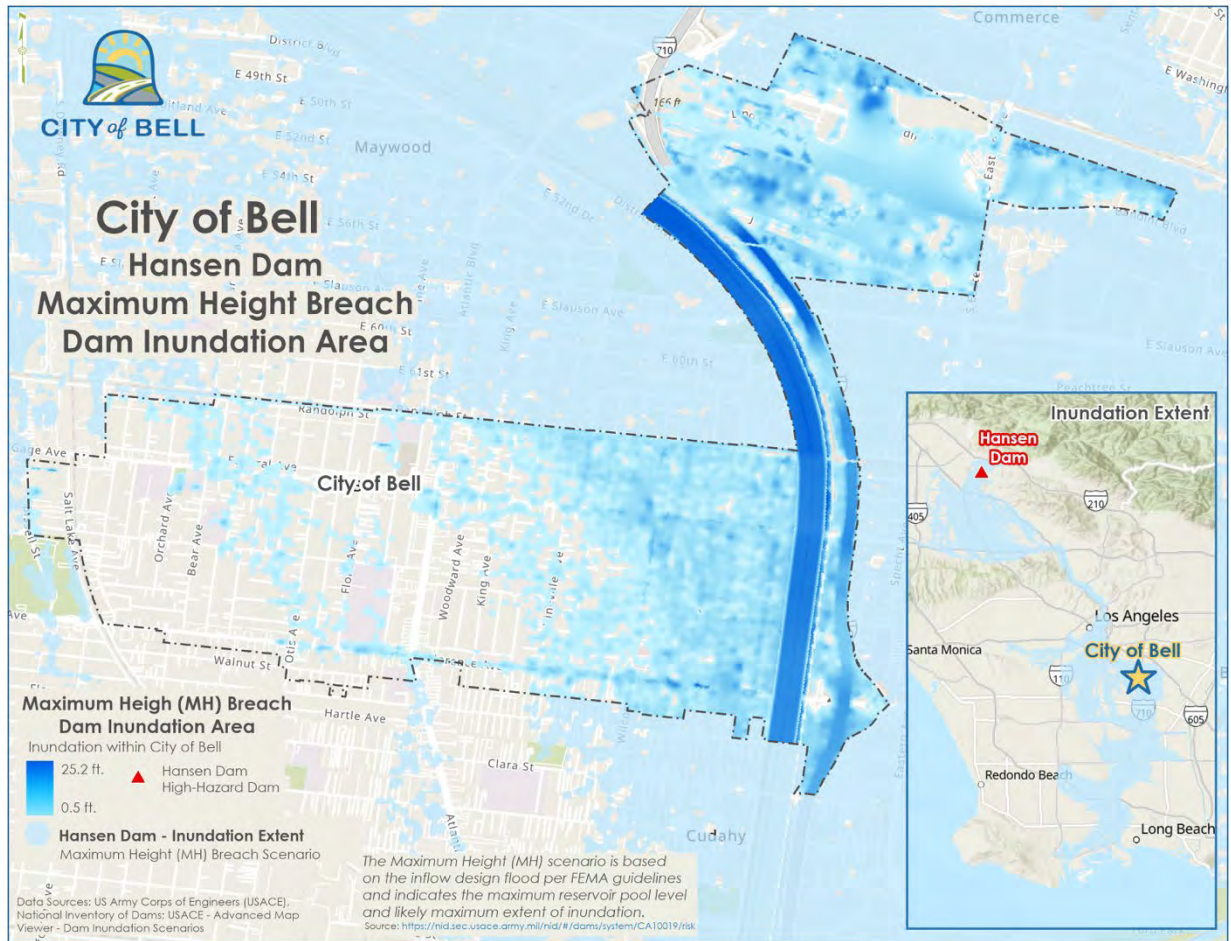


Figure 14. Sepulveda Dam Inundation Area – High Pool Breach

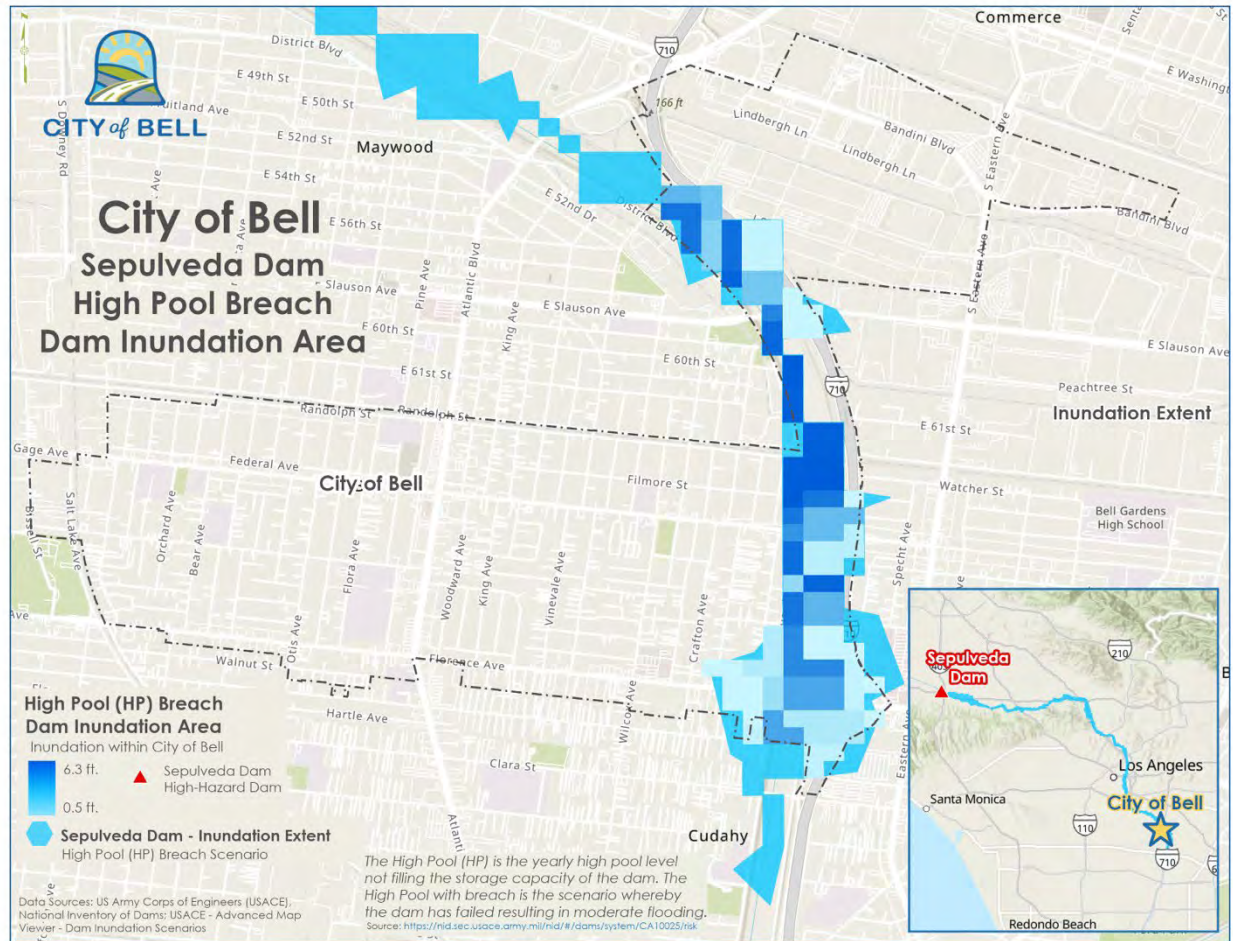


Figure 15. Sepulveda Dam Inundation Area – Top of Storage Area

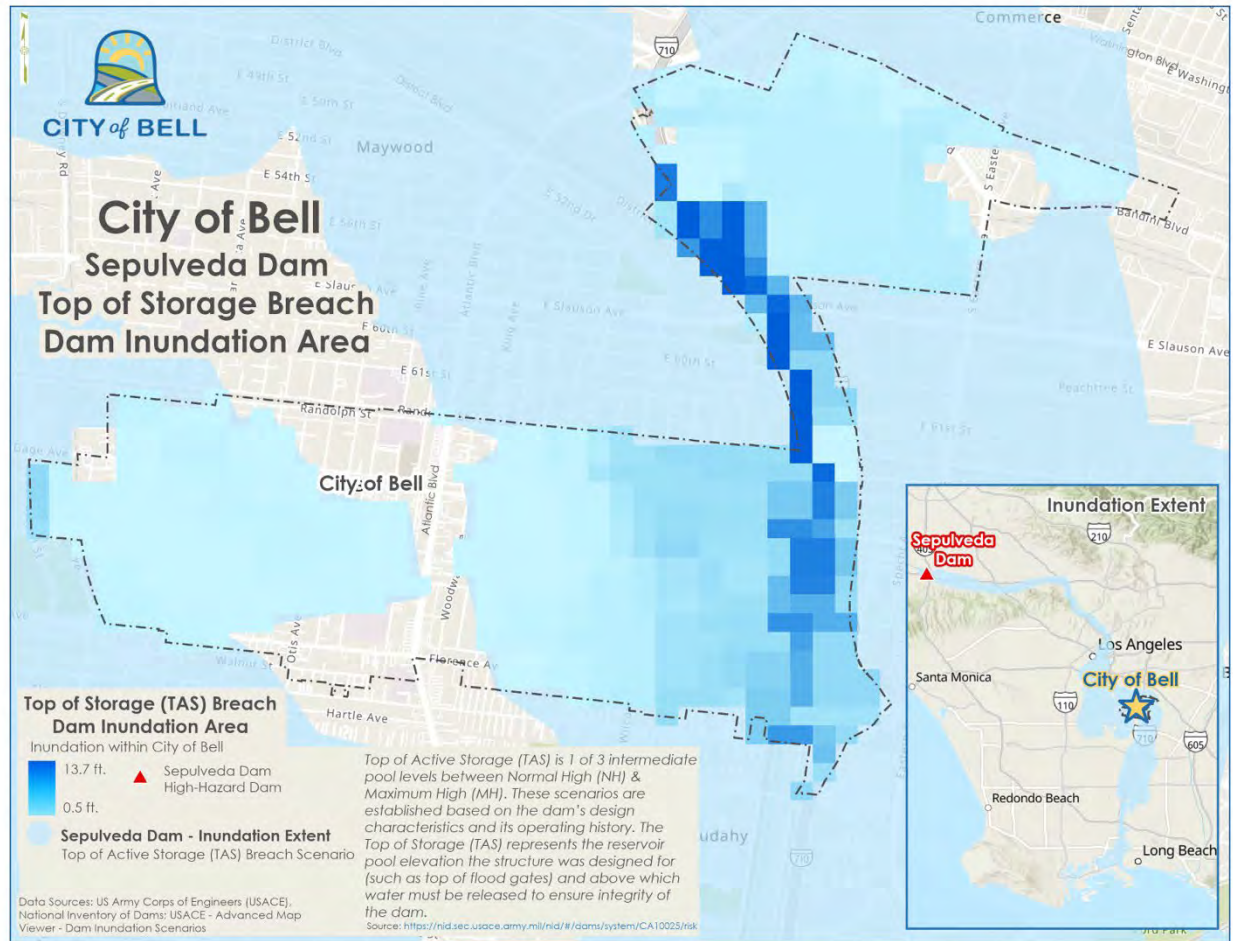
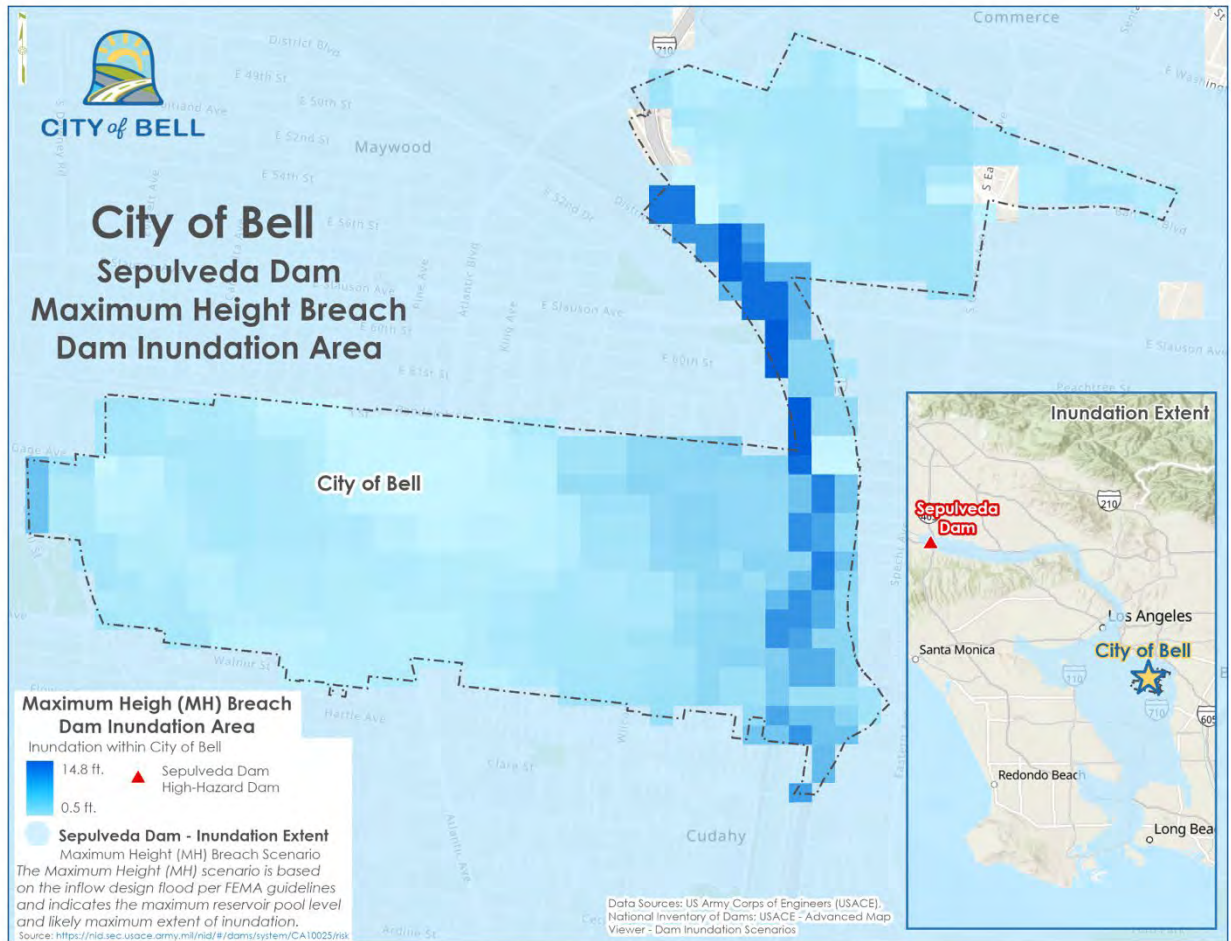


Figure 16. Sepulveda Dam Inundation Area – Maximum Height Breach



Los Angeles River Channel – Levee System

In Bell, the only levee system is the Los Angeles River channel, a concrete-lined, engineered corridor maintained by the U.S. Army Corps of Engineers and the Los Angeles County Flood Control District. This system is accredited to provide protection from the 1-percent annual chance (100-year) flood. Consequently, FEMA maps Bell outside of the Special Flood Hazard Area, though the City is formally classified as “Zone X – Areas of Reduced Flood Risk Due to Levee”. The extent of this zone is shown in **Figure 17**. The area zoned as Zone X is primarily west of the Los Angeles River levees, and a failure of the western slope would impact far more homes, businesses, and critical facilities. Although a failure of the eastern bank affects fewer homes and businesses, key utility lines and infrastructure like Interstate 710 would be exposed.

Figure 17. Flood Hazard Risk Reduced Due to Levee



ii) Magnitude

Dam and levee failures are rare but catastrophic events. The City of Bell is impacted by three dams which include the Garvey, Hansen, and Sepulveda. Additionally, the City lies within the downstream footprint of major regional flood-control and water management infrastructures.

A dam failure in Bell has the potential to be severe as the Maximum Heigh Breach scenario of the Sepulveda Dam which would inundate the entire City and cause major damages and disruptions to City services, as well as potentially cause injuries and fatalities among City residents. A breach along the Los Angeles River could produce rapid and forceful flooding, inundating nearby homes, businesses, and industrial areas with little warning. Flood depths could range from a few inches in outer neighborhoods to several feet near the river, with the potential to destroy property, displace residents, and cause injuries or fatalities. Critical infrastructure such as roads, utilities, and stormwater systems could also be heavily damaged, resulting in long-term service disruptions. While significant damage from dam failures can occur, it is important to note that these scenarios are unlikely to occur and rare.

Garvey

The Garvey Reservoir, which is maintained by the California Department of Water Resources, has a storage capacity of 1,610 acre-feet, and the reservoir functions a source of water for the surrounding area during times of drought and increased water demand. The consequences of a failure stem from the sudden release of impounded water, which can transform a controlled waterbody into a destructive surge. Unlike typical flood events that rise gradually, dam and levee failures can inundate downstream areas in minutes, leaving little or no time for protective actions. Even small structures can cause severe harm if they fail upstream of populated areas, while large, high-hazard dams or levee systems have the potential to cause regional devastation¹⁰.

Hansen

The Hansen Dam and Reservoir, which is owned by the U.S. Army Corps of Engineers, is an earth-fill dam. The Corps reserves 162.7 acres of the 1,461.3 acre-dam and reservoir area exclusively for routine maintenance of the dam. The remaining 1,298.6 acres have been leased to the City of Los Angeles for recreation uses¹¹. The consequences of a dam failure for the Hansen Dam could range from inundation of areas along the Los Angeles River to inundation most of the City, largely in the eastern portion of the City and the Cheli District. Flood depths range from .5 feet to 23.3 feet deep.

Sepulveda

The Sepulveda Dam and Reservoir, which is owned by the U.S. Army Corps of Engineers, is a concrete gravity dam. The Corps acquired a total of 2,131.9 acres in fee for construction, operation and maintenance of the dam. Of the total acreage, the Corps reserves 313.0 acres exclusively for operation of the dam, and 1526.8 acres have been leased to the City of Los Angeles for recreational purposes¹². The consequences of a dam failure for the Sepulveda Dam

¹⁰ <https://water.sec.usace.army.mil/overview/spl/locations/garvey%20ave>

¹¹ <https://www.spl.usace.army.mil/Missions/Asset-Management/Hansen-Dam/>

¹² <https://www.spl.usace.army.mil/Missions/Asset-Management/Sepulveda-Dam/>

could range from inundation of areas along the Los Angeles River to inundating the entire City of Bell. Flood depths range from 0.5 feet to 23.3 feet deep.

iii) Extent

A dam failure or breach along the Los Angeles River from either of the Garvey, Hansen, or Sepulveda dams would release large volumes of water from the engineered channel into adjacent neighborhoods, businesses, and industrial areas. The onset would be rapid, with little warning, and floodwaters could spread within minutes, carrying debris and exerting enough force to damage or destroy structures, vehicles, and utilities. Roads near the river would quickly become impassable, isolating parts of the community and delaying emergency response. Residents—particularly those closest to the river—would face immediate life-safety risks, while widespread property damage, power outages, and potential hazardous material releases from industrial facilities would compound the impacts. Although unlikely, such an event would resemble a flash-flood disaster, with consequences far exceeding the localized ponding and drainage issues that normally characterize Bell’s flood hazard.

Garvey Reservoir

The extent of impacts within the City of Bell from a dam or levee failure would primarily be concentrated in the northeast corner of the City, where water from a failure of the Garvey Reservoir embankments could reach. The Garvey Reservoir is classified by the California Division of Safety of Dams as an “Extremely High” downstream hazard facility, meaning that failure would be expected to cause considerable loss of life and significant damage in downstream communities. While the force of floodwaters would likely be reduced by distance and intervening development between the reservoir and Bell, flows could still be powerful enough to sweep away people and vehicles. The inundation zone lies entirely within the Cheli District, an area with numerous industrial and distribution facilities. Floodwaters entering these facilities could carry hazardous materials, creating secondary hazards that pose risks to both nearby residents and emergency responders.

Although current inundation mapping does not indicate that water from a dam or levee failure would reach the Los Angeles River within Bell, this may reflect the limitations of modeling such complex drainage interactions rather than a definitive absence of risk. Accurately projecting how floodwaters would move through the network of channels, storm drains, and urban surfaces before entering the Los Angeles River is a highly complex process, and the available maps may not capture all potential pathways. If water from an upstream failure were to reach the channel at high volume, transportation and utility infrastructure that crosses or parallels the river could be threatened. Damage to bridges along Bell’s eastern border could interrupt access into and out of the City, effectively isolating the Cheli District. Additional secondary impacts may include erosion, debris impacts, and hazardous materials releases.

Hansen Dam

The Hansen Dam and Reservoir is classified as a low hazard dam by the U.S. Army Corps of Engineers (USACE). A low hazard potential dam is indicative of a low risk to property and life. The Hansen Dam and Reservoir was built by the U.S. Army Corps of Engineers Los Angeles District and completed in September 1940. It is located in Los Angeles at the confluence of the Big and Little Tujunga washes along the northeastern edge of the San Fernando Valley. The primary purpose of the dam is flood-risk management, recreation, and can assist with water conservation. In all dam scenarios noted previously in the location section, the eastern portions of the City would be inundated and experience flooding. The western side of the City would likely not see inundation impacts. This dam is not required by California state law to provide our office inundation maps for review and approval. The owner of the dam is the U.S. Army Corps of Engineers.

Sepulveda Dam

The Hansen Dam and Reservoir is classified as a high hazard dam by the U.S. Army Corps of Engineers (USACE). A high hazard potential dam is indicative of a high potential for loss of life, economic damage, and environmental harm if the dam were to fail, according to federal guidelines. The Sepulveda Dam was built by the U.S. Army Corps of Engineers Los Angeles District and completed in December 1941. The Dam was constructed to provide flood protection after the Los Angeles Flood of 1938. Both the Sepulveda and Hansen dams are vital for flood risk management for portions of the San Fernando Valley and areas near the Los Angeles River. In the event of a Sepulveda Dam failure, the areas along the Los Angeles River would be inundated in a High Pool, Top of Storage, and Maximum Height Breach. In the event of a Top of Storage and Maximum Height Breach, the majority of the City would be inundated. These scenarios are mapped in the location section. This dam is not required by California state law to provide the office inundation maps for review and approval. The owner of the dam is the U.S. Army Corps of Engineers.

iv) Past Occurrences

There are no records of dam failures from Hansen, Garvey, or Sepulveda that have previously affected the City of Bell. However, the Garvey Reservoir, has experienced notable leakage in the past. In late 1989, divers discovered a significant crack and a hole nearly one foot wide, this led to seepage and flooding of nearby homes. There were no reported impacts within the City of Bell. After the issues were discovered, the reservoir was immediately drawn down and underwent extensive repairs and improvements. In 2025, the California Division of Safety of Dams declared the reservoir to be safe for continued use, with the liner and monitoring systems deemed fully functional over the past 25 years. However, the reservoir's clay liner has reached the end of its normal lifespan, and the Metropolitan Water District of Southern California is currently working on replacing the line. The new liner is anticipated to be completed by the end of 2027.

Within Los Angeles County, the St. Francis Dam collapsed, which is one of the most catastrophic dam failures in U.S. history. While the dam collapse didn't affect the City of Bell, the resulting wall of water traveled along the Santa Clara River Valley. Since the construction of the Los Angeles River in the 1930's, there have been no documented instances of significant failures along channelized portions of the Los Angeles River.

Frequency

Based on the lack of recorded dam or levee failures that have occurred or affected the City of Bell, the frequency of dam and levee failure events is zero.

v) Future Probability

Based on available records, the probability of dam or levee failures directly affecting the City of Bell remains **Unlikely**, though such events cannot be ruled out. A failure of an upstream facility, particularly the Sepulveda Dam and Reservoir, could necessitate the evacuation of Bell's neighborhoods and the closure of bridges crossing the Los Angeles River. The Los Angeles County Flood Control District (LACFCD) and the U.S. Army Corps of Engineers maintain and inspect the flood-control structures that convey the river through Bell, and continued adherence to their inspection and maintenance programs is essential to managing risk.

While the concrete-lined Los Angeles River channel has historically provided reliable flood protection, the Los Angeles River Master Plan (2022) notes that some channel reaches no longer meet the modern 1-percent annual chance (100-year) flood event capacity goal, although the portion within Bell's jurisdiction is assessed to still mitigate 1% chance or greater flood events. The same plan projects that climate change will increase the intensity and frequency of extreme precipitation events, potentially tripling the number of large storm events by the end of the century (Existing Conditions Summary – Sustainability and Resiliency). These conditions could raise river stages and place greater stress on channel walls, levees, and bridge abutments, particularly in downstream communities such as Bell.

vi) Secondary Hazards

Secondary hazards of dam or levee failure are the indirect or cascading effects that occur after the initial structural failure and resulting water release. The secondary hazards are similar to flooding and tsunamis, with the force of the surge of water and resulting inundation creating numerous risks to people and property. **Table 14** describes the secondary hazards that can result from dam or levee failures.

Table 14. Dam and Levee Failure Secondary Hazards

HAZARD	DESCRIPTION
Hazardous Materials	Floodwaters from a dam or levee failure can sweep through industrial zones, warehouses, and transportation corridors, mobilizing stored chemicals, fuels, and other hazardous substances. In Bell, this risk is particularly acute in the Cheli District, where industrial and distribution facilities are concentrated. Hazardous materials released into floodwaters can contaminate soils, surface waters, and storm drains, creating long-term environmental and public health risks and complicating emergency response.
Erosion	The high velocity of floodwaters produced by a dam or levee breach can cause significant erosion along riverbanks, channels, and within the built environment. Even in flat, urbanized areas like Bell, scouring can undermine streets, building foundations, and utility corridors. Erosion can also destabilize protective infrastructure, such as levees or stormwater channels, reducing their ability to function in subsequent storm events.
Public Health	Standing floodwaters can spread waterborne illness, mold, and vector-borne diseases (e.g., mosquitoes), particularly in dense urban neighborhoods with limited open space to disperse water.
Infrastructure Failure	Floodwaters can compromise infrastructure by damaging bridges, roads, power lines, and water/wastewater systems. In Bell, damage to bridges over the Los Angeles River could cut off access to the Cheli District, while inundated electrical substations or downed lines could leave large portions of the community without power. Sewer backups or ruptured water mains could further complicate response, and loss of transportation corridors would slow recovery and limit the movement of goods through the City's industrial areas.

vii) Vulnerability & Impact Assessment

(1) People

Los Angeles River Channel – Levee System

While the levee system is supposed to prevent flooding, in the event of a levee failure, the people residing in the eastern side of the City could be vulnerable to failure impacts.

Garvey

Nearly every individual downstream of a dam or levee failure is at risk, but some individuals may have more difficulty evacuating to a safer area, if time allows. Individuals with limited mobility and young children are particularly vulnerable. People who live and work within or

near the Cheli District are at greater risk due to their proximity to the likeliest inundation area. There is no additional information on the number of people impacted from the Garvey Dam.

Hansen

Nearly every individual downstream of a dam or levee failure is at risk, but some individuals may have more difficulty evacuating to a safer area, if time allows. Individuals with limited mobility and young children are particularly vulnerable. In the maximum height breach scenario, most of the City would be impacted by dam inundation and flooding. However, some areas of the City will experience different levels of flood depth and therefore the residents of the City may experience different impacts of flooding. People may need to be evacuated, seek shelters, and navigate flood damage to their homes. Due to flood damages, people may become unemployed or experience disruption to work and pay which can significantly impact individuals and families financially. Additionally, residents may be exposed to flood waters which can be unsafe and be prone to injuries or even death. There is no additional information on the number of people impacted from the Hansen Dam.

Sepulveda

Nearly every individual downstream of a dam or levee failure is at risk, but some individuals may have more difficulty evacuating to a safer area, if time allows. Individuals with limited mobility and young children are particularly vulnerable. In the maximum height breach scenario, the entire City would be impacted by dam inundation and flooding. This breach would be worst case scenario and have the potential to be devastating to the City of Bell. However, some areas of the City will experience different levels of flood depth and therefore the residents of the City may experience different impacts of flooding and should plan accordingly. People may need to be evacuated, seek shelters, and navigate flood damage to their homes. Due to flood damages, people may become unemployed or experience disruption to work and pay which can significantly impact individuals and families financially. Additionally, residents may be exposed to flood waters which can be unsafe and be prone to injuries or even death.

A consequences estimates analysis was completed for the various breach scenarios for the Sepulveda Dam. **Table 15** provides the scenario, type, pool elevation, daytime people at risk and nighttime people at risk. Daytime and nighttime could differ based on commutes from people coming in and out of the City of Bell depending on work, school, and other activities. In the scenario column, there is a breach and non-breach scenario for each type of breach. A breach involves the dam structurally failing and a non-breach involves the water overtopping a dam or high water levels, but the structure of the dam does not fail. The highest number of people at risk is 1,384,487 people (nighttime) for the Maximum Height Pool breach scenario and 1,251,210 people (daytime).

Table 15. Sepulveda Dam Failure Population at Risk

SCENARIO	TYPE	POOL ELEVATION	DAYTIME PEOPLE AT RISK	NIGHTTIME PEOPLE AT RISK
Maximum Height Pool (Breach)	Maximum High Pool Breach	720.6	1,251,210	1,384,487
Maximum High Pool (Non Breach)	Maximum High Pool Non-Breach	720.6	1,196,389	1,321,696
Top of Active Storage Pool (Breach)	Top of Active Storage Pool Breach	712.6	576,362	639,845
Top of Active Storage Pool (Non Breach)	Top of Active Storage Pool Non-Breach	712.6	0	0
Normal High Pool (10% EDP – Breach)	Normal High Pool (10% EDP) Breach	N/A	0	0
Normal High Pool (10% EDP - Non Breach)	Normal High Pool (10% EDP) Non-Breach	N/A	0	0

Source: NID, Census Bureau ACS 2023

(2) Structures and Systems

Los Angeles River Channel – Levee System

While the levee system is supposed to prevent flooding, in the event of a levee failure, structures and systems located in the eastern side of the City could be vulnerable to failure impacts.

Garvey

Structures in the northeast portion of the Cheli District are within the inundation area and most exposed to the consequences of a dam or levee failure. Specifically, they are within the projected inundation area in the event of a failure at the Garvey Reservoir. This part of Bell is primarily occupied by industrial facilities supporting manufacturing and distribution. The greatest vulnerabilities are tied to the City's transportation and utility networks rather than widespread inundation of buildings. Major transportation corridors such as railways and Interstate 710 also pass through this area. In the event that the water drains into the Los Angeles River, a sudden surge of water could potentially damage the transportation and utility infrastructure that crosses the river between the main portion of Bell and the Cheli District. There is no additional information on the number of structures impacted from the Garvey Dam.

Hansen

Most structures on the eastern portion of the City and the Cheli District are within the inundation areas for the Maximum Height Scenario, which is the worst case scenario for the Hansen Dam. Areas impacted by the Maximum Height Scenario are largely residential and industrial (Cheli District), however commercial areas on the eastern side of the City would be impacted as well. This scenario would cause more flooding impacts than the Garvey Dam. In addition to the systems impacts noted for the Garvey Dam above, the Hansen Dam could cause major disruption to the local transportation systems, healthcare, and utilities. Inundation of roads and major streets would cause gridlock and would disrupt emergency services, evacuation, and recovery operations. There is no additional information on the number of structures impacted from the Hansen Dam.

Sepulveda

All structures, except for a small area within the Cheli District and area along the Los Angeles River, would be impacted by flooding from the maximum height breach scenario. This scenario would cause even more flooding impacts than the Garvey and Hansen Dam. The Sepulveda Dam could cause flooding to all roads within the City, risk utility disruptions, and likely cause strain on local healthcare and emergency services. Flooding in the entire City would also cause economic challenges to the local economy impacting residents financially.

A consequences estimates analysis was completed for the various breach scenarios for the Sepulveda Dam. **Table 16** provides the scenario, type, pool elevation, structures at risk, and economic cost. The most destructive scenario is the maximum height pool breach which is estimated to damage 283,836 structures and cause \$42 billion dollars in damage.

Table 16. Sepulveda Dam Failure Structures at Risk

SCENARIO	TYPE	POOL ELEVATION	NUMBER OF STRUCTURES	ECONOMIC COST
Maximum Height Pool (Breach)	Maximum High Pool Breach	720.6	283,836	\$42,882,993,901
Maximum High Pool (Non Breach)	Maximum High Pool Non-Breach	720.6	269,333	\$32,811,796,879
Top of Active Storage Pool (Breach)	Top of Active Storage Pool Breach	712.6	125,027	\$12,119,303,668
Top of Active Storage Pool (Non Breach)	Top of Active Storage Pool Non-Breach	712.6	0	\$0

SCENARIO	TYPE	POOL ELEVATION	NUMBER OF STRUCTURES	ECONOMIC COST
Normal High Pool (10% EDP – Breach)	Normal High Pool (10% EDP) Breach	N/A	0	\$0
Normal High Pool (10% EDP - Non Breach)	Normal High Pool (10% EDP) Non-Breach	N/A	0	\$0

Source: NID, County Assessors Data

Critical Facilities

Los Angeles River Channel – Levee System

While the levee system is supposed to prevent flooding, in the event of a levee failure, several critical facilities located in the eastern side of the City could be vulnerable to failure impacts.

Garvey

None of the critical facilities identified by the City of Bell are located within the projected inundation zones of a Garvey Dam failure. While the probability of a dam or levee failure is low it should not be assumed that water released by a dam or levee failure could *never* affect areas outside of the projected inundation zones.

Hansen

An analysis on the exact number of critical facilities impacting the City of Bell from a Hansen Dam failure was not able to be conducted. However, based on the map of critical facilities in the community profile section and the maximum height breach scenario, about half of the critical facilities would be impacted. Critical facilities include government, residential, commercial, and cultural facilities.

Sepulveda

An analysis on the exact number of critical facilities impacting the City of Bell from a Sepulveda Dam failure was not able to be conducted. However, based on the map of critical facilities in the community profile section and the maximum height breach scenario, approximately all critical facilities would be impacted. Critical facilities include all government, residential, commercial, transportation, protective services, cultural places, police stations, fire stations, and the City EOC. **Table 17** describes potential impacts to each of FEMA's eight community lifelines.

Table 17. Potential Vulnerabilities of Community Lifelines to Dam and Levee Failure

LIFELINE	FEMA ICON	DESCRIPTION OF IMPACT
Communications		Communications infrastructure is frequently elevated or buried; it is unlikely that communications would be interrupted by surface flooding, but the initial impact of a water surge could damage or destroy communications infrastructure.
Energy (Power & Fuel)		The City of Bell largely receives power from outside the jurisdiction, but the lines bringing power into the community may be damaged by the force of water released by a dam or levee failure.
Food, Hydration, Shelter		A major dam or levee failure may temporarily restrict the availability of food, hydration, and shelter, but long term supply of these items will largely be determined by the severity of the failure across the larger metropolitan region.
Hazardous Materials		A major dam or levee failure can produce a surge of water that will displace nearly everything in its path. As the water levels drop, the debris being carried will come to a rest. This may include hazardous biological, chemical, or even nuclear materials.
Health & Medical		If people are unable to evacuate the inundation zone, healthcare needs may exceed the capabilities of local resources. Medical facility may face additional challenges when maintaining operations with limited food and water supplies.
Safety & Security		Following a major event such a dam or levee failure, the risk of crime is elevated as security personnel and resources may be diverted.

LIFELINE	FEMA ICON	DESCRIPTION OF IMPACT
Transportation		The road and railway bridges crossing the Los Angeles River are among the most vulnerable points in the City to dam or levee failures. These structures will be put under significant physical stress if a major reservoir is uncontrollably released into the Los Angeles River. Damage to these structures can isolate the City to the east.
Water & Wastewater Systems		The Los Angeles River water system is highly likely to be the area inside Bell where the velocity and depth of water released by a dam or levee failure is greatest. Fortunately, this area is designed specifically to hold large volumes of moving water and last for decades.

(3) Natural, Cultural, and Historic Resources

Los Angeles River Channel – Levee System

While the levee system is supposed to prevent flooding, in the event of a levee failure, natural, cultural, and historic resources located in the eastern side of the City could be vulnerable to failure impacts.

Garvey

Municipal facilities, parks, and historical sites identified the City of Bell are unlikely to be directly affected by a Garvey dam failure. None of these sites are found within the projected dam inundation area. However, there are a few natural, cultural, and historic sites that may be impacted in the rare event of a levee failure. Additionally, the City of Bell plans to increase urban tree canopy to improve the City's health and environmental and infrastructure services. As the City increases the tree canopy coverage area, more natural environments are at risk of dam inundation and damage.

Hansen

Municipal facilities, parks, and historical sites identified the City of Bell are very likely to be directly affected by a Hansen dam failure. The worst case breach scenario (maximum height breach) would inundate most of the City. Additionally, the City of Bell plans to increase urban tree canopy to improve the City's health and environmental and infrastructure services. As the

City increases the tree canopy coverage area, more natural environments are at risk of dam inundation and damage.

Sepulveda

Municipal facilities, parks, and historical sites identified the City of Bell are very likely to be directly affected by a Sepulveda dam failure. The worst case breach scenario (maximum height breach) would inundate the entire City. Additionally, the City of Bell plans to increase urban tree canopy to improve the City's health and environmental and infrastructure services. As the City increases the tree canopy coverage area, more natural environments are at risk of dam inundation and damage.

(4) Risk Analysis

The overall risk of dam and levee failure in the City of Bell is considered **High**. The probability of a dam failure occurring is unlikely as there are no previous occurrences of dam failures affecting the City. While the risk of dam and levee failures are high, the greatest factor driving the level of risk is the slight potential for devastating impacts on the community. The greatest risk posed by a dam failure is to people and property near the Los Angeles River for all dam failure scenarios as the flood depth will be greater than areas further from the river. However, in a maximum height breach scenario, the entire City would be inundated at various flood depths.

While residences are few and far between in this part of Bell, there are multiple large commercial and industrial buildings that support manufacturing and distribution. Water released by failure of the Garvey, Hansen, and Sepulveda dam failures could inundate these facilities, potentially cause structural damage and create debris. The loss of these facilities may disrupt community activity and leave community members unemployed. Secondary risks include erosion, debris impacts, and potential hazardous materials releases associated with industrial facilities. The banks of the Los Angeles River are considered provisionally accredited levees, and they protect the City from 100-year flood events. If the banks of the Los Angeles River in Bell fail, portions of the City would be exposed to potential flooding in the event of a 100-year flood scenario. While the likelihood of a dam or levee failure remains unlikely, the density of development and people means that such an event could be severe, and City officials are advised to coordinate with the Los Angeles County Flood Control District (LACFCD) and the USACE, which are the primary agencies responsible for maintaining the Los Angeles River and the Garvey Reservoir. Bell may also have a responsibility to maintain stormwater systems in Bell that connect to the Los Angeles River.

E) DROUGHT & WATER SHORTAGE

i) Hazard Profile

Drought is a familiar hazard in California, especially in the southern region where the City of Bell is located. This area has experienced significant dry periods over the past few decades. A drought occurs when prolonged drier-than-normal conditions result in water-related problems. The onset of a drought is typically a gradual process, developing over weeks, months, or even years. Over time, the flow of streams and rivers declines, water levels in lakes and reservoirs fall, and the depth to water in wells increases. Water shortages can have severe consequences on the health of people and pets, economic activity, and environmental conditions.

The term "drought" can have different meanings to different people, depending on how a water deficiency affects them. Droughts have been classified into different types such as:

- **Meteorological drought:** lack of precipitation
- **Agricultural drought:** lack of soil moisture
- **Hydrologic drought:** reduced streamflow or groundwater levels
- **Socioeconomic drought:** based on direct and indirect socio-economic impacts on society and the economy

(1) Duration

Drought is an extended period of unusually dry weather when there is not enough rain. However, drought may look different and have different thresholds than other regions. For example, a drought in Atlanta, Georgia could be a very wet period based on the climate in Phoenix, Arizona. Historical drought periods in the State of California have lasted anywhere from one to five years. The end of a drought can be difficult to determine. While a single rainstorm will provide short-term relief from a drought, it might take weeks or months before levels of precipitation return to normal¹³.

Droughts are sometimes differentiated between short- and long-term drought. Short-term drought can have impacts on agriculture and grasslands, and the drought classification can rapidly change. Long-term drought has a great impact on hydrology and ecology¹⁴.

- **S:** Short-term, typically less than 6 months (agriculture, grasslands)
- **L:** Long-term, typically more than 6 months (hydrology, ecology)
- **SL:** area contains both short- and long-term impacts

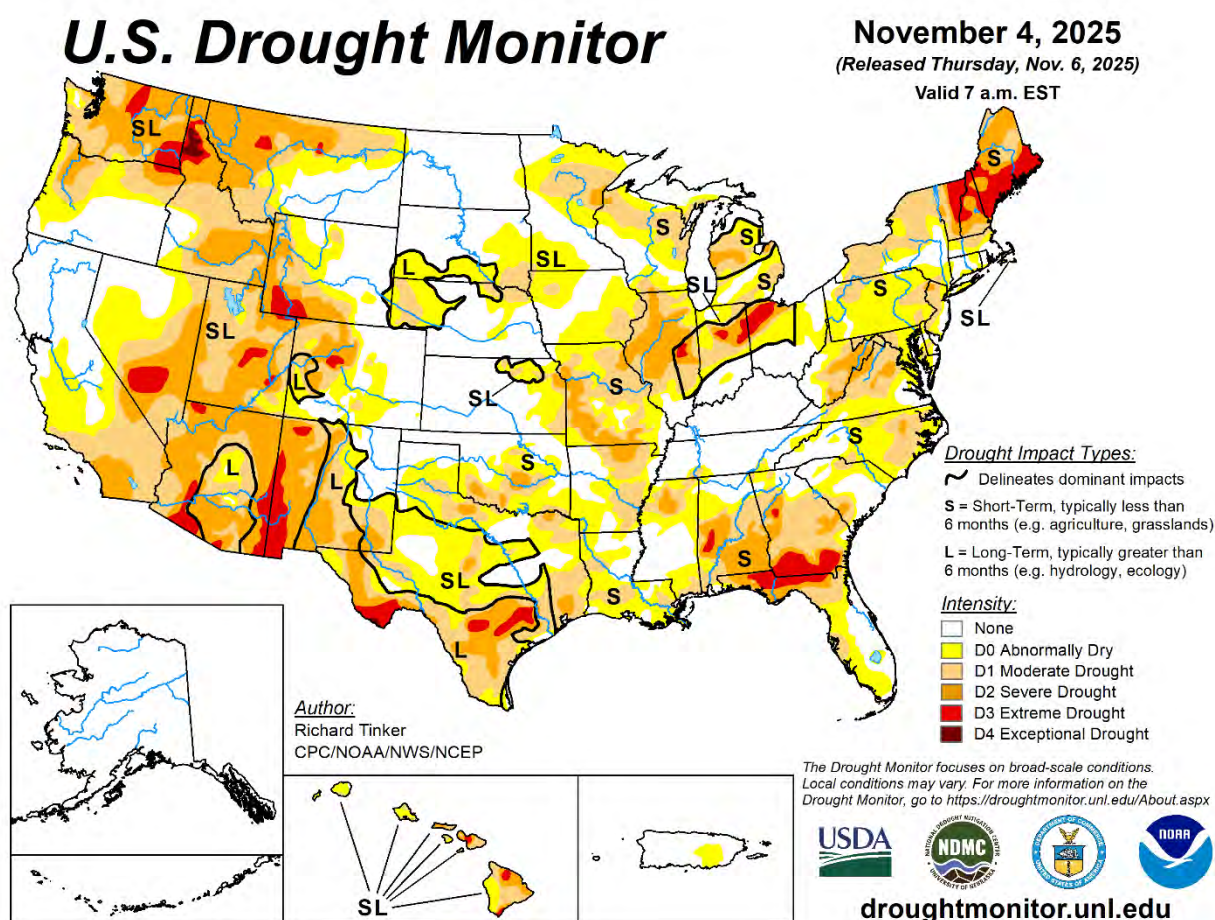
¹³ U.S. DROUGHT MONITOR. 'DROUGHT CLASSIFICATION.' U.S. DROUGHT MONITOR, NATIONAL DROUGHT MITIGATION CENTER.

[HTTPS://DROUGHTMONITOR.UNL.EDU/ABOUT/ABOUTTHEDATA/DROUGHTCLASSIFICATION.ASPX](https://droughtmonitor.unl.edu/about/aboutthedata/droughtclassification.aspx).

¹⁴ "WHEN DOES A DROUGHT BEGIN AND END? | U.S. GEOLOGICAL SURVEY." N.D. WWW.USGS.GOV. USGS. ACCESSED 2025. [HTTPS://WWW.USGS.GOV/FAQS/WHEN-DOES-A-DROUGHT-BEGIN-AND-END](https://www.usgs.gov/faqs/when-does-a-drought-begin-and-end).

Figure 12 shows the overall drought assessment for the U.S. as assessed by the U.S. Drought Monitor on November 4th, 2025. As can be seen, the conditions in southern California are part of broader drought conditions that contains both short and long term impacts.

Figure 12. Drought Conditions Across the U.S.



(2) Seasonality

Seasonal variations depend on rainfall and dry conditions. In some years, California can go a long period of time without significant rainfall and other years will see rainfall alleviating drought periods and their impacts. It is difficult to determine when drought conditions occur, especially as it is difficult to determine when they start and end.

(3) Speed of Onset

Determining the start of a drought can be difficult. Unlike other hazards that happen suddenly and cause immediate impacts, the onset of a drought can be gradual and subtle. Droughts can take weeks, months, or even years for the long-term effects of inadequate rainfall to become

apparent. Because of its slow onset and uneven impacts, drought is notoriously hard to define and even harder to monitor, especially when trying to pinpoint exactly when it begins or ends.

(4) Location

The entirety of the planning area is considered to be equally vulnerable to droughts due to the tendency of this hazard to impact large geographic areas and the comparatively small geographic footprint of the City of Bell.

(5) Water Supply and Usage

The City of Bell is located within the Central Basin Municipal Water District (CBMWD). The district regulates groundwater pumping rights in the basin, and it charges a fee for water pumping exceeding the established pumping rights. Water companies may buy or lease additional water from the CBMWD. The City of Bell is served by five different private water companies. These companies are:

- California Water Services (Cal Water)
- Golden State Water Company
- Maywood Mutual Water Company No. 3
- Tract 180 Water Company
- Tract 349 Water Company

These water companies source the majority of their water from deep underground wells, the Colorado River, and the State Water Project. The City of Bell's 2030 General Plan notes that the majority of the City's water and sewer infrastructure is aging and was designed to serve much lower development densities than what is present today. Future land use decisions will have to consider the availability and capacity of water and sewer infrastructure.

ii) Magnitude

The magnitude or intensity of drought can be measured by the U.S. Drought Monitor (USDM) through maps that are updated weekly to show the location and intensity of drought across the country. The USDM identifies areas in drought and labels them by intensity using four categories of drought, D1 (the least intense) to D4 (the most intense). It also describes areas with no drought and uses the D0 category to indicate abnormally dry areas that could be entering or recovering from drought, shown in **Table 18**.

Table 18. USDM Drought Monitor Categories

CATEGORY	DESCRIPTION
None	Normal or wet conditions

CATEGORY	DESCRIPTION
(Gray)	
D0 (Light Yellow)	Abnormally Dry
D1 (Light Orange)	Moderate Drought
D2 (Orange)	Severe Drought
D3 (Red)	Extreme Drought
D4 (Dark Red)	Exceptional Drought

Source: USDA

Other drought indices have been developed by the National Oceanic and Atmospheric Administration (NOAA) to measure impacts and severity of meteorological and hydrological drought as well as to map their extent and locations.

- **The Crop Moisture Index:** measures the short-term drought weekly to assess impacts on agriculture.
- **The Palmer Z Index:** measures the short-term drought on a monthly scale.
- **The Palmer Drought Severity Index:** is based on long-term weather patterns. The intensity of drought in each month is dependent on current weather plus the cumulative patterns of previous months.
- **The Palmer Hydrological Drought Index:** quantifies hydrological effects (reservoir levels, groundwater levels, etc.) which take longer to develop and last longer. This index responds more slowly to changing conditions than the Palmer Drought Index.
- **The Standardized Precipitation Index:** only considers precipitation.

In addition to these drought indices, the California Water Service (Cal Water) maintains a safe, clean, and reliable water service by following a set of drought severity stages to determine the level of water conservation and assess potential water-use restrictions described in **Table 19**¹⁵.

¹⁵ "STATE KEY FINDINGS - CALIFORNIA CLIMATE CHANGE ASSESSMENT." 2020. CA.GOV. CALIFORNIA'S FOURTH CLIMATE CHANGE ASSESSMENT. 2020. [HTTPS://CLIMATEASSESSMENT.CA.GOV/STATE/OVERVIEW](https://climateassessment.ca.gov/state/overview).

Table 19. State of California Drought Severity Stages

STAGE	DESCRIPTION
1	▪ We implement policies and guidelines for reducing water usage by 10 percent ▪ Residential and business customers are subject to water-use restrictions ▪ Outdoor irrigation is subject to limited times ▪ Leak repairs must be made in a timely manner ▪ Shut-off nozzles are required when using a hose to wash a car ▪ Outdoor watering is prohibited within 48 hours of rain
2	▪ We implement policies and guidelines for reducing water usage by 20 percent ▪ Residential and business customers are subject to additional water-use restrictions ▪ Outdoor irrigation by residential and business customers is limited further to 1-3 days per week, depending on local ordinance ▪ Use of non-recirculating systems in all new conveyer car wash and commercial laundry systems are prohibited ▪ Use of single pass cooling systems in new connections is prohibited
3	▪ We implement policies and guidelines for reducing water usage by 30 percent ▪ Residential and business customers are subject to additional water-use restrictions ▪ Water usage for construction and dust control is prohibited ▪ Irrigation of ornamental turf on public street medians is prohibited ▪ Filling ornamental lakes or ponds is prohibited
4	▪ We implement policies and guidelines for reducing water usage by 40 percent ▪ Residential and business customers are subject to additional water-use restrictions ▪ Vehicle washing is prohibited, except with recirculated water or low-volume systems ▪ Use of water for recreational purposes, such as water parks, is prohibited ▪ Filling swimming pools is prohibited
5	▪ We implement policies and guidelines for reducing water usage by 50 percent ▪ Residential and business customers are subject to additional water-use restrictions ▪ Net zero demand increase is required on new water service connections

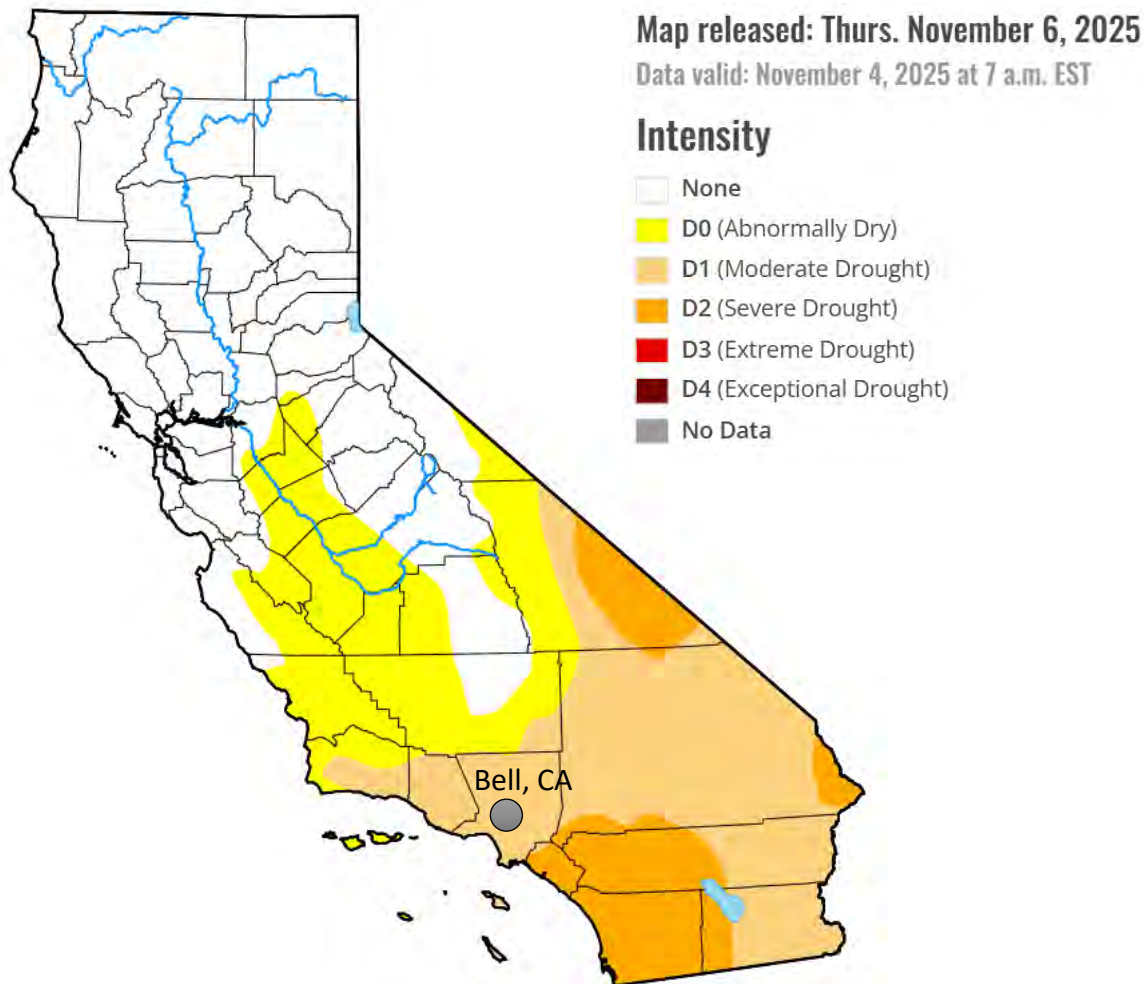
STAGE	DESCRIPTION
	▪ Single pass cooling systems are prohibited ▪ Swimming pool covers are required
6	▪ We implement policies and guidelines for reducing water usage by more than 50 percent ▪ Residential and business customers are subject to additional water-use restrictions ▪ All landscape irrigation is prohibited ▪ New water service connections are prohibited

Source: California Water Service

iii) Extent

A drought typically encompasses a large spatial extent. In the event of drought conditions occurring in the area, the whole City will likely be impacted. The entire state of California, including Los Angeles County and the City of Bell, is at risk of drought and its relevant impacts. As of the writing of this plan, drought conditions persist across the entirety of Los Angeles County. Approximately 89% of the area inside Los Angeles County, including the City of Bell, is currently experiencing Severe Drought (D2) conditions. The remaining 11% of the area, all located in the northeast corner of the County, is experiencing Moderate Drought (D1) conditions. The latest US Drought Monitor conditions are shown in **Figure 18**, with the approximate location of Bell marked.

Figure 18. Drought Conditions in California



iv) Past Occurrences

According to OpenFEMA data, there have been no federal disaster declarations issued for Los Angeles County due to drought conditions. The “Water Year 2023: Weather Whiplash, From Drought to Deluge” summary is the most recent yearly report produced by the California Department of Water Resources, and the report stated that 2023 and the preceding years demonstrated dramatic extremes of California’s climate. Since 2021, California experienced extremely dry conditions that prompted the Governor of California to issue a proclamation of a state of emergency for Los Angeles County. The storms in late 2023 provided relief from the water shortages of the prior drought years. Available records show that since 2000, there have been three different instances where California state emergency declarations were issued in response to droughts which affected Los Angeles County. These events are described in **Table 20**.

Table 20. California State Drought Emergency Declarations 2000-2025

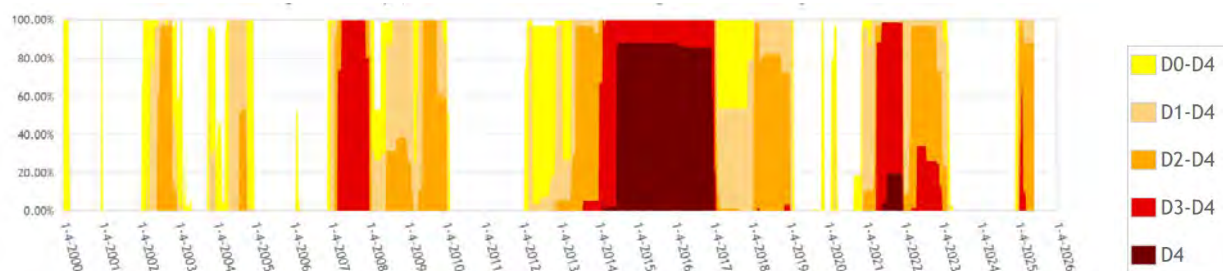
DATE	DESCRIPTION OF EVENT
02/27/2009	A statewide State of Emergency was declared, extending the existing drought-related state of emergency issued in 2008 to Los Angeles County and other counties not previously included.
01/17/2014	A statewide drought emergency was issued for all California communities. The declaration was in response to extremely dry conditions that had persisted since 2012.
09/19/2021	The Governor of California extended the drought-related state of emergency issued in spring 2021 to eight additional counties including Imperial, Los Angeles, Orange, Riverside, San Bernadino, San Diego, San Francisco, and Ventura.

Source: California Water Boards

Frequency

The US Drought Monitor time series does not show Bell-specific data, but information about previous drought conditions is available for Los Angeles County, as shown in **Figure 19**. Due to the large geographic scale of droughts effects, countywide data is appropriate and provides a generally accurate resource for assessing drought conditions experienced by the City of Bell. The following graphic shows the presence of drought conditions across Los Angeles between 2000 and 2025. Drought conditions were present in California over approximately 60% of the time between 2000 and 2025. The longest period of continuous drought-free conditions during this time was two years, from 2010 to 2012 and 2023 to 2025. This indicates that the City of Bell should expect drought conditions to be relatively frequent events, occurring roughly once every other year. Additionally, drought conditions were typically present across 100% of the county or not present at all, with only brief periods of time when drought conditions existed in only part of the county. The caveat is to this point is that, within the periods of drought, severity could vary across portions of the county.

Figure 19. Los Angeles County Percent Area in U.S. Drought Monitor Categories



Source: US Drought Monitor

v)Future Probability

The US Drought Monitor’s time series data indicates that drought conditions were present in Los Angeles County approximately 60% of the time between 2000 and 2025. Given this, droughts are considered a **Likely** hazard for Bell; it is reasonable to anticipate that the City of Bell will experience periods of drought conditions roughly every other year. It is also possible for drought conditions to persist for years, placing strain on existing water resources that support Bell and the greater Los Angeles region. According to California’s Fourth Climate Change Assessment, by 2100 water supply from snowpack is projected to decline by two-thirds. The assessment states that water management practices in California face growing challenges from continued climate change and extreme weather¹⁶. If exceptionally dry conditions become chronic, there is the possibility that county and state regulatory actions may force Bell residents and businesses to alter their water usage. Additionally, the pressure to increase groundwater extraction may increase the risk of land subsidence, which can have further impacts on the community.

vi) Secondary Hazards

There are several secondary hazards that frequently occur alongside droughts or as a result of droughts. These hazards are described in **Table 21**.

Table 21. Secondary Hazards to Drought

HAZARD	DESCRIPTION
Fire	A prolonged lack of precipitation dries out vegetation and can become increasingly susceptible to ignition as the duration of the drought extends. In severe cases, droughts can reduce the available water supply and complicate firefighting efforts.
Extreme Heat	Drought is commonly accompanied by extreme heat which can increase the risk for heat-related illness such as heat cramps, heat stroke, and heat exhaustion. Pets and livestock are also at risk for heat-related injuries. Additionally, extreme heat can cause damage to crop and impact the economy and food supply.
Land Subsidence	In wetter periods, water goes into storage, while in drier periods, or droughts, water is removed from storage. Long-term overdraft or excessive pumping of a groundwater aquifer due to prolonged drought conditions may result in land subsidence.
Water Shortage	In prolonged periods of drought, excessive use of water can dry up storage and cause water shortages to occur. Water shortages can impact the amount of clean drinking water available for residents and businesses. In times of water shortage, water rates may increase and

16 U.S. USGS. 2016. "LANDSLIDE TYPES AND PROCESSES." USGS.GOV. U.S. GEOLOGICAL SURVEY. 2016. [HTTPS://PUBS.USGS.GOV/FS/2004/3072/FS-2004-3072.HTML](https://pubs.usgs.gov/fs/2004/3072/fs-2004-3072.html).

HAZARD	DESCRIPTION
	cause financial constraints for residents. During extreme water shortages, jurisdictions may be prompted to utilize mutual aid agreements with water suppliers to sustain drinking water for residents.

vii) Vulnerability & Impact Assessment

The Drought Impact Reporter was developed in 2005 by the University of Nebraska-Lincoln to provide a national database of drought impacts. Droughts can have an impact on agriculture, business and industry; energy; fire; plants and wildlife; relief, response, and restrictions; society and public health; tourism and recreation; and water supply and quality. The reports are submitted from individuals to federal, state, and local agencies, as well as the public. **Figure 20** depicts the drought impacts to Los Angeles County from 2005 to 2025 based on reports received by the Drought Impact Reporter. It's important to note that this data is only available down to the county level.

Figure 20. Number of Drought Impacts to Los Angeles County 2005 – 2025



Source: Drought Impact Reporter

Water Supply & Quality

Drought conditions in Los Angeles County between 2005 and 2025 have consistently stressed the region's diverse water portfolio. Extended dry periods have reduced imported water allocations from the State Water Project and Colorado River, lowered reservoir levels, and increased reliance on local groundwater. Over-pumping has led to declining groundwater tables, subsidence risks, and degradation of water quality due to higher concentrations of salts and contaminants. Smaller community water systems, in particular, have struggled to maintain reliable service, resulting in supply interruptions and emergency reliance on hauled water or interties.

Relief, Response, & Restrictions

The County has repeatedly implemented mandatory conservation measures, including water-use restrictions, irrigation limits, and tiered rate structures, in response to prolonged drought. Cities and agencies within Los Angeles County have been required to submit drought contingency plans and enact emergency measures, such as fines for excessive use or outdoor watering bans. Relief actions have included state and federal drought declarations that unlocked

financial assistance for both utilities and residents, while restrictions reshaped water use behaviors across households, businesses, and agriculture. These actions, while necessary, have also placed an economic burden on vulnerable populations less able to absorb higher costs or comply with restrictions.

Society & Public Health

Drought impacts on society and public health in Los Angeles County have included increased heat stress due to reduced vegetation and tree canopy, poorer air quality tied to heightened wildfire activity, and rising public health risks from limited access to affordable, reliable water supplies. Prolonged drought has compounded mental health stress for residents, particularly in lower-income communities already facing affordability challenges. Public institutions, including schools and health facilities, have had to adapt to water shortages and conservation requirements, affecting daily operations. These impacts demonstrate that drought consequences extend beyond the environment into the social fabric and overall health of county residents.

(1) People

The City of Bell is a densely developed community that relies heavily on imported water supplies conveyed through regional systems. This dependence makes Bell residents particularly vulnerable during periods of drought, when allocations from the State Water Project and Colorado River are curtailed and wholesale providers impose restrictions on local retail systems. Water shortages can lead to higher costs for households, reduced reliability of supply, and disruption of essential services. Higher costs may be particularly burdensome for low- and moderate-income households. Additionally, the elderly and young children may be at greater risk of experiencing adverse health effects resulting from reduced water quality. Manual laborers, athletes, and other individuals whose livelihoods require above-average water consumption are also at an increased risk of both economic and physical stress during droughts.

(2) Structures and Systems

Drought can cause limited impacts to property within the City of Bell. Long-term impacts of drought and properties may cause the soil to shrink and crack, resulting in issues with the foundation of the structure. Immediate impacts to properties within the planning area are minimal to none. Additionally, the economic impact due to drought and water shortages will be felt by industries that rely heavily on water for their business. Landscaping businesses, car washes, and other water-intensive businesses are likely to be the first and most severely affected by drought due to water restrictions which can significantly alter business operations. A prolonged drought can also impact individual households through increased water utility costs.

Critical Facilities

Although the City of Bell does not host dams, power plants, or water treatment facilities, critical facilities within the community remain indirectly vulnerable to drought and water shortages. Bell's police and fire stations, schools, municipal buildings, and healthcare providers all rely on water supplied by external utilities for drinking water, sanitation, and emergency services. During periods of severe drought, wholesale supply reductions or mandatory conservation measures could limit non-essential water use and create operational challenges, particularly for fire suppression systems, health and sanitation in schools, and healthcare facilities requiring reliable water for patient care. The Cybersecurity & Infrastructure Security Agency's Drought and Infrastructure Planning Guide notes that cascading impacts are common in drought, with dependencies across water, healthcare, transportation, and energy sectors. For Bell, this means that while direct drought damage to facilities is unlikely, disruptions in regional water or energy systems could still affect the continuity of essential services. **Table 22** outlines the potential impacts that drought and water shortage can have on the FEMA community lifelines.

Table 22. Potential Vulnerabilities of Lifelines to Drought

LIFELINE	FEMA ICON	DESCRIPTION OF IMPACT
Communications		Droughts and water shortages are unlikely to directly damage or disrupt communications within the City of Bell.
Energy (Power & Fuel)		Energy production, particularly in facilities that rely on water for cooling or hydroelectric power, can be affected. There may also be increased competition for available water between energy producers and other users.
Food, Hydration, Shelter		A regional drought may impact agricultural production, leading to food shortages or increased food prices. If the drought is severe and prolonged, it could also lead to challenges in providing adequate shelter and housing, especially for vulnerable populations.

LIFELINE	FEMA ICON	DESCRIPTION OF IMPACT
Hazardous Materials		Droughts and water shortages do not typically lead to hazardous materials releases. However, reduced water supplies may complicate firefighting efforts, including any which involve hazardous materials.
Health & Medical		Reduced water quality and quantity can lead to health issues, including dehydration and sanitation-related diseases. Healthcare facilities may also face challenges in maintaining operations with limited water supplies.
Safety & Security		Drought can increase the risk of wildfires, strain emergency services, and potentially lead to conflicts over scarce resources.
Transportation		Streets, railroads, bridges, and other transportation infrastructure is unlikely to be damaged by drought or water shortages.
Water & Wastewater Systems		This is the most directly affected lifeline. Drought conditions can significantly reduce water availability for domestic, agricultural, and industrial uses. Water quality may also be affected, and wastewater treatment processes might be strained due to lower water volumes.

(3) Natural, Cultural, and Historic Resources

Natural resources in Bell face vulnerability to drought, principally tied to water scarcity, heat stress, and ecosystem degradation. Bell's parks, such as Ernest Debs Park, Biancini Park, Camp Little Bear Park, and Adolph Treder Park, are among the largest public green/open spaces in the city. Prolonged droughts can lead to stressed vegetation, tree mortality, soil compaction, erosion, and loss of habitat or shade, which in turn degrades the experience, heritage value, and functions of these areas. Historic buildings and cultural sites, especially those with older materials or landscaping features, may suffer from foundation settling, cracking, or damage due to dry soils and lack of moisture. Water-dependent ornamental features may fail, and visual or

functional assets (fountains, vegetation) may deteriorate. Without adequate watering, maintenance, and adaptive planning, these assets are susceptible to cumulative damage that erodes their historic and cultural integrity over time.

(4) Risk Analysis

Drought and water shortages present a **Moderate** risk to the City of Bell. Historical records indicate that the region experiences drought conditions roughly once every two years, and the City is highly dependent on water supplied by regional systems outside of the City's jurisdiction. Wholesale supply restrictions and conservation mandates during drought periods may not cut off essential services outright, but they create operational challenges for critical facilities such as fire stations, healthcare providers, schools, and municipal buildings. Water shortages can raise costs for households and businesses, while mandatory restrictions limit flexibility and strain daily operations. Low to moderate-income residents, who make up a large share of Bell's population, are particularly impacted by affordability issues and reduced resilience to prolonged shortages. Drought also exacerbates health disparities through worsened air quality, intensified urban heat island effects, and heightened risks during wildfire seasons. Taken together, these factors confirm that drought and water shortages constitute a high-level hazard for Bell, driven by indirect but cascading impacts on critical infrastructure, public health, and community resilience.

F) EARTHQUAKES AND LANDSLIDES

i) Hazard Profile

Earthquake

An earthquake occurs when two blocks of the earth suddenly slip past one another creating a vibration through the release of energy in the earth's crust. The vibrations that are generated are called "seismic waves." The surface where they slip is called the fault or fault plane.

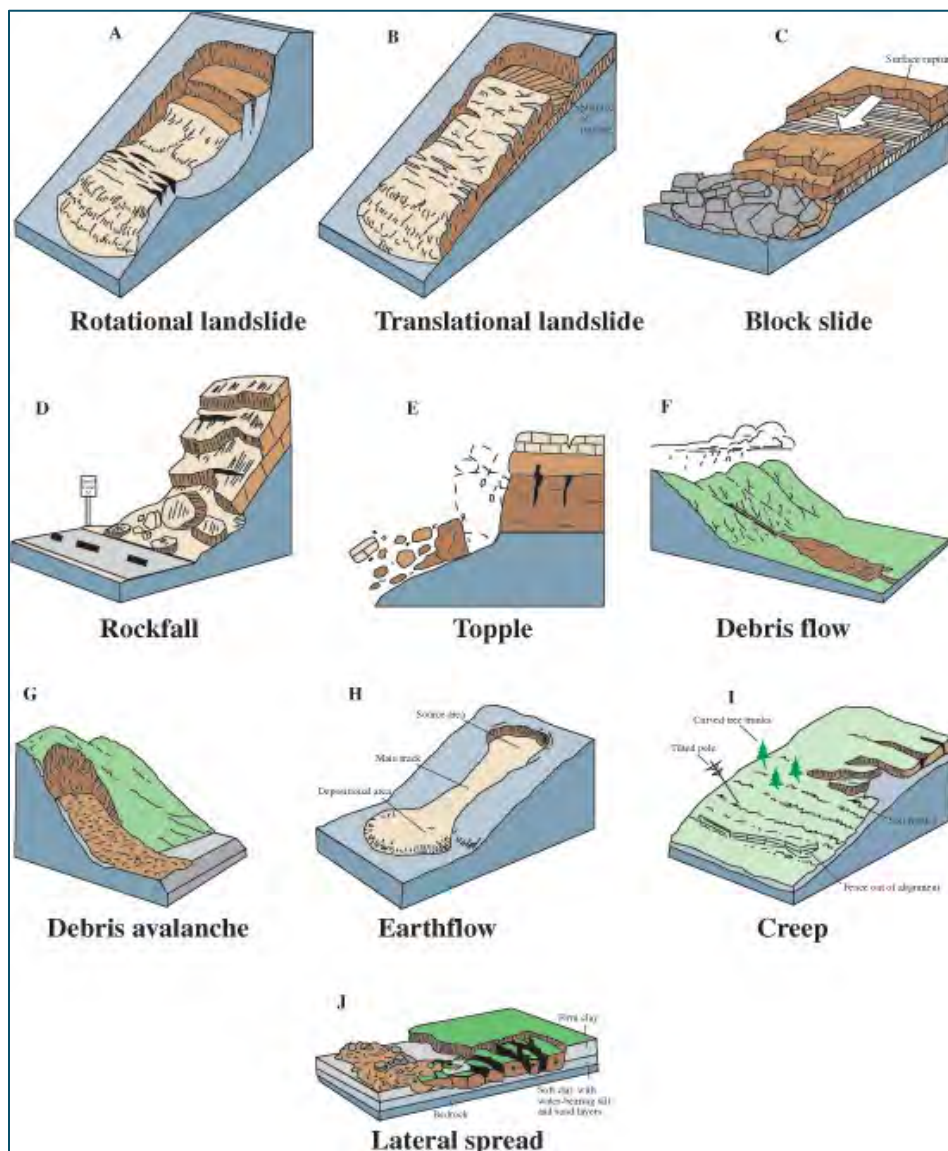
Earthquakes can result in ground shaking, soil liquefaction, landslides, fissures, avalanches, fires, and tsunamis. Additionally, earthquakes can cause buildings to collapse and cause heavy items to fall, resulting in injuries and property damage. Earthquakes can occur at any time.

A fault is a fracture or zone of fractures between two blocks of rock. Faults allow blocks to move relative to each other. The movement may occur rapidly, in the form of an earthquake and may occur slowly, in the form of creep. There are major faults which include Normal, Reverse, Strike-Slip, and Oblique Slip Faults. While earthquakes can occur virtually anywhere, they are more common near faults.

Landslide

A landslide refers to a wide range of ground movement, such as rock falls, deep failure of slopes, and shallow debris flows. Landslides and mudflows can destroy properties and cause injuries and deaths. **Figure 21** illustrates the different types of landslide movement. The primary driving force of landslides is gravity, but other contributing factors such as rainfall, earthquakes, volcanic eruptions, groundwater pressure, erosion, destabilization of slopes (because of deforestation, cultivation and construction, snow, and glacial melt) can lead to landslides as well.

Figure 21. Types of Landslide Movements¹⁷



Source: USGS

Landslides encompass five modes of slope movement: falls, topples, slides, spreads, and flows and subdivided by the type of geologic materials (bedrock, bedrock, or earth), shown in **Figure 21**. Landslides can also be triggered by an earthquake, called an earthquake produced landslide.

¹⁷ HANDWERGER, ALEXANDER L., ET AL., "LANDSLIDE SENSITIVITY AND RESPONSE TO PRECIPITATION CHANGES IN WET AND DRY CLIMATES." GEOPHYSICAL RESEARCH LETTER, VOL. 49, NO. 13, 2022, [HTTPS://DOI.ORG/10.1029/2022GL099499](https://doi.org/10.1029/2022GL099499).

(1) Duration

Earthquake

Typically, earthquakes last only a few seconds. Strong ground shaking during a moderate to large earthquake will last about 10 to 30 seconds. In rare cases, the shaking can last for several minutes during very large earthquakes.

Landslide

The duration of landslides varies greatly depending on the conditions. Landslides and mudflows can occur very quickly or gradually over several months or even years.

(2) Seasonality

Earthquake

Earthquakes can occur during any time of year at any time of the day or night without any specific tendencies. There are different theories about potential indicators that could be used to predict earthquakes, but these remain unproven and further research is needed.

Landslide

A common cause of landslides is heavy precipitation saturating the ground. As a result, landslide occurrences are at least partially sensitive to local climate patterns, and periods of sustained precipitation above normal levels can increase the risk of landslide activity. A study found that, between 2015 and 2020, landslides in both the wet regions in northwestern California and dry regions in southern California moved faster during wet years and slower during dry years¹⁸.

(3) Speed of Onset

Earthquake

Due to the current lack of predictive metrics, it is difficult to provide communities with an advanced warning for earthquakes. One of the many reasons earthquakes are so dangerous is because they can occur without much warning at all¹⁹.

Landslide

The warning time for hazards such as landslides and debris flow are often very short and may occur very quickly. Identifying the area in which these events are likely to occur can assist with hazard preparedness when triggering types of events like heavy rainfall occurs. However, in some cases, landslides can occur very slowly, even extremely slowly and building on these

¹⁸ "HOW EARTHQUAKES BREAK THE SPEED LIMIT." 2019. SEISMO.BERKELEY.EDU. UC BERKLEY. MARCH 8, 2019. [HTTPS://SEISMO.BERKELEY.EDU/BLOG/2019/03/08/HOW-EARTHQUAKES-BREAK-THE-SPEED-LIMIT.HTML](https://seismo.berkeley.edu/blog/2019/03/08/how-earthquakes-break-the-speed-limit.html).

¹⁹ TURNER, A.K. SOCIAL AND ENVIRONMENTAL IMPACTS OF LANDSLIDES. INNOV. INFRASTRUCTURE. SOLUT. 3, 70 (2018). [HTTPS://DOI.ORG/10.1007/S41062-018-0175-Y](https://doi.org/10.1007/S41062-018-0175-Y)

landscapes may remain in use for hundreds of years with only minimal damage and repair costs.²⁰

(4) Location

Earthquake

The entirety of the planning area is considered to be vulnerable to earthquakes. Any appreciable differences in impact would likely be the result of a confluence of various highly local circumstances. While no known active fault traces pass directly through the City, several significant fault systems lie nearby and are capable of generating strong ground shaking within the community. The nearest major faults include:

- The Newport–Inglewood Fault Zone, located approximately 3–5 miles southwest of Bell.
- The Whittier Fault located roughly 8–10 miles east.
- The Palos Verdes Fault Zone, located about 15–20 miles southwest.
- The San Andreas Fault, the region’s dominant tectonic feature, lies approximately 35–40 miles northeast of Bell.

According to the California Geological Survey (CGS) Seismic Hazard Zone Maps, virtually all of the City of Bell is within a Liquefaction Hazard Zone. Liquefaction refers to a process where saturated, loose, granular soils (sand or silt) temporarily lose their strength and behave like a liquid when subjected to strong ground shaking. **Figure 22** shows the extent of the Liquefaction Hazard Zone inside and around Bell, it shows that the entirety of Bell, except for a small portion at the northern end of the Cheli District, is at risk.

20 “LANDSLIDE BASICS | U.S. GEOLOGICAL SURVEY.” N.D. WWW.USGS.GOV. U.S. GEOLOGICAL SURVEY. ACCESSED 2025. [HTTPS://WWW.USGS.GOV/PROGRAMS/LANDSLIDE-HAZARDS/LANDSLIDE-BASICS](https://www.usgs.gov/programs/landslide-hazards/landslide-basics).

effects is dependent on the amount of energy released from the fault or epicenter. There are many scales in which to measure the severity of earthquakes which include: Peak Ground Acceleration (PGA), Magnitude Scale, and the Modified-Mercalli Scale (MMI).

Peak Ground Acceleration (PGA)

Peak Ground Acceleration (PGA) measures the rate of change of motion relative to the established rate of acceleration due to gravity ($g = 980$ centimeters per second, per second). PGA is used to project the risk of damage from future earthquakes by showing earthquake ground motions that have a specified probability (i.e., 10 percent, 5 percent, or 2 percent) of being exceeded in 50 years. The ground motion values are used for reference in construction design for earthquake resistance and can also be used to assess relative risk between sites when making economic and safety decisions.

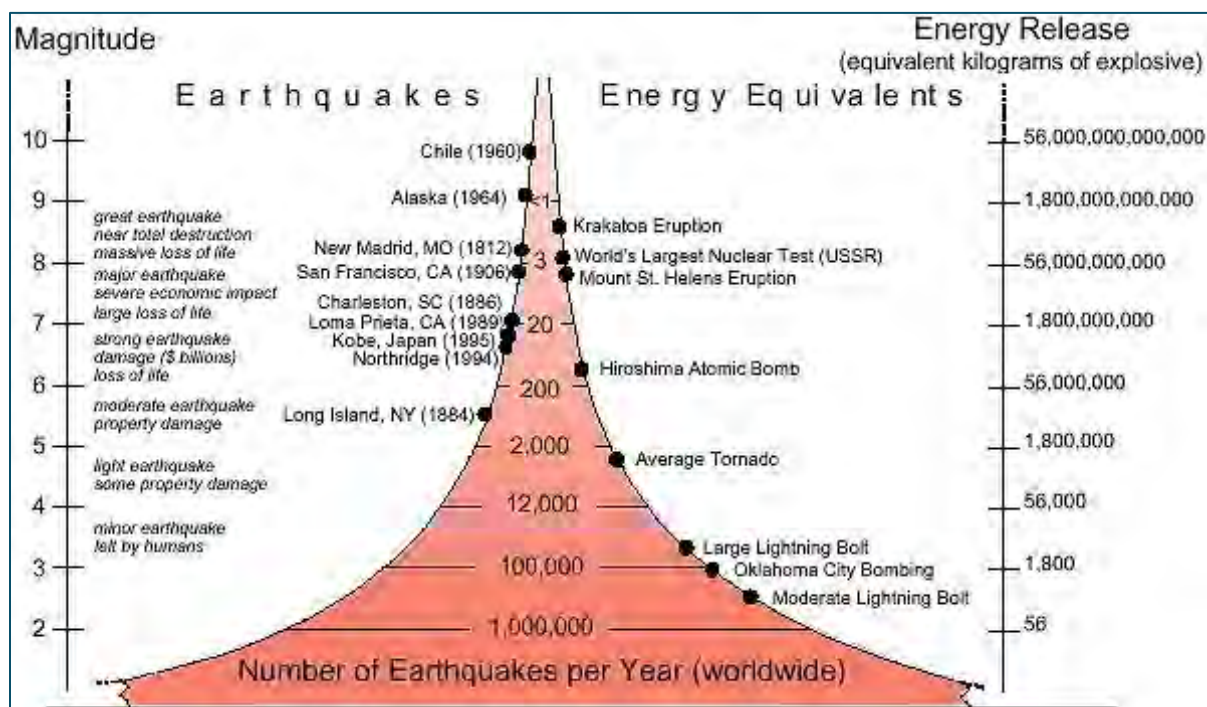
Magnitude Scale

Another tool used to describe earthquake strength is the magnitude scale, sometimes referred to as the Richter scale. Although the two are related, the modern Moment Magnitude Scale (M_w) has largely replaced the original Richter Scale for scientific use. Both express the amount of energy released by an earthquake and are logarithmic, each whole-number increase represents a tenfold increase in the amplitude of seismic waves. However, in terms of total energy released, each one-point increase corresponds to about a 32-fold increase in energy. For example, a magnitude 7.0 earthquake releases roughly 1,000 times more energy than a magnitude 5.0 event.

Earthquakes generate several types of seismic waves that travel outward from the focus or point of rupture. The fastest waves, called primary (P) waves, are followed by slower secondary (S) waves. Because P waves travel about 1.7 times faster than S waves, the time difference between their arrivals at a seismograph can be used to calculate the earthquake's distance and magnitude.

Figure 23 illustrates how the energy released increases exponentially with magnitude. As earthquake magnitude rises, the amplitude and energy of seismic waves, and therefore the potential for damage, increase dramatically from one category to the next.

Figure 23. Earthquake Magnitude and Equivalent Energy Release



Source: USGS

Modified Mercalli Scale (MMI)

The Modified Mercalli Scale (MMI) is another means for rating earthquakes, but one that attempts to quantify intensity of ground shaking. Intensity under this scale is a function of distance from the epicenter (the closer to the epicenter the greater the intensity), ground acceleration, duration of ground shaking, and degree of structural damage. This rates the level of severity of an earthquake by the amount of damage and perceived shaking. **Table 23** describes the various values and shaking severity of earthquakes based on the MMI.

Table 23. Modified Mercalli Scale (MMI)

SCALE	INTENSITY	DESCRIPTION	CORRESPONDING RITCHER SCALE MAGNITUDE
I	Instrumental	Usually detected only on seismographs.	< 4.2
II	Feeble	Felt only by a few persons at rest, especially on upper floors of buildings.	
III	Slight	Felt quite noticeably indoors, especially on upper floors. Most	

SCALE	INTENSITY	DESCRIPTION	CORRESPONDING RITCHER SCALE MAGNITUDE
		people don't recognize it as an earthquake (i.e. a truck rumbling).	
IV	Moderate	Can be felt by people walking; dishes, windows, and doors are disturbed.	
V	Slightly Strong	Sleepers are awoken; unstable objects are overturned.	< 4.8
VI	Strong	Trees sway; suspended objects swing; objects fall off shelves; damage is slight.	< 5.4
VII	Very Strong	Damage is negligible in buildings of good design and construction, slight to moderate in well-built ordinary structures, and considerable in poorly built or badly designed structures; some chimneys are broken.	<6.1
VIII	Destructive	Damage is slight in specially designed structures; considerable in ordinary, substantial buildings. Moving cars become uncontrollable; masonry fractures, poorly constructed buildings damaged.	<6.9
IX	Ruinous	Some houses collapse, ground cracks, pipes break open; damage is considerable in specially designed structures; buildings are shifted off foundations.	
X	Disastrous	Some well-built wooden structures are destroyed; most masonry and frame structures are destroyed along with foundations. Ground cracks profusely; liquefaction and landslides widespread.	<7.3

Source: USGS

Landslide

Landslide Velocity

The severity of a landslide or mudflow depends on many factors including local bedrock, soil conditions, moisture content, slope, and vegetation. Landslide velocities vary over ten orders of magnitude from extremely slow (a few millimeters a year) to extremely rapid (more than 5 millimeters a second), shown in **Table 24**. Many human activities can make the earth's materials less stable, therefore increasing the chance of ground failure. Human activities contribute to soil instability through grading of steep slopes or overloading them with artificial fill, by extensive irrigation, construction of impermeable surface, excessive groundwater, withdrawal, and removal of stabilizing vegetation. Some of the natural non-seismic causes of ground instability include heavy rainfall and poor-quality natural materials.

Table 24. Landslide Velocity Comparison

VELOCITY CLASS	DESCRIPTION	VELOCITY (MM/S)	TYPICAL VELOCITY	RESPONSE
7	Extremely Rapid	5×10^3	5 m/s	N/A
6	Very Rapid	5×10^1	3 m/min	N/A
5	Rapid	5×10^{-1}	1.8 m/h	Evacuation
4	Moderate	5×10^{-3}	13 m/month	Evacuation
3	Slow	5×10^{-5}	1.6 m/year	Maintenance
2	Very	5×10^{-7}	16 mm/year	Maintenance
1	Extremely Slow	N/A	N/A	N/A

iii) Extent

Earthquakes

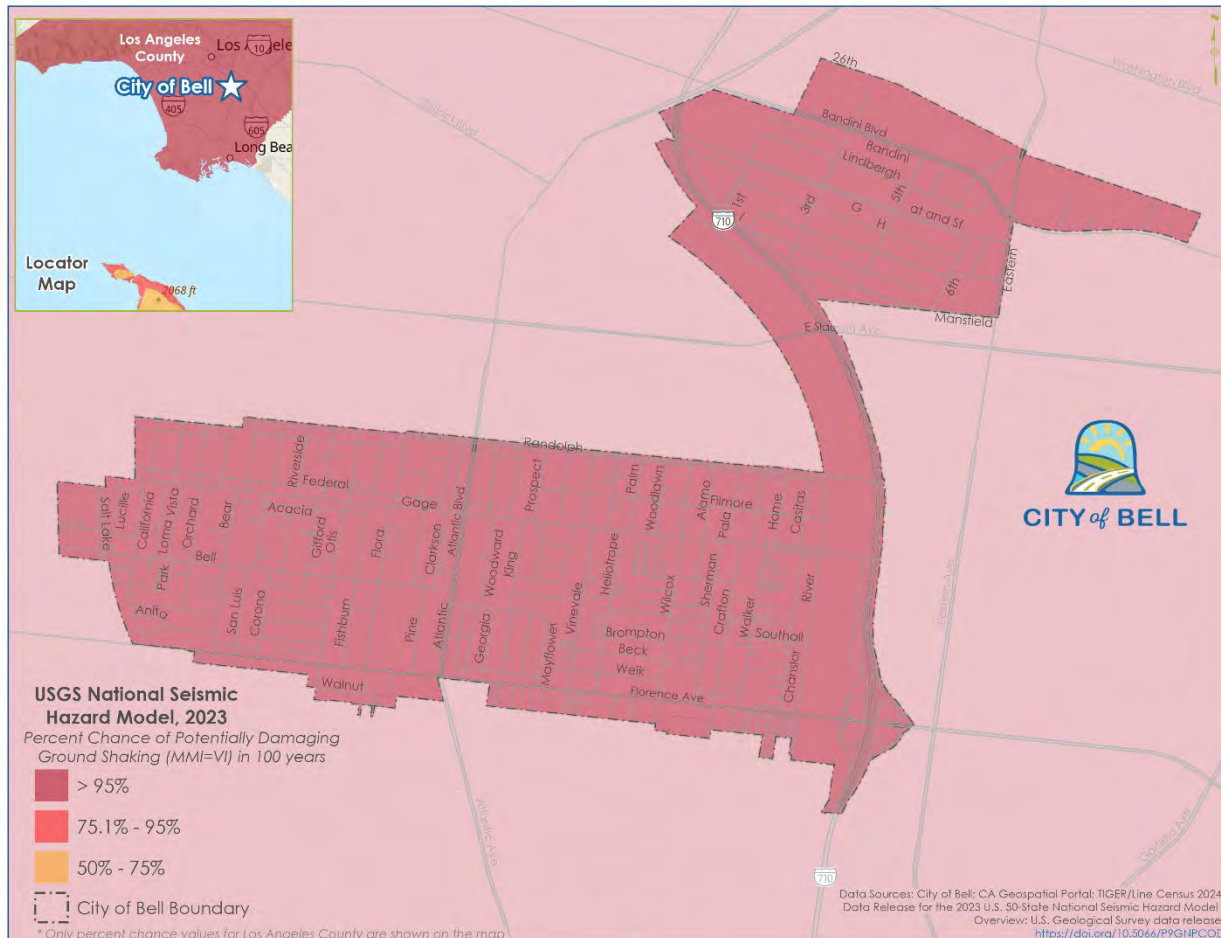
The State of California is particularly vulnerable to earthquake activity due to California's location residing between two large tectonic plates. The City of Bell is in the southern portion of the Los Angeles Basin. In general, fault systems surround and traverse through Los Angeles County, including the area of City of Bell. Throughout the basin the ground is saturated with sediment eroded from the mountains and foothills via multiple stream and river channels and resulting in liquefaction zones scattered across the region.

The Pacific Plate and the North American Plate come together at the San Andreas Fault northeast of the City of Bell. In addition to the San Andreas Fault, Los Angeles County is home to or near additional fault systems with the potential to generate strong ground shaking. The Newport-Inglewood Fault traverses south to north paralleling the coastline extending towards the City of Bell. The Palos Verdes Fault crosses the Palos Verdes Peninsula approximately to the

southeast of the City, and the 40-mile-long Compton Fault parallels the Palos Verdes Fault in a southeast to northwest direction south of the City of Bell. There are numerous additional faults in the area on all sides of the city.

Figure 24 illustrates the seismic risk within the City of Bell as assessed by the USGS National Seismic Hazard Model. The entirety of the City is within an area where the chance of potentially damaging ground shaking, which is categorized as MMI VI or greater, exceeds 95% over the next 100 years.

Figure 24. Seismic Risk Within the City of Bell



USGS ShakeMap Scenarios are hypothetical earthquake models designed to simulate ground shaking that would occur if a specific earthquake were to strike a known fault. These scenarios are not predictions but are used for hazard mitigation planning, helping emergency managers, engineers, and planners assess potential impacts, prepare response strategies, and improve infrastructure resilience. They incorporate fault data, ground motion models, and site conditions to estimate shaking intensity, population exposure, and potential damage. By visualizing realistic earthquake impacts, ShakeMap Scenarios support informed decision-making and public

preparedness efforts. Two scenarios relevant to the City of Bell were recently updated. These scenarios are a magnitude 6.8 earthquake along the Newport-Inglewood fault zone and a magnitude 6.3 earthquake along the Palos Verdes fault zone. These two scenarios, which are shown in **Figure 25** and **Figure 26**, are specifically highlighted in this plan due to their proximity to the City, severity, and recency of modeling. However, there are many other earthquake scenarios that could affect Bell and are modeled by USGS ShakeMap Scenarios.

Figure 25. USGS ShakeMap Scenario M6.8 Newport-Inglewood

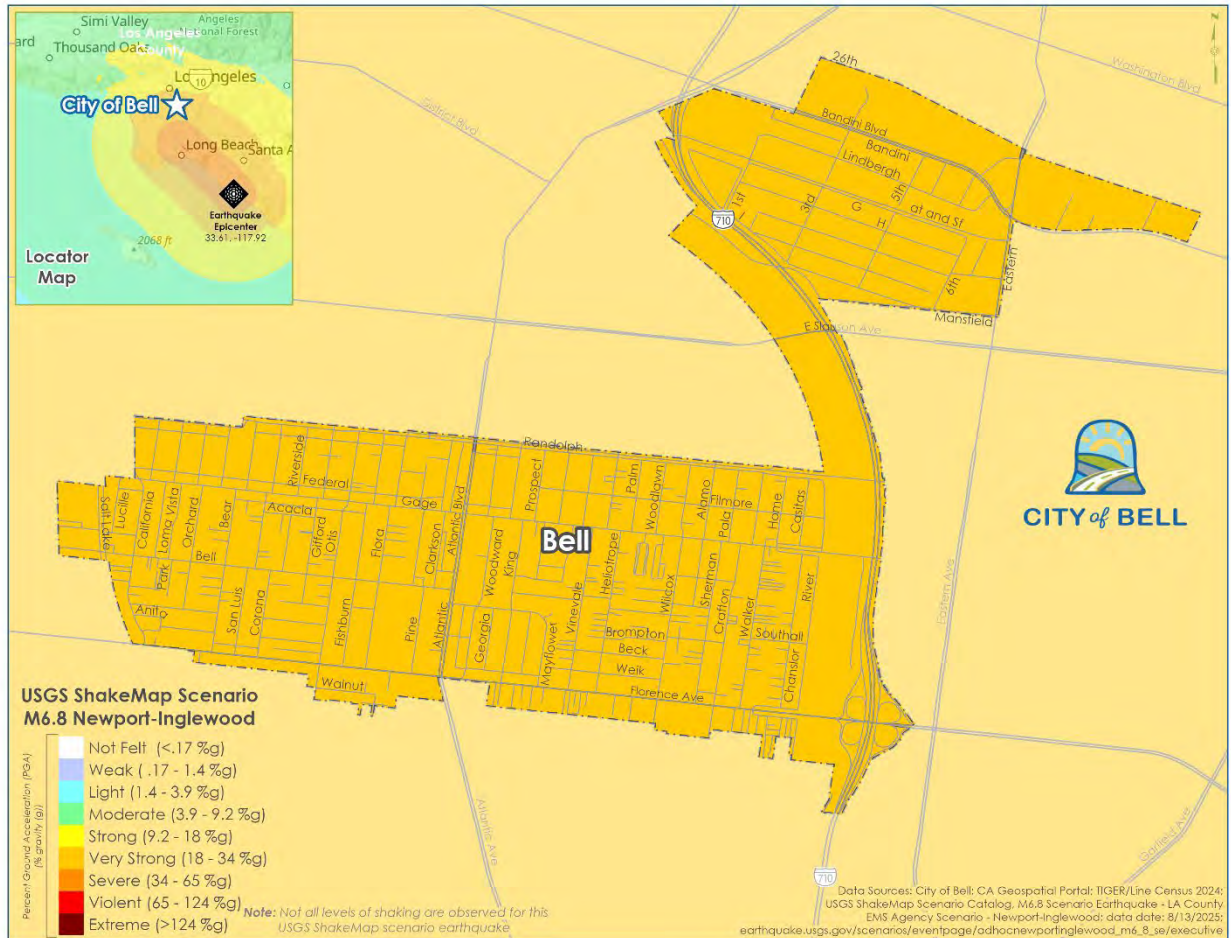
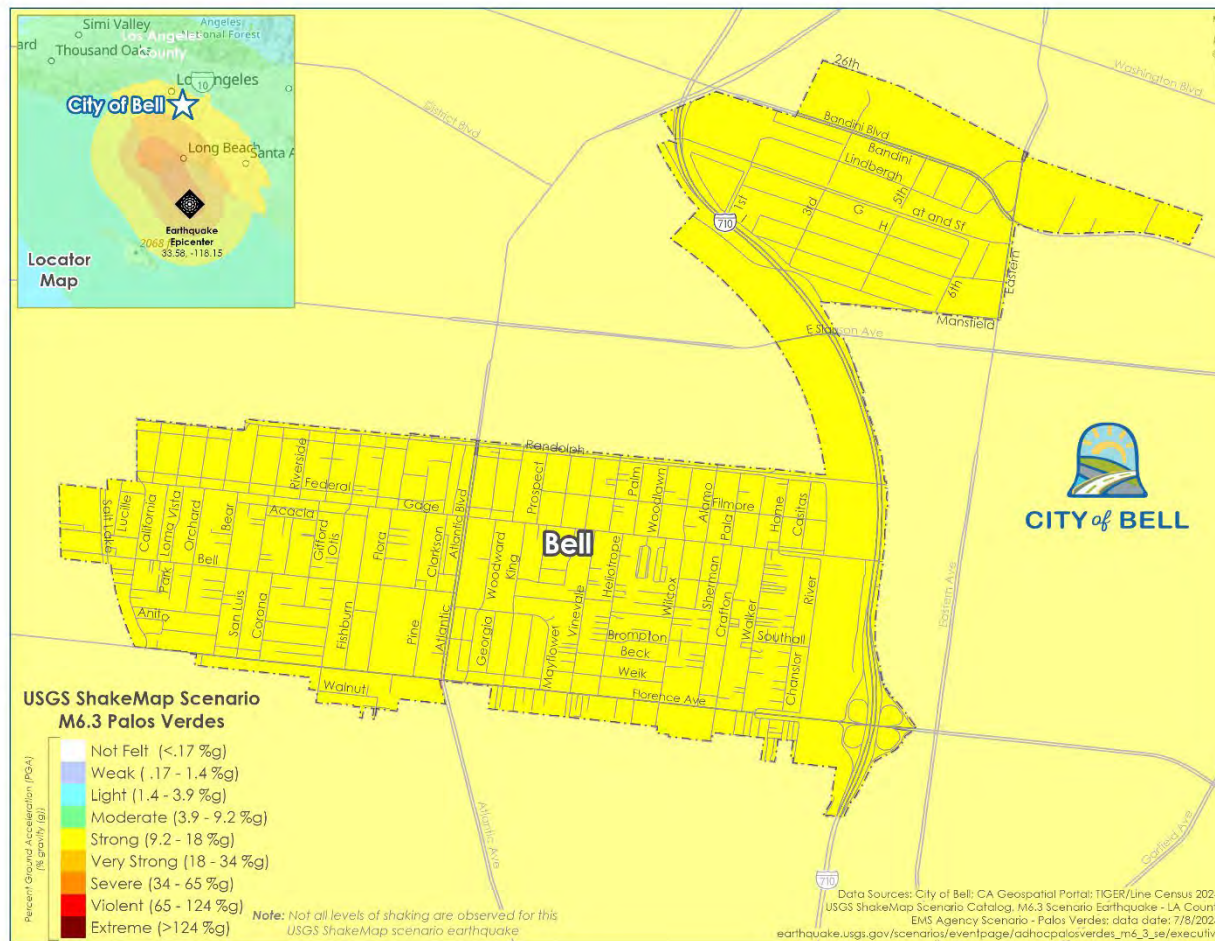


Figure 26. USGS ShakeMap Scenario M6.3 Palos Verdes



In both ShakeMap scenarios shown above, the City of Bell is expected to experience significant ground shaking. In the Newport–Inglewood scenario, the City would likely experience Very Strong shaking, with peak potential ground acceleration (PGA) between 18% and 34%. Very Strong shaking can cause moderate damage in well-built ordinary structures and considerable damage in poorly built or poorly designed structures.

In the Palos Verdes scenario, the City is expected to experience Strong shaking, with PGA values between 9.2% and 18%g. Strong shaking is typically felt by everyone, may move heavy furniture, and can cause minor damage such as fallen plaster.

It is important to note that these two scenarios represent only the most recently modeled earthquake events near Bell, many other potential earthquakes could also produce noticeable shaking within the City. The scenarios above suggest that the intensity of shaking would likely be relatively consistent across the community, largely due to its size and the lack of subsurface variations that could change how seismic waves travel.

Landslides

Landslides occur in every state and can occur in any area composed of very weak or fractured materials resting on a steep slope can and will likely experience landslides²¹. Areas vulnerable to landslides include the following:

Areas more prone to landslides

- On existing old landslides
- On or at the base of slopes
- In or at the base of minor drainage hollows
- At the base or top of an old fill slope
- At the base or top of a steep cut slope
- Burn area and canyon, hillside, mountain, and other steep areas are vulnerable
- Develop hillsides where leach field septic systems are used

Areas less prone to landslides

- On hard, non-jointed bedrock that has not moved in the past
- On relatively flat-lying areas away from sudden changes in slope angle
- At the top or along the nose of ridges, set back from the tops of slopes

According to the landslide zones layer, shown in **Figure 27**, from the County of Los Angeles, the City of Bell is not identified as being at risk of earthquake-induced landslides.

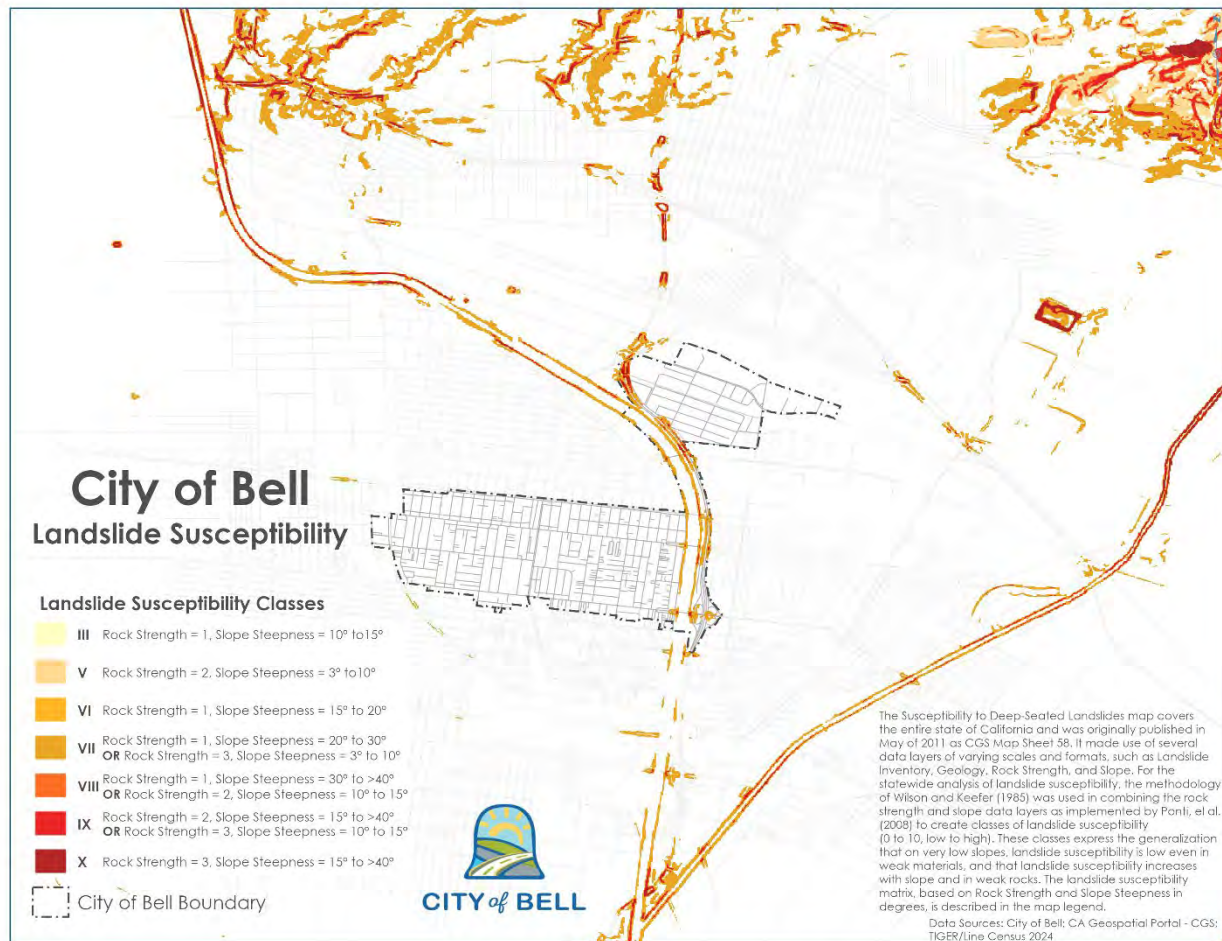
21 SAUNDERS SEISMIC. 2024. "HOW MANY EARTHQUAKES DOES CALIFORNIA HAVE IN A DAY?" SAUNDERS CONSTRUCTION. DECEMBER 17, 2024. [HTTP://SAUNDERSSEISMIC.COM/BLOG/DO-YOU-KNOW-HOW-MANY-EARTHQUAKES-CALIFORNIA-HAS-IN-A-SINGLE-DAY](http://saundersseismic.com/blog/do-you-know-how-many-earthquakes-california-has-in-a-single-day).

Figure 27. Earthquake-induced Landslide Hazard Areas



While the City of Bell has no location that is vulnerable to earthquake-induced landslides, localized slopes within the City could still be susceptible under sufficient conditions. These are primarily associated with engineered structures such as embankments along Interstate 710 and portions of the Los Angeles River channel. These slopes are shown in **Figure 28**.

Figure 28. Slopes With Landslide Susceptibility



iv) Past Occurrences

Earthquakes

California's geological history is deeply intertwined with seismic activity. The state experiences thousands of earthquakes annually due to its location along major fault systems, including the San Andreas Fault. While most of these are minor, California typically sees two to three earthquakes per year that are large enough (magnitude 5.5 and above) to cause moderate structural damage. Earthquakes in the magnitude 6.0 to 6.9 range occur approximately once every year, though this can vary depending on fault activity. Within the broader context of California, Los Angeles County stands out for its frequent earthquake activity. The entire region is prone to seismic disturbances, with a history marked by several significant earthquakes leading to substantial damage.

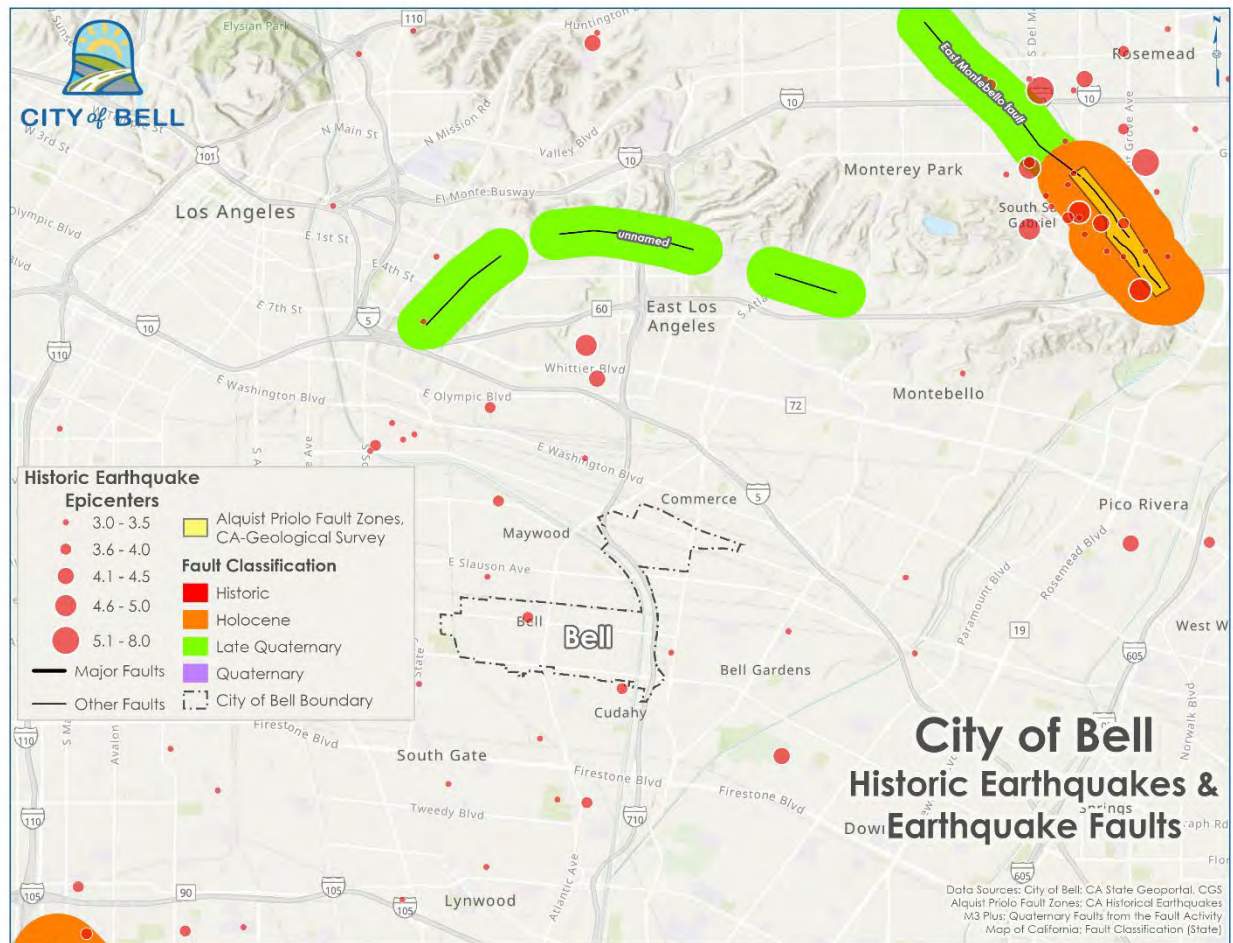
The infamous San Andreas Fault is a key player in California's seismic activity. Paleoseismological studies suggest that this fault generates large magnitude earthquakes (8.0+) at intervals ranging

from 45 to 332 years, with an average interval of about 140 years. Additionally, other lesser-known faults in the state have been responsible for destructive earthquakes since 1857.

Among the notable earthquakes that have shaken the region are the 1933 Long Beach Earthquake, the 1971 San Fernando Earthquake, the 1987 Whittier Earthquake, and the 1994 Northridge Earthquake. Each of these events has contributed to the evolving understanding of seismic risks in California.

The California Geological Survey (CGS) database of historical earthquakes with a recorded magnitude of 3.0 or greater includes one event where the epicenter was inside of the City of Bell's political boundaries. Another three events occurred just outside of Bell's boundaries, and a spattering of events occurred further out. The nearest clustering of earthquakes with a recorded magnitude of 4.6 or greater is found near the Alquist Priolo Fault zones roughly 6 miles northeast of the City of Bell. This fault zone presents the largest probabilistic risk to the City in regard to major earthquakes. **Figure 29** shows the location of the Alquist Priolo Fault zones as well as other nearby fault and the approximate epicenters of earthquakes recorded by the CSG in Bell's vicinity.

Figure 29. Historic Earthquakes & Faults Near the City of Bell



Landslides

According to the Department of Conservation's Reported California Landslide Database, there have been no previous occurrences of landslides in the City of Bell.

Frequency

Earthquakes can occur close or far away from the City of Bell and can have different spatial impacts depending on the scale and magnitude of the earthquake. Therefore, it is difficult to determine the frequency of earthquakes. Based on the epicenter of earthquakes, there has been one reported earthquake that occurred within City boundaries. Within California, earthquakes occur every day, and experience two or three events a year that are 5.5 magnitude or greater²².

²² LANDSLIDE | IMPACT (FEMA.GOV) "PROTECTIVE ACTIONS RESEARCH." 2024. FEMA.GOV. FEDERAL EMERGENCY MANAGEMENT AGENCY. 2024.

v)Future Probability

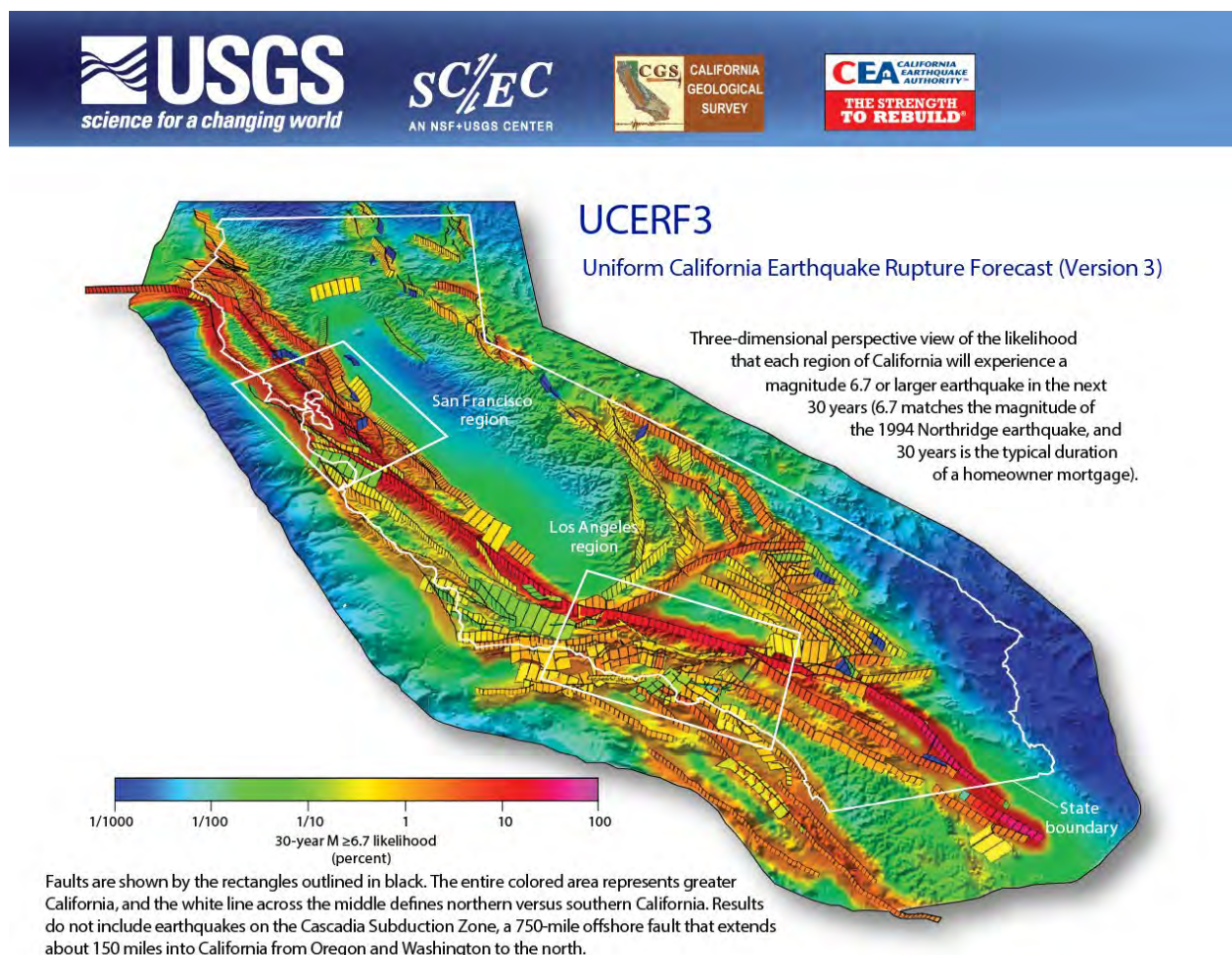
Earthquakes

The Working Group on California Earthquake Probabilities (WGCEP) represents a groundbreaking collaboration among key seismic research entities: the United States Geological Survey (USGS), the Southern California Earthquake Center (SCEC), and the California Geological Survey (CGS). This group is at the forefront of earthquake prediction research, utilizing cutting-edge science and technology to develop the Uniform California Earthquake Forecasts (UCERFs).

The latest iteration, UCERF Version 3, marks a significant leap in earthquake forecasting. It provides a comprehensive three-dimensional perspective on earthquake likelihoods across California. This advanced model specifically assesses the probability of experiencing a Magnitude 6.7 or greater earthquake within the next 30 years, offering invaluable insights for regions across the state. Of particular interest is the forecast for the Los Angeles Region fault systems, which have direct implications for areas including and surrounding the City of Bell. Parts of the Los Angeles Region have a greater than 10% chance of experiencing a Magnitude 6.7 or greater earthquake in the next 30 years. This estimate, in combination with the few significant historical events indicates that the future probability of earthquakes is **Unlikely**. Still, the potential magnitude of earthquakes should give planners and officials every incentive to adequately prepare for these events.

An Evolution in Earthquake Prediction: Updated from its predecessor, UCERF2, in 2015, UCERF3 represents a significant advancement in understanding and forecasting seismic activity. The model's enhanced accuracy and detailed approach have been pivotal in shaping current earthquake preparedness strategies in California. These probabilities are estimated from the Uniform California Earthquake Rupture Forecast 3 (UCERF3) which was updated from the UCERF2 in 2015 and are shown in more detail in **Figure 30**.

Figure 30. Uniform California Earthquake Rupture Forecast



Landslides

While climate change is altering the landscape of natural hazards such as drought due to rising temperatures, there is no conclusive evidence linking climate change to the probability of earthquakes in the planning area or elsewhere. Projections from the Fourth California Climate Change Assessment anticipate that increased rainfall is likely in the future, and this could potentially increase the risk of landslides. However, there have been no previous landslides occurrences in the City of Bell and based on the landslide hazard zone map shown in **Figure 31**, the chance of an earthquake induced landslide is minimal. While **Figure 28** shows that Bell does have a few steep slopes, these are mostly engineered slopes around structures like the Los Angeles River and Interstate 710. Therefore, the future probability of earthquakes, landslides, and mudflows occurring in the City of Bell is **Unlikely**.

vi) Secondary Hazards

According to the U.S. Geological Survey (USGS) Earthquake Hazards Program, an earthquake secondary hazard is anything associated with an earthquake that may affect resident's normal activities. There are range of possible secondary hazards from earthquakes, some of which are also associated with landslides and mudflows. These secondary hazards are described in **Table 25**. Landslides are included in the list as a secondary hazard of earthquakes.

Table 25. Secondary Hazards from Earthquakes, Landslides, and Mudflows

HAZARD	DESCRIPTION
Hazmat Incidents	Earthquakes, landslides, and mudflows can cause extensive structural damage, leading to the disruption of systems and containers that store or transport hazardous materials. This can result in leaks, spills, or even explosions of hazardous substances, such as chemicals, gases, and radioactive materials. The immediate aftermath of an earthquake often sees a chaotic environment, where the release of these materials can go undetected or unaddressed.
Liquefaction	Liquefaction occurs when ground shaking causes wet granular soils to change from a solid state to a liquid state, it is primarily a secondary hazard of earthquakes. Buildings and infrastructure, as well as anyone in or near them, are at risk when the ground can no longer support these structures. The City of Bell is nearly entirely inside of an identified liquefaction hazard zone.
Landslides	Earthquake-induced landslides are secondary earthquake hazards that occur from ground shaking. They can destroy the roads, buildings, utilities, and other critical facilities necessary to respond and recover from an earthquake. Many communities in Southern California have a high likelihood of encountering such risks, especially in areas with steep slopes.
Fires	Earthquakes, landslides, and mudflows can result in gas lines or power lines that are broken or down which can increase fire risk. It may be difficult to control a fire, particularly if the water lines feeding fire hydrants are also broken.
Utility Failure	Utility failure is a common secondary hazard of earthquakes, landslides, or mudflows, as shaking or ground movement can damage power lines, water and sewer mains, gas pipelines, and communication networks. Disruptions may trigger cascading impacts such as fire outbreaks, loss of potable water, wastewater contamination, and prolonged outages that hinder emergency response.
Transportation Disruption	Earthquakes, landslides, and mudflows can cause damage to roadways, bridges, and overpasses. This can impede the movement

HAZARD	DESCRIPTION
	of people and goods within and through Bell, affecting evacuation efforts, emergency services, and economic activities.

vii) Vulnerability & Impact Assessment

The City of Bell is susceptible to significant ground shaking due to its proximity to several active seismic faults, including the Newport-Inglewood Fault Zone and Palos Verdes Fault Zone. Earthquakes resulting from these faults, as well as other in the region, can lead to severe consequences including the collapse of buildings and bridges, disruption of utility services, and triggering secondary hazards such as fires and hazardous materials releases. Historically, collapsing infrastructure during earthquakes has contributed to some of California's most costly disasters.

The shaking experienced during an earthquake is partially determined by the characteristics of the ground composition. The National Earthquake Hazards Reduction Program (NEHRP) classifies soil types to help communities better understand where areas of higher and lower risk may exist. Virtually all of Bell sits on soil designated by the NEHRP as either Class C or Class D. The characteristics of these soil classes are described below, and **Figure 31** shows the extent of these soils in Bell.

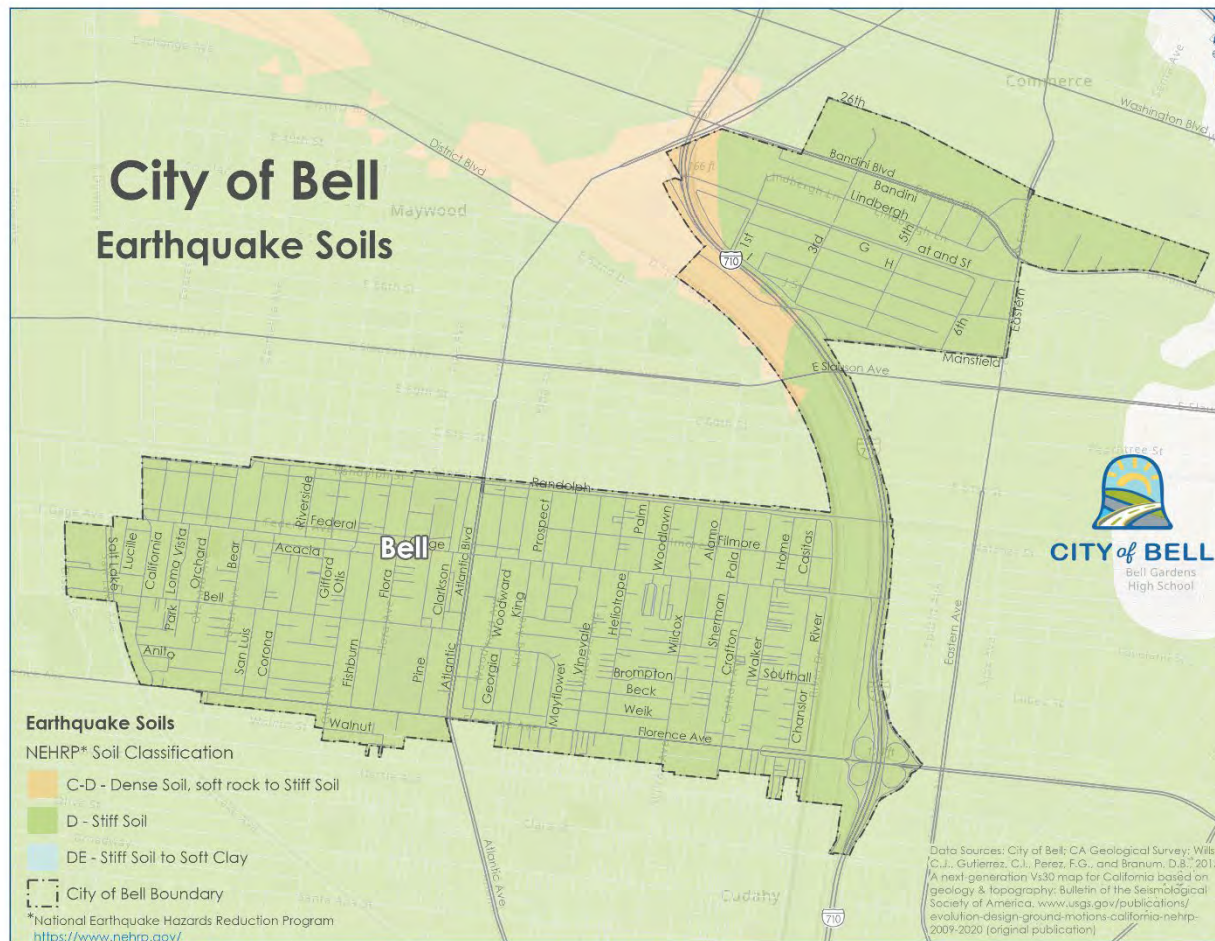
Class C (Dense Soil and Soft Rock)

- Shear-wave velocity (V_{s30}) between 360–760 m/s in the top 30 m of soil.
- Includes very dense sand, gravel, stiff clay, or weathered/soft rock like shale or firm sandstone.
- Moderate amplification of earthquake shaking compared to rock, but less than softer soils.

Class D (Stiff Soil)

- Shear-wave velocity (V_{s30}) between 180–360 m/s in the top 30 m of soil.
- Typically deep deposits of stiff clay, silt, or medium-dense sand common in river valleys and basins.
- Significant amplification of ground shaking, with longer shaking durations and higher risk for structures.

Figure 31. City of Bell NEHRP Soil Classifications



(1) People

Earthquakes

Residents of Bell are vulnerable to the impacts of strong earthquake shaking, though the degree of risk varies with building age, construction type, and socioeconomic factors. Much of the City's housing stock was built more than 40 years ago, including older single-family homes and multifamily buildings that may lack adequate bracing or anchorage. These structures are more likely to sustain damage that can injure occupants or render homes temporarily uninhabitable. Lower-income residents, renters, and those without access to insurance or alternate shelter face disproportionate hardship during recovery, particularly if prolonged utility outages or displacement occur.

According to Public Survey #1, City of Bell residents do not have enough food and water to go 72 hours without aid, therefore the aftermath of a major earthquake could be devastating for residents as emergency services will be overwhelmed, and aid will be difficult to provide.

The psychological impact on residents following a major earthquake should not be underestimated. The loss of homes and community landmarks can have a profound emotional effect, leading to a sense of loss and uncertainty. In the aftermath, community cohesion and support will be crucial for recovery. Additionally, the local economy could suffer due to the temporary closure of businesses, loss of inventory, and disruption of services. Recovery efforts may be prolonged and expensive, requiring significant resources from local and state governments, as well as private sector contributions. Efforts to rebuild will need to consider not just the physical restoration of properties, but also the emotional and social recovery of the community.

Landslides

On average, 25 to 50 people are killed by landslides each year in the United States and even more worldwide. In the state of California, more than 100 residents have been killed by debris flows during the past 25 years. Most of the fatalities occurred due to debris flow burying individuals sleeping in lower-floor bedrooms adjacent to hazardous slopes²³. Health and safety concerns due to landslides and mudflow include rapidly moving water and debris, broken electrical, water, gas, and sewage lines that can result in injury and illness, and disrupted roadways and railways endangering motorists and impeding on transport and access to healthcare.

However, landslides are not a significant threat within Bell itself due to the City's flat topography, although people can still be indirectly affected by slope failures in surrounding areas that disrupt transportation routes or lifeline infrastructure. Emergency access and evacuation could be impeded if major corridors such as the I-710 or nearby arterial roads are blocked by slope movement or debris from neighboring hillsides.

(2) Structures and Systems

Earthquake

In the event of a major earthquake, the City of Bell could face significant structural damage to properties. Buildings, especially older structures not designed to current seismic standards, are at risk of partial or complete collapse. Over 80% of Bell's housing stock was built before 1990, with only about 1.7% constructed after 2000. This structural vulnerability poses a direct threat to the safety of residents and can lead to injuries or worse. Of particular concern are structures built before the adoption of the 1952 Building Code. These are more likely to shift or slip from their foundations. Roughly 45% of all homes in Bell were built before 1950. Additionally, mobile homes are also particularly susceptible to this type of failure due to their lighter construction and less secure anchoring systems.

23 PRESERVATION BRIEF 41: THE SEISMIC REHABILITATION OF HISTORIC BUILDINGS (NPS.GOV) [HTTPS://WWW.NPS.GOV/ORGs/1739/UPLOAD/PRESERVATION-BRIEF-41-SEISMIC-REHABILITATION.PDF](https://www.nps.gov/orgs/1739/UPLOAD/PRESERVATION-BRIEF-41-SEISMIC-REHABILITATION.PDF)

Landslides

Landslides can cause disruptions and damage to critical infrastructure and structures within the impacted areas. However, it is unlikely for landslides and subsequent hazards to impact the structures and systems within the City of Bell. There are no landslide hazard areas within the City, however there are areas along the Los Angeles River that are susceptible to landslides. If a landslide event were to occur in the future, it would likely occur and impact areas along the River, more notably in the eastern side of the Cheli District where landslide susceptibility is higher.

(3) Critical Facilities

Earthquakes

Beyond individual buildings, the City's infrastructure may be damaged by severe earthquakes, although minor and moderate events are unlikely to cause catastrophic failures due to California's high standards for seismic resistance. The California Building Code (CBC) incorporates some of the nation's most stringent seismic design provisions, requiring that new structures and critical infrastructure be engineered to resist significant lateral forces and to remain standing even under extreme shaking. These standards have substantially reduced the likelihood of widespread structural collapse in newer construction.

However, assessing the risk that earthquakes pose to the facilities that support the City of Bell's normal community functions is challenging because Bell depends on a network of critical infrastructure such as power, water, and communications systems, located outside its jurisdiction. Information describing the full extent of power stations, pumps, utility lines, communications systems, and other supporting infrastructure is limited.

Essential services such as water, gas, and electricity could be disrupted for extended periods, affecting daily life and hindering emergency response efforts. Roadways and bridges, which are crucial for transportation and evacuation, may suffer cracks, breaks, or complete failures, severely impacting mobility and rescue operations. These disruptions would not only create immediate challenges but could also lead to long-term economic and social repercussions. More information on impacts to community lifelines can be found in **Table 26**.

Table 26. Potential Vulnerability of Lifelines to an Earthquake

LIFELINES	IMPACT TYPE	DESCRIPTION
Communications		Earthquakes and landslides can cause physical damage to transmission towers and other communications infrastructure. Additionally, the surge of communications following a catastrophic event such as a

LIFELINES	IMPACT TYPE	DESCRIPTION
		major earthquake can overwhelm communications.
Energy (Power & Fuel)		Power outages are common following earthquakes due to damage to power stations and distribution lines. This can affect not only homes and businesses but also critical facilities like hospitals and emergency response centers.
Food, Hydration, & Shelter		The destruction of homes and businesses can displace people, creating an immediate need for shelter. Additionally, disruptions in supply chains can impact the availability and distribution of food.
Hazardous Materials		Damage to facilities may result in uncontrolled releases of hazardous materials. These materials can cause significant harm to inhales, ingests, or comes in contact with them.
Health & Medical		Healthcare facilities might suffer structural damage, and there could be an influx of injured individuals needing medical attention. Disruptions in utility services could also affect the operation of hospitals and clinics.
Safety & Security		Earthquakes can cause significant damage to infrastructure, leading to hazardous situations like building collapses, gas leaks, and fires. Emergency services such as police, fire, and rescue teams would be heavily involved in immediate response efforts.
Transportation		Earthquakes can damage roads, bridges, and public transportation systems, impeding mobility and rescue efforts. Restoring transportation is vital for response operations and for the community to begin returning to normalcy.

LIFELINES	IMPACT TYPE	DESCRIPTION
Water & Wastewater Systems		Earthquakes often damage water lines and sewage systems, leading to water shortages and sanitation issues. Restoring these services is crucial for public health and hygiene.

Landslides

Landslides and mudslides have the power to disrupt vital utilities and communication lines as well damage critical infrastructure. There are no recorded instances of landslides and mudflows inside of the City of Bell, and no critical facilities are in the immediate vicinity of the few steep slopes in Bell. While not a critical facility, Interstate 710 faces a slightly higher risk of landslides and mudflows due to the fact that the steepest slopes in Bell are found close by—these are the embankments intended to support the interstate system. It is conceivable that a period of heavy precipitation may fully saturate these slopes, potentially resulting in a small slippage along the embankments.

(4) Natural, Cultural, and Historic Resources

Earthquakes

In Bell, natural, cultural, and historic resources face some vulnerabilities from earthquakes, though the impacts vary by type. Natural resources are limited mainly to the Los Angeles River corridor, parks, and green spaces, which are not directly destroyed by shaking but are exposed to secondary hazards such as liquefaction, infrastructure instability, or contamination if sewer and industrial infrastructure is damaged. These indirect effects can degrade soil, water quality, and habitat value.

Cultural and historic resources are at more immediate risk. Many of Bell’s community anchors such as churches, schools, and civic centers are older buildings, some of which may include unreinforced masonry or pre-1970s construction that predates modern seismic codes. Many of the historic structures along Gage Avenue are made up of materials that are more susceptible to damage from an earthquake. Damage to these structures would not only disrupt essential gathering places but also erode cultural identity and continuity. Similarly, mid-20th century civic and residential buildings contribute to Bell’s historic character, and their loss or compromise in a major earthquake would diminish the City’s sense of place. Overall, cultural and historic resources represent the most vulnerable assets in Bell, where retrofitting and preservation are critical for reducing long-term seismic risk.

Fortunately, there are many hazard mitigation activities to retrofit buildings that will preserve the building as well. FEMA, the National Parks Service, and other federal agencies have more

information on seismic rehabilitation of historic buildings to prevent future damage to the building and people during earthquake events²⁴.

Landslides

Since the landslides hazard area is outside of the City boundaries, there is little risk to the cultural or historic properties within the City of Bell.

(5) Risk Analysis

Overall, earthquakes and landslides as a whole present a **High** risk to the City of Bell, largely due to the potential widespread and catastrophic damage that earthquakes can cause and the possibility of earthquake induced landslides.

Earthquakes

Earthquakes pose a **High** risk to the planning area. Forecasting the exact severity of casualties, property damage, and cascading effects from future seismic events in the Los Angeles Basin and the City of Bell remains challenging. Based on Public Survey #1, City of Bell residents are most concerned about Earthquakes and their impact. The impact of earthquakes varies widely, influenced by factors such as the earthquake's intensity, epicenter location, population density, the time of occurrence, soil composition under structures, and building construction quality. Nonetheless, the potential for a major earthquake to significantly affect the City and its community is a constant presence.

Should a major earthquake occur along the fault systems near Bell, the consequences could be profound for both the community and City operations. Such an event would not only cause immediate casualties and damage but also create widespread, long-term impacts across the broader Los Angeles Basin. This would result in an overwhelming demand for critical assistance and strain available emergency resources.

A considerable challenge regarding earthquakes is they generally occur without warning. The fault systems surrounding the region cross major transportation routes potentially reducing the availability of access and the supply chain. The geographic location of the City of Bell is surrounded by areas composed of alluvial soils. In many cases, these sediment-based soils are loose and expose the potential for liquefaction. The majority of the interior Los Angeles Basin has identified a moderate risk of liquefaction including neighborhoods on the north, south, and east of the City. The impacts of such a seismic event would be felt directly in homes and workplaces throughout Bell. In the immediate aftermath, the City might need to independently address critical needs due to the scale of the disaster.

24 PRESERVATION BRIEF 41: THE SEISMIC REHABILITATION OF HISTORIC BUILDINGS (NPS.GOV) [HTTPS://WWW.NPS.GOV/ORGs/1739/UPLOAD/PRESERVATION-BRIEF-41-SEISMIC-REHABILITATION.PDF](https://www.nps.gov/orgs/1739/UPLOAD/PRESERVATION-BRIEF-41-SEISMIC-REHABILITATION.PDF)

The known fault systems generating the threat to Los Angeles County exist on all sides of the area including near the City of Bell. As such, the proximity and potential for large earthquake development from these surrounding systems expose significant vulnerabilities. The potential for earthquake damaged structures being left uninhabitable, including CSU Dominguez Hills campus residence halls, will result in numerous displaced individuals and households. City buildings and equipment will be exposed to significant damage resulting in a reduction of services and capabilities of the City to address post incident response and stabilization needs. The lack of earthquake insurance will cause extreme financial burdens on those affected.

Landslides

Shallow landslides are more likely to occur when the ground becomes saturated with moisture. According to the U.S. Geological Survey, at least 10 inches of rainfall during the winter months is needed to saturate the ground in Southern California. After the ground becomes saturated, a rain burst of 0.2 to 0.25 inches in a one-hour period has been observed to trigger shallow landslides. The 2020 County of Los Angeles All-Hazard Mitigation Plan found that significant rainfall, which can saturate the ground in Los Angeles County, is most likely to occur during strong El Niño events. Broadly, El Niño events occur every two to seven years, and they can last between 9 and 24 months.

Landslides on their own pose a **Low** risk to the planning area. Landslides have the potential to cause devastating impacts to affected areas disrupting vital utilities and communications, damaging homes, and buildings, and can displace residents from their homes. According to landslide hazard maps and the lack of previous occurrences of landslides occurring in the City of Bell, the risk of landslides is low, even considering future developments trends on increases in people and housing units as the hazard zone is outside of the jurisdiction. Earthquake induced landslides are possible to occur just outside of jurisdictional boundaries, north of Del Amo Road, and may have secondary impacts to Bell residents and the community through possible response and recovery efforts depending on the severity of the incident and support needed.

G) EXTREME TEMPERATURES

i) Hazard Profile

Extreme Heat

Extreme heat refers to prolonged periods of dangerously high temperatures, often exceeding 90 degrees Fahrenheit, that may be accompanied by high humidity. These events, commonly known as “heat waves,” can cause serious health impacts, including heat-related illnesses and fatalities. According to the National Weather Service, heat is the leading weather-related cause of death in the United States.²⁵ On average, extreme heat contributes to more than a thousand deaths annually nationwide. Vulnerable groups include infants and children, older adults, people with chronic health conditions, pregnant women, individuals with disabilities, and residents with limited access to cooling or reliable housing.

In recent decades, the Los Angeles region has experienced an upward trend in extreme heat events. Data from the National Oceanic and Atmospheric Administration (NOAA) show that three of the ten hottest days on record since 1877 occurred after 2018, while six of the ten hottest days have occurred since 1987. This pattern reflects broader climate change impacts and suggests that both the frequency and severity of extreme heat will continue to increase. For a densely populated, urban community like Bell, this trend raises particular concerns about public health, energy demand, and the ability of vulnerable populations to cope with prolonged high temperatures. Additionally, the urban heat island effect is likely to increase risk to the City of Bell due to impervious surfaces and heat-absorbing materials like pavement and buildings.

Extreme Cold

What is considered an excessively cold temperature varies according to the normal climate for that region. However, when temperatures are far below normal, the human body struggles to maintain a healthy internal temperature, which increases the possibility of negative effects from these extreme temperatures.²⁶ The greatest danger from extreme cold is to people, as prolonged exposure can cause frostbite or hypothermia, which can be life-threatening. When someone is suffering from hypothermia, body temperatures can become so low that they affect the brain, making it difficult for the victim to think clearly or move well. In the case of frostbite, the frozen tissue becomes numb, and the victim may be unaware that anything is wrong until someone else notices.²⁷

²⁵ “EXTREME HEAT | READY.GOV.” 2019. READY.GOV. FEMA. 2019. [HTTPS://WWW.READY.GOV/HEAT](https://www.ready.gov/heat).

²⁶ NOAA, N.D. “STAY SAFE IN THE EXTREME COLD.” WWW.WEATHER.GOV. NATIONAL WEATHER SERVICE (NWS). ACCESSED 2025. [HTTPS://WWW.WEATHER.GOV/DLH/EXTREMECOLD](https://www.weather.gov/dlh/extremecold).

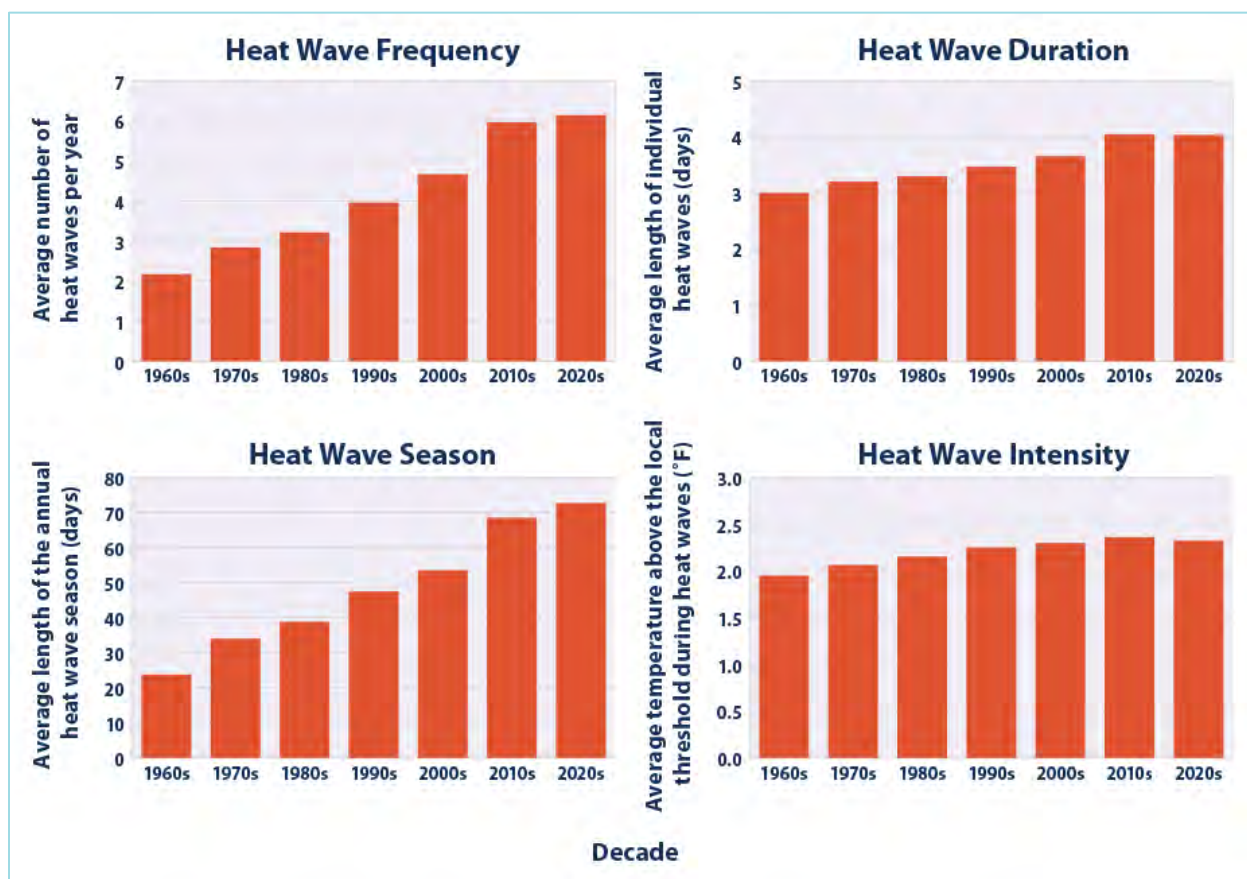
²⁷ CDC. 2020. “PROTECT YOURSELF FROM THE DANGERS OF WINTER WEATHER.” CENTERS FOR DISEASE CONTROL AND PREVENTION. CDC. MARCH 19, 2020. [HTTPS://WWW.CDC.GOV/NCEH/TOOLKITS/WINTERWEATHER/DEFAULT.HTML](https://www.cdc.gov/nceh/toolkits/winterweather/default.html).

(1) Duration

Extreme Heat

Periods of extreme heat can last days or even weeks during extreme heat events. In recent years, the average heat wave in major U.S. urban areas has been about a day longer than the average heat wave in the 1960's²⁸. **Figure 32** shows the increase in the average length of the annual heat wave season (days) as well as the change in frequency, duration, and intensity over the past several decades.

Figure 32. Heat Wave Characteristics in the United States by Decade, 1961-2021, EPA



Source: EPA

Extreme Cold

A major high-pressure system can bring colder temperatures that may persist for several days. However, the climate in the planning area makes it exceedingly unlikely that temperatures below freezing (32 degrees Fahrenheit) persist for more than a day.

28 EPA. 2021. "CLIMATE CHANGE INDICATORS: HEAT WAVES." US EPA. US EPA. FEBRUARY 4, 2021. [HTTPS://WWW.EPA.GOV/CLIMATE-INDICATORS/CLIMATE-CHANGE-INDICATORS-HEAT-WAVES](https://www.epa.gov/climate-indicators/climate-change-indicators-heat-waves).

(2) Seasonality

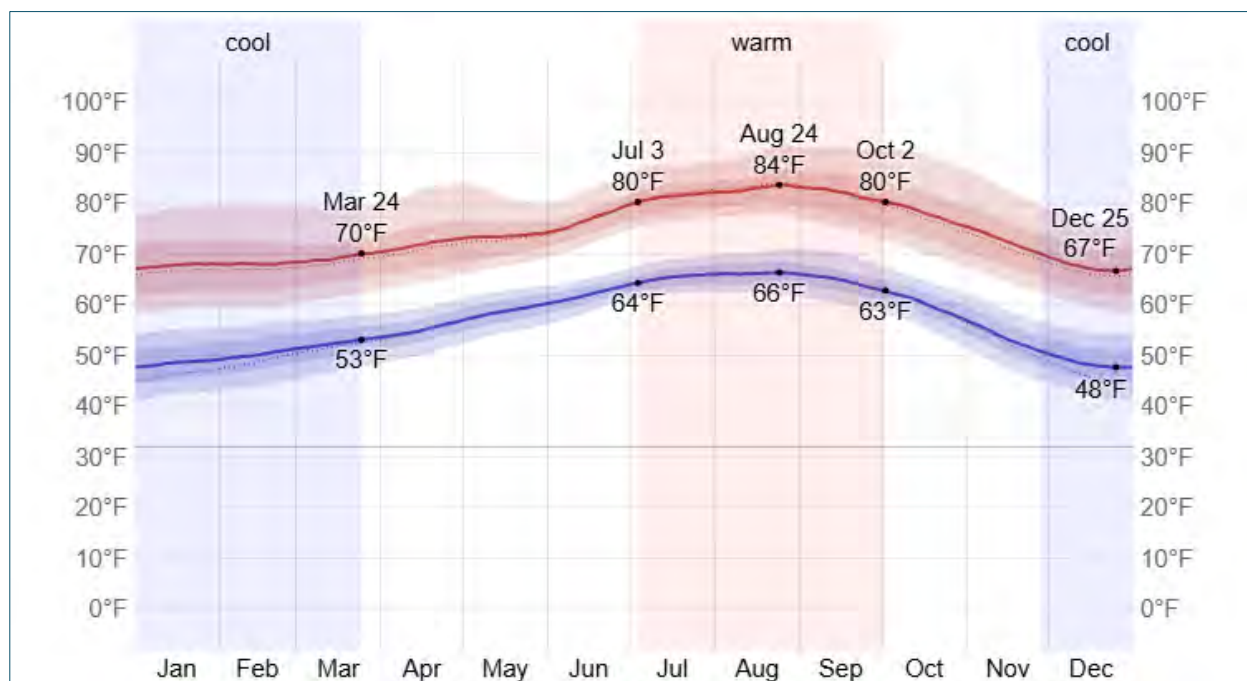
Extreme Heat

Extreme heat events are likely to occur in the summer months when temperatures increase, and high pressure develops. The average temperature during the summer months ranges from 80 to 84 degrees Fahrenheit. The red line in **Figure 34** shows the average high temperatures throughout the year in Bell.

Extreme Cold

Winter weather and cold temperatures typically occur in the fall and winter months. Based on previous occurrences, the coldest temperatures are likely to occur in the months of December, January, and February. The average temperature in the winter months ranges from 48 to 53 degrees Fahrenheit. The monthly average for the City of Bell is described in **Figure 33**.

Figure 33. Average High and Low Temperatures for the City of Bell



Source: weatherspark.com 2025

(3) Speed of Onset

Extreme Heat

Extreme heat generally develops over a period of hours to days. In many cases, high temperatures build gradually as heatwaves persist or intensify, though sudden spikes can occur during rapid shifts in weather patterns. While the onset of extreme heat is slower compared to

some other hazards, its impacts can escalate quickly once dangerous thresholds are reached, particularly when overnight temperatures remain elevated and prevent cooling²⁹.

Extreme Cold

Similar to extreme heat, extreme cold typically develops over hours to days, often in association with advancing arctic air masses or strong storm systems. The impact of extreme cold can quickly intensify when combined with high winds.

(4) Location

Extreme Heat

Extreme heat should be considered a citywide hazard for the City of Bell, as high temperatures affect the entire community during regional heat waves.

Extreme Cold

Like extreme heat, extreme cold should be considered a citywide hazard for the City of Bell.

ii) Magnitude

Extreme Heat

The National Weather Service issues heat-related advisories and warnings when there is a potential threat of heat affecting the specified geographical area. **Table 27** describes the different alerts used by the National Weather Service to warn the public of extreme heat.

Table 27. National Weather Service Heat Alerts

HEAT-RELATED ALERT	DESCRIPTION
Excessive Heat Warning (Dark Purple)	An Excessive Heat Warning is issued within 12 hours of the onset of extremely dangerous heat conditions. The general rule of thumb for this Warning is when the maximum heat index temperature is expected to be 105° or higher for at least 2 days and night-time air temperatures will not drop below 75°; however, these criteria vary across the country, especially for areas not used to extreme heat conditions. If you don't take precautions immediately when conditions are extreme, you may become seriously ill or even die.
Excessive Heat Watches (Dark Red)	Heat watches are issued when conditions are favorable for an excessive heat event in the next 24 to 72 hours. A Watch is used when the risk of a heat

29 US DEPARTMENT OF COMMERCE, NOAA. 2024. "WHAT IS THE HEAT INDEX?" WWW.WEATHER.GOV. NOAA. 2024. [HTTPS://WWW.WEATHER.GOV/AMA/HEATINDEX](https://www.weather.gov/ama/heatindex).

HEAT-RELATED ALERT	DESCRIPTION
	wave has increased but its occurrence and timing is still uncertain.
Heat Advisory (Orange)	A Heat Advisory is issued within 12 hours of the onset of extremely dangerous heat conditions. The general rule of thumb for this Advisory is when the maximum heat index temperature is expected to be 100° or higher for at least 2 days, and night-time air temperatures will not drop below 75°; however, these criteria vary across the country, especially for areas that are not used to dangerous heat conditions. Take precautions to avoid heat illness. If you don't take precautions, you may become seriously ill or even die.
Excessive Heat Outlooks (Light Yellow)	The outlooks are issued when the potential exists for an excessive heat event in the next 3-7 days. An outlook provides information to those who need considerable lead-time to prepare for the event.

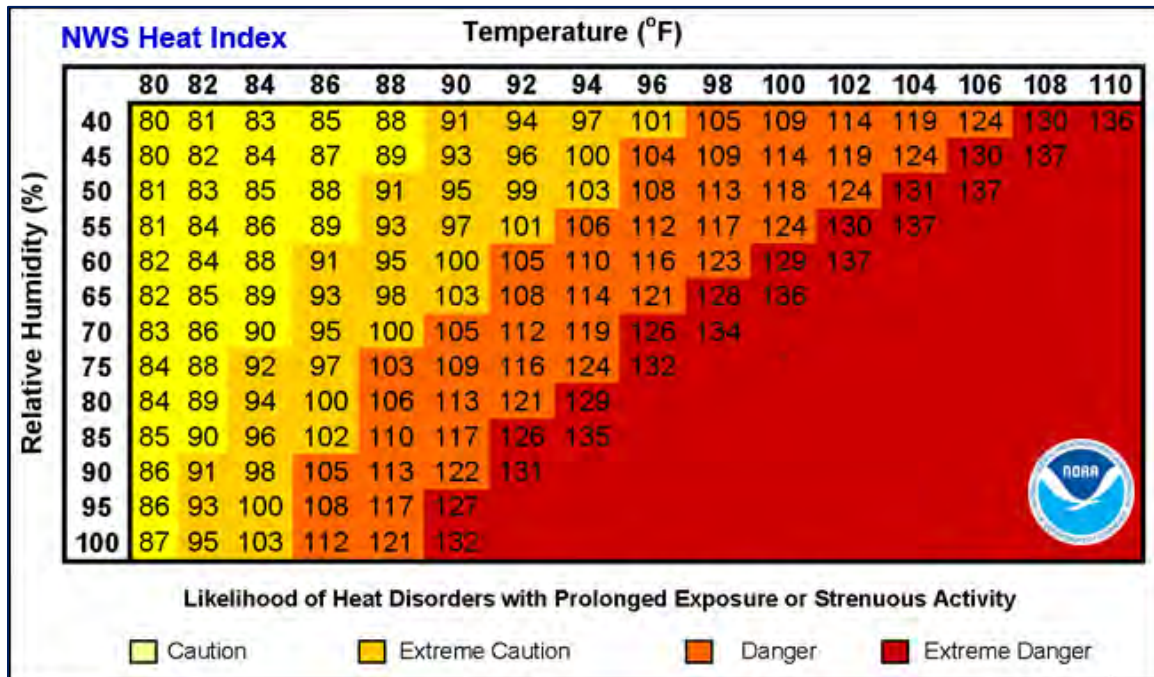
Source: National Weather Service (NWS)

(1) Heat Index

The Heat Index is a metric that considers both the actual air temperature and the relative humidity, providing a more accurate reflection of how hot it feels. Relative humidity represents the amount of moisture in the air compared to what it would contain if fully saturated, which depends on both moisture content and temperature. There exists a clear correlation between air temperature, relative humidity, and the heat index, such that, as air temperature and relative humidity rise, the heat index follows suit. Conversely, it drops when they decrease. The National Weather Service has created a Heat Index Chart, shown in **Figure 34**, which illustrates how the Heat Index classifications change and intensify from "Caution" to "Extreme Danger" as both temperature and relative humidity increase³⁰.

30 US DEPARTMENT OF COMMERCE, NOAA. 2024. "WHAT IS THE HEAT INDEX?" WWW.WEATHER.GOV. NOAA. 2024. [HTTPS://WWW.WEATHER.GOV/AMA/HEATINDEX](https://www.weather.gov/ama/heatindex).

Figure 34. National Weather Service Heat Index



The classifications of the Heat Index describe the risk of heat disorders with prolonged exposure or strenuous activity. As the heat index increases the heat index classification increases as well and darkens from light yellow to red. This also increases the likelihood for individuals to experience adverse effects on the body. Descriptions of how the heat index may affect the body are listed in **Table 28**.

Table 28. Heat Index Classifications & Effects on the Body

CLASSIFICATION	HEAT INDEX	EFFECT ON THE BODY
Caution (Light Yellow)	80°F-90°F	Fatigue possible with prolonged exposure and/or physical activity
Extreme Caution (Yellow)	90°F-103°F	Heat stroke, heat cramps, or heat exhaustion possible with prolonged exposure and/or physical activity
Danger (Orange)	103°F-124°F	Heat cramps or heat exhaustion likely, and heat stroke possible with prolonged and/or physical activity
Extreme Danger (Dark Red)	125F or higher	Heat stroke highly likely

Source: National Weather Service (NWS)

(2) Heat Risk

The National Weather Service (NWS) HeatRisk prototype is a color-numeric-based index that provides a forecast of the potential level of risk for heat-related impacts to occur over a 24-hour period. That level of risk is illustrated by a color/number along with identifying the groups potentially most at risk at that level. Each HeatRisk level is also accompanied by recommendations for heat protection and can serve as a useful tool for planning for upcoming heat and its associated potential risk. Based on the NWS high resolution national gridded forecast database, a daily HeatRisk value is calculated for each location from the current date through seven days in the future.

The HeatRisk prototype takes into consideration:

- How unusually above normal are the temperatures at your location (is it warmer than the top 5% of hottest days in the period of record for this date?).
- The time of the year (for example, is this early season heat that you likely haven't become used to, typical mid-summer heat, or late season heat that you may have become more used to?).
- The duration of unusual heat (for example, are temperatures overnight at levels that would lower heat stress, maintain it, or will unusually warm overnight low temperatures add to heat stress into the next day).
- If those temperatures are at levels that pose an elevated risk for heat complications, such as heat stress, based on peer-reviewed science and heat-health thresholds supported by the Centers for Disease Control and Prevention (CDC) national data sets.

The Heat Risk tool can be used to enhance the wellbeing of communities and individuals by reducing potential risks of extreme heat. Adverse impacts from weather events generally affect historically underserved communities and the Heat Risk tool seeks to provide support for those communities and be better prepared. Groups that are heat-sensitive or heat vulnerable face a higher risk of heat-related illnesses and adverse impacts than others. These groups include:

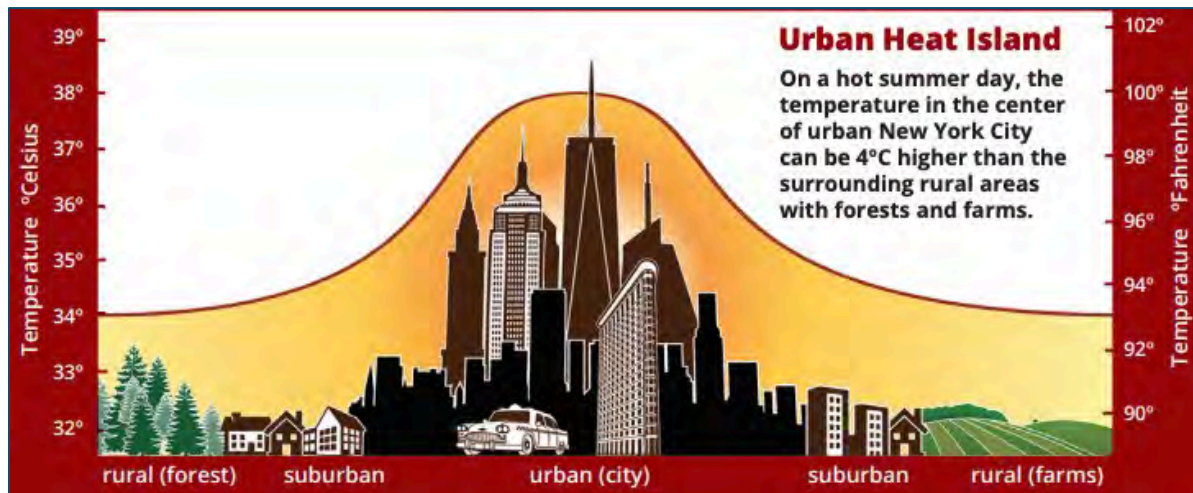
- The elderly and very young.
- People experiencing homelessness.
- Individuals on certain medications and/or those with pre-existing conditions increase heat sensitivity.
- Outdoor workers, especially new workers, temporary workers, workers that are not yet accustomed to working outdoors, and those working in non-cooled spaces.
- Individuals exercising or engaging in strenuous activities outdoors during the heat of day, especially those that are not accustomed to the level of heat, not drinking enough fluids, and those new to that type of activity.
- Individuals without adequate cooling mechanisms or proper hydration.

- Individuals not acclimated to the level of heat expected, especially those that are new to a warmer climate.
- Individuals are sensitive to poor air quality, which can be exacerbated by heat waves.
- Individuals living in low-income communities.

(3) Urban Heat Islands

Large urban areas, like the City of Bell and the wider Los Angeles Metropolitan Area, often experience higher temperatures than rural areas. This phenomenon is known as the Urban Heat Island effect and can increase the retention of heat and heat exposure to a population. A review of research studies and data found that in the United States, the heat island effect results in daytime temperatures in urban areas about 1–7°F higher than temperatures in outlying areas and nighttime temperatures about 2–5°F higher. Humid regions and cities with larger and denser populations experience the greatest temperature differences. Research predicts that the heat island effect may strengthen in the future as the structure, spatial extent, and population density of urban areas change and grow. **Figure 35** depicts the differences in temperatures between urban and rural areas.

Figure 35: Urban Heat Island



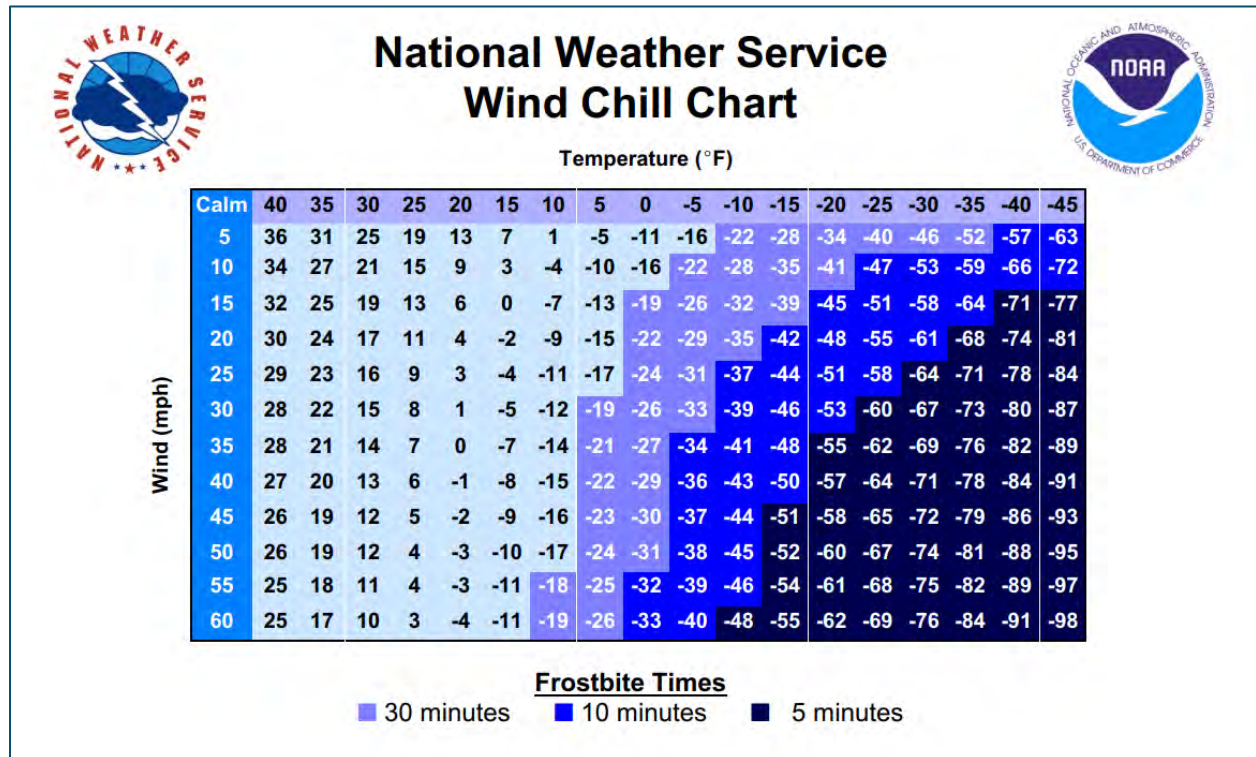
Source: *Climate at a Glance 2025*

Extreme Cold

Extreme cold has a wide range of extent and severity markers and characteristics. Average nighttime winter temperatures in the City of Bell are typically in the high 40s. Only during occasional cold air outbreaks—often tied to strong high-pressure systems—do temperatures in the Los Angeles Basin approach the freezing mark. These events are infrequent and short lived. That said, even relatively modest cold events can have meaningful consequences in Bell because the community is generally not adapted to freezing temperatures. Prolonged overnight lows can pose a risk to unsheltered individuals, cause localized water line damage, and create transportation issues due to the presence of ice. The most common severity marker for extreme

cold is the Wind Chill scale. **Figure 36** depicts the National Weather Service’s methodology for determining the wind chill, using wind speed and actual temperature.

Figure 36: National Weather Service Wind Chill Chart



The National Weather Service also produces frost and freeze advisories, watches, and warnings to communicate when temperatures can pose a risk to vegetation and agriculture. The descriptions for these alerts are listed in **Table 29**.

Table 29. National Weather Service Frost Advisories

NWS PRODUCT	DESCRIPTION
Frost Advisory (Light Blue)	A frost advisory means areas of frost are expected or occurring, posing a threat to sensitive vegetation.
Freeze Watch (Blue)	NWS issues a freeze watch when there is a potential for significant, widespread freezing temperatures within the next 24-36 hours. A freeze watch is issued in the autumn until the end of the growing season and in the spring at the start of the growing season.
Freeze Warning (Dark Blue)	When temperatures are forecasted to go below 32°F for a long period of time, NWS issues a freeze warning. This temperature threshold kills some types of commercial crops and residential plants.

NWS PRODUCT	DESCRIPTION
Hard Freeze Warning (Light Purple)	NWS issues a hard freeze warning when temperatures are expected to drop below 28°F for an extended period of time, killing most types of commercial crops and residential plants.

Source: National Weather Service (NWS)

iii) Extent

Extreme Heat

The City of Bell, located in Southern California, is vulnerable to periods of extreme heat and the risks these events pose to both people and property. While the most severe episodes are typically short-lived, extended heat waves lasting a week or more have occurred in the region. Data from the nearby Los Angeles Downtown weather station shows that extremely hot periods are becoming more frequent, suggesting a longer-term trend toward more frequent, prolonged, and severe heat waves. These events strain critical systems such as energy supply, healthcare, and emergency response, while creating significant risks for vulnerable populations who may lack access to cooling or reliable housing.

The entirety of the planning area is vulnerable to extreme heat, although some areas may offer limited, localized relief through tree canopy, park space, or access to air-conditioned public facilities. Veterans Memorial Park and Ernest Debs Park provide shade and minor cooling benefits for nearby residents, but their effect is modest given the City's overall density and limited green cover. By contrast, areas adjacent to Interstate 710 and the Los Angeles River, where wide expanses of concrete and paved surfaces are directly exposed to the sun, tend to trap and radiate heat, creating localized hot spots. These conditions illustrate how the urban landscape influences exposure, with minor pockets of relief offset by large zones where the built environment amplifies heat hazard.

Extreme Cold

The City of Bell, located in Southern California, faces very limited exposure to extreme cold. Winter temperatures in Bell are typically mild, with average daily lows in the 40s and rare dips into the 30s. Freezing conditions are uncommon, and extended periods of subfreezing temperatures have not been recorded in the nearby Los Angeles Downtown weather station in recent decades. Still, when unusually cold weather does occur, even for short durations, it can affect vulnerable populations such as older adults, infants, people experiencing homelessness, and those without adequate heating. Cold snaps can also stress energy demand for heating and create localized disruptions if water pipes or infrastructure components are not adequately insulated.

iv) Past Occurrences

Extreme Heat

Using the Los Angeles Downtown station (USW00093134)—the nearest long-term NOAA site—Bell’s area has seen recurrent late-summer heat waves, with a clear tendency toward more frequent hot days and warmer nights in recent decades. The station’s all-time record high is 113 °F on September 27, 2010, during a region-wide event that also drove multi-day high-heat conditions across the basin that would have affected Bell. Subsequent notable events include September 2020, which featured several consecutive days above 100 °F, and September 2024, when the station reached 111°F. Since 1975, the number of days with maximum temperatures at or above 90°F has varied from as few as 10 days (1975) to as many as over 40 days (2020), with an overall upward trend.

When looking at the mean daily maximum, the hottest overall month on record was August 1998, with an average high of 90.5°F. However, September remains the month most prone to record-setting extremes. The longest sustained run of extreme heat in the past 50 years was September 22–29, 1978, when maximum temperatures remained at or above 95°F for eight consecutive days. More recent decades show shorter but sharper heat waves, with elevated nighttime temperatures reducing relief during events in 2010, 2017, 2020, and 2022. These occurrences demonstrate that while Bell does not experience the prolonged triple-digit stretches typical of inland valleys, it remains highly exposed to shorter but intense episodes of extreme heat that are becoming increasingly common. **Table 30** shows the ten longest stretches of consecutive days of with temperatures above 90°F, as well as the beginning and end dates for these streaks. **Figure 38** shows the average annual maximum temperature recorded at Bell’s closest NOAA weather station since 1907.

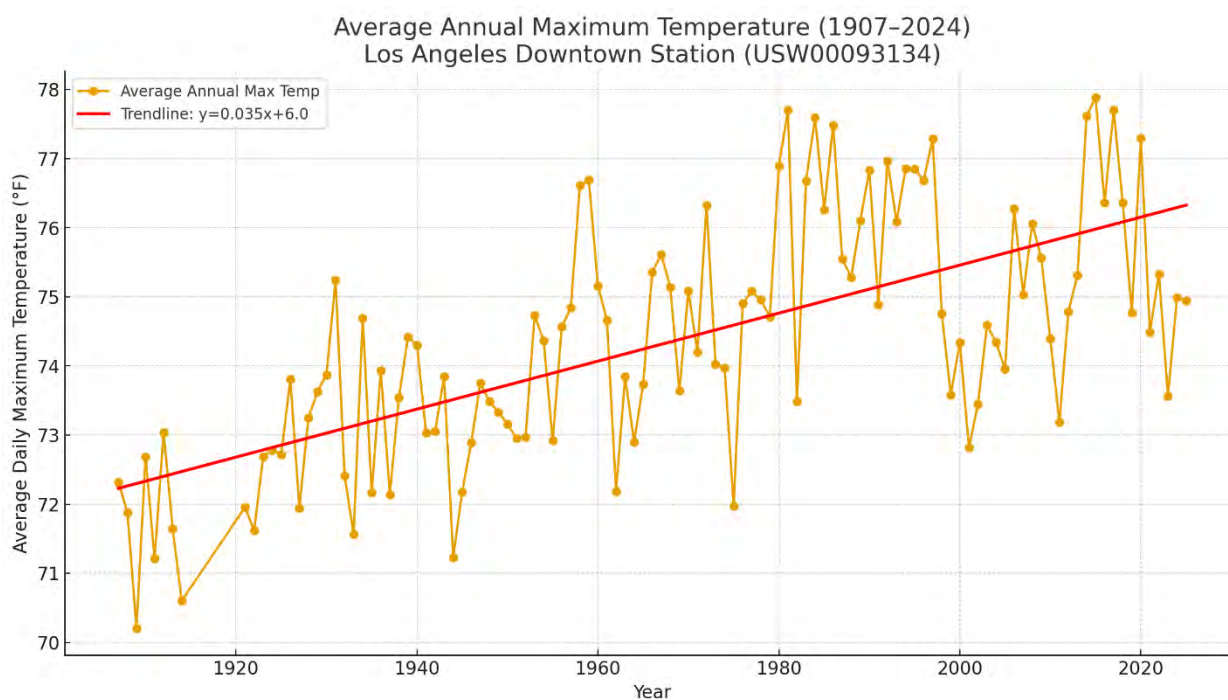
Table 30. Top 10 Most Consecutive Days above 90°F

RANK	START DATE	END DATE	LENGTH (DAYS)
1	July 29, 1971	Aug 11, 1971	14
2	Aug 5, 1983	Aug 17, 1983	13
3	Aug 26, 1995	Sep 7, 1995	13
4	July 7, 1984	July 17, 1984	11
5	Oct 20, 1965	Oct 29, 1965	10
6	July 23, 1972	Aug 1, 1972	10

RANK	START DATE	END DATE	LENGTH (DAYS)
7	Sep 20, 1978	Sep 29, 1978	10
8	Aug 9, 1994	Aug 18, 1994	10
9	Aug 26, 2009	Sep 4, 2009	10
10	Aug 31, 2022	Sep 9, 2022	10

Source: NWS

Figure 38. Average Annual Maximum Temperatures 1907-2025



Source: NWS

Extreme Cold

Extreme cold events are rare in the Los Angeles Basin, and consequently in the City of Bell. Data from the Los Angeles Downtown station (USW00093134) show that daily minimum temperatures seldom drop below the mid-30s°F, with only a handful of nights in the historical record approaching or falling below freezing. The coldest recorded night occurred on February 19, 1911, when the minimum temperature reached 25°F. Other notable cold events include January 7, 1913 (28°F), January 4, 1949 (28°F), and December 8, 1978 (30°F). Since the late 1970s, temperatures at or below freezing have not been recorded at this station, underscoring the rarity of such events in modern decades. More information can be found in **Table 31**.

Table 31. Lowest Recorded Temperatures Near Bell

RANK	DATE	MINIMUM TEMP °F
1	Feb 19, 1911	25
2	Jan 7, 1913	28
3	Jan 4, 1949	28
4	Feb 15, 1911	29
5	Jan 6, 1913	30
6	Dec 8, 1978	30
7	Jan 20, 1922	31
8	Jan 5, 1949	31
9	Jan 9, 1937	32
10	Jan 21, 1937	32

Source: NOAA NCEI Storm Events Database

These occurrences demonstrate that while extreme cold has occasionally reached hazardous levels in the distant past, such events are exceedingly rare today. The absence of freezing temperatures in recent decades suggests that Bell’s vulnerability to extreme cold is Very Low, though vulnerable populations such as unhoused individuals, older adults, and those without adequate heating could still be at risk during unusually cool winter nights.

Frequency

Based on the past occurrences data, extreme heat and extreme cold events occur approximately every 7.5 years. However, it is important to note that these events are based in Los Angeles County, and it is difficult to determine if the City of Bell was impacted.

v)Future Probability

Extreme Heat

Projections from California’s Fourth Climate Change Assessment indicate that average annual maximum daily temperatures in Los Angeles County could increase by 5–8°F by the end of the century, depending on emissions scenarios. For Bell, which already experiences an average of roughly 7 days per year above 95°F based on historical records from the Los Angeles Downtown station, this means both the number of hot days and the intensity of heat waves are projected to rise. State and county climate assessments further project that the Los Angeles region will see an increase of “extreme heat days” by the end of the 21st century, growing from fewer than ten annually to more than a dozen. As a result, the probability of disruptive heat waves affecting

Bell in any given year is considered **Highly Likely**, with the most significant impacts expected to fall on vulnerable populations, energy systems, and public health services.

Extreme Cold

The probability of extreme cold events in the City of Bell is **Unlikely**, and the probability of this hazard may decrease further over time. Historical records from the Los Angeles Downtown station show that freezing nighttime lows have not occurred in recent decades, with the last minimum temperatures near or below 32°F observed in the late 1970s. Climate projections for Southern California consistently indicate rising average temperatures and fewer cold nights in the future. Overall, the future probability of extreme temperatures in the City of Bell is considered **Highly Likely**, primarily due to the probability of extreme heat.

vi) Secondary Hazards

Extreme Heat

Extreme heat can cause secondary hazards to occur including but not limited to poor air quality, power outages, and wildfires. Additional information about secondary hazards to extreme heat is described in **Table 32**.

Table 32. Secondary Hazards from Extreme Heat

SECONDARY HAZARD	DESCRIPTIONS
Power Outage	Heat waves can put stress on the power grid, as the usage of air conditioning increases to keep people cool around the same time, which can have devastating impacts. During the heat wave in September of 2022, over 100,000 customers in the Los Angeles area were left without power from different power providers. Power outages can quickly lead to heat-related illnesses or even death. For example, individuals that rely on electrically powered medical equipment will not be able to use their equipment during a power outage and at increased risk ³¹ .
Air Quality³²	Air pollutants such as ozone and particulate matter (PM) increase the amount and seriousness of lung and heart disease and other health problems. Bell is near potential sources of pollution including industries, rail yards, and major freeways. Because of this, the City of Bell is at risk of air pollution and the subsequent adverse health impacts.

³¹ KIM, JUNE. 2023. "INCREASING POWER OUTAGES DON'T HIT EVERYONE EQUALLY." SCIENTIFIC AMERICAN. SCIENTIFIC AMERICAN. JULY 26, 2023.

[HTTPS://WWW.SCIENTIFICAMERICAN.COM/ARTICLE/INCREASING-POWER-OUTAGES-DONT-HIT-EVERYONE-EQUALLY1/](https://www.scientificamerican.com/article/increasing-power-outages-dont-hit-everyone-equally1/).

³² US EPA. 2020. "RESEARCH ON HEALTH EFFECTS FROM AIR POLLUTION." UNITED STATES ENVIRONMENTAL PROTECTION AGENCY. US EPA. OCTOBER 28, 2020. [HTTPS://WWW.EPA.GOV/AIR-RESEARCH/RESEARCH-HEALTH-EFFECTS-AIR-POLLUTION](https://www.epa.gov/air-research/research-health-effects-air-pollution).

Extreme Heat

Instances of extreme cold within the City of Bell are Very Unlikely. However, if an extreme cold event were to occur, there are several secondary hazards that could pose a risk to the planning area. **Table 33** describes these hazards in more detail.

Table 33. Secondary Hazards to Extreme Cold and Winter Weather

SECONDARY HAZARD	DESCRIPTION
Power Outage	Extreme cold temperatures and ice can put stress and damage the power infrastructure, which can have devastating impacts. The loss of heating during an extreme cold snap can lead to hyperthermia or even death. Additionally, individuals that rely on electrically powered medical equipment will not be able to use their equipment during a power outage and are at increased risk ³³ .
Transportation Disruptions	Icy roads can lead to hazardous driving conditions. This may result in increased road accidents, delays in emergency response times, and challenges in daily commuting for residents and service providers.

vii) Vulnerability & Impact Assessment

Extreme Heat

The City of Bell experiences a moderate, Mediterranean climate that is enjoyed by the greater Los Angeles Metropolitan Area. This climate is characterized by warm, dry summers and mild winters. However, the region has experienced a recent trend of increasing temperatures in both the winter and summer months, and this may be the result of growing urban heat island effects and broad climatic and meteorological shifts. Virtually all buildings, infrastructure, and critical facilities in Bell are exposed to extreme temperatures, although the consequences and impacts of this exposure varies by structural characteristics.

The impact of extreme heat on public health and safety can be significant. Heat-related illnesses can range from mild conditions like heat cramps to severe, life-threatening conditions such as heatstroke. Symptoms may include dizziness, nausea, headaches, rapid heartbeat, and, in severe cases, loss of consciousness. Without prompt treatment, heatstroke can be fatal. During

33 KIM, JUNE. 2023. "INCREASING POWER OUTAGES DON'T HIT EVERYONE EQUALLY." SCIENTIFIC AMERICAN. SCIENTIFIC AMERICAN. JULY 26, 2023.
[HTTPS://WWW.SCIENTIFICAMERICAN.COM/ARTICLE/INCREASING-POWER-OUTAGES-DONT-HIT-EVERYONE-EQUALLY1/](https://www.scientificamerican.com/article/increasing-power-outages-dont-hit-everyone-equally1/).

extreme heat events, mortality from all causes can increase, with heat acting as a contributing factor to deaths from cardiovascular, respiratory, and other illnesses.

Extreme Cold

While the City of Bell is located in Southern California and is known for its mild climate, extreme cold and freeze events can still occur and have significant impacts on the community. These events, though infrequent, can lead to health risks, economic costs, and disruptions in transportation, energy, and infrastructure. The City's infrastructure and population may not be as prepared for cold weather extremes compared to regions where such temperatures are common, making the effects more pronounced when they do occur. Unlike extreme heat however, recent data trends indicate that extreme cold is becoming less likely.

(1) People

Extreme Heat

Exposure to extreme heat is a critical health hazard, and it leads to thousands of hospitalizations and deaths each year in the U.S. conditions like heat exhaustion and heat stroke are direct threats, while extreme temperatures also contribute to cardiovascular diseases, causing heart attacks and strokes. The U.S. Centers for Disease Control and Prevention (CDC) indicates that heat exhaustion contributed to approximately 4.2 deaths per 1 million Californians last year, making extreme heat the deadliest weather hazard. Additionally, this risk affects diverse populations disproportionately.

Older adults, especially those with cardiovascular issues or other medical conditions, are more susceptible to the effects of extreme heat. This group is also at a disadvantage during power outages that accompany heat events, particularly those reliant on life-sustaining devices or who are socially isolated. Approximately 11% of Bell's population is aged 65 and over. Additionally, people with chronic illnesses, disabilities, or who are medically underserved are at heightened risk during extreme heat events.

Both outdoor (like those in agriculture, construction, and emergency response) and indoor workers without access to cooling, face heightened risks of heat-related illnesses and injuries³⁴. Statewide, about 21% of California's workers are employed in outdoor roles, and the numbers are believed to be similar in Bell. The City's workforce includes sectors—such as construction, maintenance, warehousing, and logistics—that typically involve significant outdoor labor.

Pregnant women are at an increased risk of complications like preterm birth, low birth weight, fetal death, and infant mortality due to extreme heat³⁵. Roughly 6–7% of Bell's population is

34 NATIONAL INTEGRATED HEAT HEALTH INFORMATION SYSTEM. N.D. "WHO IS AT RISK TO EXTREME HEAT." WWW.HEAT.GOV. NIHHS. ACCESSED 2025. [HTTPS://WWW.HEAT.GOV/PAGES/WHO-IS-AT-RISK-TO-EXTREME-HEAT](https://www.heat.gov/pages/who-is-at-risk-to-extreme-heat).

35 KUEHN, L., AND S. MCCORMICK, 2017: HEAT EXPOSURE AND MATERNAL HEALTH IN THE FACE OF CLIMATE CHANGE. INT. J. ENVIRON. RES. PUBLIC HEALTH, 14(8), 853, DOI: 10.3390/IJERPH1408053. [HTTPS://CENSUSREPORTER.ORG/PROFILES/16000US0604870-BELL-CA/](https://censusreporter.org/profiles/16000US0604870-BELL-CA/)

under age 5, and young children are less able to regulate their body temperature and rely on caregivers to protect them from heat exposure.

Low-income households may also be at an increased risk for several possible reasons. First, individuals who are homeless will struggle to find reliable reprieve from extreme heat, although public cooling facilities can help reduce hospitalizations and fatalities. Additionally, low income households may not have the means to purchase air conditioning units, replace them, or maintain them. An estimated 22.8% of Bell's residents live below the poverty level. These individuals may lack access to air conditioning or be unable to afford increased energy costs during heat waves³⁶.

Therefore, there is a large population that can experience significant adverse impacts, even death, from extreme heat. Based on Public Survey #1, City of Bell residents are most concerned about Extreme Temperatures and their impact. They also stated that Extreme Heat was one of the hazards that they experienced the most impacts from. Some Bell residents may also face challenges in accessing emergency warnings and accessible cooling shelters. Furthermore, access to green spaces which may provide some relief from extreme heat is not widely available.

Extreme Cold

Extreme cold can pose significant health risks to the residents of Bell, particularly to vulnerable groups such as the elderly, young children, and individuals with pre-existing health conditions. A 2023 American Community Survey estimate indicates that Bell is home to approximately 3,606 residents aged 65 and older, representing about 11.0% of the City's population, while 9,063 individuals, or about 27.6%, are under age 18³⁷. The drop in temperatures can lead to an increase in respiratory problems, hypothermia, and frostbite, especially for those without adequate heating or shelter. Homeless individuals are particularly at risk, as they may not have access to warm, indoor spaces during extreme cold events.

In cases where extreme cold occurs alongside precipitation, the build-up of ice can have major consequences on infrastructure. Ice accumulation on overhead power and communications cables can lead to the loss of heating and lighting in homes and businesses, disrupt day-to-day community operations, and reduce communications and access to online resources. Transportation can also be severely impacted, with icy roads and leading to hazardous driving conditions, public transport delays, and school closures.

Businesses in Bell might face challenges during extreme cold events, including reduced foot traffic, difficulties in maintaining regular operations, and potential damage to premises and inventory. These disruptions can have a ripple effect on the local economy, affecting both

³⁶ STATES, UNITED. 2025. "EXPLORE CENSUS DATA." CENSUS.GOV. 2025. [HTTPS://DATA.CENSUS.GOV/TABLE/ACSDP5Y2023.DP05?Q=BELL](https://data.census.gov/table/ACSDP5Y2023.DP05?Q=BELL).

³⁷ STATES, UNITED. 2025. "EXPLORE CENSUS DATA." CENSUS.GOV. 2025. [HTTPS://DATA.CENSUS.GOV/TABLE/ACSDP5Y2023.DP05?Q=BELL](https://data.census.gov/table/ACSDP5Y2023.DP05?Q=BELL).

business owners and employees. Additionally, increased heating costs during extreme cold events can strain household budgets, particularly for low-income families.

(2) Structures and Systems

Extreme Heat

With recent data trends indicating a general increase in the frequency and severity of extreme heat events, it is essential to conduct a comprehensive vulnerability assessment to better understand and address the associated risks. Properties within the City of Bell may face various vulnerabilities during extreme heat events. Vulnerable factors can include building materials, insulation, and roofing that may not be adequately designed to withstand prolonged high temperatures. This can lead to increased energy consumption for cooling, potential structural damage, and even health risks for occupants. Moreover, properties lacking sufficient vegetation or green spaces may experience amplified heat effects, contributing to the urban heat island effect and exacerbating local temperature disparities.

Critical Facilities

Extreme heat events can pose significant challenges to critical facilities. High temperatures can strain electrical grids, potentially leading to power outages, which can disrupt critical services and affect public safety. Air conditioning and cooling systems may be pushed to their limits, risking equipment failure and service interruptions. Moreover, extreme heat can adversely affect the health and well-being of facility staff, hampering their ability to provide essential services. **Table 34** details the potential impacts to community lifelines.

Table 34. Potential Vulnerability of Lifelines to Extreme Heat

LIFELINES	IMPACT TYPE	DESCRIPTION
Communications		Communications facilities are generally less susceptible to extreme heat than other community lifelines. However, like most infrastructure, the repetitive expansion and retraction caused by changes in temperatures can physically strain materials.
Energy (Power & Fuel)		High demand for cooling during extreme heat events can strain power grids, leading to outages. Fuel supply lines for these systems could also be impacted.

LIFELINES	IMPACT TYPE	DESCRIPTION
Food, Shelter, & Housing	 Food, Hydration, Shelter	Extreme heat can render homes uninhabitable without adequate cooling, leading to a need for emergency shelters. Heatwaves can impact food storage and spoilage.
Hazardous Materials	 Hazardous Materials	Hazardous materials should be stored in controlled environments. Some materials and chemicals may react violently if they exceed their safe handling temperature.
Health & Medical	 Health and Medical	Extreme heat can lead to a surge in health-related emergencies, such as heatstroke, dehydration, and respiratory conditions. Healthcare facilities might face increased demand, and the need for medical supplies and services may rise sharply.
Safety & Security	 Safety and Security	Emergency services may be in high demand, and there can be increased risks of accidents and injuries due to heat-related conditions. For example, heatwaves can exacerbate conditions like droughts, leading to wildfires.
Transportation	 Transportation	Extreme heat can affect transportation infrastructure. Heat can cause roads and railways to buckle.
Water & Wastewater Systems	 Water Systems	During heatwaves, there can be an increased demand for water, potentially leading to shortages or water conservation measures.

Extreme Cold

Extreme cold and harsh winter conditions can pose significant challenges to the structural integrity and functionality of properties in Bell. Residential and commercial buildings may face issues such as frozen pipes, which can burst and cause water damage. Roofs and exteriors may be susceptible to damage from heavy snowfall or ice accumulation, leading to potential leaks or

structural weakening. Public infrastructure, including roads, bridges, and utility systems, is also at risk, with the potential for increased wear and tear or damage from freezing temperatures.

The need for continuous heating during extreme cold spells can put a strain on both the energy systems of individual properties and the city's overall energy grid. This heightened demand can lead to higher utility bills for residents and businesses, and in some cases, may result in power outages if the local grid is overwhelmed.

Property owners in Bell may face increased maintenance and repair costs following winter weather events. Addressing issues such as insulation, repairing damage from frozen pipes, and ensuring the structural soundness of buildings can lead to significant expenses. For municipal properties and public spaces, the City may incur additional costs in maintaining and repairing public infrastructure affected by the cold.

Critical Facilities

Critical facilities near Bell, such as hospitals, emergency response centers, utility services, and government buildings, face significant operational challenges during extreme cold and winter weather events. Ensuring continuous operation and service delivery becomes paramount, especially for facilities like hospitals where lives may be at stake. Power outages, heating system failures, or disrupted telecommunications can severely impact these facilities' functionality, necessitating robust contingency plans to maintain operations. Severe winter weather can impact transportation and access to properties. Icy roads and snow accumulation can hinder access to homes and businesses, posing challenges for residents, employees, and service providers. This can affect everything from daily commutes to emergency response times, potentially putting properties and residents at risk. **Table 35** details the potential impacts to community lifelines.

Table 35. Potential Vulnerability of Lifelines to Extreme Cold Event

LIFELINE	IMPACT TYPE	DESCRIPTION
Communications		Communications facilities are generally less susceptible to extreme heat than other community lifelines. However, like most infrastructure, the repetitive expansion and retraction caused by changes in temperatures can physically strain materials.
Food, Shelter, & Housing		Extreme cold can render homes uninhabitable without adequate heating leading to a need for emergency shelters. Cold spells can affect the transportation and delivery of food supplies, while

LIFELINE	IMPACT TYPE	DESCRIPTION
		heatwaves can impact food storage and spoilage.
Energy		High demand for heating during extreme cold events can strain power grids, leading to outages. Fuel supply lines for heating systems could also be impacted, especially during cold spells.
Hazardous Materials		Hazardous materials are not considered to be exceptionally vulnerable to cold temperatures.
Health & Medical		Extreme cold can lead to a surge in health-related emergencies, such as hypothermia, and respiratory conditions. Healthcare facilities might face increased demand, and the need for medical supplies and services may rise sharply.
Safety & Security		Emergency services may be in high demand, and there can be increased risks of accidents and injuries due to cold-related conditions. For example, cold spells can lead to increased incidents of fires from heating devices.
Transportation		Extreme cold can affect transportation infrastructure. Cold can lead to icy conditions and snow accumulation, disrupting road, air, and rail travel.
Water & Wastewater Systems		In extreme cold, water lines can freeze and burst, causing significant disruptions.

(3) Natural, Cultural, and Historical Resources

Extreme Heat

Natural resources like parks and green spaces may experience a die-off of vegetation if high temperatures persist for an extended period. Cultural and historic resources may experience

structural damage and thermal stress, and artifacts and artwork may be damaged if the carefully controlled environment inside these buildings cannot be maintained due to electrical disruptions from extreme heat. Furthermore, changes in visitor rates can have particularly acute impacts on natural, cultural, and historic resources which often rely on donations.

Extreme Cold

Natural resources like parks and green spaces may experience a die-off of the vegetation and plants that are not suited for cold temperatures. A freeze can be particularly damaging, as it can kill the root systems that sustain most plants. Cultural and historic resources may experience structural damage and thermal stress, and artifacts and artwork may be damaged if the carefully controlled environment inside these buildings cannot be maintained due to electrical disruptions from extreme cold. Furthermore, changes in visitor rates can have particularly acute impacts on natural, cultural, and historic resources that often rely on donations.

(4) Risk Analysis

Extreme temperatures, including extreme heat and cold, pose a **High** risk to the planning area, primarily due to the frequency and severity of possible extreme heat days. Extreme heat can cause significant impacts to infrastructure, the environment, and public health. The most immediate and concerning risk is to public health. Extreme heat events can lead to heat-related illnesses such as heat exhaustion, heatstroke, and dehydration, especially among vulnerable groups like the elderly, children, and those with pre-existing health conditions. The increase in temperatures can exacerbate respiratory problems and could lead to higher mortality rates during prolonged heatwaves.

Extreme heat can also stress electrical grids causing loss of electricity, worsen air quality, and increase the risk of heat-related illnesses. Economically, the City could face increased costs related to emergency response services, healthcare, and infrastructure maintenance. If extreme heat leads to buckling and other structural deficiencies along Interstate 710 or local rail infrastructure, Bell may experience disruptions due to traffic detours, distribution backups, and the influx of heavy machinery that will be required to repair damages. Businesses, particularly those reliant on outdoor activities or those without adequate cooling systems, may suffer reduced productivity and revenue losses during heat events.

In comparison to extreme heat, extreme cold events pose a **Low** risk to the City of Bell. Extreme cold temperatures, particularly those below freezing, are exceptionally rare but not impossible. When dealing with an extreme cold event, the primary risks include frostbite, hypothermia, and in severe cases, death. For the City of Bell, as well as other communities in the region, there is an increased risk stemming from the relative infrequency of this hazard—people who are caught unprepared are at greater risk if the City experiences a stretch of extremely cold temperatures. Similarly, it is possible that rare winter weather or extreme cold events may significantly disrupt City services and operations.

In conclusion, the risk analysis for the City of Bell in the context of extreme heat events highlights the multifaceted threats posed by such phenomena. Addressing these risks requires a comprehensive approach involving public health planning, infrastructure resilience enhancement, economic support mechanisms, and environmental conservation strategies. Active engagement and preparedness at all levels including governmental, community, and individual, are essential to mitigate these risks effectively.

H) FIRES – URBAN AND WILD

i) Hazard Profile

For the purposes of this plan, the fire hazard consists of two categories: urban fires and wildfires. While these two categories can overlap and have shared characteristics, there are differences between the two that are important to distinguish in this plan.

Urban Fire

An urban fire involves a structure or property within an urban or developed area. An urban fire is classified as an uncontrolled burning of a structure from a natural, human, or technical cause. Urban fires can damage and destroy a wide range of property such as homes, schools, commercial buildings, infrastructure, and vehicles. Urban fires can have unpredictable characteristics due to the wide range of materials that can be involved. Various materials and substances used in industrial and commercial applications are highly flammable and can produce toxic gases that complicate firefighting efforts. Some of the more common urban fires that present added challenges to firefighters include chemical fires, electrical fires, and ignition of oil and gas.

- **Oil and gas fires:** often involve flammable or combustible liquids such as natural gas and other combustible liquids. According to the NFPA, every year more than 50,000 fires start as the result of flammable gas while more than 160,000 fires start as the result of flammable or combustible fires.
- **Spontaneous combustion and chemical reactions:** these fires amount to more than 14,000 fires per year. The exact cause is difficult to determine, however spontaneous heating is frequently the catalyst and occurs when a material increases in temperature without pulling heat from its surroundings (i.e., hay, oil rags, agricultural products, and trash).
- **Electrical fires:** fires that start as the result of electrical failure or malfunction. More than 45,000 home structure fires ignite every year due to an electrical failure or malfunction (i.e., fans, washers, dryers, space heaters, and air-conditioning units) causing more than 1.4 million dollars in property damages and more than 400 deaths and 1,300 injuries³⁸.

Wildfire

A wildfire is an unplanned fire burning in natural areas such as forests, grasslands, or prairies. Wildfires can start from natural causes like lightning and volcanic activity, but most are caused

38 THE HARTFORD. N.D. "EFFECTS OF FIRE | HOME FIRE STATISTICS | THE HARTFORD." THE HARTFORD. [HTTPS://WWW.THEHARTFORD.COM/ABOUT-US/JUNIOR-FIRE-MARSHAL/THE-POWER-OF-FIRE](https://www.thehartford.com/about-us/junior-fire-marshal/the-power-of-fire).

by humans, either accidentally or intentionally³⁹. Wildfires can damage natural resources, destroy homes, and threaten human lives and safety. The ignition and growth of wildfires is largely driven by factors including available fuel, weather conditions, and topography. **Table 36** breaks down the factors affecting fire behavior.

Table 36. Factors Affecting Wildfire Behavior

WILDFIRE FACTOR	DESCRIPTION
Fuel	Fuel may include living and dead vegetation on the ground, along the surface as brush and small trees, and above the ground in tree canopies. Lighter fuels such as grasses, leaves and needles quickly expel moisture and burn rapidly, while heavier fuels such as tree branches, logs and trunks take longer to warm and ignite. Trees killed or defoliated by forest insects and diseases can be more susceptible to wildfire. Structures in the human-built environment also represent a fuel component.
Weather	Relevant weather conditions include temperature, relative humidity, wind speed and direction, cloud cover, precipitation amount and duration, and the stability of the atmosphere. When the temperature is high, relative humidity is low, wind speed is increasing and coming from the east (offshore flow), and there has been little or no precipitation, so vegetation is dry, conditions are very favorable for extensive and severe wildfires. These conditions occur more frequently inland where temperatures are higher, and fog is less prevalent.
Topography	Topography includes slope and elevation. The topography of a region influences the amount of moisture retained in fuels; the impact of weather conditions such as temperature and wind; potential barriers to fire spread, such as roads, vineyards, and lakes; and elevation and slope of landforms (fire spreads more easily uphill than downhill). In steep terrain, common geographic features such as drainages, gulches and canyons can funnel air to act as chimneys, pulling hot air, gases, and embers ahead or outside of the main fire. The direction that a slope faces also has a major influence on fire behavior. South-facing slopes receive heating and drying solar radiation from early in the morning until sunset, whereas north-facing slopes only receive solar radiation during a short period of the day when the sun is high in the sky.

Source: FEMA

39 FEMA. 2023. "PROTECTIVE ACTIONS RESEARCH." FEMA.GOV. FEDERAL EMERGENCY MANAGEMENT AGENCY. 2023.
[HTTPS://COMMUNITY.FEMA.GOV/PROTECTIVEACTIONS/S/ARTICLE/WILDFIRE-WHAT](https://community.fema.gov/protectiveactions/s/article/WILDFIRE-WHAT).

(1) Duration

Urban Fire

Urban fires are generally short in duration, often contained within hours due to rapid response from local fire departments and mutual aid resources. In most cases, the fire is controlled the same day it ignites. However, the consequences can extend far beyond the active burn period. Fires that occur in large commercial or industrial buildings, or in dense residential blocks, may burn for longer periods up to several days before full extinguishment and overhaul are complete.

Wildfire

Wildfires can burn for days or even weeks, depending on fuel availability, weather conditions, and suppression efforts. Smaller brush fires may be contained within hours, but large regional wildfires in Southern California have been known to burn across multiple counties for several weeks before full containment. In 2020, California's August Complex Fire burned for 87 days, making it one of the longest-burning fires in recent history. Even after containment, smoldering hotspots can persist for days, and post-fire hazards such as erosion and debris flows may last through the following rainy season.

(2) Seasonality

Urban Fire

Urban fires can occur at any time. However, home fires are more common to occur in the cooler months when people spend more time inside as well as in the hours when people are awake in the home. Research from the National Fire Protection Association (NFPA) found that 46% of home structure fires and 55% of home structure fires deaths occurred in the five-month span from November to March⁴⁰.

Wildfire

The peak wildfire period arrives in September and October, when the Santa Ana winds sweep through the region. These hot, dry gusts can turn a small fire into a fast-moving inferno, pushing flames across hillsides and into communities. During this time, even a single day of strong winds can dramatically escalate fire danger. Lately, wildfires have been occurring later in the year, with some recent, significant fires occurring in November and even December. In addition to longer wildfire seasons, wildfires are lasting on average longer. In 1986 wildfires last an average of six days between 1973 to 1982 and in 2013 the average burn time increased to 52 days between 2003 and 2012⁴¹.

⁴⁰ "HOME STRUCTURE FIRES | NFPA RESEARCH." 2025. NFPA.ORG. NATIONAL FIRE PROTECTION ASSOCIATION. 2025. [HTTPS://WWW.NFPA.ORG/EDUCATION-AND-RESEARCH/RESEARCH/NFPA-RESEARCH/FIRE-STATISTICAL-REPORTS/HOME-STRUCTURE-FIRES?L=45](https://www.nfpa.org/education-and-research/research/nfpa-research/fire-statistical-reports/home-structure-fires?L=45).

⁴¹ USDA. N.D. "WILDFIRE | USDA CLIMATE HUBS." WWW.CLIMATEHUBS.USDA.GOV. USDA. ACCESSED 2025. [HTTPS://WWW.CLIMATEHUBS.USDA.GOV/TAXONOMY/TERM/398](https://www.climatehubs.usda.gov/taxonomy/term/398).

(3) Speed of Onset

Urban Fire

Urban fires can start very quickly. A small flame can turn into a major fire in less than 30 seconds, and it only takes minutes for thick black smoke to fill a house or for it to be engulfed in flames⁴².

Wildfire

Wildfires can ignite and progress at an incredibly fast rate. Wildfires spread on at an average of 14 miles per hour depending on several factors such as weather conditions, fuel type, and terrain⁴³. Additionally, wildfire can “jump” thousands of feet as embers are carried through the air and can ignite separate fires upon landing.

(4) Location

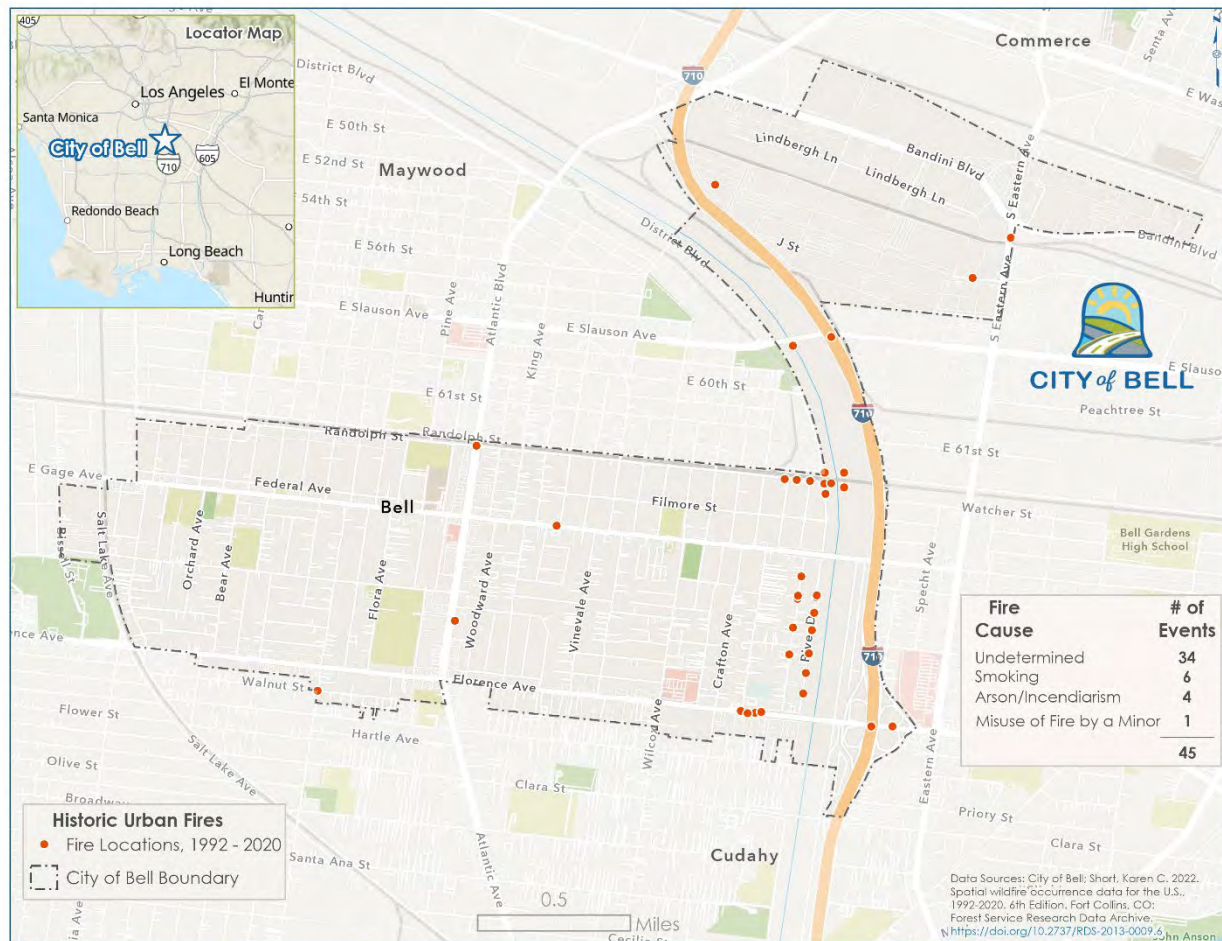
Urban Fire

The entirety of the planning area is considered vulnerable to urban fire. The City of Bell may also be affected by fires that originate nearby and spread into the City’s jurisdiction, as well as by smoke and degraded air quality from urban fires elsewhere in the Los Angeles Metropolitan Area. The Cheli District in northeast Bell contains multiple industrial and commercial facilities that may store or process materials capable of burning with unusual intensity when ignited. Fires at these facilities may require special consideration by first responders due to the potential hazards associated with stored materials. In addition, Bell’s dense residential neighborhoods, with older housing stock and closely spaced buildings, are also vulnerable to rapid fire spread, particularly where structures lack modern fire-resistant materials or adequate defensible space. **Figure 39** shows the location of previously reported urban fires in Bell between 1992 and 2020.

42 READY.GOV. 2019. “HOME FIRES | READY.GOV.” READY.GOV. FEMA. 2019. [HTTPS://WWW.READY.GOV/HOME-FIRES](https://www.ready.gov/home-fires).

43 WESTERN FIRE CHIEFS ASSOCIATION. 2022. “HOW FAST DO WILDFIRES SPREAD?” WFC. WESTERN FIRE CHIEFS ASSOCIATION. NOVEMBER 2, 2022. [HTTPS://WFCA.COM/WILDFIRE-ARTICLES/HOW-FAST-DO-WILDFIRES-SPREAD/](https://wfca.com/wildfire-articles/how-fast-do-wildfires-spread/).

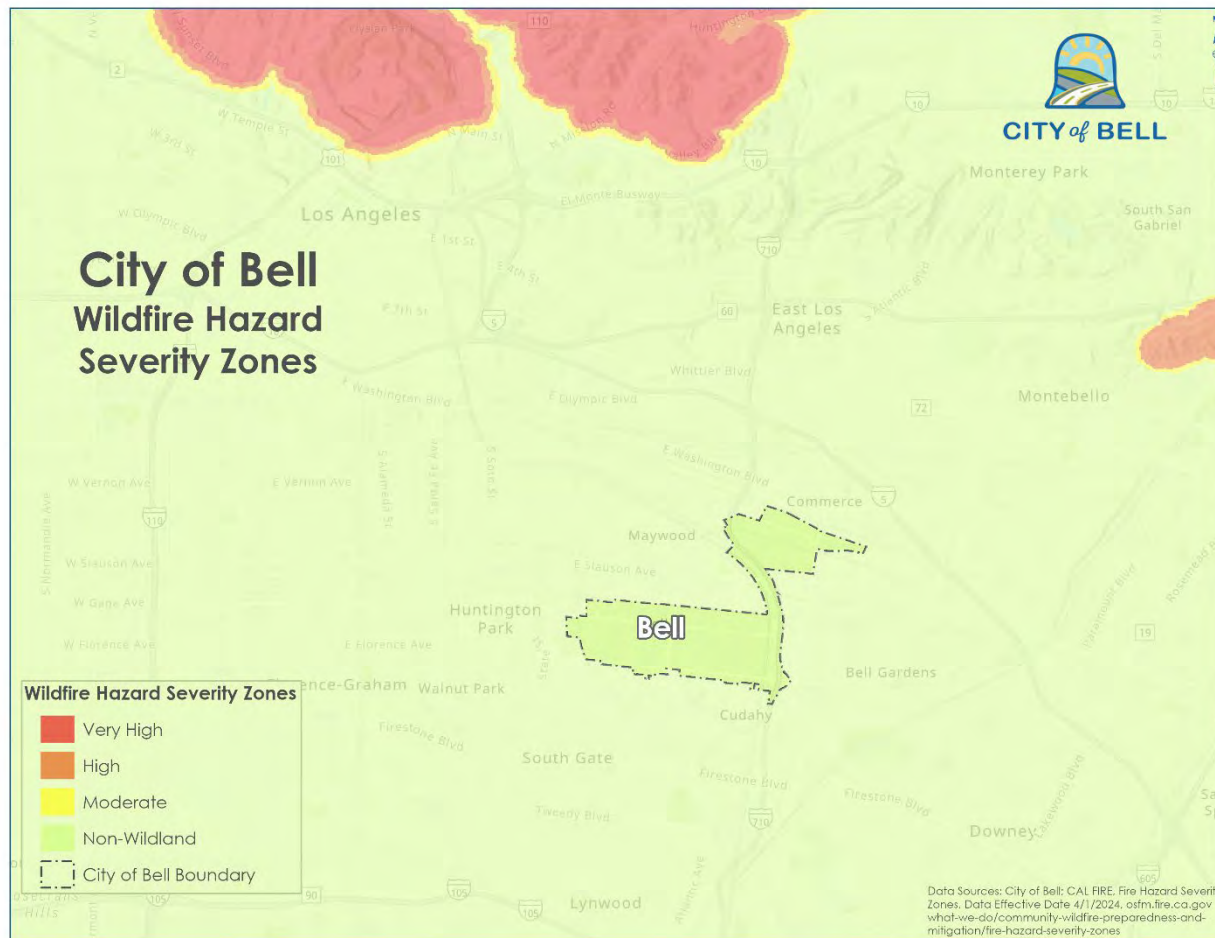
Figure 39. Locations of Urban Fires Reported in Bell 1992-2020



Wildfire

The California Department of Forestry and Fire Protection (CAL FIRE) developed a Fire Hazard Severity Zones (FHSZ) Map based on fuel loading, slope, fire weather, and other relevant factors present, including areas where winds have been identified by the department as major cause of wildfire spread. The fires severity zones established by CAL FIRE are classified as moderate, high, or very high fire hazard. **Figure 40** shows that the City of Bell, as well as jurisdictions immediately adjacent to Bell, are not within any FHSZs identified by CAL FIRE.

Figure 40. Wildfire Hazard Severity Zones



Due to the urban nature of the City of Bell, there is a **Very Low** risk of a wildfire starting within the City’s jurisdictional boundaries, and there is a minimal risk of a wildfire flame front spreading to the City. However, the entirety of the planning area is considered vulnerable to this hazard due to the potential for smoke from wildfires in the region. Wildfire smoke can spread across vast distances, and the inhalation of particulate matter and carcinogens within this smoke can pose serious health risks to Bell residents.

ii) Magnitude

Urban Fire

Urban fires have the potential to cause extensive damage to residential, commercial, or public property. Damages range from minor smoke and/or water damage to the destruction of buildings. People may be displaced for several months to years, depending on the magnitude of the event. Urban fires can also cause injuries and death; these can result from both the flames and the smoke produced by urban fires.

Wildfire

Since 1974, five rating levels have been used to describe potential danger levels in public information releases and fire prevention signing to reduce wildfire risk and inform the public on the likelihood of wildfires occurring. The rating levels are described in **Table 37**.

Table 37. Wildfire Risk Rating Levels

RATING	DESCRIPTION
Low (Green)	Fire starts are unlikely. Weather and fuel conditions will lead to slow fire spread, low intensity, and relatively easy control with light mop up. Controlled burns can usually be executed with reasonable safety.
Moderate (Blue)	Some wildfires may be expected. Expect moderate flame length and rate of spread. Control is usually not difficult and light to moderate mop up can be expected. Although controlled burning can be done without creating a hazard, routine caution should be taken.
High (Yellow)	Wildfires are likely. Fires in heavy, continuous fuel, such as mature grassland, weed fields, and forest litter, will be difficult to control under windy conditions. Control through direct attack may be difficult but possible and mop up will be required. Outdoor burning should be restricted to early morning and late evening hours.
Very High (Orange)	Fires start easily from all causes and may spread faster than suppression resources can travel. Flame lengths will be long with intensity, making control very difficult. Both suppression and mop up will require an extended and very thorough effort. Outdoor burning is not recommended.
Extreme (Red)	Fires will start and spread rapidly. Every fire that starts has the potential to become large. Expect extreme, erratic fire behavior. No outdoor burning should take place in areas with extreme fire danger.

Source: Western Fire Chiefs Association

In order to communicate the danger of a wildfire and the urgency for communities to evacuate, local jurisdictions use three levels of wildfire evacuation, Level 1 being the lowest level and Level 3 being the highest level. **Table 38** provides more information on what each level means for evacuation.

Table 38. Wildfire Evacuation Levels

LEVEL	DESCRIPTION
Level 1	Be Ready. A wildfire threat is in your area. You should monitor the news, plan and pack for evacuation if necessary.
Level 2	Be Set. A wildfire is approaching your area. You should be ready to leave at a moment's notice. You should have your belongings and vehicles prepared.
Level 3	Go. A wildfire poses an immediate threat to you and your home. You should evacuate immediately and follow the instructions of emergency personnel.

Source: U.S. Forest Service

iii) Extent

Urban Fire

Urban fires are typically limited to a single structure, although occasionally an urban fire can stretch to surrounding buildings. Modern building materials and standards have significantly reduced the speed at which fires spread, and instances where entire neighborhoods are wiped out due to urban fires are exceedingly rare, although not impossible. Urban fires pose a more significant threat in areas where a relatively high number of buildings are more than 50 years old, as older structures that were built with lower standards for building construction and materials can ignite more easily. This can create challenges for communities with historic districts or structures, as the desire to retain historical value can result in low utilization of fire-resiliency measures which have since emerged.

Wildfire

The majority of wildfires in Los Angeles County occur near the Angeles National Forest, Santa Monica Mountains, and other nearby mountains and forests. There have been no wildfires recorded in the City of Bell, which is unsurprising given the community's urban setting. While the risk of wildfire flames is low for the City of Bell, wildfire smoke can travel for hundreds of miles, and smoke from wildfires far away from Bell may still reach the city, depending upon wind conditions. Wildfire smoke can produce poor air quality which contains harmful particulate matter and carcinogens, and inhalation of wildfires smoke can result in both short-term and long-term health concerns.

iv) Past Occurrences

Urban Fire

Information from the U.S. Forestry Service Research Data Archive shows 45 urban fires reported in Bell between 1992 and 2020. For a majority of these fires (34), the cause of the fire could not be determined. However, the remaining 11 were determined to be caused by smoking (6), arson/incendiarism (4), and misuse of a fire by a minor (1). Additional data from national, state, and county entities indicate that structural fires are extremely common. The NFPA states that fire departments across the U.S. responded to an estimated 470,000 structure fires in 2023. On average, a home structure fire was reported every 95 seconds, while a house fire death occurred every three hours, and a home fire injury occurred every 52 minutes. Nearly 80% of civilian fire deaths in 2023 were the result of fires in residential structures.

The California Office of the State Fire Marshall reported 12,238 structure fires in 2024, with 9,069 of these involving residential properties. Structural fires at residential properties caused a total of \$820,556,670 in damages, 472 injuries, and 97 fatalities. The 97 fatalities associated with residential properties represent more than 95% of all fatalities from structural fires in California in 2024.

The 2023 Statistical Summary released by the County of Los Angeles Fire Department contains information reported by all nine of the department's divisions. Division IX is the primary division responsible for responding to fires in Bell, Bell Gardens, Commerce, El Monte, Rosemead, South El Monte, and Temple City. In 2023, the department responded to 2,833 structure fires, which is a slight increase from 2022 (2,722 structure fires) but a slight decrease from 2021 (2,943 structure fires). The total fire losses reported by the department in 2023 are more than \$85 million.

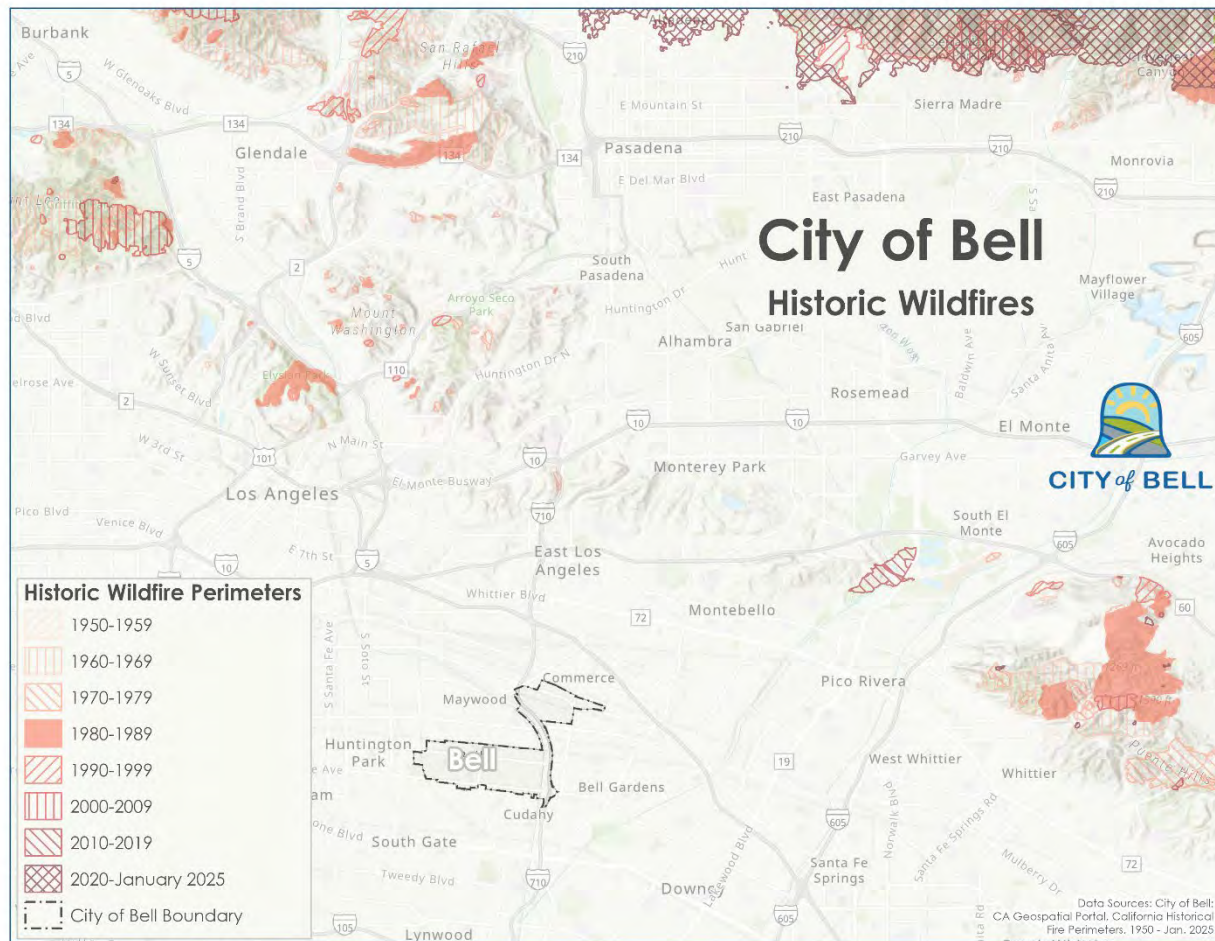
Frequency

Based on the number of urban fire events reported by the U.S. Forest Service Data Archive, Bell experiences an average of 1.6 urban fires per year. Additional data reported by national, state, and county entities also indicates that it is **Highly Likely** that Bell experiences urban fires each year.

Wildfire

As of September, CAL FIRE has identified nearly 7,000 wildfires in California in 2025. However, none of these events have occurred within the City of Bell, and historical records also reveal no previous instances of wildfires in Bell since 1950. **Figure 41** shows the locations of historical wildfires near Bell since 1950.

Figure 41. Locations of Historical Wildfires Near the City of Bell



Frequency

Based on the lack of any reported wildfires inside Bell over the last 75 years, the frequency of wildfires in Bell is assessed as essentially zero per year. There are no databases that track the instances of wildfire smoke impacting the City of Bell.

v)Future Probability

Urban Fire

Urban fires are human-caused, and it is difficult to estimate the future probability of these events occurring. Given the national, state, and county statistics for urban fires, it is assumed that the probability of future urban fires in Bell is **Highly Likely**, and multiple events are anticipated to occur annually. Additionally, while building codes have improved and fire-resistant materials are more commonly used in construction than in previous decades, these measures do not render a structure entirely fire-proof, as even the materials inside the buildings can ignite. Future climate conditions could potentially increase the risk of urban fires if dry

conditions become more severe and prolonged, as drier conditions are naturally more conducive for fires.

Wildfire

Given the lack of any previous wildfires inside Bell, it is **Unlikely** that the flames of a wildfire will impact the City in the future. The City likely faces a higher probability of experiencing smoke from wildfires burning outside of the community, but it is difficult to form a clear assessment of this given the lack of data on wildfire smoke drifting over Bell. Wildfires are projected to increase as well as the acreage of land burned by wildfires. According to the California Fourth Climate Change Assessment, by 2100, if greenhouse gas emissions continue to rise, the frequency of extreme wildfires would increase, and the average area burned statewide would increase by 77% found by one study⁴⁴. This could potentially lead to more frequent instances of wildfire smoke affecting the City of Bell. The overall probability of fires in Bell is assessed as **Highly Likely**, primarily due the frequency of urban fires.

vi) Secondary Hazards

Urban Fire

Urban fires not only pose a risk to the planning area by the direct impacts from burning but also can cause secondary hazards and impacts that can significantly impact the community. The list of secondary hazards that can occur as a result of urban fires are listed in **Table 39**.

Table 39. Secondary Hazards from Urban Fires

HAZARDS	DESCRIPTIONS
Power Outage	Urban fires can damage power lines which can lead to power outages in impacted communities.
Hazardous Materials	Urban fires can cause exposure to asbestos, hazardous vapor, and explosion, risking the health and safety of those around the fire and especially to those who are responding to the incident. Additionally, like the Dominguez Channel Incident, fires may trigger secondary impacts to occur. Chemical runoffs from the fire seeped into the sewer system and the Dominguez Channel causing major health concerns for residents.
Evacuation	Urban fires will likely lead to evacuations from houses, businesses, and other buildings to improve the health and safety of the individuals inside of the structure. If residential properties are destroyed, residents will be displaced and may struggle to find shelter.

44 "CALIFORNIA'S CHANGING CLIMATE 2018 CLIMATE CHANGE ASSESSMENT." 2018. CALIFORNIA'S FOURTH CLIMATE CHANGE ASSESSMENT.
[HTTPS://WWW.ENERGY.CA.GOV/SITES/DEFAULT/FILES/2019-11/20180827_SUMMARY_BROCHURE_ADA.PDF](https://www.energy.ca.gov/sites/default/files/2019-11/20180827_SUMMARY_BROCHURE_ADA.PDF).

Wildfire

Wildfires can produce a range of secondary hazards that can have additional consequences for the community. Wildfires can cause public health concerns in the form of wildfire smoke and poor air quality, contamination of water sources, flash flooding, and increased risk of slope failures/landslides. **Table 40** describes each of the secondary hazards from wildfires.

Table 40. Secondary Hazards from Wildfires

HAZARD	DESCRIPTION
Wildfire Smoke	Wildfire smoke is comprised of a mixture of gaseous pollutants (i.e., carbon monoxide), hazardous air pollutants (HAPS), water vapor, and particle pollution. Particle pollution is the main component of wildfire smoke and can also be referred to as particulate matter. There is evidence that wildfire smoke can increase the risk of both cardiovascular and respiratory-related effects in response to wildfire smoke exposure. Wildfire smoke is a significant risk to public health and can cause short and long-term health impacts. Wildfire smoke can not only affect the communities directly impacted by the wildfire, but it can travel up to hundreds of miles and cause health impacts ⁴⁵ .
Poor Air Quality	Wildfire smoke can contribute to poor air quality and pose significant impacts on population health. Poor quality due to air pollutants such as ozone and particulate matter increases the amount of lung and heart disease and other health problems, especially for populations that are already exposed to a higher level of pollution ⁴⁶ .
Landslides	Post wildfire landslides hazards include fast moving, highly destructive debris flows that can occur in the years after the event in response to high intensity rainfall events, and those flows that are generated over longer time periods accompanied by root decay and loss of soil strength. Landslides can be particularly dangerous due to the short warning time and can block drainage ways, damage structures, and endanger human life ⁴⁷ .
Flooding	Flood risks can increase after wildfires since the landscape and vegetation is charred and unable to absorb water which creates conditions ripe for flash flooding and mudflow ⁴⁸ .

45 US EPA. 2019. "WILDFIRE SMOKE AND YOUR PATIENTS' HEALTH: THE AIR QUALITY INDEX." US EPA. US EPA. AUGUST 13, 2019. [HTTPS://WWW.EPA.GOV/WILDFIRE-SMOKE-COURSE/WILDFIRE-SMOKE-AND-YOUR-PATIENTS-HEALTH-AIR-QUALITY-INDEX](https://www.epa.gov/wildfire-smoke-course/wildfire-smoke-and-your-patients-health-air-quality-index).

46 US EPA. 2020. "RESEARCH ON HEALTH EFFECTS FROM AIR POLLUTION." UNITED STATES ENVIRONMENTAL PROTECTION AGENCY. US EPA. OCTOBER 28, 2020. [HTTPS://WWW.EPA.GOV/AIR-RESEARCH/RESEARCH-HEALTH-EFFECTS-AIR-POLLUTION](https://www.epa.gov/air-research/research-health-effects-air-pollution).

47 "WHAT SHOULD I KNOW ABOUT WILDFIRES AND DEBRIS FLOWS? | U.S. GEOLOGICAL SURVEY." N.D. WWW.USGS.GOV. USGS. ACCESSED 2025. [HTTPS://WWW.USGS.GOV/FAQS/WHAT-SHOULD-I-KNOW-ABOUT-WILDFIRES-AND-DEBRIS-FLOWS](https://www.usgs.gov/faqs/what-should-i-know-about-wildfires-and-debris-flows).

48 "FEMA FACT SHEET FLOOD AFTER FIRE FLOOD RISKS INCREASE AFTER FIRES." 2020. FEMA. [HTTPS://WWW.FEMA.GOV/SITES/DEFAULT/FILES/DOCUMENTS/FEMA_FLOOD-AFTER-FIRE_FACTSHEET_NOV20.PDF](https://www.fema.gov/sites/default/files/documents/fema_flood-after-fire_factsheet_nov20.pdf).

HAZARD	DESCRIPTION
Land Subsidence	Land subsidence (thermokarst) and thermal erosion can also be caused by forest and tundra fires. These fires destroy the insulating layers of humus, peat, grass and roots that safeguard the permafrost, and thus effectively accelerate its thawing over the long term.

vii) Vulnerability & Impact Assessment

Urban Fire

The City of Bell faces significant risks from urban fire due to a variety of factors. First, the overall density of the community means that there is a large volume of structures including homes, businesses, and industrial facilities in close proximity to one another. Dense development increases the likelihood of a fire at one structure spreading to other nearby structures, and this can quickly turn a small fire into a major incident requiring a large-scale response. On particularly windy days, embers can travel several thousand feet before landing and possibly igniting additional fires, further complicating firefighting efforts.

Second, large sections of the City of Bell are utilized for industry. Industrial facilities can increase a community's vulnerability to urban fires, as it is common for these operations to use and store flammable products. Industrial facilities also commonly produce heat sources (such as running engines, manufacturing processes, sparks, etc.) that can ignite fires. A significant portion of the City's land is zoned for industrial use, with the Cheli District in the northeast portion of the City having a particularly dense industrial profile.

Wildfire

The City of Bell is most likely to be impacted by smoke generated by wildfires rather than the flames from wildfires. This is due to the jurisdiction's urban setting, being bounded on all sides by extensive development. This assessment is supported by historical data of wildfires in California. None of the 20,000 wildfires in California documented by CAL Fire, the National Park Service, the U.S. Forest Service, the Bureau of Land Management, and the U.S. Fish and Wildlife Service between 1878 and 2020, burned within the jurisdictional boundaries of the City of Bell. Bell is not located within a State Responsibility Area or Very High Fire Hazard Severity Zone, and its fire history consists of urban structure fires rather than wildland fires.

The absence of previous occurrences does not guarantee that the flames from wildfires will never reach the City of Bell, but such an event remains unlikely. At a minimum, a wildfire would have to burn across development in the neighboring communities to reach the City of Bell, and an event of this magnitude would likely require a coordinated response from multiple state and local agencies.

The adverse health effects of smoke can sometimes be difficult to recognize, as they are not always outwardly visible. However, for highly urban communities like the City of Bell, smoke is often the aspect of wildfire that has the greatest impact on community members. Wind in the Los Angeles area typically blows from the west, but events like Santa Ana winds can result in strong winds blowing from east. Because wildfire smoke can travel for hundreds of miles, the City of Bell can be affected by wildfires far afield from the community.

Wildfire smoke contains numerous harmful air pollutants, with particulate matter equal to or smaller than 2.5 micrometers in diameter (PM2.5) being a particular concern. Exposure to PM2.5 can result in both short-term and long-term health effects including eye and respiratory tract irritation, worsening asthma, and increased risk of stroke and heart attack. The association between PM2.5 and heart and lung disease has been well documented in scientific literature ⁴⁹. Populations that are particularly vulnerable to PM2.5 include the elderly, children, and those with pre-existing medical conditions. Medical and education facilities in the City of Bell should operate and maintain adequate HVAC systems which can filter out PM2.5 and other air pollutants. If the air quality is particularly severe, it may be appropriate for community leaders to move outdoor community events indoors or postpone them.

(1) People

Based on Public Survey #1, City of Bell residents are most concerned about Fire (Urban and Wildfires) and their impacts.

Urban Fire

All residents of the City of Bell are vulnerable to the effects of urban fire, but certain populations face heightened risks. Bell is a densely populated community, with residential neighborhoods characterized by older housing stock, multifamily dwellings, and closely spaced structures. These conditions increase the potential for rapid fire spread and can make evacuation more complex. Populations with limited mobility, such as older adults, young children, and individuals with disabilities, may have difficulty evacuating quickly in the event of a fire.

Wildfire

Wildfires can be deadly to populations and pose a risk to public health. However, in the planning area, it is more likely that the planning area will be impacted by poor air quality driven by wildfire smoke from near wildfires in the county or state. However, if a wildfire were to impact the planning area, the below section outlined possible impacts to the population.

49 "SMOKE READY CALIFORNIA | CALIFORNIA AIR RESOURCES BOARD." 2025. WW2.ARB.CA.GOV. CALIFORNIA AIR RESOURCES BOARD. 2025. [HTTPS://WW2.ARB.CA.GOV/SMOKEREADYCA](https://ww2.arb.ca.gov/smokereadyca).

Evacuation

Although the likelihood of a wildfire flame reaching the City of Bell is extremely low, it is important that community leaders remain vigilant. If a wildfire were to approach the City, evacuation orders may need to be issued. Bell officials should review evacuation routes inside Los Angeles County and be prepared to issue further information if warranted. However, some individuals may not have the resources or access to emergency information in order to evacuate. Unfortunately, in some cases, there may not be enough warning time for people to safely evacuate before the wildfire burns through. Populations that may have difficulty, may not have the resources, or may experience barriers to evacuation, include but are not limited to:

- Individuals with disabilities
- Individuals with limited English proficiency
- Individuals with limited or no access to the internet or emergency information
- Individuals with no access to personal transportation
- Older adults

Additionally, individuals and communities may not be aware of shelters to evacuate to or have friends or family to stay with during the evacuation. Furthermore, individuals attempting to evacuate may encounter traffic congestion which can prevent efficient movement away from the hazard. Traffic congestion may be the result of a surge of vehicles attempting to use roadways to evacuate or more routine causes such as roadway construction or traffic accidents which create obstacles.

People will likely need to evacuate during an urban fire impacting a business, building, or residential structure. Evacuating safely may mean a matter of minutes or seconds as fires can engulf the entire structure very quickly, depending on certain circumstances and conditions. It is important for people to evacuate as quickly as possible to get to safety. Certain populations may have a difficult time self-evacuating and are more at-risk. Populations that may have a difficult time evacuating include but are not limited to older adults, children, and individuals with physical disabilities, and individuals with limited mobility.

Wildfire Smoke and Poor Air Quality

Particulate matter from wildfire smoke can worsen air quality and cause adverse health effects to population health. Wildfire exposes communities to multiple environmental hazards from combustion due to the fire itself to air pollution from smoke and byproducts of combustion and ash. Approximately 90% of total particle mass emitted from wildfires consists of fine particles (i.e., PM_{2.5}). Impacts of poor air quality from wildfire smoke include the following:

- Eye and respiratory tract irritation
- Reduced lung function
- Bronchitis

- Exacerbation of asthma
- Heart failure
- Premature death
- Aggravation of pre-existing respiratory and cardiovascular disease
- Persistent cough, phlegm, wheezing, and difficulty breathing

The Air Quality Index (AQI) measures the severity of air quality and is broken down into six categories to communicate the level of health concern for public health, shown in **Table 41**.

Table 41. Air Quality Index

AIR QUALITY INDEX LEVELS OF HEALTH CONCERN	NUMERICAL VALUE	DESCRIPTION
Good (Green)	0 to 50	Air quality is considered satisfactory, and air pollution poses little or no risk.
Moderate (Yellow)	51 to 100	Air quality is acceptable; however, for some pollutants there may be a moderate health concern for a very small number of people who are unusually sensitive to air pollution.
Unhealthy for Sensitive Groups (Orange)	101 to 150	Members of sensitive groups may experience health effects. The general public is not likely to be affected.
Unhealthy (Red)	151 to 200	Everyone may begin to experience health effects; members of sensitive groups may experience more serious health effects.
Very Unhealthy (Light Purple)	201 to 300	Health alert, everyone may experience more serious health effects.
Hazardous (Dark Red)	301 to 500	Health warnings of emergency conditions. The entire population is more likely to be affected.

Source: AirNow.gov

The majority of healthy adults and children will recover quickly from wildfire smoke exposure and poor air quality and will not experience long-term health consequences. However, certain at-risk populations may be at greater risk of experiencing severe acute and chronic symptoms

which include individuals with asthma and other lung disease, children, older adults, individuals experiencing homelessness and outdoor workers⁵⁰.

(2) Structures and Systems

Urban Fire

Structures in Bell are vulnerable to urban fires due to the City's dense development pattern, prevalence of older housing stock, and concentration of industrial and commercial facilities in areas such as the Cheli District. Many residential buildings are closely spaced multifamily units or older single-family homes that may lack modern fire-resistant construction materials or sprinkler systems, increasing the likelihood of fire spread between structures. Industrial and commercial properties may store or process hazardous or combustible materials that intensify fire behavior when ignited, creating greater risks for adjacent properties. Together, these factors heighten the potential for localized but severe structural damage when fires occur within the city.

Critical Facilities

Based on historical data available through news articles on previous urban fire incidents, there have been no urban fires directly impacting critical facilities in the city. However, if fires were to ignite at any of the critical facilities within the City, disruptions and damage would cause significant impacts. Additionally, depending on the severity of the urban fire incident, critical facilities and essential services could be overwhelmed and stressed. The potential impacts of urban fires on community lifelines are listed in **Table 42**.

Table 42. Potential Vulnerabilities of Lifelines to Urban Fires

LIFELINE	IMPACT TYPE	DESCRIPTION
Communications		Fires can damage utility infrastructure, leading to disruptions in electricity, gas, water supply, and telecommunications. Restoring these services is critical for recovery and normalcy.
Food, Shelter, & Housing		Most fires occur inside private residences, and they can be particularly deadly if they happen during the night. An urban fire may leave residents without appropriate shelter for extended periods of time.

50 "HEALTH EFFECTS OF WILDFIRE SMOKE." N.D. AIR NOW. US EPA. ACCESSED 2025. [HTTPS://WWW.AIRNOW.GOV/SITES/DEFAULT/FILES/2021-05/WILDFIRE-SMOKE-GUIDE-REVISED-2019-CHAPTERS-1-3.PDF](https://www.airnow.gov/sites/default/files/2021-05/wildfire-smoke-guide-revised-2019-chapters-1-3.pdf).

LIFELINE	IMPACT TYPE	DESCRIPTION
Energy		Fires can damage utility infrastructure, leading to disruptions in electricity, gas, water supply, and telecommunications. Restoring these services is critical for recovery and normalcy.
Hazardous Materials		Many hazardous materials are flammable, and ignition of these materials can drastically complicate firefighting efforts. Fires involving hazardous materials or approaching sites that contain these materials may require evacuations.
Health & Medical		Fires can result in injuries from burns and smoke inhalation, necessitating emergency medical response and treatment. Healthcare facilities must be prepared for the sudden influx of patients during major fire incidents.
Safety & Security		Fires pose immediate threats to life and property. Emergency services, including fire departments and law enforcement, are crucial for firefighting, evacuation, and maintaining public order. Ensuring the safety of residents and responders is the top priority.
Transportation		Most transportation infrastructure is relatively resistant to fires, although a prolonged fire will eventually weaken most materials, potentially leading to failures.
Water & Wastewater Systems		Underground lifelines like most water and wastewater infrastructure are relatively resistant to urban fires. The Los Angeles River could be polluted by runoff used to fight urban fires in the area.

Wildfire

There are no previous occurrences that have occurred in the City of Bell and therefore there is no data on property damage from wildfires. However, wildfires can completely burn properties, including homes leaving many without housing. According to a new study, the amount of property in the United States at risk from a 5% or greater chance of being impacted by a wildfire

over the course of a 30-year mortgage is expected to more than double by 2050⁵¹. Another study found that wildfires are predicated damage upwards of 22 billion dollars' worth of property by 2049, especially in the Western United States⁵². Secondary impacts from wildfires such as poor air quality from wildfire smoke is more likely to occur than a wildfire itself in the City of Bell. Buildings may experience poor quality and wildfire smoke seeping into the indoor space as well as may consider HEPA air purifiers for buildings that may not have a robust HVAC system. Additionally, many homes may not have adequate HVAC systems and may experience negative side effects from exposure to poor air quality and wildfire smoke.

Critical Facilities

There are no previous occurrences that have occurred in the City of Bell and therefore there is no data on damage to critical facilities from wildfires. Secondary impacts from wildfires such as poor air quality from wildfire smoke is more likely to occur than a wildfire itself. Critical facilities may need to put protections in place to reduce exposure to poor air quality and wildfire smoke to continue services and operations. Additionally, the City may consider opening clean air shelters for individuals or families that may not have access to clean indoor air, especially at-risk populations that might experience chronic health conditions when exposed to poor air quality. The potential impacts of wildfires on community lifelines are listed in **Table 43**.

Table 43. Potential Vulnerabilities of Lifelines to Wildfire

LIFELINE	IMPACT TYPE	DESCRIPTION
Communications		Fires can damage utility infrastructure, leading to disruptions in electricity, gas, water supply, and telecommunications. Restoring these services is critical for recovery and normalcy.
Food, Shelter, & Housing		Wildfires can destroy homes and buildings, leading to displacement and the need for temporary housing. The rebuilding process can be extensive and resource intensive.
Energy		Fires can damage utility infrastructure, leading to disruptions in electricity, gas, water supply, and telecommunications. Restoring these services is critical for recovery and normalcy.

51 MANDEL, KYLA. 2023. "WILDFIRES WILL PUT \$11 BILLION WORTH OF U.S. PROPERTY AT RISK EVERY YEAR BY 205." TIME. TIME. AUGUST 17, 2023. [HTTPS://TIME.COM/6305819/CLIMATE-CHANGE-WILDFIRES-PROPERTY-VALUE-AT-RISK](https://time.com/6305819/climate-change-wildfires-property-value-at-risk).

52 MANDEL, KYLA. 2023. "WILDFIRES WILL PUT \$11 BILLION WORTH OF U.S. PROPERTY AT RISK EVERY YEAR BY 205." TIME. TIME. AUGUST 17, 2023. [HTTPS://TIME.COM/6305819/CLIMATE-CHANGE-WILDFIRES-PROPERTY-VALUE-AT-RISK](https://time.com/6305819/climate-change-wildfires-property-value-at-risk).

LIFELINE	IMPACT TYPE	DESCRIPTION
Hazardous Materials		Many hazardous materials are flammable, and ignition of these materials can drastically complicate firefighting efforts. Fires involving hazardous materials or approaching sites that contain these materials may require evacuations.
Health & Medical		Smoke and air quality issues from wildfires can lead to respiratory problems and exacerbate chronic health conditions. There's also a risk of burns and other injuries directly caused by fires. Healthcare facilities must be prepared for an influx of patients and potential relocation if in the path of a fire.
Safety & Security		Wildfires pose immediate threats to life and property, requiring significant emergency response efforts. Evacuations, rescue operations, and law enforcement to maintain order and prevent looting in evacuated areas are critical.
Transportation		Most transportation infrastructure is relatively resistant to fires, although a prolonged fire will eventually weaken most materials, potentially leading to failures.
Water & Wastewater Systems		Underground lifelines like most water and wastewater infrastructure are relatively resistant to wildfires. The Los Angeles River could be polluted by runoff used to fight fires in the area.

(3) Natural, Cultural, and Historical Resources

Urban Fire

Urban fires can cause devastating impacts to cultural and historic properties due to structural damage from fires. Impacts can range from structural damage to destroying historical documents and artifacts. Recently, the City developed an Urban Forest Management Plan which sets a strategic plan to increase tree canopy in the City. While increased tree canopy can reduce risk to hazard impacts, it can increase the risk to urban fires due to increased vegetation.

Wildfire

Since the wildfire severity zone is outside of City boundaries, it is unlikely that wildfires will cause a significant impact to cultural and historic properties.

(4) Risk Analysis

Urban fires are the primary fire hazard for Bell, as these events are highly likely. Dense blocks of predominantly pre-1980 housing, mixed multifamily and small commercial occupancies, and industrial uses in the Cheli District create frequent ignition opportunities and the potential for rapid fire growth, toxic smoke, and multi-structure exposure. Even when contained within hours, structure fires can cause injuries, displace households, interrupt lifelines (power/communications), and generate costly property losses, especially in older buildings that predate modern fire-resistance, detection, and suppression features.

By contrast, direct wildfire flame impacts within Bell are unlikely because the City lies outside state-mapped Fire Hazard Severity Zones and lacks contiguous wildland fuels. However, regional wildfires can still affect Bell through smoke. Smoke can degrade air quality, stress sensitive populations (older adults, children, and those with respiratory or cardiac conditions), and disrupt indoor operations where filtration is inadequate. Overall, Bell's fire risk profile is driven by urban fire with wildfire risk expressed primarily as intermittent smoke episodes requiring air-quality readiness and continuity measures. Additionally, increased tree canopy in the City, noted in the City's recent Urban Forest Management Plan, can increase the risk to urban fires due to increased vegetation.

Overall, the combined risk of urban and wildfires for Bell is considered **Moderate**. This is primarily due to the frequency and lack of advanced warning time for urban fires combined with the overall risk to posed to Bell residents by wildfire smoke.

I) FLOODING

i) Hazard Profile

Flooding occurs when water rises and overflows onto normally dry land, usually because the capacity of a river, stream, storm drain, or other channel is exceeded. Floodplains are the low-lying lands adjacent to these water bodies that are naturally subject to inundation. While flooding is a natural process that shapes landscapes, it becomes hazardous when people, property, and infrastructure are located in harm's way.

Floods can result from a range of causes, including prolonged or intense rainfall, rapid snowmelt, or the failure of flood-control infrastructure such as levees, dams, or storm drains. In coastal areas, tidal influences or storm surge can also play a role. Regardless of the cause, flooding is among the most frequent and costly disasters in the United States, responsible for significant losses of life and property each year.

The impacts of flooding extend well beyond standing water. Fast-moving floodwaters can erode streambanks, roadways, and building foundations. Saturated soils may lose stability, leading to ground collapse or slope failures. Floodwaters also carry debris, sediment, and pollutants, which can be deposited across wide areas, complicating cleanup and recovery. For highly urban areas like the City of Bell, the primary risk of flooding comes in the form of flash flooding, which is typically the result of heavy rainfall exceeding the local drainage capacity.

(1) Duration

Flooding in the City of Bell is generally short in duration due to the presence of engineered flood control systems, including the Los Angeles River and associated storm drains, which are designed to convey runoff quickly out of the City. Most localized flood events consist of hours to, at most, a few days of disruption, with ponding typically occurring at low-lying intersections, underpasses, and areas where storm drains are overwhelmed. Regional flooding from extreme storm events could extend impacts slightly longer, but prolonged inundation is unlikely because the City lacks large natural floodplains or areas where water can remain impounded. While the physical presence of water is usually temporary. Secondary impacts, such as debris cleanup, traffic interruptions, and infrastructure repairs, may extend for days or weeks after the initial event.

(2) Seasonality

Flooding in Bell is most likely to occur during the winter and early spring months (November through March) when Pacific storm systems bring heavy rainfall to Southern California. The City is not subject to snowmelt flooding because of its low elevation and distance from mountain watersheds. Summer and fall flooding are rare, but tropical remnants or monsoonal storms can occasionally bring intense downpours that may overwhelm drainage systems.

(3) Speed of Onset

Floods can be either slow-rise or rapid onset floods. With the slow rise floods, there is often warning preceding water rise by hours or days before dangerous conditions present themselves. Slow rise floods that are expected to enter populated areas generally allow for some time to initiate evacuation and sand bagging efforts. Flooding that occurs rapidly conversely are water events that present with extremely limited warning times and a limited ability to take response actions until flooding has already begun to occur.

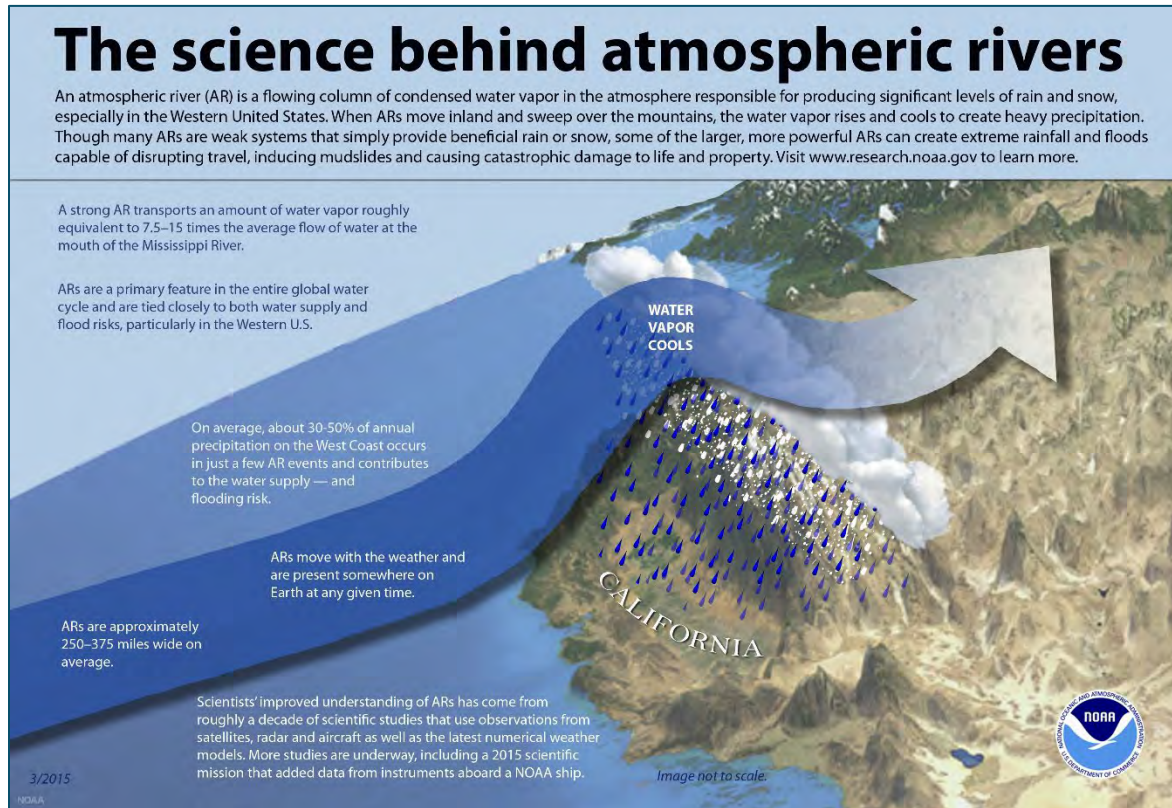
Flooding may take on different forms:

- **Flash Flooding:** flash flooding is typically characterized by a rapid rise, short duration, and large volume of water in a localized area. Heavy rainfall in areas that have limited drainage capacities often contributes to flash flooding conditions. These flooding events frequently occur with limited notice requiring immediate evacuation or rapid response efforts such as sand bagging. Flash flooding may occur with fast moving water creating added hazardous conditions.
- **Riverine Flooding:** Riverine flooding is usually caused by prolonged rainfall or rainfall combined with heavy snowmelt. When soil is already saturated, the ability for the ground to absorb water is minimized. In a riverine flood, the water way exceeds channel capacity and extends into areas outside of the channel, often in developed communities. In California, riverine flooding is most likely to occur from November through April. The duration of riverine floods may vary from a period of hours to weeks.
- **Infrastructure Failure:** failures of dams or levees presents a serious flooding concern for areas downstream from the compromised structure. This situation may result in a catastrophic flood with limited warning time and widespread areas affected. More information on this can be found in the Dam and Levee Failure section.
- **Coastal Flooding:** coastal flooding can occur in multiple areas along the California coastline. Flooding may result from intense storms coming from the Pacific Ocean that generate elevated water levels or storm surge. The size, duration, winds generated, and intensity of the storm will influence the effect the waves will have on the shoreline. Periods of high tide can aggravate the conditions allowing greater wave impingement into coastal areas. Bell is located inland and is not directly exposed to coastal flooding.

(4) Atmospheric River

Bell is within a part of California that is subject to the effects of a phenomenon referred to as “atmospheric rivers”. These weather events consist of long, narrow regions in the atmosphere transporting tremendous amounts of water vapor from the tropics, shown in **Figure 42**. These weather regions behave like rivers in the sky. These events can produce heavy amounts of precipitation creating extensive damage. However, these events may present as weaker systems that produce precipitation that is enough to be beneficial for the local water supply.

Figure 42: The Science Behind Atmospheric Rivers⁵³



Source: NOAA

(5) Location

Flooding in Bell can occur throughout the City due to its flat topography, dense development, and extensive paved surfaces. During periods of heavy rainfall, stormwater runs off quickly and can overwhelm the storm drain system, leading to localized flooding. Vulnerable areas include low-lying residential streets, intersections, and underpasses where water can accumulate until drainage capacity is restored. Industrial zones with large expanses of impervious surfaces are also susceptible to rapid runoff and temporary ponding. These localized flood events are not confined to a single corridor but can occur across the planning area with little warning, creating hazardous driving conditions, disrupting access for emergency services, and affecting both homes and businesses. The Los Angeles River runs through the center of Bell in a fully channelized and leveed flood-control system. While this system prevents widespread floodplain inundation, Bell remains vulnerable to residual risk if the river's channel or levees were ever overtopped or failed.

⁵³ NOAA. 2023. "WHAT ARE ATMOSPHERIC RIVERS? | NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION." NOAA.GOV. NOAA. MARCH 31, 2023. [HTTPS://WWW.NOAA.GOV/STORIES/WHAT-ARE-ATMOSPHERIC-RIVERS](https://www.noaa.gov/stories/what-are-atmospheric-rivers).

ii) Magnitude

Several factors determine the severity of floods, including rainfall intensity and duration. A large amount of rainfall over a short time span can result in flash flood conditions. A sudden thunderstorm or heavy rain, dam failure, or sudden spills can cause flash flooding. The National Weather Service's definition of a flash flood is a flood occurring in a watershed where the time of travel of the peak of flow from one end of the watershed to the other is less than six hours. Flooding is caused by an overflow of water onto normally dry land. The inundation of a normally dry area is caused by rising water in an existing waterway, such as a river, stream, or drainage ditch.

The National Weather Service (NWS) provides flood products to communicate and alert the public and impacted communities when there is severe weather that can cause significant damage. The list of NWS flood products is described **Table 44**.

Table 44. National Weather Service Flood Products

FLOOD-RELATED PRODUCT	DESCRIPTION
Flash Flood Warning (Red)	Issued when a flash flood is imminent or occurring. If you are in a flood prone area move immediately to high ground. A flash flood is a sudden violent flood that can take from minutes to hours to develop. It is even possible to experience a flash flood in areas not immediately receiving rain.
Flood Warning (Green)	Issued when hazardous weather event is imminent or already happening. A Flood Warning is issued when flooding is imminent or occurring.
Flood Watch (Dark Blue)	Issued when conditions are favorable for a specific hazardous weather event to occur. A Flood Watch is issued when conditions are favorable for flooding. It does not mean flooding will occur, but it is possible.
Flood Advisory (Light Blue)	Issued when a specific weather event that is forecast to occur may become a nuisance. A Flood Advisory is issued when flooding is not expected to be bad enough to issue a warning. However, it may cause significant inconvenience, and if caution is not exercised, it could lead to situations that may threaten life and/or property.

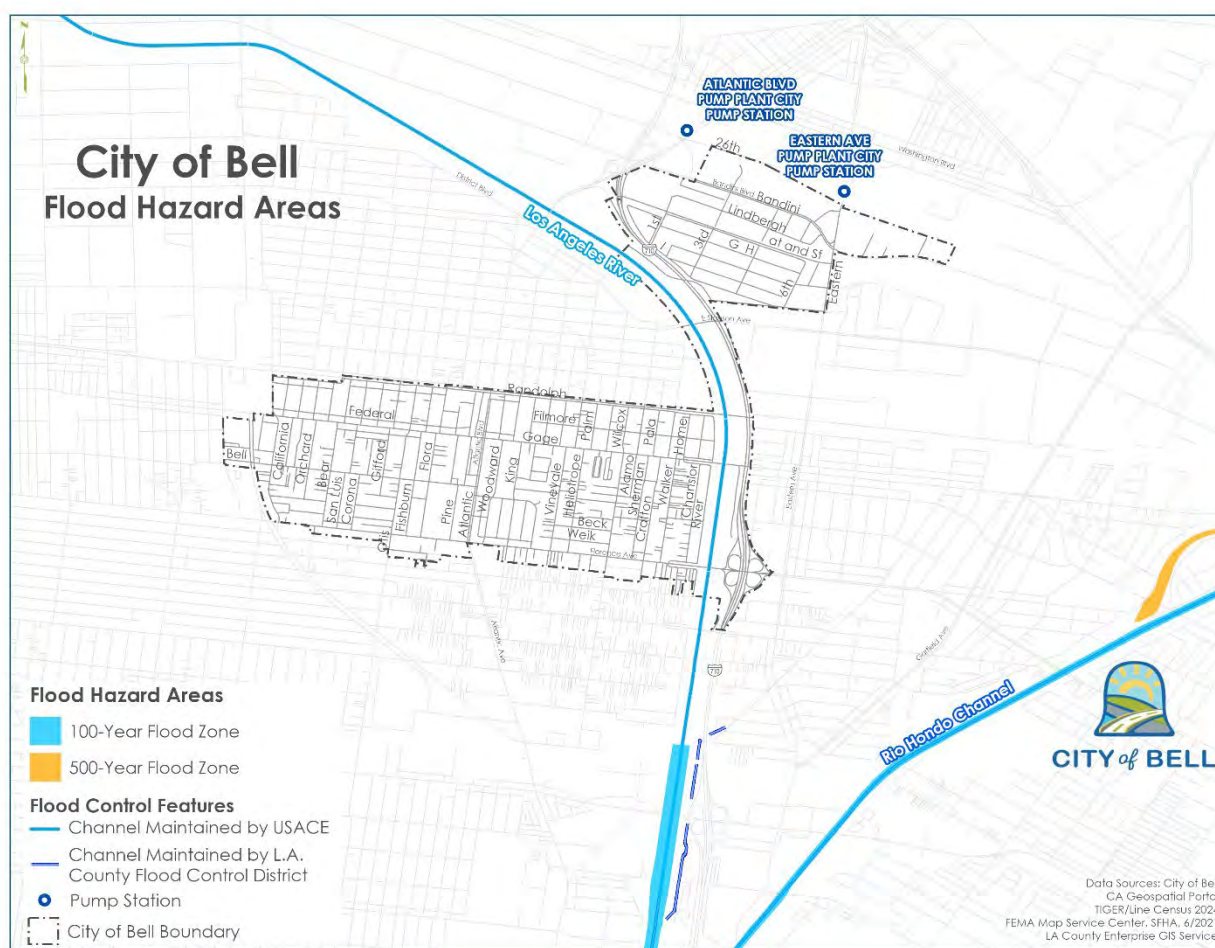
Source: National Weather Service (NWS)

Flood Hazard Area

FEMA administers the National Flood Insurance Program (NFIP), which provides insurance coverage, establishes floodplain management standards, and produces Flood Insurance Rate Maps (FIRMs). In Bell, the current FIRM (Panel 06037C1810F, effective September 26, 2008)

shows no mapped 100-year or 500-year floodplains outside of the Los Angeles River channel. As a result, there are no homes, businesses, or critical facilities in Bell that are within 100-year or 500-year the magnitude of flood hazards in Bell is generally limited to short-duration, localized street flooding that can inundate intersections and underpasses with several inches to a foot of water. While catastrophic flooding from the Los Angeles River is unlikely under current conditions, a channel failure could produce widespread, high-velocity flooding with severe impacts to structures, infrastructure, and public safety. Failures of the levees along the Los Angeles River present the most extensive flood risk to Bell, and the potential inundation area is shown in **Figure 43**.

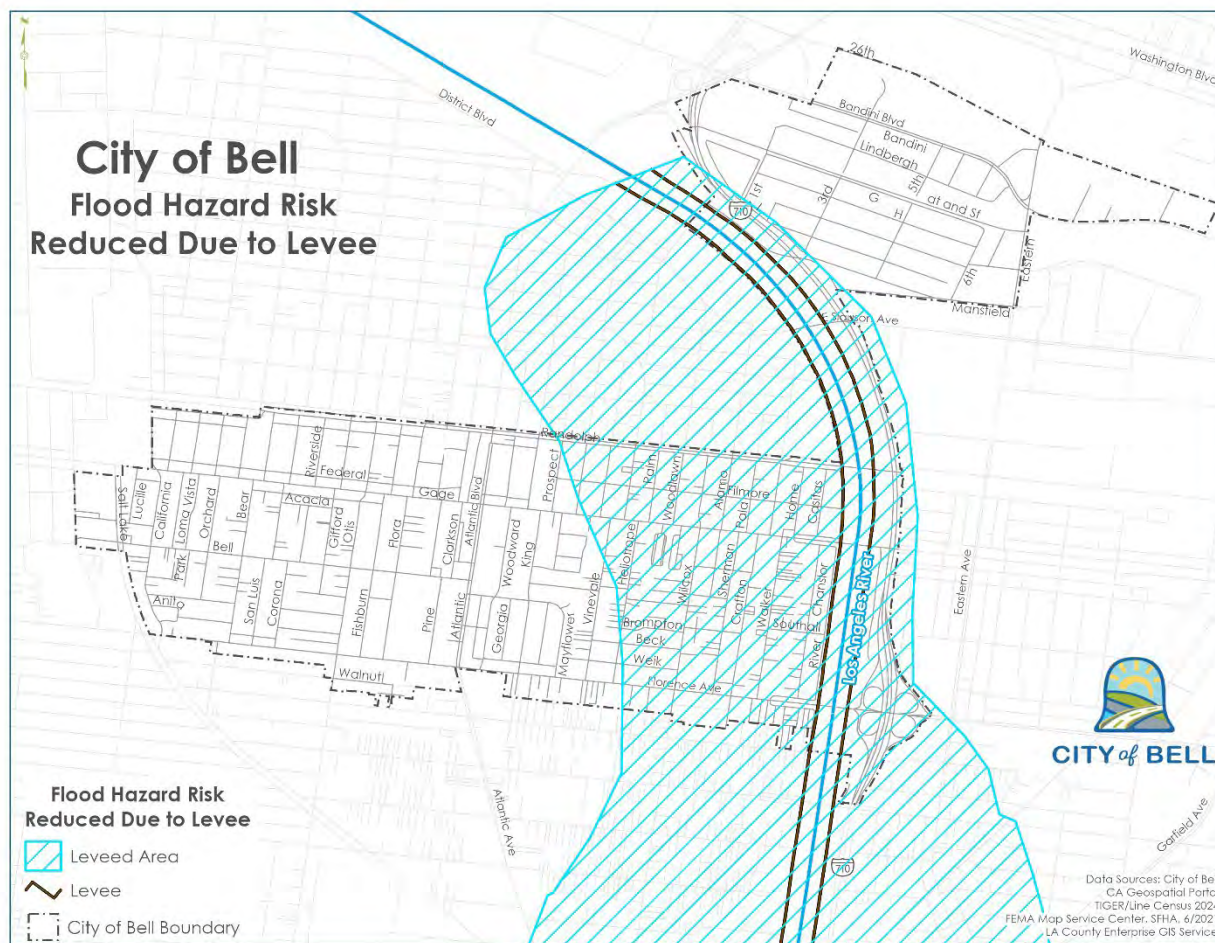
Figure 43. Flood Hazard Areas Near The City of Bell



Flash flooding in Bell is less intense than in hillside or canyon communities but can still create dangerous conditions. During periods of heavy rainfall, the City's highly impervious surface cover generates rapid runoff that overwhelms the storm drain system. These events typically produce shallow but disruptive flooding in residential streets, low-lying intersections, and underpasses. The magnitude of flash flooding is measured less by depth than by its ability to

quickly render roads impassable, disrupt emergency response, and pose risks to pedestrians and drivers who may underestimate the speed and depth of accumulating water.

Figure 44. Flood Hazard Risk Reduced Due to Levee



The area assessed as Zone X by FEMA is largely to the west of the Los Angeles River, showing that a failure along the west slope of the system would pose a broader risk than a failure along the east slope. The western edge of the area protected by the levee system is roughly along Vinevale Avenue, and most homes and businesses east of Vinevale would face an increased risk of flooding if the west slope of the Los Angeles River was breached. If the eastern slope fails, the area where flooding risk would no longer be reduced by the failure includes utility lines and Interstate 710, shown in **Figure 44**. Disruption and damages to these assets could affect both the City of Bell and the broader area.

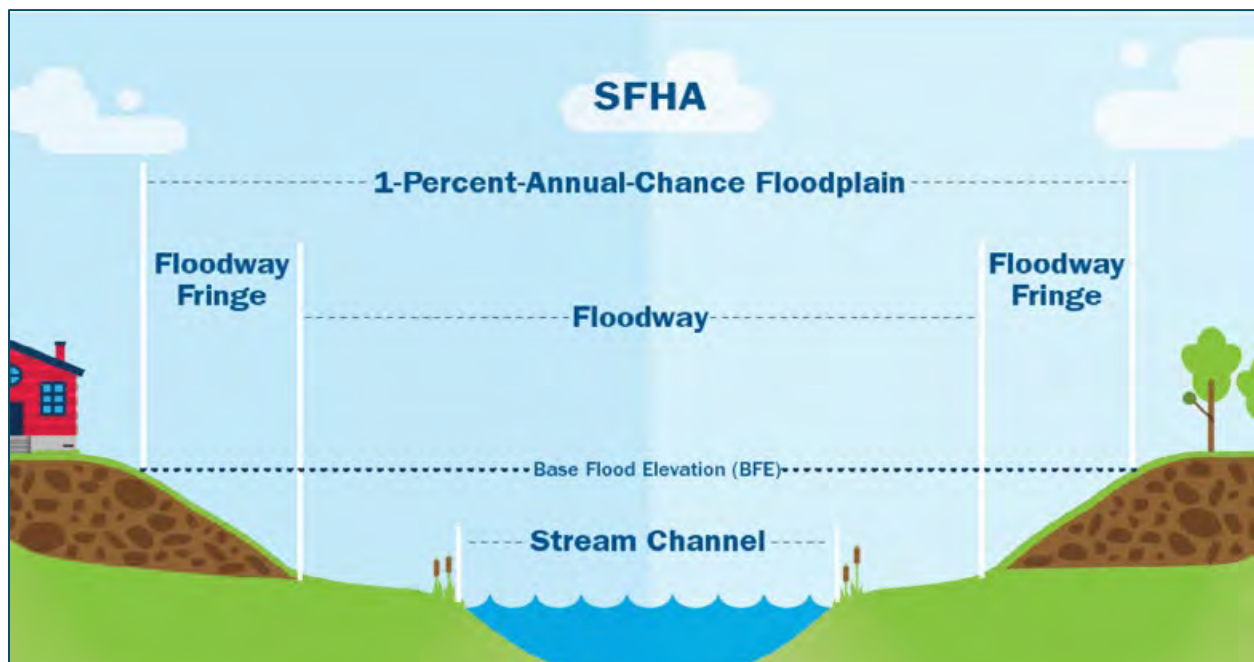
iii) Extent

Flood hazards are commonly described in terms of the Special Flood Hazard Area (SFHA), which represents the extent of the 1-percent annual chance flood, often referred to as the “100-year

flood.” Within the SFHA, FEMA distinguishes between the floodway and the floodway fringe. The floodway is the channel of a river or stream and the adjacent land areas that must remain open to carry floodwaters during a base flood event without causing water levels to rise significantly. On either side of the floodway lies the floodway fringe, where floodwaters spread more shallowly across the land. Development may be permitted in these areas only if it is elevated above the Base Flood Elevation (BFE), which is the computed height floodwaters are expected to reach during the 100-year event.

Figure 45 illustrates this relationship, showing the stream channel at the center, the regulatory floodway that conveys the majority of floodwater, and the adjoining floodway fringes that make up the rest of the 100-year floodplain. Together, these elements form the SFHA, which serves as the regulatory basis for FEMA’s Flood Insurance Rate Maps and for floodplain management regulations.

Figure 45. Components of the Special Flood Hazard Area



Source: FEMA

The extent of flooding in Bell is generally limited by the City’s engineered infrastructure and flat topography. There is no SFHA in Bell as the Los Angeles River is engineered to keep 100-year events safely contained. However, the risk of a levee failure cannot be completely ruled out, and if this were to occur, many structures, particularly along the western edge of the Los Angeles River, would face a significant threat from flooding.

Flash flooding in Bell is also constrained by the absence of steep watersheds, which reduces the likelihood of deep, fast-moving flows. Instead, flash flooding manifests as urban flooding during intense rainfall events, where rapid runoff overwhelms the storm drain system. These events

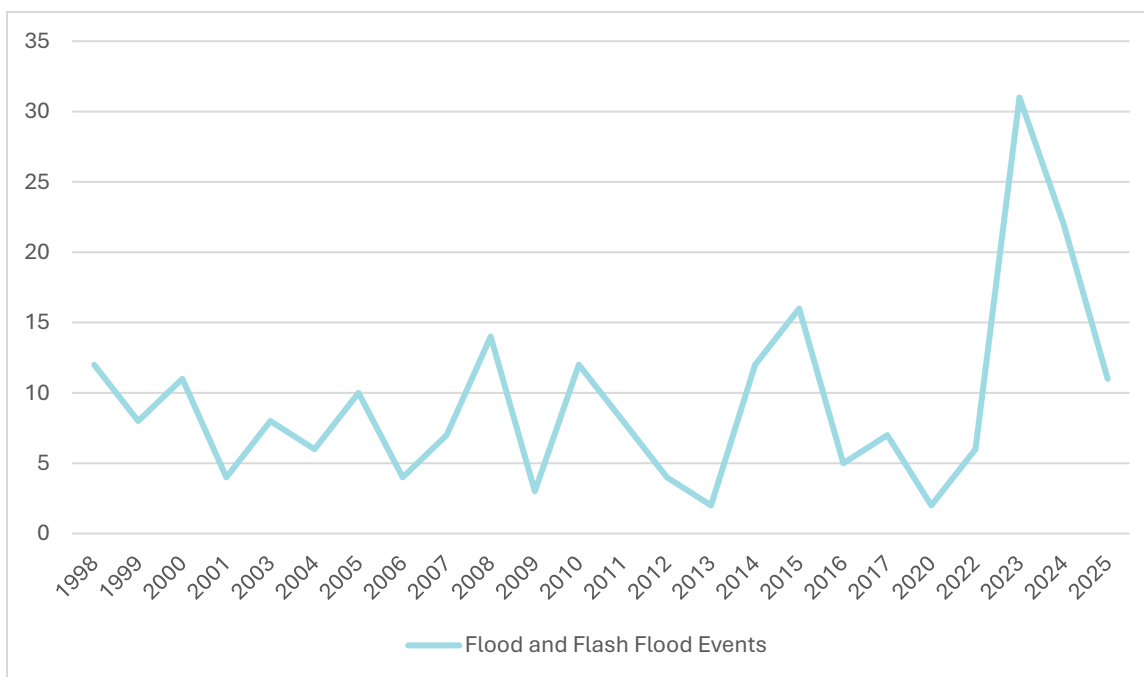
usually cover small geographic areas but can affect multiple neighborhoods simultaneously, depending on rainfall intensity and drain capacity. While the depth is usually shallow, the extent can still be disruptive, as widespread street ponding can impede mobility across the City and strain emergency services.

iv) Past Occurrences

The NCEI Storm Events Database provides a record of flooding and flash flooding in Los Angeles County since 1998. While there are no specific instances of flooding or flash flooding occurring in Bell, examining past flood and flash flood events across Los Angeles County remains highly relevant for understanding Bell's hazard profile. Bell shares the same regional weather systems, watershed characteristics, and stormwater management infrastructure that influence flooding elsewhere in the county. Major storm events that overwhelm drainage systems or trigger widespread flash flooding in surrounding communities are likely to create similar conditions in Bell, given its flat topography and urbanized landscape. Using countywide data therefore provides a realistic picture of the types, frequency, and severity of flood hazards that can affect Bell, even if Bell itself was not singled out in event reporting.

Since 1998, more than 200 flood and flash flood events have been documented in the county. These events range from countywide flooding during major Pacific storms to more localized flash floods produced by intense thunderstorms and short-duration heavy rain. The most flood-active years on record include 1998, 2005, 2010, 2014–2015, and 2023–2024, when the county experienced multiple flood or flash flood events in a single year. The 1998 El Niño season, for example, produced heavy rainfall that overwhelmed storm drain systems across the basin, leading to widespread street flooding. More recently, the winters of 2023 and 2024 produced the highest number of flash flood events in the county since records began, reflecting the increasing intensity of atmospheric river storms that brought both prolonged rainfall and short, intense bursts of precipitation. The following chart plots, shown in **Figure 46**, flooding and flash flooding events reported in Los Angeles County between 1998 and 2025.

Figure 46. NCEI Flood Events In Los Angeles County 1998-2025



Source: NCEI

Flood and flash flood events in Los Angeles County have caused a combined \$4.5 million in recorded damages, including property and crop losses, and have resulted in seven deaths and four injuries since 1998. While the data are not specific to Bell, they illustrate the potential severity of flood hazards in the Los Angeles Basin. The damages reflect localized urban flooding that disrupts transportation and affects homes and businesses, as well as regional agricultural and infrastructure impacts.

Frequency

According to the NCEI Storm Events Database, Los Angeles County experienced 225 flood and flash flood events over the past 28 years, averaging about eight events per year. However, none of these reported events specifically list the City of Bell as an affected location.

v)Future Probability

The NCEI Storm Events Database reports 225 flood and flash flood events in Los Angeles County over the last 28 years, for an average of approximately eight events per year. However, none of the reported instances of flooding identify the City of Bell as a location that was affected. Therefore, historical records suggest that flooding events in Bell are extremely rare, despite the fact that multiple events occur in nearby communities every year. However, there are no documented instances of major flooding in the City of Bell, which suggests that flooding events within the community are **Unlikely**. FEMA's Flood Insurance Rate Maps also show no designated 100-year or 500-year floodplains within Bell outside of the Los Angeles River channel.

At the county scale, flooding is a common hazard. Since 1998, Los Angeles County has averaged about eight flood or flash flood events per year, with frequency increasing during the 2020s due to a series of atmospheric river storms. Future flooding should be considered an unlikely yet credible hazard for the City of Bell, especially in the form of short-duration flash flooding and street ponding during intense storms. Interestingly, the Fourth California Climate Change Assessment suggests that variations in rainfall will likely increase more than overall rainfall totals. In practice, this means more intense rainfalls separated by longer stretches of below average rainfall. Flash flooding, in particular, is likely to increase if this projection is accurate. Sudden cloudbursts can overwhelm local drainage infrastructure and create hazardous conditions for residents.

vi) Secondary Hazards

There are several secondary hazards that pose a risk to the planning area resulting from flooding which includes water supply contamination, disease, landslide and erosion, infrastructure damage, and displacement of people. **Table 45** describes these hazards in more detail.

Table 45. Secondary Hazards from Flooding Events in The City of Bell

SECONDARY HAZARD	DESCRIPTION
Water Supply Contamination	Floodwater often carries pollutants and sewage, leading to contamination of drinking water sources. In Bell, where the infrastructure might be closely interconnected, floodwaters can easily infiltrate water supply systems, posing health risks.
Disease	As flood waters spreads, it can carry disease. This can lead to outbreaks of deadly diseases from unclean water sources like typhoid, malaria, hepatitis A, and cholera.
Landslide & Erosion	Saturated soil can lead to landslides and erosion, especially in areas with uneven terrain near Bell. This can cause additional damage to property and infrastructure.
Infrastructure Damage	Flooding can weaken or destroy roads, bridges, and other infrastructure elements. In Bell, this might lead to disruptions in transportation and utilities, affecting daily life and the local economy.
Displacement of People	Flooding can render homes uninhabitable, leading to temporary or permanent displacement of residents. In densely populated areas, this can create significant challenges in terms of providing shelter and aid.

(1) The National Flood Insurance Program (NFIP)

The National Flood Insurance Program (NFIP) is managed by FEMA and provides flood insurance coverage because most standard homeowners' insurance policies do not cover flood damage. NFIP flood insurance is a separate policy that can cover both buildings and their contents, and it is available to property owners, renters, and businesses in participating communities.

The NFIP operates through a partnership with local communities, which must adopt and enforce floodplain management regulations that meet or exceed FEMA's minimum standards. These regulations are designed to reduce flood risk and support long-term mitigation. To guide this work, FEMA produces several regulatory mapping products:

- **Flood Insurance Rate Maps (FIRMs):** Official community maps that identify Special Flood Hazard Areas and risk premium zones.
- **Flood Insurance Study (FIS) Reports:** Detailed reports that provide flood elevation data, flood profiles, and summary tables.
- **FIRM Databases:** GIS-based versions of FIRMs that include most of the quantitative data from the FIS.

To participate in the NFIP, a community must adopt and enforce regulations that align with FEMA's minimum floodplain management requirements, which cover land use and development criteria, general compliance standards, and specific floodplain management provisions.

The City of Bell participates in the NFIP and is identified as community ID 060101 in FEMA's Community Status Book. Bell is listed as a participating community with a current effective Flood Insurance Rate Map (FIRM) date of September 26, 2008. The City is designated as having no mapped Special Flood Hazard Areas (NSFHA), but participation in the NFIP ensures that residents and businesses remain eligible to purchase federally backed flood insurance and that the City is committed to enforcing minimum floodplain management standards.

Severe Repetitive Loss and Repetitive Loss

According to data provided by the Federal Insurance and Mitigation Administration, there are no Repetitive Loss (RL) or Severe Repetitive Loss (SRL) properties within the City of Bell.

Substantial Damage and Substantial Improvement

The State of California issued Repetitive Flood Damage (Substantial Damage), which is a local technical code amendments, (Part 2 building, Part 10 existing building, Part 2.5 residential) and floodplain management ordinance in August 2020. The City of Bell does not maintain an independent floodplain manager and is reliant on the Los Angeles County Floodplain Manager for assistance in all state and federal NFIP compliance requirements.

vii) Vulnerability & Impact Assessment

Bell is characterized by flat terrain, with elevations ranging from approximately 120 to 150 feet above sea level. The Los Angeles River passes through the City, separating the main western portion of Bell from the Cheli Industrial District to the northeast. The river itself is heavily engineered to rapidly convey stormwater and generally presents low risk of overtopping. Greater concern arises in low-lying interior neighborhoods, where limited drainage capacity and extensive impervious surfaces can cause water to pond during intense storms. Additionally, the high degree of urbanization has resulted in extensive impervious surfaces, such as roads, parking lots, and buildings, which reduce natural water infiltration and increase surface runoff. When local storm drains and pump stations are overwhelmed, these areas are more susceptible to shallow flooding, even when the river channel remains contained.

(1) People

Flooding in Bell, while typically localized, can still disproportionately affect socially vulnerable populations. About 22.8% of residents live below the poverty line, and low-income households may find it more difficult to pay for home repairs, replace damaged belongings, or manage temporary relocations after flood events. Limited financial resources can also make it harder to access insurance or invest in protective measures.

Older adults, who make up 11.2% of the population, may face challenges during service interruptions that accompany flooding, such as power outages or temporary road closures. Health conditions or limited mobility can make it harder for some seniors to cope with damp or unhealthy indoor environments if water damage occurs. Residents with disabilities may also experience greater difficulty managing these kinds of disruptions, particularly if communications about recovery resources are not fully accessible.

Language is another important factor. Bell is a majority Latino community, and over 86% of households speak a language other than English at home. Language barriers can make it harder for some residents to receive or act on important updates, such as street closures, repair schedules, or safety notices during and after heavy storms.

Finally, people experiencing homelessness are at heightened risk because they lack secure shelter. Encampments in low-lying or poorly drained areas may be directly exposed to standing water during and after intense rain events.

(2) Structures and Systems

In Bell, most homes and businesses are potentially vulnerable to localized flooding because heavy rainfall can quickly overwhelm the City's drainage system. Even shallow flooding can damage building materials such as flooring, insulation, and furnishings, and basement flooding can render residences temporarily uninhabitable. While FEMA maps show no structures in Special Flood Hazard Areas, portions of the City are classified as "areas protected by levee,"

meaning a failure of the Los Angeles River's flood-control system could expose adjacent neighborhoods and industrial properties to significant damage.

The City's extensive pavement and limited open space exacerbate these risks. Stormwater often accumulates on neighborhood streets and commercial corridors, creating swift-moving runoff and temporary ponding that disrupts access to homes and businesses. Industrial areas in Bell are also vulnerable, as flooding can damage equipment, interrupt operations, and in severe cases release hazardous substances. Although major flood events have not been documented in Bell, the combination of dense development and aging stormwater infrastructure makes localized flooding a recurring concern for residents and businesses.

Due to its high level of development, the City of Bell has a large concentration of impervious surfaces that collect stormwater and concentrate runoff in unnatural channels. During periods of heavy rain, streets can become swift-moving rivers, basements can flood, and storm drains may back up with debris, creating localized flooding. In floodplain areas, development or fill can displace water, raising flood levels and pushing flows into areas not historically inundated. Even a few inches of displacement can mean the difference between minimal impacts and significant damage to homes and businesses. In highly urbanized communities like Bell, additional paving and redevelopment can increase both the volume and velocity of runoff unless stormwater systems are carefully designed and maintained. Since Bell is already developed, with most future growth expected through redevelopment of existing parcels, it is unlikely that new construction will substantially expand flood risk, but proper stormwater management remains essential.

Critical Facilities

Most critical facilities in Bell are designed to withstand minor flooding, which represents the type of event the City is most likely to experience. However, in the rare event of a major flood, these facilities remain vulnerable, and essential services could be disrupted. Flooding has the potential to cause power, water, and gas outages; disrupt transportation routes and supply chains; overwhelm stormwater systems; damage sensitive equipment; and trigger environmental problems such as erosion and contamination.

Bell's road system is managed through a combination of City and county responsibilities, with major thoroughfares such as Gage Avenue, Florence Avenue, Atlantic Boulevard, and Eastern Avenue serving as lifelines for residents and businesses. Local drainage may degrade overtime, particularly at low-lying intersections where stormwater flows into culverts or storm sewers. Blockages or inadequate maintenance can contribute to temporary flooding in these areas.

While Bell has no critical facilities located within FEMA's mapped flood hazard area, localized flooding still poses risks to the City's utility and service networks. While such events would be rare for Bell, floodwaters can infiltrate sewage lines, leading to overflows and sanitary hazards, and may also compromise water distribution systems. Electrical infrastructure, including

substations and overhead lines, is vulnerable to flood damage and debris, which can cause power outages that cascade across other systems, including communications and traffic control.

Healthcare in Bell is supported by local clinics and medical offices. Flooding can disrupt access to these services by impeding transportation routes or causing power and water service interruptions. Educational facilities such as Bell High School located within City limits may also face closures, property damage, and disruptions to instruction. Flooding in these settings can damage facilities and materials, displace students and staff, and delay recovery.

Table 46 describes potential impacts of flooding and flash flooding on the eight community lifelines described by FEMA.

Table 46. Potential Impacts of Flooding on Community Lifelines

LIFELINES	IMPACT TYPE	DESCRIPTION
Communications		Communication networks may be disrupted, which can hinder the coordination of rescue and relief efforts as well as the dissemination of important information to the public.
Energy (Power and Fuel)		Flooding can cause power outages by damaging electrical infrastructure. Fuel supply may also be disrupted, affecting not just transportation but also heating and power generation.
Food, Shelter, & Housing		Flooding can lead to the displacement of people, necessitating immediate shelter solutions. The disruption in supply chains can affect the availability and distribution of food, especially fresh produce.
Health & Medical		There is a heightened risk of injuries during floods, as well as increased potential for waterborne and vector-borne diseases. Healthcare facilities might be directly affected by floods, impacting their operational capabilities.
Hazardous Materials		Storage containers that are underground directly on the ground can be damaged by water exposure, and materials that are stored in containers that are not watertight are at risk of being washed out.

LIFELINES	IMPACT TYPE	DESCRIPTION
Safety & Security		Emergency services are crucial during flooding for rescue operations and maintaining public order. Flooding can also increase the risk of accidents and infrastructure failures, such as dam or levee breaches.
Transportation		Floods can damage roads, bridges, and rail lines, severely limiting mobility and access. This disruption impacts not just daily commutes but also the delivery of essential goods and services.
Water & Wastewater Systems		Flooding can contaminate water supplies and damage water infrastructure, leading to shortages and health hazards. Wastewater treatment facilities may also be overwhelmed or damaged, increasing the risk of waterborne diseases.

(3) Natural, Cultural, and Historical Resources

There are no cultural or historic resources specifically identified in the portion of Bell the 100 year- or 500-year floodplain. Other cultural and historic resources within Bell face a persistent but limited risk of flood damage from flash flooding and a levee failure. For example, the James George Bell House is located immediately adjacent to two intersections, and intersections are common locations for water pooling when drainage systems are overwhelmed. Bell's parks, open spaces, and landscaped areas are also vulnerable. Floodwaters can erode soil, deposit sediment, and damage vegetation, reducing the health of community green spaces. The force of moving water can destabilize embankments, compromise recreational facilities, and undermine landscaping. In addition, soil erosion and sedimentation from flooding can impair stormwater conveyance systems, increasing the likelihood of future drainage problems.

(4) Risk Analysis

Flooding poses a **Moderate** risk to the planning area. While there have been no reported flood events within the City of Bell, if a dam or levee failure were to occur, there would be significant damage and impacts. Flooding from a dam or levee failure would also be catastrophic since there would likely be little to no warning. The Los Angeles River runs through the center of Bell in a fully channelized and leveed flood-control system. While this system prevents widespread floodplain inundation, Bell remains vulnerable to residual risk if the river's channel or levees were ever overtopped or failed. Additionally, the leveed area protected from flooding, could fail

and flood areas in the eastern side of the City. Lastly, flash flooding events are possible and could pose impacts to people, property, and critical facilities, especially in low-lying areas.

J) LAND SUBSIDENCE, KARSTS, AND SINKHOLES

i) Hazard Profile

Land subsidence is a gradual settling or sudden sinking of the Earth's surface, often due to removal or displacement of subsurface earth materials. An example of the sinking of the earth's surface in the San Joaquin Valley is shown in **Figure 47**. Increasing land development threatens to exacerbate existing problems with land subsidence and can initiate new instances. The primary causes of land subsidence include the following:

- Aquifer-system compaction associated with groundwater withdrawal
- Drainage of organic soils
- Underground mining
- Natural compaction or collapse, such as with sinkholes or thawing permafrost

Figure 47. Land Subsidence in the San Joaquin Valley, California



Source: USGS

Subsidence can also be caused by natural events such as earthquakes, soil compaction, glacial isostatic adjustment, erosion, sinkhole formation, and adding water to fine soils deposited by

wind⁵⁴. In California, land subsidence was first documented by USGS scientists in the first half of the 20th century. Most of the land subsidence was a result of excessive groundwater pumping. Although there have been efforts to decrease subsidence, it remains an ongoing issue in California. Types of land subsidence are outlined in **Table 47**.

Table 47. Types of Land Subsidence

LAND SUBSIDENCE TYPE	DESCRIPTION
Groundwater Pumping	Compaction of soils in some aquifer systems can accompany excessive groundwater pumping and it is by far the single largest cause of subsidence. Excessive pumping of such aquifer systems has resulted in permanent subsidence and has resulted in ground failures. In some cases, when substantial amounts of water are pumped, the subsoil compacts, thus reducing the size and number the open pore spaces in the soil the previously held water. This can result in a permanent reduction in the total storage capacity of the aquifer system ⁵⁵ .
Peat	Peat is a form of land subsidence, which is the downward movement of the Earth's surface due to the removal of subsurface earth materials. Land subsidence is more familiar when we talk about it happening with mineral soil. Peatlands are among the most valuable and carbon rich ecosystems ⁵⁶ .
Oil Extraction	Most oil and gas reservoirs experience only lesser amounts of compaction and surface subsidence. Significant subsidence due to production of hydrocarbons has been observed over some oil and gas fields ⁵⁷ .

Source: USGS

Karst is a type of landscape where the ground is comprised of soluble rocks and minerals like limestone, dolomite, or gypsum. Over time, water enters the subsurface and erodes these minerals, creating voids that can form distinctive features like caves and underground rivers. These voids can be hazardous as they can rapidly collapsing without warning. The “roof” of voids in karst terrain may appear stable on the surface, but additional weight from development, heavy rain, or even parked cars can be enough to cause the collapse. Sinkholes are more common in karst terrain, but they can occur virtually anywhere if the conditions are

54 US DEPARTMENT OF COMMERCE, NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION. 2019. “WHAT IS SUBSIDENCE?” NOAA.GOV. NOAA. 2019. [HTTPS://OCEANSERVICE.NOAA.GOV/FACTS/SUBSIDENCE.HTML](https://oceanservice.noaa.gov/facts/subsidence.html).

55 WATER SCIENCE SCHOOL. 2018. “LAND SUBSIDENCE | U.S. GEOLOGICAL SURVEY.” WWW.USGS.GOV. USGS. JUNE 5, 2018. [HTTPS://WWW.USGS.GOV/SPECIAL-TOPICS/WATER-SCIENCE-SCHOOL/SCIENCE/LAND-SUBSIDENCE](https://www.usgs.gov/special-topics/water-science-school/science/land-subsidence).

56 SULAEMAN, DEDE. 2023. “WHAT IS PEAT SUBSIDENCE AND HOW CAN COUNTRIES PREVENT THIS ENVIRONMENTAL DISASTER?” WWW.WRI.ORG, OCTOBER. [HTTPS://WWW.WRI.ORG/INSIGHTS/WHAT-PEAT-SUBSIDENCE-AND-HOW-CAN-COUNTRIES-PREVENT-ENVIRONMENTAL-DISASTER](https://www.wri.org/insights/what-peat-subsidence-and-how-can-countries-prevent-environmental-disaster).

57 J. C. MARTIN, S. SERDENGECTI, 1984. “SUBSIDENCE OVER OIL AND GAS FIELDS”, MAN-INDUCED LAND SUBSIDENCE, THOMAS L. HOLZER

right. Some sinkholes are the result of human activity. For example, leaking underground water lines can create a void as the uncontained water erodes the soil and minerals that surround the leak. The void may continue expanding until a sinkhole forms, catching local residents off guard.

(1) Duration

Land subsidence typically occurs slowly and continuously over time. Similarly, the formation of karst terrain and associated caves and caverns is a gradual process. Sinkholes, which are commonly considered to be the actual collapse of a geologic void, occur much faster. A sinkhole can open up in seconds, rapidly altering the landscape and damaging or destroying anything that was resting on the ground above the void.

(2) Seasonality

There is no evidence that land subsidence or the formation of karsts and sinkholes are inherently seasonal hazards. However, land subsidence can occur as a result of extracting underground water resources, which can coincide with seasonal agricultural activity.

(3) Speed of Onset

The effects of land subsidence and karst terrain are typically only noticeable over years, decades, or longer. Sinkholes, on the other hand, can occur rapidly, often forming in seconds or minutes.

(4) Location

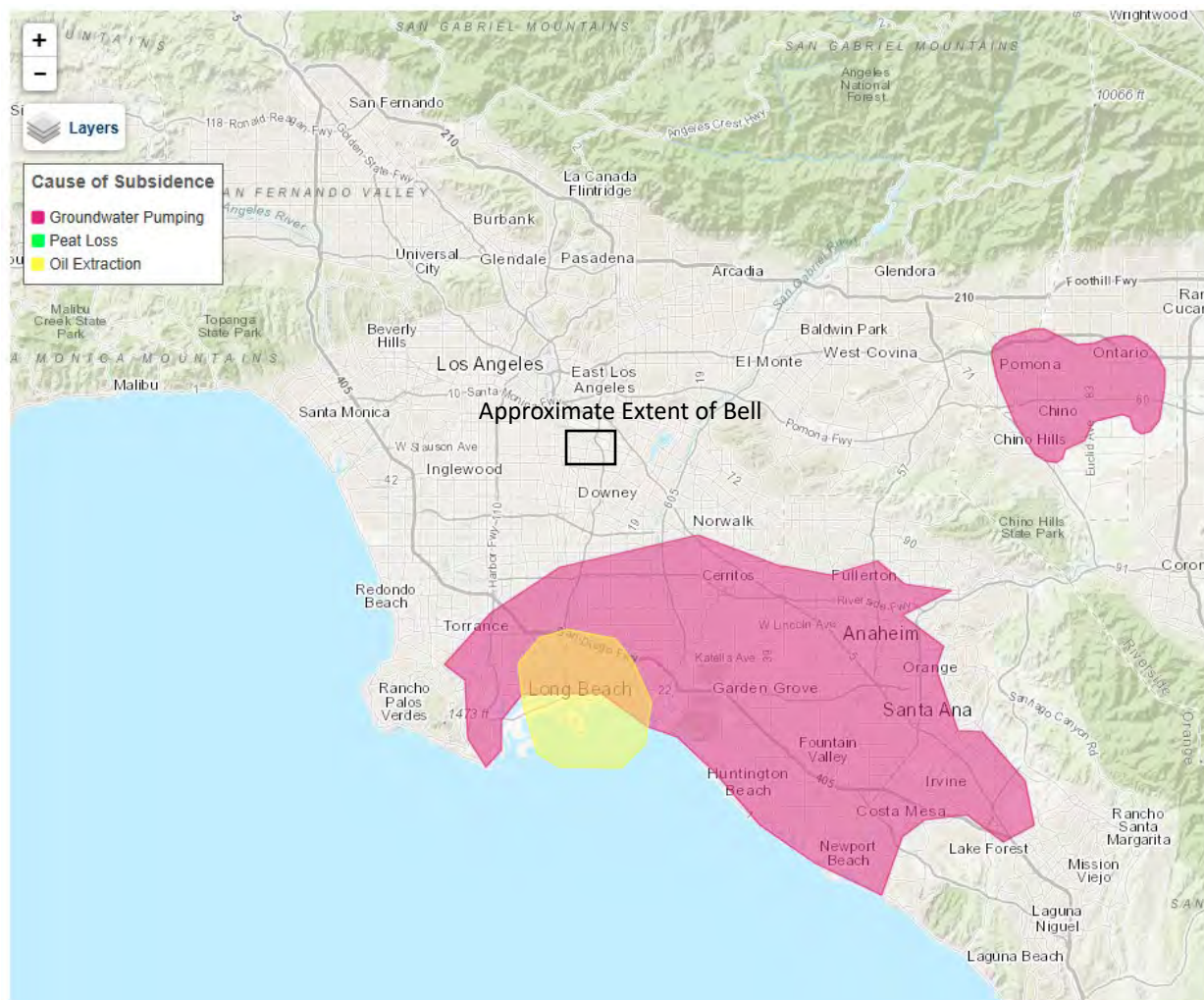
The United States Geological Survey assesses land subsidence across Los Angeles County and the State of California. **Figure 48** shows the recorded vertical movement of land in California, and it shows that the notable subsidence is largely limited to the California valleys that support water-intensive agriculture. **Figure 49** provides a closer look at land subsidence in the greater Los Angeles area, and there is no known subsidence within the City of Bell's jurisdictional boundaries. There are no known resources that identify the location of these hazards inside the City of Bell or Los Angeles County. The geology of the region consists of thick layers of unconsolidated alluvium, which is generally not favorable for karst terrain.

Figure 48. Vertical Land Motion in California 2015-2023



Source: NASA Earth Observatory

Figure 49. Land Subsidence Extent and Causes in Los Angeles



Source: California Department of Conservation

ii) Magnitude

There is no established scale or methodology for assessing the severity of land subsidence, karst terrain, and sinkholes. Procedures for determining the probability or frequency of land subsidence have not been established. However, land subsidence can be described in terms of the rate of change in ground elevation relative to sea level.

Elevation or elevation change measurements are fundamental to understanding and monitoring land subsidence. Tools used to measure land subsidence include:

- Interferometric Synthetic Aperture Radar (InSAR)
- Continuous GPS (CGPS) measurements
- Campaign Global Positioning System (GPS) surveying

- Spirit-level surveying⁵⁸

The magnitude of sinkholes varies widely depending on their cause and location. In regions with true karst geology, sinkholes can reach hundreds of feet in diameter and depth, capable of swallowing structures, roads, or even entire blocks. However, in urban areas like the City of Bell, where karst conditions are not present, sinkholes that do occur are typically the result of localized infrastructure failures such as water main breaks, leaking sewer lines, or poorly compacted fill. These incidents are generally small in scale, ranging from a few feet to several yards across, and while disruptive, they rarely result in catastrophic damage. Even relatively small sinkholes can pose serious localized hazards to transportation systems, utilities, and public safety, especially if they emerge suddenly beneath heavily traveled roads or near critical facilities.

iii) Extent

The City of Bell is situated in a highly urbanized portion of the Los Angeles Basin, underlain primarily by alluvial soils and engineered fill associated with the Los Angeles River floodplain. Unlike parts of California's Central Valley, where groundwater withdrawal has caused significant regional subsidence, Bell has not experienced measurable or widespread land subsidence. Similarly, the geology of the Los Angeles Basin does not include the soluble limestone or dolomite formations typically associated with karst terrain, so the probability of naturally occurring sinkholes is extremely low.

While the natural extent of this hazard in Bell is negligible, localized subsidence or sinkhole-like ground failures can still occur as a result of infrastructure issues such as leaking water mains, sewer line breaks, or poorly compacted fill beneath roadways and industrial sites. Such incidents are rare, highly localized, and generally limited to a single parcel, street segment, or utility corridor rather than affecting large areas of the City.

i) Past Occurrences

There have been no reported events of land subsidence, karsts, or sinkholes in the City of Bell. Based on the lack of any previous occurrences of land subsidence, karsts, and sinkholes in the planning area, it is statistically unlikely that this hazard will affect the City of Bell. However, such events should not be considered impossible as groundwater extraction and underground pipe ruptures can create conditions that may lead to land subsidence and sinkholes.

Frequency

Since there is no data on past occurrences for this hazard, there is no frequency data.

58 "MEASURING AND MONITORING | U.S. GEOLOGICAL SURVEY." N.D. WWW.USGS.GOV. USGS. ACCESSED 2025. [HTTPS://WWW.USGS.GOV/CENTERS/LAND-SUBSIDENCE-IN-CALIFORNIA/SCIENCE/MEASURING-AND-MONITORING](https://www.usgs.gov/centers/land-subsidence-in-california/science/measuring-and-monitoring).

ii) Future Probability

Formal procedures for estimating the probability or frequency of land subsidence have not yet been established. However, California’s recurring droughts have often pushed communities and companies to rely on groundwater pumping, which has been a major contributor to subsidence across the state. If the City of Bell, neighboring jurisdictions, or other entities begin withdrawing groundwater from beneath the City or its immediate surroundings, subsidence could occur. Local leaders will need to weigh the potential risks of groundwater pumping against future water demands.

As climate change drives warmer temperatures, the region is expected to experience more frequent droughts, which may in turn increase reliance on groundwater. Groundwater extraction is one of the primary causes of land subsidence, and communities nearby Bell have experienced this in the past. While the conditions necessary for karst formation are absent in Bell, the future probability of sinkholes remains difficult to predict. Historical records suggest that the likelihood of naturally occurring sinkholes in Bell is extremely low, though the risk cannot be entirely dismissed. Should sinkholes develop, they are more likely to result from ruptured pipes or other human activity than from geologic processes. Without changes in groundwater pumping and mineral extraction, the probability of future occurrences of land subsidence, karsts, and sinkholes is considered **Unlikely**.

iii) Secondary Hazards

Land subsidence is largely a secondary hazard to many other natural hazards such as earthquakes, wildfire, and droughts. However, there are a few cascading hazards that can occur, primarily as result of the sudden movement of structures that exceeds their engineering. These hazards are described in **Table 48**.

Table 48. Secondary Hazards from Land Subsidence Events in the City of Bell

SECONDARY HAZARD	DESCRIPTION
Property Damage	Land subsidence and sinkholes can undermine foundations, causing partial or total structural failure.
Infrastructure Damage	Roads, bridges, levees, and rail lines can crack, tilt, or fail as the ground surface lowers unevenly. Roadway sinkholes can cause accidents, block emergency routes, or isolate neighborhoods.
Utility Failure	Land subsidence and sinkholes can cause underground utilities (water, sewer, gas) to shear or deform, causing service interruptions or hazardous leaks.

iv) Vulnerability & Impact Assessment

Land subsidence is largely dependent upon subsurface conditions, particularly the local geology and hydrology. These conditions can be affected by human activity such as mining, fossil fuel extraction, and agriculture. In the first half of the 20th century, parts of California experienced significant land subsidence mainly due to excessive groundwater pumping, but efforts in the latter half of the 20th century to draw water from more sustainable sources caused a corresponding decrease in land subsidence. The California Water Science Center and U.S. Geological Survey endeavored to map land subsidence within California, and their work found that between 1993 and 1998, portions of southern Los Angeles County experienced land subsidence of varying degrees. Fortunately for Bell, no land subsidence was documented within the community's jurisdiction. However, the risk of land subsidence occurring in the future remains, particularly if local groundwater extraction increases.

The City of Bell is not situated in terrain that favors karst formation. Karsts typically develop in regions underlain by soluble bedrock such as limestone or dolomite; those geologic conditions are absent in Bell and the surrounding Los Angeles Basin. As a result, the community's inherent vulnerability to naturally occurring karsts and large sinkholes is very low. That said, localized ground failures can still occur, but they are much more likely to be caused by human activity than natural processes.

(1) People

Residents of Bell have limited direct exposure to subsidence as a life-safety hazard, since the process is generally gradual. The primary concern for people include damage to homes, sidewalks, and utilities that can create safety hazards like trip/fall risks, gas line leaks, and compromised building foundations. Vulnerable groups include lower-income households and renters who may lack resources to relocate or repair damaged housing. The geologic conditions that produce karst landscapes are absent in Bell, meaning there is essentially no direct vulnerability to karst hazards for residents. The likelihood of large, naturally occurring sinkholes is extremely low in Bell. However, people are vulnerable to small, human-caused sinkholes, such as those triggered by pipe failures or poor soil compaction. These tend to occur suddenly and in public rights-of-way, posing risks to motorists, pedestrians, and utility customers. Because such incidents are unpredictable, all residents and visitors are considered equally exposed, though people living in older housing stock or neighborhoods with aging infrastructure may face slightly higher risk.

(2) Structures and Systems

Practically all structures situated on land that is subsiding are subject to strain. Materials which are relatively inelastic—such as brick and masonry—are often the first to show signs of stress, including cracking, spalling, or separation at joints. Within the City of Bell, concrete is widely used for residential foundations, municipal buildings, roads, and bridges. Even small shifts in the

ground surface can compromise these assets, leading to costly repairs and posing safety risks. Karst terrain does not exist in Bell or the surrounding Los Angeles Basin, meaning the City has no meaningful vulnerability to natural karst processes. Sinkholes in Bell are unlikely to result from natural processes, but human-caused incidents, such as ruptured water mains, storm drain failures, or poorly compacted soils, pose a limited risk. These events can undermine local streets, sidewalks, or building foundations. Older residential neighborhoods with aging underground utilities are particularly susceptible. While the probability of large sinkholes is extremely low, even a small collapse under a roadway or near a critical facility could cause structural damage and temporary service disruptions.

Critical Facilities

Critical facilities in the City of Bell, including municipal buildings, schools, utilities, and key transportation infrastructure, face varying levels of vulnerability to land subsidence, karsts, and sinkholes. The ground movement produced by these hazards can strain or damage concrete foundations, service lines, and load-bearing structures. Facilities located near the Los Angeles River are of particular concern, as shifting ground could undermine flood-control structures, bridges, or embankments. Transportation lifelines such as Interstate 710 and adjacent railways play an important role in moving commuters and goods throughout the region; damage or closure from ground failure would disrupt both local and regional operations. Public works infrastructure, including water, sewer, and stormwater systems, could also fail under subsidence, cutting off essential services and creating cascading hazards such as flooding or contamination. Major impacts of land subsidence, karsts, and sinkholes to community lifelines are described in **Table 49**.

Table 49. Potential Vulnerabilities of Lifelines to Land Subsidence, Karsts, and Sinkholes

LIFELINES	IMPACT TYPE	DESCRIPTION
Communications		Land subsidence or small sinkholes could disrupt underground communication lines and conduits, potentially leading to localized service interruptions, though overall risk to this sector remains limited.
Energy (Power and Fuel)		Overhead electrical infrastructure is not meaningfully threatened, but subsidence or ground collapse could damage underground fuel lines, substations, or buried power distribution systems, creating localized outages or safety concerns.

LIFELINES	IMPACT TYPE	DESCRIPTION
Food, Hydration, & Shelter	 Food, Hydration, Shelter	The primary risk to food, hydration, & shelter comes from the potential damage to structures (which may be rendered unstable) and reduced access to food and water due to damaged transportation infrastructure.
Hazardous Materials	 Hazardous Materials	Facilities that store or transport hazardous materials could be affected if subsidence or sinkholes compromise underground storage tanks, pipelines, or containment areas, potentially leading to spills or contamination events.
Health & Medical	 Health and Medical	Disrupted water and sanitation systems can increase the demand for medical services and strain healthcare facilities. Additionally, unusable transportation routes may disrupt operations at health and medical facilities.
Safety and Security	 Safety and Security	Police, fire, and emergency management facilities face limited direct hazard, though structural damage or utility disruptions from subsidence could impede emergency response operations.
Transportation	 Transportation	Land subsidence, karsts, and sinkholes can damage or block roads and railways, disrupting the movement of people and goods. Repairing these routes can be time-consuming and costly.
Water and Wastewater Systems	 Water Systems	Land subsidence, karsts, and sinkholes could cause pipe ruptures and reduced storm drain capacity. Additionally, damage to the Los Angeles River may reduce its ability to safely channel flood waters through the community.

(3) Natural, Cultural, and Historical Resources

Natural, cultural, and historic resources in Bell face minimal vulnerability to land subsidence, karsts, and sinkholes. The community has no geologic conditions that support karst formation, and sinkholes are unlikely except where human-caused infrastructure failures occur. Land subsidence has not been observed in Bell itself, though if it were to occur, gradual ground

movement could strain parks, open spaces, and cultural or historic buildings—particularly older masonry structures that are less tolerant of settlement. Overall, the risk is low, but careful monitoring of historic structures and community spaces could help prevent damage if ground instability develops in the future.

(4) Risk Analysis

Land subsidence, karsts, and sinkholes pose a **Low** risk to the planning area. Land subsidence has not been observed within the City of Bell itself, but it has been documented in other communities within the Los Angeles area, particularly in locations with significant groundwater or oil extraction. Natural karst formations are not present due to the region's geology, and sinkholes are extremely rare, typically resulting only from pipe ruptures or other infrastructure failures. Where subsidence does occur, it typically develops slowly over years to decades, which can mask its long-term impacts. Although Bell has not experienced major historic events, future impacts cannot be ruled out. Policies that implement consistent monitoring of high-risk areas, along with evaluation of damage to utilities and infrastructure, could help reduce the impacts of land subsidence and related hazards to protect people, property, and critical facilities.

K) SEA LEVEL RISE

i) Hazard Profile

Sea level rise is a long-term and cumulative hazard driven by the sustained warming of Earth's climate system. As global temperatures increase, glaciers and ice sheets release additional water into the seas. The result is a persistent and accelerating rise in mean sea level relative to the land, gradually transforming coastlines and altering hydrological systems worldwide. Unlike sudden, high-impact hazards such as earthquakes or storms, sea level rise operates on a slow but relentless timescale, measured in inches per decade, yet its consequences may be far-reaching. It reshapes floodplains, erodes shorelines, threatens infrastructure and ecosystems, and compounds other climate-related hazards by amplifying storm surge, coastal erosion, and drainage failures. In this sense, sea level rise represents a chronic environmental shift rather than a discrete event, one that redefines long-term risk and challenges the resilience of communities, economies, and natural systems alike.

(1) Duration

The duration of sea level rise is effectively continuous and indefinite on human timescales. Unlike short-term hazards that have a clear beginning and end, sea level rise represents an ongoing process that unfolds over centuries.

Seasonality

Sea level rise itself has no true seasonality, research on the hazard indicates that it is a long-term, cumulative trend rather than a cyclical or seasonal phenomenon. The steady increase in mean sea level continues year-round, driven by global processes like ocean warming and ice melt that operate over decades, not months.

(2) Speed of Onset

There has been a significant amount of research into sea level rise, although definitive, uncontested conclusions regarding the exact rate of change and causal links are more limited. Additionally, some of the hypothesized causes are not static, and fluctuations in the conditions driving this hazard further complicate assessments of the speed of onset. Estimates from NOAA indicate that the sea level along the coast of Los Angeles is rising by up to 3 millimeters per year (1 foot per century).

(3) Location

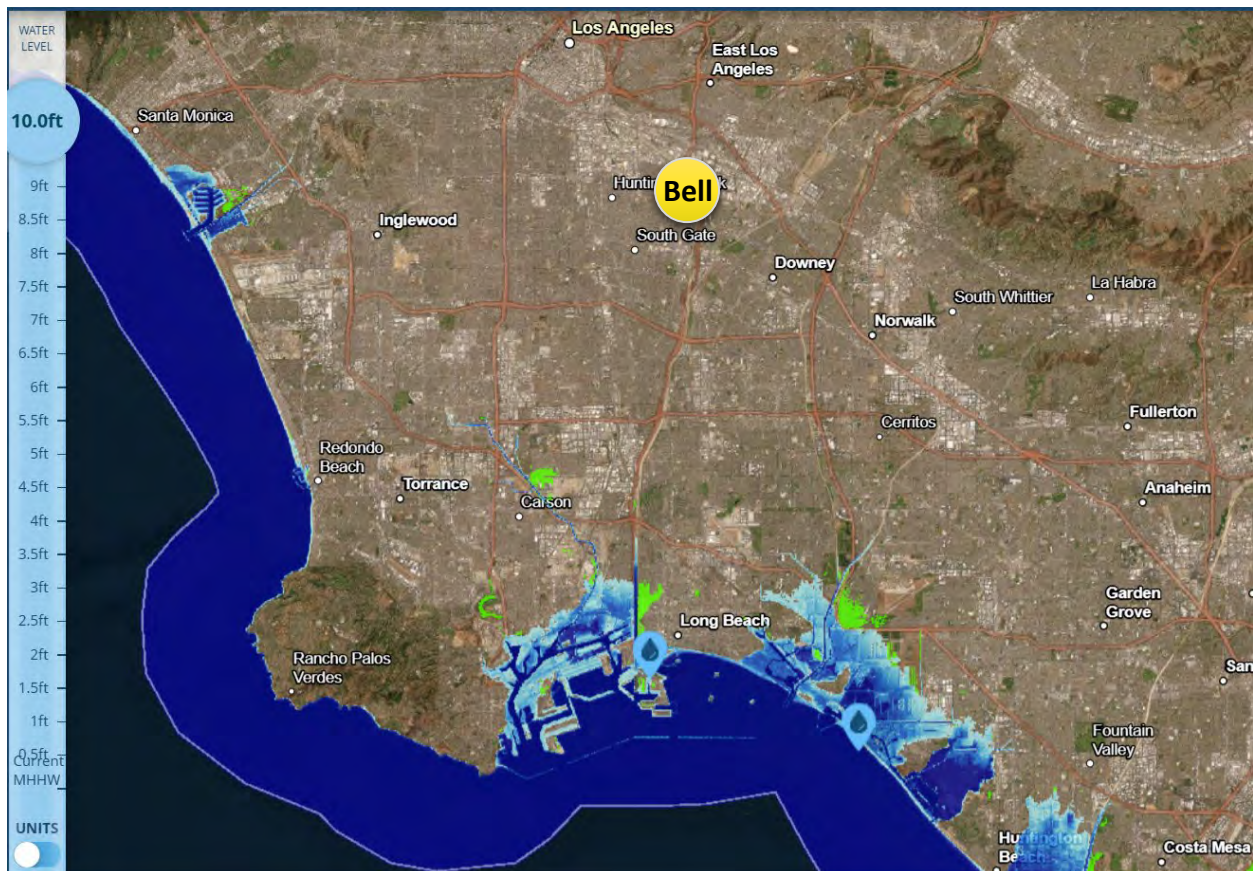
Sea level rise is a hazard for coastal communities because it fundamentally alters the boundary between land and sea, turning what were once occasional flood zones into areas of chronic inundation. As the ocean rises, even small increases in average water level can have outsized

impacts on low-lying coasts, magnifying storm surge, accelerating erosion, and pushing saltwater into freshwater systems.

The most direct hazard is flooding. Land that used to flood only during major storms may begin to flood several times a year, or even daily during high tides, a phenomenon known as “nuisance” or “sunny-day” flooding. This persistent water intrusion damages homes, roads, sewer and stormwater systems, and utilities, often before residents realize the change is permanent rather than temporary.

NOAA’s Sea Level Rise Viewer illustrates how rising ocean levels could reshape coastal areas under various scenarios. The tool allows users to simulate increases in sea level of up to ten feet. Even under this highest projection, the City of Bell remains several miles inland from the areas subject to direct inundation. As a result, Bell’s exposure to sea level rise is comparable to its exposure to tsunamis—it is not directly threatened by coastal flooding but may experience secondary effects such as reduced stormwater drainage efficiency or flooding impacts that originate in downstream communities closer to the coast. **Figure 50** depicts the extent of projected inundation associated with a ten-foot rise in sea level. The approximate location of Bell is designated with a yellow circle.

Figure 50. NOAA Sea Level Rise Viewer 10-ft projection



Source: NOAA

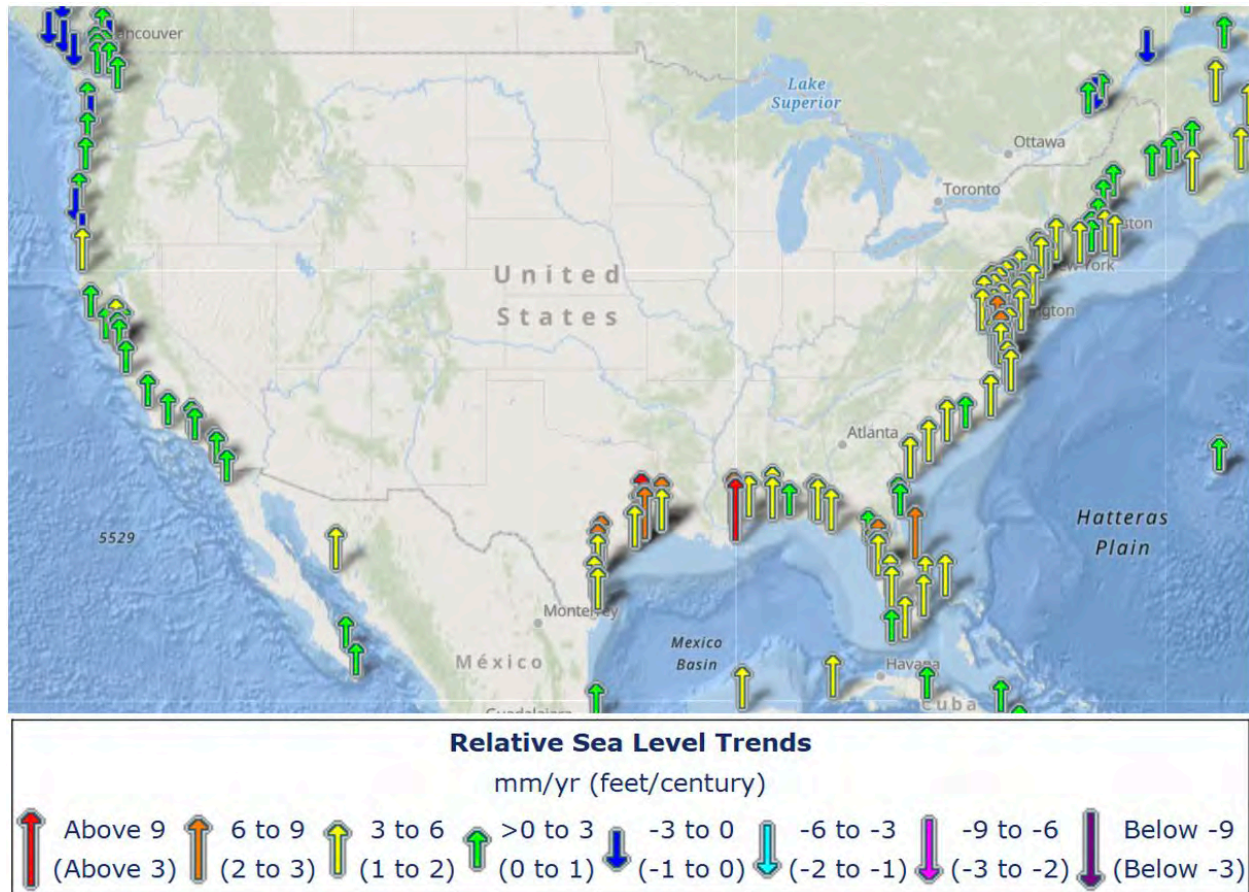
ii) Magnitude

At the Santa Barbara tide station (NOAA Station 9411340), long-term records show a relative sea level rise of approximately 0.99 millimeters per year. This translates to a net increase of about 0.32 feet over 100 years. Monthly mean sea level data from 1973 to 2024 indicate modest variability over the decades, with a small but measurable upward trend consistent with regional patterns of gradual ocean expansion and ice melt. On a seasonal basis, average water levels fluctuate by roughly 3 to 4 inches annually, peaking during winter months when storm activity and ocean temperatures contribute to slightly higher tides.

Because the Santa Barbara station is located directly on the Pacific coast, these measurements reflect conditions at the shoreline, where the influence of sea level rise is most pronounced. The City of Bell, by contrast, lies about ten miles inland and well above coastal flood elevations. As a result, Bell will not experience the same magnitude of sea level change as coastal communities. However, rising sea levels at the coast can still exert indirect effects on Bell's hydrology by reducing the Los Angeles River's drainage capacity and increasing the potential for backflow during heavy rainfall or storm surge events.

Figure 51 shows the relative sea level trends across different NOAA tidal stations. As can be seen, NOAA's calculations do not show a consistent trend across all stations, stations along the eastern coast are experiencing a greater rate of sea level rise than stations on the western coast.

Figure 51. NOAA Relative Sea Level Rise Projections



Source: NOAA

iii) Extent

Although the City of Bell is located inland and well above the coastal floodplain, it can still experience indirect impacts from sea level rise through its connection to the Los Angeles River and regional stormwater infrastructure. As sea levels rise at the river's mouth near Long Beach, tidal influence can extend farther inland, raising the base water level within the river channel. This reduces the hydraulic gradient that allows Bell's stormwater systems to drain effectively, particularly during heavy rainfall or high tide events. The result can be localized flooding or ponding, even without major storms, as water backs up into drains and surface channels.

Sea level rise may have broader regional consequences that indirectly affect Bell through disruptions to coastal infrastructure. Ports, wastewater treatment facilities, and major transportation corridors along the Los Angeles and Long Beach shoreline are at growing risk from flooding, storm surge, and coastal erosion. These facilities support much of Southern California's economic and logistical activity, including the movement of goods, fuel, and essential supplies throughout the region. Damage or closure of these sites could interrupt

supply chains, increase transportation costs, and strain regional utilities that Bell depends on. Even temporary service interruptions, such as the shutdown of wastewater or energy infrastructure, could have cascading impacts for inland communities, underscoring Bell's reliance on coastal systems that anchor the Los Angeles Basin's economy.

As rising sea levels make some coastal neighborhoods increasingly difficult to protect or insure, population displacement from coastal areas could also affect Bell. People relocating from flood-prone communities may seek more affordable housing farther inland, potentially increasing demand for housing and public services in cities like Bell. Such shifts could alter the region's demographic composition, housing market, and workforce patterns, creating both economic opportunities and social pressures. Increased population density could strain local infrastructure, utilities, and transportation systems, while rising housing demand may intensify affordability challenges. In this way, sea level rise poses not only a physical hazard at the coast but also a social and economic hazard inland, as migration and adaptation reshape the interconnected communities of the Los Angeles Basin.

iv) Past Occurrences

Sea level rise is a persistent, long-term hazard on the timescale of human lives and community development. There are no specific instances of past sea level rise to document for the purposes of this plan. Cycles of ice sheets melting and freezing are typically measured over multiple millennia, although research suggests that the current period of sea level rise is happening at an accelerated rate.

Frequency

Geologists, glaciologists, and oceanographers have developed an understanding that Earth has had different periods of more ice and less ice, corresponding to higher and lower sea levels. However, the margins around the measurement of these events can range from hundreds or thousands of years, making it difficult to describe the frequency of sea level rise that could be reasonably used by the City of Bell for planning purposes. Practically speaking, the general expectation is that the sea level will remain relatively unchanged over the next five years.

v) Future Probability

While the exact rate and magnitude depend on future greenhouse gas emissions and the stability of major ice sheets, multiple major scientific bodies, including NOAA, NASA, and international agencies under the United Nations (UN), project that sea levels will continue to rise. Even under the most optimistic climate pathway, a minimum of several inches of rise is expected by mid-century; under high-emission scenarios, the rise could exceed six feet by 2100 in some regions. The future probability of sea level rise is considered **Highly Likely**, although the City of Bell is not expected to face the same impacts as communities closer to the coast.

vi) Secondary Hazards

While Bell is not directly exposed to coastal inundation, sea level rise can trigger secondary hazards that affect the City through regional systems and interconnected infrastructure. Rising ocean levels can alter river hydraulics, disrupt coastal facilities, and drive population and economic shifts inland. These indirect effects may lead to flooding, strain public services, and challenge the City’s capacity to maintain essential operations. **Table 52** identifies and describes potential secondary hazards associated with sea level rise in Bell.

Table 52. Secondary Hazards from Land Subsidence Events in the City of Bell

SECONDARY HAZARD	DESCRIPTION
Flooding/Flash Flooding	Rising sea levels at the Los Angeles River’s outlet can cause water to back up into inland drainage systems, increasing the likelihood of street and property flooding during major rain events.
Socioeconomic Stress	As sea level rise makes some coastal neighborhoods less habitable, displaced populations may relocate inland, increasing housing demand and placing new social and economic pressures on Bell’s infrastructure and public services.
Utility and Infrastructure Failure	Flooding or damage to coastal infrastructure—such as ports, wastewater facilities, and power systems—can disrupt the regional flow of goods and essential services, indirectly affecting Bell’s economy and daily operations.

vii) Vulnerability and Impact Assessment

Sea level rise is a long-term, gradually increasing hazard. The most acute vulnerabilities occur in coastal communities, with risks generally decreasing farther inland. Bell lies well inland and is largely insulated from direct effects such as inundation or shoreline erosion. However, the City depends on regional systems and services that could be disrupted by sea level rise and impacts on coastal areas could have cascading consequences for Bell. The following subsections describe these potential vulnerabilities and impacts in more detail.

(1) People

While Bell is not directly threatened by rising ocean waters, its population of more than 32,000 residents could still experience indirect social and economic consequences of sea level rise. The City’s median household income is below the county average, which limits household capacity to absorb economic shocks such as higher utility or housing costs that might follow regional infrastructure disruptions. If coastal flooding displaces residents from nearby communities,

socioeconomic pressures could increase housing demand in Bell's already dense neighborhoods. At the same time, disruptions to coastal employment centers, ports, and logistics corridors could affect regional job stability, especially since many Bell residents work in warehousing, manufacturing, and transportation sectors tied to coastal infrastructure.

(2) Structures and Systems

Bell's built environment and public infrastructure are most vulnerable through their dependence on regional drainage, transportation, and utility systems that extend to the coast. Rising sea levels at the mouth of the Los Angeles River can reduce the river's drainage capacity, leading to higher base water levels during major storms and slowing the discharge of Bell's stormwater system. Prolonged ponding on streets or industrial properties could damage pavement, corrode underground utilities, and elevate maintenance costs. Because Bell's development is predominantly low-lying and paved, even modest reductions in drainage efficiency could worsen localized flooding during intense rainfall events.

Critical Facilities

Bell's critical facilities—such as City Hall, schools, and emergency service buildings—are not within coastal flood zones but rely on regionally shared systems for power, transportation, and communications. Sea level rise-related damage to coastal ports, refineries, wastewater plants, or energy transmission facilities could disrupt service delivery inland. A breakdown in these systems could impede emergency response, delay supply shipments, or interrupt fuel and energy availability, indirectly affecting Bell's ability to maintain essential services during regional emergencies.

(3) Natural, Cultural, and Historic Resources

Flooding tied to reduced drainage capacity could degrade street trees, landscaped medians, and public recreation areas, while standing water may accelerate pavement deterioration and soil subsidence in older industrial zones. Cultural and historic resources—such as the Bell House and other civic landmarks—could be affected indirectly if localized flooding increases or groundwater levels rise near foundations. While Bell does not contain wetlands or coastal ecosystems, its vulnerability to sea level rise manifests through urban degradation, infrastructure stress, and the compounding social effects of regional environmental change.

(4) Risk Analysis

Sea level rise poses a **Low** and indirect risk for the City of Bell. The City lies approximately ten miles inland and is not within any projected coastal inundation zones, meaning direct flooding from the Pacific Ocean is unlikely. However, Bell is connected to the Los Angeles River system, which drains to the ocean and may experience higher base water levels as sea levels rise. This backflow effect could reduce the capacity of Bell's stormwater infrastructure, increasing the likelihood of localized flooding during intense rainfall or high-flow conditions.

The broader risk to Bell stems from its dependence on regional infrastructure and economic systems that extend to the coast. Rising sea levels could disrupt port operations, energy distribution, and wastewater treatment facilities that serve much of Los Angeles County, indirectly affecting Bell's economy, utilities, and emergency operations. Over time, sea level rise may also drive population and economic shifts inland, increasing demand for housing, services, and infrastructure in communities like Bell. Although the City's overall exposure is low, its functional vulnerability—through hydrologic connectivity and regional interdependence—makes sea level rise a long-term, compounding threat that warrants continued monitoring and coordination with regional adaptation planning efforts.

L) SEVERE THUNDERSTORMS

i) Hazard Profile

A severe thunderstorm is a particularly energetic storm that can produce destructive and deadly weather including tornadoes, hail, strong winds, lightning, and flooding. This hazard profile will primarily focus on the impacts of lightning and hail, as flooding, tornadoes, and windstorms are profiled in other sections within this plan. The general ingredients to produce a thunderstorm include moisture, lifting, instability, and wind shear. However, the exact process through which these ingredients mix to produce thunderstorms can vary, giving different characteristics. The different thunderstorm types include the following below.

- **Single-cell thunderstorms:** often called “popcorn” convection, single-cell thunderstorms are small, brief, weak storms that grow and die within an hour or so. Typically, these storms are driven by heating on a summer afternoon. Single-cell storms may produce heavy rain and lightning.
- **Multi-cell storm:** A common, garden-variety thunderstorm in which new updrafts form along the leading edge of rain-cooled air (the gust front). Individual cells usually last 30 to 60 minutes, while the system may last for many hours. Multicell storms may produce hail, strong winds, brief tornadoes, and/or flooding.
- **A squall line:** A group of storms arranged in a line, often accompanied by “squalls” of high wind and heavy rain. Squall lines tend to pass quickly and are less likely.
- to produce tornadoes than supercells. They can be hundreds of miles long but are typically only 10 or 20 miles wide.
- **Supercell:** A long-lived (greater than 1 hour) and highly organized storm feeding off an updraft (a rising current of air) that is tilted and rotating. This rotating updraft can present as much as 20 to 60 minutes before a tornado forms. Most large and violent tornadoes come from supercells.
- **A “bow echo”:** A radar signature of a squall line that “bows out” as winds behind the line and circulations develop on either end. A strongly bowed echo may indicate high winds in the middle of the line, where the storms are moving forward most quickly. Brief tornadoes may occur on the leading edge of a bow echo⁵⁹.

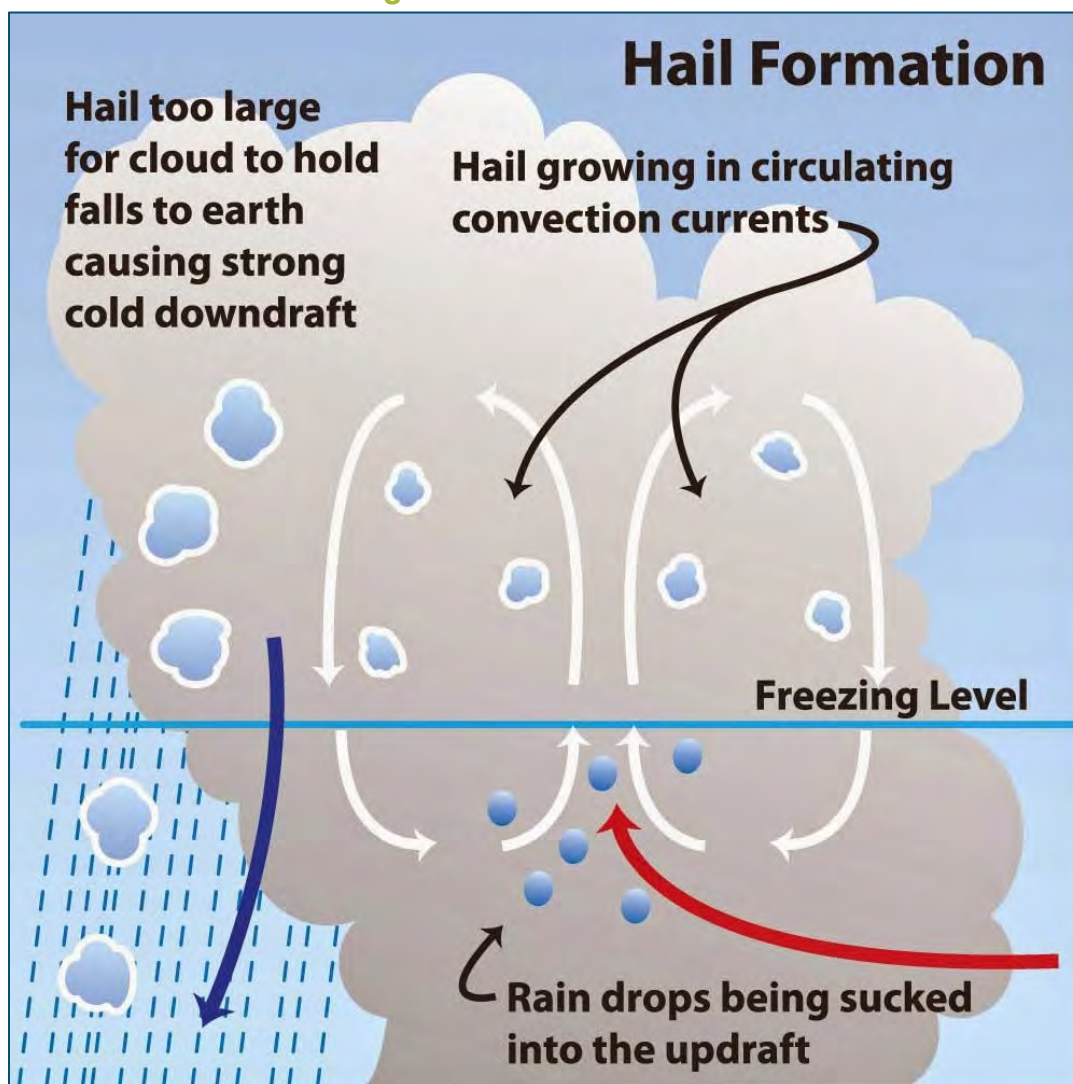
Lightning is the sudden, powerful discharge of electricity caused by the attraction between positive and negative charges in the atmosphere. Thunderstorms tend to produce a negative charge towards the base of the clouds and a positive charge toward the top. In most cases, the charged regions within a thundercloud are closer to each other than to the ground, and in these cases the lightning remains intracloud. However, under some conditions, the electric field

⁵⁹ “THUNDERSTORM TYPES.” 2015. NOAA NATIONAL SEVERE STORMS LABORATORY. NOAA. 2015. [HTTPS://WWW.NSSL.NOAA.GOV/EDUCATION/SVRWX101/THUNDERSTORMS/TYPES/](https://www.nssl.noaa.gov/education/svrwx101/thunderstorms/types/).

between the base of the cloud and the ground builds up to be stronger than the field within the cloud, and this result in cloud-to-ground lightning. Lightning, both intracloud and cloud-to-ground, can heat a narrow path of air to temperatures greater than 50,000°F, and this rapid heating creates shockwaves that travel outward. These shockwaves are recognized as thunder that can be heard following lightning.

Hail is the precipitation of irregular pellets of ice more than 5 mm in diameter, falling from a cumulonimbus cloud. They are formed when raindrops are carried upward by thunderstorm updrafts into extremely cold areas of the atmosphere and freeze, shown in **Figure 49**. Eventually these frozen raindrops become too heavy to remain aloft, and at this point they fall to the ground as hail. Hail events are usually in relatively small coverage areas. Large hail can damage structures, break windows, dent vehicles, ruin crops, and injure people.

Figure 49. Hail Formation



Source: NOAA

(1) Duration

Severe thunderstorms can last for a couple of minutes up to several hours depending on the atmospheric conditions. The average duration of a thunderstorm is 30 to 60 minutes. Hail events are usually brief, lasting on average 10 to 20 minutes but may last longer with some thunderstorms depending on conditions. It is important to note that storm *systems* can last for far longer, these systems are what radar and weather maps show traveling across multiple states over the course of days and weeks.

(2) Seasonality

Thunderstorms can occur throughout the year and at any time of the day. However, thunderstorms are most likely to occur in the spring and summer months (between April and August). The peak time period for thunderstorms in the region is around 3pm to 7pm Pacific Standard Time.

(3) Speed of Onset

Severe thunderstorms in the region generally develop and move into the area with several hours of advance notice provided by the National Weather Service through watches and short-term forecasts. However, the onset of hazardous conditions once a storm cell arrives can be very rapid, often within minutes. Lightning, strong winds, heavy rainfall, and hail may begin suddenly and escalate quickly, leaving little time for protective action if individuals are outdoors or in vulnerable settings.

(4) Location

The entirety of the planning area is considered to be equally vulnerable to severe storms.

ii) Magnitude

Thunderstorms can range from general thunderstorms to severe thunderstorms. NOAA categorizes thunderstorms into six categories to describe the different severity of severe thunderstorms occurring. The six categories are described in **Table 51**.

Table 51. NOAA Storm Prediction Center Thunderstorm Risk Categories

SEVERE THUNDERSTORM RISK CATEGORIES			
RISK CATEGORY	ABBREVIATION	LEVEL	DESCRIPTION
Thunderstorms	--	0	No severe thunderstorms expected. Lightning flooding

SEVERE THUNDERSTORM RISK CATEGORIES			
RISK CATEGORY	ABBREVIATION	LEVEL	DESCRIPTION
			threats exist with <u>all</u> thunderstorms
Marginal	MRGL	1	Isolated severe thunderstorms possible. Limited in duration and/or coverage and/or intensity
Slight	SLGT	2	Scattered severe storms possible. Short-lived and/or not widespread, isolated intense storms possible
Enhanced	ENH	3	Numerous severe storms possible. More persistent and/or widespread, a few intense
Moderate	MDT	4	Widespread severe storms likely. Long-lived, widespread and intense
High	HIGH	5	Widespread severe storms expected. Long-lived, widespread and intense

Source: NOAA

To communicate the risk of severe thunderstorms to the public, the National Weather Service (NWS) issues a severe thunderstorm watch and severe thunderstorm warning. **Table 52** describes each of the NWS products.

Table 52. Severe Thunderstorm NWS Products

SEVERE THUNDERSTORM PRODUCT	DESCRIPTIONS
Severe Thunderstorm Watch	Severe thunderstorms are possible in and near the watch area. Stay informed and be ready to act if a severe thunderstorm warning is issued. The watch area is typically large, covering numerous counties or even states.
Severe Thunderstorm Warning	Severe weather has been reported by spotters or indicated by radar. Warnings indicate imminent danger to life and property. Take shelter in a substantial building. Get out of mobile homes that can blow over in high winds. Warnings typically encompass a much smaller area (around the size of a city or small county) that may be impacted by a large hail or damaging wind identified by an NWS forecaster on radar or by a trained spotter/law enforcement who is watching the storm.

Source: National Weather Service (NWS)

The size of the hailstone can drive the speed at which the hail falls as well as some other conditions such as the friction between the hailstone and surrounding air, the local wind conditions, and the degree of melting of the hailstone. The expected fall speed seen in a typical severe thunderstorm is between 25 to 40 miles per hour. In supercells that produce some of the largest hail, the expected fall speed is between 25 to 40 miles per hour and may even reach fall at over 100 miles per hour⁶⁰. Hail can vary in size, and warnings and reports may report hail size through comparison with real world objects that correspond to different hail sizes. **Table 53** shows the different sizes of hail with their size and real-world object comparison.

Table 53. Hail Size

DESCRIPTION ⁶¹	DIAMETER (INCHES)
Pea	0.25
Marble or Mothball	0.50
Penny or Dime	0.75
Nickle	0.88
Quarter	1.00
Half-Dollar	1.25

60 NOAA NATIONAL SEVERE STORMS LABORATORY. 2015. "HAIL BASICS." NOAA NATIONAL SEVERE STORMS LABORATORY. NOAA. 2015.

[HTTPS://WWW.NSSL.NOAA.GOV/EDUCATION/SVRWX101/HAIL/](https://www.nssl.noaa.gov/education/svrwx101/hail/).

61 "NOAA'S NATIONAL WEATHER SERVICE - GLOSSARY." 2025A. WEATHER.GOV. NOAA. 2025. [HTTPS://FORECAST.WEATHER.GOV/GLOSSARY.PHP?WORD=HAIL](https://forecast.weather.gov/glossary.php?word=hail).

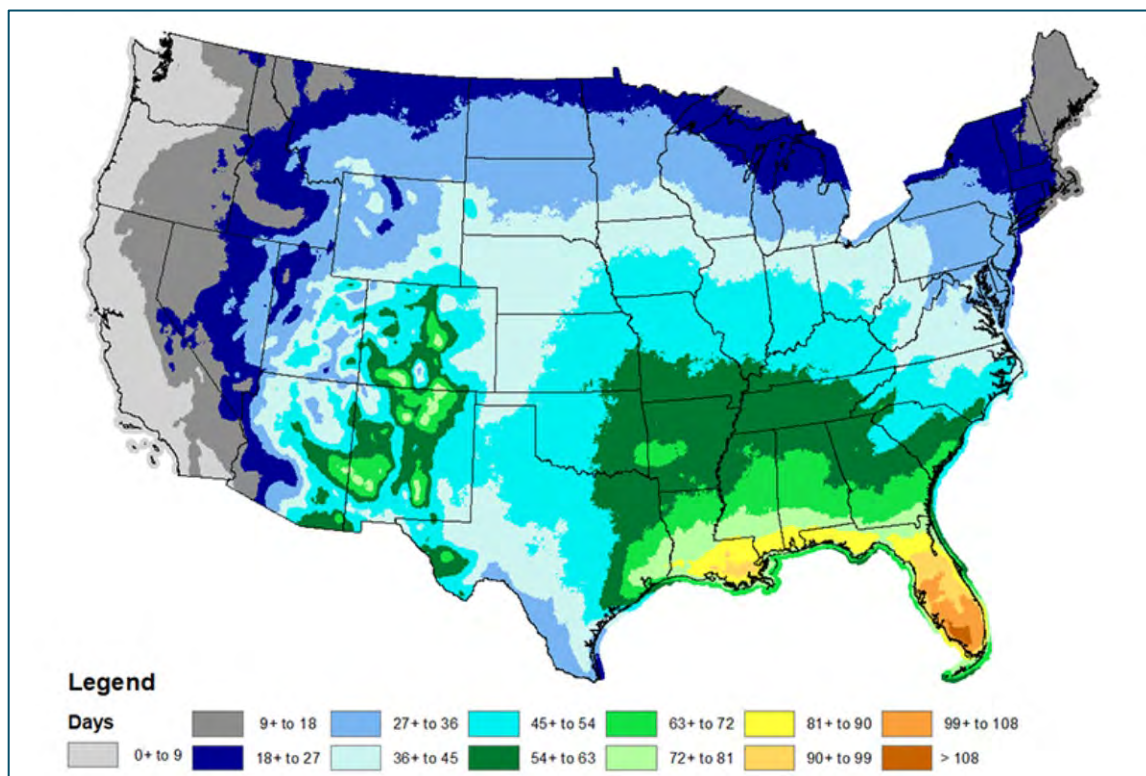
DESCRIPTION ⁶¹	DIAMETER (INCHES)
Walnut or Ping Pont Ball	1.50
Golf ball	1.75
Hen's Egg	2.00
Tennis Ball	2.50
Baseball	2.75
Teacup	3.00
Grapefruit	4.00
Softball	4.50

Source: NOAA

iii) Extent

Thunderstorms can develop and form in virtually any geographic location. However, they are more likely to occur within the mid-latitudes, where warm, moist air from tropical latitude collides with cooler air from polar latitudes, shown in **Figure 53** with the annual map thunderstorm days from 1993 to 2018.

Figure 53. Contiguous U.S. Annual Mean Thunderstorm Days (1993-2018), NWS



Source: National Weather Service (NWS)

On average, California experiences fewer thunderstorms than most other states in the contiguous United States. Within California, thunderstorms are more common inland, particularly in the southeastern corner of the state and along the border with Nevada. These regions are more exposed to the annual monsoonal moisture that impacts southwestern states every summer⁶². The City of Bell is situated within the portion of California with nine or fewer mean annual thunderstorms days.

Lightning Extent

The extent for lightning can be expressed in terms of the number of strikes in an interval. NOAA utilizes lightning activity levels (LALs) on a scale from 1-6. LAL rankings reflect the frequency of cloud-to-ground lightning either forecast or observed as described in **Table 54**.

62 LEE, JACK. 2022. "LIGHTNING IS EXTREMELY RARE IN THE BAY AREA. BUT HERE'S WHY IT CAN BE SO DANGEROUS WHEN IT STRIKES." THE SAN FRANCISCO CHRONICLE. THE SAN FRANCISCO CHRONICLE. AUGUST 18, 2022. [HTTPS://WWW.SFCHRONICLE.COM/PROJECTS/2022/WEATHER-LIGHTNING](https://www.sfchronicle.com/projects/2022/weather-lightning).

Table 54. NOAA Lightning Activity Levels (LAL)⁶³

LAL	CLOUD & STORM DEVELOPMENT	LIGHTNING STRIKES/ 15 MIN
1	No thunderstorms.	-
2	Isolated thunderstorms. Light rain will occasionally reach the ground. Lightning is very infrequent, 1 to 5 ground strikes in a 5 minute period.	1-8
3	Widely scattered thunderstorms. Light to moderate rain will reach the ground. Lightning is infrequent, 6 to 10 cloud to ground strikes in a 5 minute period..	9-15
4	Scattered thunderstorms. Moderate rain is commonly produced. Lightning is frequent, 11 to 15 cloud to ground strikes in a 5 minute period.	16-25
5	Numerous thunderstorms. Rainfall is moderate to heavy. Lightning is frequent and intense, greater than 15 cloud to ground strikes in a 5 minute period.	>25
6	Dry lightning (same as LAL 3 but without the rain). This type of lightning has the potential for extreme fire activity and is normally highlighted in fire weather forecasts with Red Flag Warning.	9-15

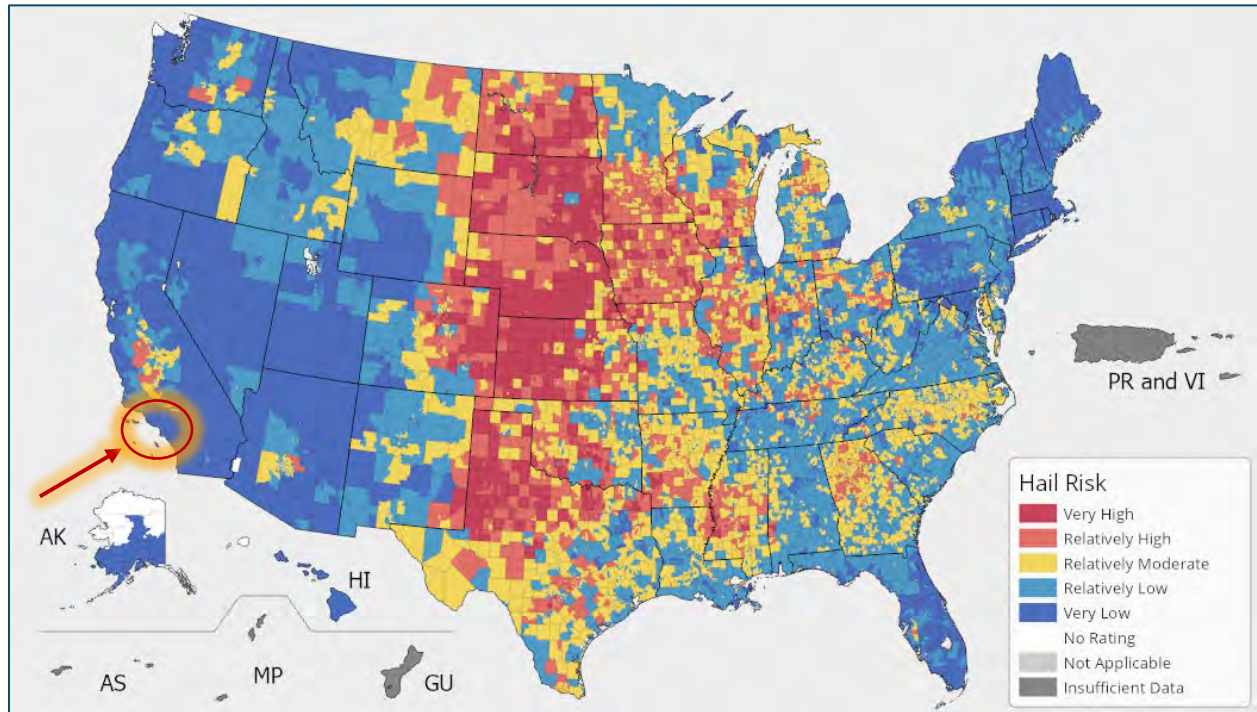
Source: NOAA

According to FEMA's hail risk index score, presented in **Figure 54**, the City of Bell is at low risk for hail events. Hail risk is calculated and represented by a community's relative level of expected building, population, and agriculture loss each year due to hail when compared to the rest of the United States⁶⁴.

⁶³ "NOAA'S NATIONAL WEATHER SERVICE - GLOSSARY." 2025B. WEATHER.GOV. NOAA. 2025. [HTTPS://FORECAST.WEATHER.GOV/GLOSSARY.PHP?WORD=LALS](https://forecast.weather.gov/glossary.php?word=LALS).

⁶⁴ "HAIL | NATIONAL RISK INDEX." N.D. HAZARDS.FEMA.GOV. FEMA. ACCESSED 2025. [HTTPS://HAZARDS.FEMA.GOV/NRI/HAIL](https://hazards.fema.gov/nri/hail).

Figure 54. FEMA Hail Risk Index Score



Source: FEMA NRI

iv) Past Occurrences

There have been several thunderstorm events within Los Angeles County throughout the years. NOAA's Storm Events Database does not track instances of severe thunderstorms, instead tracking the individual components like hail and thunderstorm wind. Reported instances of hail are listed in **Table 55**, and instances of thunderstorm wind are profiled in the Windstorm hazard profile later in this plan. The Iowa Environmental Mesonet (IEM) has a database of weather advisories issued by the National Weather Service (NWS) since 2004. According to IEM records, there have been 15 different severe thunderstorm warnings issued for all or part of the City of Bell. One event had resulted in damage, with the damage being labeling "considerable" by the database.

Table 55. Severe Thunderstorm Warnings Covering Bell 2004-2025

MONTH	DAY	YEAR	RECORD HAIL SIZE (INCHES)	DAMAGE REPORTED
04	02	2004	None	None
12	29	2004	None	None
12	29	2004	None	None
2	19	2005	None	None
2	19	2005	None	None

MONTH	DAY	YEAR	RECORD HAIL SIZE (INCHES)	DAMAGE REPORTED
2	19	2005	None	None
01	24	2008	None	None
01	22	2010	None	None
09	10	2011	None	None
01	31	2016	None	None
03	07	2016	None	None
03	16	2024	1.00	None
03	24	2024	1.00	None
02	14	2025	0.75	Considerable

Source: NOAA, NCEI, Storm Events Database

(1) Lightning

The NCEI does not report historical lightning strikes, making it difficult to develop an assessment of past occurrences of lightning at a local level. Data from the California Lightning Report show that Los Angeles County experienced nearly 30,000 lightning pulses across 15 thunder-days in 2020, but most of this activity was concentrated over the San Gabriel Mountains and Antelope Valley. These “pulses” include both intracloud and cloud-to-ground lightning, so the figure represents regional electrical activity rather than strikes felt evenly across the county. In fact, the vast majority of this activity occurs away from the Los Angeles Basin, and coastal plain communities like Bell typically experience 0–9 thunder-days per year, consistent with long-term National Weather Service climatology. Satellite-based flash density estimates further indicate that the Southern California coastal plain, including the Los Angeles Basin where Bell is located, averages less than one lightning flash per square kilometer per year, and there are no reported instances of lightning strikes directly affecting Bell itself.

(2) Hail

The Storm Events Database documents hail events in Los Angeles County dating back to 1959. Although the City of Bell is not specifically listed in the database as a location where hail has been observed, the records are not comprehensive and often lack detail on the exact communities affected. Given Bell’s location within the Los Angeles Basin, any countywide hail event has the potential to impact the city, even if the available records do not identify it explicitly. **Table 56** describes the reported instances of hail in Los Angeles County since 1959.

Table 56. Reported Hail Instances in Los Angeles County

DATE	LARGEST HAIL SIZE	REPORTED INJURIES	REPORTED FATALITIES	REPORTED PROPERTY DAMAGE
2/11/1959	1.25	0	0	\$0
1/31/1979	1.25	0	0	\$0
1/31/1979	1.5	0	0	\$0
5/21/1980	1	0	0	\$0
8/22/1984	1.75	0	0	\$0
11/4/1987	0.75	0	0	\$0
2/18/1993	--	0	0	\$0
3/28/1998	--	5	0	\$300,000
4/23/1999	1	0	0	\$0
4/18/2000	0.75	0	0	\$0
7/29/2003	0.75	0	0	\$0
11/12/2003	0.5	0	0	\$3,500,000
2/25/2005	0.75	0	0	\$0
2/25/2005	0.75	0	0	\$0
8/15/2005	0.75	0	0	\$0
10/17/2005	1.25	0	0	\$0
10/17/2005	0.75	0	0	\$0
12/27/2006	1	0	0	\$0
5/22/2008	1.1	0	0	\$0
7/4/2011	1	0	0	\$0
9/10/2011	1.25	0	0	\$0
3/1/2014	1.5	0	0	\$0
10/15/2015	1.75	0	0	\$0
10/15/2015	1	0	0	\$0
10/15/2015	1	0	0	\$0
8/3/2017	1	0	0	\$0
3/7/2024	1	0	0	\$0
3/15/2024	1	0	0	\$0
3/15/2024	1	0	0	\$0
3/24/2024	1	0	0	\$0
3/24/2024	0.88	0	0	\$0

DATE	LARGEST HAIL SIZE	REPORTED INJURIES	REPORTED FATALITIES	REPORTED PROPERTY DAMAGE
Totals	--	5	0	\$3,800,000

Source: NCEI

Frequency

Based on past occurrences, at most, the City of Bell has experienced about one lightning strike per year. However, there have been no reported instances of lightning impacting the City as there is a lack of sources tracking that data. Regarding hail, there have been 24 reported events since 1950 within Los Angeles County. There is no data if these hail events occurred in the City of Bell. Using the data that occurred in Los Angeles County in lieu of City specific data, hail events occur approximately every 3.1 years.

v)Future Probability

Thunderstorms have been recorded in Los Angeles County on an irregular basis, including several events in and around Bell over the last two decades. The historical record shows that most thunderstorms are short-lived and produce little to no reported damage; however, some events have been accompanied by hail or intense rainfall. Notable recent events include October 2015, when hailstones with a diameter of 1.75 were recorded, March 2024, when thunderstorms produced hailstones up to 1.0 inch, and February 2025, when a thunderstorm generated 0.75 inch hail and was associated with considerable damage.

Based on this record, the probability of thunderstorms affecting Bell is considered **Likely**. Between 2004 and 2025, a severe storm warning was issued for the City of Bell approximately once every 17 months, on average (0.71 warnings annually). Most years pass without significant thunderstorm activity, but when storms do occur, they can generate hazardous conditions such as hail, lightning, localized flooding, and strong winds. Climate projections for Southern California suggest that while the overall number of thunderstorm days is not expected to increase dramatically, future events may become more intense, with a greater likelihood of damaging hail, flash flooding, or other severe-weather elements as atmospheric instability increases. Given the limited availability of lightning data, it is difficult to assess the future probability of lightning strikes. However, NOAA's Storm Prediction Center warns that lightning threats exist with all thunderstorms, and this plan considers the future probability of lightning to be comparable to the future probability of thunderstorms overall. Bell can expect occasional thunderstorms in the future, with generally limited impacts but the potential for significant localized disruption in rare, more severe events.

Based on the historical record, hail events in Los Angeles County, including the vicinity of Bell, tend to occur sporadically, often years apart, but can produce damaging impacts when they do occur. The probability of hail affecting Bell in any given year is considered low to moderate, but

it is not negligible. Climate projections suggest that while the overall frequency of hail events in Southern California is unlikely to increase substantially, the intensity of individual storms may rise as atmospheric instability increases. This indicates that the City of Bell can expect occasional hailstorms in the future, with the potential for property damage, localized disruption, and, in rare cases, injuries.

The Fourth California Climate Assessment aligns with the IPCC's Sixth Assessment Report which suggests that it is currently difficult to assess how changing climate conditions may impact severe storms because of data inhomogeneities and inadequacies in monitoring systems. Climate models consistently project environmental changes that would support an increase in the frequency and intensity of severe thunderstorms that combine tornadoes, hail, and winds (*high confidence*), but there is *low confidence* in the details of the projected increase.

vi) Secondary Hazards

Severe thunderstorms can produce a variety of secondary hazards including hail, tornadoes, flooding, damaging winds, and lightning. Three of these, tornadoes, flooding, and damaging winds, have their own dedicated hazard profiles within this plan and are described in greater detail. The primary concern of hail is direct damage to people, animals, and property, although there is a limited risk of secondary hazards like broken glass and adverse driving conditions. Lightning also poses a direct threat to people, animals, and property, but the secondary concerns around lightning are more significant than those associated with hail. Lightning can spark fires that can quickly become major hazards of their own. Lightning can also cause extensive damage to electrical equipment. Some secondary hazards of severe thunderstorms are described in **Table 57**.

Table 57. Secondary Hazards of Thunderstorms

HAZARD	DESCRIPTION
Fires	Lightning strikes during thunderstorms can ignite fires, particularly when they strike buildings, utility poles, or dry vegetation. In Bell's urban environment, this risk is most closely tied to structural fires or electrical fires sparked by lightning or power surges. While widespread wildfire is not a concern within the City limits, even a single lightning-caused fire can damage homes or critical facilities and require significant emergency response.
Utility Interruptions	Severe winds, lightning, or falling debris from thunderstorms can damage power lines, transformers, and communications infrastructure. Utility outages disrupt households, businesses, and critical services such as healthcare, cooling centers, and emergency communications. For vulnerable populations who rely on electrically powered medical devices or cooling during heat events, even a short-term outage can pose serious health risks.

HAZARD	DESCRIPTION
Erosion	Heavy rainfall associated with severe thunderstorms can produce localized erosion, especially along construction sites, unpaved lots, and areas adjacent to the Los Angeles River channel or storm drain outfalls. While Bell does not have steep slopes prone to large debris flows, small-scale erosion can undermine roadbeds, compromise landscaping or parkland, and increase sediment load in storm drains, reducing their effectiveness in future storms.

vii) Vulnerability & Impact Assessment

In this section, population, properties, and critical facilities are evaluated to better understand vulnerabilities to such assets in order to better understand and mitigate risk from hazards. The main threats associated with severe thunderstorms are flooding, hail, high winds, and lightning. This section will primarily consider the lightning and hail components, as flooding and high winds are reviewed in detail in their respective sections elsewhere in this plan.

(1) People

Lightning from thunderstorms and severe thunderstorms can pose a risk to the population, especially increased population density and urbanization continues. Impacts from these events can include individuals being struck by lightning and power outages. There are risks of being struck by lightning and the consequences of lightning strike injuries are serious. In the United States, an average of 182 people is injured and 33 people pass away each year by lightning. Although most survive, many can experience long-term debilitating symptoms⁶⁵. However, based on the previous occurrences in the City, there have been no reported injuries, fatalities, or other related impacts to the populations from thunderstorms, severe thunderstorms, and lightning.

Hail poses a risk to the population as the speed and size of the hailstones falling on individuals can cause injuries or deaths. Hailstones with diameters of 0.75 to 1.00 inches can cause pain, bruising, and minor injuries if striking exposed skin or the head. Hailstones above 1.00 inch in diameter can cause cuts, welts, or even concussion, and hailstones above 2.00 inches in diameter can break bones. Motorists, outdoor workers, children walking to school, and those experiencing homelessness are some of the populations that would be exposed and at increased risk of injury from hailstones during a storm.

(2) Structures and Systems

Structures and systems in the City of Bell are generally considered to have a low but noteworthy vulnerability to severe thunderstorms. The built environment is dominated by concrete and

65 "PROTECTIVE ACTIONS RESEARCH." 2022. FEMA.GOV. FEMA. 2022. [HTTPS://COMMUNITY.FEMA.GOV/PROTECTIVEACTIONS/S/ARTICLE/THUNDERSTORM-LIGHTNING-AND-HAIL-IMPACT](https://community.fema.gov/protectiveactions/s/article/thunderstorm-lightning-and-hail-impact).

masonry construction, which can withstand routine weather, but high winds or large hail associated with severe storms could crack windows, damage roofs, and weaken building envelopes. Older homes and commercial properties with aging roofing or inelastic materials such as brick may be particularly susceptible to spalling, water intrusion, and structural stress. Critical facilities such as schools, municipal buildings, and emergency response stations may also experience damage to exterior elements or service interruptions if roofs, power systems, or communications infrastructure are compromised.

Urban systems in Bell—including utilities, energy distribution, and transportation networks—face indirect threats during severe thunderstorms. Downed power lines or damaged substations could result in localized power outages, while heavy rain could temporarily overwhelm storm drains, leading to street flooding that disrupts mobility and erodes road surfaces. The Interstate 710 corridor, a critical freight and commuter artery, is especially sensitive to flooding and debris accumulation during intense rainfall, which could delay the movement of goods and emergency services. Rail lines running through and near the community are similarly vulnerable to track washouts or signal system failures if drainage systems are overburdened.

Although severe thunderstorms in this part of Los Angeles County are relatively infrequent, the systems that support daily life—electricity, communications, transportation, and water—are interconnected, meaning even limited storm-related damage could cascade into broader community impacts. Vulnerability is heightened for populations that rely on consistent access to public transportation, electricity-dependent medical equipment, or reliable shelter. Therefore, while the probability of severe thunderstorm impacts is low, the consequences for Bell's structures and systems could be significant if a major event were to occur.

Critical Facilities

Thunderstorms and lightning, particularly when severe, pose a risk to the City of Bell by disrupting critical facilities such as public utilities, telecommunications systems, and major transportation routes. High winds can down power lines, damage substations, and scatter debris onto roads and railways, creating blockages that slow both commuter and freight traffic. Intense rainfall can overwhelm storm drains, leading to localized flooding that reduces roadway capacity and increases wear on bridges and culverts. Lightning strikes may damage electrical equipment, trigger power surges, or start localized fires that further strain emergency response capacity. Even relatively brief interruptions to these interconnected systems can ripple outward, creating cascading delays for emergency services and limiting the community's ability to respond effectively and recover quickly from a storm.

Hail associated with severe thunderstorms can also damage critical facilities and infrastructure. Depending on the size, density, and velocity of the hailstones, impacts may include broken windows, dented roofing, compromised mechanical systems, and damage to outdoor equipment. While there are no documented cases of hail related damage to critical facilities within the planning area, the potential remains. Historically, hail events in Southern California

have been infrequent and localized, and while they may pose a risk to buildings and systems, the resulting damage typically does not lead to major disruptions or long-term impairment of critical assets. The potential impacts of severe thunderstorms on FEMA's eight community lifelines in Bell are listed in **Table 58**.

Table 58. Potential Impacts Of Thunderstorms

LIFELINES	IMPACT TYPE	DESCRIPTION
Communications		Severe storms can temporarily disrupt communications infrastructure by damaging cell towers, overhead lines, or underground fiber conduits through flooding or ground saturation. While widespread outages are unlikely, localized interruptions could slow emergency response or leave residents without reliable information.
Energy (Power and Fuel)		Strong winds and lightning strikes can down power lines or damage substations, leading to outages that affect homes, businesses, and critical facilities. Fuel transport systems, including road-based delivery, may also face delays if major routes are flooded or blocked by debris.
Food, Hydration, and Shelter		Grocery stores, food distributors, and shelters may not be directly damaged by severe storms, but service disruptions can occur if transportation routes are blocked or if power outages compromise refrigeration and storage. Households relying on electricity for safe food storage are particularly vulnerable.
Hazardous Materials		Facilities and transport routes involving hazardous materials face some risk from storm impacts. Floodwaters could breach containment areas, while high winds or lightning could damage above-ground tanks or pipelines. Though rare, such incidents could create localized contamination or safety hazards.

LIFELINES	IMPACT TYPE	DESCRIPTION
Health and Medical		Hospitals and clinics are designed with resilience in mind, but they remain vulnerable to secondary impacts. Power loss, flooding of access roads, and strain on emergency medical transport during a storm can hinder service delivery. Populations dependent on electricity-powered medical equipment in residential settings are particularly at risk during outages.
Safety and Security		Police, fire, and emergency management agencies face minimal direct hazard from severe storms, but their operations can be impaired by power outages, damaged communications, or blocked transportation routes. Increased demand for services during and after storms can also stretch response capacity.
Transportation		Transportation systems are among the most vulnerable lifelines. Severe rainfall can overwhelm drainage and flood local streets, while wind and debris may block or damage roadways. Major routes like Interstate 710 and nearby rail lines are critical to the region's freight and commuter networks, and disruptions here could have cascading economic and logistical impacts.
Water and Wastewater Systems		Heavy rain can overwhelm storm drains, leading to localized flooding and backups. Pump stations and treatment plants may be disrupted by electrical outages, while erosion and debris can damage pipelines or reduce system capacity. In extreme cases, water quality could be compromised if treatment processes are interrupted.

(3) Natural, Cultural, and Historical Resources

The City of Bell's natural, cultural, and historic assets face only limited vulnerability to severe thunderstorms, but risks are not absent. Heavy rainfall can overwhelm local drainage systems,

leading to temporary flooding in parks, open spaces, and along the Los Angeles River corridor, which may degrade natural habitats and recreational areas. High winds and lightning strikes have the potential to damage mature trees, causing both ecological loss and secondary hazards to cultural landmarks or nearby structures. Older cultural or historic buildings—particularly those constructed with masonry or featuring aging roofs—are more susceptible to water intrusion, spalling, and stress from wind or hail impacts. While severe thunderstorms are relatively infrequent in Bell, even localized damage to these community assets could diminish their historic integrity, reduce access to recreational areas, or place financial strain on preservation and maintenance efforts.

(4) Risk Analysis

Severe thunderstorms pose a **Moderate** risk to the City of Bell. While infrequent, these storms can bring serious hazards such as lightning, hail, strong winds, and localized flooding. Lightning has the potential to injure individuals, spark fires, and damage power or communication systems. Hail can dent vehicles, damage roofs, and break windows when stones reach one inch in diameter or larger. Historical records show that Bell has been included in several severe thunderstorm warnings since 2005, with most causing little or no damage; however, recent events in 2024 and 2025 produced hailstones up to one inch in diameter, with one storm causing “considerable” reported damage. Looking forward, the annual probability of a severe storm in Bell is low to moderate, but the potential for more intense storms in the future cannot be dismissed, as climate projections suggest a possible rise in storm severity even if overall frequency remains limited.

The City’s vulnerability to severe thunderstorms is generally low but not negligible. Residents are most at risk from lightning and hail when outdoors, particularly children, outdoor workers, and people experiencing homelessness. Older homes and commercial structures with masonry or aging roofs are more likely to sustain damage, while critical facilities such as schools, municipal buildings, and emergency response stations may experience service interruptions if their roofs, power supplies, or communication systems are compromised. Key transportation routes, including Interstate 710 and nearby rail lines, are sensitive to flooding and debris accumulation during heavy rainfall, which could disrupt commuter and freight traffic beyond the City. Although severe storms in Bell remain uncommon, their potential to create localized damage and cascading impacts on people, property, and lifelines warrants continued monitoring and preparedness.

M) TORNADOES

i) Hazard Profile

Tornadoes can form when there is a mixing of warm, moist air near the ground, cool air aloft, and winds that speed up and change direction. The mixture of these atmospheric conditions is broadly responsible for producing storms, and in some cases, a rotating column of air can tighten into a tornado. More than half of all tornadoes produce windspeeds of 85 mph or less, while nearly 90% of tornadoes produce wind speeds under 110 mph. Rare, extremely violent tornadoes have produced some of the fastest windspeeds recorded on Earth.

(1) Duration

Tornadoes can last from less than minutes to more than an hour. However, most tornadoes usually last less than 10 minutes. Tornadoes dissipate when they become cut off from the warm, moist air that sustains them.

(2) Seasonality

Tornadoes in the U.S. occur most frequently during the “tornado season” from April through June. However, records indicate that the planning area is more likely to experience tornadoes during the cooler months, as more than 40% of tornadoes that have occurred in Los Angeles County since 1950 were in the months of November, December, and January, while only 20% happened in April, May, or June.

(3) Speed of Onset

The necessary conditions for tornadoes can emerge in minutes or linger for hours. If the at When a tornado is close to forming, a funnel cloud will often appear. A funnel cloud may pull up or continue developing. The body of a tornado can fully stretch between the clouds and the ground in less than a minute.

(4) Location

The entirety of the planning area is considered vulnerable to tornadoes. While these events are rare in the region, such events have been previously documented. An individual event is unlikely to impact the entirety of the planning area, but it is impossible to predict which areas of the community will be impacted by a given event.

ii) Magnitude

The measure of the magnitude and intensity of a tornado, the Enhanced Fujita Scale or EF Scale, which became operational in 2007. The EF scale replaced the Fujita Scale (F) as the scale used by the NWS to rate tornado intensity. The EF scale is based off wind estimates determined by

assessing the relevant damage. The scale uses three-second gusts estimated at the point of damage. Additionally, the National Weather Service is the only federal agency with authority to provide an “official” tornado EF Scale rating⁶⁶. **Table 59** describes the wind speed associated with each Enhanced Fujita Scale Rating.

Table 59. The Enhanced Fujita Scale

RATING	WIND SPEEDS (MPH)
0	65-85
1	86-110
2	111-135
3	136-165
4	166-200
5	Over 200

Source: NOAA

The three-second gusts are estimated at the point of damage based on the damage indicators described in the table below. Additionally, the National Weather Service is the only federal agency with authority to provide an “official” tornado EF Scale rating. **Table 60** describes the damage associated with each Enhanced Fujita Scale number.

Table 60. Damages Indicators for The Enhanced Fujita Scale

NUMBER	DAMAGE INDICATOR
1	Small barns, farm outbuildings
2	One- or two-family residences
3	Single-wide mobile home (MHSW)
4	Double-wide mobile home
5	Apt, condo, townhouse (3 stories or less)
6	Motel
7	Masonry apt. or motel
8	Small retail bldg. (fast food)
9	Small professional (doctor office, branch bank)
10	Strip mall
11	Large shopping mall
12	Large, isolated ("big box") retail bldg.

⁶⁶ “THUNDERSTORM HAZARDS - TORNADOES | NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION.” 2023. WWW.NOAA.GOV. NOAA. JUNE 22, 2023. [HTTPS://WWW.NOAA.GOV/JETSTREAM/THUNDERSTORMS/THUNDERSTORM-HAZARDS-TORNADOES](https://www.noaa.gov/jetstream/thunderstorms/thunderstorm-hazards-tornadoes).

NUMBER	DAMAGE INDICATOR
13	Automobile showroom
14	Automotive service building
15	School - 1-story elementary (interior or exterior halls)
16	School - jr. or sr. high school
17	Low-rise (1-4 story) bldg.
18	Mid-rise (5-20 story) bldg.
19	High-rise (over 20 stories)
20	Institutional bldg. (hospital, govt. or university)
21	Metal building system
22	Service station canopy
23	Warehouse (tilt-up walls or heavy timber)
24	Transmission line tower
25	Free-standing tower
26	Free standing pole (light, flag, luminary)
27	Tree - hardwood
28	Tree - softwood

Source: National Weather Service (NWS)

In order to communicate tornado risk to the public, the National Weather Service issues a tornado watch or a tornado warning, described in **Table 61**.

Table 61. Tornado Watches and Warning Descriptions⁶⁷

ISSUED PRODUCT	DESCRIPTIONS
Tornado Watch	Tornadoes are possible in and near the watch area. Review and discuss your emergency plans and check supplies and your safe room. Be ready to act quickly if a warning is issued or you suspect a tornado is approaching. Acting early helps to save lives! Watches are issued by the Storm Prediction Center for counties where tornadoes may occur. The watch area is typically large, covering numerous counties or even states.
Tornado Warning	A tornado has been sighted or indicated by weather radar. There is imminent danger to life and property. Move to an interior room on the lowest floor of a sturdy building. Avoid windows. If in a mobile home, a vehicle, or outdoors, move to the closest substantial shelter

⁶⁷ US DEPARTMENT OF COMMERCE. N.D. "UNDERSTAND TORNADO ALERTS." WWW.WEATHER.GOV. NOAA. ACCESSED 2025. [HTTPS://WWW.WEATHER.GOV/SAFETY/TORNADO-WW](https://www.weather.gov/safety/tornado-ww).

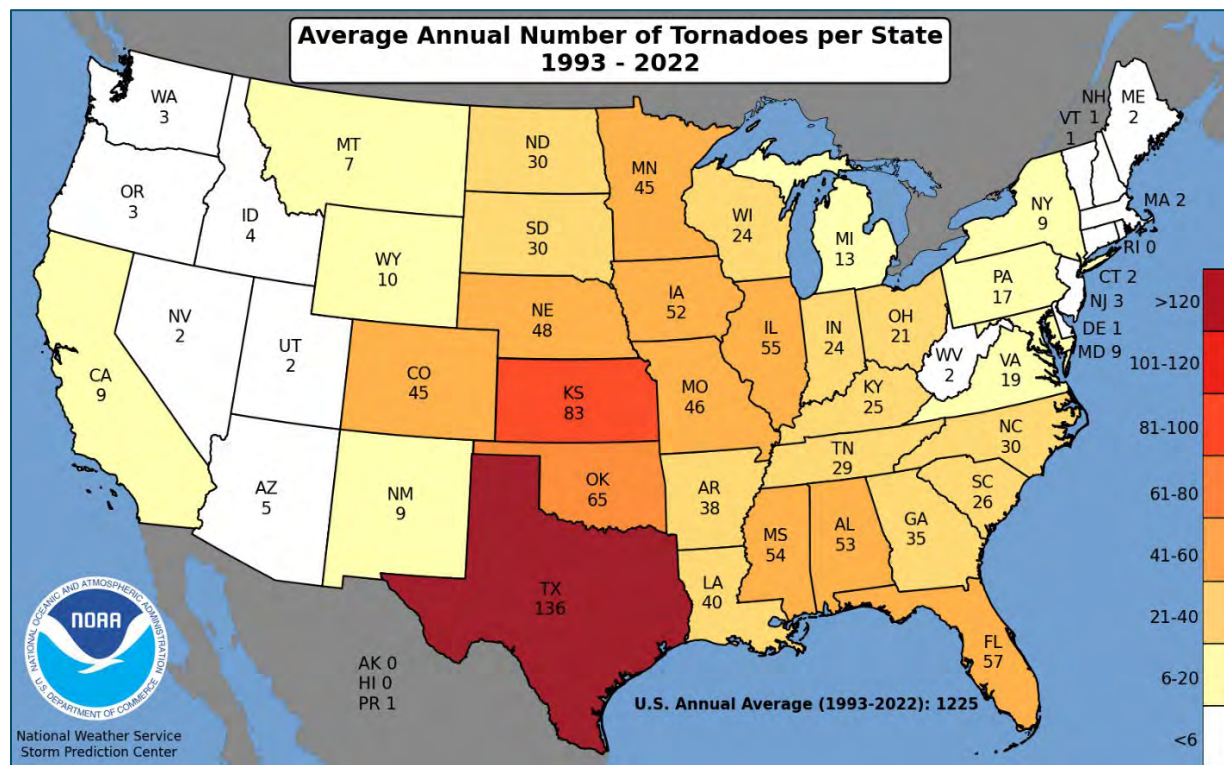
ISSUED PRODUCT	DESCRIPTIONS
	and protect yourself from flying debris. Warnings are issued by your local forecast office. Warnings typically encompass a much smaller area (around the size of a city or small county) that may be impacted by a tornado identified by a forecaster on radar or by a trained spotter/law enforcement who is watching the storm.
Tornado Emergency	A tornado emergency is the National Weather Service's highest alert level. It is issued when a violent tornado has touched down in the watch area. There is a severe threat to human life and property, with catastrophic damage confirmed. Immediately seek refuge in the safest location possible. Call friends and family who are within the watch area to ensure they are aware of the situation. If you see a tornado approaching, do not attempt to outrun it in a vehicle, shelter in place. Once safe, be sure to monitor your local forecast for the latest updates.

Source: National Weather Service (NWS)

iii) Extent

Tornadoes commonly occur in the central and southeastern regions of the US, although most states will experience at least one per year on average. Large, violent tornadoes are highly unusual outside of the central and southeastern states. **Figure 55** depicts the average number of tornadoes that have occurred from 1993 to 2022 for each state. There are no recorded instances of tornadoes larger than F/EF-2 occurring in Los Angeles County.

Figure 55. Average Annual Number Of Tornadoes Per State (1993-2022)



Source: NOAA

iv) Past Occurrences

According to the NOAA Storm Events Database, there have been 49 tornadoes inside Los Angeles County since 1950, but none were tracked through the City of Bell. Additionally, there are no reports of damages inside Bell as a result of tornadoes that passed nearby. Details of the tornadoes recorded in Los Angeles County are listed in **Table 62**.

Table 62. Recorded Tornadoes In Los Angeles County 1950-2025

DATE	RATING	INJURIES	DEATHS	REPORTED DAMAGE
12/20/1952	No Rating	0	0	\$0
1/18/1955	No Rating	0	0	\$2,500
5/9/1956	F0	1	0	\$25,000
2/19/1962	F1	0	0	\$2,500
5/14/1962	F1	0	0	\$25,000
11/9/1964	F1	0	0	\$2,500
11/7/1966	F2	0	0	\$2,500

DATE	RATING	INJURIES	DEATHS	REPORTED DAMAGE
11/7/1966	F2	10	0	\$250,000
4/18/1967	F0	0	0	\$2,500
5/8/1977	No Rating	0	0	\$2,500,000
1/4/1978	No Rating	0	0	\$30
2/10/1978	No Rating	0	0	\$0
1/31/1979	No Rating	0	0	\$2,500,000
1/28/1980	F0	0	0	\$2,500
3/29/1982	F1	0	0	0
11/9/1982	F1	0	0	\$25,000
11/9/1982	F2	0	0	\$2,500,000
11/9/1982	F2	0	0	\$2,500,000
11/9/1982	F0	0	0	\$2,500
3/1/1983	F2	30	0	\$25,000,000
3/1/1983	F0	0	0	\$250
9/30/1983	F0	0	0	\$250,000
10/1/1983	F1	3	0	\$2,500
5/30/1984	F0	0	0	\$30
6/5/1987	F0	0	0	\$25,000,000
1/16/1990	F0	0	0	\$0
3/19/1991	F0	0	0	\$0
3/20/1992	F1	0	0	\$0
1/14/1993	F1	0	0	\$500,000
1/17/1993	F0	0	0	\$50,000
2/7/1994	F0	0	0	\$50,000
6/16/1995	F0	0	0	\$0
7/21/1997	F0	0	0	\$0
1/9/1998	F1	1	0	\$0
4/1/1999	F0	0	0	\$0
2/16/2000	F0	0	0	\$0
8/28/2000	F0	0	0	\$0
12/21/2001	F0	0	0	\$0
12/28/2004	F0	0	0	\$0
12/29/2004	F0	0	0	\$0

DATE	RATING	INJURIES	DEATHS	REPORTED DAMAGE
12/29/2004	F0	0	0	\$0
8/15/2005	F0	0	0	\$0
9/1/2007	EF0	0	0	\$0
12/12/2014	EF0	0	0	\$0
9/9/2021	EF0	0	0	\$0
2/23/2023	EF0	0	0	\$0
3/22/2023	EF1	1	0	\$0
5/4/2023	EF0	0	0	\$0
5/4/2023	EF0	0	0	\$0
Totals	--	46	0	

Source: NOAA, NCEI, Storm Events Database

Frequency

According to data from the National Weather Service, California experiences an average of approximately nine tornadoes each year, while historical records since 1950 indicate Los Angeles County experiences a tornado approximately once every 18 months. Comparatively, the United States averages over 1,200 tornadoes every year, with the most occurring in Texas and Kansas. Based on the data across the Southern California region and the previous occurrences within and near the planning area, tornadoes are unlikely to occur and when they do occur are low in magnitude.

v)Future Probability

Tornadoes in Los Angeles County are already relatively uncommon events, and when they do occur, they are short lived. The probability of a tornado impacting the City of Bell, which accounts for less than 1% of the area in Los Angeles County, is **Unlikely**. This is supported by the fact that there have been no instances of a tornado hitting the City of Bell over the last 75 years. Still, such an event is not impossible, and it is beneficial for the City to be aware of the hazard and ready to respond if one occurs. As the climate continues to warm, the number of days that are conducive to severe weather is projected to increase, which includes the threat of supercells producing severe rotating thunderstorms. A study supported by NOAA found that future warming is projected to:

- Nearly 15% more supercells are expected in February, 36% more in March, and nearly 66% more in April by 2100 under a business-as-usual climate warming scenario.

- Under an intermediate warming scenario, the research projects 7% more supercells in February, 18% more in March, and nearly 37% more in April by the end of the century⁶⁸.

The Fourth California Climate Change Assessment aligns with the IPCC's Sixth Assessment Report which states that there is *limited evidence* and *low agreement* in observed changes in North American datasets linking tornadoes and climate change. Climate models consistently project environmental changes that would support an increase in the frequency and intensity of severe thunderstorms that combine tornadoes, hail, and winds (high confidence), but there is low confidence in the details of the projected increase.

vi) Secondary Hazards

Secondary hazards resulting from a tornado event include high winds, power outages, poor air quality, and debris related hazards such as hazardous materials and electrical hazards described in **Table 63**.

Table 63. Secondary Hazards of Tornadoes

HAZARD	DESCRIPTION
High Winds	The majority of the damage from tornadoes is caused by the strong winds and the flying debris they create. Wind speed from tornadoes can reach as high as 300 mph in the most violent tornadoes. Windspeeds that high can airborne cars destroy homes to the foundation and turn broken glass and other debris into lethal missiles.
Power Outages	Strong winds from the tornado can knock out power lines resulting in power outages. Power outages, especially prolonged ones, can pose a risk to populations including individuals that medically depend on electricity.
Poor Air Quality	Powerful tornadoes can also destroy pipelines and other chemical containers that may release toxic pollutants like oil, asbestos, and other hazardous waste which can contaminate the air and impact public health.
Debris Related Hazards	Extreme winds can create a physical hazard after the tornado has passed with all of the debris and damage including electrical hazards, carbon monoxide exposures, and hazardous materials.

vii) Vulnerability & Impact Assessment

Tornadoes occur relatively infrequently in communities within the County of Los Angeles, including the City of Bell. However, the limited documentation of previous occurrences in the

68 "SEVERE STORM, SUPERCELL, AND TORNADO TRENDS | CLIMATE CENTRAL." 2023A. WWW.CLIMATECENTRAL.ORG. CLIMATE CENTRAL. APRIL 12, 2023.
[HTTPS://WWW.CLIMATECENTRAL.ORG/CLIMATE-MATTERS/SEVERE-STORM-SUPERCELL-AND-TORNADO-TRENDS-2023](https://www.climatecentral.org/climate-matters/severe-storm-supercell-and-tornado-trends-2023).

region does mean that the potential impacts of a future tornado in the City of Bell shouldn't be overlooked. Even a weak tornado (EF-0 or EF-1) can cause considerable damage. Potential impacts of a future tornado within the City of Bell are described in the following sections.

(1) People

The possibility of tornadoes posing a threat to populations in the future is possible. Tornadoes typically cause 60 to 80 fatalities per year and injure more than 1,500 people. Most fatalities are attributed to flying or falling debris and occur in the most violent tornadoes. Violent tornadoes, EF-4 and EF-5 comprise of about two% of all tornadoes, but account for about 70% of tornado deaths⁶⁹. Due to the infrequency of tornadoes in the area, it is possible residents may not be prepared to respond to the same extent that they are for more common hazards. A delayed response—particularly to hazards like tornadoes which tend to strike with relatively short notice—can increase overall vulnerability.

It is reasonable to assume that a tornado occurrence in the City of Bell would cause significant damage to residential structures and render many of these buildings uninhabitable. The impact of such an event would be the loss of stable housing for affected residents; this could result in increased homelessness, crowding at local shelters, and a possible exodus of residents. During a tornado, people who are unable to access a shelter—including those experiencing homelessness, people who work outdoors, commuters, and more—are the most exposed to flying debris. Support for underserved and socially vulnerable individuals should be thoroughly planned, as these populations often have unique needs which may require specialized care.

(2) Structures and Systems

The City of Bell is at risk of experiencing damage to properties if a tornado does pass through the community. The City of Bell is not considered to be within a tornado-prone region according to the 2022 California Building Code (CBC), which Bell has adopted, and this means that there is no requirement for structures to be designed and constructed with consideration for forces produced by tornadoes. Therefore, structures in the community may struggle to withstand the forces produced by a tornado in the event of one impacting the City.

Homes in Bell demonstrate a mix of vulnerabilities to tornadoes based on housing type and age. The majority of homes are single-family detached houses (51%), followed by multi-family units (36%) and mobile homes (4%). Mobile homes are especially vulnerable, as they are prone to significant damage even from low-intensity tornadoes. The likelihood of a tornado-related fatality in a mobile home is 15 to 20 times greater than in permanent homes⁷⁰. **Figure 52** shows the locations of mobile home parks in and around the City of Bell. Multi-family complexes, while

69 HUBBARD, LEX. 2017. "THE EFFECTS OF TORNADES ON HUMANS & NATURE." SCIENCING. SCIENCING. 2017. [HTTPS://SCIENCING.COM/THE-EFFECTS-OF-TORNADES-ON-HUMANS-NATURE-12552590.HTML](https://sciencing.com/the-effects-of-tornados-on-humans-nature-12552590.html).

70 "SEVERE STORM, SUPERCELL, AND TORNADO TRENDS | CLIMATE CENTRAL." 2023. [WWW.CLIMATECENTRAL.ORG](https://www.climatecentral.org/climate-matters/severe-storm-supercell-and-tornado-trends-2023). CLIMATE CENTRAL. APRIL 12, 2023. [HTTPS://WWW.CLIMATECENTRAL.ORG/CLIMATE-MATTERS/SEVERE-STORM-SUPERCELL-AND-TORNADO-TRENDS-2023](https://www.climatecentral.org/climate-matters/severe-storm-supercell-and-tornado-trends-2023).

[illegible]

There have been no documented instances of tornadoes impacting the City of Bell, although there have been occasional tornadoes that touched down inside of Los Angeles County. Tornadoes have the potential to cause major disruptions to critical facilities and services, all critical facilities are at risk as the direction and path of a tornado is not particularly more likely to occur in one area of the City to another. Tornadoes can cause power outages, disrupt

communications, damage schools, and government facilities. Debris from the tornado can block and damage major highways and roads, which can make it difficult for emergency services to reach people in need of medical assistance. One of the common consequences of a tornado in an urban area is damage to utility infrastructure. This typically affects above-ground assets such as electricity and communications infrastructure.

The 2022 California Building Code incorporates ASCE 7 wind load provisions but does not designate Bell as being within a tornado-prone region. As a result, schools in the City are not required to be designed or constructed to withstand tornado-specific loads. This leaves educational facilities vulnerable to tornadoes of all strengths (EF-0 through EF-5), should such an event occur. The primary impact of tornado damage to a school would be the disruption of normal operations, potentially requiring students to attend classes at alternate facilities, transition to remote (online) learning, or temporarily suspend educational activities until repairs are made. The potential impacts of tornadoes on FEMA's eight community lifelines in Bell are listed in **Table 64**.

Table 64. Potential Vulnerabilities of Lifelines To a Tornado

LIFELINES	IMPACT TYPE	DESCRIPTIONS
Communications		Tsunamis can knock out communication infrastructure, including cell towers and internet cables, making it difficult to coordinate rescue and relief efforts and for people to contact loved ones.
Energy (Power & Fuel)		Energy facilities, including power plants and electrical substations near the coast, can be damaged by tsunamis, leading to widespread power outages, and affecting other critical sectors that rely on electricity.
Food, Shelter, & Housing		Tornadoes can cause significant damage to homes, businesses, and public buildings, leading to displacement of residents and the need for temporary shelters and long-term rebuilding efforts.
Hazardous Materials		Tornadoes can damage storage containers holding hazardous materials, potentially resulting in an uncontrolled release. Additionally, tornadoes are strong enough to pick up containers, potentially spreading hazardous materials over a wide area.

LIFELINES	IMPACT TYPE	DESCRIPTIONS
Health & Medical		Tornadoes can cause injuries ranging from minor to severe, placing a sudden demand on healthcare facilities. Hospitals and clinics must be prepared for an influx of patients and possible damages to their own infrastructure.
Safety & Security		Immediate threats to life and property necessitate rapid emergency response, including search and rescue operations, medical assistance, and maintaining public order to prevent looting or other crimes in affected areas.
Transportation		Damage to roads, bridges, and transportation infrastructure can hinder emergency response efforts and the movement of goods and people. Clearing debris and repairing infrastructure are critical post-tornado activities.
Water & Wastewater Systems		Tsunamis can damage water supply infrastructure, such as pipes and treatment plants, leading to contamination of drinking water. Wastewater systems can also be damaged, causing sewage spills and environmental contamination.

(3) Natural, Cultural, and Historical Resources

Tornadoes can damage cultural and historic properties which can cause structural damage, debris damage, power outages, tree damage from high winds, and accessibility issues which can pose a risk for public safety and cause financial impacts.

(4) Risk Analysis

Tornadoes pose a **Moderate** risk of impacting the City of Bell. Tornadoes occurring in the State of California are rare, with only about nine tornadoes touching down per year. Based on data from the NOAA Storm Events Database, there have been no recorded instances of tornadoes impacting the City of Bell. However, the extent of damage that tornadoes can produce, particularly in communities like Bell that have a significant amount of older structures, is why tornadoes are considered a moderate risk for the community. As climate change drives changes in weather patterns, it is possible to see an increase of tornado events in the State of California

and in Southern California as the frequency of storm systems capable of producing tornadoes increase. Additionally, based on future development trends, it is likely that tornadoes will increase in risk as the population increases, along with housing and property. While the risk of tornadoes occurring within the planning area is low and previous occurrences have caused minimal damage, destructive tornadoes can occur within the City.

N) TSUNAMIS

i) Hazard Profile

A tsunami is a wave triggered by any form of land displacement along the edge or bottom of an ocean or lake. Submarine landslides or submarine seismic events can move the overlying water to the surface and cause a tsunami. Tsunamis can be highly destructive, causing extensive damage to property, the environment, and people. Some waves can travel as fast as 600 mph and can grow over 50 feet in height once they approach a shallow shoreline. Tsunami impacts include coastal flooding, strong damaging currents, extreme water level fluctuations, eddies, erosion, and sedimentation. Once coastal areas become flooded, any subsequent, tsunami-induced hazards can include free-floating debris and environmental contamination from spills⁷¹.

(1) Duration

A tsunami can last for several hours or days, depending on the location or wave train. The time between tsunami waves can range from five minutes to two hours.

(2) Seasonality

Tsunamis and seiches do not have a seasonality and can occur at any point in time as most tsunamis are caused by earthquakes which also do not have a season or time of year in which they are more likely to occur.

(3) Speed of Onset

A tsunami occurs immediately after a trigger event such as an earthquake or massive landslide. Tsunami waves can travel over 500 miles per hour and cross an entire ocean in less than a day.

(4) Location

While the surge of water brought on by a tsunami is unlikely to reach the northern portions of the planning area, the entirety of the City of Bell is considered vulnerable to this hazard due to the impact that would be felt by displaced individuals and the rapid loss of many critical facilities and services. Additionally, this hazard will likely impact many neighboring communities, and it can be anticipated that the strain placed on the Los Angeles Metropolitan Area would affect virtually all residents of the City of Bell.

71 NEWSOM, GAVIN, AND NANCY DIRECTOR. 2023. "2023 CALIFORNIA STATE HAZARD MITIGATION PLAN." CAL OES. CAL OES. [HTTPS://WWW.CALOES.CA.GOV/WP-CONTENT/UPLOADS/HAZARD-MITIGATION/DOCUMENTS/2023-CALIFORNIA-SHMP_VOLUME-1_11.10.2023.PDF](https://www.caloes.ca.gov/wp-content/uploads/hazard-mitigation/documents/2023-california-shmp_volume-1_11.10.2023.pdf).

ii) Magnitude

Generally, the height of the tsunami is used as a measurement for the magnitude. In the deep ocean it is difficult to detect tsunamis to the human eye as the waves are very small. However, there are instruments to detect tsunamis which includes DART system, tidal gauges, and satellites. To communicate the danger tsunamis can pose to communities, the Tsunami Warning Centers issued tsunami alerts following a tsunami event, described in **Table 65**.

Table 65. Tsunami Alerts

TSUNAMI ALERT	DESCRIPTION
Tsunami Warning (Dark Red)	A tsunami that may cause widespread flooding is expected or occurring. Dangerous coastal flooding and powerful currents are possible and may continue for several hours or days after initial arrival.
Tsunami Advisory (Orange)	A tsunami with potential for strong currents or waves dangerous to those in or very near the water is expected or occurring. There may be flooding of beach and harbor areas.
Tsunami Watch (Yellow)	A distant earthquake has occurred. A tsunami is possible
Tsunami Information Statement (Green)	An earthquake has occurred, but there is no threat, or it was very far away, and the threat has not been determined. In most cases, there is no threat of a destructive tsunami.

Source: NOAA

iii) Extent

The extent of tsunamis in Bell, CA is minimal, as the City lies inland in the Los Angeles Basin, well outside the tsunami inundation zones mapped along the Pacific coast. Unlike coastal communities where wave height and run-up define the hazard, Bell's distance from the shoreline prevents direct flooding or structural impacts from tsunami waves. Any effects experienced in Bell would be indirect and regional in scale, such as disruption of port facilities, transportation networks, fuel supplies, or economic systems linked to the coast. In this way, the geographic extent of tsunami impacts in Bell is limited to secondary consequences rather than physical inundation.

When looking more broadly across the county, the extent of tsunamis is primarily concentrated where low-lying communities, ports, and beaches are directly exposed to inundation. The California Geological Survey and the California Office of Emergency Services have mapped tsunami inundation zones that include areas of the Port of Los Angeles and Port of Long Beach, as well as coastal neighborhoods in communities such as Santa Monica, Venice, Marina del Rey, Redondo Beach, and Long Beach. Inundation depths can vary significantly depending on the

source event, with modeled scenarios showing wave run-up capable of flooding several blocks inland in certain locations. Critical infrastructure located near the shoreline, such as fuel storage facilities, shipping terminals, and transportation corridors, are especially vulnerable. While the inland portions of the county, including the City of Bell, are outside the mapped inundation areas, the coastal extent of a tsunami in Los Angeles County makes it a regionally significant hazard with potential cascading impacts beyond the immediate flood zones. A map of the regional tsunami hazard area is displayed in **Figure 50**.

Figure 3. Regional Tsunami Hazard Area Map



Source: California Department of Conservation

Based on the latest tsunami hazard maps developed by the California Geological Survey, Bell is not located within the tsunami inundation zone and therefore it is unlikely to be directly impacted by a tsunami. However, it is possible that the City of Bell could experience secondary impacts in the future from a tsunami affecting neighboring communities. However, the City of Bell is not directly within the tsunami inundation zone and therefore is unlikely to be directly affected by tsunami impacts.

iv) Past Occurrences

There are no recorded occurrences of tsunamis directly affecting the City of Bell. Bell is located inland in the Los Angeles Basin, more than 15 miles from the Pacific coast, and therefore lies well outside the zone of direct tsunami inundation. As a result, the City has not experienced damage or disruption from past tsunami activity, though coastal events could still have indirect effects on regional transportation, utilities, or economic systems that serve Bell. The NOAA NCEI Global Historical Tsunami Database documents tsunami events worldwide, but many entries contain only limited information, meaning that complete records are not available for every event. **Table 66** the available information for the most recent 10 tsunami events to have impacted the Southern California region.

Table 66. Ten Most Recent Tsunami Impacts in Southern California

DATE	LOCATION	MAX WATER HEIGHT (M)	REPORTED DAMAGE (\$MIL)	DEATHS	INJURIES
11/4/2000	Point Arguello, S. California	4.60	—	—	—
4/30/1988	S. California	—	—	—	—
8/21/1934	S. California	12.00	0.075	—	—
3/11/1933	S. California	0.10	—	—	—
8/31/1930	S. California	3.05	—	1	—
11/4/1927	S. California	1.80	—	—	—
1/1/1927	S. California	—	3.000	1	—
12/11/1913	Santa Barbara, S. California	4.50	—	—	—
8/7/1906	S. California	0.02	—	—	—
12/25/1899	S. California	—	—	—	—

Frequency

There have been no previous tsunami events that impacted the City of Bell and therefore the frequency of occurrence is zero.

v)Future Probability

Tsunamis are relatively rare events, globally. There are only a few recorded instances of tsunamis impacting the coastline in Los Angeles County, but the entire coastline of the state is exposed to the potential of tsunami occurrences. The probability of a tsunami impacting the

City of Bell is considered **Unlikely**. Neither the Fourth California Climate Change Report nor the IPCC's Sixth Assessment Report identify any links between changing climate conditions and tsunamis.

vi) Secondary Hazards

Although Bell is located inland and not subject to direct tsunami inundation, secondary hazards may still arise from regional impacts. Disruption of coastal ports, energy facilities, and transportation corridors could interrupt the flow of goods, fuel, and services into the Los Angeles Basin. Utility outages, economic losses, and delays in emergency response caused by coastal damage could indirectly affect Bell's residents and critical facilities. **Table 67** provides more information on the potential secondary hazards for Bell as a result of a tsunami hitting the coastline along Los Angeles County. While Bell itself would not face direct flooding, these indirect impacts could still affect the community's daily life and recovery capacity following a coastal tsunami.

Although Bell lies far inland and outside of mapped tsunami inundation zones, the City could still experience secondary hazards if a major tsunami strikes the Los Angeles coast. One potential impact is regional disruption of utilities and lifelines—tsunami flooding at ports, power plants, or coastal wastewater facilities could ripple inland, affecting energy delivery, water quality, and waste management systems that serve Bell. Another secondary hazard is transportation disruption; severe damage to the Ports of Los Angeles and Long Beach or to coastal rail and highway infrastructure would impair the movement of goods, potentially affecting supply chains that support Bell's residents and businesses. A third concern is economic and social stress, as widespread damage along the coast could displace residents, interrupt jobs tied to port activity, and strain emergency and recovery resources across the region.

Table 67. Secondary Hazards from Tsunami

HAZARD	DESCRIPTION
Utility Failure	Tsunami flooding at ports, power plants, or coastal wastewater facilities could ripple inland, affecting energy delivery, water quality, and waste management systems that serve Bell.
Transportation Disruption	The surge of people fleeing the coastline can quickly overwhelm most transportation routes. Additionally, severe damage to the Ports of Los Angeles and Long Beach or to coastal rail and highway infrastructure would impair the movement of goods, potentially affecting supply chains that support Bell's residents and businesses.
Civil Unrest	Tsunamis may bring economic and social stress, as widespread damage along the coast could displace residents, interrupt jobs tied to port activity, and strain emergency and recovery

HAZARD	DESCRIPTION
	resources across the region. This may lead to civil unrest if community members feel that community leaders are not adequately addressing their needs.

vii) Vulnerability & Impact Assessment

A hypothetical tsunami wave is not anticipated to directly impact the City of Bell. This is also supported by the California Department of Conservation modeling of potential tsunami impacts, which shows that the City of Bell is considered outside of the hazard area and will likely not need to be evacuated. However, this does not mean that life in the City of Bell would be unaffected if a tsunami impacts the coast along Los Angeles County, there are multiple indirect impacts that such an event would have on the City of Bell.

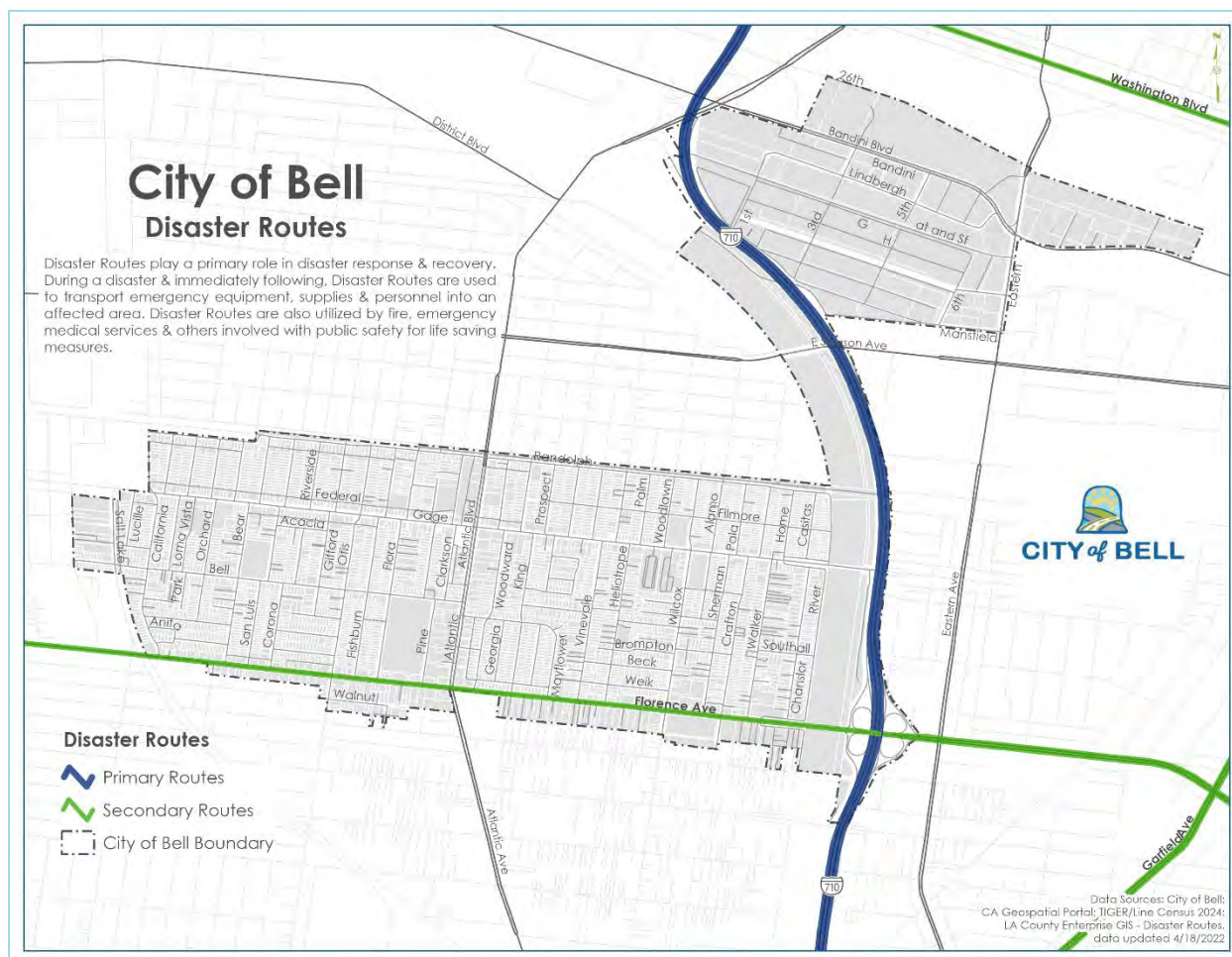
(1) People

Since the City of Bell is located inland and outside the tsunami inundation zone, there is no historical data of tsunamis directly impacting its population. However, residents could still experience secondary effects from regional disruptions, such as interruptions to clean drinking water supply, temporary shortages of food, or delays in access to medical care if coastal facilities are compromised. Populations already facing social or economic vulnerability, including low-income households, older adults, and those with limited English proficiency, may be disproportionately affected by these indirect impacts, particularly if shelter or support systems are strained by displaced coastal populations seeking assistance inland

(2) Structures and Systems

The tsunami hazard area does not include any areas within the City of Bell and therefore no properties are at risk of impacts directly from a tsunami event. However, secondary impacts could still put strain on structures and systems in Bell. In the event an incoming tsunami is detected, evacuation orders may be issued by the relevant authorities. While the City of Bell will likely not be ordered to evacuate, several of the surrounding communities will be. The sudden surge of individuals trying to move away from the coast will likely result in major traffic congestion. Large transportation routes like Interstate 710, Atlantic Ave, and Florence Ave may become overwhelmed with drivers in a high-stress situation. Movement along these routes will become increasingly difficult as traffic congestion spikes, and many individuals will likely begin looking for alternative routes, and this will create additional traffic along collector and local roads, further disrupting the movement of people and goods. **Figure 51** shows the designated disaster routes in Bell. These routes will be the primary routes used by emergency responders to move equipment, supplies, and personnel to and from areas affected by disasters, including tsunamis.

Figure 4. Disaster Routes Within the City of Bell



Critical Facilities

The tsunami hazard zone does not include any areas within the City of Bell and therefore none of the critical facilities are at risk of tsunami impacts. However, there are a number of facilities that are outside of Bell's jurisdictional boundaries that are within the tsunami inundation zone projected by the California Geological Survey (CGS). The Scattergood, Harbor, Haynes, and Alamitos power plants all sit along the shoreline within designated tsunami hazard zones and provide electricity to the regional grid that serves Bell. Likewise, the Hyperion Water Reclamation Plant in El Segundo and the Terminal Island Water Reclamation Plant in the Port of Los Angeles are critical wastewater treatment facilities situated in tsunami-prone areas. In addition, the marine oil terminals and pipeline corridors at the Ports of Los Angeles and Long Beach are highly vulnerable to inundation, debris impact, and saltwater intrusion. While Bell itself will not flood, disruption or damage to these external facilities could interrupt power, fuel, water, and wastewater services that the City relies on daily. This interdependency highlights that Bell's vulnerability to tsunamis is indirect but significant, tied to the functioning of regional

infrastructure nodes along the coast. Some of the additional ways tsunamis may impact FEMA's community lifelines in Bell are listed in **Table 68**.

Table 68. Potential Vulnerability of Lifelines from a Tsunami

LIFELINES	IMPACT TYPE	DESCRIPTIONS
Communications		While Bell is inland, damage to coastal telecom hubs or subsea cables could disrupt regional internet and phone connectivity.
Energy (Power & Fuel)		Tsunami damage to coastal power plants or marine oil terminals may cause fuel shortages and electrical grid disruptions that cascade inland to Bell.
Food, Shelter, & Housing		Port closures and supply chain interruptions could slow food distribution, while displaced coastal populations might increase demand for emergency shelter in inland communities
Hazardous Materials		Flooding of port facilities could release hazardous materials into regional supply lines, creating cleanup demands and potential contamination risks.
Health & Medical		Medical facilities in Bell could face strain if evacuees seek care inland or medical assets are asked to temporarily relocate to better assist with communities more severely impacted.
Safety & Security		Law enforcement and emergency services may be stretched by regional disaster response, evacuation traffic, or population influx from affected coastal areas.
Transportation		Evacuations could result in traffic jams along major roadways and designated disaster routes. Depending upon the extent of damage closer to the coast, transportation routes in Bell may need to

LIFELINES	IMPACT TYPE	DESCRIPTIONS
		support higher traffic flows until other roadways can be restored.
Water & Wastewater Systems		Damage to Hyperion or Terminal Island wastewater plants could impact downstream treatment capacity, indirectly affecting water quality and service reliability in inland areas like Bell.

(3) Natural, Cultural, and Historical Resources

Given the tsunami inundation zone is outside of city boundaries, it is unlikely that tsunamis will cause a significant impact to natural, cultural, and historic resources in Bell.

(4) Risk Analysis

Tsunamis pose a **Low** risk to the planning area as there have been no previous occurrences in the planning area. Additionally, the tsunami inundation zone does not include any areas within the planning area and therefore the City has a low risk of experiencing inundation from a tsunami. However, the City of Bell may experience secondary hazards following a tsunami that affects neighboring jurisdictions closer to the coast.

O) WINDSTORMS

i) Hazard Profile

Windstorms or periods of particularly strong winds are generally short-duration events involving straight-line winds or gusts of over 50 mph, strong enough to cause property damage. A high wind event in the region can range from short term microburst activity lasting only minutes to a long duration Santa Ana wind condition that can last for several days. High winds or a windstorm are especially dangerous in areas with significant tree stands and areas with exposed property, poorly constructed buildings, manufactured housing units, major infrastructure, and above-ground utility lines. High winds can cause downed trees and power lines, flying debris and building collapses, which may lead to power outages, transportation disruptions, damage to buildings and vehicles, and injury or death. There are several types of high winds events described in **Table 69**⁷².

Table 69. Types of High Winds Events

TYPE	DESCRIPTION
Straight-line winds	Used to describe any thunderstorm wind that is not associated with rotation and is used to differentiate from tornadic winds.
Downdraft	Is a small-scale column of air that rapidly sinks toward the ground.
Macroburst	An outward burst of intense winds at or near the surface with horizontal dimensions larger than 4 km and occurs when a strong downdraft reaches the surface.
Microburst	A small, concentrated downburst that produces an outward burst of intense winds at or near the surface. There are small and short-lived, lasting only 5-10 minutes, with maximum speeds sometimes exceeding 100 miles per hour.
Downburst	Used to broadly describe macro and microbursts. It is a general term for all localized strong wind events that are caused by a strong downdraft within a thunderstorm while microburst simply refers to a small downburst that is less than 4 km across.
Gust Front	Is the leading edge of rain-cooled air that clashes with warmer thunderstorm inflow. Gust fronts are characterized by a wind shift, temperature drop, and gusty winds out ahead of a thunderstorm.

⁷² "DAMAGING WINDS TYPES." 2015. NOAA NATIONAL SEVERE STORMS LABORATORY. NOAA. 2015. [HTTPS://WWW.NSSL.NOAA.GOV/EDUCATION/SVRWX101/WIND/TYPES/](https://www.nssl.noaa.gov/education/svrwx101/wind/types/).

TYPE	DESCRIPTION
Derecho	A widespread, long-lived storm that is associated with a band of rapidly moving showers or thunderstorms. A typical derecho event consists of numerous microbursts, downbursts, and downburst clusters. A derecho event is classified when damage extends more than 240 miles and includes wind gusts of at least 58 miles per hour.

Source: NOAA

(1) Duration

The duration of high wind events depends on the cause of the event. High wind events due to Santa Ana winds can last from one to seven days with an average of three days. High wind events due to a thunderstorm, tropical storm, or winter storm, may last as long as the storm does, which can be up to several hours or days.

(2) Seasonality

The seasonality of high wind events may vary depending on what is prompting the event. High wind events from Santa Ana Winds typically occur from September to May. High wind events from winter storms may occur during the winter months while hurricanes and tropical storms may occur during the spring, summer, and fall months. Therefore, the planning area can expect high wind events to occur year-round.

(3) Speed of Onset

Typically, high wind events due to Santa Ana Winds are predictable and forecasters can spot their occurrences up to seven days in advance⁷³. High wind events due to other weather-related hazards are similarly predictable and forecasters can anticipate their speeds as they reach the region. The formation of these events may take up to several days or weeks in the case of a hurricane or tropical storm.

(4) Santa Ana Winds

Santa Ana Winds are common and impact the Los Angeles Area, including the City of Bell. Santa Ana Winds occur when air from a region of high pressure over the dry, desert region of the southwestern U.S. flows westward towards low pressure located off the California coast. This creates dry winds that flow east to west through the mountain passages in Southern California. These winds are most common during the cooler months of the year, occurring from September through May and peaking in December. These strong winds can cause major property damage

73 "EXPLAINING SANTA ANA WINDS." 2020. WEATHERNATIONTV.COM. WEATHER NATION TV. DECEMBER 22, 2020. [HTTPS://WWW.WEATHERNATIONTV.COM/NEWS/EXPLAINING-SANTA-ANA-WINDS](https://www.weathernationtv.com/news/explaining-santa-ana-winds).

and increase wildfire risk because of the dryness of the winds and the speed at which they can spread a flame across the region.

(5) Location

The entirety of the planning area is considered vulnerable to high winds.

ii) Magnitude

The Beaufort Wind Scale was one of the first scales to estimate wind speed and effects. It was originally developed to help sailors estimate the winds via visual observations. The scale starts with 0 and goes to a force of 12. The Beaufort scale is still used today to estimate wind strengths shown in **Table 70**.

Table 70. The Beaufort Scale

BEAUFORT NUMBER	DESCRIPTION	SPEED	VISUAL CUES AND DAMAGE EFFECTS
0	Calm	Calm	Calm wind. Smoke rises vertically with little if any drift.
1	Light Air	1-3 mph	The direction of wind is shown by smoke drift, not by wind vanes. Little if any movement with flags. Wind barely moves tree leaves
2	Light Breeze	4-7 mph	Wind felt on face. Leaves rustle and small twigs move. Ordinary wind vanes move.
3	Gentle Breeze	8-12 mph	Leave and small twigs in constant motion. Wind blows up dry leaves from the ground. Flags are extended out.
4	Moderate Breeze	13-18 mph	Wind moves small branches. Wind raises dust and loose paper from the ground and drives them along.
5	Fresh Breeze	19-24 mph	Large branches and small trees in leaf begin to sway. Crested wavelets form on inland lakes and large rivers.
6	Strong Breeze	25-31 mph	Large branches in continuous motion. Whistling sounds heard overhead or near power and telephone lines. Umbrellas used with difficulty.
7	Near Gale	32-38 mph	Whole trees are in motion. Inconvenience felt when walking against the wind.
8	Gale	39-46 mph	Wind breaks twigs and small branches. Wind generally impedes walking.

BEAUFORT NUMBER	DESCRIPTION	SPEED	VISUAL CUES AND DAMAGE EFFECTS
9	Strong Gale	47-54 mph	Structural damage occurs, such as chimney covers, roofing tiles blown off, and television antennas damaged. The ground is littered with many small twigs and broken branches.
10	Whole Gale	55-63 mph	Considerable structural damage occurs, especially on roofs. Small trees may be blown over and uprooted.
11	Storm Force	64-75 mph	Widespread damage occurs. Larger trees blown over and uprooted.
12	Hurricane	Over 75 mph	Severe and extensive damage. Roofs can be peeled off. Windows broken. Trees uprooted. RVs and small mobile homes overturned. Moving automobiles can be pushed off the roadways.

Source: NOAA

The National Weather Service issued wind related products to communicate high wind risk described in **Table 71**.

Table 71. National Weather Service Wind-Related Product

WIND-RELATED PRODUCT	DESCRIPTION
Wind Advisory	Sustained winds of 31-39 mph for 1 hour or more and/or gusts 45-57 mph for any duration.
High Wind Watch	Conditions are favorable for a high wind event to meet or exceed high wind warning criteria in the next 12 to 48 hours.
High Wind Warning	Sustained winds of 40 mph or higher for 1 hour or more and/or gusts 58 mph or higher any duration.

Source: National Weather Service (NWS)

iii) Extent

The entire planning area is susceptible to high wind events, although localized variations in the intensity and impacts may occur due to buildings, walls, and infrastructure creating turbulence that alters wind speed and direction from block to block.

iv) Past Occurrences

The NOAA Storm Events Database does not track windstorms as a single event, but it tracks instances of high winds, strong winds, and thunderstorm winds. Between 2000 and 2025, a total of 549 storm events were recorded in Los Angeles County. These events resulted in three fatalities and four injuries, highlighting a relatively low human toll given the frequency of storms. The storms caused approximately \$5,000 in property damage, suggesting that most incidents were not highly destructive. NOAA tracks wind speeds in knots, and the fastest wind speed recorded during this period reached 97 knots, underscoring the potential severity of some events. One knot is approximately 1.15 mph. Despite the high number of windstorms in Los Angeles County, the overall impact remained limited in terms of both human and financial cost. **Table 72** provides the count and percentage of events by maximum wind speed recorded.

Table 72. High Wind Events in Los Angeles County 2000-2025

HIGHEST RECORDED WIND SPEED (KTS)	HIGHEST RECORDED WIND SPEED (MPH)	NUMBER OF EVENTS	PERCENTAGE OF ALL EVENTS
Below 50 knots	Below 57.54 mph	21	3.83%
51-60 knots	57.54-69.05 mph	311	56.65%
61-70 knots	69.05-80.55 mph	156	28.42%
71-80 knots	80.55-92.06 mph	41	7.47%
81 knots or above	92.06 mph or above	16	2.91%

Source: NOAA NCEI Storm Events Database

Frequency

Since 2000, there have been more than 500 events of high winds, strong winds, and thunderstorm winds, as defined by NOAA's Storm Events Database. Therefore, the likelihood of such events impacting the area in the future is high. However, the events listed in the Storm Events Database do not specifically identify the City of Bell as a community where impacts were documented, making it harder to assess the frequency of windstorms at the local level.

v)Future Probability

Based on the historical record and regional exposure, the probability of future windstorms and high wind events in Bell is considered **Highly Likely**. While many events may result in only minor or localized damage, occasional storms have the potential to damage property and disrupt utilities. The City of Bell should therefore anticipate periodic high wind events in the future and prepare for both frequent nuisance-level impacts and less common but more damaging storms. The Santa Ana winds, which most likely occur between October and March, are particularly

likely to bring high speed winds that can cause significant damage. The Fourth California Climate Change Assessment and the IPCC's Sixth Assessment Report generally found that the most severe winds are expected to become slightly less intense in low- to mid-latitude regions like Los Angeles County, while stronger winds may become more common in polar areas. For Bell, this suggests that while routine strong winds and storm gusts will continue to occur, climate change is not expected to substantially increase the frequency or intensity of damaging wind events in the future.

vi) Secondary Hazards

High wind events can cause secondary hazards to occur which include wildfires and power outages. More information on each secondary hazard is described in **Table 73**.

Table 73. High Wind Secondary Hazard

HAZARD	DESCRIPTION
Wildfire	High winds combined with dry vegetation cause post a risk for wildfires to occur. Additionally, Santa Ana winds local to region can cause a great deal of damage. The fast, hot winds cause vegetation to dry out, increasing the danger of wildfire. Once the fires start, the winds fan the flames and hasten their spread.
Power Outage	High winds can knock out power lines and cause power outages. Power outages can pose a risk to the whole community by disrupting communications, water and transportation, grocery stores, ATMs, banks, and other services, as well as spoiling food and water contamination. Power outages are especially dangerous when coinciding with other hazards.

vii) Vulnerability & Impact Assessment

Vulnerability is defined as risk from the effects of hazards. The term applies to assets such as structures and populations. In this section, population, properties, and critical facilities are evaluated to better understand vulnerabilities to such assets in order to better understand and mitigate risk from hazards.

The City of Bell is subject to high wind events that can have significant impacts on the community. These winds can result from various meteorological conditions, including Santa Ana winds, Pacific storms, and thunderstorms. High winds pose risks to public safety, property, infrastructure, and the environment. This assessment provides a detailed analysis of the

potential impacts of high wind events on Bell, identifying vulnerable areas, populations, and critical infrastructure.

(1) People

Disproportionately impacted communities, particularly those impacted by loss of electrical power such as the elderly, individuals with disabilities, and those that rely on electrical power for their medical needs are exposed and at increased risk of adverse effects from high wind events. High wind events can move everyday objects such as outdoor furniture, debris, and vegetation into projectiles. Additionally, individuals living in mobile homes are at an increased risk to high wind and flying debris as the structural integrity of such mobile homes is more susceptible to damage. Debris can quickly become a major threat to the public.

(2) Structures and Systems

The City of Bell is located within Los Angeles County's Special Wind Region, which requires all new structures to be designed for a minimum wind speed of 100 mph (3-second gust) under the California Building Code (CBC), unless a site-specific study justifies otherwise. This requirement, formalized in 2008 through Los Angeles County's Building Code Manual BCM 1609.1.1 A1, represents a significant increase in design expectations compared to earlier building codes.

Most of Bell's housing and smaller commercial buildings are classified as standard occupancy structures. Before 2008, these structures were built under earlier Uniform Building Code (UBC) and CBC provisions that set base wind speeds at about 70 mph fastest-mile, equivalent to 85–90 mph in today's 3-second gust measure. As a result, most of Bell's older housing stock, about 77% of homes were built before 1980, was not designed to withstand the 100 mph gusts required under current codes. These older homes are therefore more vulnerable to roof uplift, siding and window failures, and garage door blowouts during extreme Santa Ana wind events.

Since 2008, new homes and businesses in Bell have been designed for at least 100 mph gust resistance, making them more resilient. However, manufactured housing (mobile homes) is an exception. These are regulated under federal Housing and Urban Development (HUD) Wind Zone I standards, which are significantly lower than California's CBC requirements. Because of this, mobile homes in Bell remain especially vulnerable to wind damage, unless retrofitted with modern anchorage and bracing systems. **Figure 52** shows the locations of mobile home parks in and around Bell.



After 2008, when Los Angeles County codified the 100 mph minimum for all structures in the Special Wind Region, these requirements increased further. Today, schools and other large public assembly buildings are typically designed for 110–115 mph gusts, while hospitals, fire stations, and other emergency facilities are designed for up to 125 mph gusts. This means that critical facilities built after 1990 often meet or exceed the 100 mph threshold, but older facilities constructed before the 1990s are more likely to fall short and remain at higher risk during extreme wind events.

Transportation access is another key vulnerability. High winds can down trees and power lines that block streets and highways, slowing emergency response and delaying recovery. During periods of extremely strong Santa Ana winds, restrictions on truck and high-profile vehicle traffic along major corridors, including Interstate 710, may further disrupt the movement of goods and emergency services. Although these disruptions are usually temporary and not economically devastating in the long term, they can hinder critical operations during an emergency.

In addition, falling power lines damaged by high winds pose not only service interruptions but also direct life-safety hazards near critical facilities, creating risks of electrocution or fire. Given Bell's reliance on above-ground utility infrastructure and its location in a region affected by Santa Ana winds, critical facilities remain moderately vulnerable to both direct and cascading impacts of windstorm events. **Table 74** describes some of the potential vulnerabilities of FEMA's community lifelines.

Table 74. Potential Vulnerabilities of Lifelines to Windstorms

LIFELINES	IMPACT TYPE	DESCRIPTION
Communications		High winds can damage cell towers, overhead lines, and fiber networks, leading to temporary outages that disrupt emergency response and public information.
Energy (Power & Fuel)		Windstorms can disrupt essential services by damaging power lines, water mains, and communication networks. Restoring these services is crucial for recovery and supporting other lifeline sectors.
Food, Hydration, Shelter		Windstorms can cause damage to homes, businesses, and public buildings, leading to displacement of residents and the need for temporary shelters and renovation efforts.
Hazardous Materials		Windstorms can damage storage tanks or containment systems, creating localized spills or spreading hazardous debris.

LIFELINES	IMPACT TYPE	DESCRIPTION
Health and Medical		Facilities may face power loss, blocked access routes, or disrupted supply chains, hindering emergency care and ongoing treatment.
Security		Police, fire, and emergency services may experience delays if communication or transportation systems are disrupted, increasing response times.
Transportation		Debris and damage to roads, bridges, and transportation infrastructure can hinder emergency response efforts and the movement of goods and people. Clearing debris and repairing infrastructure are critical post-storm activities.
Water and Wastewater		Pumping stations and treatment plants may be disrupted by power loss, and wind-driven debris can damage pipelines or clog storm drains.

(3) Natural, Cultural, and Historical Resources

Natural, cultural, and historic structures in Bell face limited but notable vulnerability to hazards. Mature trees and parkland can be damaged by high winds, while older masonry buildings and historic sites are more susceptible to cracking and structural stress. Even minor damage to these assets can reduce their integrity, accessibility, and long-term preservation value.

(4) Risk Analysis

High winds and windstorms pose a **High** risk to the planning area and can be expected on an annual basis. Historical records show wind speeds exceeding 92 mph in the region, and future occurrences are highly likely, particularly between October and March when Santa Ana wind events are likely to occur. These winds develop when high pressure over the desert interior pushes dry air westward toward low pressure off the California coast, creating hot, fast-moving downslope winds that can persist for days.

High winds threaten people, property, and critical facilities within the City. Power outages, falling debris, and flying objects increase the risk of injuries and fatalities, particularly for vulnerable populations such as older adults, individuals with disabilities, those experiencing homelessness, people living in mobile homes, and residents medically dependent on power. As Bell's population and built environment grow, the exposure of housing and infrastructure to wind hazards will also increase.

Based on the regional history of damaging events and the local influence of the Santa Ana winds, the probability of high wind impacts in Bell is high. Future storms have the potential to cause significant structural damage, widespread utility outages, transportation disruptions, and economic losses. Trees, exposed properties, road networks, and critical facilities such as power and water systems are all susceptible, reinforcing that windstorms will remain a serious hazard to the community.

6) HUMAN-CAUSED HAZARDS

A) CYBER ATTACKS

i) Hazard Profile

Cyber-attacks are deliberate attempts by individuals or groups to breach the information systems of organizations, governments, or individuals. These attacks can disrupt services, steal sensitive data, compromise infrastructure, and cause financial and reputational damage. Common forms include ransomware, phishing, denial-of-service (DoS) attacks, and data breaches. In recent years, cyber-attacks have become increasingly frequent, sophisticated, and damaging. Nationwide, local governments have been targeted due to their often limited cybersecurity resources and critical role in public service delivery. Cities impacted by cyber-attacks have experienced disruptions to emergency services, financial systems, and communications. The rise in remote work, cloud-based services, and interconnected infrastructure has further expanded the attack surface for threat actors.

(1) Duration

Cyber-attacks can range from brief, transient events to prolonged disruptions lasting days, weeks, or even months. For example, a phishing email may result in immediate credential theft, while a ransomware attack could lock down systems for an extended period until data is recovered or ransom negotiations conclude. In some cases, the attack itself may be short-lived, but the recovery process, including forensic investigations, system restoration, and public communication, can take significantly longer.

(2) Seasonality

Cyber-attacks are a year-round concern. However, there is some research indicating that certain periods may see increased activity due to strategic timing by threat actors. Attacks may spike around holidays when IT staff may be limited, and peoples' attention is more likely to be elsewhere.

(3) Speed of Onset

Cyber-attacks generally have a rapid onset, with little to no warning. In many cases, the attack is already underway or completed by the time it is detected. For example, phishing emails can lead to credential theft within minutes, and ransomware can encrypt entire systems in a matter of hours. Some attacks, such as DoS attacks, can overwhelm systems almost instantly, causing immediate service outages.

(4) Location

Cyber-attacks are not confined to specific geographic locations. They can originate from anywhere in the world and target systems regardless of physical boundaries.

ii) Magnitude

The magnitude of a cyber-attack can range from minor disruptions affecting a single device to major citywide or regional crises. A high-magnitude event could involve ransomware locking down critical infrastructure, data breaches exposing sensitive resident information, or DoS attacks disabling emergency communications. Additionally, the interconnected nature of municipal systems means that even a localized breach can have cascading effects across departments and services. According to a report from the Federal Bureau of Investigation, in 2024 the State of California reported over \$2.5 billion in losses, the most among all 50 states, due to suspected cyber-attacks.

iii) Extent

The extent of a cyber-attack is closely linked to its magnitude. An extensive attack aimed at many targets or widely used services will likely be a major disrupter and a high-magnitude attack. Additionally, a cyber-attack can be extensive while only affecting a single facility or device. For example, a phishing email opened by a single City employee can give threat actors the access necessary to delete data, disrupt services, and steal sensitive information.

iv) Past Occurrences

Cyber-attacks come in many different shapes and sizes. The California Cybersecurity Integration Center catalogs reported instances of cyber-attacks and works with state, local, and tribal governments as well as private entities to evaluate these attacks. Unfortunately, public access to reported events is limited due to the potentially sensitive nature of the attacks. However, California law requires businesses and government agencies to notify California residents when personal information is reasonably believed to have been acquired by an unauthorized entity. Furthermore, attacks which are reasonably believed to have affected 500 or more California residents must be reported to the California Attorney General, and a list of these events is accessible by the public through the Office of the California Attorney General's website. While there are no data breaches reported by the City of Bell, several nearby communities have been the victim of these attacks. **Table 75** lists data breaches that have been reported by nearby communities in the last five years.

Table 75. Data Breaches Affecting Nearby Communities 2020-2025

COMMUNITY	DATE(S) OF BREACH	REPORTED DATE
City of San Clemente	n/a	06/02/2025
City of Long Beach	11/14/2023	04/14/2025
City of Victorville	08/12/2023, 09/26/2023	08/07/2024
City of Maywood	01/05/2022, 03/06/2022	08/11/2022

COMMUNITY	DATE(S) OF BREACH	REPORTED DATE
City of Hesperia	11/28/2021	02/07/2022
City of Torrance	03/01/2020	10/18/2020
City of Fullerton	n/a	05/05/2020

Source: California Cybersecurity Integration Center

Frequency

Based on previous occurrences, there has been a cyber-attack every 1.4 years.

v)Future Probability

Cyber-attacks are an evolving hazard with a persistent and growing likelihood of affecting communities across California, including the City of Bell. Although no publicly reported breaches have been documented for Bell itself, the experiences of nearby jurisdictions such as Long Beach, Maywood, and Torrance demonstrate that local governments in the Los Angeles region are viable targets for malicious actors. The California Cybersecurity Integration Center has noted that attacks range in scale from phishing campaigns and ransomware to large-scale breaches of sensitive personal or financial data. The fact that multiple cities in Southern California have experienced intrusions in just the past five years highlights the increasing frequency of such incidents. Looking ahead, the probability of cyber-attacks impacting Bell is considered **Possible**. The widespread reliance on digital systems for municipal services, utilities, financial transactions, and emergency management creates multiple points of vulnerability.

vi) Secondary Hazards

Cyber-attacks can generate cascading secondary hazards across multiple sectors, extending their impacts well beyond the initial intrusion. While these events typically target information systems rather than physical infrastructure, the consequences can disrupt essential services, compromise public safety, and create significant financial and social challenges. From interrupting utilities and emergency response systems to exposing sensitive personal information, the ripple effects of cyber incidents can undermine community resilience and recovery. To better illustrate these risks, **Table 76** describes the potential secondary hazards of cyber-attacks.

Table 76. Secondary Hazards of Cyber Attacks

HAZARD	DESCRIPTION
Utility Disruptions	Cyber intrusions into power, water, or wastewater systems can disable automated controls, delay service delivery, or cause prolonged outages. These disruptions may create cascading risks to public health, safety, and economic stability.

HAZARD	DESCRIPTION
Transportation Disruptions	Compromised traffic signals, transit payment systems, or rail controls can lead to accidents, congestion, or system shutdowns. Such disruptions may also hinder evacuation or response during larger emergencies.
Public Health and Safety Risks	If critical healthcare infrastructure is disabled, vulnerable populations relying on continuous treatment or medication may face serious risks. Attacks targeting 911 systems can slow the ability of responders to coordinate and deploy resources.

vii) Vulnerability & Impact Assessment

(1) People

Bell has approximately 32,830 residents, of whom an estimated 3,667 are age 65 or older—around 11.2% of its population. Senior citizens often rely more on continuity of services, medical monitoring, stable power, and simpler, more stable technologies; these dependencies make them more vulnerable to disruptions caused by cyber-attacks like ransomware and phishing. Complex cyber-attacks that compromise critical City functions (utilities, emergency services, public health systems) pose additional risk to people who are heavily reliant on such services. For example, people with medical dependencies, households without robust backup resources, or those with limited digital literacy would face more serious consequences from service interruptions or breaches of data privacy.

(2) Structures and Systems

Unlike natural hazards, cyber-attacks do not physically damage buildings, instead, they exploit the digital systems embedded in modern infrastructure. In Bell, the vulnerability of structures lies primarily in the extent to which critical building operations and services depend on networked technologies. Many municipal, educational, health, and commercial facilities operate with connected systems for building management, access control, fire suppression, and communications. A successful cyber intrusion could disable HVAC systems during extreme heat, lock out first responders from secured areas, or shut down digital communication systems within critical buildings.

Older buildings, which make up the majority of Bell’s housing and commercial stock, are less dependent on smart systems but may still rely on vulnerable technologies like outdated security cameras, alarm systems, or connected utilities. Conversely, newer or modernized facilities often incorporate more integrated “smart” technologies, increasing efficiency but also expanding the potential attack surface for malicious actors. Structures with insufficient IT oversight, shared networks, or limited cybersecurity funding are especially at risk.

Critical Facilities

In practice, the most significant structural vulnerabilities in Bell are tied to critical facilities, such as schools, municipal offices, and health facilities, where a cyber-attack on building systems could disrupt essential services or public safety functions. While the City's residential structures themselves are not direct cyber targets, the services they rely on, electricity, water, telecommunications, and emergency response housed in larger facilities, can be disrupted through cyber intrusions. Therefore, the vulnerability of Bell's structures is less about their physical fabric and more about the digital systems embedded within them and the extent to which those systems are safeguarded. Some of the ways by which cyber-attacks may affect the eight community lifelines identified by FEMA are listed in **Table 77**.

Table 77. Potential Impacts of Cyber Attacks on Community Lifelines

LIFELINES	IMPACT TYPE	DESCRIPTION
Communications		Cyber-attacks could disable phone systems, internet service providers, or public alert systems, leaving residents and emergency services without reliable information during critical periods.
Energy (Power & Fuel)		A breach of utility control systems could trigger localized blackouts, interrupt fuel distribution, or disrupt billing and monitoring, affecting both households and critical facilities.
Food, Hydration, Shelter		Attacks on supply chain or point-of-sale systems could limit residents' ability to purchase food, while shelter facilities dependent on digital access or inventory systems may face interruptions.
Hazardous Materials		Industrial sites or transporters that use digital monitoring and control systems could suffer accidental releases if systems are compromised by a cyber-attack, creating localized safety and environmental risk.
Health & Medical		Hospitals and clinics rely heavily on electronic health records, diagnostic tools, and networked devices; a cyber-attack could delay care, compromise patient safety, or block access to critical medical

LIFELINES	IMPACT TYPE	DESCRIPTION
		information. Medical records are common targets for ransomware attacks.
Safety & Security		Law enforcement and emergency management systems could be disrupted if dispatch, surveillance, or data-sharing platforms are compromised, slowing response to both cyber and physical incidents.
Transportation		Digital traffic management systems, railway controls, or fuel distribution logistics could be disrupted, leading to delays in commuter flow and freight movement throughout the region.
Water & Wastewater Systems		Water utilities increasingly use automated control systems; a cyber-attack could disable pumps, affect water quality monitoring, or interrupt wastewater treatment, endangering both health and sanitation.

(3) Natural, Cultural, and Historic Resources

While the physical fabric of parks, historic buildings, and natural areas is not inherently vulnerable to digital intrusion, their preservation may depend on digitally supported systems that can be compromised. Disruptions affecting services like automatic sprinklers, climate control systems, and security monitoring could leave resources without the systems intended to protect them from fires, extreme temperatures, criminal activity, and other risks.

(4) Risk Analysis

The City of Bell faces an increasing risk from cyberattacks that could disrupt essential municipal operations, compromise sensitive data, and impair public services. Like many local governments, Bell relies heavily on interconnected information systems for communication, financial management, emergency response coordination, and utility operations. These systems are potential targets for ransomware, phishing, and other intrusion attempts seeking to steal information or disable services. The City's dependence on regional and cloud-based systems, some of which are managed by external vendors, further increases its exposure to cyber threats originating beyond its direct control. A successful cyberattack could interrupt City communications, delay emergency response, and undermine public trust. Ongoing employee training, network monitoring, and implementation of robust cybersecurity policies are critical to

reducing this risk and ensuring the continued integrity and resilience of the City's digital infrastructure. Currently the risk for Bell is considered **Low**, primarily due to the limited risk of physical damage or risk to personal health. However, cyber-attacks could cause significant disruptions to City services, and cyber-attacks may become more frequent and complex in the future.

B) HAZARDOUS MATERIALS RELEASES

i) Hazard Profile

Hazardous materials are substances that, because of their quantity, concentration, or physical or chemical characteristics, pose a significant present or potential hazard to human health, safety, or the environment if released. The California State Hazardous Materials Incident Contingency Plan of 1991 provides the following definition:

“Hazardous material” means a material that, because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment.

These materials are prevalent in modern communities across all stages of production, storage, transport, use, and disposal. In Bell, the hazard is shaped by the City’s location within the highly urbanized Los Angeles Basin and its industrial profile, particularly in the Cheli Industrial District and along major transportation corridors such as Interstate 710 and the Union Pacific rail line. The presence of warehouses, manufacturing facilities, auto repair shops, and freight distribution centers increases the potential for accidental releases, while the proximity of densely populated residential neighborhoods elevates the risks to people and property.

The California Environmental Protection Agency (CalEPA) largely follows the system used by the U.S. Department of Transportation (DOT) for classifying hazardous materials by one or more of the following traits: explosives, gases, flammable liquids, flammable solids, oxidizers/organic peroxides, toxic/infectious substances, radioactive materials, corrosives, and miscellaneous dangerous goods. The placards used by the U.S. DOT to alert people to the presence of these materials are shown in **Figure 53**.

Figure 5: US DOT Placards for Hazardous Materials Classifications



Hazardous materials can also be classified according to worker safety and health⁷⁴. Information provided by California Division of Safety and Health includes guidelines related to:

- **Safety hazards:** (fire and fire byproducts, electricity, flammable gases, unstable structures, demolition, sharp or flying objects, excavations).
- **Health hazards:** (carbon monoxide ash, soot, and dust; asbestos; hazardous liquids; other hazardous substances; heat illness).
- **Natural-Technological Incidents (Natechs):** During the past two decades, increasing attention has been given to hazardous materials releases resulting from *Natechs* or a natural disaster event that triggers a technological hazard event. Natechs are of particular concern for the following reasons:
 - They can produce a simultaneous effect on many industrial facilities⁷⁵
 - Can overwhelm response capacity
 - Containment systems may fail
 - May produce cascading disasters⁷⁶
 - Response may be hindered by a disaster's impact on the physical environment⁷⁷

⁷⁴ CALIFORNIA DEPARTMENT OF INDUSTRIAL RELATIONS. WORKER SAFETY AND HEALTH DURING FIRE CLEANUP. RETRIEVED 12.11.2023 FROM:

[HTTPS://WWW.DIR.CA.GOV/DOSH/WILDFIRE/WORKER-HEALTH-AND-SAFETY-DURING-FIRE-CLEANUP.HTML](https://www.dir.ca.gov/DOSH/WILDFIRE/WORKER-HEALTH-AND-SAFETY-DURING-FIRE-CLEANUP.HTML)

⁷⁵ LINDELL, M.K. & PERRY, R.W. (1996). IDENTIFYING AND MANAGING CONJOINT THREATS: EARTHQUAKE-INDUCED HAZARDOUS MATERIALS RELEASES IN THE U.S. JOURNAL OF HAZARDOUS MATERIALS, 50(1), 31-46.

⁷⁶ YOUNG, S., BALLUZ, L., & MALILAY, J. (2004). NATURAL AND TECHNOLOGIC HAZARDOUS MATERIAL RELEASES DURING AND AFTER NATURAL DISASTERS: A REVIEW. SCIENCE OF THE TOTAL ENVIRONMENT, 322(1-3), 3-20. [HTTPS://DOI.ORG/10.1016/S0048-9697\(03\)00446-7](https://doi.org/10.1016/S0048-9697(03)00446-7)

⁷⁷ STEINBERG, L.J., SENGUL, H., & CRUZ, A.M. (2008). NATECH RISK AND MANAGEMENT: AN ASSESSMENT OF THE STATE OF THE ART. NATURAL HAZARDS 46, 143-152. [HTTPS://DOI.ORG/10.1007/S11069-007-9205-3](https://doi.org/10.1007/S11069-007-9205-3)

While federal and state regulations do allow the deliberate release of certain hazardous materials into the environment under controlled conditions deemed safe for human health and the environment, there are instances where such releases are accidental. These unintentional releases can occur due to leaks, accidents, or natural disasters. This section specifically addresses these accidental releases for better understanding and management.

(1) Duration

Hazardous materials releases can vary widely in duration depending on the type of material, the volume released, and the effectiveness of response efforts. Some incidents, such as a small chemical spill on a roadway, may last only a few hours until the material is contained and removed. Others, like a fire or explosion at a fixed facility, can last for days and require extended suppression, evacuation, and cleanup operations. In severe cases, the recovery and remediation phase may last months or even years, as long-term monitoring and site restoration are necessary to protect human health and the environment.

(2) Seasonality

Hazardous materials incidents can occur during any time of the year.

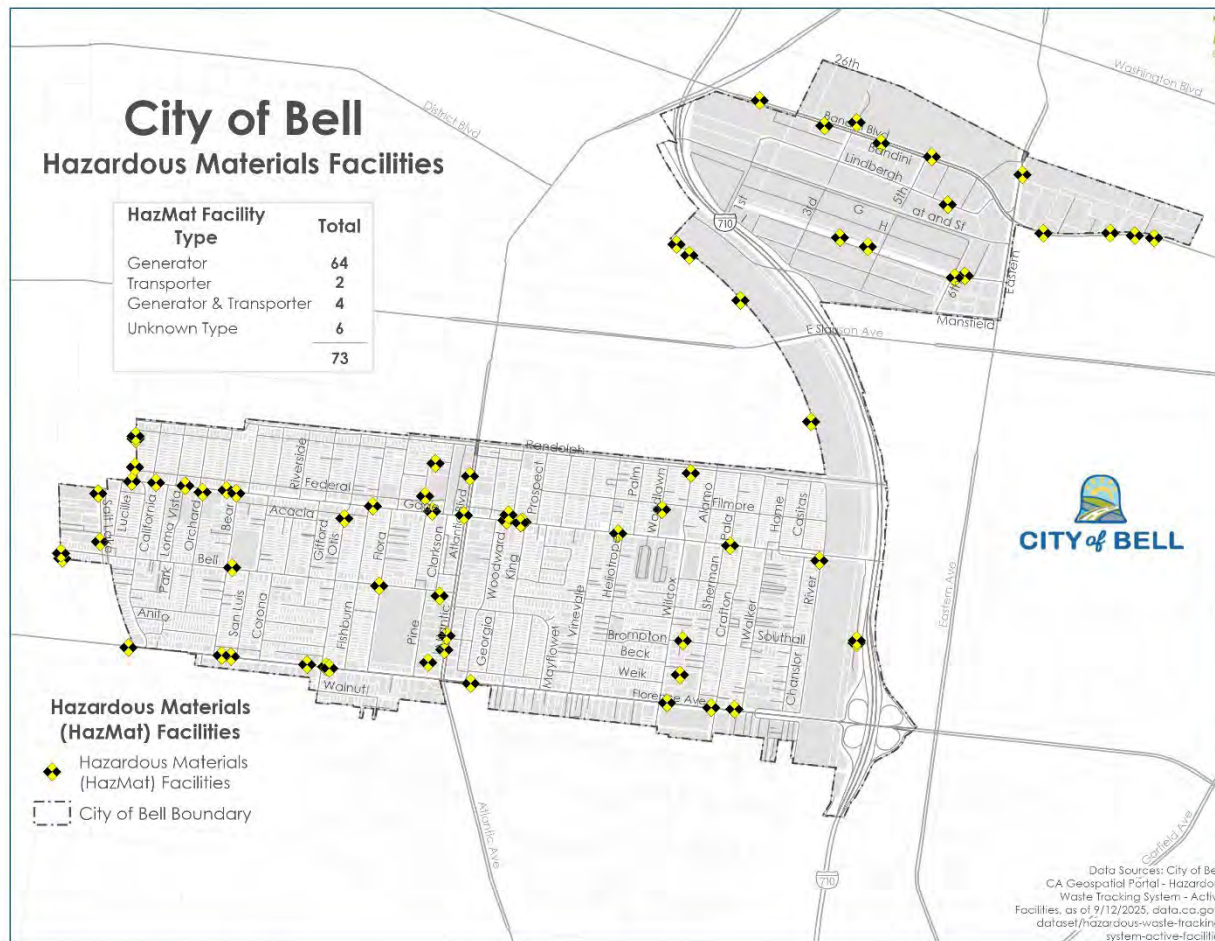
(3) Speed of Onset

Hazardous materials incidents can occur very quickly with little to no warning. Some hazardous materials may be highly unstable, and rapid, violent reactions can occur with very little warning.

(4) Location

The entirety of the planning area is considered vulnerable to hazardous materials incidents. While the source of such incidents may be limited to fixed sites and certain transportation routes, uncontrolled releases of hazardous materials can spread and put the wider area at risk. Any gases or hazardous materials light enough to become airborne can be carried aloft and spread for miles. Other materials may be spread through waterways and contaminate soil beneath the surface. Facilities that store and handle hazardous materials are often required to coordinate with state and federal agencies and report any spills or releases that occur. The active facilities registered with the California Department of Toxic Substances Control are shown in **Figure 54**.

Figure 6. Hazardous Materials Facilities in the City of Bell



ii) Magnitude

The negative impacts resulting from an uncontrolled release of hazardous materials are generally limited to the immediate vicinity, but the magnitude of an incident increases significantly when hazardous materials are present in volumes commonly used for bulk transportation or commercial and industrial operations. Additionally, hazardous materials can have properties which make them unpredictable in an uncontrolled environment, and this can complicate remediation efforts. If a spill is not quickly and properly addressed, hazardous materials can impart wide-reaching and long-lasting consequences on the surrounding populations and environment.

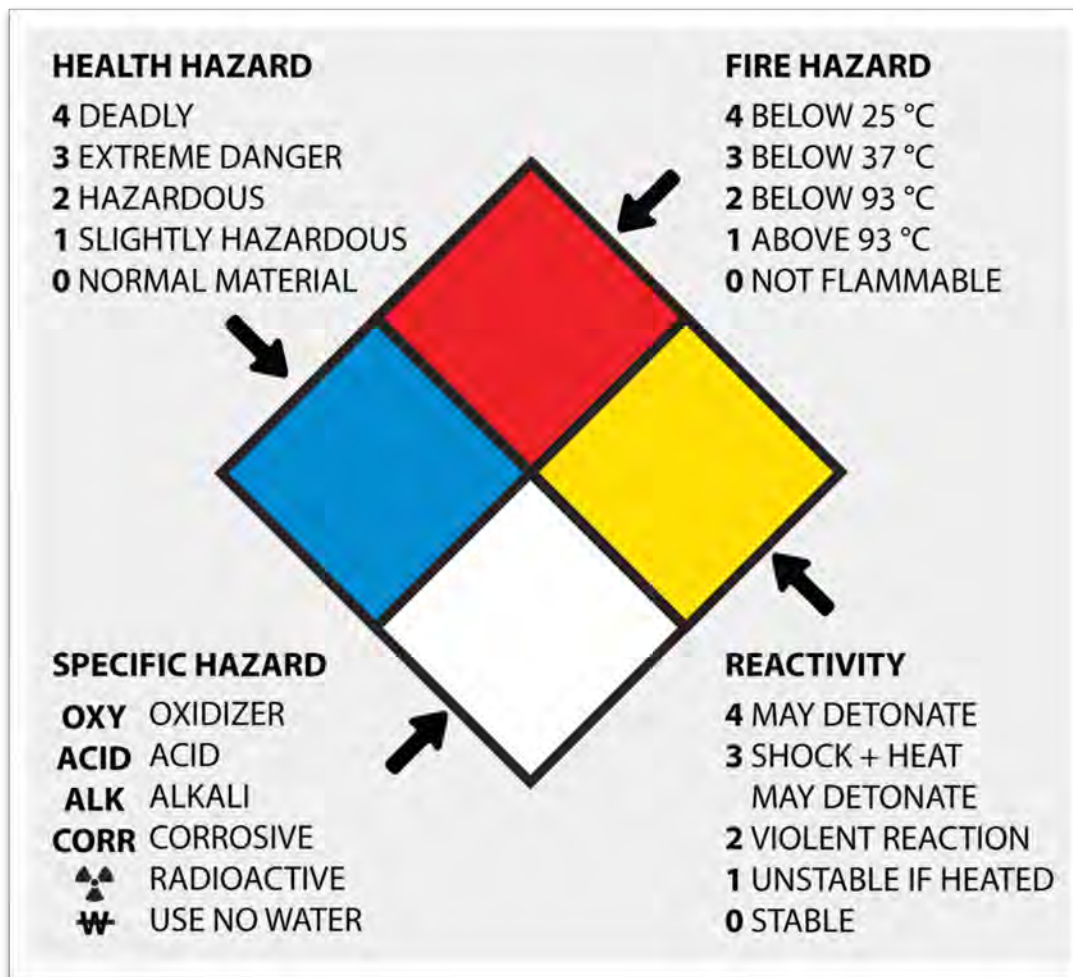
Uncontrolled releases of hazardous materials can be particularly dangerous if the substance is gaseous, as it can easily be lofted into the atmosphere and swept across large areas. Furthermore, hazardous gases can be colorless and odorless, and this can make it difficult to detect an uncontrolled release of these substances. Clouds of hazardous materials can quickly drift over urban areas and envelop large populations. Common symptoms of exposure to

hazardous materials include irritation of the eyes and skin as well as respiratory issues which may require hospitalization. Severe events can result in fatalities among the affected population.

Hazardous materials in a liquid or solid state may percolate down into the ground and reach the water table, and they can be carried miles away from the release site by rivers or streams. Land contaminated by hazardous materials may be rendered unusable until the area is properly treated, which can be a resource-intensive process. Many previous remediation projects across the U.S. have cost millions of dollars and taken years to complete, and the sites are typically monitored for a while afterwards to check that the work was successful. Hazardous materials, regardless of the state they are in when released, can cause both short-term and long-term health effects, and individuals will likely need to be evacuated from the impacted area(s).

To communicate the relative severity of risks posed by different hazardous materials, facilities and transporters often use the National Fire Protection Association (NFPA) 704 hazard rating system, also known as the “fire diamond.” This standardized system provides a quick visual summary of the health, flammability, and instability hazards of a material on a scale of 0 (minimal hazard) to 4 (severe hazard). The diamond also includes a white quadrant for special hazards such as oxidizers, water reactivity, or radiation. The fire diamond is commonly used by fire departments and emergency responders to rapidly assess the potential magnitude of a release and determine appropriate protective actions. **Figure 55** shows what a standard fire diamond looks like and describes the different ratings for each quadrant.

Figure 7. NFPA Fire Diamond



Source: National Fire Protection Association (NFPA)

iii) Extent

Most events are expected to be limited in scope, such as small spills of fuel, paints, or cleaning agents that can be quickly contained by first responders. However, due to Bell's industrial land use patterns and proximity to major transportation corridors, including the I-710 freeway, rail lines, and truck routes serving the Cheli Industrial District, larger incidents remain possible. These could include tanker truck accidents, railcar leaks, or facility-based releases of flammable, corrosive, or toxic substances. The range of possible impacts extends from minor, localized events that affect a single facility or roadway to major incidents requiring evacuations, road closures, or long-term remediation. A high-severity release could generate toxic smoke plumes, cause explosions or fires, or contaminate soil and stormwater systems.

iv) Past Occurrences

California Office of Emergency Services' (Cal OES) Spill/Release Incident Reports document five hazardous materials incidents in the City of Bell between 2020 and 2024 (one each in 2020–2022, none in 2023, and two in 2024). These events are small in number and generally limited in scale, with no fatalities or injuries reported in the Bell-specific rows for this period and no evidence of prolonged evacuations or long-term environmental impacts. Substances involved are those commonly encountered in urban/industrial contexts (e.g., petroleum products, lubricants, or regulated industrial chemicals), and reported quantities are modest (per the “Quantity/Units” fields), consistent with incidents that were contained and mitigated at the scene. While the dataset indicates that hazardous materials are present in routine commerce and industry within Bell, the historical pattern from 2020–2024 shows infrequent and localized releases rather than large-scale emergencies. Additional information about the five releases documented in Bell between 2020 and 2024 is provided in **Table 78**.

Table 78. Hazardous Materials Releases in the City of Bell 2020-2024

DATE	MATERIAL(S)	AMOUNT (GAL)	DESCRIPTION
11/19/2024	Diesel	120	Caller states due to a traffic accident a vehicle collided with a semi-truck puncturing the fuel tanks. The Semi truck didn't have a trailer attached at the time of incident. Release is unknown if stopped and unknown if contained. The released diesel travelled to a nearby storm drain. CMS Signs have been activated, and they are attempting to closed the roads.
4/2/2024	Oil	10	Per reporting party, an underground oil tank breakage caused a release of 10 gallons of oil into a storm drain. Release has not been stopped at this time. Reporting party personnel are on scene with public works for control and initial clean up.
9/8/2022	Capacitor Oil (Non PCB)	1	Caller stated due to mechanical failure less than one gallon of oil released on to the concrete. No waterways impacted and spill has been stopped and contained. Contractors are en route for spill clean-up.
3/16/2021	Diesel	25	RP states: A tractor trailer hit a piece of road debris and damaged the fuel tank resulting in the release of the material. The

DATE	MATERIAL(S)	AMOUNT (GAL)	DESCRIPTION
			release is stopped and contained. No waterways or storm drains were impacted. Clean-up is in progress through a contractor.
6/19/2020	Diesel	30	RP states that 30 gallons of diesel was released onto the storm drain due to vehicle accident, the release has been stopped and contained, CHP and Caltrans were on scene conducting mitigation.

Source: California Office of Emergency Services

Frequency

Based on the spill incident report from Cal OES, the City of Bell has experienced five spill release incidents between 2020 and 2024, for an average of one incident per year.

v)Future Probability

The history of hazardous materials incidents in Bell provides a reasonable indication of future probability. Five incidents were reported between 2020 and 2024, demonstrating that this hazard remains active and relevant. Bell's proximity to industrial facilities and major transportation corridors increases exposure, both to releases within the City and to incidents in nearby jurisdictions that could still affect residents. Since most hazardous materials incidents stem from human error, lapses in oversight or increases in chemical storage and transport could further elevate local risk. Taken together, these factors support an assessment that the probability of hazardous materials incidents in Bell is **Highly Likely**.

vi) Secondary Hazards

Industrial pollution and chemical releases can cause secondary hazards to occur which include toxic exposures, environmental contamination, evacuation and displacement, economic impact, psychological stress. More information on each secondary hazard is described in **Table 79**.

Table 79. Potential Secondary Hazards Resulting from a HazMat Incident

HAZARD	DESCRIPTION
Toxic Exposure	Exposure to toxic substances can occur during a HazMat incident, leading to acute or chronic health issues.
Environmental Contamination	HazMat incidents can lead to the contamination of soil, water, and air, causing long-term environmental damage.

HAZARD	DESCRIPTION
Evacuation & Displacement	In response to HazMat incidents, large-scale evacuations may be necessary, displacing people from their homes and workplaces.
Economic Impact	These incidents can disrupt local businesses and economies, leading to significant financial losses.
Psychological Stress	The fear and uncertainty associated with HazMat incidents can cause psychological stress and anxiety in affected communities.

vii) Vulnerability & Impact Assessment

The City of Bell faces notable vulnerability to hazardous materials incidents due to its dense industrial zones and the presence of major transportation corridors. A key area of concern is the Cheli Industrial District in the northeastern portion of the City, where manufacturing, warehousing, and distribution facilities are concentrated. Many of these facilities store or process petroleum products, solvents, and other regulated chemicals, creating an inherent risk of accidental releases. Fires, explosions, or airborne toxic releases from these operations could have immediate and severe consequences for workers on-site as well as residents in nearby neighborhoods.

Additional risks stem from smaller manufacturing and storage facilities located along major streets such as Gage Avenue, Atlantic Boulevard, and Florence Avenue. These sites handle a wide range of chemicals and goods, and accidents caused by equipment failures or improper handling could lead to spills, leaks, or emissions of hazardous substances into the community. Many industrial sites are adjacent to places where people live, work, and play, increasing the potential for community exposure during an incident.

Transportation corridors further heighten Bell's exposure. The Interstate 710 freeway, which borders the City to the west, is a major north-south route for hazardous materials trucks traveling between central Los Angeles and the Ports of Los Angeles and Long Beach. Accidents along this corridor could result in spills, fires, or explosions affecting adjacent residential and commercial areas. In addition, freight rail lines pass through Bell, carrying hazardous cargo along the Alameda Corridor system. A derailment or collision on these tracks could release toxic materials into a densely populated environment, posing severe risks to public health, safety, and the environment.

(1) People

Based on Public Survey #1, City of Bell residents are more concerned about hazardous materials and their impact from all of the man-made hazards. Several groups within Bell are particularly at risk due to the potential for hazardous materials incidents. Nearby residents, especially those

living in communities adjacent to industrial sites, face heightened dangers. These residents are at increased risk of exposure to airborne toxic substances, fires, or explosions resulting from industrial accidents. The threat is not just hypothetical. The daily operations of these facilities involve materials that, if accidentally released, can have serious health implications.

Low-income and minority populations are disproportionately affected, raising concerns about environmental justice. Bell is a predominantly Hispanic/Latino community, and economic constraints may limit access to information, emergency services, or the ability to relocate temporarily or permanently if necessary. Language barriers also present challenges, 72% of residents speak a language other than English at home (ACS 2023), hindering effective communication during emergencies and increasing the risk of missed or misunderstood warnings.

Workers within the industrial sector are another group at significant risk. Industrial employees who handle hazardous materials as part of their jobs face direct exposure to dangers associated with accidents or operational failures. Without proper safety protocols, training, and equipment, these workers are vulnerable to immediate health risks, including chemical burns, inhalation of toxic fumes, or long-term health issues due to exposure.

First responders, such as firefighters, police officers, and medical personnel—are also at risk when hazardous materials incidents occur. Their roles require them to enter potentially dangerous environments to manage emergencies, contain spills, or rescue affected individuals. Responding to HazMat incidents necessitates specialized training and equipment to protect themselves from exposure while effectively addressing the situation. The complexity and unpredictability of such incidents can put even well-prepared first responders in harm's way.

Vulnerable populations, including children and the elderly, are particularly vulnerable to the effects of hazardous materials. According to ACS 2023 estimates, 8,779 residents (26.7%) are under 18, while 3,667 residents (11.2%) are age 65 or older. Schools like Bell High School and nearby senior centers could be impacted during an incident, with occupants more susceptible to adverse health effects from exposure. Children's developing bodies and the potentially compromised health of the elderly make them more prone to serious complications. Evacuations or shelter-in-place orders can be especially challenging for these groups due to mobility issues or the need for specialized care.

Individuals with pre-existing health conditions, such as respiratory illnesses or compromised immune systems, are at increased risk during hazardous materials incidents. Exposure to toxic substances can exacerbate their conditions, leading to severe health crises or long-term deterioration. For example, someone with asthma might suffer a life-threatening attack if exposed to airborne chemicals released during an industrial accident.

(2) Structures and Systems

Bell's general building stock is vulnerable to hazardous materials incidents due to its age, density, and proximity to industrial and transportation corridors. Roughly 77% of housing units in Bell were built before 1980, prior to the adoption of modern building and fire codes that emphasize improved ventilation, containment, and fire resistance. Older homes and multifamily units may be more susceptible to smoke infiltration, toxic gas exposure, or structural damage from fires and explosions triggered by hazardous materials releases. Many residential areas are located immediately adjacent to industrial zones, where warehouses and manufacturing facilities handle and store hazardous substances, creating elevated risks for residents if containment fails.

Commercial corridors and small businesses also face risks, as a release or spill could quickly contaminate enclosed spaces and force closures. Roadside businesses along Gage Avenue, Florence Avenue, and Atlantic Boulevard are particularly vulnerable to hazardous materials transported on the nearby Interstate 710 and rail lines, where accidents could result in chemical spills, fires, or airborne toxic plumes affecting nearby neighborhoods. Even if structures are not physically impacted by hazardous materials, an uncontrolled release in the area could dramatically reduce property values, creating additional hardships for the community.

Critical Facilities

A hazardous material incident in Bell could severely impact critical facilities such as schools, police stations, hospitals, and city-owned buildings. These facilities, essential for community functioning, might face operational disruptions or damage. For instance, schools may need to temporarily close or relocate, disrupting education. Bell High School, located adjacent to residential and industrial areas, is particularly vulnerable due to the presence of hundreds of students and staff who would need rapid evacuation or shelter-in-place orders. Hospitals and emergency services could be overwhelmed by the sudden influx of patients or be in the hazard zone themselves, complicating response efforts. Government buildings could be rendered unusable, affecting municipal services. Such scenarios highlight the necessity for robust emergency preparedness and contingency plans for critical facilities in order to continue operations and swift recovery post-incident.

Utility infrastructure is another major concern. The Los Angeles River, which borders Bell to the west, provides a potential pathway for contaminated runoff from spills or firefighting operations, posing risks to both stormwater and wastewater systems. Overhead power lines and electrical substations within the City are vulnerable to fire and explosion hazards, while natural gas distribution systems could contribute to secondary ignition sources during incidents. Transportation lifelines—including the heavily trafficked I-710 freight corridor and the Union Pacific rail line—are also critical facilities in their own right, as they support the movement of goods for the entire Los Angeles region. A hazardous materials release affecting these systems could result in both physical damage and prolonged regional disruption.

Table 80 describes potential impacts of hazardous materials incidents on the eight FEMA community lifelines.

Table 80. Potential Impacts of Hazardous Materials Incidents on Community Lifelines

LIFELINES	IMPACT TYPE	DESCRIPTION
Communications		Hazardous materials releases can damage or disrupt telecommunications infrastructure, or force evacuations of communication facilities, resulting in outages or delays in emergency alerting.
Energy (Power & Fuel)		Fires or explosions triggered by hazardous materials incidents can damage electrical substations, power lines, or natural gas pipelines, causing localized outages and secondary hazards.
Food, Hydration, Shelter		Chemical spills or airborne contaminants may require evacuation of residential areas, displacing residents and increasing demand for emergency shelter and clean drinking water.
Hazardous Materials		Improper handling, storage, or transportation of chemicals can lead to secondary fires, explosions, or toxic releases, further compounding the initial hazard and overwhelming response capacity.
Health & Medical		Hospitals, clinics, and emergency medical services could face a surge of patients with respiratory distress, burns, or chemical exposure, straining already limited local healthcare capacity.
Safety & Security		HazMat incidents can necessitate large-scale evacuations, requiring significant law enforcement presence to manage traffic, secure hazardous sites, and prevent looting in evacuated areas.

LIFELINES	IMPACT TYPE	DESCRIPTION
Transportation		Spills on major corridors such as I-710 or the Union Pacific rail line can close road or rail routes, disrupt freight movement, and delay emergency response efforts.
Water & Wastewater Systems		Hazardous materials runoff can contaminate storm drains, groundwater, or the Los Angeles River, disrupting drinking water quality and damaging wastewater treatment infrastructure.

(3) Natural, Cultural, and Historical Resources

The primary risk posed to natural, cultural, and historic resources by hazardous materials incidents is contamination. Historic sites, schools, and community landmarks near industrial areas could be exposed to toxic releases, fires, or explosions, resulting in structural damage or loss of cultural assets. Cleanup and remediation challenges could further disrupt access and preservation efforts. Interestingly, major contamination that requires long-term remediation often results in increased green space, as this is often one of the few acceptable uses for previously contaminated land. An example of this can be found just north of Bell in the community of Maywood. Riverfront Park sits on a ground that was once a chemical blending and distribution facility, with numerous underground and aboveground storage tanks, drums, and sumps holding volatile organic compounds (VOCs), semi-volatile organics, metals, and other contaminants such as PCE, TCE, benzene, toluene, and vinyl chloride. In January 2005, EPA initiated a comprehensive remediation effort that included soil vapor extraction, electrical resistance heating, and groundwater treatment. Construction activities began in 2005, with major work completed by June 2006, allowing the site to be incorporated into the newly developed Maywood Riverfront Park. Final construction completion was documented in September 2007, transforming a once-hazardous property into a safe recreational space for the community.

(4) Risk Analysis

Hazardous materials incidents pose a **Moderate** risk to the City of Bell. For planning purposes, it is reasonable to assume that Bell's risk reflects both local conditions and its connection to broader community- and county-level risks. The City of Bell has multiple facilities that handle hazardous materials, and the City is embedded within a broad industrial network that involves the use, storage, and transportation of hazardous substances. Chemicals move through the region by truck, rail, and pipeline, and facilities within and adjacent to Bell manage flammable,

corrosive, or toxic substances. Past records from Cal OES demonstrate that hazardous materials incidents occur frequently across Los Angeles County, ranging from minor spills to larger events requiring evacuations. While the City of Bell's recorded events between 2020 and 2024 were limited in number, their occurrence underscores that the risk is active and ongoing, and incidents in neighboring cities could also impact Bell residents.

At the same time, existing regulatory and response systems help reduce vulnerability. California's Unified Program consolidates and coordinates oversight of hazardous materials through the Aboveground Petroleum Storage Act, the California Accidental Release Prevention Program, Hazardous Materials Business Plans, hazardous waste management requirements, and the Underground Storage Tank Program, among others. These frameworks, paired with local fire and emergency management protocols, provide layers of protection. Still, vulnerabilities remain, particularly for populations near industrial corridors, for older housing stock with limited resilience to airborne contamination, and for critical facilities that rely on uninterrupted operations.

C) CIVIL UNREST

i) Hazard Profile

Civil unrest is a broad term that is usually used by law enforcement to describe one or more forms of disturbance caused by a group of people. Civil unrest is typically a symptom of, and a form of protest against sociopolitical problems. Typically, the severity of the action coincides with the level of public outrage. In addition to a form of protests targeting major sociopolitical problems, civil unrest can also arise out of union protest, institutional population uprising, or large celebrations that become disorderly. Civil unrest can take the form of small gatherings or large groups blocking or impeding access to a building or disrupting normal activities by generating noise and intimidating people. Demonstrations can range from a peaceful sit-in to a full-scale riot, in which a mob burns or otherwise destroys property and terrorizes individuals. Even in its more passive forms, a group that blocks roadways, sidewalks, or buildings interferes with public order. While often peaceful, civil unrest can escalate into violence, property damage, and disruption of essential services.

Civil unrest presents a multifaceted hazard profile with risks extending beyond immediate physical danger to include significant disruptions to businesses, infrastructure, and daily life. It can trigger a range of secondary hazards like fires, infrastructure failures, and environmental damage. Furthermore, civil unrest can disrupt essential services, impact public safety, and lead to economic losses. Intelligence-sharing regarding crowd size and behavior and known group presence can assist authorities in determining the possibility of an organized nonviolent demonstration turning potentially violent.

Examples of civil unrest or disturbances may include:

- Protests
- Demonstrations
- Riots
- Unlawful Assemblies
- Large Scale Celebrations
- Flash Mobs

Civil unrest does not include public demonstrations or protests that are carried out in-line with established laws, codes, and statutes, to include the First Amendment of the United States Constitution.

(1) Duration

The duration of civil unrest in Bell, California, can vary depending on the nature of the triggering event, the scale of public response, and the level of intervention by local and federal authorities. Historical incidents in Bell and the broader Los Angeles County region have ranged from several days to multiple weeks. For example, anti-immigration enforcement protests in Bell lasted for at least three weeks, while regional unrest during the 2020 George Floyd demonstrations extended for approximately one month.

Factors influencing the duration include the presence of curfews, law enforcement actions, and federal involvement such as National Guard deployments. These variables can either escalate or shorten the timeline of unrest. Understanding the potential duration is critical for planning continuity of operations, resource allocation, and public safety measures during civil disturbances.

(2) Seasonality

Civil unrest in Bell does not follow a seasonal pattern, as events can occur at any time of year. The more relevant driver is the nature of triggering incidents. These may include controversial judicial rulings, labor disputes, or perceived misconduct by government officials. Sporting outcomes and community celebrations have also occasionally served as catalysts for civil unrest.

(3) Speed of Onset

As stated above, civil unrest events can occur very quickly with little to no warning. Generally, a certain degree of warning time precedes an event; however, predicting with certainty that an incident is imminent is nearly impossible.

(4) Location

The location of civil unrest incidents is inherently difficult to predict; however, such events most commonly occur near government facilities, public landmarks, schools and universities, or within central downtown areas. These locations are often chosen due to their visibility, symbolic significance, and accessibility. Civil disturbances tend to concentrate in areas where individuals or groups can gain support through collective action, amplify their message, sometimes through misinformation, intimidation, or violence, and disrupt daily activities such as commerce, transportation, and government operations.

Additionally, civil unrest may emerge in proximity to locations where a triggering event has occurred, such as a controversial law enforcement action or political demonstration. These areas can quickly become focal points for protest activity, especially if they are associated with perceived injustice or institutional authority. Understanding these location patterns is essential for identifying high-risk zones and implementing targeted mitigation strategies to protect public safety and critical infrastructure.

ii) Magnitude

The severity of civil unrest incidents is typically proportional to the degree of public dissatisfaction and the operational impact of the disturbance. These events may range from low-impact gatherings to high-impact mobilizations that obstruct access to critical facilities, disrupt municipal operations, or compromise public safety. Civil unrest may include peaceful demonstrations such as sit-ins, but can escalate to large-scale riots involving property damage, law enforcement engagement, and potential threats to life and infrastructure. Such events should be evaluated for their likelihood, potential consequences, and required mitigation measures within the jurisdiction's hazard profile.

Several factors determine the magnitude of a civil unrest event. Public grievances, such as economic inequality, political repression, or social injustice, can shape the scale and intensity of unrest. Triggering events like police misconduct or political scandals often act as catalysts, rapidly escalating tensions. The response of authorities plays a critical role; actions ranging from dialogue to excessive force can either de-escalate or intensify the situation.

Additional factors include the level of organization among participants, the geographic scope of the unrest, and its duration. Well-organized movements with clear leadership tend to sustain longer and broader actions. The extent of violence, property damage, and disruption to daily life also reflects the severity of the event. Finally, the degree to which civil unrest challenges governmental stability or societal norms is a key indicator of its overall magnitude.

iii) Extent

Civil unrest can significantly disrupt multiple societal functions. The public may be directly involved as participants or inadvertently harmed as bystanders, leading to widespread fear, absenteeism from work or school, and reduced public mobility. Emergency responders may face resource strain and become targets themselves, limiting their effectiveness and requiring state-level support during large-scale events.

Government operations and service delivery can be interrupted if protesters occupy or damage public facilities. Private property, particularly businesses, is often targeted for looting or vandalism, with economic recovery potentially taking years. Infrastructure, such as transportation, utilities, and communication systems, may also be damaged, compounding the disruption. While environmental impacts are typically minimal, incidents involving chemical facilities or fires can result in significant harm. Prolonged or poorly managed unrest can erode public confidence in governance and destabilize the local economy.

iv) Past Occurrences

There is no authoritative database for civil unrest events, but a review of available news articles shows several events that have been documented by news organizations.

In the Planning Area (City of Bell, CA):

- **June 20, 2025, ICE Protest**

Civil unrest for this event began on June 20, 2025, and continued for about half an hour. During the unrest, about 100 people gathered near the 7000 block of Atlantic Avenue. There was also damage to several vehicles reported because of this incident and one individual was arrested⁷⁸.

Nearby Jurisdiction (City of Los Angeles, CA):

- **June 14, 2025, “No Kings” Protest**

Civil unrest for this event began on June 14, 2025, and continued for several hours. During this event, large crowds of people gathered in downtown Los Angeles with some reports of over 200,000 participants. There was damage reported, and looting was also suspected as a result of this event. Dozens of participants were arrested during this unrest for throwing rocks, fireworks, beer cans and water bottles at officers, driving motorcycles into police lines, and spray-painting a building⁷⁹.

- **January 28, 2023, Tyre Nichols Protests**

Civil unrest for this event began on January 28, 2023, and continued for several hours. During the unrest, a large crowd of people gathered near the Los Angeles Police Headquarters Facility. There was minimal damage reported as a result of the event.

- **May–June 2020, Protest for Racial Justice**

Civil unrest for this event began in late May 2020 and continued sporadically for several weeks. During the unrest, large crowds of people gathered near downtown Los Angeles and surrounding areas within Los Angeles County. There was damage reported as a result of the unrest and on July 25, 2020, the Mayor of Los Angeles authorized the use of the California National Guard.

78 REDA, JAD EL, RUBEN VIVES, AND RONG-GONG LIN II. 2025. “IMMIGRATION RAID AT CAR WASH SPARKS TENSE SCENE, HOURS OF PROTESTS IN BELL.” LOS ANGELES TIMES. LOS ANGELES TIMES. JUNE 21, 2025. [HTTPS://WWW.LATIMES.COM/CALIFORNIA/STORY/2025-06-20/IMMIGRATION-RAID-PROTESTERS-GATHER-IN-BELL-MAYWOOD](https://www.latimes.com/california/story/2025-06-20/immigration-raid-protesters-gather-in-bell-maywood).

79 CHOU, ELIZABETH. 2025. “AT LEAST 71 PEOPLE FACED CRIMINAL CHARGES AFTER LA PROTESTS OVER ICE RAIDS.” LA PUBLIC PRESS. LAPP. AUGUST 18, 2025. [HTTPS://LAPUBLICPRESS.ORG/2025/08/ICE-RAIDS-LA-ARRESTS-CHARGES/](https://lapublicpress.org/2025/08/ice-raids-la-arrests-charges/).

Frequency

Based on previous occurrences, there has been a civil unrest incident every 1.25 years.

v)Future Probability

Although forecasting the likelihood of future civil unrest events remains inherently uncertain, historical precedent and the strategic significance of Los Angeles County and its constituent communities suggest that such incidents remain a **Possible** risk. While information on previous events is limited, Bell officials should anticipate that the community will experience at least one instance of civil unrest over the next planning cycle (5 years). As outlined in the location analysis, areas of high visibility or symbolic importance, such as universities, cultural landmarks, correctional institutions, and major industrial sites, may be more susceptible to civil unrest due to their regional and national relevance. These locations should be considered potential focal points in vulnerability assessments and mitigation planning.

vi) Secondary Hazards

The most significant impact of civil unrest is the secondary hazard of interruption of continuity of government, which can also lead to several of the secondary hazards described in **Table 81**. The extent of secondary hazards will vary significantly based on the extent and nature of the civil unrest.

Table 81. Potential Secondary Hazards Resulting from a HazMat Incident

SECONDARY HAZARD	DESCRIPTION
Urban Fires	Urban fires can spread rapidly from one structure to another, especially in densely populated areas with older buildings. They can cause significant damage to property, infrastructure, and pose risks to human life and public health.
Infrastructure Disruptions	Civil unrest can severely disrupt critical infrastructure, impacting essential services like power, water, transportation, and communication. These disruptions can have cascading effects, endangering lives and causing significant economic and social damage.
Government Disruptions	Continuity of operations, including damage to facilities, personnel and continued delivery of services, are likely to be impacted. If mismanaged, trust in the local Government could also fall.

vii) Vulnerability & Impact Assessment

(1) People

While the entire City is potentially vulnerable to civil unrest, areas with higher population density and those located near colleges and universities, correctional facilities, landmarks, courthouses, and other significant institutions may face elevated risk. These locations are more likely to experience the direct impacts of such events due to their visibility and symbolic importance.

Civil unrest can result in injuries or fatalities among participants and bystanders. If disturbances escalate into violence, emergency responders may also be at risk. Factors such as population growth and the hosting of major political, economic, or social events can increase both the likelihood and severity of civil unrest incidents.

(2) Structures and Systems

All City property and assets are vulnerable during events of civil disorder and may be damaged or destroyed during acts of civil unrest.

Critical Facilities

An incident of civil unrest in Bell has the potential to significantly impair the functionality of critical infrastructure, including educational institutions, law enforcement facilities, healthcare centers, and municipally owned buildings. These assets, integral to the continuity of essential community services, may be subject to operational disruptions or physical damage. For instance, hospitals and emergency response units could become overwhelmed by a sudden influx of injured individuals, thereby complicating coordinated response efforts. Additionally, government facilities may be rendered inoperable, impeding the delivery of vital municipal services. These risks underscore the imperative for comprehensive emergency preparedness and resilient contingency planning to ensure the sustained operation and expedited recovery of critical facilities following such events.

The numerous documented consequences of civil unrest events over the years underscore the imperative for robust emergency preparedness and resilient contingency planning. Ensuring continuity of operations and facilitating rapid recovery for critical facilities must be prioritized to mitigate the multifaceted risks posed by civil unrest.

Community Lifelines

Community lifelines are particularly at-risk during incidents of civil unrest, as City-owned or leased facilities often become primary targets. Such events can result in damage or destruction of facilities, obstruct transportation routes and infrastructure, and disrupt services that are critical to the operation of essential facilities. **Table 82** describes the potential impacts of civil unrest on the eight FEMA community lifelines.

Table 82. Potential Vulnerabilities to Lifelines from Civil Unrest

LIFELINE	FEMA ICON	DESCRIPTION OF IMPACT
Communications		Dependable communication systems are essential for sharing critical public information, maintaining continuity among emergency responders, supporting 911 dispatch operations, and ensuring the stability of banking infrastructure.
Energy (Power & Fuel)		Although energy infrastructure may not be the primary target during civil unrest, disruptions to the power grid and fuel distribution systems can still occur depending on the severity and nature of the events. For instance, fuel supply chains can be impacted by curfews, blocked transportation routes, or workforce shortages, potentially leading to shortages at fueling stations and delays in resupplying emergency response vehicles and backup generators.
Food, Hydration, Shelter		Civil unrest can expose and intensify vulnerabilities in access to essential resources like food and water. Disruptions to supply chains during such events disproportionately affect populations already at risk, highlighting the need for targeted mitigation strategies to reduce their exposure and enhance resilience.
Hazardous Materials		Civil unrest may pose a high-impact threat to hazardous material storage facilities, potentially resulting in public safety hazards, environmental contamination, or operational disruptions if sites are targeted during protests.
Health & Medical		Depending on the scope and intensity of civil unrest, disruptions to both routine and emergency medical services may occur. Such events can compromise the operational capacity of Emergency Medical Services (EMS), impede patient

LIFELINE	FEMA ICON	DESCRIPTION OF IMPACT
		transport logistics, and destabilize the medical supply chain, including the distribution of pharmaceuticals, equipment, and critical care resources.
Safety & Security		During a civil unrest event, the demand for public safety and security services is likely to rise, contributing to increased public anxiety. Critical infrastructure such as police stations and government buildings may become targets, potentially disrupting essential services.
Transportation		In the context of civil unrest, transportation infrastructure—including roadways, public transit systems, and rail networks—is susceptible to operational disruptions. Such events may involve the strategic obstruction of transit corridors by demonstrators utilizing debris or improvised barricading materials, resulting in impediments to mobility and emergency response operations.
Water & Wastewater Systems		Water and wastewater infrastructure is generally resilient to disruptions caused by civil unrest.

(3) Natural, Cultural and Historic Resources

Acts of civil unrest in and around natural, cultural, and historical landmarks have the potential to result in major property damage, including complete destruction of these sites. It is not uncommon for parks to be used as gathering spaces for protests, both planned and unplanned. Adolph Treder Park is adjacent to the Bell community center, police station, and City Hall, and this proximity increases the likelihood of it being a gathering space for protesters who may be unsatisfied with community decisions.

(4) Risk Analysis

Although predicting the location or severity of civil unrest is challenging, this plan currently assesses that the hazard currently poses a **Low** risk to the City of Bell. Unlike natural hazards, the likelihood of civil unrest is influenced by human behavior, which is shaped by a complex and shifting set of interrelated factors—many of which are difficult to forecast or control. Given the

intricate relationship between natural and built environment risk factors at the local level, it is reasonable for planning purposes to consider the City's vulnerability as a subset of the broader community's vulnerability.

D) PANDEMIC / EPIDEMIC

i) Hazard Profile

Outbreaks, epidemics, and pandemics represent increasing scales of infectious disease transmission. An outbreak is defined as the occurrence of more cases of a disease than expected in a specific area or population during a given period. An epidemic is a larger event, affecting broader geographic areas or higher case counts, while a pandemic is an epidemic that spreads across multiple countries or continents. The severity of illness does not determine whether an event is classified as an outbreak, epidemic, or pandemic; rather, the scope of spread does. For planning purposes, this Hazard Mitigation Plan considers the terms interchangeable unless otherwise noted. Infectious disease events can result in significant public health consequences, straining healthcare capacity, disrupting essential services, and impacting the economy. The most recent example, the global COVID-19 pandemic, demonstrated how rapidly a novel pathogen can affect all aspects of community life. Bell, along with all of Los Angeles County, experienced school and business closures, supply chain disruptions, loss of life, and long-term social and economic challenges as a result of this event.

(1) Duration

Pandemics typically persist for longer periods than other hazard events, often spanning multiple years. The COVID-19 pandemic illustrates this pattern: the federal emergency declaration remained in effect from January 2020 through May 2023, yet the virus continues to circulate at lower but still significant levels, with periodic surges during winter months. Similarly, the 1918–1919 influenza pandemic eventually transitioned into seasonal influenza, which remains endemic today. These examples highlight that while official emergency periods may conclude, infectious diseases often continue circulating indefinitely, with evolving variants posing ongoing risks to public health, healthcare systems, and community resilience.

The Pandemic Intervals Framework (PIF) describes the progression of an influenza pandemic using six intervals described in **Table 83**⁸⁰.

Table 83. Pandemic Intervals Framework (PIF)

INTERVAL NUMBER	INTERVAL NAME	DESCRIPTION
1	Investigation	Investigation of cases of a novel influenza A virus infection in humans. Public health actions focus on targeted monitoring and investigation.

80 "PANDEMIC INTERVALS FRAMEWORK (PIF) | PANDEMIC INFLUENZA (FLU) | CDC." 2019. WWW.CDC.GOV. CDC. JANUARY 22, 2019. [HTTPS://WWW.CDC.GOV/FLU/PANDEMIC-RESOURCES/NATIONAL-STRATEGY/INTERVALS-FRAMEWORK.HTML](https://www.cdc.gov/flu/pandemic-resources/national-strategy/intervals-framework.html).

INTERVAL NUMBER	INTERVAL NAME	DESCRIPTION
2	Recognition	Recognition of increased potential for ongoing transmission of a novel influenza A virus. public health actions focus on control of the outbreak, including treatment of sick persons.
3	Initiation	Initiation of a pandemic wave. A pandemic occurs when people are easily infected with a novel influenza A virus that has the ability to spread in a sustained manner from person-to-person.
4	Acceleration	The acceleration (or “speeding up”) is the upward epidemiological curve as the new virus infects susceptible people. Public health actions at this time may focus on the use of appropriate non-pharmaceutical interventions in the community (e.g. school and child-care facility closures, social distancing), as well the use of medications (e.g. antivirals) and vaccines, if available. These actions combined can reduce the spread of the disease and prevent illness or death.
5	Deceleration	The deceleration (or “slowing down”) happens when pandemic influenza cases consistently decrease in the United States. Public health actions include continued vaccination, monitoring of pandemic influenza A virus circulation and illness, and reducing the use of non-pharmaceutical interventions in the community (e.g. school closures).
6	Preparation	When pandemic influenza has subsided, public health actions include continued monitoring of pandemic influenza A virus activity and preparing for potential additional waves of infection. It is possible that a 2nd pandemic wave could have higher severity than the initial wave.

Source: CDC

(2) Seasonality

Epidemics and pandemics can occur at any time of year, though many respiratory viruses, including influenza, demonstrate strong seasonality in temperate climates, with higher transmission during winter months and lower activity in summer. This pattern reflects factors such as indoor crowding, colder and drier air, and reduced ventilation, all of which facilitate viral spread. While the onset of a pandemic is not limited to winter months—as shown by the spring wave of the 1918 influenza pandemic—subsequent waves often intensify during colder

seasons⁸¹. The COVID-19 pandemic demonstrated this trend, with repeated surges in cases and hospitalizations during winter periods. More familiar illnesses, such as seasonal influenza and the common cold, also follow these patterns, with predictable peaks each winter, illustrating how respiratory viruses often align with seasonal environmental conditions.

(3) Speed of Onset

The onset of a pandemic is generally slower than sudden natural hazards but rapid in public health terms. Novel pathogens may circulate undetected for weeks or months before being identified, which delays the recognition of the first fatalities as part of a larger event. Once sustained human-to-human transmission is established, however, international travel and trade can accelerate global spread within weeks. This dynamic was evident during the COVID-19 pandemic, where initial outbreaks expanded across continents in a matter of months. Because early detection is difficult, official recognition and coordinated response often lag behind the first wave of infections. Organizations like the Centers for Disease Control and Prevention (CDC) and the World Health Organization (WHO) play a critical role in monitoring emerging infectious diseases and issuing alerts when global spread becomes likely.

(4) Location

Pandemics and epidemics do not affect a single geographic location; the entire City of Bell is equally vulnerable. Transmission can occur anywhere people interact, but locations with higher numbers of individuals create more opportunities for disease to spread. Areas where people gather in close proximity—such as schools, community centers, houses of worship, retail corridors, and major employers—are especially susceptible to elevated spread. Bell’s dense residential neighborhoods and reliance on service- and industrial-sector employment increase the likelihood that workplaces and shared facilities become focal points for transmission. Public transit routes and regional mobility also contribute to the risk of rapid spread throughout the planning area.

ii) Magnitude

The severity of a pandemic or epidemic depends on how efficiently a pathogen spreads and how severe the resulting illnesses are. Transmissibility is shaped by factors such as the basic reproductive number (R_0), household and community attack rates, and the ease with which the disease spreads in workplaces and schools. Clinical severity is measured by outcomes including hospitalization rates, case fatality ratios, and the proportion of deaths among those hospitalized. Together, these measures determine the overall strain on public health, essential services, and community stability.

81 NEUMANN, GABRIELE, AND YOSHIHIRO KAWAOKA. 2022. "SEASONALITY OF INFLUENZA AND OTHER RESPIRATORY VIRUSES." EMBO MOLECULAR MEDICINE 14 (4). [HTTPS://DOI.ORG/10.15252/EMMM.202115352](https://doi.org/10.15252/emmm.202115352).

In Bell, the impacts of a major pandemic extend beyond public health into every sector of community life. Even moderate epidemics are capable of disrupting schools, workplaces, and healthcare access. Severe pandemics, such as COVID-19, have demonstrated how easily local hospitals can become overwhelmed, small businesses can experience prolonged closures, and essential government services can be interrupted.

To provide a consistent method of assessing severity, the CDC developed the Pandemic Severity Assessment Framework (PSAF), which uses indicators of transmissibility and clinical severity to assign events to the scale described in **Table 85**. This framework helps describe the potential range of outcomes for future pandemics and illustrates how both rapid spread and high case severity can independently or jointly drive community impacts.

Table 84 presents the parameters used in the PSAF to characterize pandemic magnitude and severity.

Table 84. Scales Measures of Transmissibility and Clinical Severity

PARAMETER NO. AND DESCRIPTION ⁸²	SCALE						
	1	2	3	4	5	6	7
Transmissibility							
Symptomatic attack rate, community, %	<10	11-15	16-20	21-24	>25	-	-
Symptomatic attack rate, school, %	<20	21-25	26-30	31-35	>36	-	-
Symptomatic attack rate, workplace, %	<10	11-15	16-20	21-24	>25	-	-
Household secondary attack rate, symptomatic, %	<5	6-10	11-15	16-20	>21	-	-
R ₀ : basic reproductive number	<1.1	1.2-1.3	1.4-1.5	1.6-1.7	>1.8	-	-
Peak % outpatient visits for influenza-like illness	1-3	1-3	1-3	1-3	1-3	-	-
Clinical Severity							
Case-fatality ratio, %	<0.02	0.02-0.05	0.05-0.1	0.1-0.25	0.25-0.5	0.5-1	>1
Case-hospitalization ratio, %	<0.5	0.5-0.8	0.8-1.5	1.5-3	3-5	5-7	>7

⁸² REED, CARRIE, MATTHEW BIGGERSTAFF, LYN FINELLI, LISA M. KOONIN, DENISE BEAUVAIS, AMRA UZICANIN, ANDREW PLUMMER, JOE BRESEE, STEPHEN C. REDD, AND DANIEL B. JERNIGAN. "NOVEL FRAMEWORK FOR ASSESSING EPIDEMIOLOGIC EFFECTS OF INFLUENZA EPIDEMICS AND PANDEMICS - VOLUME 19, NUMBER 1—JANUARY 2013 - EMERGING INFECTIOUS DISEASES JOURNAL - CDC." ACCESSED AUGUST 28, 2023. [HTTPS://DOI.ORG/10.3201/EID1901.120124](https://doi.org/10.3201/EID1901.120124).

PARAMETER NO. AND DESCRIPTION ⁸²	SCALE						
	1	2	3	4	5	6	7
Ratio, deaths: hospitalization, %	<3	4-6	7-9	10-12	13-15	16-18	>18

Source: CDC

Federal, state, and local public health agencies provide instructions to all organizations and individuals based on the severity of a pandemic and the infectious diseases' transmission methods. The worst-case scenario for the City of Bell would be a disease high transmissibility (5) and high clinical severity (7) in the CDC's PSAF.

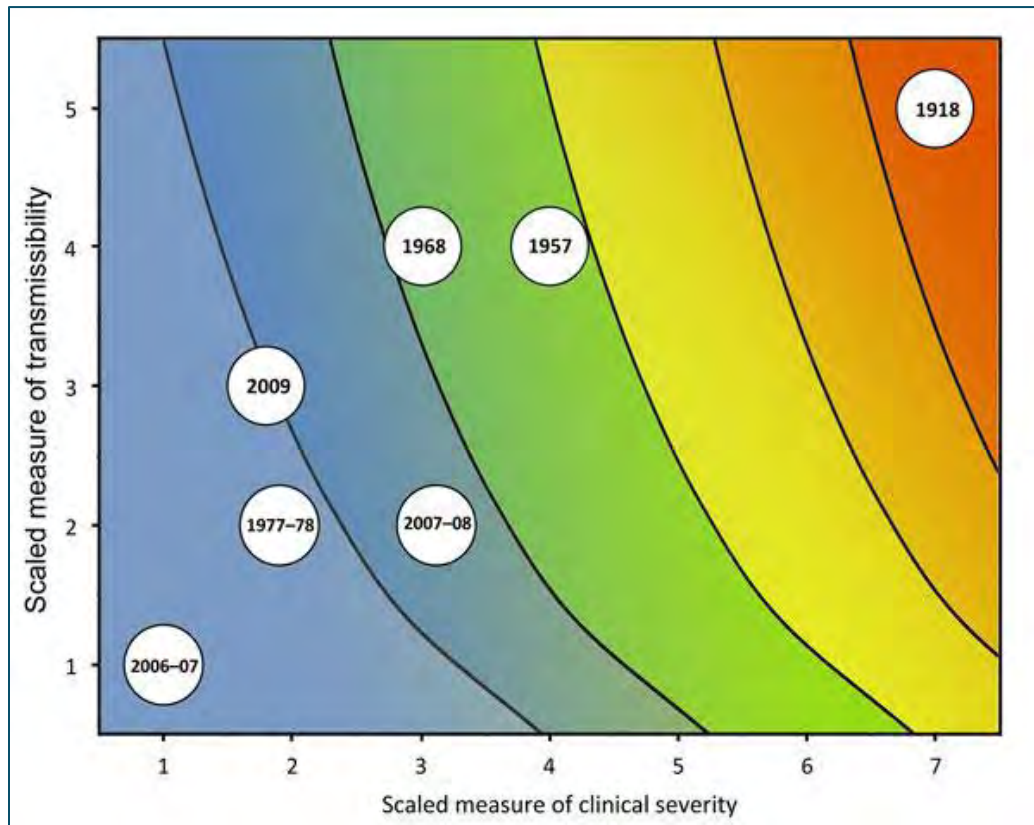
iii) Extent

Pandemics and epidemics differ from many other hazards in that their impacts are not geographically confined. The entire planning area is exposed, since infectious diseases can spread anywhere people interact, regardless of neighborhood or physical setting. Determining the original point of emergence is rarely possible in real time and is often only established later through epidemiological investigation and contact tracing. The extent of impact in Bell may range from limited outbreaks of seasonal influenza to global-scale pandemics that disrupt every sector of community life. Severity is influenced by the transmissibility of the pathogen, the clinical outcomes it causes, and the availability of vaccines or treatments. While exposure is widespread across the planning area, not all individuals share the same level of vulnerability; factors such as age, occupation, or underlying health conditions shape how severely different populations are affected. These population-level differences are explored further in the Vulnerability subsection of this hazard profile.

iv) Past Occurrences

Pandemics and epidemics have had recurring and widespread effects on the City of Bell and the surrounding Los Angeles County region. While some events have been global in scale and others more localized, each has highlighted the vulnerability of the community to infectious disease and underscored the importance of preparedness and coordinated response. Since 1918, there have been multiple major epidemics or pandemics that are widely recognized by both the CDC and WHO, in addition to the COVID-19 pandemic. **Figure 56** and **Table 85** present these events as rated under the CDC's PSAF, illustrating how each differs in terms of transmissibility and clinical severity.

Figure 8. Scales Measure of Clinical Severity



Source: CDC

Table 85. Magnitude of Past Pandemic or Epidemic Events

DISEASE/FLU SEASON	TRANSMISSIBILITY SCORE	CLINICAL SEVERITY SCORE
1918 Spanish Flu Pandemic	5	7
1957-1958 Flu Pandemic	4	4
1968 Flu Pandemic	4	3
1977-1978 Flu Epidemic	2	2
2006-2007 Flu Season	1	1
2007-2008 Flu Season	2	3
2009 Swine Flu Pandemic	3	2
2020 COVID-19 Pandemic ⁸³	5*	4-7*

Source: CDC *Preliminary results from a preliminary assessment of COVID-19 using PSFA in April 2020.

⁸³ PSFA SCORES DETERMINED BY A TEAM OF RESEARCHERS IN BRAZIL. AS OF 2023, THE CDC HAS NOT PUBLISHED AN OFFICIAL PSFA RATING FOR THE COVID-19 PANDEMIC.

One of the most significant historical events was the 1918–1919 influenza pandemic, often referred to as the “Spanish Flu”. This pandemic infected an estimated one-third of the world’s population and caused widespread illness and death across the United States, including California. Los Angeles County was heavily affected, with local health departments mandating closures of schools, churches, and public gatherings to slow transmission. Communities such as Bell, already emerging as part of the greater Los Angeles industrial corridor at that time, would have experienced the same restrictions and public health disruptions. Although precise City-level data for Bell is limited due to its size and incorporation history, the pandemic’s scale ensures that its impacts were felt locally.

Throughout the 20th century, seasonal influenza epidemics have continued to affect Bell and surrounding jurisdictions on an annual basis. While generally less severe than pandemic influenza, seasonal outbreaks result in elevated rates of hospitalization, increased absenteeism in schools and workplaces, and recurring stress on healthcare services. These regular influenza epidemics demonstrate how even predictable events can disrupt education, business operations, and municipal services within the City.

The most far-reaching modern example is the COVID-19 pandemic caused by the novel coronavirus SARS-CoV-2, which began in early 2020. COVID-19 triggered an unprecedented public health crisis that lasted over three years, with residual impacts that continue today. Bell, as part of Los Angeles County, experienced all phases of the pandemic response: stay-at-home orders, mandated business and school closures, testing and vaccination campaigns, and ongoing public health advisories. Local businesses, particularly small retail and industrial employers that make up a significant portion of the City’s economy, faced extended disruptions. Schools transitioned to remote learning for significant periods, affecting families and students across the community. Healthcare facilities across the region reported overcapacity, requiring the redirection of patients and the mobilization of emergency resources. Mortality and morbidity rates within the Bell community reflected the broader county pattern, with disproportionate impacts on older adults, essential workers, and residents with preexisting conditions.

During the height of the COVID-19 pandemic, the Los Angeles County Department of Public Health (LACDPH) published regular updates that included city-level case counts. Bell was explicitly included in these reports, and as of December 27, 2023, the City had recorded 17,754 cumulative confirmed cases of COVID-19. Hospitalization and mortality data, however, were never reported at the City level; these metrics were aggregated at the county scale to protect privacy and ensure data reliability in smaller jurisdictions. Following the statewide transition away from emergency reporting, LACDPH gradually scaled back its COVID-19 dashboards.

Frequency

Based on previous occurrences, there has been a pandemic or epidemic approximately every 12.5 years in the past 100 years.

v)Future Probability

The likelihood of future pandemics or large-scale epidemics caused by novel pathogens is difficult to quantify with precision, but historical experience provides a reliable guide. Since 1918, there have been multiple global influenza pandemics. This recurrence demonstrates that while such events are relatively rare on an annual basis, they occur with enough regularity to be anticipated within the lifespan of a multi-decade planning horizon.

Based on observed historical frequency, the annual probability of a novel pandemic or epidemic affecting Bell can be classified as **Possible**. Although multiple years may pass without significant new outbreaks, the emergence of another pandemic during the coming decades could occur. Factors that elevate this probability include global air travel, high-density living conditions in the Los Angeles region, and close economic and social ties that increase exposure pathways.

Additionally, Climate conditions can influence the spread of infectious diseases, and changes to these conditions can lead to new patterns. Temperature differences can affect where insect populations live and the diseases they may carry. Insects such as fleas, ticks, and mosquitoes can carry diseases like Lyme, West Nile, Malaria, and Zika. Additionally, changes in climate can increase the likelihood of new viruses occurring or mutating in different animal species and infecting humans.

vi) Secondary Hazards

Pandemics and epidemics create wide-ranging impacts that extend beyond illness and mortality. The strain they place on social, economic, and governmental systems can trigger a series of cascading effects, often compounding other hazards. For the City of Bell, these secondary hazards may manifest in healthcare, public safety, economic stability, education, and community well-being. Recognizing these interconnected risks is essential for comprehensive preparedness and mitigation planning. Potential secondary hazards of pandemics and epidemics is further described in **Table 86**.

Table 86. Potential Secondary Hazards of Pandemics and Epidemics

SECONDARY HAZARD	DESCRIPTION
Healthcare System Strain	Hospitals and clinics may become overwhelmed, reducing capacity to treat both pandemic patients and other urgent medical needs such as accidents, heart attacks, and chronic conditions.
Economic Disruption	Widespread absenteeism, workforce shortages, and reduced consumer activity can lead to business closures, unemployment, and supply chain interruptions, especially in small business–dependent communities like Bell.

SECONDARY HAZARD	DESCRIPTION
Essential Services Disruption	Staffing shortages in public safety, utilities, and municipal government can delay emergency response and reduce reliability of lifeline services.
Mental and Behavioral Health Effects	Prolonged social isolation, stress, and uncertainty can increase rates of anxiety, depression, and substance use, straining healthcare and social service systems.

vii) Vulnerability & Impact Assessment

Pandemics and epidemics have the potential to affect the entire population of Bell, but vulnerability is not evenly distributed. Certain groups face higher risk of exposure, severe illness, or prolonged disruption due to social, economic, or health-related factors. Age, preexisting medical conditions, and occupation all play important roles in determining how individuals experience a pandemic. In addition, household density, access to healthcare, language barriers, and economic insecurity can compound the effects of infectious disease in particular communities.

For Bell, a small but densely populated City in southeast Los Angeles County, these factors are especially significant. Many residents commute for work, live in multigenerational households, or are employed in sectors that require in-person labor, all of which may increase exposure to communicable diseases. Vulnerability also extends to institutions, such as schools, local businesses, and critical service providers, that may be disrupted by high absenteeism or resource shortages. Understanding how these vulnerabilities are distributed across the community is essential for identifying mitigation measures and ensuring equitable protection during future pandemics or epidemics.

(1) People

Based on Public Survey #1, City of Bell residents are more concerned about pandemics and epidemics and their impact from all of the mad-made hazards. All residents of Bell are exposed to the risks associated with pandemics and epidemics, but certain demographic, economic, and health factors make some groups more vulnerable than others. Bell has a population of approximately 32,830 residents within just 2.5 square miles, resulting in a density of 13,088 people per square mile, significantly higher than the county and state averages. High population density increases opportunities for close contact and rapid transmission of communicable diseases.

Age is an important factor in vulnerability. Approximately 9.6% of Bell residents (around 3,150 individuals) are aged 65 or older. This group is at elevated risk of hospitalization and death from respiratory pathogens such as influenza and COVID-19. People with chronic health conditions

also face greater risks. While Bell-specific prevalence data for conditions such as diabetes and asthma are available from CDC’s Population Level Analysis and Community Estimates (PLACES) dataset, regional data already indicate above-average rates of these conditions in Southeast Los Angeles County communities.

Household composition further increases risk. The average household size in Bell is 3.6 people, larger than the Los Angeles County average of 2.9. Roughly 19.6% of households are considered overcrowded (more than one person per room), and 6.9% are severely overcrowded (more than 1.5 persons per room). These conditions, combined with a high prevalence of multigenerational households, increase the likelihood of intra-household transmission once a disease is introduced.

Occupational exposure also plays a key role. The largest employment sectors among Bell residents are manufacturing (14.3%), retail trade (14.0%), and health care and social assistance (11.8%). Combined, about 40% of residents work in industries requiring on-site labor with frequent interpersonal contact, limiting opportunities for remote work during outbreaks. The most common occupations include production (13.1%), office and administrative support (10.5%), and transportation (9.6%)—all of which involve elevated exposure potential.

Socioeconomic factors compound vulnerability. Approximately 41.6% of Bell residents are foreign-born, and a large share speak languages other than English at home, which can create challenges for timely access to health information and services. Health coverage is also uneven as about 13.2% of residents are uninsured, while nearly 48.5% rely on Medicaid. Uninsured individuals may delay seeking care, increasing both the severity of illness and the risk of community transmission.

Finally, individuals experiencing homelessness or housing insecurity are at particular risk due to limited access to healthcare, challenges with isolation and sanitation, and reliance on congregate settings.

Taken together, these data demonstrate that while all residents are exposed to pandemic and epidemic risks, specific groups in Bell—older adults, people with chronic conditions, residents in crowded or multigenerational households, workers in high-contact occupations, low-income and immigrant populations, and those lacking health insurance—face disproportionate impacts.

(2) Structures and Systems

Pandemics and epidemics do not typically physically damage buildings and property, however they can cause damage to properties by disrupting supply chains and the distribution of goods which can slow or force businesses to close. Industry and commerce are also likely to suffer losses which occurred during the COVID-19 pandemic.

Good ventilation and indoor air quality are critical in reducing airborne exposure to viruses and other disease vectors. Buildings and their ventilation and air conditioning (HVAC) systems can

pose a higher risk for disease spread through lack of adequate ventilation and air filtration. Adjustments can be made to improve indoor air filtration. During the COVID-19 pandemic, public health recommendations included adding portable high efficiency particulate air (HEPA) cleaners to reduce the number of airborne infectious particles, especially in congregate settings⁸⁴.

Critical Facilities

The COVID-19 pandemic rapidly escalated demands on the health care system, medical infrastructure, and health care workforce. Unlike a one-time disaster event, the COVID-19 pandemic disease spread had many surges repeatedly stressing hospitals, EMS, and healthcare settings causing ripple effects throughout the community. In order for the healthcare system to cope with surge of patients seeking medical care and attention, many hospitals cancelled non-emergency (but still needed) procedures and were not prioritizing people with non-COVID needs which increased all-cause and COVID-19 specific mortality in the subsequent weeks after the start of the pandemic. Additionally, hospitals were already operating close to capacity and the pandemic pushed the entire healthcare system to the brink. Educational settings faced many challenges in barriers in continuing to provide education to students which caused disruptions to learning and critical learning milestones for K-12 students. Many schools, for the first time, explore virtual schooling options, which posed challenges. Rural communities with limited access to the internet struggled to connect and participate in virtual classrooms. These hardships create a difficult environment for the school, teachers, students, and parents to navigate.

Healthcare Infrastructure

In the event of a pandemic, the quality, accessibility, and surge capacity of healthcare services will strongly influence the overall impact on the community. The City of Bell itself has a limited number of small medical facilities and clinics as residents frequently rely on larger hospitals and healthcare systems located in neighboring jurisdictions such as Los Angeles, Huntington Park, and Maywood. During a severe pandemic, Bell may require mutual aid and regional support to ensure adequate access to hospital beds, intensive care capacity, ventilators, and diagnostic testing resources.

To strengthen resilience, the community is encouraged to maintain stockpiles of essential supplies, particularly personal protective equipment (PPE), sanitation materials, and medications or vaccines if available. Stockpile planning should be coordinated with Los Angeles County Department of Public Health, local healthcare providers, and state or federal agencies to ensure that the types and quantities of supplies are appropriate for likely scenarios. Strategic partnerships with healthcare coalitions and neighboring jurisdictions will be critical to ensuring

84 LINDSLEY, WILLIAM G., RAYMOND C. DERK, JAYME P. COYLE, STEPHEN B. MARTIN, KENNETH R. MEAD, FRANCOISE M. BLACHER, DONALD H. BEEZHOLD, JOHN T. BROOKS, THERESA BOOTS, AND JOHN D. NOTI. 2021. "EFFICACY OF PORTABLE AIR CLEANERS AND MASKING FOR REDUCING INDOOR EXPOSURE TO SIMULATED EXHALED SARS-COV-2 AEROSOLS — UNITED STATES, 2021." MORBIDITY AND MORTALITY WEEKLY REPORT 70 (27): 972–76. [HTTPS://DOI.ORG/10.15585/MMWR.MM7027E1](https://doi.org/10.15585/mmwr.mm7027e1).

that Bell has timely access to the resources necessary to protect both residents and essential workers during a future pandemic.

Digital and Communications Infrastructure

As a result of the COVID-19 pandemic, many businesses began utilizing remote work as a way to continue operating when public health restrictions make it difficult for employees to meet in person. Some industries found that remote work was a viable alternative, and some have continued utilizing remote work despite the lifting of many public health restrictions. One of the most common remote working software is Microsoft Teams. Maps from the California Public Utilities Commission indicate that virtually all of the City of Bell has 5G-NR coverage, which should support the minimum requirements for Microsoft Teams. However, if this service is disrupted or unaffordable then businesses may struggle to operate, and employees may struggle to keep or gain employment.

(3) Natural, Cultural, and Historical Resources

Cultural institutions such as museums, historic sites, and art galleries may be closed or operate at reduced capacity during a pandemic. This can lead to decreased access to cultural resources for the public. Cultural organizations often rely on visitor revenue and donations to sustain operations. Reduced visitation and economic uncertainty during a pandemic can strain the financial stability of these institutions, impacting their ability to preserve cultural resources. Cultural resource preservation and restoration projects may be delayed or postponed due to budget constraints and public health restrictions, potentially leading to deterioration of historic buildings and artifacts. Archives, libraries, and repositories of cultural heritage materials may face disruptions in operations, making it difficult to access and preserve historical records and documents. **Table 87** described the potential impacts of pandemics and epidemics.

Table 87. Potential Impacts of Pandemics/Epidemics to Community Lifelines

LIFELINE	FEMA ICON	DESCRIPTION OF IMPACT
Communications		Increased demand for reliable communication systems may strain networks, while misinformation or language barriers can hinder effective public messaging.
Energy (Power & Fuel)		Workforce shortages in utilities and fuel distribution could slow maintenance or emergency response, risking localized service interruptions.

LIFELINE	FEMA ICON	DESCRIPTION OF IMPACT
Food, Hydration, Shelter		Supply chain disruptions and workforce absenteeism can reduce availability of food and essential goods, while isolation requirements may strain shelter operations.
Hazardous Materials		Staffing shortages at industrial facilities handling hazardous materials may increase risks of accidents or delayed response to releases.
Health & Medical		Hospitals and clinics may be overwhelmed by patient surges, with shortages of staff, beds, ventilators, and critical supplies.
Safety & Security		Police, fire, and emergency services may face reduced staffing, slower response times, and increased demands to enforce public health orders.
Transportation		Absenteeism among operators and reduced freight capacity can disrupt the movement of people, medical supplies, and essential goods.
Water & Wastewater Systems		Utility staff shortages could impair system maintenance and water quality monitoring, risking service continuity during high-demand periods.

(4) Risk Analysis

Pandemics and infectious diseases pose a **High** risk to the planning area because of their potential to cause widespread illness and strain healthcare systems. The recent COVID-19 pandemic clearly demonstrated the profound impacts such events can have on public health, the economy, and local government operations. These events are infrequent, but their consequences can be catastrophic. Past events have caused millions of deaths worldwide, overwhelmed healthcare systems, disrupted economies, and produced cascading effects across

society. Outbreaks may circulate undetected for weeks, and it often takes time before the full scope of a novel disease is understood. Rising costs of living and healthcare increase community vulnerability, as households have fewer resources to absorb the economic and social strain that accompanies widespread illness.

The COVID-19 pandemic underscored existing inequities, disproportionately affecting older adults, people with disabilities, and communities with limited access to healthcare. Many survivors continue to experience long-term complications such as fatigue, respiratory issues, and neurological symptoms associated with Long-COVID. Beyond immediate health impacts, pandemics can reduce vaccination rates, erode trust in institutions, and create lasting disruptions to essential services. In Bell, high density, large households, and reliance on in-person employment amplify these risks. Severe events could lead to widespread absenteeism, small business closures, interruptions to education and government services, and surges that exceed healthcare capacity. Secondary hazards, including mental health strain, supply chain disruption, and essential service interruptions, could further magnify impacts. Taken together, pandemics and epidemics demand sustained preparedness, regional coordination, and investment in resilience, even though the precise timing of the next event cannot be predicted.

E) TRANSPORTATION ACCIDENTS

i) Hazard Profile

Transportation accidents include incidents involving motor vehicles, railways, and aircraft that result in injury, loss of life, property damage, or service disruptions. Contributing factors may include human error, mechanical failure, environmental conditions, and infrastructure deficiencies.

The City of Bell's transportation network—consisting of highways, rail lines, and nearby air corridors—supports local, regional, and national mobility but also poses risks for major accidents. The most common types are:

- **Vehicular Accidents:** Collisions involving vehicles, roadside objects, or other road users such as pedestrians, cyclists, motorcyclists, or animals.
- **Railway Accidents:** Derailments or collisions with another train, vehicle, or pedestrian.
- **Aviation Accidents:** Incidents resulting in serious or fatal injury, substantial aircraft damage, or an aircraft being lost or unlocatable.

This hazard profile summarizes the causes, extent, history, and potential impacts of transportation accidents in Bell. It also identifies vulnerable populations and infrastructure, evaluates the likelihood of future events, and outlines strategies to reduce risk and strengthen resilience.

(1) Duration

Transportation accidents are typically short-lived, but secondary impacts can persist for hours or days.

(2) Seasonality

Vehicular accidents tend to increase during summer months, when travel volumes rise, and around major holidays, when road congestion and impaired driving are more common. Periodic winter rainstorms can also elevate risk by creating hazardous driving conditions that are uncommon in the region. Railway accidents show little seasonal variation, as train operations remain steady throughout the year, and accident frequency is more closely linked to human or mechanical factors than the calendar. Aviation accidents likewise exhibit no meaningful seasonality in Bell; while the City lies beneath major regional air corridors, air traffic through the Los Angeles Basin is continuous year-round.

(3) Speed of Onset

Transportation accidents are sudden, unintentional incidents involving the operation of vehicles or transportation systems that result in injury, fatality, property damage, or disruption of essential services. These events can occur across multiple modes—road, rail, and air—and are characterized by a rapid onset, often providing little or no warning. In the context of risk assessment, transportation accidents are evaluated based on their frequency, severity of impact, vulnerability of affected populations, and the capacity of emergency response systems. Their unpredictability and potential for cascading effects highlights the importance proactive planning and mitigation strategies.

(4) Location

Transportation accidents represent a significant hazard for the City of Bell, due to its location within the dense urban fabric of Los Angeles County and proximity to major transportation corridors. These incidents—ranging from vehicle collisions to hazardous material spills and transit-related accidents—are characterized by a rapid onset, often occurring with no warning, which limits opportunities for preemptive protective actions. Transportation accidents can occur citywide, but are more likely along major roadways, intersections, and freight corridors.

- **Roadway Accidents:** Vehicular accidents are possible throughout the city, as Bell is traversed by major roadways and local streets. Key corridors such as the I-710 Freeway and arterial streets like Gage Avenue and Florence Avenue experience high traffic volumes, increasing the likelihood of collisions. Intersections with heavy pedestrian activity present additional points of vulnerability.
- **Railway Accidents:** Freight rail lines pass directly through Bell, creating potential accident sites where tracks intersect with roadways or industrial areas. These locations are at higher risk for train–vehicle collisions or derailments. Rail corridors also run near residential and commercial districts, heightening the potential impact on surrounding populations.
- **Aviation Accidents:** While Bell does not contain an airport, it lies beneath active air corridors associated with Los Angeles International Airport (LAX) and Long Beach Airport. Aircraft routinely overfly the City at various altitudes, meaning that an aviation incident, though unlikely, could still affect the community if an emergency occurred along these established flight paths.

ii) Magnitude

The magnitude of transportation accidents in Bell varies by mode of travel. Vehicular accidents are the most common, with both minor collisions and serious crashes occurring on local streets and major corridors such as the I-710 Freeway. Between 1998 and 2022, Bell recorded approximately 160 fatal-accident reports, and in 2022 alone the City experienced five fatal accidents. Two more fatalities were reported in both 2023 and 2024, although no fatalities have

been reported in Bell in 2025. These figures highlight the potential for roadway incidents to cause significant harm, particularly in high-traffic areas or where pedestrians and cyclists are involved.

Railway accidents are less frequent but pose the potential for severe outcomes due to the size, speed, and cargo of trains. Statewide data indicate that California experiences hundreds of railway incidents each year. Between 2021–2022, for example, more than 790 railroad-related incidents were reported. At the national level, over 2,200 highway-rail grade crossing collisions occurred in 2024, resulting in 261 fatalities and 762 injuries. While not all of these incidents occur in Los Angeles County, the presence of freight rail lines through Bell underscores the potential for significant impacts if a railway incident were to occur locally.

Aviation accidents are rare within the Los Angeles region, but the consequences of such events are typically severe. Although Bell does not host an airport, it lies beneath established air corridors serving Los Angeles International Airport and Long Beach Airport. An aviation incident in or near the City could result in mass casualties, extensive property damage, fires, and disruption of essential services.

iii) Extent

The extent of transportation accidents in Bell depends on the mode of travel and the physical area affected. Vehicular accidents most often occur on local streets and arterial roadways, generally impacting a single intersection or road segment. Larger incidents, such as multi-vehicle collisions on the I-710 Freeway, may extend across several lanes of traffic and disrupt mobility throughout the City and neighboring jurisdictions.

Railway accidents are geographically concentrated along existing freight corridors. A derailment could spread debris, hazardous materials, or fire into adjacent residential, commercial, or industrial areas within a several-block radius of the tracks. Crossing incidents, by contrast, are typically confined to the immediate intersection of road and rail. The majority of railway infrastructure in Bell is found in the Cheli District, but there is also a railway running parallel to Randolph St. and another running parallel to Salt Lake Ave.

Aviation accidents, while unlikely, could affect a much larger extent. Because Bell lies beneath active air corridors, a downed aircraft could impact multiple City blocks, with debris dispersal extending well beyond the crash site. Depending on the size of the aircraft, the extent could involve dozens of structures and require coordinated response across the region.

iv) Past Occurrences

Motor vehicle crashes remain the most frequent type of transportation accident in the City of Bell. Data compiled from the California Highway Patrol (CHP) crash records show that between 2014 and 2024, the City experienced 2,167 reported crashes, resulting in 1,256 injuries and 30

fatalities. These figures confirm that Bell consistently faces dozens to hundreds of crashes each year, with injuries reported annually and fatalities occurring in multiple years.

Looking year by year, the data show that from 2014 through 2019, Bell saw steady crash volumes, ranging from about 180 to 227 crashes per year, with fatalities in nearly every year. The pandemic year 2020 saw a decline to 151 crashes, but volumes increased again afterward, peaking in 2023 at 234 crashes. In 2024, 177 crashes were recorded, along with one fatality. Injury counts are somewhat variable, reflecting both reporting practices and victim severity coding, but fatalities remain a recurring outcome of these crashes.

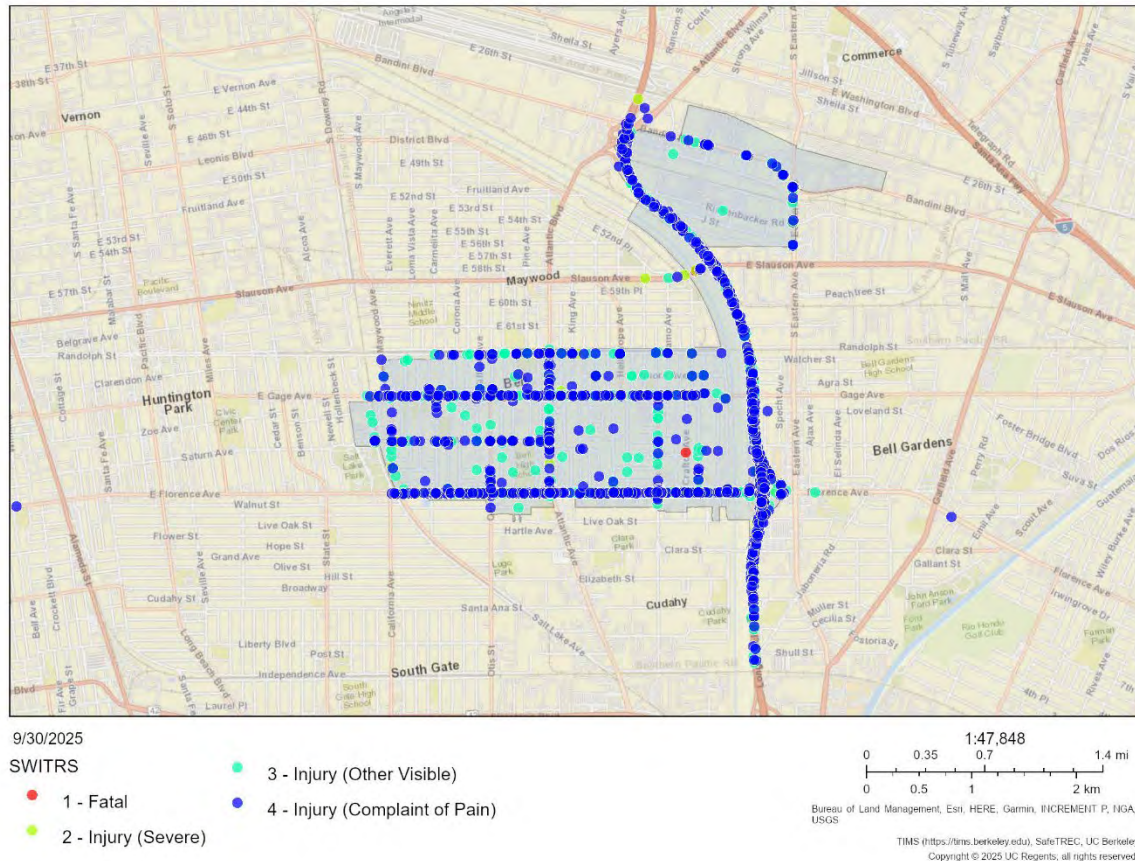
Table 88 shows the count of vehicle crashes, injuries, and fatalities reported in Bell. Additionally, **Figure 57** shows the location of the crashes as recorded by the CHP’s Statewide Integrated Traffic Records System (SWITRS).

Table 88. Vehicle Crashes In Bell 2014-2024

YEAR	REPORTED CRASHES	NON-FATAL INJURIES	FATALITIES
2014	182	251	1
2015	192	286	3
2016	210	279	2
2017	214	257	4
2018	219	27	3
2019	227	27	5
2020	151	33	2
2021	179	36	2
2022	182	34	5
2023	234	26	2
2024	177	0	1
Total	2,167	1,256	30

Source: California Highway Patrol

Figure 57. CHP Map of Crashes in Bell 2014-2024



A review of established databases, including the National Transportation Safety Board (NTSB) aviation accident database and the Federal Railroad Administration (FRA) railroad accident records, reveals no documented rail or aviation crashes within the City limits of Bell. While Los Angeles County has seen notable train derailments and aircraft incidents over time, none have been reliably tied to Bell. As a result, the hazard profile for transportation accidents in Bell is dominated by roadway crashes, with rail and air risks framed primarily as potential hazards due to baseline traffic, overhead corridors, and proximity to rail infrastructure rather than as historical occurrences.

Frequency

For vehicle related injuries and fatalities due to car crashes, there have been about three fatalities and 216 injuries every year. Additionally, there has not been any reported notable train derailments and aircraft incidents.

v)Future Probability

The future probability of transportation accidents in Bell is considered highly likely. From 2014 through 2024, the City averaged nearly 200 reported crashes annually, with fatalities

documented in most years and injuries reported to varying degrees. This record indicates that crashes will remain a regular and recurring issue. Given Bell’s dense roadway network, heavy commuter traffic, and dependence on regional corridors such as the I-710 Freeway, the probability of future vehicular accidents is **Highly Likely**. Seasonal factors, such as holiday travel peaks or wet-weather periods, may briefly heighten the risk, but the baseline probability of roadway crashes remains consistently high year-round

The probability of railway accidents in Bell is lower but not negligible. Freight rail lines run directly through the community, intersecting with roadways and adjacent to residential and commercial areas. Although no major rail accidents have been documented within Bell in recent decades, statewide and regional data show that derailments and crossing collisions occur regularly across California. The presence of active freight lines means that a future rail incident in Bell is possible, though infrequent, with severity dependent on train type, speed, and cargo.

vi) Secondary Hazards

Secondary hazards resulting from vehicle, rail, or aviation accidents are indirect or cascading consequences triggered by the initial event. These hazards depend on the type of accident, the substance(s) involved, and the characteristics of the surrounding area. **Table 89** describes some of the potential secondary hazards of transportation accidents in Bell.

Table 89. Potential Secondary Hazards of Pandemics and Epidemics

SECONDARY HAZARD	DESCRIPTION
Hazardous Materials Release	Freight trucks and rail lines pass through Bell; a spill could contaminate soil, water, or air and require specialized cleanup.
Fire/Explosion	Dense residential and commercial development near freeways and rail corridors increases the risk of fire spreading into built areas.
Public Health Emergencies	Limited local healthcare facilities may be quickly overwhelmed, necessitating regional coordination.
Traffic Congestion and Delays	The I-710 Freeway and key arterials are critical for regional mobility; closures can ripple through Southeast Los Angeles.
Utility Disruption	Transportation corridors in Bell often run alongside above-ground utilities, making them vulnerable in severe accidents.

vii) Vulnerability & Impact Assessment

(1) People

Transportation-related incidents involving passenger vehicles, aircraft, or rail systems pose significant risks to public safety and infrastructure. These events can result in a spectrum of consequences, from minor property damage to mass casualty incidents. The likelihood and severity of such accidents are influenced by factors including traffic volume, infrastructure condition, weather, and human error. Risk analyses should prioritize vulnerable populations, including those living in high-density housing or areas with constrained evacuation options. By integrating hazard identification, vulnerability assessments, and capability evaluations, Bell can reinforce its mitigation strategies and improve resilience against transportation-related emergencies.

(2) Structure and Systems

Bell, CA is a densely populated urban area with critical infrastructure and public services located near major transportation corridors. A transportation accident, such as a vehicular collision, rail incident, or hazardous material spill, could have significant consequences for the City's structures and systems.

Critical Facilities

Critical infrastructure in Bell is moderately to highly vulnerable to the impacts of transportation accidents, particularly along major roadway and rail corridors.

The I-710 Freeway is a primary transportation artery serving both local and regional traffic, including a high volume of freight vehicles traveling to and from the Ports of Los Angeles and Long Beach. A major crash on the freeway has the potential to damage adjacent infrastructure, trigger prolonged closures, and impede the movement of goods and emergency responders. Local arterial roads such as Florence Avenue and Gage Avenue are also susceptible; multi-vehicle collisions or hazardous cargo spills could quickly block access to nearby neighborhoods, businesses, and community facilities.

Rail infrastructure introduces additional vulnerabilities. Freight rail lines run through Bell in close proximity to residential, commercial, and industrial zones. A derailment or rail-roadway collision could damage tracks, disrupt freight service, and create cascading impacts for nearby utilities, particularly if the accident involves hazardous materials. The adjacency of power lines, pipelines, and industrial facilities increases the potential for secondary infrastructure failures.

Though Bell does not host an airport, it lies beneath air traffic corridors serving Los Angeles International Airport and Long Beach Airport. An aviation accident in or near Bell would pose extreme consequences, with the potential to damage multiple structures simultaneously,

disrupt power or communications systems, and require extensive emergency response. While the probability is low, the scale of potential infrastructure damage is very high.

In sum, virtually all of Bell's critical infrastructure at risk from roadway and rail accidents, given the volume of daily traffic and proximity of these systems to essential services and utilities. Aviation hazards, while rare, remain a low-probability but high-consequence risk.

Community Lifelines

Transportation accidents pose a significant threat to community lifelines, with the potential to inflict damage on critical facilities, obstruct key transportation corridors, and disrupt essential services. These disruptions can severely impair the functionality of infrastructure necessary for maintaining public safety, health, and continuity of operations. **Table 90** described the potential impacts of transportation accidents.

Table 90. Potential Impacts of Transportation Accidents on Community Lifelines

LIFELINE	FEMA ICON	DESCRIPTION OF IMPACT
Communications		Damage to cell towers or fiber-optic lines may disrupt emergency communications. Overloaded networks can delay 911 calls and coordination among responders.
Energy (Power & Fuel)		Power outages may result from damaged substations or downed lines. Fuel supply interruptions could affect emergency generators and transportation fleets.
Food, Hydration, Shelter		Blocked roads may delay delivery of food and water supplies.
Hazardous Materials		Spills or leaks from transport vehicles can contaminate soil, air, and water. Evacuation zones may be required, affecting residential and commercial areas.

LIFELINE	FEMA ICON	DESCRIPTION OF IMPACT
Health & Medical		Hospitals and clinics may be overwhelmed by casualties or lose access to utilities. Delays in EMS transport due to road blockages can affect patient outcomes.
Safety & Security		Law enforcement and fire services may face delayed response times. Damaged facilities may reduce operational capacity and increase public safety risks.
Transportation		Road and rail closures can disrupt emergency access, supply chains, and public transit. Long-term infrastructure damage may require costly repairs and rerouting.
Water & Wastewater Systems		Accidents near pipelines or treatment plants may cause service interruptions or contamination. Delayed access for utility crews can prolong outages and increase health risks.

(3) Natural, Cultural and Historic Resources

Transportation accidents, whether involving vehicles, rail, or hazardous material spills, can pose serious threats to natural, cultural, and historical resources in the City of Bell. These incidents may result in direct physical damage, environmental contamination, or long-term degradation of sites that hold historical or cultural significance.

(4) Risk Analysis

Transportation accidents in Bell represent a **Moderate**, constant hazard with potential impacts on life and property. Bell's proximity to major transportation corridors such as Interstate 710 and railways used to move bulk goods increases its exposure to vehicular and freight-related accidents, while nearby aviation activity adds complexity to the risk profile. Historical incidents demonstrate an ongoing risk and the need for coordinated emergency response and mitigation planning.

Vulnerable populations, such as residents in high-density housing or areas with limited evacuation routes, should be prioritized in risk analysis. By integrating hazard identification, vulnerability assessment, and capability evaluation, Bell can strengthen its mitigation strategies

and enhance resilience to transportation-related emergencies. Understanding these risks supports the development of targeted mitigation strategies, resource allocation, and emergency response planning to reduce the overall impact of transportation accidents.

F) UTILITY AND INFRASTRUCTURE FAILURE

i) Hazard Profile

Utility and Infrastructure failure is characterized by the disruption, degradation, or collapse of systems that are essential to public safety, economic stability, and daily life. These systems include, but are not limited to, electrical power grids, transportation networks, water and wastewater treatment facilities, and communication systems. Failures may be triggered by a variety of factors, including natural hazards (e.g., floods, earthquakes, extreme heat), cyber intrusions, equipment malfunctions, and human error. The cascading effects of such failures can significantly impair emergency response capabilities, disrupt critical services, and pose risks to public health and safety.

A Utility and Infrastructure failure hazard profile is a structured assessment that identifies, analyzes, and documents the risks associated with the failure of critical systems such as power, water, gas, telecommunications, transportation, and other essential services. This type of hazard profile is commonly used in emergency management, hazard mitigation planning, and resilience assessments.

(1) Duration

The duration of utility and infrastructure failures can vary significantly depending on several key factors, including the type of hazard involved, the resilience of the affected systems, and the level of preparedness of impacted facilities. Natural disasters such as tornadoes, floods, or earthquakes tend to cause longer-lasting disruptions compared to isolated technological failures. For example, widespread flooding may damage multiple utility components simultaneously, prolonging restoration efforts.

Infrastructure resilience plays a critical role in recovery time. Systems with underground utilities, reinforced structures, or backup power sources typically experience shorter outages and faster restoration. Additionally, facilities equipped with redundant systems, such as emergency generators, water storage tanks, or alternate communication networks, are better positioned to maintain operations during extended outages. These factors should be considered when assessing risk and prioritizing mitigation investments to enhance continuity of essential services.

(2) Seasonality

The seasonality of utility and infrastructure failure in Bell is largely tied to environmental stressors rather than fixed seasonal patterns. Extreme heat events during summer months can strain the electrical grid, leading to rolling blackouts or power outages. Heavy rainfall events, typically occurring between late fall and early spring, increase the risk of flooding, which can damage water, wastewater, and energy systems. According to the Department of Energy's State of California Energy Sector Risk Profile (2021), the greatest number of electric outages in

California between 2008 and 2017 occurred in December, underscoring that winter months can also present elevated risk. While earthquakes and technological failures can occur at any time of year, making them non-seasonal hazards, overall utility failures in Bell may be more likely during periods of high demand or environmental stress on energy and water systems, but remain a year-round concern due to the City's dependence on regional networks.

(3) Speed of Onset

The speed of onset for utility and infrastructure failures refers to how quickly a disruption unfolds and begins to impact essential systems and services, a factor that directly shapes preparedness measures, response time, and potential consequences. Failures are generally categorized as either sudden/immediate or gradual/delayed. Sudden onset failures occur within minutes or hours and often result from acute incidents such as transformer explosions, water main breaks triggered by seismic activity, or cyberattacks that disable communication networks. These events require rapid response and can immediately compromise public safety and critical services.

In contrast, gradual onset failures develop over days, weeks, or longer periods, often due to cumulative stress or environmental degradation. Examples include infrastructure deterioration caused by prolonged flooding, water contamination from slow chemical seepage, or grid instability resulting from sustained heat stress. These slower-developing threats may be harder to detect early but can lead to widespread and long-lasting impacts if not addressed proactively. For Bell, where critical systems are tied to regional utilities, understanding speed of onset is essential for tailoring mitigation actions, prioritizing resources, and strengthening community preparedness.

(4) Location

The potential for utility and infrastructure failure in the City of Bell is widespread, as these systems extend across all neighborhoods and serve the entire population. However, the risk is not distributed evenly. Bell is highly dependent on regional providers, Southern California Edison (electricity), SoCalGas (natural gas), AT&T and other carriers (telecommunications), and regional water and wastewater agencies, meaning that outages originating outside of City boundaries can cascade into local service disruptions.

Within the City, above-ground power and telecommunications lines are vulnerable to damage from high winds, traffic accidents, or localized fires. The Los Angeles River corridor and adjacent floodplain pose additional risks, as substations, pump stations, and wastewater facilities located in or near flood-prone areas may be exposed to inundation during severe storm events. Major utility corridors also follow transportation routes such as Interstate 710 and Gage Avenue, creating points of concentration where an accident or natural hazard could impact multiple systems at once.

Although most utility interruptions in Bell are small and localized, such as a single transformer outage or water main break, larger, regional events can affect thousands of residents and critical facilities simultaneously. This interconnectedness means that the entire City is considered at risk from utility and infrastructure failures.

ii) Magnitude

In the City of Bell, utility and infrastructure failures most commonly affect electricity, water, natural gas, and telecommunications, all of which are supplied by regional providers such as Southern California Edison, SoCalGas, AT&T, and local water and wastewater agencies. Because Bell is a small, densely developed community in Southeast Los Angeles County, outages can quickly affect a large number of households and businesses concentrated in a relatively small area.

The impacts of utility interruptions are magnified by Bell's environmental conditions. Extreme heat, which occurs regularly in summer and fall, presents the most significant threat. Power outages during high temperatures can quickly render homes, especially multifamily housing units, dangerously hot. Vulnerable populations, including children, the elderly, disabled individuals, and those without access to transportation, face heightened health and safety risks under these conditions. While cold weather is less of a concern in Bell, even moderate temperature drops can be dangerous for residents who depend on electric heating.

Severe or prolonged utility failures also disrupt critical systems. Fire suppression, medical, and security systems may be compromised if backup power is unavailable or exhausted. Individuals who rely on electrically powered medical equipment are particularly at risk during extended outages. Utility failures can further impede first responders, particularly when telecommunications and wireless services are disrupted.

Finally, the economic impact of outages in Bell is significant. Many residents and businesses depend on reliable internet and telecommunications, and interruptions can disrupt commerce, municipal operations, and the growing number of employees working remotely. In a community where residents rely on regional infrastructure with limited redundancy, utility failures can rapidly escalate from neighborhood-scale inconvenience to citywide public health and economic emergencies.

iii) Extent

Utility and infrastructure failures in Bell encompass any disruption to the operational capacity of lifeline systems such as electricity, natural gas, water and wastewater, and telecommunications. These disruptions, often termed outages, can result from natural hazards like earthquakes, extreme heat, and flooding, as well as technological causes such as equipment malfunction, cyberattacks, or accidents damaging above-ground lines or underground mains. While most failures are localized and short in duration, larger-scale events can impair multiple systems

simultaneously, creating cascading effects across the City. **Table 91** outlines the primary types of utility and infrastructure failures relevant to Bell.

Table 91. Types of Utility Failures

TYPE OF FAILURE	DESCRIPTION	POTENTIAL FAILURES
Energy	Disruption to the generation, transmission, and distribution of power	Power outages, blackouts, equipment failure, and transformer damage
Water and Wastewater	Compromise of drinking water and sewer systems	Water main breaks, contamination of the water supply, sewer overflows, and dam or levee failures
Natural Gas	Disruption of fuel supply and distribution	Gas line rupture, explosion, loss of service to homes and businesses
Telecommunications	Disruption of communication networks and information systems	Internet and phone service outages, fiber or cell tower damage, cyberattacks

iv) Past Occurrences

Documented records of utility and infrastructure failures specific to the City of Bell are limited; however, the City is fully dependent on regional providers such as Southern California Edison (SCE) for electricity, Southern California Gas Company (SoCalGas) for natural gas, AT&T and other carriers for telecommunications, and regional agencies for water and wastewater services. As a result, Bell is routinely affected by outages and disruptions reported across the greater Los Angeles region.

- **Electricity:** Bell is served by Southern California Edison (SCE). On January 9, 2023, a traffic collision at Eastern Ave. and Florence Ave. in neighboring Bell Gardens caused a localized power outage that also impacted portions of Bell, with service being restored after several hours. At the regional level, SCE’s 2024 Reliability Report documented an average of one sustained outage per customer per year, with a cumulative duration of approximately 158 minutes, providing a benchmark for Bell’s baseline exposure.
- **Water and Wastewater:** Bell’s water service is fragmented among several retail purveyors, including Golden State Water, California Water Company, Maywood Mutual Water Company, and Tract 180/349 Water Companies. Planned shutdowns and emergency repairs occur periodically; for example, in the summer of 2023, Maywood Mutual issued a public “Water Shutdown Notice – Metropolitan Water District” related to wholesale infrastructure work. While Bell-specific outage counts are not aggregated

publicly, Los Angeles County agencies report frequent water main breaks regionwide, suggesting that similar interruptions occur in Bell.

- **Natural Gas:** SoCalGas provides natural gas service to Bell. While no major Bell-specific outages have been documented recently, SoCalGas filings with the California Public Utilities Commission highlight regional risks. The *Summer Reliability 2024 Daily Stochastic Mass Balance* analysis found that under extreme heat or major pipeline disruptions, system-wide curtailments could be necessary to balance demand and supply. Although rare, such curtailments would cascade to all customers, including residents, businesses, and critical facilities in Bell.
- **Telecommunications:** Providers such as AT&T, Spectrum, and Frontier serve Bell. While no major city-specific service outages have been documented in public archives, CPUC records confirm that large communication outages have occurred statewide in recent years, typically caused by fiber cuts, equipment failures, or extreme weather. Given Bell's dependence on regional networks, such disruptions would impact residents and emergency response alike.

Frequency

Although most utility interruptions in Bell last only a few hours, major hazard events such as earthquakes, extreme heat, or severe storms have the potential to create cascading failures across multiple lifeline systems and prolong outages for days. Localized incidents such as water main breaks and telecommunications outages are less well documented in public reporting but have been noted in municipal service calls and emergency operations. Together, these records confirm that utility and infrastructure failures are a recurring hazard for Bell, with the potential for widespread consequences during major regional disasters.

v)Future Probability

Utility failures in Bell are expected to continue on a recurring basis, with variability depending on the system and hazard trigger. Electricity outages are the most common, with SCE data suggesting that customers experience at least one sustained outage annually, typically lasting several hours. Water service interruptions from main breaks or planned shutdowns are also regular events across the Los Angeles basin, and it is reasonable to expect Bell residents to experience similar events. Telecommunications outages occur less frequently but can affect thousands of customers simultaneously when regional fiber or switching equipment fails. Natural gas outages are uncommon, but CPUC oversight of SoCalGas highlights the potential for curtailments during extreme heat events or infrastructure disruptions. While such curtailments are not expected every year, they remain a credible risk given Southern California's heavy reliance on natural gas for residential and commercial use.

Overall, the probability of future occurrences of utility and infrastructure failure in the City of Bell is considered **Highly Likely**. Most utility failures are anticipated to be relatively minor and short in duration, although the possibility of prolonged and widespread failures remains a

possibility. Additionally, the 2030 Bell Comprehensive General Plan indicates that the City’s infrastructure is aging and likely at or beyond capacity. In particular, the plan states that the majority of the water and sewer lines were designed to serve much lower development densities.

vi) Secondary Hazards

Secondary hazards from utility and infrastructure failures are indirect or cascading effects that occur when critical systems, like power, water, transportation, or communications, fail during or after a disaster. These hazards can significantly amplify the impact of the primary event. **Table 92** describes some of the potential secondary hazards of utility and infrastructure failure.

Table 92. Secondary Hazards of Utility and Infrastructure Failures

SECONDARY HAZARDS	DESCRIPTION
Extreme Heat Health Impacts	Power outages during heat waves disable air conditioning, creating unsafe indoor temperatures. Vulnerable populations face increased risk of heat illness or death.
Public Health Emergencies	Loss of potable water, wastewater service, or refrigeration can lead to contamination, sanitation issues, or spoiled food/medicine.
Fire Ignition	Downed power lines or electrical surges during utility failures can ignite wildfires or structure fires.
Transportation Disruption	Power outages disable traffic signals, rail crossings, and street lighting, increasing accident risk.
Economic Disruption	Internet and telecommunications outages halt business operations, disrupt supply chains, and affect remote workers.
Hazardous Materials Incidents	Utility disruptions at industrial or commercial facilities can disable safety systems or cause releases.

vii) Vulnerability & Impact Assessment

(1) People

Utility and infrastructure failures can impact all residents of Bell, but certain populations are disproportionately vulnerable due to age, health status, mobility, and other factors. These vulnerabilities are especially pronounced during hazard events that coincide with power or water outages, such as extreme heat, flooding, or earthquakes.

Based on Public Survey #1, City of Bell residents are more concerned about utility and infrastructure failures and their impact from all of the mad-made hazards. Utility and infrastructure failures can affect all residents of Bell, but certain populations are disproportionately vulnerable due to age, health status, income, language, or mobility. These vulnerabilities are especially pronounced when outages coincide with hazard events such as extreme heat, flooding, or earthquakes.

Children and families represent a significant at-risk population in Bell, with 26.7% of residents under the age of 18. Young children are sensitive to indoor temperature extremes and may be affected by the loss of refrigeration, ventilation, or communications during prolonged outages.

Older adults are also vulnerable. Approximately 11.2% of Bell's population is age 65 or older, including 4.3% aged 75 and above. Seniors face heightened risks during outages that disable cooling systems in extreme heat or that interrupt electrically powered medical devices. Among seniors in Bell, about 22% report an ambulatory disability, which complicates evacuation and access to cooling or medical facilities when services are disrupted.

Low-income households are at elevated risk during outages because they often lack resources for backup systems, alternative sheltering, or transportation. In Bell, 22.8% of residents live below the federal poverty level, and many live in multifamily housing where high occupancy and limited ventilation can quickly create unsafe indoor conditions during extended outages.

Taken together, these figures highlight that while utility failures can disrupt the entire community, specific groups which include children, older adults, people with disabilities, low-income households, and those with medical dependencies, bear a disproportionate burden. Because these vulnerabilities often overlap, utility and infrastructure failures.

(2) Structure and Systems

Most structures in Bell are vulnerable to utility and infrastructure failures because they depend on continuous electricity, water, gas, and telecommunications to remain safe and functional. Residential buildings, particularly multifamily housing units that are common in Bell, can quickly become unsafe during extended outages as indoor temperatures rise during extreme heat or refrigeration and ventilation systems fail. Commercial and industrial buildings are also susceptible, with utility interruptions halting operations, damaging equipment, and causing economic losses. Older housing stock and small businesses may be more vulnerable if they lack modern insulation, redundant systems, or backup power.

Critical Facilities

All critical facilities in the City of Bell are vulnerable to utility and infrastructure service interruptions, creating significant operational risks during hazard events. Maintaining continuous functionality of these facilities is essential for safeguarding public health, safety, and emergency response capabilities. Because Bell relies on regional providers for electricity, water,

gas, and telecommunications, disruptions originating outside City boundaries can cascade into local facilities without warning.

Power outages can disrupt essential services and compromise life-safety systems, reducing the ability of emergency agencies to serve the community during critical events. Natural gas or water service interruptions may further limit facility operations, from emergency sheltering and cooling centers to firefighting capacity and hospital functions. Facilities most affected include hospitals and healthcare centers, the City’s emergency operations center (EOC), fire and police stations, water and wastewater treatment plants, traffic management systems, public shelters, and communications infrastructure such as 911 dispatch. Ensuring these facilities have redundant systems, such as backup generators, stored water supplies, or alternate communication networks, is vital to sustaining operations during outages.

These vulnerabilities are magnified by the interdependent nature of critical infrastructure. An electrical grid failure can trigger cascading disruptions in telecommunications, water distribution, fuel supply, and transportation networks. In a dense urban community like Bell, such cascading effects can quickly escalate from localized service loss to a citywide public safety emergency. Utility and infrastructure failures can disrupt multiple FEMA Community Lifelines, which are essential services that enable the continuous operation of critical government and private sector functions. **Table 93** details the potential vulnerabilities of community lifelines to utility and infrastructure failure.

Table 93. Potential Vulnerabilities of Community Lifelines to Utility and Infrastructure Failure

LIFELINE	FEMA ICON	DESCRIPTION OF IMPACT
Communications		The interruption of utilities and infrastructure may directly impact this lifeline. Restoring communications services swiftly is critical for the functioning of all other community aspects.
Energy (Power & Fuel)		The interruption of utilities and infrastructure may directly impact this lifeline. Restoring energy services swiftly is critical for the functioning of all other community aspects.
Food, Hydration, Shelter		Residential and commercial buildings depend on utilities for lighting, heating, cooling, and running essential appliances. Extended interruptions can make buildings uninhabitable, leading to displacement.

LIFELINE	FEMA ICON	DESCRIPTION OF IMPACT
Hazardous Materials		Utility and infrastructure failures can significantly increase the risks associated with hazardous materials (hazmat), both in terms of containment and emergency response.
Health & Medical		Hospitals and healthcare facilities rely heavily on utilities. Power outages can affect medical equipment, refrigeration of medicines, and comfort of patients. Backup systems are crucial for maintaining healthcare operations during interruptions.
Safety & Security		Utility disruptions can compromise safety systems, street lighting, and security alarms, increasing risks for accidents and crime. Emergency services must adapt to these challenges, ensuring public safety in the absence of regular utilities.
Transportation		Traffic control systems, public transit, and fuel stations rely on utilities. Disruptions can lead to traffic congestions, accidents, and hinder the mobility of residents and emergency responders.
Water & Wastewater Systems		The interruption of utilities and infrastructure may directly impact this lifeline. Restoring water services swiftly is critical for the functioning of all other community aspects.

(3) Natural, Cultural Historical Resources

Power outages, water system disruptions, and transportation breakdowns can have serious consequences for the preservation and accessibility of natural, cultural, and historical resources in Bell, California. These resources, which include parks, historic buildings, archaeological sites, and culturally significant landscapes, are often dependent on functioning infrastructure for protection, maintenance, and public engagement. When infrastructure systems fail, these assets become vulnerable to environmental degradation, vandalism, and neglect.

(4) Risk Analysis

Utility and infrastructure failures, whether resulting from natural hazards or technological disruptions, represent a **Moderate** risk to the safety, health, and economic stability of the City of Bell. Although large-scale outages are relatively infrequent, even short-duration interruptions can have substantial and widespread consequences. These impacts are particularly severe for vulnerable populations and critical infrastructure, where the absence of electricity can quickly escalate into a public health and safety emergency

G) HAZARD VULNERABILITY SUMMARY

i) Methodology

Prioritizing hazards plays a crucial role in helping communities establish objectives and mitigation strategies based on their vulnerabilities. The City of Bell employed the Risk Factor methodology, as described below, to assess and rank hazards according to their threat levels. This ranking is an established system that has been utilized by other FEMA-approved hazard mitigation plans, including ones active for other communities in the Los Angeles area.

The Risk Factor methodology utilized in this plan generates numerical values that facilitate the comparison of identified hazards. These values reflect the relative risk posed by each hazard, with higher values indicating a greater level of hazard risk. These values are determined by attributing varying degrees of risk to five categories for each hazard: probability, impact, spatial extent, warning time, and duration. Each degree of risk within these categories is assigned a value ranging from 1 to 4, accompanied by a corresponding weighting factor. To calculate the overall risk factor for a particular hazard, one must multiply the assigned value for each risk category by its respective weighting factor and add then add the sum of all five values. The summation of these values across all five categories yields the final Risk Factor value, as illustrated in **Figure 58**.

Figure 9. Risk Factor Formula

$$(\text{Probability} \times 0.3) + (\text{Impact} \times 0.3) + (\text{Extent} \times 0.2) + (\text{Warning Time} \times 0.1) + (\text{Duration} \times 0.1) = \text{Risk Factor}$$

Table 94 provides the descriptions that were utilized by the HMPT to assist with rating hazards through the Risk Factor methodology.

Table 94. Risk Factor Index Ratings Matrix

	RATING			
	1	2	3	4
Probability	(unlikely) – Less than a 1% annual chance	(possible) – Between 1-49.9% annual chance	(likely) – Between 50-90% annual chance	(highly likely) – greater than 90% annual chance
Impact	(Minor) – Very few injuries, if any. Only minor property	(Limited) – Some injuries, no fatalities. Multiple	(Critical) – Widespread injuries, some of which may be	(Catastrophic) – Extensive injuries, many of which may

	RATING			
	1	2	3	4
	damage and minimal disruption to quality of life. Minimal disruption to critical facilities.	reports of property damage, including to critical facilities. Occasionally, buildings may be destroyed. Disruptions to essential functions expected to last fewer than 24 hours.	severe. Some fatalities may occur. Possible Mass Casualty Incident (MCI). Significant damage to property, including critical facilities, which may disrupt essential functions for multiple days.	be severe. Fatalities expected, Mass Casualty Incident (MCI) likely. Widespread damage to property, including critical facilities is likely. Some structures may be destroyed, and disruptions to essential functions may last a week or longer.
Extent	(Negligible) – Less than 1% of the planning area affected	(Small) – between 1-10.9% of the planning area affected	(Moderate) – Between 11-25% of the planning area affected	(Widespread) – More than 25% of the planning area affected
Warning Time	(Ample) – Warning time is greater than 36 hours.	(advanced) – Warning time is between 6-36 hours.	(short) – Warning time is between 30 minutes and 6 hours.	(minimal or none) – Warning time is less than 30 minutes, if any.
Duration	(brief) – Hazard typically present for fewer than 2 hours	(extended) – Hazard typically present between 2-24 hours	(prolonged) – Hazard typically present between 24 – 48 hours	(sustained) – Hazard typically present for more than 48 hours

ii) Ranking Results

Using the methodology described above, the following table lists the Risk Factor calculated for each of the 18 potential hazards identified in the 2026 update. Hazards identified as **High** risk have risk factors greater than 2.5. Risk Factors ranging from 2.0 to 2.5 are considered **Moderate**

risk hazards. Hazards with Risk Factors less than 2.0 are considered **Low** risk. According to the default weighting scheme applied, the highest possible RF value is 4.0. It is important to remember that these scores are a relative, and a hazard with a low Risk Factor does not mean that the hazard should be taken lightly. Similarly, Risk Factor scores are generalizations used for planning purposes and cannot account for every individual possibility, extreme instances of hazards with low Risk Factors could exceed the conditions described in this plan, and minor instances of hazards with high risk factors like earthquakes may occur. A summary of the risk results for the City of Bell is described in **Table 95**.

Table 95. Risk Results

HAZARD	0.3	0.3	0.2	0.1	0.1	OVERALL RISK FACTOR
	PROBABILITY	IMPACT	SPATIAL EXTENT	WARNING TIME	DURATION	
Natural Hazards						
Dam and Levee Failure	1	4	4	4	2	2.9
Drought/Water Shortage	3	1	4	1	4	2.5
Earthquakes and Landslides	1	4	4	4	1	2.8
Extreme Temperatures	4	3	4	1	4	3.4
Fires – Urban and Wild	4	1	1	4	2	2.3
Flooding	1	1	2	2	1	1.3
Land Subsidence, Karsts, and Sinkholes	1	1	1	3	4	1.5
Sea Level Rise	1	1	1	1	4	1.3
Severe Thunderstorms	3	1	2	4	1	2.1
Tornadoes	1	3	2	3	1	2
Tsunamis	1	1	1	3	2	1.3
Windstorms	4	1	4	2	2	2.7
Human Caused Hazards						
Cyber Attacks	2	2	1	4	1	1.9

HAZARD	0.3	0.3	0.2	0.1	0.1	OVERALL RISK FACTOR
	PROBABILITY	IMPACT	SPATIAL EXTENT	WARNING TIME	DURATION	
Hazardous Materials Releases	4	1	1	4	2	2.3
Civic Unrest	2	1	2	3	2	1.8
Pandemic / Epidemic	2	3	4	1	4	2.8
Transportation Accidents	4	1	1	4	1	2.2
Utility and Infrastructure Failure	4	1	2	4	2	2.5

7) MITIGATION STRATEGY

A) INTRODUCTION

The Mitigation Strategy is a comprehensive guide for future hazard mitigation policies, projects, and administration within the City of Bell. It directly reflects the consensus of the City of Bell HMPT and incorporates findings from the Hazard Identification and Risk Assessment. The HMPT's Mitigation Strategy includes Mitigation Goals, which are the overarching aspirations of the City of Bell relating to hazard mitigation. These goals reflect core drivers behind the City's efforts to develop a hazard mitigation plan for the community. The goals are purposefully crafted to be straightforward and easy to understand by all community members. From these goals, the HMPT produced Mitigation Actions, which are specific and actionable "stepping stones" that progress the community along the path towards achieving the mitigation goals. The mitigation actions make up a "menu" of projects for future implementation or grant funding applications.

B) GOALS

The City of Bell HMPT has identified the following four Mitigation Goals. Since this is the first iteration of the LMHP, the mitigation goals are new and have not changed.

- **Goal 1:** Protect lives and reduce injuries.
- **Goal 2:** Support economic stability, recovery, and maintain community continuity and social connection.
- **Goal 3:** Minimize property and infrastructure damages, downtime, and accelerate recovery.
- **Goal 4:** Promote public awareness of hazard mitigation through outreach and education.

C) MITIGATION ACTIONS

The mitigation actions are a list of activities in which City agencies and the larger community can be engaged to reduce risk to hazards. Mitigation actions were identified by the planning team that were actionable, realistic, and aligned with other existing City initiatives identified within the newly updated General Plan. The actions identified within the LHMP are the practical steps necessary to move the City forward toward a more resilient future. See **Table 96** for the mitigation actions and rankings. The mitigation actions are organized within the following matrix, which lists all the multi-hazard and hazard-specific action items included in the mitigation plan. Data collection and research and the public participation process resulted in the development of the action items. The matrix includes the following information for each action item:

Action Number: Each action is assigned a number for organization and convenience.

Mitigation Action Description: This is the description of the mitigation action. Actions descriptions are intended to be actionable and specific.

Hazard(s): For each mitigation action, the hazard(s) that are being addressed are listed. Some hazards are considered “multi-hazard” because the action, when implemented, is designed to mitigate impacts of all disasters profiled in this plan. Other mitigation actions are specific to individual hazards.

Plan Goals Address: The plan goals addressed by each action item are included to monitor and evaluate how well the mitigation plan is achieving its goals once implementation begins. Each action is linked to one more of the Plan goals:

- Protect lives and reduce injuries – actions linked to this goal are intended to mitigate hazards by directly reducing the number of injuries and fatalities resulting from hazards
- Support stability, continuity, and connectivity – actions linked to this goal are intended to mitigate economic and social disruption caused by hazards
- Minimize property and infrastructure damage – actions linked to this goal are intended to mitigate hazards by directly reducing the likelihood and/or extent of damage to structures from hazards
- Promote public awareness – actions linked to this goal are intended to mitigate the impacts of hazards by promoting and expanding public awareness of hazards, including the risks associated with these hazards and actions that can be taken by residents to reduce the impacts of them

Potential Funding Sources: The action items can be funded through a variety of sources, possibly including operating budget/general fund, development fees, Community Development Block Grant (CDBG), Hazard Mitigation Grant Program (HMGP), other Grants, private funding, Capital Improvement Plan, and other funding opportunities.

Responsible Department: The Mitigation Actions Matrix assigns primary responsibility for each of the action items. The hierarchies of the assignments vary some are positions, other departments, and other committees. No matter, the primary responsibility for implementing the action items falls to the entity shown as the “Responsible Department”. The coordinating organization is the agency with regulatory responsibility to address hazards, or that is willing and able to organize resources, find appropriate funding, or oversee activity implementation, monitoring, and evaluation. Coordinating organizations may include local, county, or regional agencies that are capable of or responsible for implementing activities and programs.

Status: FEMA’s guidance for local mitigation plans requires a status update. Since this is the City of Bell’s first hazard mitigation plan, all mitigation actions have a status of “New Action.” As future updates to the plan are made, these statuses may change.

Cost: When considering how to best estimate the cost of each mitigation action, the HMPT decided to utilize four different cost ranges. The use of cost ranges comes with several benefits. First, the HMPT still had the opportunity to thoughtfully consider the expenses that might be necessary for each action; this is an important exercise because the HMPT needs to understand the general fiscal resources required. Second, ranges help avoid the risk of misleading estimates—specific figures can give the false impression that project costs are already determined or guaranteed. Third, cost ranges are more stable than specific figures over longer periods of time. Changing economic conditions can quickly result in specific estimates no longer being accurate, while ranges afford the HMPT margin to account for changing conditions. Fourth, consistent cost ranges allow for easier comparison across projects, which helps the HMPT prioritize and evaluate mitigation actions. The ranges used in this plan are:

- \$ - under \$10,000
- \$\$ - \$10,000 - \$100,000
- \$\$\$ - \$100,001 - \$1,000,000
- \$\$\$\$ - over \$1,000,000

Priority: The priority of each of the mitigation action items is ranked either Low, Medium, or High. In planning team meetings, HMPT discussed a range of different possibilities to prioritize mitigation actions. Considerations included using prioritization based on the number of supportive responses received in public surveys, prioritization based on anticipated cost, and prioritization based on expected completion. However, each of these options had shortfalls, and the HMPT ultimately decided to prioritize actions based on three simple outcomes: 1) would the proposed action(s) reasonably save lives, 2) reduce property damage, and 3) reduce the need for response actions. This prioritization allows HMPT members to quickly compare actions based on a qualitative assessment of the anticipated benefits of actions. The prioritization of each action was determined as a group between the two HMPT meetings in January and March. The qualitative criteria used to categorize the priority of each action are:

High Priority:

- Saves lives, AND either reduces property damage or reduces the need for response actions

Medium Priority:

- Saves lives, but does not reduce property damage or the need for response actions, OR
- Does not save lives, but reduces property damage and reduces the need for response actions

Low Priority:

- Doesn't save lives or reduce response actions, but reduces property damage, OR

- Does not save lives or reduce property damage, but reduces the need for response actions

Timeline: The HMPT considered the likely timelines that would be associated with each action. Estimates for most actions are within 5 years, however some actions are more substantial and may take longer than 5 years. Additionally, the nature of some actions means that they do not have a set end date; rather, some mitigation actions, like those pertaining to education and outreach, are designed to continue as long as community and political support exists.

Table 96. 2026 City of Bell Mitigation Actions

ACTION NUMBER	MITIGATION ACTION DESCRIPTION	HAZARD(S)	PLAN GOALS ADDRESSED	POTENTIAL FUNDING SOURCES	RESPONSIBLE DEPARTMENT	STATUS	COST	PRIORITY	TIMELINE
Multi-Hazard Actions (MH)									
MH-1	Integrate the goals and action items from the City of Bell Natural Hazards Mitigation Plan into existing regulatory documents and programs, where appropriate.	Multi-Hazard	Support stability, continuity, and connectivity	HMGP, BRIC, General Fund	City Manager's Office, Community Development	New Action	\$	H	2-5 Years
MH-2	Identify and pursue funding opportunities to develop and implement mitigation activities.	Multi-Hazards	Support stability, continuity, and connectivity; Promote public awareness	General Fund	City Manager's Office	New Action	\$	H	Continuous and routine
MH-3	Identify, improve, and sustain collaborative programs focusing on the real estate and insurance industries, public and private sector organizations, and individuals to avoid activity that increases risk to natural hazards.	Multi-Hazard	Minimize property and infrastructure damage; Support stability, continuity, and connectivity	HMGP, BRIC, General Fund	City Manager's Office, Bell Community Housing Authority	New Action	\$	L	More than 5 Years
MH-4	Develop inventories of at-risk buildings and infrastructure and prioritize mitigation projects.	Multi-Hazard	Minimize property and infrastructure damage; Support stability, continuity, and connectivity	HMGP, BRIC, CDBG, General Fund	City Manager's Office, IT (GIS), Public Works	New Action	\$	H	1-2 Years
MH-5	Strengthen emergency services preparedness and response by linking emergency services with natural hazard mitigation programs	Multi-Hazard	Protect lives and reduce injuries	General Fund, HMGP, BRIC	City Manager's Office, Police Department	New Action	\$\$	H	5 Years

ACTION NUMBER	MITIGATION ACTION DESCRIPTION	HAZARD(S)	PLAN GOALS ADDRESSED	POTENTIAL FUNDING SOURCES	RESPONSIBLE DEPARTMENT	STATUS	COST	PRIORITY	TIMELINE
	and enhancing public education on a regional scale.								
MH-6	Develop, enhance, and implement education programs aimed at mitigating natural hazards, and reducing the risk to citizens, public agencies, private property owners, businesses, and schools.	Multi-Hazard	Promote public awareness	General Fund, HMGP	Community Services	New Action	\$	M	1-2 years
MH-7	Install and Improve back-up power in critical facilities.	Multi-Hazards	Support stability, continuity, and connectivity; Minimize property and infrastructure damage	General Fund, HMGP, BRIC	Public Works	New Action	\$\$	H	More than 5 Years
MH-8	Promote public education to increase awareness of hazards and opportunities for mitigation.	Multi-Hazards	Promote public awareness	General Fund, HMGP	Community Services	New Action	\$	M	1-2 years
MH-9	Promote business mitigation awareness to increase knowledge of public facilities managers.	Multi-Hazard	Promote public awareness	General Fund, HMGP	Public Works, Community Development	New Action	\$	M	1-2 years
MH-10	Engage the private sector to contribute to disaster preparedness and loss reduction at the local level.	Multi-Hazard	Support stability, continuity, and connectivity; Minimize property and infrastructure damage	General Fund, HMGP, BRIC	City Manager's Office, Community Development	New Action	\$	M	2-5 years
MH-11	Partner with other organizations and agencies in the community to identify grant programs and foundations that may support mitigation activities.	Multi-Hazard	Support stability, continuity, and connectivity; Promote public awareness	General Fund	City Manager's Office	New Action	\$	L	More than 5 Years

ACTION NUMBER	MITIGATION ACTION DESCRIPTION	HAZARD(S)	PLAN GOALS ADDRESSED	POTENTIAL FUNDING SOURCES	RESPONSIBLE DEPARTMENT	STATUS	COST	PRIORITY	TIMELINE
MH-12	Educate the public about emergency sheltering and evacuation procedures.	Multi-Hazards	Promote public awareness	General Fund, HMGP	Public Works, Police Department, Community Services	New Action	\$	M	Continuous and routine
MH-13	Educate the public about hazards prevalent to their area.	Multi-Hazard	Promote public awareness; protect lives and reduce injuries	General Fund, HMGP	Community Services, Bell Community Housing Authority	New Action	\$	M	Continuous and routine
MH-14	Hold a City-sponsored hazard mitigation seminar for the community residents.	Multi-Hazard	Promote public awareness; protect lives and reduce injuries	General Fund, HMGP	Public Works, City Manager's Office, Community Services	New Action	\$	M	5 Years
MH-15	Provide schools with seasonal disaster preparedness literature for students to take home to their families.	Multi-Hazard	Promote public awareness; protect lives and reduce injuries	General Fund, HMGP	Community Services	New Action	\$	M	1 Year
MH-16	Hold workshops about hazard mitigation and family disaster planning with the boys' and girls' clubs, scouting organizations, churches, PTA, Red Cross Youth Corps, VOAD, Chamber of Commerce, Rotary, Kiwanis, and Lions Club. The City maintain ongoing relationships with VOAD, Red Cross, and the Department of Health.	Multi-Hazard	Promote public awareness; protect lives and reduce injuries	General Fund, volunteer labor and resources, HMGP	City Manager's Office, Community Services, Bell Community Housing Authority	New Action	\$	M	5 Years

ACTION NUMBER	MITIGATION ACTION DESCRIPTION	HAZARD(S)	PLAN GOALS ADDRESSED	POTENTIAL FUNDING SOURCES	RESPONSIBLE DEPARTMENT	STATUS	COST	PRIORITY	TIMELINE
MH-17	Train in-house shelter staff to work as a shelter team with courses including the American Red Cross's Introduction to Disasters, Shelter Operations, Mass Care and Donations Management.	Multi-Hazard	Protect lives and reduce injuries; Support stability, continuity, and connectivity	General Fund, volunteer labor and resources	Community Services, Bell Community Housing Authority	New Action	\$\$	M	5 Years
MH-18	Identify and prioritize needs for additional shelter supplies to include but not limited to additional cots, blankets, and shelter kits.	Multi-Hazard	Protect lives and reduce injuries; Support stability, continuity, and connectivity	General Fund	Public Works, Community Services	New Action	\$	M	5 Years
MH-19	Develop and present guidance from the American Red Cross to homeowner associations, Parent Teacher Associations, the Boards of Education, Chamber of Commerce's etc. to educate on shelter in-place procedures.	Multi-Hazard	Protect lives and reduce injuries; Public Awareness	General Fund, volunteer labor and resources, HMGP	Community Services, Bell Community Housing Authority	New Action	\$	M	1 Year
MH-20	Develop and promote a communications plan to recruit and train more volunteers for sheltering assistance.	Multi-Hazard	Support stability, continuity, and connectivity	General Fund, volunteer labor and resources	City Manager's Office, Community Services	New Action	\$	L	5 Years
MH-21	Work with the American Red Cross to hold work sessions to share information about local shelters, including the site of each shelter, how many people it can house and feed, if it has back-up available on site, completed site survey forms	Multi-Hazards	Support stability, continuity, and connectivity	General Fund, volunteer labor and resources and donations	Community Services	New Action	\$	M	5 Years

ACTION NUMBER	MITIGATION ACTION DESCRIPTION	HAZARD(S)	PLAN GOALS ADDRESSED	POTENTIAL FUNDING SOURCES	RESPONSIBLE DEPARTMENT	STATUS	COST	PRIORITY	TIMELINE
	and types of resources that they have or that all they need.								
MH-22	Conduct annual disaster exercises with local law enforcement emergency managers, City, and county officials, the LEPC and other disaster response agencies.	Multi-Hazards	Protect lives and reduce injuries; Support stability, continuity, and connectivity	General Fund	Public Works, Community Services, City Manager's Office, Police Department	New Action	\$	M	5 Years
MH-23	Determine what kinds of minor repairs and temporary protection activities (e.g., temporary roofing, protect against loss of life/injury, shoring, protect contents) can be done in the immediate aftermath of a disaster.	Multi-Hazard	Protect lives and reduce injuries; Minimize property and infrastructure damage	General Fund	Public Works, Community Services, City Manager's Office	New Action	\$	H	More than 5 Years
MH-24	Enhance City response capabilities to improve outcomes for populations with access and functional needs and other identified at-risk populations and communities.	Multi-Hazards	Protect lives and reduce injuries; Support stability, continuity, and connectivity	General Fund	Public Works, Community Services	New Action	\$	H	More than 5 Years
Extreme Temperatures Mitigation Actions (EXT)									
EXT-1	Increase the number of native trees planted around buildings to shade parking lots and along major streets.	Extreme Temps	Protect lives and reduce injuries; Minimize property and infrastructure damage	General Fund, BRIC, USDA Urban and Community Forestry Grant, HMGP	Public Works	New Action	\$\$\$	H	3 Years

ACTION NUMBER	MITIGATION ACTION DESCRIPTION	HAZARD(S)	PLAN GOALS ADDRESSED	POTENTIAL FUNDING SOURCES	RESPONSIBLE DEPARTMENT	STATUS	COST	PRIORITY	TIMELINE
EXT-2	Implement warning or cooling centers for community members to gather at during an event.	Extreme Temperatures	Protect lives and reduce injuries	General Fund	Community Services	New Action	\$\$	M	5 Years
Earthquake Mitigation Actions (EQ)									
EQ-1	Develop an outreach program to teach families, schools, and businesses what to do during and after an earthquake.	Earthquakes	Promote public awareness	General Fund, HMGP	Community Services	New Action	\$\$	M	3-5 Years
EQ-2	Develop an earthquake evacuation plan for community members.	Earthquakes	Protect lives and reduce injuries	General Fund	Community Services, Public Works, Public Safety	New Action	\$\$	M	More than 5 Years
Wildfire Mitigation Actions (WF)									
WF-1	Support the construction or retrofit of non-combustible materials for homes, businesses, and schools.	Wildfire	Protect lives and reduce injuries; Minimize property and infrastructure damage	General Fund, HMGP, BRIC, CDBG	Community Development	New Action	\$\$	H	1-3 years to implement, continuous and ongoing
WF-2	Installing external, structure-specific water hydration systems (sprinklers); dedicated power sources; and dedicated cisterns on public buildings.	Wildfire	Minimize property and infrastructure damage	General Fund, HMGP, BRIC, CDBG	Public Works, in coordination with the LA County Fire Department	New Action	\$\$\$	M	More than 5 Years
WF-3	Replace flammable vegetation with less flammable species.	Wildfire	Minimize property and infrastructure damage	Urban Forest Management Program at Cal Fire, General	Public Works	New Action	\$\$	L	1-3 Years

ACTION NUMBER	MITIGATION ACTION DESCRIPTION	HAZARD(S)	PLAN GOALS ADDRESSED	POTENTIAL FUNDING SOURCES	RESPONSIBLE DEPARTMENT	STATUS	COST	PRIORITY	TIMELINE
				Fund, Bell Community Housing Authority Fund					
WF-4	Develop an outreach program to teach families, schools, and businesses how to safely dispose of flammable materials, create defensible space around buildings, maintain smoke detectors, etc.	Wildfire	Minimize property and infrastructure development; Promote public awareness	Urban Forest Management Program at Cal Fire, General Fund, Bell Community Housing Authority Fund, HMGP	Fire Department, Public Works	New Action	\$\$	M	More than 5 Years
Windstorms Mitigation Actions (WS)									
WS-1	Support establishing standards for all utilities regarding tree pruning around lines and pole maintenance.	Wildfire	Support stability, continuity, and connectivity	General Fund, BRIC, HMGP	Public Works	New Action	\$	M	1-3 Years
WS-2	Develop an outreach program to teach families, schools, and businesses how to safely secure like windows, roof mounted heating, ventilation, air conditioners, improve roof coverings, and other features.	Wildfire	Promote public awareness	General Fund, HMGP	Public Works, Community Development	New Action	\$\$	M	More than 5 Years
WS-3	Support including measures like structural bracing, shutters, and laminated glass in windowpanes in building designs to minimize damage.	Wildfire	Minimize property and infrastructure damage	General Fund, Bell Community Housing Authority Funds,	Public Works, Community Development	New Action	\$	M	1-3 Years

ACTION NUMBER	MITIGATION ACTION DESCRIPTION	HAZARD(S)	PLAN GOALS ADDRESSED	POTENTIAL FUNDING SOURCES	RESPONSIBLE DEPARTMENT	STATUS	COST	PRIORITY	TIMELINE
				Special Funds, HMGP, CDBG					
Severe Thunderstorms Mitigation Actions (ST)									
ST-1	Develop an outreach program to teach families, schools, and businesses how to stay safe in a storm and mitigate impacts on property.	Severe T-Storms	Promote public awareness; Protect lives and reduce injuries; Minimize property and infrastructure damage	General Fund, HMGP	Community Services, City Manager's Office	New Action	\$\$	H	More than 5 Years
ST-2	Implement community shelters so community members can gather during events to avoid harm.	Severe T-Storms	Protect lives and reduce injuries	General Fund, Strategic Growth Council Funds	Community Services, City Manager's Office	New Action	\$\$	H	More than 5 Years
Drought and Water Shortages Mitigation Actions (DWS)									
DWS-1	Support the construction or retrofit of drought resilient landscaping (like planting native vegetation or xeriscaping).	Drought and Water Shortage	Support stability, continuity, and connectivity	General Fund, CDBG, HMGP, Measure W Funding (LA County Property Tax Assessment)	Public Works	New Action	\$	M	More than 5 Years
DWS-2	Develop an outreach program to teach families, schools and businesses how to use less water.	Drought and Water Shortage	Promote public awareness	General Fund, HMGP, Measure W	Public Works, Community Development	New Action	\$\$	L	More than 5 Years

ACTION NUMBER	MITIGATION ACTION DESCRIPTION	HAZARD(S)	PLAN GOALS ADDRESSED	POTENTIAL FUNDING SOURCES	RESPONSIBLE DEPARTMENT	STATUS	COST	PRIORITY	TIMELINE
				Funding (LA County Property Tax Assessment)					
DWS-3	Support the construction of rain capture systems and reclaimed water usage.	Drought and Water Shortage	Support stability, continuity, and connectivity	General Fund, Measure W Funding (LA County Property Tax Assessment)	Public Works	New Action	\$	L	More than 5 Years
Landslides and Mudslides Mitigation Actions (LM)									
LM-1	Map and assess the probable vulnerability to landslides.	Landslides and Mudslides	Protect lives and reduce injuries; minimize property and infrastructure damage	HMGP, BRIC, General Fund	Public Works, IT (GIS)	New Action	\$\$	H	3-5 Years
LM-2	Construct soil stabilization measures (like planting soil stabilizing on steep, publicly owned slopes.	Landslides and Mudslides	Protect lives and reduce injuries; minimize property and infrastructure damage	HMGP, General Fund	Public Works	New Action	\$	H	More than 5 Years
LM-3	Construct debris flow catchments to prevent transfer of sediment into roadways.	Landslides and Mudslides	Protect lives and reduce injuries; minimize property and infrastructure damage	HMGP, BRIC, General Fund	Public Works	New Action	\$\$	H	More than 5 Years
Land Subsidence, Karsts, and Sinkhole Mitigation Action (LKS)									

ACTION NUMBER	MITIGATION ACTION DESCRIPTION	HAZARD(S)	PLAN GOALS ADDRESSED	POTENTIAL FUNDING SOURCES	RESPONSIBLE DEPARTMENT	STATUS	COST	PRIORITY	TIMELINE
LKS-1	Use ground-penetrating radar to detect and map possible hazard areas.	Land subsidence, Karsts, and Sinkholes	Protect lives and reduce injuries; minimize property and infrastructure damage	HMGP, BRIC, General Fund	Public Works, IT (GIS)	New Action	\$\$	H	3-5 Years
LKS-2	Promote community awareness of subsidence risks and impacts.	Land subsidence, Karsts, and Sinkholes	Promote public awareness	General Fund	Public Works, Community Development	New Action	\$\$	M	More than 5 Years
Flooding Mitigation Actions (FL)									
FL-1	Use GIS to map hazard areas, at-risk structures, and high-risk areas.	Flooding	Protect lives and reduce injuries; minimize property and infrastructure damage	FMA, HMGP, BRIC, CDBG, General Fund	Public Works, IT (GIS)	New Action	\$\$	H	3-5 Years
FL-2	Improve the stormwater systems to pass more water.	Flooding	Protect lives and reduce injuries; minimize property and infrastructure damage	FMA, HMGP, BRIC, CDBG, General Fund, Measure W Funds	Public Works	New Action	\$\$	H	More than 5 Years
FL-3	Modify stormwater systems so that rainfall is captured and/or absorbed into the soil, instead of being routed toward drains (bioswales, drywells, pervious pavements, rain barrels, sand filters, etc.).	Flooding	Protect lives and reduce injuries; minimize property and infrastructure damage	FMA, BRIC, HMGP, CDBG, General Fund, Measure W Funds	Public Works	New Action	\$\$	H	More than 5 Years
FL-4	Encourage homeowners to purchase flood insurance.	Flooding	Promote public awareness;	HMGP, General	Community Development,	New Action	\$\$	M	More than 5 Years

ACTION NUMBER	MITIGATION ACTION DESCRIPTION	HAZARD(S)	PLAN GOALS ADDRESSED	POTENTIAL FUNDING SOURCES	RESPONSIBLE DEPARTMENT	STATUS	COST	PRIORITY	TIMELINE
			Support stability, continuity, and connectivity	Fund, Measure W Funds	City Manager's Office				
Dam and Levee Failure Mitigation Actions (DL)									
DL-1	Join a task force with surrounding communities that would encourage jurisdictions with high hazard dams to implement protective measures.	Dam and Levee Failure	Support stability, continuity, and connectivity; Minimize property and infrastructure damage	BRIC, General Fund	Public Works, City Manager's Office	New Action	\$	H	More than 5 Years
DL-2	Encourage homeowners to purchase flood insurance.	Dam and Levee Failure	Promote public awareness; Support stability, continuity, and connectivity	HMGP, General Fund, Measure W Funds	Community Development, City Manager's Office	New Action	\$\$	M	More than 5 Years
Sea Level Rise Mitigation Actions (SLR)									
SLR-1	Create a task force with surrounding communities to implement a Mitigation Plan that outlines roles, responsibilities, and priorities to protect against impacts.	Sea Level Rise	Promote public awareness; Support stability, continuity, and connectivity	BRIC, General Fund	Public Works, City Manager's Office	New Action	\$	M	More than 5 Years
SLR-2	Model varies "what if" scenarios to estimate potential vulnerabilities in order to develop sea level rise mitigation priorities.	Sea Level Rise	Support stability, continuity, and connectivity	BRIC, HMGP, CZM, General Fund	Public Works, IT (GIS), City Manager's Office	New Action	\$\$	M	3-5 Years
SLR-3	Invest in the construction of community shelters for evacuees to utilize when impacted.	Sea Level Rise	Protect lives and reduce injuries	General Fund, Strategic Growth	Community Services, City Manager's Office	New Action	\$\$	M	More than 5 Years

ACTION NUMBER	MITIGATION ACTION DESCRIPTION	HAZARD(S)	PLAN GOALS ADDRESSED	POTENTIAL FUNDING SOURCES	RESPONSIBLE DEPARTMENT	STATUS	COST	PRIORITY	TIMELINE
Council Funds									
SLR-4	Work with local utility providers to establish expectations for impacts and prioritize improvements.	Sea Level Rise	Support stability, continuity, and connectivity	General Fund, BRIC, GRIP	City Manager's Office, Community Development	New Action	\$	L	More than 5 Years
Tornadoes Mitigation Actions (TN)									
TN-1	Support establishing standards for all utilities regarding tree pruning around lines and pole maintenance.	Tornadoes	Support stability, continuity, and connectivity; Minimize property and infrastructure damage	General Fund, BRIC	Public Works	New Action	\$	M	1-3 Years
TN-2	Develop an outreach program to teach families, schools, and businesses how and where to seek shelter from tornadoes.	Tornadoes	Promote public awareness; Protect lives and reduce injuries	HMPG, General Fund	Community Development, City Manager's Office	New Action	\$\$	H	More than 5 Years
Tsunami Mitigation Actions (TS)									
TS-1	Join a task force with surrounding communities to implement an Emergency Response Plan that outlines roles, responsibilities, and evacuation routes.	Tsunami	Protect lives and reduce injuries; Support stability, continuity, and connectivity	General Fund, BRIC	Public Works, City Manager's Office	New Action	\$	M	More than 5 Years
TS-2	Implement community shelters so evacuees can gather during events.	Tsunami	Protect lives and reduce injuries	General Fund, Strategic Growth	Community Services, City Manager's Office	New Action	\$\$	H	More than 5 Years

ACTION NUMBER	MITIGATION ACTION DESCRIPTION	HAZARD(S)	PLAN GOALS ADDRESSED	POTENTIAL FUNDING SOURCES	RESPONSIBLE DEPARTMENT	STATUS	COST	PRIORITY	TIMELINE
				Council Funds					
TS-3	Invest public funds to be accessed only to support a locally declared disaster event.	Tsunami	Support stability, continuity, and connectivity	General Fund, Special Fund	City Manager's Office,	New Action	\$\$	L	More than 5 Years
TS-4	Implement an "Evacuteer" Program, where community members would volunteer to participate in trainings and learn how to support the process of an evacuation event.	Tsunami	Promote public awareness	BRIC, General Fund	Community Development, City Manager's Office	New Action	\$\$	L	More than 5 Years
Cyber Attacks Mitigation Actions (CA)									
CA-1	Invest in more protective online security systems or back up devices.	Cyber Attacks	Support stability, continuity, and connectivity; Minimize property and infrastructure damage	SLCGP, General Fund	City Manager's Office, IT, Finance Department	New Action	\$\$\$	M	More than 5 Years
CA-2	Develop an outreach program to teach families, schools, and businesses how to spot scammers and phishing attempts.	Cyber Attacks	Promote public awareness	General Fund	City Manager's Office, IT, Finance Department	New Action	\$\$	M	More than 5 Years
CA-3	Implement staff training programs on how to spot scammers and phishing attempts.	Cyber Attacks	Promote public awareness	SLCGP, General Fund	City Manager's Office, IT, Finance Department	New Action	\$	L	1-3 Years
Hazardous Materials Mitigation Actions (HM)									

ACTION NUMBER	MITIGATION ACTION DESCRIPTION	HAZARD(S)	PLAN GOALS ADDRESSED	POTENTIAL FUNDING SOURCES	RESPONSIBLE DEPARTMENT	STATUS	COST	PRIORITY	TIMELINE
HM-1	Develop City ordinances that would require businesses and commercial facilities to log all materials with the fire department.	Hazardous Materials	Protect lives and reduce injuries; Minimize property and infrastructure damage	General Fund	City Manager's Office, Community Development	New Action	\$	H	More than 5 Years
HM-2	Develop City ordinances that would restrict the kinds of businesses and commercial facilities able to operate within the City and the kinds of materials allowed to be stored on site.	Hazardous Materials	Protect lives and reduce injuries; Minimize property and infrastructure damage	General Fund	City Manager's Office, Community Development	New Action	\$\$	M	More than 5 Years
HM-3	Develop an outreach program to teach families, schools, and businesses how to spend in the vent of different kinds of releases.	Hazardous Materials	Promote public awareness	General Fund	City manager's Office, IT, Finance Department	New Action	\$\$	M	More than 5 Years
Civil Unrest Mitigation Actions (CU)									
CU-1	Reinforce doors and windows on public facilities with additional locks, shutters, or security bars to protect against forced entry during riots or protests.	Civil Unrest	Minimize property and infrastructure damage	SHSP, General Fund	Public Works	New Action	\$\$	M	More than 5 Years
CU-2	Join a task force with surrounding communities to implement an Emergency Response Plan that outlines roles, responsibilities, and evacuation routes.	Civil Unrest	Support stability, continuity, and connectivity	General Fund	Public Works, City Manager's Office	New Action	\$	L	More than 5 Years
CU-3	Develop and outreach program to teach families, schools, and	Civil Unrest	Promote public awareness;	General Fund	City Manager's	New Action	\$\$	M	More than 5 Years

ACTION NUMBER	MITIGATION ACTION DESCRIPTION	HAZARD(S)	PLAN GOALS ADDRESSED	POTENTIAL FUNDING SOURCES	RESPONSIBLE DEPARTMENT	STATUS	COST	PRIORITY	TIMELINE
	businesses how to protect yourselves during civil unrest.		Protect lives and reduce injuries		Office, Police Department				
Pandemic and Epidemic Mitigation Actions (PE)									
PE-1	Develop an outreach program to teach families, schools, and businesses how to protect against diseases.	Pandemic and Epidemic	Protect lives and reduce injuries; Promote public awareness	General Fund	Police Department	New Action	\$\$	M	More than 5 Years
PE-2	Create an Emergency Response Plan that outlines roles, responsibilities, and evacuation routes.	Pandemic and Epidemic	Protect lives and reduce injuries; Promote public awareness	General Fund	Police Department	New Action	\$\$	M	More than 5 Years
PE-3	Invest in a rolling stockpile of Personal Protective Equipment (PPE).	Pandemic and Epidemic	Support stability, continuity, and connectivity	General Fund	Police Department	New Action	\$\$	M	More than 5 Years
Transportation Accidents Mitigation Actions (TA)									
TA-1	Implement a road safety study to understand which areas of the City have the most risk and identify possible solutions.	Transportation Accidents	Protect lives and reduce injuries	HSIP, General Fund	IT (GIS), Police Department, Public Works	New Action	\$	M	3-5 Years
TA-2	Join a task force with surrounding communities to implement an Emergency Response Plan that outlines roles, responsibilities, and evacuation routes.	Transportation Accidents	Support stability, continuity, and connectivity	HSIP, General Fund	Public Works, City Manager's Office	New Action	\$	L	More than 5 Years
TA-3	Put up signage and other small road hazard identifiers to help drivers navigate in more hazardous intersections.	Transportation Accidents	Protect lives and reduce injuries; Promote public awareness	HSIP, General Fund	Public Works	New Action	\$	H	More than 5 Years

ACTION NUMBER	MITIGATION ACTION DESCRIPTION	HAZARD(S)	PLAN GOALS ADDRESSED	POTENTIAL FUNDING SOURCES	RESPONSIBLE DEPARTMENT	STATUS	COST	PRIORITY	TIMELINE
Utility and Infrastructure Failure Mitigation Actions (UI)									
UI-1	Join a task force with surrounding communities that would support identification of solutions and funding infrastructure improvements.	Utility and Infrastructure Failure	Support stability, continuity, and connectivity	General Fund	Public Works, City Manager's Office	New Action	\$	L	More than 5 Years
UI-2	Work with local utility providers to establish expectations for impacts and prioritize improvements.	Utility and Infrastructure Failure	Support stability, continuity, and connectivity; Minimize property and infrastructure development	General Fund	Public Works, City Manager's Office, Finance Department	New Action	\$	M	2-5 Years
UI-3	Invest public funds now to be accessed only to support a local infrastructure failure.	Utility and Infrastructure Failure	Support stability, continuity, and connectivity	General Fund, Special Fund	City Manager's Office, Finance Department	New Action	\$\$	L	More than 5 Years

Priority: H=High, M=Medium, L=Low

8) CAPABILITY ASSESSMENT

Capability and capacity are two defining features of a community's resilience. Capability refers to the "tools" available to the community whereas capacity is the ability to use those tools. This portion of the Plan assesses the current capability of the City of Bell to mitigate the effects of the natural hazards and implement successful mitigation programs. This assessment includes an examination of:

- **Staff and Technical Assistance:** personnel resources on-staff or available to assist with hazard mitigation efforts.
- **Planning Mechanism:** planning tools are currently in place or under development for your jurisdiction.
- **Regulatory Tools and Programs:** programs are currently in place or under development for your jurisdiction.
- **Fiscal Capacity:** jurisdiction utilizes or has utilized the following financial resources.

Through careful analysis, existing gaps, shortfalls, or weaknesses within existing governmental activities that could exacerbate a community's vulnerability were identified and noted as areas for improvement within the Mitigation Strategy. Since this Local Hazard Mitigation Plan is the City's first, there was no previous capability assessment to review and compare.

The assessment also highlights the positive measures underway at the local level that will continue to be supported and enhanced through future mitigation efforts. Additionally, the capability assessment reviewed existing policies, regulations, plans, and programs to determine if they contributed to reducing hazard-related losses or if they inadvertently contributed to increasing such losses.

The capability assessment serves as the foundation for designing an effective hazard mitigation strategy. It not only helps inform plan goals to be both achievable but aspirational to reduce the City's exposure to natural hazards. To inform this capability assessment, the City completed an intensive one-on-one comprehensive review of community and government functions, that included their current administrative, technical, fiscal, programmatic, and legal capabilities.

Based on the capability assessment, the City of Bell ranks **Moderate** to **High** except for two capabilities that rank **Limited**. The two capabilities that were ranked "limited" include "Available Staff" and "Political Support and Interest".

A) STAFF AND TECHNICAL ASSISTANCE

For successful implementation of a mitigation program, it is necessary to have a broad range of people involved who can inform and contribute to holistic mitigation actions through diverse backgrounds and experience. People with the necessary expertise to influence outcomes can

include local planners, engineers, building inspectors, emergency managers, floodplain managers, Geographic Information Systems (GIS) analysts and grant writers, among others.

GIS systems include the hardware, software and technicians that collect, manage, analyze and display spatially referenced data. GIS is invaluable in identifying areas vulnerable to hazards. Improved online archived technical information has greatly improved update processes and quality of emergency operations plans, continuity of operations plans, hazard mitigation plans and emergency management, resilience, and mitigation messaging. This increases community resiliency, especially outreach efforts using social media.

According to the capability assessment filled out by the City of Bell, shown in **Table 97**, the jurisdiction possesses a diverse staff with varying skills and expertise to support the implementation of a well-rounded mitigation program. Staff that the City does not obtain include: an environmental justice specialist, land surveyors, recreation or green space specialists, and scientists familiar with the hazards of the community. Based on the level of environmental pollution and the high percentage of environmentally disadvantaged communities located within the City, an environmental justice position would be beneficial to reduce further risk to these communities from hazards.

The City is also prepared to expand staff expertise in emergency response and hazard planning through targeted training programs. This initiative aims to improve operational readiness, strengthen coordination during disasters, and ensure staff can effectively implement mitigation strategies and emergency protocols.

Table 97. City of Bell Staff and Technical Assistance Capability

STAFF OR PERSONNEL RESOURCES	YES	NO	DEPARTMENT OR SINGLE STAFF MEMBER
Emergency Manager	X		D
Engineers or professionals trained in construction practices related to buildings and/or infrastructure	X		S
Environmental Justice Specialist(s)		X	
Fiscal Management or Procurement Specialist(s)	X		D
Floodplain Manager		X	
Housing Specialist(s)	X		D
Land Surveyors		X	
Land Use/Management/Development Planning	X		D
Planners or engineers with an understanding of natural and/or human-caused hazards	X		D

STAFF OR PERSONNEL RESOURCES	YES	NO	DEPARTMENT OR SINGLE STAFF MEMBER
Recreation/Green space specialist(s)		X	
Resource Development Staff or Grant writing	X		S
Scientists familiar with the hazards of the community		X	
Staff experienced with Geographic Information Systems (GIS) or HAZUS	X		D
Staff with education or expertise to assess the community's vulnerability to hazards	X		D
Transportation Manager/Traffic Engineer	X		D

B) PLANNING MECHANISMS

Based on the self-assessment completed by the City of Bell for the planning mechanisms capability, the City has a couple of plans in place and/or adopted by the jurisdiction, shown **Table 98**. Those plans include the Capital Improvement Plan (CIP), General Plan, Continuity of Operations Plan (COOP), Emergency Operations Plan (EOP), and the Local Hazard Mitigation Plan.

The City will utilize the Hazard Mitigation Plan as a foundational tool to integrate hazard risk data into core planning and policy frameworks. This includes incorporating mitigation considerations into the General Plan, Emergency Operations Plan, and Capital Improvement Program, as well as guiding updates to zoning regulations, redevelopment strategies, and safety standards to reduce vulnerability and enhance community resilience.

To support comprehensive implementation, the City will coordinate with local agencies, adjacent jurisdictions, private sector partners, and non-profit organizations. Public engagement will be prioritized through multilingual outreach in English, Spanish, and Lebanese-Arabic, ensuring equitable access to information and fostering inclusive participation in hazard mitigation initiatives.

Table 98. City of Bell Planning Mechanisms Capability

PLANS	IN-PLACE		ADOPTED/UPDATED	UNDER DEVELOPMENT		EXPECT TO IMPLEMENT
	YES	NO		YES	NO	
Capital Improvement Plan (CIP)	X		2025/2026	X		
Climate Action Plan/Resiliency Plan		X		X		2026
Community Wildfire Protection Plan (CWPP)	X					
Comprehensive Emergency Management Plan		X		X		2025
General Plan	X		2019			
Continuity of Operations Plan (COOP)		X		X		2025
Disaster Recovery Plan		X		X		2025
Economic Development Plan	X		2024	X		
Emergency Operations Plan (EOP)	X		2018	X		2025
Environmental Impact Report (EIR)	X		2019	X		2026
Evacuation Plan		X		X		2025
Flood Response Plan	X			X		
Floodplain Management Plan/Flood Mitigation Plan	X			X		

PLANS	IN-PLACE		ADOPTED/UPDATED	UNDER DEVELOPMENT		EXPECT TO IMPLEMENT
	YES	NO		YES	NO	
Hazard Mitigation Plan	X		2025	X		2026
Historic Preservation Plan		X		X		
Natural Resource Protection Plan (NRPP)		X		X		
Open Space Management Plan (Parks & Rec/Green Plan)	X		2023	X		
Threat Hazard Identification and Risk Assessment (THIRA)	X		2024	X		

(1) Bell 2030 General Plan

The Bell 2030 General Plan serves as the City’s comprehensive long-term vision for land use, housing, mobility, resource management, and public safety through the year 2030. Prepared in accordance with the California Government Code, it establishes policies that guide physical development, infrastructure investment, and community well-being. The Plan’s structure is organized around five key elements, Land Use and Sustainability, Resource Management, Health and Safety, Mobility and Circulation, and Housing, and outlines goals for sustainable growth, environmental quality, and equitable access to housing and services.

The general plan is a statement of the community’s vision of its long-term or ultimate physical form and development policies. The State of California mandates that “...each county and City shall adopt a comprehensive, long-term general plan for the physical development of the county or City, and of any land outside its boundaries which in the planning agency’s judgment bears relation to its planning.” (Govt. Code 65300). A City’s general plan has been described as its development constitution, the set of policies within which development regulations and decisions must fit, and serves to:

- Establish a long-range vision that reflects the aspirations of the community and outline steps to achieve this vision through its policies.

- Guide decision-making related to development, housing, transportation, environmental quality, public services, parks, open space, and environmental justice.
- Help Bell achieve compliance with applicable State and regional policies, including housing production and environmental regulations.
- Allow City departments, other public agencies, and private developers to design projects that will enhance the character of the community, preserve environmental resources, and minimize hazards.
- Provide the basis for establishing and setting priorities for detailed plans and implementing programs, such as the Zoning Ordinance and future specific plans.

(2) State of California Safety Element

The State of California requires General Plans to address elements which include land use, circulation, housing, conservation, open space, noise, safety, environmental justice, and air quality. The safety elements aim to reduce the potential short and long-term risk of death, injuries, property damage, and economic and social dislocation resulting from fires, floods, droughts, earthquakes, landslides, climate change, and other hazards. The safety elements should contain general hazard and risk reduction strategies complementary to the Local Hazard Mitigation Plan. In order to support the Safety Element of Bell's General Plan, the local hazard mitigation plan is intended to address aspects of the State's Safety Element requirements. **Table 99** includes the State's Safety Element requirements.

Table 99. State of California Safety Element Requirements

STATUTORY CITATION	BRIEF DESCRIPTION OF REQUIREMENTS
Gov. Code 65302(g)(1)	Identification of unreasonable risks and policies for the protection of the community from such risks.
Gov Code 65302(g)(1)	<u>Slope Instability</u> Slope instability leading to mudslides and landslides.
Gov. Code 65302(g)(1)	<u>Seismic Risks, including:</u> Seismically induced surface rupture, ground shaking, ground failure, tsunami, seiche, and dam failures; subsidence, liquefaction, and other seismic hazards identified to Chapter 7.8 (commencing with Section 2690) of Division 2 of the Public Resources Code, and other geologic hazards known to the legislative body. ▪ Mapping known seismic and other geologic hazards. ▪ Address ▪ Evacuation routes ▪ Military installations ▪ Peak load water supply requirements and ▪ Minimum road widths and clearances around structures

STATUTORY CITATION	BRIEF DESCRIPTION OF REQUIREMENTS
Gov. Code 65302(g)(2)	<u>Flooding</u> ▪ Flood Hazard Zones ▪ FEMA Flood Insurance Maps ▪ Army Corps of Engineer Flood Information ▪ Flood maps from the Central Valley Flood Protection Board ▪ Dam Failure Maps (Office of Emergency Services) ▪ DWR Floodplain Maps ▪ Maps of Levee Protection Zones ▪ Areas subject to inundation in the event of the failure of levees and floodwalls ▪ Historic flood information ▪ Existing and planned development in flood hazard areas ▪ Agencies with responsibility for flood protection <u>Mandatory Goals, Policies, and Objectives</u> ▪ Avoid and minimize flood risks for new development. ▪ Should new development be located in flood hazard zones? If so, what are appropriate mitigation measures? ▪ Maintain the integrity of essential public facilities. ▪ Locate, when feasible, new essential public facilities outside of flood hazard zones, including hospitals and health care facilities, emergency shelters, fire stations, emergency command centers, and emergency communications facilities, or identifying mitigation measures. ▪ Establishing cooperative working relationships among public agencies with responsibility for flood protection. Feasible Mitigation Measures, to implement the policies above.
Gov. Code 65302(g)(3)	<u>Wildland and Urban Fires</u> ▪ Identification of, and policies for, the protection of the community from, unreasonable risks associated with wildland and urban fires. ▪ State Responsibility Areas and Very High Fire Hazard Severity Zones ▪ Consider advice in OPR's Fire Hazard Technical Advisory <u>Identify</u> ▪ CalFire Fire Hazard Severity Zone Maps ▪ Historical data on wildfires ▪ USGS wildfire hazard areas ▪ Existing and planned development within these areas ▪ Agencies with responsibility for fire protection in these areas

STATUTORY CITATION	BRIEF DESCRIPTION OF REQUIREMENTS
	<u>Mandatory Goals, Policies and Objectives</u> ▪ Protect the community from unreasonable risks. ▪ See mitigation measures below. <u>Feasible Mitigation</u> ▪ Avoid and minimize fire risks for new development. ▪ Should new development be located in fire hazard zones? If so, what are appropriate mitigation measures? ▪ Maintain the integrity of essential public facilities. ▪ Locate, when feasible, new essential public facilities outside of fire hazard zones, including hospitals and health care facilities, emergency shelters, fire stations, emergency command centers, and emergency communications facilities. ▪ If essential facilities are located in high fire zones, identify mitigation measures, such as safe access for emergency response vehicles, visible street signs, and water supplies for structural fire suppression. ▪ Establishing cooperative working relationships among public agencies with responsibility for fire protection.
Gov. Code 65302(g)(4)	<u>Climate Change Adaptation and Resilience</u> ▪ Address climate change adaptation and resiliency strategies by using the process in the Adaptation Planning Guide and reflected in referenced tools such as Cal-Adapt. <u>Vulnerability Assessment (Gov Code 65302(g)(4)(A))</u> ▪ Create a vulnerability assessment that identifies the risks that climate change poses to the local jurisdiction and the geographic areas at risk from climate change impacts, the following: ▪ Information that may be available from federal, state, regional, and local agencies that will assist in developing the vulnerability assessment and the adaptation policies and strategies, including, but not to, all the following: ▪ Information from the Internet based Cal-Adapt tool. ▪ Information from the most recent version of the California Adaptation Planning Guide. ▪ Information from local agencies on the types of assets, resources, and populations that will be sensitive to various climate change exposures. ▪ Information from local agencies on their current ability to deal with the impacts of climate change. ▪ Historical data on natural events and hazards, including locally prepared maps of areas subject to previous risk, areas that are vulnerable, and sites that have been repeatedly damaged.

STATUTORY CITATION	BRIEF DESCRIPTION OF REQUIREMENTS
	- Existing and planned development in identified at-risk areas, including structures, roads, utilities, and essential public facilities. - Federal, state, regional, and local agencies with responsibility for the protection of public health and safety and the environment, including special districts and local offices of emergency services. <u>Mandatory Goals, Policies, and Objectives (Gov. Code 65302(g)(4)(B))</u> - Create a set of adaptation and resilience goals, policies, and objectives based on the information above for the protection of the community.
Gov. Code 65302(g)(4) CONTINUED	<u>Feasible Mitigation (Gov. Code 65302(g)(4)(C))</u> - Create a set of feasible implementation measures designed to carry out the goals, policies, and objectives identified above, including but not limited to, all of the following: - Feasible methods to avoid or minimize climate change impacts associated with new uses of land. - The location, when feasible, of new essential public facilities outside of at-risk areas, including, but not limited to, hospitals and health care facilities, emergency shelters, emergency command centers, and emergency communications facilities, or identifying construction methods or other methods to minimize damage if these facilities are located in at-risk areas. - The designation of adequate and feasible infrastructure located in an at-risk area. - Guidelines for working cooperatively with relevant local, regional, state, and federal agencies. - The identification of natural infrastructure that may be used in adaptation projects, where feasible. Where feasible, the plan shall use existing natural features and ecosystem processes, or the restoration of natural features and ecosystem processes, when developing alternatives for consideration. For the purposes of the clause, “natural infrastructure” means preservation or restoration of ecological systems, or utilization of engineered systems that use ecological processes, to increase resiliency to climate change, manage other environmental hazards, or both. This may include but is not limited to floodplain and wetlands restoration or preservation, combining levees with restored natural systems to reduce flood risk, and urban tree planting to mitigate high heat days. <u>Other documents (Gov. Code 65302(g)(4)(D)(i), 65302(g)(4)(D)(ii))</u> - If a city or county has adopted the local hazard mitigation plan, or other climate adaptation plan or document that fulfills commensurate goals and objectives and contains the information required

STATUTORY CITATION	BRIEF DESCRIPTION OF REQUIREMENTS
	pursuant to this paragraph, separate from the general plan, an attachment of, or reference to, the local hazard mitigation plan or other climate adaptation plan or document. ▪ Cities or counties that have an adopted hazard mitigation plan, or other climate adaptation plan or document that substantially complies with this section or have substantially equivalent provisions to this subdivision in their general plans, may use with this section, or have substantially equivalent provisions, climate adaptation plan or document, specifically showing how each requirement of this subdivision has been met.
Gov Code 65302(g)(5) -(g)(8)	<u>Other Considerations</u> ▪ Cities and counties that have floodplain management ordinances that have been approved by FEMA that substantially comply with this section, or have substantially equivalent provisions to this subdivision in their general plans, may use that information in the safety element to comply with this subdivision, and shall summarize and incorporate by reference into the safety element the other general plan provisions or the flood plain ordinance, specifically showing how each requirement of this subdivision has been met. ▪ Prior to the periodic review of its general plan and prior to preparing or revising its safety element, each city and county shall consult the California Geological Survey of the Department of Conservation, the Central Valley Flood Protection Board, if the city or county is located within the boundaries of the Sacramento and San Joaquin Drainage District, as set forth in Section 8501 of the Water Code, and the Office of Emergency Services for the purpose of including information known by and available to the department, the agency, and the board required by this subdivision. ▪ To the extent that a county's safety element is sufficiently detailed and contains appropriate policies and programs for adoption by a city, a city may adopt that portion of the county's safety element that pertains to the city's planning area in satisfaction of the requirement imposed by this subdivision. ▪ Review the safety element for fire and flood impacts upon each Housing Element update. ▪ Review the safety element for climate change at each update to the Local Hazard Mitigation Plan, Jurisdiction may also choose to do a comprehensive review of the safety element upon each housing element update to streamline review.

C) FISCAL CAPABILITY

Mitigation projects require financial capital to be successfully implemented. A variety of programs and grant opportunities are available to support these efforts. The ability to identify relevant funding sources and navigate the application process is essential for maximizing resources and achieving stronger community outcomes.

The City of Bell has identified multiple funding streams to support its mitigation planning and programming. These include local sources such as capital improvement funds, fees, and staff time. In addition, external funding opportunities are available through programs like the Community Development Block Grant (CDBG) and FEMA's Hazard Mitigation Assistance (HMA) suite, which includes the Hazard Mitigation Grant Program (HMGP), Flood Mitigation Assistance (FMA), and Pre-Disaster Mitigation (PDM) grants. In the future, the City of Bell is dedicated to identifying more funding sources to fund future mitigation actions to reduce risk to the City.

Table 100 provides a summary of the funding sources the jurisdiction has familiarity utilizing. These include never used, previously used, or currently used funding sources.

Table 100. City of Bell Fiscal Capability

FISCAL RESOURCES	NEVER USED	PREVIOUSLY USED	CURRENTLY USED	COMMENTS
Capital Improvement Programming			X	Annual Budget Process
CAL FIRE Grants		X		
California Floodplain Management, Protection, and Risk Awareness Grant Program	X			
Community Development Block Grant (CDBG)			X	LA County CDBG Program
Development Impact Fees			X	
FEMA Hazard Mitigation Assistance Grants (HMGP, FMA, PDM)			X	First HMGP award for 2025 HMP
Gas/Electric Utility Fees		X		
General Obligation, Revenue, and/or Special Tax Bonds			X	

FISCAL RESOURCES	NEVER USED	PREVIOUSLY USED	CURRENTLY USED	COMMENTS
Homeland Security Grants (HSGP)			X	
Infrastructure Investment and Jobs Act (IIJA)	X			
Partnering Agreements or Intergovernmental Agreements			X	
Public Assistance (PA)			X	DR-4699
Sewer/Water Fees	X			
USDA Grants	X			
US Economic Development Administration Grants	X			

D) REGULATORY TOOLS AND PROGRAMS

Zoning remains Bell's most direct regulatory tool for implementing land use policies. The City divides its territory into residential, commercial, industrial, and mixed-use districts, each with standards governing building height, density, setbacks, and lot size. Through its zoning and subdivision regulations, the City can guide future growth away from hazard-prone areas, ensure that redevelopment meets current seismic and building code standards, and support the reinforcement of vulnerable structures. Overlay zones and conditional use permits provide flexibility to apply additional standards for flood protection, infrastructure resilience, or emergency access where needed. Together, these regulatory mechanisms allow Bell to align everyday land-use decisions with long-term hazard mitigation and community resilience goals.

Of note, as of January 1, 2023, the City of Bell officially adopted the California Building Code, 2022 Edition - Part 2 of Title 24 of the California Code of Regulations. This change will benefit the community but increasing new build and renovated residential and commercial structures' resilience to hazards.

Subdivision regulations control the division of land into parcels for the purpose of building development or sale. Flood-related subdivision regulations are included in the floodplain management ordinance, requiring developers to install adequate drainage facilities and design water and sewer systems to minimize flood damage and contamination. They also may prohibit the subdivision of land subject to flooding unless flood hazards are mitigated through filling or other measures, and they prohibit filling of floodway areas.

The City of Bell can strengthen its resilience to hazards by updating local plans and safety regulations to better protect homes and neighborhoods. This includes creating new ordinances or enhancing existing ones focused on flood control and building safety. Additionally, the City should improve public outreach by providing hazard-related information in multiple languages, such as Spanish and Lebanese-Arabic, to ensure all residents have access to critical preparedness resources.

Looking ahead, the City intends to encourage redevelopment and adaptive reuse of underutilized or City-owned properties to attract private investment, expand housing options, and strengthen the local economy. Future development priorities focus on revitalizing aging commercial corridors, modernizing public infrastructure, and supporting projects that provide long-term community benefits. Current initiatives emphasize reinvestment in older commercial areas and enhancement of public spaces to improve neighborhood livability. These efforts reflect community priorities centered on economic vitality, sustainability, public safety, and an improved quality of life through expanded housing opportunities, new businesses, and accessible, well-designed public spaces.

Table 101 summarizes the City of Bell’s regulatory tools and programs supporting a mitigation program.

Table 101. City of Bell Regulatory Tools and Programs Capability

TOOL/PROGRAM	IN-PLACE		ADOPTED/ UPDATED	UNDER DEVELOPMENT		EXPECT TO IMPLEMENT
	YES	NO		YES	NO	
2 Weeks Ready		X		X		2026
Alliance of Regional Collaboratives for Climate Adaptation (ARCCA) activities		X		X		2025
Building Code	X		2022	X		
CAL FIRE’s Land Use Planning Program		X				
California Adaptation planning Guide (APG)		X		X		2026
California Animal Response Emergency System		X		X		2026
California Urban Flood Risk Reduction Program		X		X		2026
Citizen Corps – Community Emergency Response Team		X		X		2025

TOOL/PROGRAM	IN-PLACE		ADOPTED/ UPDATED	UNDER DEVELOPMENT		EXPECT TO IMPLEMENT
	YES	NO		YES	NO	
Community Rating System (CRS Program of the NFIP)		X		X		2026
Emergency Management Accreditation Program (EMAP)		X		X		2026
Fire Code	X		2022			
Firewise Community		X			X	
Floodplain Management/Flood Damage Prevention Ordinance		X*				
Geological Hazard Assessment District (GHAD)		X			X	
Great ShakeOut Earthquake Drill	X		2025		X	
Land Use Development Planning	X			X		
Listos California Program	X		2023	X		
Local Coastal Program (LCP)		X			X	
MyPlan/My Hazards Tool	X		2025			
National Flood Insurance Program (NFIP)	X		2025	X		
Post Disaster Redevelopment/Reconstruction Plan/Ordinance		X				
Storm Ready	X		2023	X		
Stormwater Management Plan/Ordinance	X		2023	X		
Subdivision Regulations/Ordinance	X		2022	X		
Unified Development Ordinance					X	
Zoning Ordinance	X		2025			

*The City of Bell is an NFIP participating community. However, there are no properties located in the SFHA and therefore no active permitting or ordinances that related to NFIP or SFHA in place. The City of Bell is protected from riverine flooding risks by levees which are part of the Los Angeles River Channel as identified in **Figure 40** and **Figure 41**.

2030 Comprehensive General Plan - Health and Safety Element

The purpose of the Health and Safety Element of the City of Bell 2030 Comprehensive General Plan is to focus on public safety through prevention and preparedness. The policies and programs outlined in this element support preventing or reducing the potential injury, damage, and disruption resulting from natural or manmade catastrophes. This includes programs that are effective in eliminating or avoiding hazards through emergency preparedness and emergency response. The Health and Safety Element discusses addressing hazards such as seismic, liquefaction, flooding, fire, hazardous materials, law enforcement, and crime.

The 2026 City of Bell Local Hazard Mitigation Plan is designed to support the Health and Safety Element of a General Plan. This is done by providing a detailed overview of event characteristics of different hazards, potential impacts of these hazards on the built environment, and the vulnerabilities of community residents, including underserved and socially vulnerable populations.

The reality of changing climate conditions, and the effects this can have on natural hazards, makes it important for the City of Bell to consider the information presented in this plan when making decisions about the community's future. The City of Bell's history and continued presence of heavy industry, including oil extraction and refinement, also emphasizes the need to consider the impacts of human-caused hazards. The Health and Safety Element seeks to enhance the quality of life of all Bell residents and promote a healthy and livable community. Applicable policies are listed in **Table 102**⁸⁵.

Table 102. Health and Safety Element Goals and Policies

POLICY	DESCRIPTION
Goal: To ensure that every effort is made to promote emergency preparedness	
H&S Element Policy-1	The City of Bell shall encourage educational programs which inform residents and businesses in the City concerning procedures to follow in the event of a major disaster. The City shall ensure that a disaster plan is in place for residents and City employees. The Plan will be identified on the City's website and in community meetings.
H&S Element Policy-2	The City of Bell shall continue participation in community programs that train local residents and workers to perform effectively after an emergency or disaster. These measures will be included in the City Hazard Response Plan that will be advertised on the City's website and Community Meetings.

85 "CITY OF BELL COMPREHENSIVE GENERAL PLAN ." N.D. CITY OF BELL. CITY OF BELL. ACCESSED 2025. 82. DEVELOPMENT/DOCUMENTS/PLANNING/ADOPTED-GENERAL-PLAN-2030.PDF.

[HTTPS://WWW.CITYOFBELL.GOV/FILES/ASSETS/CITY/V/1/COMMUNITY-](https://www.cityofbell.gov/files/assets/city/v/1/community-)

POLICY	DESCRIPTION
H&S Element Policy-3	The City Bell shall review and improve its disaster preparedness and emergency response capabilities. The Emergency Plan shall undergo a periodic review and update to ensure it remains current.
H&S Element Policy-4	The City of Bell shall develop an information program to familiarize citizens with emergency preparedness in the event of a major earthquake. The City shall work with local businesses, residents, and public agencies to advertise the Emergency Preparedness Plan through the City's website, social media, and neighborhood meetings.
Goal: To ensure that land use planning efforts consider potential hazards in the City and to educate the public regarding safety hazards	
H&S Element Policy-5	The City of Bell shall work to identify and improve existing buildings that do not meet fire or earthquake standards. The City shall undertake periodic inspections to identify buildings in need of retrofit and progress in retrofitting un- reinforced buildings. Finally, the City shall seek funding sources to assist in the improvements to these older buildings.
H&S Element Policy-6	The City of Bell shall require special soils and structural investigations for all larger structures or development involving large groups of people pursuant to State requirements. Finally, the City shall create an informational flyer informing residents and businesses regarding building and safety requirements.
H&S Element Policy-7	The City of Bell shall continue to require pre-1933 structures to meet current seismic building codes. The City shall notify property owners of these buildings and the need for any seismic retrofitting and the correction of health and safety code violations shall be discussed.
H&S Element Policy-8	The City of Bell shall strive to protect life and property from fire damage through the enforcement of the applicable of all building and fire codes and Code Enforcement inspections.
H&S Element Policy-9	The City of Bell shall identify areas of high risk (high densities, older structures, fire hazards) so that disaster response may be prioritized. The City will also focus on potential sources of contamination, including lead and asbestos containing materials found in older buildings. These areas of risk must be identified in the City's Emergency Preparedness Plan.
H&S Element Policy-10	The City of Bell shall host a periodic "wellness fair" that will educate residents regarding safety risks and hazards in the community. This outreach will also discuss the health risks related to poor air quality, water and soil contamination, and other contaminants such as lead paint, asbestos, mercury, etc.
Goal: To ensure that sufficient fire department resources are provided to address any potential emergency	

POLICY	DESCRIPTION
H&S Element Policy-11	The City of Bell shall establish and enforce standards that are designed to reduce the level of risk. The City shall work with the Los Angeles County Fire Department and other public agencies to discuss both risk and emergency preparation. Finally, the City shall work with the Fire Department and the larger community to review, and if necessary, develop new standards.
H&S Element Policy-11	The City of Bell shall establish and enforce standards that are designed to reduce the level of risk. The City shall work with the Los Angeles County Fire Department and other public agencies to discuss both risk and emergency preparation. Finally, the City shall work with the Fire Department and the larger community to review, and if necessary, develop new standards.
H&S Element Policy-12	The City of Bell shall work to reduce fire hazards associated with older buildings including masonry structures and residences above commercial structures on Gage Avenue. These measures will include, but not be limited to, building inspections, and reviewing and updating Building and Fire Codes, code enforcement, and education.
H&S Element Policy-13	The City of Bell shall establish an inventory of alternative emergency resources in the City (portable water, water delivery systems, communication, security, waste collection, and emergency power for critical facilities). This inventory shall be identified in the City's Emergency Preparedness Plan.

Source: City of Bell 2030 Comprehensive General Plan

The following are programs identified in the General Plan that support hazard mitigation:

- **Community Hazardous Waste Education Program:** The City will implement an education program for households and small businesses regarding identification and disposal of potentially hazardous wastes, including machine oils, pesticides, etc.
- **Disaster Response Database:** In the event of a major earthquake or other major disaster, persons living or working in the City may need to be self-sufficient for up to 72 hours before the results of any major relief efforts are realized. Under this program, a database will be created to identify medical professionals, heavy equipment operators, and volunteers trained in first aid and search-and-rescue. The database would identify other volunteers that would staff emergency collection centers, distribution centers, and otherwise assist in the recovery efforts. This information, and the appropriate procedures, would then be incorporated into the City's emergency multi-hazard mitigation plan.
- **Hazardous Materials Control:** The City shall continue to cooperate with county, State, and Federal agencies involved in the regulation of hazardous materials' storage, use, and disposal. The City shall work with the fire department in requiring hazardous materials users and generators to identify safety procedures for responding to accidental spills and

emergencies. The LACFD shall also work with local law enforcement officials in regulating the transport of hazardous materials through the City. The City will continue to collect and maintain up-to-date records concerning the type, location, owners, and responsible persons for properties which involve the handling of hazardous materials and wastes.

- **Seismic Safety Program:** The City enforces the seismic retrofit requirements of the State of California Uniform Building Code. These standards apply to bracing systems, wall anchorage to roof and floors and the filling in of excess openings. Department personnel are trained to use the Emergency Response Handbook.

National Flood Insurance Program (NFIP) Capability Assessment

Participation in the NFIP is a key element of any community's local floodplain management and flood mitigation strategy. The City of Bell participates in the NFIP and assures compliance with local floodplain ordinances. An NFIP capability assessment is required as part of the local hazard mitigation plan. **Table 103** includes the City's responses to the assessment.

Table 103. Health and Safety Element Goals and Policies

NFIP QUESTION	CITY'S RESPONSE
Do you participate in the National Flood Insurance Program?	Yes (under review)
Have you adopted a floodplain management or flood damage prevention ordinance that meets the NFIP minimum criteria?	Yes (under review)
Which position, designee, or agency is identified in your floodplain management ordinance is responsible for ensuring compliance with the NFIP?	Community Development Department and Public Works
How do you regulate development in the floodplain, issue permits in the floodplain, and implement and enforce your floodplain management ordinance?	Under Review
How do you implement the substantial improvement/substantial damage provisions of your floodplain management ordinance?	N/A
Do you participate in the Community Rating System (CRS) If so, what is your CRS rating?	No
Have you adopted the latest effective Flood Insurance Rate Map (FIRM)?	Yes

Changes in Development

The City of Bell has seen modest growth, including new residential housing, small business improvements, and infrastructure upgrades such as street and sidewalk repairs. There has also been more focus on redevelopment of older commercial properties and improving public spaces. The City plans to sell or redevelop several City-owned properties to encourage private investment, create new housing, and strengthen the local economy. Future development efforts will focus on revitalizing commercial areas, improving infrastructure, and supporting projects that bring long-term community benefits. Community priorities have shifted toward revitalization and economic growth. Residents and leadership are focused on creating a safer, more vibrant City with more housing opportunities, new businesses, and better public spaces. There is also continued emphasis on sustainability, public safety, and improving overall quality of life.

E) RESULTS

The results of the capability assessment are described in **Table 104**. Based on the City of Bell's self-assessment, the City's capabilities are moderate with the exception of Available Staff and Fiscal capabilities (Limited).

Table 104. City of Bell Capability Assessment Results

AREA	DEGREE OF CAPABILITY		
	LIMITED	MODERATE	HIGH
Planning and Regulatory Capability		X	
Administrative and Technical Capability		X	
Fiscal Capability	X		
Available Staff	X		
Political Support/Interest		X	
Community Support		X	

The City of Bell intends to leverage its capabilities to support hazard mitigation and has identified improvements to continue to strengthen capabilities in the future. The City ranked

Moderate for Administrative and Technical Capability and **Limited** for Available Staff. Engineers, an emergency manager, a floodplain manager, and fiscal and procurement staff, have the expertise which will directly assist the City of Bell in hazard mitigation. To improve in these two capabilities, the City intends to provide more training for staff on emergency response and hazard planning.

The City ranked **Limited** for the Fiscal Capability. While the City of Bell has utilized a few fiscal resources to support hazard mitigation, the City intends to strengthen this capability by finding more funding and grants to help with safety projects.

The City of Bell ranked **Moderate** for the Planning and Regulatory Capability. Planning mechanisms like Bell's Capital Improvements Plan, Emergency Operations Plan, and General Plan also help ensure that current and future activity within the community remains aligned with the strategic mitigation goals outlined in this Local Hazard Mitigation Plan. The City's General Plan identifies policies and programs that support hazards mitigation which will enhance the City's efforts towards resiliency. To improve this capability, the City intends to create new ordinances or strengthen existing ones related to flood control and building safety. Additionally, the City intends to update City plans and safety rules to better protect homes and neighborhoods.

Finally, the City ranked **Moderate** in Political Support and Interest and Community Support. While the City ranked well in these capabilities, the City intends to share more information with the public in different languages including Spanish and Lebanese-Arabic. This will support accessible information and ensure that all communities are able to receive important information from the City, especially regarding hazard mitigation or emergency preparedness and response.

9) PLAN MAINTENANCE

Implementation of the Hazard Mitigation Plan is critical because it is the roadmap to develop and implement community resilience, reduce future impacts from hazards, and enhance the health, safety, and welfare of the residents in the community. The City of Bell Emergency Management Office has been tasked with monitoring and maintenance of the City's Local Hazard Mitigation Plan. Completion of mitigation actions and other components impacting the plan will be tracked by the Department of Public Safety and Office of Emergency Management.

A) MONITORING, EVALUATION, AND UPDATING

Monitoring, evaluating, and updating this plan is necessary to ensure continued visibility into implementation progress and the effectiveness of mitigation actions. These activities help maintain momentum toward achieving mitigation goals while also identifying new or changing risks and potential gaps that may require future attention. Since this is the first iteration of the Local Hazard Mitigation Plan for the City of Bell, there are no prior updates to report within the plan monitoring, evaluation, and update section of the plan.

The City of Bell's HMPT, established during the Plan update, is designated to lead the plan maintenance process, including monitoring evaluation, and updates. The HMPT currently consists of individuals from the City of Bell City Manager's Office, Human Resources and Risk Management, Public Works, GIS, and Finance. In the future, the HMPT may be expanded to represent additional positions and departments that can help contribute to the mitigation plan maintenance process. Potential agencies which may support this process include, but are not limited to:

- Code Enforcement
- Fire and Emergency Services
- Public Health
- Law Enforcement
- Community Services
- Bell Community Housing Authority
- Local utility providers

The HMPT will coordinate an annual review to ensure that the City of Bell Hazard Mitigation Plan remains an active and relevant document that continues to guide mitigation efforts within the community. The HMPT will also review the plan after major disaster events.

During the review process, the HMPT will evaluate the progress made on the implementation of mitigation actions identified in the plan and will modify or reprioritize actions as necessary to reflect changing conditions, emerging risks, or new opportunities. Following a major disaster

event, the HMPT will also assess the effectiveness of mitigation strategies, document lessons learned and determine whether additional mitigation actions should be incorporated into future plan updates. During monitoring and evaluation of the plan over the five-year review process, the following questions will be considered as criteria for assessing the effectiveness of the City of Bell's Local Hazard Mitigation Plan.

- Has the nature or magnitude of hazards affecting the City changed?
- Are there new hazards that have the potential to impact the City?
- Do the identified goals and actions address current and expected conditions?
- Have mitigation actions been implemented or completed?
- Has the implementation of identified mitigation actions resulted in expected outcomes?
- Are current resources adequate to implement the plan?
- Should additional local resources be committed to address identified hazards?

The HMPT will determine whether progress has been made towards the questions listed above. Issues that arise during monitoring and evaluation which require changes to the local hazard, risk and vulnerability summary, mitigation strategy, and other components of the plan will be incorporated during future updates.

B) COMMUNITY PARTICIPATION

The City of Bell is committed to actively involving the public in the review, maintenance, and updates of the City's Hazard Mitigation Plan. The City will conduct annual evaluations of the Plan to assess the effectiveness of mitigation programs and incorporate changes in land use, development, or other factors that may affect mitigation priorities.

Public participation is a central component of this process. Input will be sought from community members, local emergency management coordinators and planners, neighborhood groups, businesses, non-profits, and other key stakeholders. The City Manager's Office and staff will coordinate the maintenance efforts, but meaningful feedback from the community will guide evaluations and help ensure that the Plan remains relevant and actionable.

The hazard mitigation plan will be publicly accessible through the City's municipal office and the City of Bell website. Announcements regarding Plan updates, public review opportunities, or requests for comments will be communicated through newsletters, newspapers, mailings, social media, and the City website. Community members may submit comments at any time via email, phone, or online forms. All information will be shared in English, Spanish, and Lebanese-Arabic for whole community participation.

For the annual review and the next five-year update, the HMPT will review public input and collaborate with local agencies, neighboring municipalities, businesses, and non-profits. Relevant comments and recommendations will be incorporated into the Plan to refine

mitigation strategies and actions, ensuring that the LHMP continues to reflect the community's priorities and needs.

C) PLAN IMPLEMENTATION

The City of Bell will actively use the Local Hazard Mitigation Plan (LHMP) to inform and update existing planning mechanisms, including zoning regulations, redevelopment projects, and critical policy documents such as the General Plan, Emergency Operations Plan, and Capital Improvement Plan. Additionally, these planning mechanisms will be integrated into the next plan update to ensure the LHMP is comprehensive. As this is the first iteration of the LHMP, there is no prior implementation history. However, the City is committed to integrating hazard mitigation strategies into ongoing planning and decision-making processes.

The mitigation strategies outlined in this Plan will be incorporated into relevant planning documents and regulatory mechanisms as they undergo regular review or amendment. Updates to the General Plan, Capital Improvement Plan, or Building and Safety Codes will reflect hazard mitigation priorities to ensure that new developments, infrastructure projects, and regulatory changes align with the City's risk reduction goals. Any modifications to these documents that impact the City's hazard exposure or mitigation approach will be incorporated into the LHMP through annual reviews or during the mandatory five-year update cycle.

The Community Development Department and Department of Public Safety are responsible for reviewing the planning and land use regulatory elements of the municipality's capability assessment. Their review will identify opportunities to incorporate appropriate elements of the LHMP into local planning mechanisms and recognize other locally generated plans, information, or reports that may support hazard mitigation objectives.

D) PLAN ADOPTION

Adoption of the Plan by the City's governing body is one of the prime requirements for approval of the plan. Once the plan is completed, the City Council will be responsible for adopting the City of Bell Local Hazard Mitigation Plan. The governing body has the responsibility and authority to promote sound public policy regarding hazards. The local agency governing body will have the authority to periodically update the plan as it is revised to meet changes in the hazard risks and exposures in the City. The approved Mitigation Plan will be significant in the future growth and development of the City. The City Council will adopt the City of Bell Local Hazards Mitigation Plan, and the Public Safety Commission will take responsibility for plan maintenance and implementation.

The City Council will be responsible for adopting the Local Hazard Mitigation Plan. This governing body has the authority to promote sound public policy regarding hazards. Once the plan has been adopted, the City's Public Safety and Community Services Manager (or a

designee) will be responsible for submitting it to the State Hazard Mitigation Officer at Cal OES. Cal OES will then submit the plan to FEMA Region IX for review and approval. This review will address the requirements set forth in 44 C.F.R. Section 201.6 (Local Mitigation Plans). Upon acceptance by FEMA, the City will gain eligibility for Hazard Mitigation Grant Program funds.

APPENDIX A – PLANNING PROCESS

HMPT Meetings and Attendance

Meeting #	Date	Description	HMPT Attendees
Meeting 1	4/18/25	Project Management Meeting	Javier Ochiqui; Gina Skibar; Ricky Manbahal; Sheetal Talwar
Meeting 2	7/1/25	Project Kick-Off Meeting	Javier Ochiqui; Gina Skibar; Ricky Manbahal; David Marquez; Sheetal Talwar; Mark Dumford
Meeting 3	8/19/25	August Check-In Meeting	Javier Ochiqui; Gina Skibar; Ricky Manbahal; David Marquez; Sheetal Talwar
Meeting 4	9/30/25	Hazards and Actions Workshop Part I	Javier Ochiqui; Gina Skibar; Ricky Manbahal; David Marquez; Sheetal Talwar
Meeting 5	10/21/25	Hazards and Actions Workshop Part II	Javier Ochiqui; Gina Skibar; Ricky Manbahal; Sheetal Talwar
Meeting 6	1/7/26	HMP Final Draft Review	Javier Ochiqui; Gina Skibar; Ricky Manbahal; David Marquez; Sheetal Talwar
Meeting 7	3/6/26	HMP Finalizing Actions and Wrap-Up	Javier Ochiqui; Rita Montalvo; Gina Skibar; David Marquez

Bell HMP - PM Kickoff

Organizer Morganti, Chelsea <cmorganti@wittobriens.com>
Meeting time This event occurred 1 week ago (Fri 4/18/2025 4:00 PM - 5:00 PM)
Location Microsoft Teams Meeting
My response Accepted
Required attendees Morganti, Chelsea, Javier Ochiqui, Gina Skibar, Rickey Manbahal, Sheetal Talwar, Duffy, Mark W
Message sent Tue 4/15/2025 5:23 PM

Hello everyone!

Thought we should get this on the calendar. Please let me know if there are any modifications to availability. Please forward this invitation to anyone additional that should be included. Looking forward to meeting you all!

Microsoft Teams [Need help?](#)

[Join the meeting now](#)

Meeting ID: 282 464 991 308

Passcode: x3Bt3c7B

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[Find a local number](#)

Phone conference ID: 426 543 783#

For organizers: [Meeting options](#) | [Reset dial-in PIN](#)
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Coordination for City of Bell HMP Kick Off

Organizer	Morganti, Chelsea <cmorganti@wittobriens.com>
Meeting time	This event occurred 9 months ago (Tue 7/1/2025 3:00 PM - 4:00 PM)
Location	Microsoft Teams Meeting
My response	Accepted
Required attendees	Morganti, Chelsea, Javier Ochiqui, gskibar, rmanbahal, stalwar, david, Duffy, Mark W
Message sent	Mon 6/23/2025 5:00 PM

Hello everyone,

Please let me know if there are any changes in availability. During this call we will:

1. Set the date and time for the HMP kick off meeting
2. Finalize Planning Team Members
3. Review Worksheets
4. Discuss the Community Outreach Strategy

Thank you!

Microsoft Teams [Need help?](#)

[Join the meeting now](#)

Meeting ID: 270 488 841 256 7

Passcode: ps7Hz9fa

Dial in by phone

[+1 281-810-2971,,209440045#](#) United States, Houston

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For organizers: [Meeting options](#) | [Reset dial-in PIN](#)
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City of Bell, California

LOCAL HAZARD MITIGATION PLAN KICK OFF

July 22, 2025



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WITT O'BRIEN'S

Introductions



Chelsea Morganti, CFM
Project Manager

- Overseen the development of 55 HMPs
- Served as the State Hazard Mitigation Officer and Earthquake Program Manager for NM
- Led the planning process for 10 plans since joining Witt O'Brien's



Mark Duffy, MURP
Mitigation Planner

- Masters in Urban and Regional Planning
- Cross-trained in a variety of programs and grants management fields
- Lead Planner for 8 HMPs in CA, IA, MD, NV, and PA

Datasets, worksheets, and other materials are available through Sharepoint

LINK



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WITT O'BRIEN'S

MEETING AGENDA - 07/22/25

- INTRODUCTIONS
- OVERVIEW
- TIMELINE CONFIRMATION
- EXERCISE 1 – HAZARD RANKING
- EXERCISE 2 – CAPABILITY ASSESSMENT
- PUBLIC SURVEY REVIEW AND APPROVAL
- QUESTIONS AND NEXT STEPS



THE PLANNING PROCESS



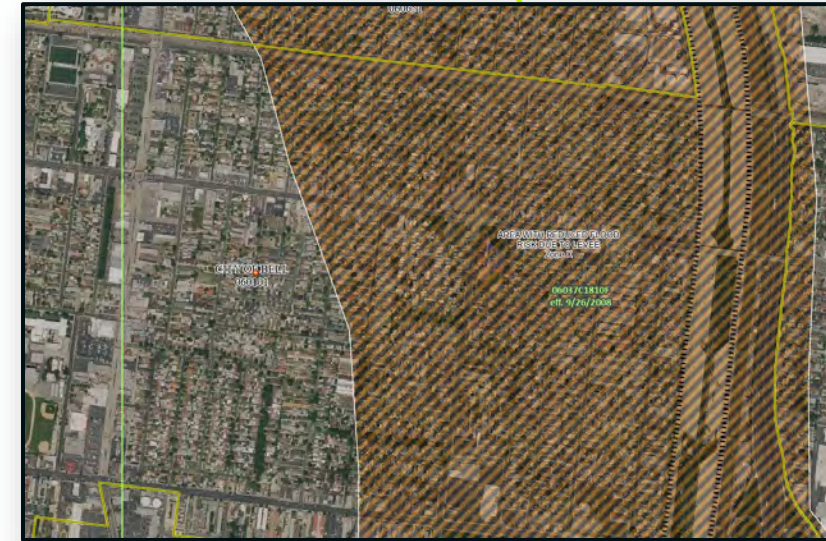
OVERVIEW

WHAT IS A HAZARD?

- Naturally occurring or man-made event
- destructive or negative impact on health, safety, life, and/or property

WHAT IS MITIGATION?

- Steps taken by the public, civic leadership, or private companies to reduce negative impacts
- most effectively through innovative, systemic, and informed steps.
- “Mitigation Actions”
 - removing property or infrastructure from the mapped hazard area (elevation and acquisition)
 - assisting and supporting naturally resilient acreage (wetlands, dunes, reefs)
 - hardening the built environment (electrical micro grids, hurricane straps)
 - strategic city planning (building codes and zoning restrictions)



FEMA floodplain
map for a
section of Bell,
CA



CalOES Earthquake Risk Map for Bell and surrounding Communities

OVERVIEW – FEDERAL FUNDING

GRANT PROGRAMS

- Hazard Mitigation Grant Program (HMGP)
- Hazard Mitigation Grant Program – Post Fire (HMGP-PF)
- Community Development Block Grant – Mitigation (CDBG-MIT)
- *Flood Mitigation Assistance (FMA)*
- *Building Resilient Infrastructure and Communities (BRIC)*
- *Pre-Disaster Mitigation Grant Program (L-PDM)*



OVERVIEW – YOUR ROLE

WHY ARE YOU HERE?

- Attend meetings
- Provide data and review draft sections
- Identify hazards
- Validate assets
- Complete Capability Assessment
- Identify mitigation actions
- Break the disaster cycle!



PROPOSED TIMELINE

Key Dates

Kickoff **7/22**

Public Survey 1 Review and Validation **8/19**

Hazards and Actions Workshop 1 **9/23**

Hazards and Actions Workshop 2 **9/30**

Public Survey 2 Review and Validation **10/21**

Final Draft Review **11/25**

		2025												2026			
		May	June	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun		
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	Develop Community Engagement Plan																
	Hazard Mitigation Planning Team Kick-off Meeting																
	Data and Information Gathering																
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	Develop Actions																
	Develop Monitoring and Maintenance Plan																
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	Review and Finalization																
	Community Engagement																
	State and FEMA Review																
Plan Adoption	Final Drafts and Plan Adoption																
	Closeout																

 = Active Development  = Anticipated HMPT Meetings  = Public Surveys are Open



EXERCISE 1

HAZARD IDENTIFICATION

Worksheet 1

City of Bell 2026 Hazard Mitigation Plan

 **Hazard Identification Exercise**

Community/Organization:

Name and Title:

Potential Hazards
(Should any of these hazards be included in the risk assessment as a separate, stand alone hazard - meaning they have the potential to negatively affect your community and require a focused mitigation effort?)

Other Hazards	Yes/No	Which Change Assessment Worksheet?	Comments
Natural Hazards			
Dam and Levee Failure			
Earthquake/Landslide/Volcano/Liquefaction			
Extreme Temperature (heat & cold)			
Fire (Urban or Wild)			
Flood			
Land Subsidence/Earth Sinkholes			
Sea Level Rise			
Severe Storm/Thunderstorm			
Tornado			
Tsunami			
Water Shortage/Drought			
Wildfires			
Other?			
Human-Created/Man-Made Hazards			
Cyber & Security Issues			

Page 1 of 2

LINK

EXERCISE 2

CAPABILITY ASSESSMENT

Worksheet 2

City of Bell 2026 Hazard Mitigation Plan

 **Capability Assessment Survey**

Community/Organization:

Name and Title:

Staff and Technical Assistance:
Please indicate whether your jurisdiction has the following personnel resources on-staff or available to assist with hazard mitigation efforts. If the support is provided through the county or through a contract, please indicate it in the comments section.

Staff or Personnel Resource	Yes	No	Department or Single Staff Member	Comments
Emergency Manager				
Engineers or professionals trained in construction practices related to buildings and/or infrastructure				
Environmental justice specialist(s)				
Fiscal Management or Procurement Specialist(s)				
Floodplain Manager				
Housing Specialist(s)				
Land Surveyors				
Land Use/Management/Development Planning				
Planners or engineers with an understanding of natural and/or human-caused hazards				
Recreation/Green space specialist(s)				
Resource Development Staff or Grant-writing				
Scientists familiar with the hazards of the community				
Staff experienced with Geographic Information Systems (GIS) or HAZUS				
Staff with education or expertise to assess the community's vulnerability to hazards				
Transportation Manager/Traffic Engineer				

File save email completed form to J.E.Both@ambipar.com

Page 1 of 6

LINK

PUBLIC SURVEY

- 24 total questions
 - 16 questions focused on hazard concerns and preparedness
 - 8 optional demographic questions
- Purpose is to develop a broad understanding of community members' general concerns about natural and human-caused hazards, as well as which hazards people are most worried about



LINK

QUESTIONS & NEXT STEPS

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Bell HMP Survey 1 Review and Next Steps

Organizer Morganti, Chelsea <cmorganti@wittobriens.com>
Meeting time This event occurred 2 days ago (Tue 8/19/2025 5:45 PM - 6:45 PM)
Location Microsoft Teams Meeting
My response Accepted
Required attendees Morganti, Chelsea, Javier Ochiqui, gskibar, rmanbahal, stalwar, david, mdumford@inftechnologies.com, ngamez@cityofbell.org, joskoui@cityofbell.org
Optional attendees Duffy, Mark W
Message sent Tue 8/19/2025 4:48 PM

Hello City of Bell Hazard Mitigation Planning Team!
The city is developing your first FEMA Local Hazard Mitigation Plan.

Agenda

- **Timeline Update**
- **Bell Capability Assessment**
- **NFIP Data Request**
- **Risk Factor Index**
- **Additional Datasets**
- **Questions And Next Steps**

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City of Bell, California

Hazard Mitigation Planning Team Meeting

August 19, 2025



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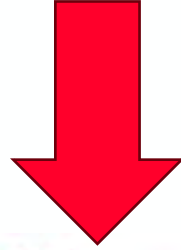
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Meeting Agenda

- Timeline Update
- Bell Capability Assessment
- NFIP Data Request
- Risk Factor Index
- Additional Datasets
- Questions And Next Steps



The Planning Process



Establish Planning
Processes & Resources

Assess Risks
and Vulnerabilities

Develop
Mitigation Strategy

Adopt and Implement
the Plan

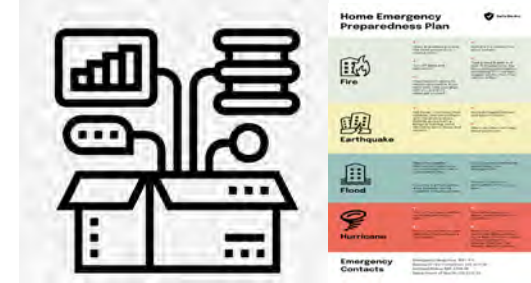


Public Participation

CAPABILITY ASSESSMENT REVIEW



Tool/Program	In Place		Adopted/Updated	Under Development		Expect to Implement
	Yes	No		Yes	No	
2WeeksReady						
Alliance of Regional Collaboratives for Climate Adaptation (ARCCA) activities						
Building Codes (please indicate UCC or IBC + year)						
CAL FIRE's Land Use Planning Program						
California Adaptation planning Guide (APG)						
California Animal Response Emergency System						
California Urban Flood Risk Reduction Program						
Citizen Corps - Community Emergency Response Team						
Community Rating System (CRS Program of the NFIP)						
Emergency Management Accreditation Program (EMAP)						
Fire Code						
Firewise Community						
Floodplain Management/Flood Damage Prevention Ordinance						
Geological Hazard Assessment District (GHAD)						
Great ShakeOut Earthquake Drill	X		2024			Will do again in Oct. 2025
Land Use/Development Planning	X					
Listos California Program						
Local Coastal Program (LCP)						
MyPlan/MyHazards Tool						
National Flood Insurance Program (NFIP)						
Post Disaster Redevelopment/Reconstruction Plan/Ordinance						
Standardized Emergency Management System (SEMS)						



Additional Capabilities

Are there other authorities, policies, programs, funding, and resources available to you that might support implementation of the mitigation strategy?

What are some ways that your community might be able to expand upon or improve your capabilities to participate in hazard mitigation?

This may include identifying funding, getting access to areas of expertise, implementing new planning mechanisms, or adopting or enforcing new ordinances.

If you can't identify any areas in which you can improve your capability to participate in mitigation, we must state this clearly to meet FEMA requirements.

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Changes in Development

Have there been any changes in development in the past five years?	
What changes in development, if any, do you anticipate in the next five years?	
How have community priorities changed in the past five years? This may include political, economic, environmental, or any other substantive changes.	



Plan Integration

How will you incorporate the hazard mitigation plan into other planning mechanisms?

This might include things like

- *updating your development ordinance to reflect new hazard data*
- *incorporating new priorities into your emergency operations plan*
- *incorporating new maps into other community plans*
- *etc.*

If you do not plan to incorporate the new plan into any other planning mechanisms, please say so.

How do you plan to engage community stakeholders as part of the planning process? FEMA requires we invite the following stakeholders to participate:

- *Local and regional agencies involved in hazard mitigation activities*
- *Agencies that have the authority to regulate development*
- *Neighboring communities*
- *Businesses, academia, and other private organizations*
- *Non-profit organizations*

National Flood Insurance Program (NFIP) Information

Do you participate in the National Flood Insurance Program (NFIP)?	
Have you adopted a floodplain management or flood damage prevention ordinance that meets the NFIP minimum criteria?	
Which position, designee, or agency is identified in your floodplain management ordinance is responsible for ensuring compliance with the NFIP?	
How do you regulate development in the floodplain, issue permits in the floodplain, and implement and enforce your floodplain management ordinance?	
How do you implement the substantial improvement / substantial damage provisions of your floodplain management ordinance?	
Do you participate in the Community Rating System (CRS)? If so, what is your CRS rating?	
Have you adopted the latest effective Flood Insurance Rate Map (FIRM)?	

NFIP RL/SRL Data

- HMP needs to include details on **Severe Repetitive Loss (SRL)** and **Repetitive Loss (RL)** properties to meet FEMA HMP requirements for NFIP participation

Severe Repetitive Loss

NFIP covered structure that has:

- 4+ claims with the amount of each claim exceeding \$5,000 (building and content payments); or
- 2+ claim payments (building payments only) made, with cumulative amount exceeding the value of the insured structure.

Repetitive Loss

NFIP covered structure that has:

- 2+ claims in which the cost of repair was 25% or more of the structure's value at the time of **each** event;
- AND at the time of the second event, the contract for flood insurance contains increased cost of compliance coverage.



RISK FACTOR INDEX

RISK FACTOR

- Used to quantify risk across hazards. Assigns numerical values for five factors:
1) Probability 2) Impact 3) Extent 4) Warning time 5) Duration
- Used in multiple previous plans
- RF Value = [(probability x .3) + (Impact x.3) + (Extent x .2) + (Warning time x .1) + (Duration x .1)]
- Scores range from 1.00 to 4.00.

Risk Factor Index

Probability	Impact	Extent	Warning Time	Duration
1 (unlikely) – Less than a 1% annual chance	1 (minor) – Very few injuries, if any. Only minor property damage and minimal disruption to quality of life. Minimal disruption to critical facilities.	1 (Negligible) – Less than 1% of the planning area affected	1 (Ample) – Warning time is greater than 36 hours.	1 (brief) – Hazard typically present for fewer than 2 hours
2 (possible) – Between 1-49.9% annual chance	2 (limited) – Some injuries, no fatalities. Multiple reports of property damage in the affected area. Occasionally, buildings may be destroyed.	2 (Small) – between 1-10.9% of the planning area affected	2 (advanced) – Warning time is between 6-36 hours.	2 (extended) – Hazard typically present between 2-24 hours
3 (likely) – Between 50-90% annual chance	3 (critical) – Widespread injuries, some of which may be severe. Some fatalities possible. Possible Mass Casualty Incident (MCI).	3 (Moderate) – Between 11-25% of the planning area affected	3 (short) – Warning time is between 30 minutes and 6 hours.	3 (prolonged) – Hazard typically present between 24 hours and one week.
4 (highly likely) – greater than 90% annual chance	4 (catastrophic) – Extensive injuries, many of which may be severe. Fatalities expected, Mass Casualty Incident (MCI) likely.	4 (Widespread) – More than 25% of the planning area affected	4 (minimal or none) – Warning time is less than 30 minutes, if any.	4 (sustained) – Hazard typically present for more than one week

Risk Factor Examples

Hazard	Probability	Impact	Extent	Warning Time	Duration	RF Value
Flooding	1	2	4	3	3	2.3
Earthquakes	1	4	4	4	1	2.8
Transportation Accident	4	1	1	4	1	2.2

High Risk = 3.0 or greater

Medium Risk = 2.0-2.9

Low Risk = Less than 2.0

Supplemental Datasets

- Does Bell have access to statistics on urban fires?
 - Daily/monthly/annual number of calls
 - Damages, injuries, fatalities
- Which fire stations primarily support Bell?
- Does Bell have any data on traffic accidents inside of City's jurisdictional boundaries?
 - Number of accidents, injuries, fatalities, etc.
 - Time that lanes or roads are closed due to accidents

QUESTIONS & NEXT STEPS

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Bell HMP Hazards and Actions (2 of 2)

Organizer Morganti, Chelsea <cmorganti@wittobriens.com>
Meeting time Tue 9/30/2025 5:30 PM - 6:30 PM
Location Microsoft Teams Meeting
My response Accepted
Required attendees Morganti, Chelsea, Javier Ochiqui, gskibar, rmanbahal, stalwar, david, mdumford@inftechnologies.com, ngamez@cityofbell.org, joskoui@cityofbell.org
Optional attendees Duffy, Mark W
Message sent Tue 7/22/2025 6:45 PM

Hello City of Bell Hazard Mitigation Planning Team!
The city is developing your first FEMA Local Hazard Mitigation Plan.

Agenda TBD – Please plan to attend!

Microsoft Teams [Need help?](#)

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Passcode: AW9av2dh

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City of Bell, California

Hazard Mitigation Planning Team Meeting

Hazards and Goals | September 30, 2025



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Meeting Agenda

- Timeline update
- Catch up tasks
- Survey #1 results
- Hazards review
- Questions and next steps



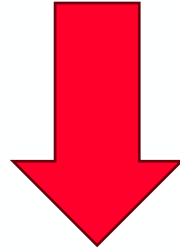
Timeline Update

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The Planning Process



Establish Planning
Processes & Resources

Assess Risks
and Vulnerabilities

Develop
Mitigation Strategy

Adopt and Implement
the Plan



Public Participation

PROPOSED TIMELINE

Key Dates

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Plan Adoption	Final Drafts and Plan Adoption																
	Closeout																



= Active Development



= Anticipated HMPT Meetings



= Public Surveys are Open



Catch Up Tasks

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CITY of BELL

Quick -Hitters

- Capability Assessment Worksheet
- Capability discussion responses
- Determination on compliance with AB 2140



Additional Capabilities

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- *Neighboring communities*
- *Businesses, academia, and other private organizations*
- *Non-profit organizations*

Public Survey Results

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Public Survey #1 Results

2. Natural hazards are natural phenomena that may cause harm to life and property. Examples of these natural hazards include earthquakes, wildfires, tornadoes, hurricanes, drought, floods, and more. Generally speaking, how concerned are you about the City of Bell being impacted by a natural disaster?

Very concerned	12
Somewhat concerned	9
Neither concerned nor unconce...	3
Somewhat unconcerned	1
Very unconcerned	0



4. How concerned are you about the potential impacts of climate change or changing weather patterns on the future conditions in the City of Bell?

Very concerned	15
Somewhat concerned	7
Neither concerned nor unconce...	2
Somewhat unconcerned	1
Very unconcerned	0



Most concerning natural hazards:

Dam and levee failure	4
Drought/water shortages	9
Earthquake/landslide/mudflow	20
Extreme temperatures (heat & c...	13
Fire (urban and wildfire)	12
Flooding	11
Land subsidence/karsts	0
Sea level rise	0
Severe thunderstorms	1
Tornado	0
Tsunami	1
Windstorm	2
Other	2

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Hazards Review

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Risk Factor Index

Probability	Impact	Extent	Warning Time	Duration
1 (unlikely) – Less than a 1% annual chance	1 (minor) – Very few injuries, if any. Only minor property damage and minimal disruption to quality of life. Minimal disruption to critical facilities.	1 (Negligible) – Less than 1% of the planning area affected	1 (Ample) – Warning time is greater than 36 hours.	1 (brief) – Hazard typically present for fewer than 2 hours
2 (possible) – Between 1-49.9% annual chance	2 (limited) – Some injuries, no fatalities. Multiple reports of property damage in the affected area. Occasionally, buildings may be destroyed.	2 (Small) – between 1-10.9% of the planning area affected	2 (advanced) – Warning time is between 6-36 hours.	2 (extended) – Hazard typically present between 2-24 hours
3 (likely) – Between 50-90% annual chance	3 (critical) – Widespread injuries, some of which may be severe. Some fatalities possible. Possible Mass Casualty Incident (MCI).	3 (Moderate) – Between 11-25% of the planning area affected	3 (short) – Warning time is between 30 minutes and 6 hours.	3 (prolonged) – Hazard typically present between 24 hours and one week.
4 (highly likely) – greater than 90% annual chance	4 (catastrophic) – Extensive injuries, many of which may be severe. Fatalities expected, Mass Casualty Incident (MCI) likely.	4 (Widespread) – More than 25% of the planning area affected	4 (minimal or none) – Warning time is less than 30 minutes, if any.	4 (sustained) – Hazard typically present for more than one week

Risk Factor Ratings

Hazard	Probability	Impact	Extent	Warning Time	Duration	RF Value
Dam and levee failure	1	1	2	4	2	1.6
Drought and water shortage	3	1	4	1	4	2.5
Extreme temperatures	4	3	4	1	4	3.4
Fires – urban and wild	4	1	1	4	2	2.3
Land subsidence, karsts, sinkholes	1	1	1	3	4	1.5
Severe thunderstorms	3	1	2	4	1	2.1
Tornadoes	1	3	2	3	1	2.0
Tsunamis	1	1	1	3	2	1.3
Windstorms	4	1	4	2	2	2.7

Hazards to cover in the next meeting: Earthquakes; Flooding; Sea level rise; Civic unrest; Cyber attacks; Hazardous materials releases; Pandemic; Transportation accidents; Utility and infrastructure failures;

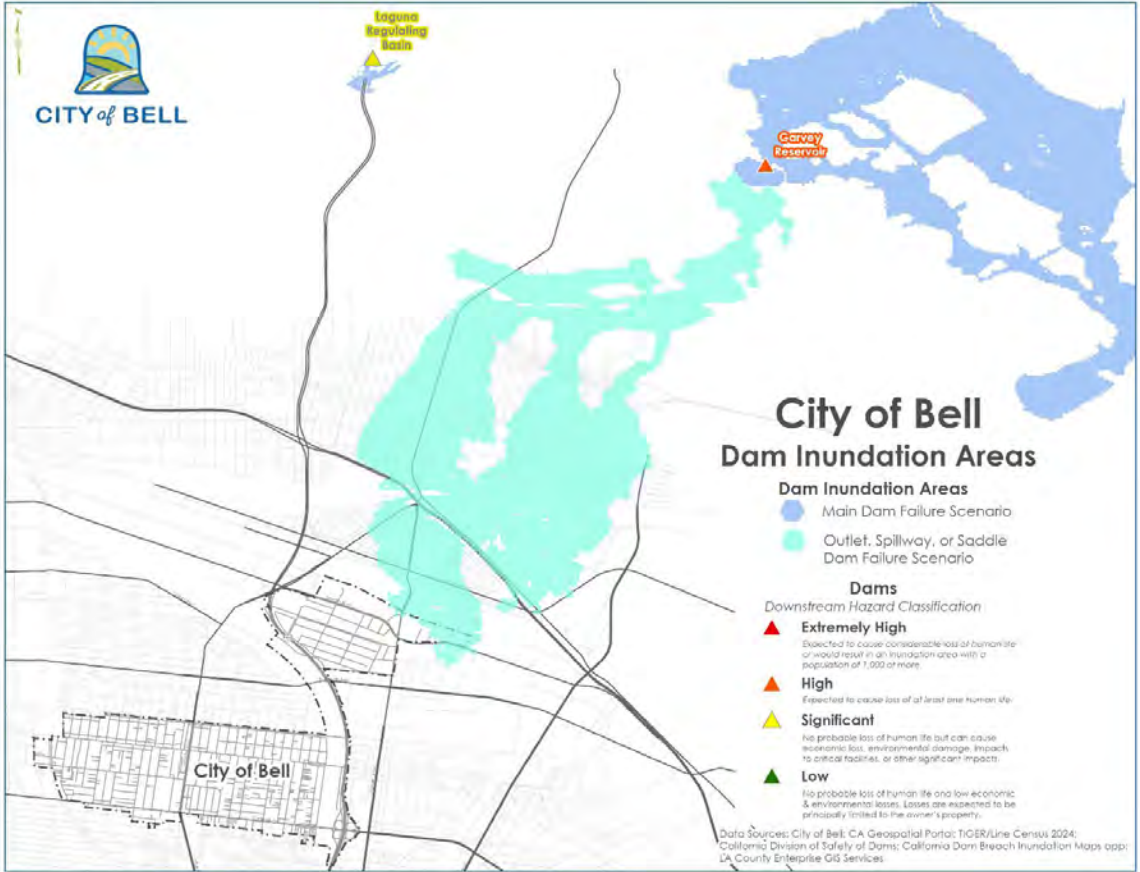
High Risk = 2.6 or greater

Medium Risk = 1.6-2.5

Low Risk = 1.5 or less

Probability	Impact	Spatial Extent	Warning Time	Duration	RF Value
1	1	2	4	2	1.6

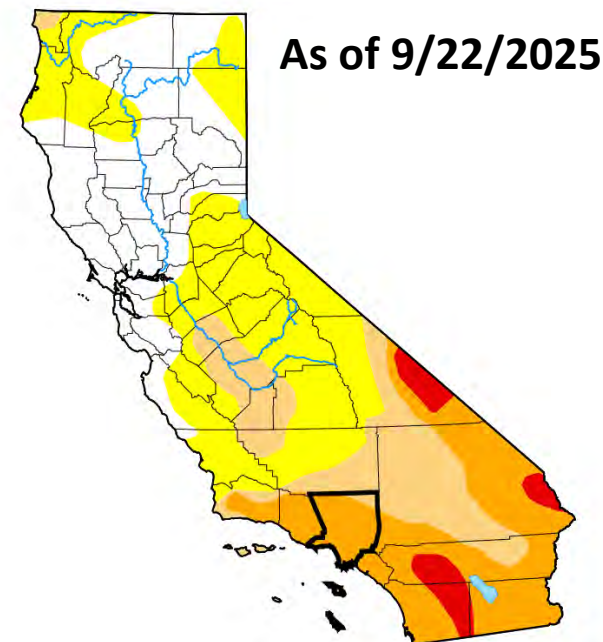
- | Probability | Impact | Spatial Extent | Warning Time | Duration | RF Value |
|-------------|--------|----------------|--------------|----------|----------|
| 1 | 1 | 2 | 4 | 2 | 1.6 |



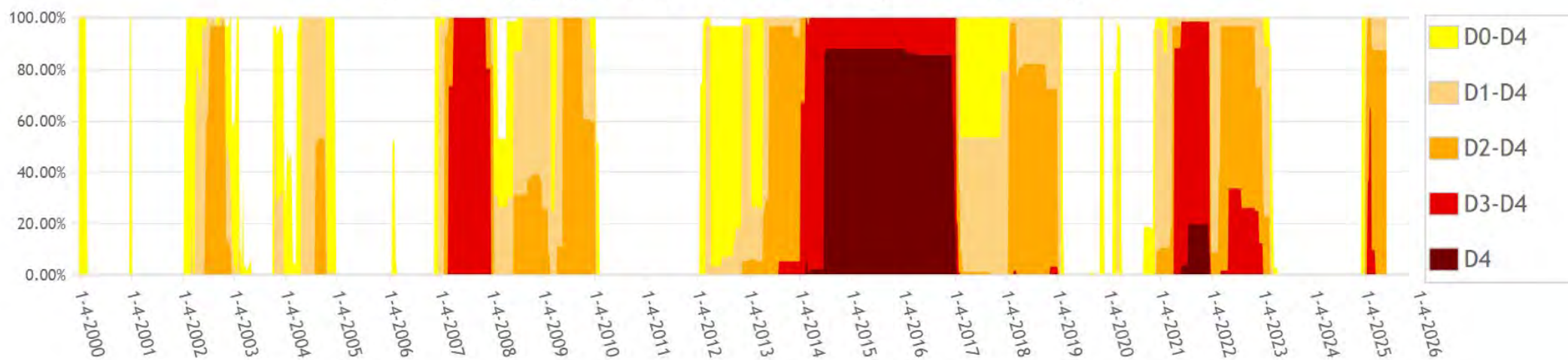
Drought and Water Shortages

Probability	Impact	Spatial Extent	Warning Time	Duration	RF Value
3	1	4	1	4	2.5

- Since 2000, Los Angeles County has experienced drought conditions roughly 60% of the time
- In Bell, roughly 25% of the population is under 18, while another 10% is over the age of 65. Both groups may be at a greater risk due to faster water loss and the potential for pre-existing conditions.
- There are no documented instances of water providers implementing water use restrictions in Bell, but this could occur in the future if conditions are severe.



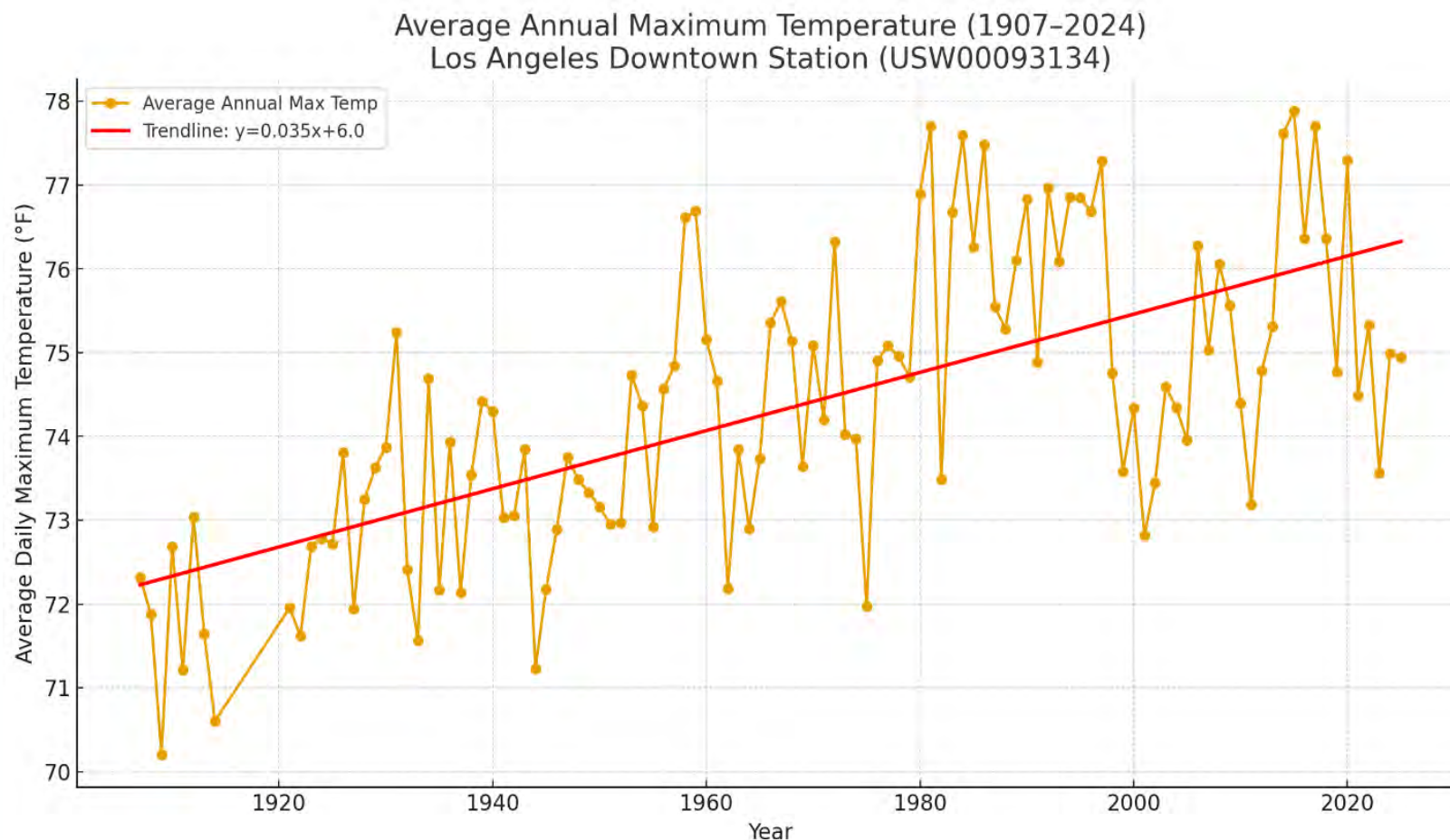
Los Angeles County (CA) Percent Area in U.S. Drought Monitor Categories



Extreme Temperatures

Probability	Impact	Spatial Extent	Warning Time	Duration	RF Value
4	3	4	1	4	3.4

- The nearest weather station with consistent records is the Los Angeles Downtown Station (USW00093134)
- The hottest recorded temperature at this station is 113 degrees Fahrenheit (9/27/2010)
- Similar to drought, young children and the elderly are at an increased risk of extreme heat
- In the last 50 years, the days with max temperatures at or above 90 °F has varied from 10 days (1975) to over 40 days (2020).
- No reported temperatures below freezing since 1978.

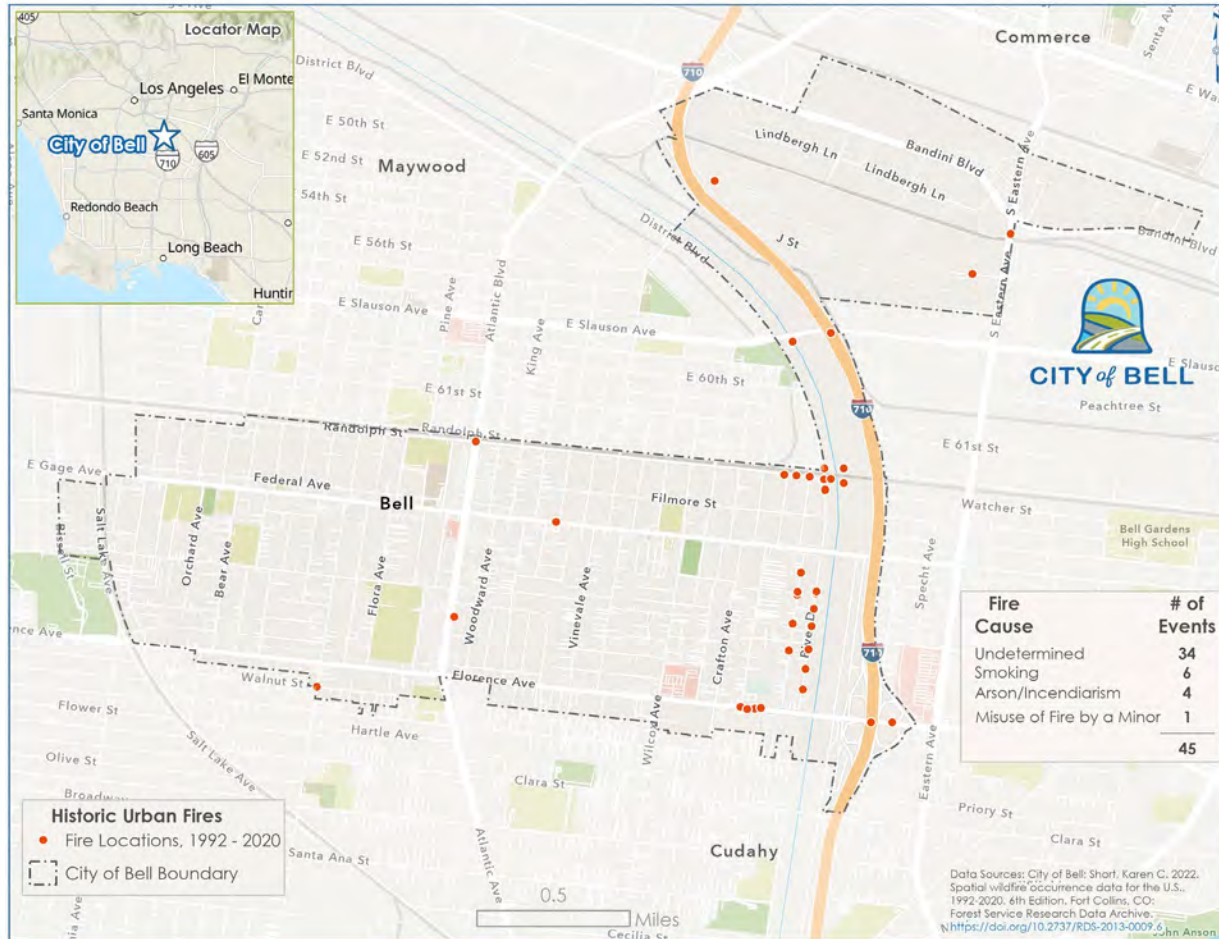


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Fires – Urban and Wild

Probability	Impact	Spatial Extent	Warning Time	Duration	RF Value
4	1	1	4	2	2.3



No recorded instances of wildfire flames directly affecting the City of Bell; smoke from wildfires can still create health risks, particularly for:

- young children
- the elderly
- People outside for long periods
- People sensitive to poor air quality

Structural fires are common according to local, state, and national data.

- CAL FIRE reported 12,238 structural fires in 2024, 75% of which occurred in residential properties
- The National Fire Protection Association (NFPA) estimates 470,000 structure fires in 2023, with one occurring every 67 seconds

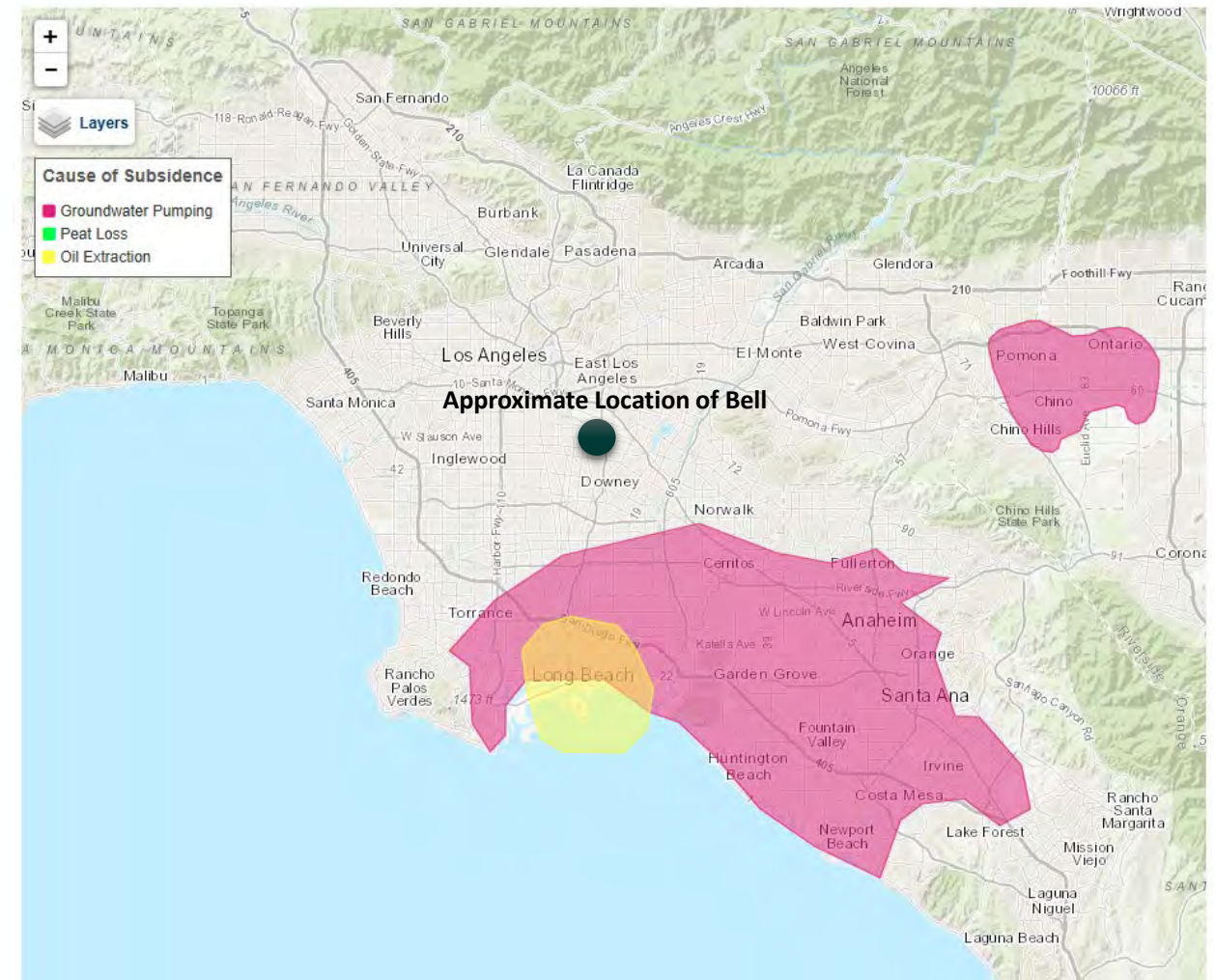
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Land Subsidence, Karsts, and Sinkholes

- There are no previously reported instances of land subsidence, karsts, or sinkholes in Bell, CA
- Land subsidence has been documented by the California Geological Survey (CGS) south and east of Bell, but not within Bell itself.
- Land subsidence is primarily the result of extracting underground resources such as water and oil
- Karsts are unlikely because Bell's geology doesn't contain the soluble carbonate rock needed for dissolution. Instead, Bell sits on alluvial deposits from the Los Angeles River basin.
- Sinkholes are also unlikely due to Bell's geology, although they can occur from manmade conditions like water main breaks and excavation.

Probability	Impact	Spatial Extent	Warning Time	Duration	RF Value
1	1	1	3	4	1.5

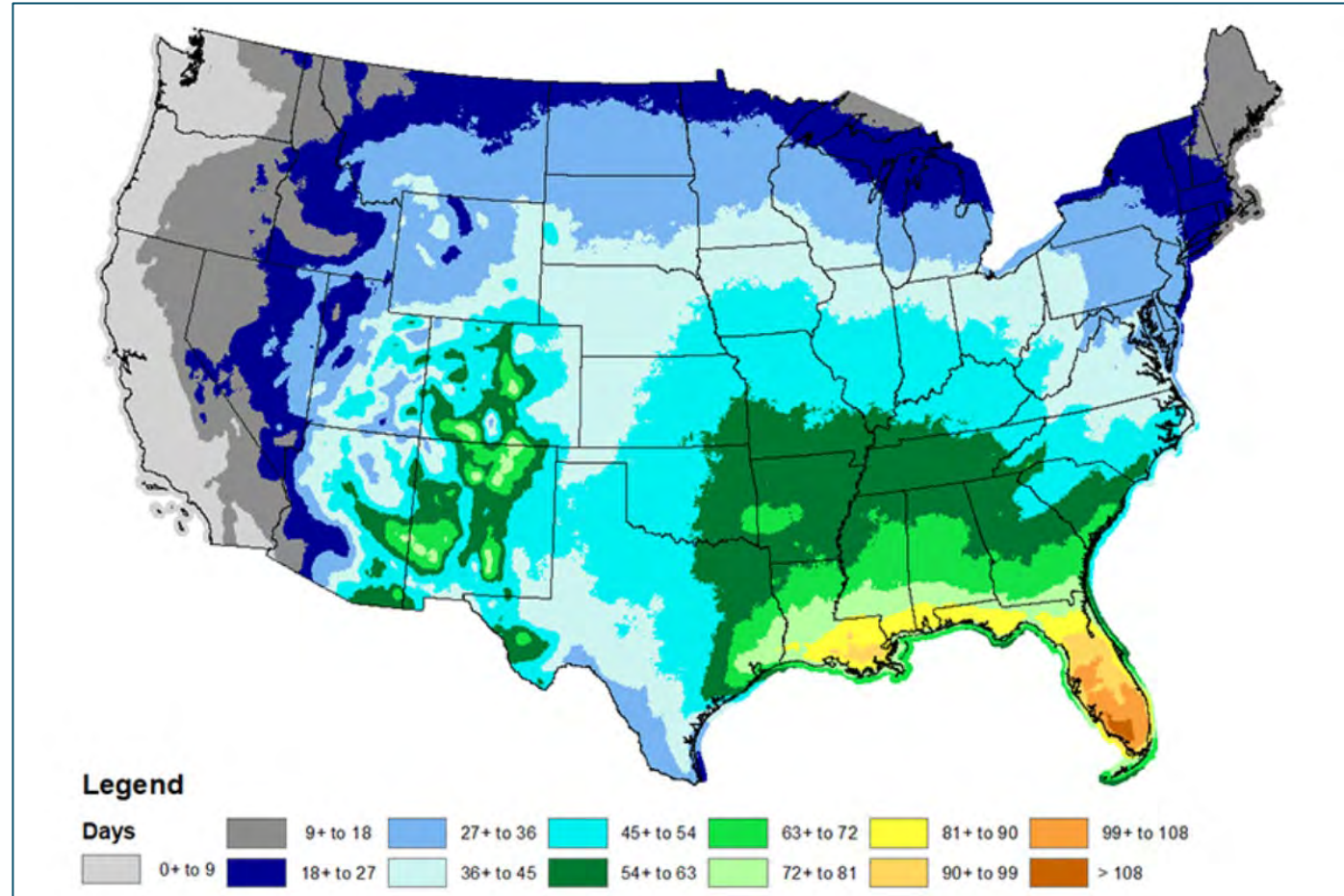


Severe Thunderstorms

- Since 2004, there have been 15 severe thunderstorm warnings issued by the National Weather Service (NWS) for all or part of Bell (roughly once every 17 months).
- Since 1959, there have been 31 recorded instances of hail inside Los Angeles County, with the largest being 1.75 inches in diameter
- No records of lightning striking inside of the City of Bell, but this could be due to data limitations.
- Primary concern is for older homes and people who are caught outdoors
- Nearly 85% of Bell's homes were built before 1980. These may have roofs nearing or past their intended service life, with materials that may have lost flexibility, adhesion, or protective granules.

Probability	Impact	Spatial Extent	Warning Time	Duration	RF Value
3	1	2	4	1	2.1

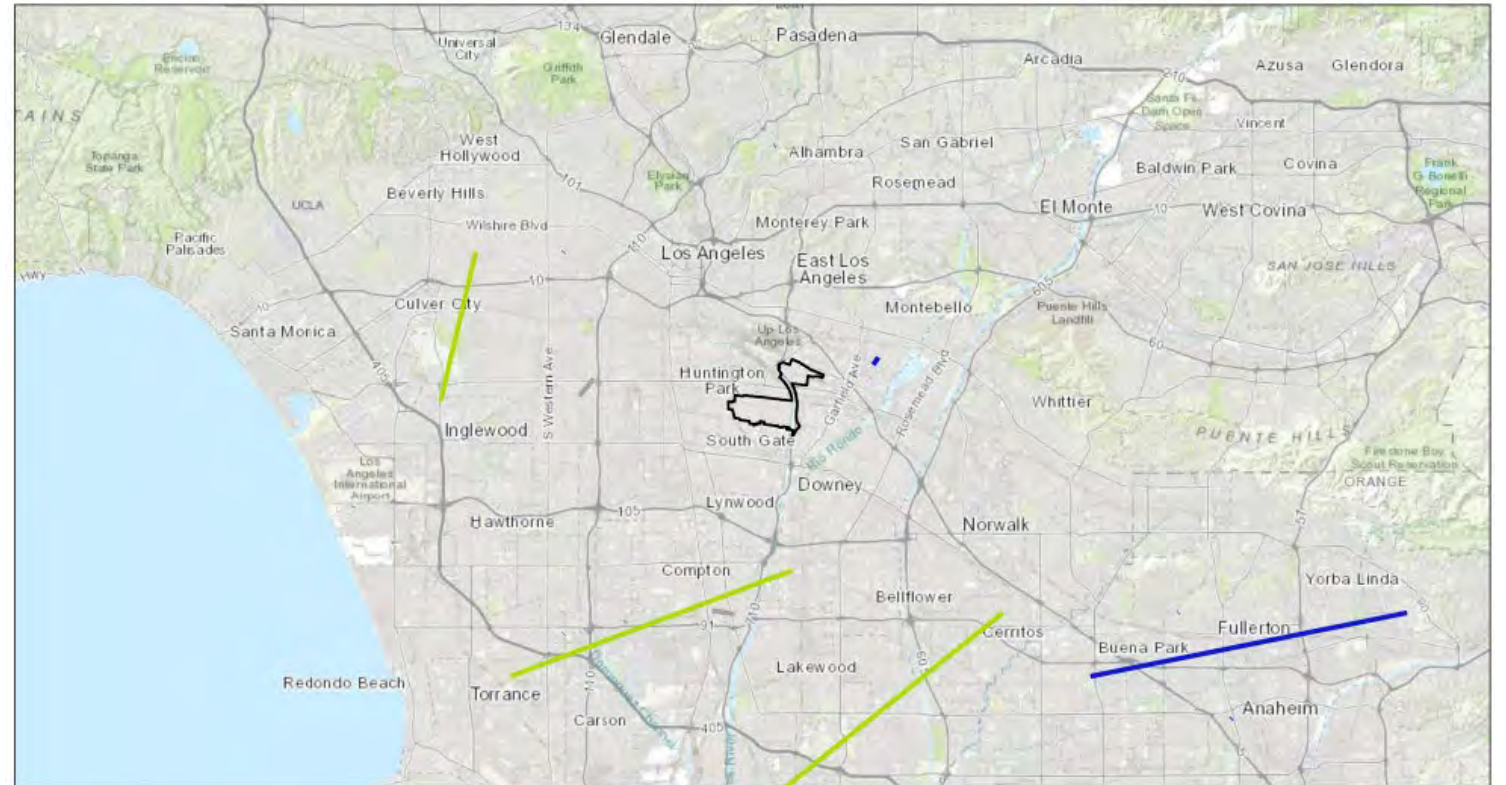
NWS - Average Annual Number of Days with Thunderstorms



Tornadoes

- There are no historical records of tornadoes impacting the City of Bell.
- However, tornadoes have occurred in Los Angeles County, and it cannot be ruled out in the future.
- Bell has several mobile home parks. The likelihood of a tornado-related fatality in a mobile home is 15 to 20 times greater than in permanent homes.
- The 2022 California Building Code incorporates ASCE 7 wind load provisions but does not designate Bell as being within a tornado-prone region.

Probability	Impact	Spatial Extent	Warning Time	Duration	RF Value
1	3	2	3	1	2.0



9/19/2025, 12:57:54 PM

City of Bell

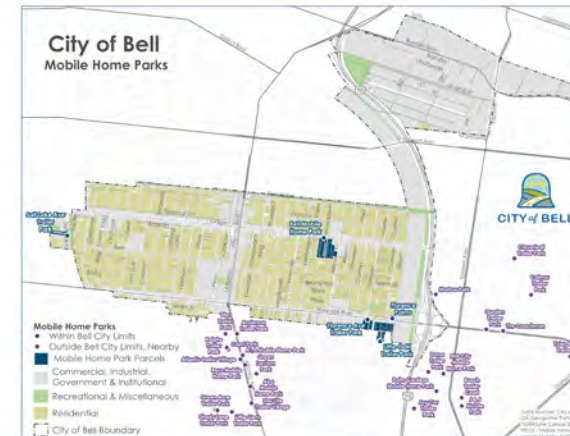
NOAA - Historical Tornado Tracks: 1950-2022

EF-2

EF-1

EF-0

Citations



1:233,750

0 2.25 4.5 9 mi
0 3.75 7.5 15 km



Esri, HERE, Garmin, FAO, USGS, NGA, EPA, NPS

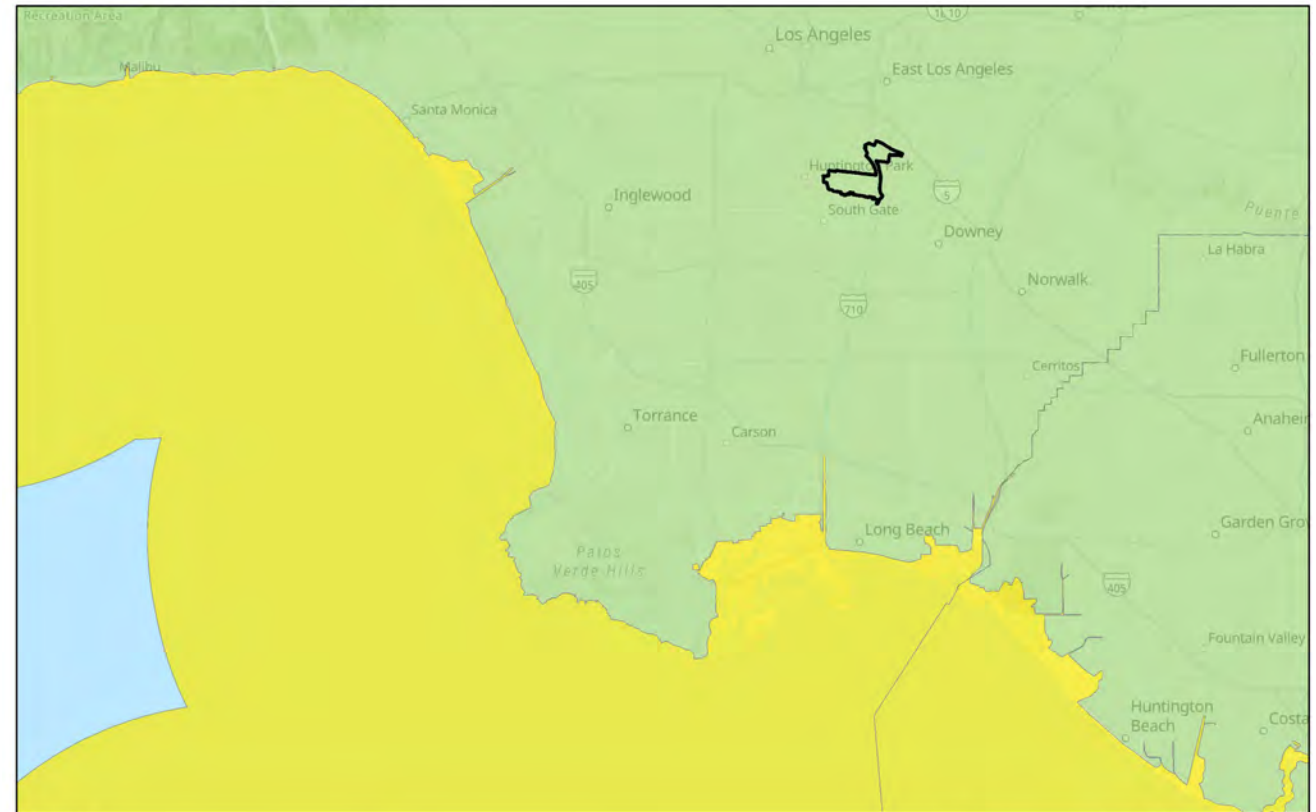
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Tsunamis

- The City of Bell is not within the Tsunami Hazard Area projected by the California Geological survey (CGS)
- Secondary hazards could arise from the surge of people moving inland, disruption to facilities and services along the coast, and decreased economic activity
- Panic could cause people within the City to attempt to flee when they don't need to, potentially creating more harm to emergency response efforts

Probability	Impact	Spatial Extent	Warning Time	Duration	RF Value
1	1	1	3	2	1.3



9/19/2025

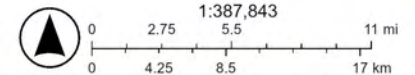
City of Bell

CA Tsunami Hazard Area

Yes, Tsunami Hazard Area

No, Outside Hazard Area

World_Hillshade



Esri, CGIAR, USGS. Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, (c) OpenStreetMap contributors, and the GIS User Community

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Windstorms

- NWS data reports more than 500 instances of high wind in Los Angeles County since 2000
- Since 2008, building codes require new structures to be able to withstand 3-second gusts of at least 100mph (excluding mobile homes).
- Most of Bell's housing stock was built before 2008. Depending upon a structure's age, it may be built to withstand wind speeds of 70-80mph or with no special consideration for wind speeds.
- Critical facilities built since the early 1990s should be constructed to withstand windspeeds of approximately 100mph.

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Probability	Impact	Spatial Extent	Warning Time	Duration	RF Value
4	1	4	2	2	2.7

HIGH WIND EVENTS IN LOS ANGELES COUNTY 2000-2025

HIGHEST RECORDED WIND SPEED (KTS)	HIGHEST RECORDED WIND SPEED (MPH)	NUMBER OF EVENTS	PERCENTAGE OF ALL EVENTS
Below 50 knots	Below 57.54 mph	21	3.83%
51-60 knots	57.54-69.05 mph	311	56.65%
61-70 knots	69.05-80.55 mph	156	28.42%
71-80 knots	80.55-92.06 mph	41	7.47%
81 knots or above	92.06 mph or above	16	2.91%

AGE OF HOMES IN BELL, CA

Year Built	Number of Units	Percent of Total Housing Stock
2010 or later	9	0.1%
2000–2009	149	1.6%
1990–1999	344	3.7%
1980–1989	716	7.7%
1970–1979	995	10.7%
1960–1969	1,209	13.0%
1950–1959	2,497	26.9%
1940–1949	1,427	15.4%
Before 1940	1,953	21.0%
Total	9,298	100%

Mitigation Strategy



Goals

What do you want the future of hazard mitigation of Bell to look like?

A mitigation **Strategy** serves as the long-term blueprint for reducing the potential losses. The mitigation strategy includes the development of goals and prioritized hazard mitigation actions.

Goals are long-term policy statements and global visions that support the mitigation strategy. Goals should be specific and actionable, but not every goal needs to be a physical project—examples include education and awareness programs and improving community resources/capabilities.

In a plan *update*, goals and actions are either reaffirmed or updated based on current conditions, including the completion of hazard mitigation initiatives, an updated or new risk assessment, or changes in state or local priorities.

Questions & Next Steps

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Due Outs

- Capability Assessment Worksheet
- Capability discussion responses
- Determination on compliance with AB 2140
- Public survey #2
- Feedback on community goals
- Action identification (for next meeting)

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Bell HMP Survey 2 Review and Next Steps

Organizer Morganti, Chelsea <cmorganti@wittobriens.com>
Meeting time Tue 10/21/2025 5:30 PM - 6:30 PM
Location Microsoft Teams Meeting
My response Accepted
Required attendees Morganti, Chelsea, Javier Ochiqui, gskibar, rmanbahal, stalwar, david, mdumford@inftechnologies.com, ngamez@cityofbell.org, joskoui@cityofbell.org
Optional attendees Duffy, Mark W
Message sent Tue 7/22/2025 6:46 PM

Hello City of Bell Hazard Mitigation Planning Team!
The city is developing your first FEMA Local Hazard Mitigation Plan.

Agenda TBD – Please plan to attend!

Microsoft Teams [Need help?](#)

[Join the meeting now](#)

Meeting ID: 237 312 440 876 1

Passcode: zq2s96tj

Dial in by phone

[+1 281-810-2971,,6469301#](#) United States, Houston

[Find a local number](#)

Phone conference ID: 646 930 1#

For organizers: [Meeting options](#) | [Reset dial-in PIN](#)
[Org help](#)

City of Bell, California

Hazard Mitigation Planning Team Meeting

Hazards and Goals | October 21, 2025



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Meeting Agenda

- Decision Point Catch Up
- Hazards Review Part 2
- Mitigation Goals
- Actions
- Questions And Next Steps



Decision Point Catch Up

Now

- Profiling “climate change” and “disadvantaged communities” (AB 2140) – YES
- Identify Goals

Next Steps

- Public Survey #2 Finalization
- Identify Stakeholders
- Finalize Actions

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PROPOSED TIMELINE

Key Dates

Kickoff ~~7/22~~

Public Survey 1 Review and Validation ~~8/19~~

Hazards and Actions Workshop 1 ~~9/30~~

Hazards and Actions Workshop 2 10/21

Public Survey 2 - TBD – November?

Final Draft Review TBD – December or January?

		2025												2026			
		May	June	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun		
Planning Process	Project Management Kick Off																
	Develop Community Engagement Plan																
	Hazard Mitigation Planning Team Kick-off Meeting																
	Data and Information Gathering																
	Participant and Stakeholder Coordination																
	Capability Assessment																
	Asset Inventory																
Hazard Identification Phase	Hazard Identification and Profiles																
	Community Engagement																
Risk Assessment Phase	Hazard Mapping																
	Vulnerability and Loss Estimation																
	Risk Assessment																
Mitigation Strategy	Develop Hazard Mitigation Goals and Strategy																
	Develop Actions																
	Develop Monitoring and Maintenance Plan																
Plan Drafting	Draft Assembly																
	Review and Finalization																
	Community Engagement																
	State and FEMA Review																
Plan Adoption	Final Drafts and Plan Adoption																
	Closeout																



= Active Development



= Anticipated HMPT Meetings



= Public Surveys are Open



Community Stakeholders

A2-a. The plan must provide documentation of an opportunity for stakeholders to be involved in the current planning process. Documentation of this opportunity must identify how each of the following types of stakeholders were presented with this opportunity, as applicable:

1. Local and regional agencies involved with hazard mitigation activities
2. Agencies that have the authority to regulate development
3. Neighboring jurisdictions
4. Private and academic entities
5. Non-profit organizations

Private and Academic	Non-Profit
Bell High School	Salvation Army
Bell Adult School AC2T Program	Foundation Shelter Resource Bank
CEMEX Bell	Southland Christian Church
307 th Chemical Company	
Navy Reserve Center*	



Hazards Review Part 2



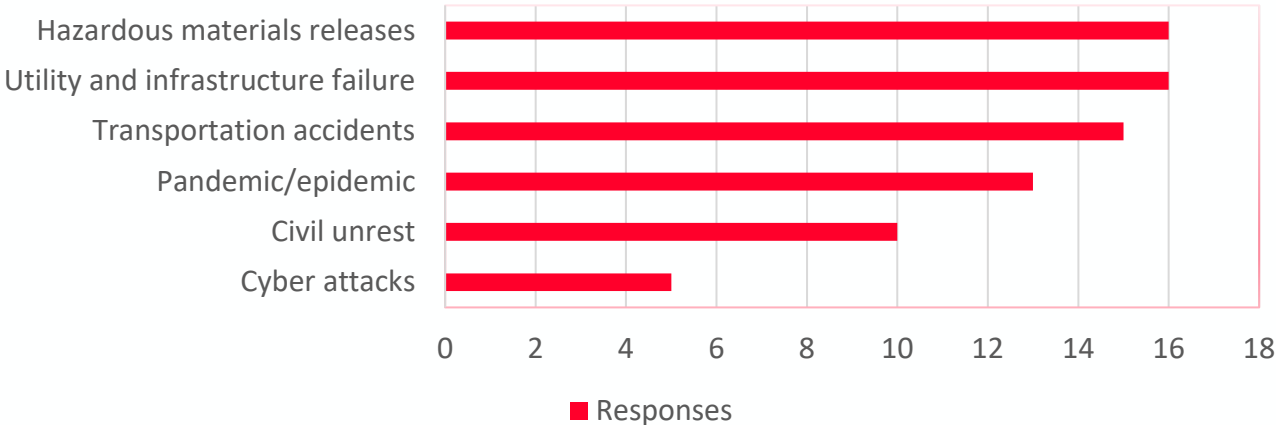
Public Survey #1 Results

5. In addition to natural disasters, manmade hazards can also present potential risks to life and property. Examples of manmade hazards include transportation incidents, hazardous materials incidents, pandemics, urban fires, and more. How concerned are you about manmade hazards?

Very concerned	16
Somewhat concerned	7
Neither concerned nor unconce...	2
Somewhat unconcerned	0
Very unconcerned	0



Which Manmade Hazards Concern You the Most?



14. Overall, how well prepared do you think the City of Bell is for natural and manmade hazards?

Extremely prepared	0
Somewhat prepared	1
Neutral	13
Somewhat unprepared	6
Extremely unprepared	5



9. If an emergency occurred today, do you have enough food and water to go 72 hours (3 days) without aid?

Yes	8
No	14
Unsure	3



8. If an emergency occurred today, would you be able to reach the nearest medical facility within 30 minutes on foot?

Yes	3
No - unsure of where the nearest medical facility is	7
No - nearest medical facility is too far	13
No - cannot walk to nearest medical facility	2
No - other reason(s)	0



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Risk Factor Index

Probability	Impact	Extent	Warning Time	Duration
1 (unlikely) – Less than a 1% annual chance	1 (minor) – Very few injuries, if any. Only minor property damage and minimal disruption to quality of life. Minimal disruption to critical facilities.	1 (Negligible) – Less than 1% of the planning area affected	1 (Ample) – Warning time is greater than 36 hours.	1 (brief) – Hazard typically present for fewer than 2 hours
2 (possible) – Between 1-49.9% annual chance	2 (limited) – Some injuries, no fatalities. Multiple reports of property damage in the affected area. Occasionally, buildings may be destroyed.	2 (Small) – between 1-10.9% of the planning area affected	2 (advanced) – Warning time is between 6-36 hours.	2 (extended) – Hazard typically present between 2-24 hours
3 (likely) – Between 50-90% annual chance	3 (critical) – Widespread injuries, some of which may be severe. Some fatalities possible. Possible Mass Casualty Incident (MCI).	3 (Moderate) – Between 11-25% of the planning area affected	3 (short) – Warning time is between 30 minutes and 6 hours.	3 (prolonged) – Hazard typically present between 24 hours and one week.
4 (highly likely) – greater than 90% annual chance	4 (catastrophic) – Extensive injuries, many of which may be severe. Fatalities expected, Mass Casualty Incident (MCI) likely.	4 (Widespread) – More than 25% of the planning area affected	4 (minimal or none) – Warning time is less than 30 minutes, if any.	4 (sustained) – Hazard typically present for more than one week

Risk Factor Ratings

Hazard	Probability	Impact	Extent	Warning Time	Duration	RF Value
Earthquakes	1	4	4	4	1	2.8
Flooding	1	1	2	2	1	1.3
Sea level rise	1	1	1	1	4	1.3
Civic unrest	2	1	2	3	2	1.8
Cyber attacks	2	2	1	4	1	1.9
Hazardous Materials Releases	4	1	1	4	2	2.3
Pandemic/Epidemic	2	3	4	1	4	2.8
Transportation accidents	4	1	1	4	1	2.2
Utility & infrastructure failure	4	1	2	4	2	2.5

High Risk = 2.6 or greater

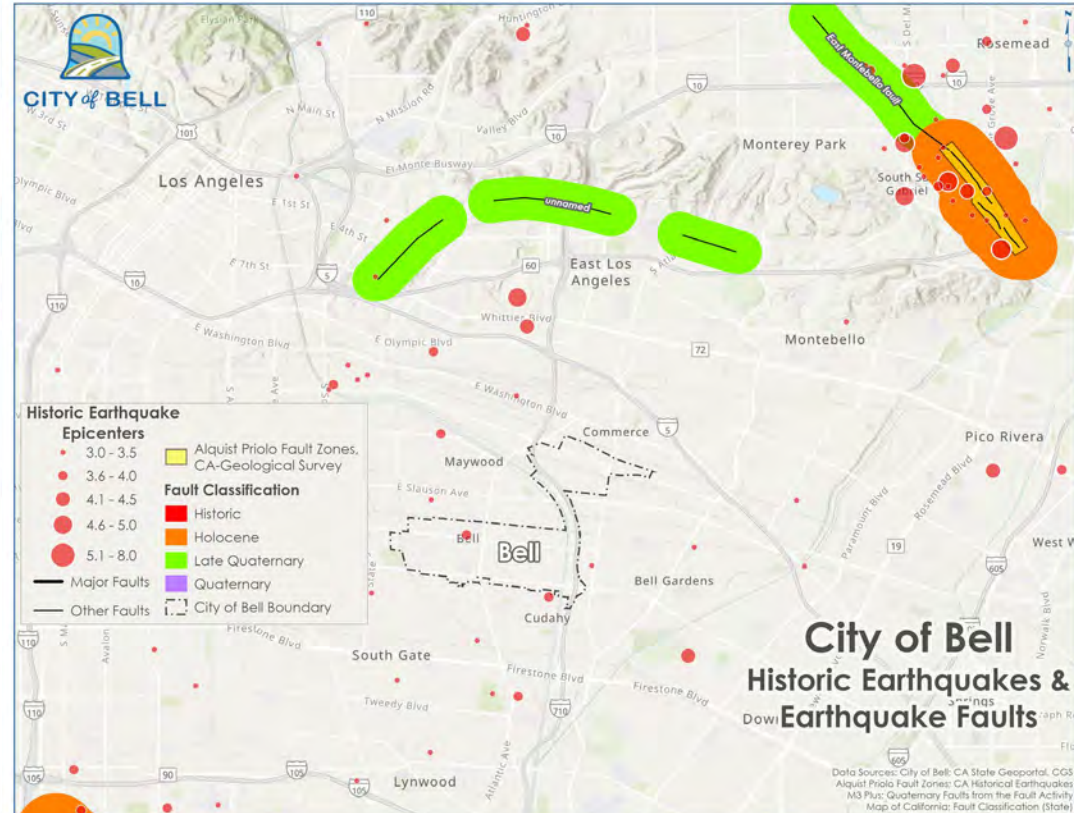
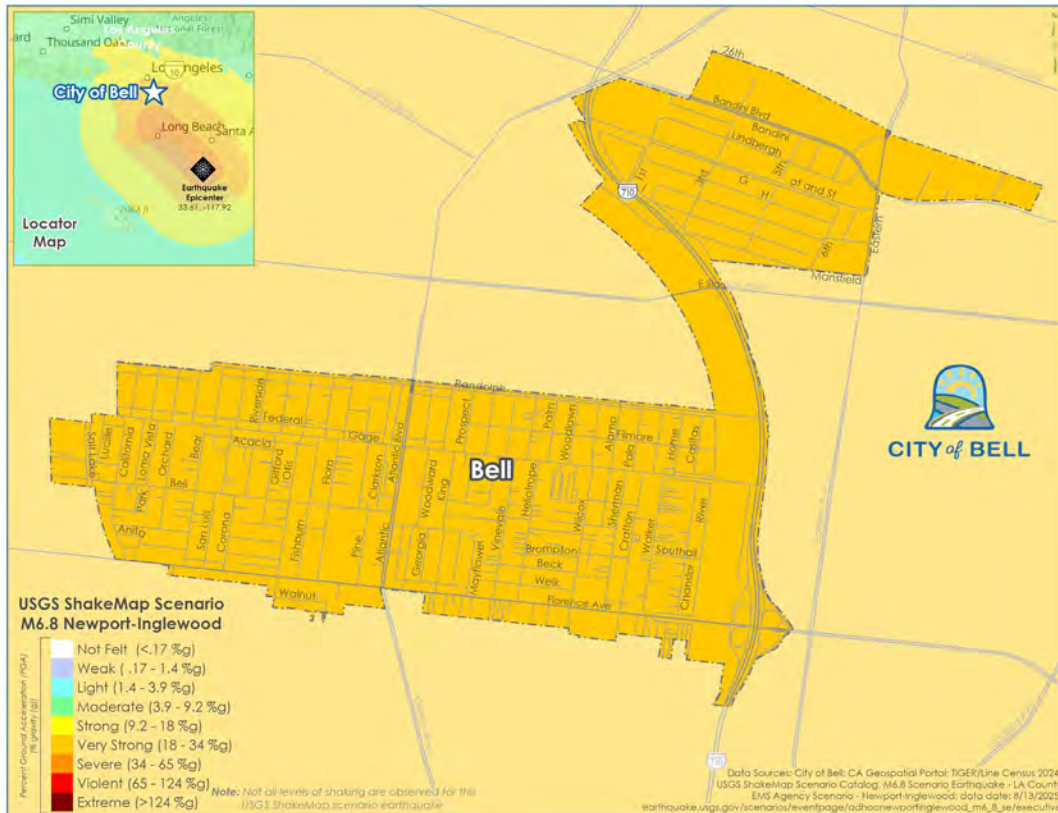
Medium Risk = 1.6-2.5

Low Risk = 1.5 or less

Earthquakes

Probability	Impact	Spatial Extent	Warning Time	Duration	RF Value
1	4	4	4	1	2.8

- Records from the California Geological Survey (CGS) show there has been one instance of an earthquake (greater than magnitude 3.0) with an epicenter inside of Bell's political boundaries.
- The nearest fault that has consistently produced M 4.6 or greater earthquakes is the Alquist Priolo Fault
- Data gathering to assess specific structural vulnerabilities would be a strong action



Flooding

Probability	Impact	Spatial Extent	Warning Time	Duration	RF Value
1	1	2	2	1	1.3

- There are no 100-year or 500-year floodplains identified by FEMA inside the City of Bell
- Historical reports of flooding and flash flooding from NCEI do not identify any events in the City of Bell
- A portion of Bell is within an area designated as Zone X: An area protected by levees from 1% annual chance flood
- Per FEMA, the dam has been provisionally accredited. Recommend precautions to protect lives and minimize damages in the area, such as issuing an evacuation plan and encouraging property owners to purchase flood insurance

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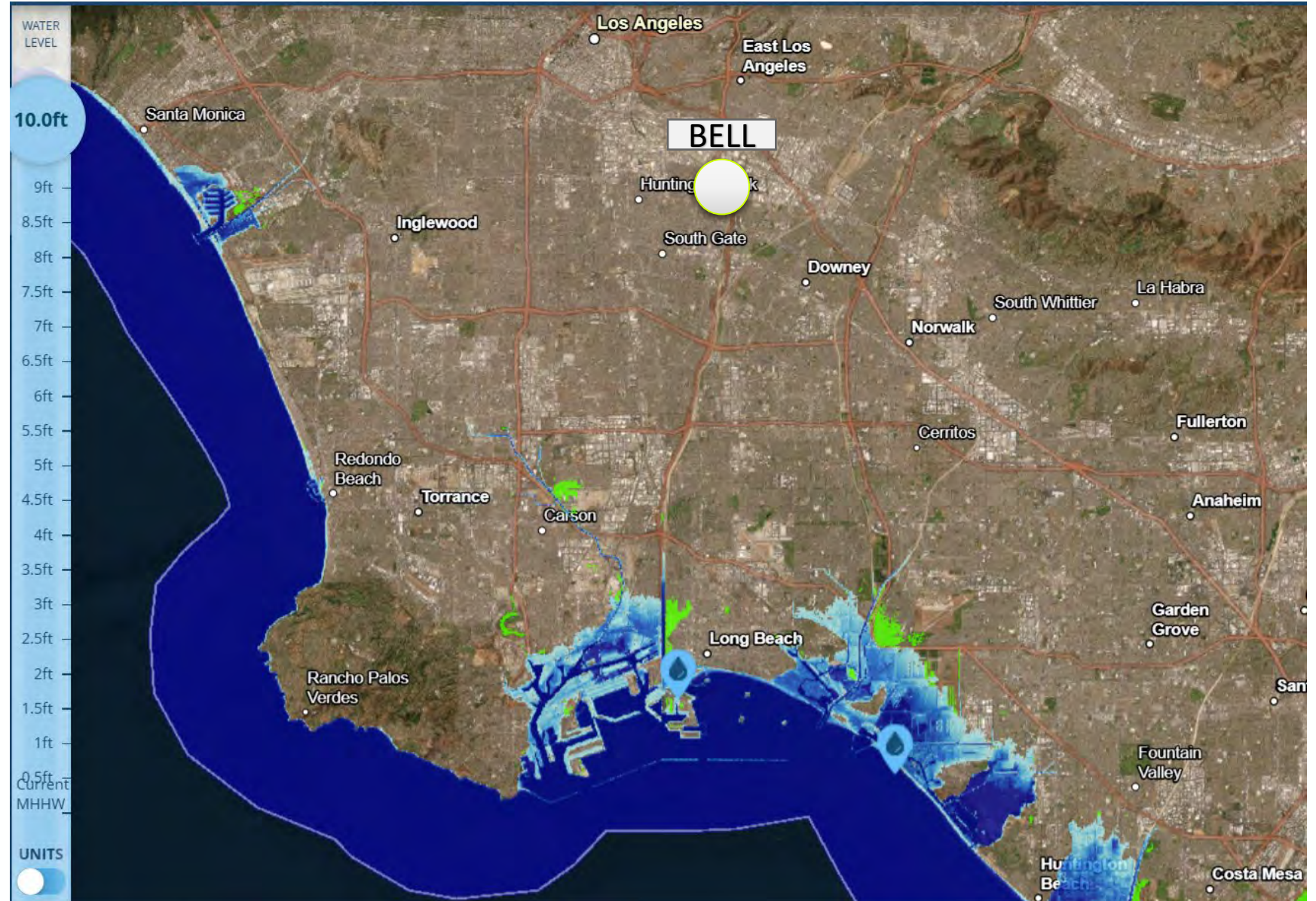
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Sea Level Rise

- The National Oceanic and Atmospheric Administration's (NOAA) provides Sea Level Rise projections
- Bell is not expected to be directly impacted, even in the highest scenario
- Like tsunamis, Bell may still experience indirect effects, although these will be more gradual

Probability	Impact	Spatial Extent	Warning Time	Duration	RF Value
1	1	1	1	4	1.3



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Civic Unrest

Probability	Impact	Spatial Extent	Warning Time	Duration	RF Value
2	1	2	3	2	1.8



- Civic unrest is a broadly refers to the risk posed by large-scale disturbances in public order resulting from social, political, or economic tensions
- Civic unrest can be both peaceful or violent
- From a mitigation standpoint, the goal is minimizing potential disruptions, damages, and injuries
- While infrequent, civic unrest has occurred in and around Bell and can be expected

On June 20, 2025, approximately 100 people gathered near the 7000 block of Atlantic Avenue. Damage was documented to several vehicles and one arrest was recorded.

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Cyber Attacks

Probability	Impact	Spatial Extent	Warning Time	Duration	RF Value
2	2	1	4	1	1.9

- Attacks which affect 500 or more California residents must be reported to the California Attorney General
- A list of these events is accessible by the public through the Office of the California Attorney General's website
- While there are no reports of cyber attacks affecting Bell, other communities like Los Angeles, Torrance, Maywood Long Beach, and more have reported cyber attacks.
- According to a report from the FBI, the State of California reported over \$2.5 billion in losses from cyber attacks in 2024, the most among all 50 states



NEWS RELEASE

SUPERIOR COURT OF CALIFORNIA
COUNTY OF LOS ANGELES

COMMUNICATIONS OFFICE

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Media Relations
publicinfo@lacourt.org

FOR IMMEDIATE RELEASE:
July 21, 2024

**SUPERIOR COURT OF LOS ANGELES COUNTY CLOSED
TOMORROW AS WORK CONTINUES TO GET SYSTEMS BACK
ONLINE AFTER RANSOMWARE ATTACK**



Los Angeles Unified Targeted by Ransomware Attack

Los Angeles Unified detected unusual activity in its Information Technology systems over the weekend, which after initial review, can be confirmed as an external cyber attack on our Information Technology assets. Since the identification of the incident, which is likely criminal in nature, we continue to assess the situation with law enforcement agencies. While the investigation continues, Los Angeles Unified has swiftly implemented a response protocol to mitigate Districtwide disruptions, including access to email, computer systems and applications. This communication is being published after extensive, required vetting and approval by a number of entities and agencies.



**LA Housing Authority
Confirms Data
Breach Claimed by
Cactus Ransomware**

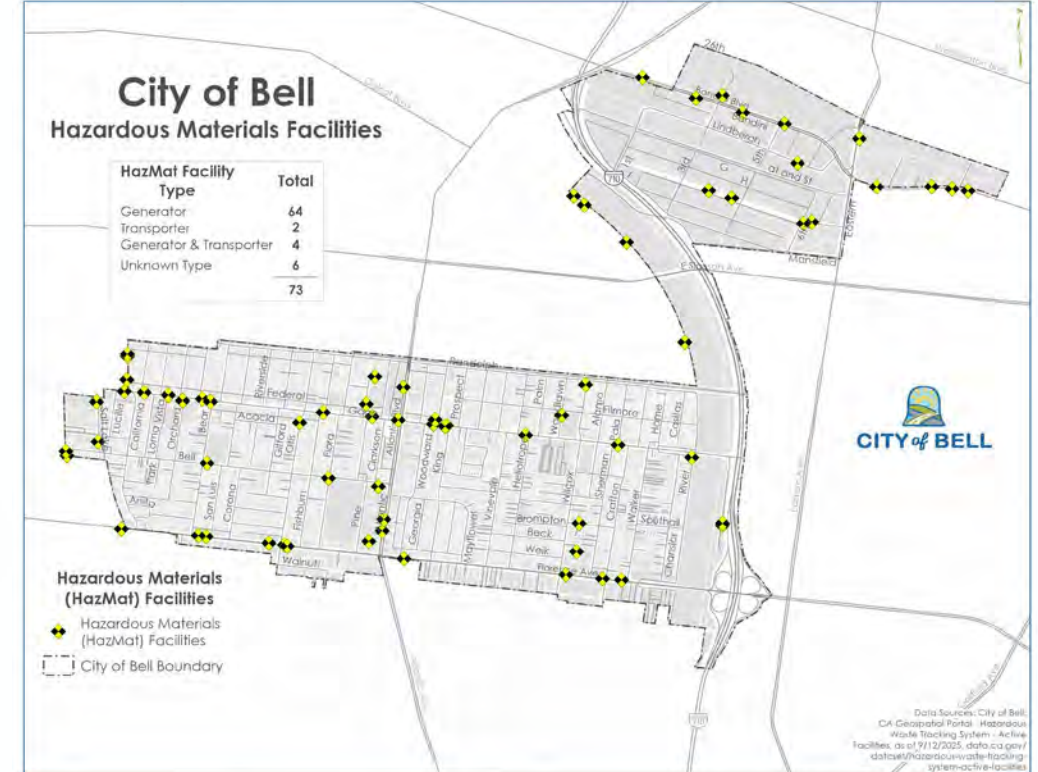
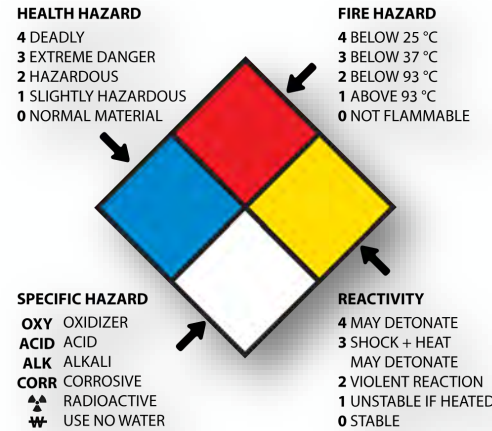
LEARN MORE

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Hazardous Materials Releases

- 73 sites in Bell are identified by California's Department of Toxic Substances Control as hazardous materials facilities.
- Recent spills reported by California's Spill/Release Incident Reports identify five releases. These have been relatively minor events, with no reports of fatalities or injuries.



11/19/2024 – 120 gallons of diesel spilled when a vehicle collided with a semi, puncturing the fuel tanks. The fuel travelled to a nearby storm drain

4/2/2024 – 10 gallons of oil were released into a storm drain when an underground tank broke.

9/8/2022 – less than one gallon of capacitor oil spilled at an industrial site due to a reported mechanical failure

3/16/2021 – Road debris damaged the fuel tank of a semi, resulting in the release of 25 gallons of diesel. The release was contained before reaching any storm drains.

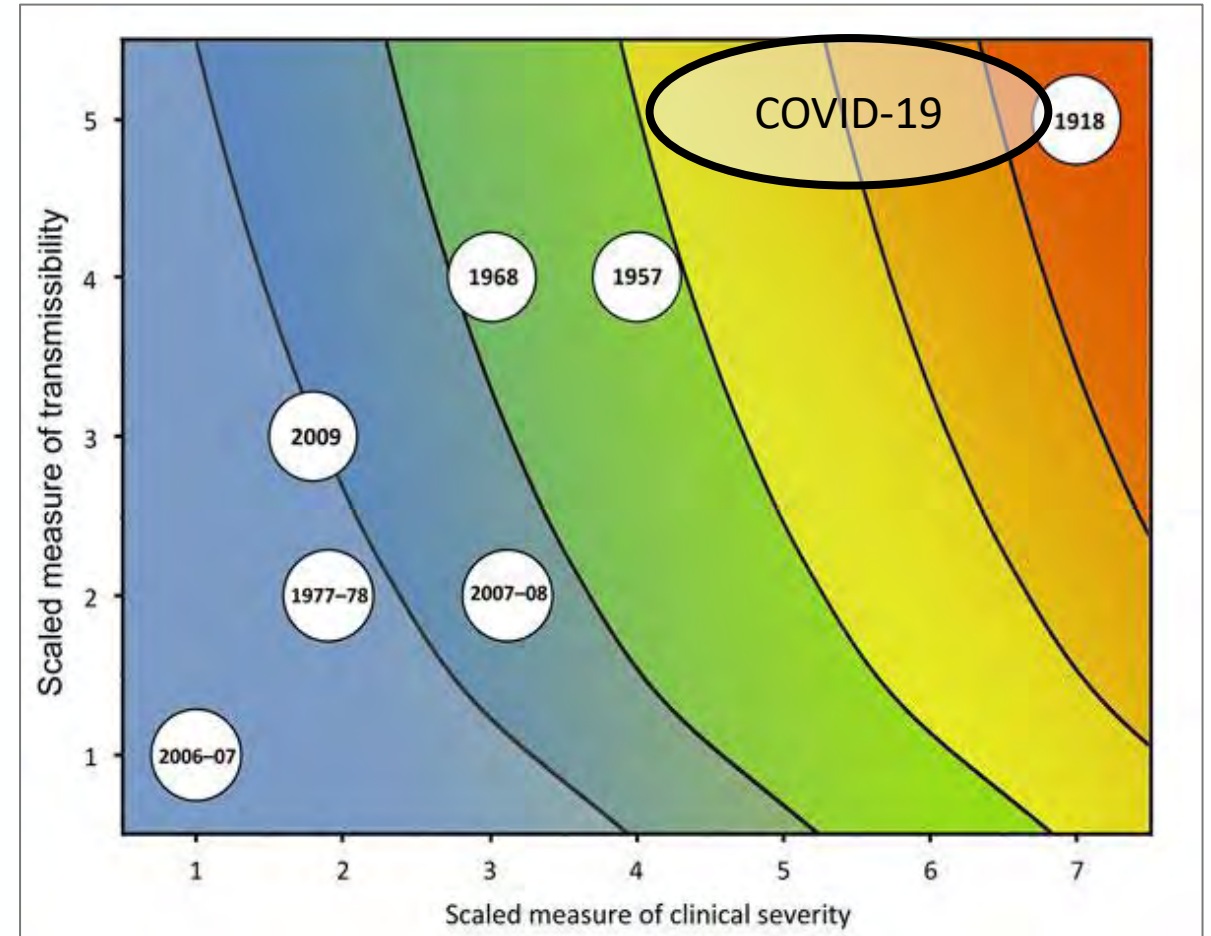
6/19/2020 – 30 gallons of diesel were released due to a vehicle collision. CHP and Caltrans responded and contained the release.

Pandemic / Epidemic

- The Centers for Disease Control and Prevention (CDC) and World Health Organization (WHO) both emphasize that future pandemics are inevitable and encourage preparedness planning.
- As of December 27, 2023, the city had recorded 17,754 cumulative confirmed cases of COVID-19; no Bell-specific data is available for deaths or hospitalizations
- LA Times article from April 2020 states that 19 deaths in Bell were tied to a single facility, and Bell had a fatality rate of 52 per 100,000, which is among the highest across all communities in the County.
- CDC developed the Pandemic Severity Assessment Framework (PSAF), which uses indicators of transmissibility and clinical severity to assign events to a point scale. The transmissibility is rated 1-5, and the clinical severity is rated 1-7.

Probability	Impact	Spatial Extent	Warning Time	Duration	RF Value
2	3	4	1	4	2.8

Evaluation of Diseases
(includes flu and other transmissible infections)

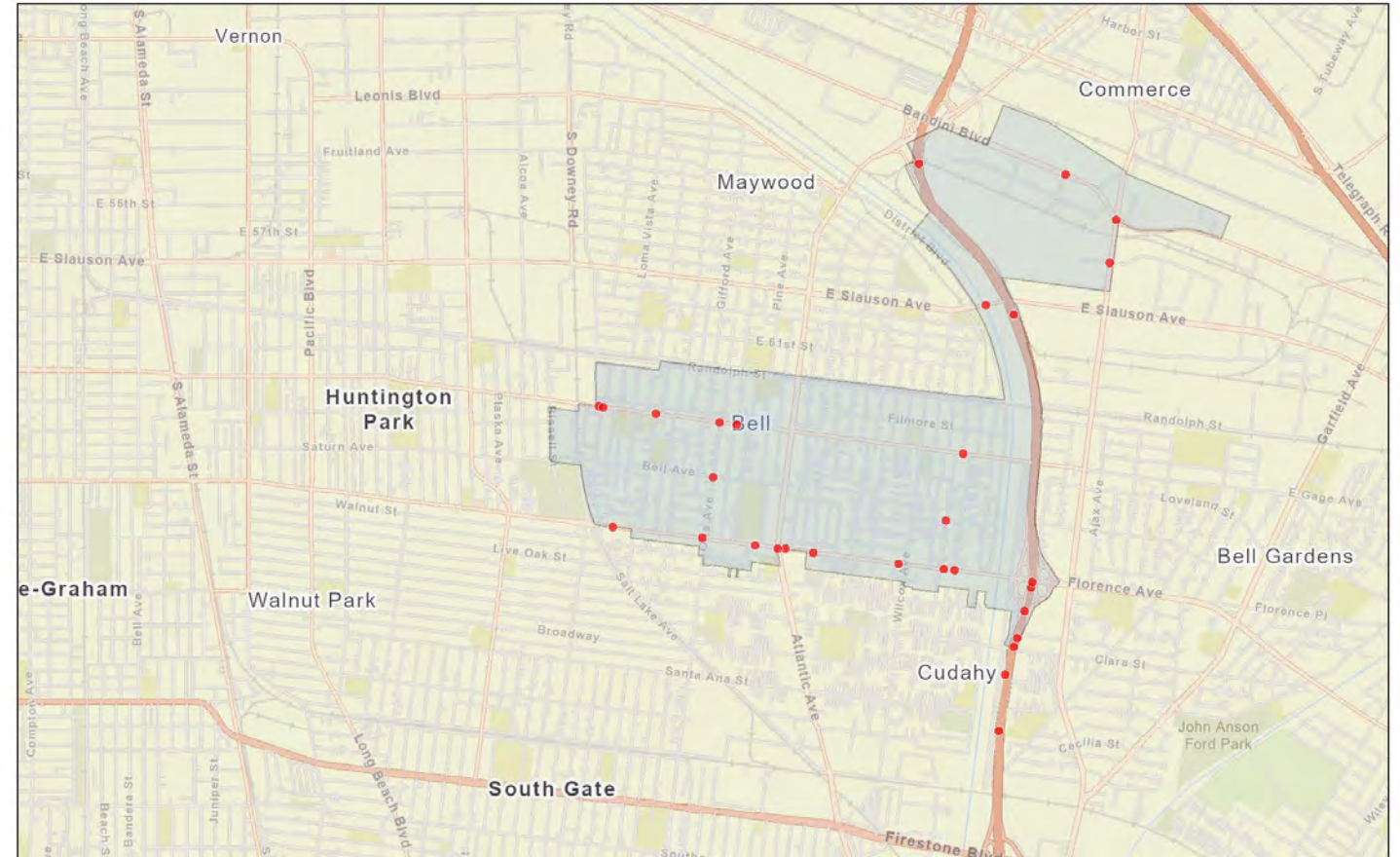


Transportation Accidents

Probability	Impact	Spatial Extent	Warning Time	Duration	RF Value
4	1	1	4	1	2.2

- Between 2014 and 2024, there were 2,167 crashes in Bell, per California Highway Patrol (CHP) data.
- There were 1,256 injuries and 30 fatalities resulting from crashes in Bell between 2014 and 2024.
- The three highest-crash intersections in Bell are:
 1. Florance Ave & Walker Ave – 44
 2. Florance Ave & Atlantic Ave – 31
 3. Gage Ave and Wilcox Ave - 30

SWITRS GIS Map: Los Angeles, Bell 01/01/2014 - 12/31/2024



10/5/2025
SWITRS

• 1 - Fatal

1:47,848
0 0.33 0.65 1.3 mi
0 0.5 1 2 km
Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community
TIMS (<https://tms.berkeley.edu>), SafeTREC, UC Berkeley
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Utility and Infrastructure Failures

- Bell is part of SCE’s regional grid, meaning outages often stem from incidents outside city boundaries
- SCE’s 2024 Reliability Report indicates that customers in this area experience ~1 sustained outage per customer per year, lasting an average of 158 minutes—a good benchmark for Bell’s annual exposure
- No reports of major failures in water, wastewater, gas, or communications services or infrastructure, but minor disruptions have occurred and should be expected annually in the future.

Utility	Provider(s) in Bell
Water	California Water Company; Golden State Water Company; Maywood Mutual Water Company; Tract 349 Water Company; Tract 180 Water Company
Wastewater	City-owned local infrastructure; Sanitation District of Los Angeles County, District 1 water main;
Gas	Southern California Gas Company
Electric	Southern California Edison
Internet	AT&T; DIRECTV; HughesNet

Probability	Impact	Spatial Extent	Warning Time	Duration	RF Value
4	1	2	4	2	2.5

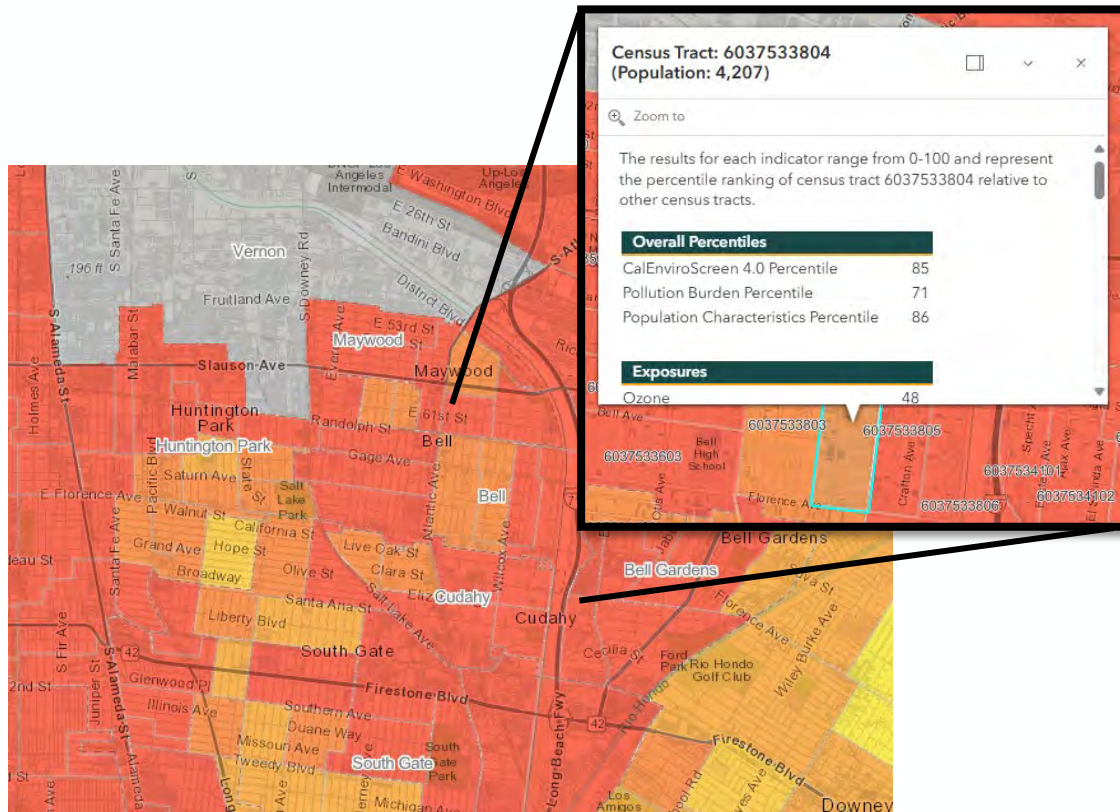


Mitigation Goals



Disadvantaged Communities / Vulnerable Populations

- SB 1000 is triggered when local governments adopt or revise two or more general plan elements concurrently. (Gov. Code, § 65302, subd. (h)(2)).
- Pursuant to SB 1000, local governments must identify in their General Plan the disadvantaged communities in their planning areas. In doing so, local governments should describe the disadvantaged communities with particularity.
- SB 379 calls for: a vulnerability assessment that identifies the risks that climate change poses to the local jurisdiction and the geographic areas at risk



Disadvantaged community: Under SB 1000, a disadvantaged community is defined as (1) an area that has been identified by the California Environmental Protection Agency pursuant to Health & Safety Code section 39711 as being disadvantaged based on geographic, socioeconomic, public health, and environmental hazard criteria or (2) an area that is a low-income area that is disproportionately affected by environmental pollution and other hazards that can lead to negative health effects, exposure, or environmental degradation. (Gov. Code, § 65302, subd. (h)(4)(A).)

Under the first prong of the definition, CalEPA, as of May 2022, considers areas falling within any of the following categories to be disadvantaged:

1. Census tracts with overall CalEnviroScreen 4.0 scores in the 75th percentile or higher.
2. Census tracts with CalEnviroScreen 4.0 cumulative pollution burdens in the 95th percentile higher but that lack overall scores due to data gaps.
3. Census tracts identified in the 2017 designation as disadvantaged, regardless of their CalEnviroScreen 4.0 scores.
4. Lands under the control of federally recognized Tribes

Under the second prong of the definition, an area is considered low-income if the area's household incomes are at or below 80% of the statewide median income or at or below the threshold designated as low income by the Department of Housing and Community Development. (Gov. Code, § 65302, subd. (h)(4)(C).) Disproportionate environmental pollution is not defined by the statute.

State Goals - Paraphrased

1. Promote cross-sector collaboration by fostering partnerships across all sectors and levels of government and nongovernmental organizations (NGOs).
2. Improve climate literacy
3. Improve the understanding of the locations, potential and cascading impacts, and linkages among the threats, hazards, vulnerabilities, and measures needed to protect life, community lifelines, the environment, property, and infrastructure.
4. Promote, coordinate, and implement hazard mitigation plans and projects to be consistent with and supportive of climate action and adaptation goals.
5. Work collaboratively on hazard mitigation planning efforts to foster and reinforce resilient communities
6. Promote integration of hazard mitigation plans
7. Reduce complexities, remove barriers, and streamline programs
8. measure progress toward increasing resources for communities and populations subjected to systematic, institutional, and procedural oppression.
9. Reduce mitigation-related disparities impacting underserved populations and historically marginalized communities
10. Foster a comprehensive statewide, whole-community approach to mitigation.
11. Actively promote climate-focused programs, policies, projects, and initiatives by encouraging multi-benefit projects that reduce risk using nature-based solutions.

City of Bell Community Goals

- I. Protect lives and reduce injuries.
- II. Support economic stability, recovery, and maintain community continuity and social connections.
- III. Minimize property and infrastructure damages, downtime, and accelerate recovery.
- IV. Promote public awareness of hazard mitigation through outreach and education.

Actions

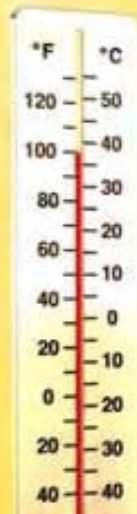
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Extreme Temperatures

- 1) Increase the number of native trees planted around buildings to shade parking lots and along major streets.
- 2) Support the construction or retrofit of white roofs.
- 3) Support the construction or retrofit of homes and businesses with increased insulation (like protecting pipes from freezing during extreme cold).
- 4) Implement warming or cooling centers for community members to gather at during an event.



**HEAT
WAVE**

Risk Factor: **High 3.4**

High Risk = 2.6 or greater

Medium Risk = 1.6-2.5

Low Risk = 1.5 or less

Windstorm

- 1) Support including measures like structural bracing, shutters, and laminated glass in windowpanes in building design to minimize damage.
- 2) Review building codes and structural policies to ensure they are adequate to protect structures from wind damage.
- 3) Support establishing standards for all utilities regarding tree pruning around lines and pole maintenance.
- 4) Develop an outreach program to teach families, schools, and businesses how to safely secure things like windows, roof-mounted heating, ventilation, air conditioners, improve roof coverings, and other features.



Risk Factor: **High 2.7**

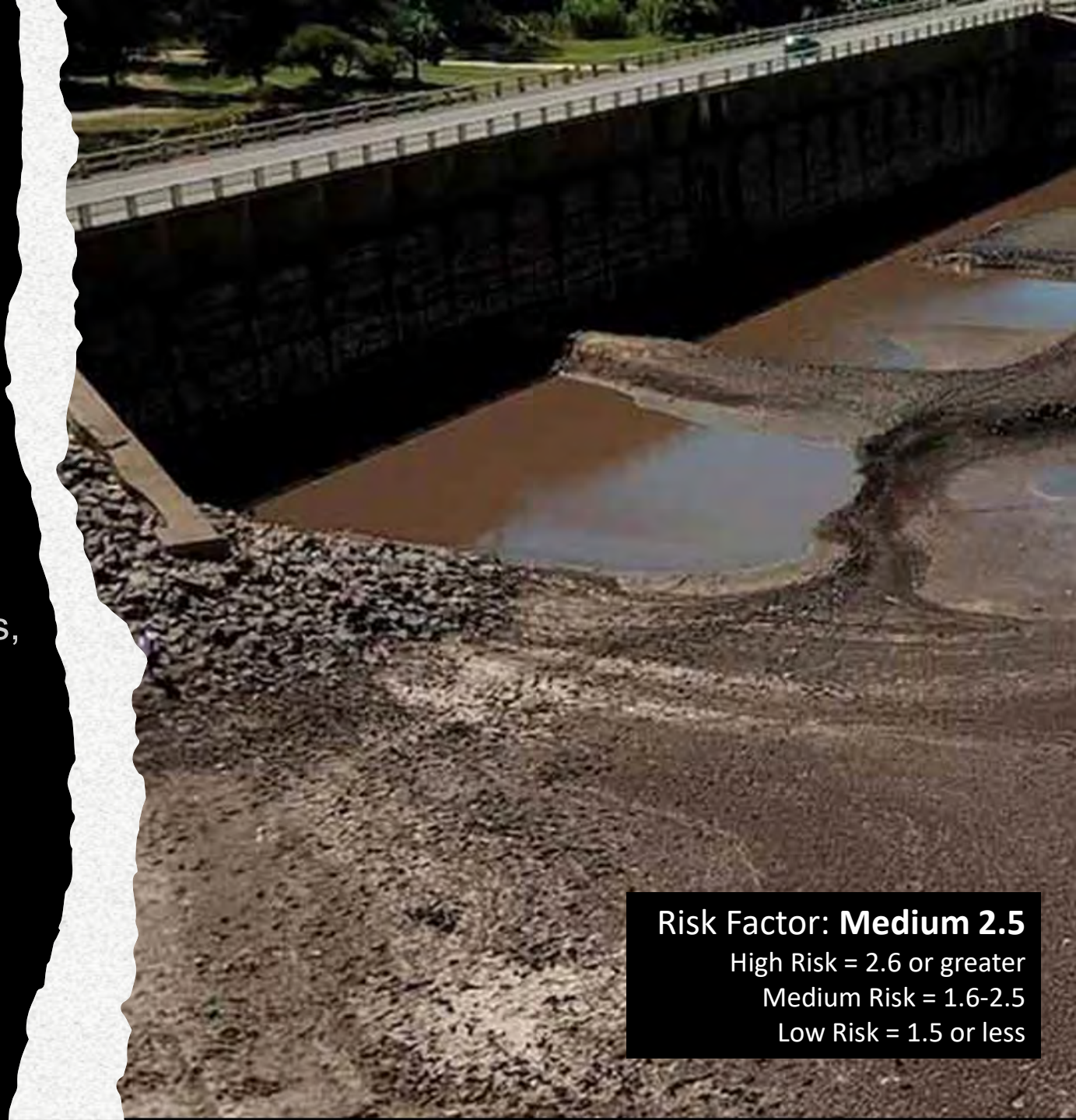
High Risk = 2.6 or greater

Medium Risk = 1.6-2.5

Low Risk = 1.5 or less

Drought and Water Shortage

- 1) Support the construction or retrofit of drought resilient landscaping (like planting native vegetation or xeriscaping).
- 2) Develop an outreach program to teach families, schools and businesses how to use less water.
- 3) Support the construction of rain capture systems and reclaimed water usage.
- 4) Implement fines for community members who use more than the allowed amount of water per household.



Risk Factor: **Medium 2.5**

High Risk = 2.6 or greater

Medium Risk = 1.6-2.5

Low Risk = 1.5 or less

Earthquakes, Landslide, and Mudflow

- 1) Develop an outreach program to teach families, schools, and businesses with how to secure your properties and protect people before an earthquake.
- 2) Support the construction or retrofit of stabilized structures to lessen damages during an earthquake.
- 3) Develop an earthquake evacuation plan for community members.
- 4) Map and assess the probable vulnerability to landslides.
- 5) Construct soil stabilization measures (like planting soil stabilizing vegetation on steep, publicly-owned slopes).
- 6) Construct debris flow catchments to prevent transfer of sediment into roadways.

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Risk Factor: Medium 2.5

High Risk = 2.6 or greater

Medium Risk = 1.6-2.5

Low Risk = 1.5 or less



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Fires

Risk Factor: **Medium 2.3**

High Risk = 2.6 or greater

Medium Risk = 1.6-2.5

Low Risk = 1.5 or less

- 1) Conduct defensible space evaluations around critical facilities
- 2) Purchasing and installing external, structure-specific water hydration systems (sprinklers); dedicated power sources; and dedicated cisterns on public buildings.
- 3) Replace flammable vegetation with less flammable species.
- 4) Develop an outreach program to teach families, schools, and businesses how to safely dispose of flammable materials, create defensible space around buildings, maintain smoke detectors, etc.

Severe Thunderstorms

Risk Factor: **Medium 2.1**

High Risk = 2.6 or greater

Medium Risk = 1.6-2.5

Low Risk = 1.5 or less

- 1) Support including measures like structural bracing, shutters, laminated glass in windowpanes, and hail-resistant roof coverings or flashing, in building design to minimize damage.
- 2) Support construction or retrofit of hail resistant roofing and siding.
- 3) Develop an outreach program to teach families, schools, and businesses how to stay safe in a storm.
- 4) Implement community shelters so community members can gather during events.



Tornados

- 1) Support including measures like structural bracing, shutters, and laminated glass in windowpanes in building design to minimize damage.
- 2) Review building codes and structural policies to ensure they are adequate to protect structures from tornado damage.
- 3) Support establishing standards for all utilities regarding tree pruning around lines and pole maintenance.
- 4) Develop an outreach program to teach families, schools, and businesses how to safely secure things like windows, roof-mounted heating, ventilation, air conditioners, improve roof coverings, and other features.

Risk Factor: **Medium 2.0**

High Risk = 2.6 or greater

Medium Risk = 1.6-2.5

Low Risk = 1.5 or less



Dam and Levee Failure

- 1) Join a task force with surrounding communities that would encourage jurisdictions with high hazard dams to implement protective measures.
- 2) Advocate for a thorough watershed analysis for all proposed dam or reservoir projects
- 3) Encourage homeowners to purchase flood insurance.
- 4) Join the Community Rating System that requires communities to implement higher standards in exchange for discounts on homeowner's flood insurance policies.

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Risk Factor: **Medium 1.6**

High Risk = 2.6 or greater

Medium Risk = 1.6-2.5

Low Risk = 1.5 or less



Land Subsidence, Karst, and Sinkholes

- 1) Use ground-penetrating radar to detect and map possible hazard areas.
- 2) Acquire and demolish or relocate buildings and infrastructure in high-risk areas.
- 3) Prohibit development in areas that have been identified as at-risk.
- 4) Promote community awareness of subsidence risks and impacts.

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Risk Factor: Low 1.5

High Risk = 2.6 or greater

Medium Risk = 1.6-2.5

Low Risk = 1.5 or less

Flooding

- 1) Use GIS to map hazard areas, at-risk structures, and high-risk areas.
- 2) Upsize existing stormwater systems to pass more water.
- 3) Modify stormwater systems so that rainfall is captured and/or absorbed into the soil, instead of being routed toward drains (bioswales, drywells, pervious pavements, rain barrels, sand filters, etc.).
- 4) Encourage homeowners to purchase flood insurance.

Risk Factor: **Low 1.3**

High Risk = 2.6 or greater

Medium Risk = 1.6-2.5

Low Risk = 1.5 or less





Risk Factor: **Low 1.3**

High Risk = 2.6 or greater

Medium Risk = 1.6-2.5

Low Risk = 1.5 or less

Sea Level Rise

- 1) Join a task force with surrounding communities to implement a Mitigation Plan that outlines roles, responsibilities, and priorities to protect against impacts.
- 2) Model various "what-if" scenarios to estimate potential vulnerabilities in order to develop sea level rise mitigation priorities.
- 3) Invest in the construction of community shelters for evacuees to utilize when impacted.
- 4) Work with local utility providers to establish expectations for impacts and prioritize improvements.

Tsunamis

- Join a task force with surrounding communities to implement an Emergency Response Plan that outlines roles, responsibilities, and evacuation routes.
- Implement community shelters so evacuees can gather during events.
- Invest public funds now to be accessed only to support a locally declared disaster event.
- Implement an "Evacuteer" Program, where community members would volunteer to participate in trainings and learn how to support the process of an evacuation event.



Risk Factor: **Low 1.3**

High Risk = 2.6 or greater

Medium Risk = 1.6-2.5

Low Risk = 1.5 or less

Human Caused Hazard Actions?

- Cyber Attacks
- Hazardous Materials Releases
- Civil Unrest
- Pandemic/Epidemic
- Transportation Accidents
- Utility and Infrastructure Failure

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QUESTIONS & NEXT STEPS

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Bell HMP Final Draft Review!

Organizer Morganti, Chelsea <cmorganti@wittobriens.com>
Meeting time This event occurred 3 months ago (Wed 1/7/2026 3:30 PM - 4:30 PM)
Location Microsoft Teams Meeting
My response Accepted
Required attendees Morganti, Chelsea, Javier Ochiqui, gskibar, rmanbahal, stalwar, david, mdumford@inftechnologies.com, ngamez@cityofbell.org, joskoui@cityofbell.org, Estrada, Erika Lynn
Optional attendees Duffy, Mark W, Rickey Manbahal
Message sent Tue 12/30/2025 2:30 PM

Hello City of Bell Hazard Mitigation Planning Team,
This is our final draft review meeting – Please plan to attend!

Microsoft Teams [Need help?](#)

[Join the meeting now](#)

Meeting ID: 281 000 719 267 1

Passcode: e4rm9Hz9

Dial in by phone

[+1 281-810-2971,,7465840#](#) United States, Houston

[Find a local number](#)

Phone conference ID: 746 584 0#

For organizers: [Meeting options](#) | [Reset dial-in PIN](#)
[Org help](#)

City of Bell

Hazard Mitigation Planning Team Meeting

Mitigation Plan Review | January 7, 2026

Meeting Agenda

- Updating Stakeholder Contact Info
- Plan Monitoring, Maintenance, Implementation, Evaluation, and Update Procedures
- Public Survey #2 Results
- Public Survey #3
- Prioritizing Mitigation Actions
- Next Steps

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Planning Team Due -Outs

Stakeholder Contact Information

- We need to finish identifying the community stakeholders, including an email to contact. Without this information, we will rely on you to select community stakeholders and communicate with them. distribute the draft to stakeholders.

Stakeholder Class	Name	Email
Neighboring Jurisdiction	City of Maywood Planning Division	planning@cityofmaywood.org
Neighboring Jurisdiction	City of Huntington Park Planning & Zoning Division	planning@hpca.gov
Neighboring Jurisdiction	City of Cudahy Planning and Zoning	Planning@cityofcudahyca.gov
Neighboring Jurisdiction	City of Bell Gardens Planning Division	planning@bellgardens.org
Neighboring Jurisdiction	City of Commerce Planning Division	Planning-division@commerceca.gov
Private Businesses & Academia	Bell High School	
Private Businesses & Academia	Bell Adult School AC2T Program	
Private Businesses & Academia	CEMEX Bell	
Private Businesses & Academia	Navy Reserve Center	
Private Businesses & Academia	Army 307 th Chemical Company	
Private Businesses & Academia	Army 350 th Engineer Company	
Private Businesses & Academia	Slawson Southeast Occupational Center	
Private Businesses & Academia	AsendiaUSA	Packageinfo.usa@asendia.com
Private Businesses & Academia	CA-NY Express Cross Country Movers	cs@moveeast.com
Private Businesses & Academia	Amuse Cosmetics	sales@amusecosmetic.com
Private Businesses & Academia	HNS Supply Company	info@hns-supply.com

Stakeholder Contact Information

- We need to finish identifying the community stakeholders, including an email to contact. Without this information, we will rely on you to select community stakeholders and communicate with them. distribute the draft to stakeholders.

Stakeholder Class	Name	Email
Local/Regional Agencies Involved in Hazard Mitigation	City of Bell Public Works Division	joskoui@cityofbell.org
Local/Regional Agencies Involved in Hazard Mitigation	City of Bell Police Department	
Local/Regional Agencies Involved in Hazard Mitigation	City of Bell Community Services	
Local Agencies/Entities with the Authority to Regulate Development	City of Bell Community Development Department	garreola@cityofbell.gov
Local Agencies/Entities with the Authority to Regulate Development	City of Bell City Council	
Local Agencies/Entities with the Authority to Regulate Development	City of Bell City Manager	mantwine@cityofbell.org
Non-Profit/Community Organizations	Salvation Army	BellShelter.Intake@usw.salvationarmy.org
Non-Profit/Community Organizations	Shelter Partnership	office@shelterpartnership.org
Non-Profit/Community Organizations	Southland Christian Church	

Process for Updating, Maintaining, Monitoring, and Implementing the Plan

FEMA Requirement D2:

Is there a description of the method and schedule for keeping the plan current (monitoring, evaluating and updating the mitigation plan within a five-year cycle)?

Monitoring means tracking the implementation of the plan over time. For example, monitoring may include a system for tracking the status of the identified hazard mitigation actions.

Evaluating means assessing the effectiveness of the plan at achieving its stated purpose and goals.

Updating means reviewing and revising the plan at least once every five years.

“The City of Bell City Manager’s Office has been tasked with monitoring and maintenance of the City’s Local Hazard Mitigation Plan. Completion of actions and other data impacting the plan will be tracked by the Department of Public Safety.”

“The City of Bell will evaluate the Local Hazard Mitigation Plan on an annual basis to determine the effectiveness of the programs and to reflect changes in land development or programs that may affect mitigation priorities.”

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Process for Updating, Maintaining, Monitoring, and Implementing the Plan

FEMA Requirement D3:

Does the plan describe a process by which each community will integrate the requirements of the mitigation plan into other planning mechanisms, such as comprehensive or capital improvement plans, when appropriate?

Integrate: Integrate means to include hazard mitigation principles, vulnerability information and mitigation actions into other existing community planning to leverage activities that have co-benefits, reduce risk and increase resilience.

Examples of how the plan can be integrated include:

- General plan
- Capital Improvement Plan
- Emergency Operations Plan
- Ordinances, codes, and regulations
- Development review and permitting process
- Parks, open space, and natural resource plans
- Climate Actions Plan
- Public outreach strategies

Plan Monitoring, Maintenance, Evaluation, Integration, and Updating

- Evaluating the hazard mitigation plan can be an effective way to reinforce mitigation actions, determine the right time for implementation, and assess progress.
- Evaluation can also help determine if actions are no longer relevant or viable
- When done correctly, plan evaluation can reduce the time spent on future plan updates

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PLANNING CONSIDERATIONS WORKSHEET

PLANNING CONSIDERATIONS	Address Current Needs?	
	Yes	No
Have the nature or magnitude of the risks identified in the plan changed? If yes, comment below.		
Are the resources adequate for implementing the plan? If no, comment below.		
Have there been any implementation problems such as technical, political, legal or coordination issues with other agencies for the mitigation actions identified? If yes, reference action by selecting "Delayed" on the Project Implementation Worksheet with a comment describing issue in implementation.		
Have there been any personnel/agency changes be made to the D3 Regional Hazard Mitigation Committee? If yes, provide the name(s) and contact information below.		
Have there been changes to the participating communities' capabilities that improve or impair the progress of the mitigation strategies identified in the plan? If yes, please comment below.		

Reviewing Survey #2 Results - Overview

- 13 responses, 12 of whom are residents
- How should we integrate the feedback from Survey #2
- No Lebanese Arabic survey responses
- One response from Spanish survey

21. Do you have any other suggestions that you would like to see the city implement?

6 Responses

ID ↑	Name	Responses
1	anonymous	Food help on hard times
2	anonymous	Create community shelters for unhoused people during extreme weather conditions such as heat waves, rain, thunderstorms, cold, and hail. This could help unhoused folks have a safe space to go.
3	anonymous	Hired residents to keep cleaner sidewalks, belongs to the city. Police need to stop harassing parents waiting on red sidewalk to pick kids from Bell High School. We are in idle for max 15 minutes, Police can be useful elsewhere such as Dollar Tree where they are getting rob daily. This will prevent them from closing their store.
4	anonymous	Do not get rid of the mobile home parks! Come up with a real solution to protect working class immigrant families.
5	anonymous	More police patrols to ensure the laws, speed limits and safety of pedestrians are met. There are too many drivers running stop signs and red lights.
6	anonymous	Invest in protecting our community and not supporting ICE. KEEP THEM OUT OF OUR CITY!



Survey #3

- Provides a copy of the draft, should be hosted online
- Asks for community input on aspects of the Hazard Mitigation Plan draft
- Across the previous two surveys, only 1 response came from Spanish version, none from Lebanese Arabic—do we want to continue translating?
- Like the last survey, will send a link and a QR code

After reviewing the City of Bell Hazard Mitigation Plan draft...

- ***How well do you think the Plan assesses Bell's existing and future hazards?***
- ***How well prepared do you think the community is for disasters, overall?***
- ***How well do you think the proposed actions will help mitigate future impacts?***
- ***Do you have any general comments to share with the planning team?***
- ***And more...***



Mitigation Actions

Prioritizing Mitigation Actions

FEMA C5-a:

The plan must describe the criteria used for prioritizing the implementation of the actions. The criteria must include an emphasis on the extent to which benefits are maximized, in relation to the associated costs of the action.

Although a full benefit-cost analysis is not necessary, the plan must demonstrate that proposed mitigation actions will be prioritized by weighing the cost of the action versus the benefits the action will produce, in addition to other prioritization factors. Another example of a prioritization method may be that jurisdictions establish a minimum threshold for the dollar amount, types or number of benefits an action must have to be considered for implementation. Or they could simply prioritize actions with more benefits than other alternatives

Possible options for prioritizing actions:

1. Entirely driven by community support levels from survey #2
2. Tier ratings (high, medium, low) based on qualitative assessments of several factors:
 - Overall cost, anticipated return, community support, political support, time to completion, hazards addressed
3. Quantitative methodology using assigned numeric values for different criteria

Example from
another HMP

Category	Points	Criteria
Effect on overall risk to people	4	Likely to protect more than 50% of the population
	3	Likely to protect at least 50 % of the population
	2	Could potentially protect up to 25 % of the population
	1	Could potentially protect up to 10 % of the population
	0	Potential for protecting lives and critical infrastructure
Risk to facilities/infrastructure (loss of function)	4	Likely to protect more than 50% of the community's critical infrastructure and community assets.
	3	Likely to protect at least 50 % of the population community's critical infrastructure and community assets.
	2	Could potentially protect up to 25 % of the population community's critical infrastructure and community assets.
	1	Could potentially protect up to 10 % of the population community's critical infrastructure and community assets.
	0	Potential for protecting lives and critical infrastructure community's critical infrastructure and community assets.
Level of need and severity of problem	4	Proven to be technically feasible
	-	N/A
	2	Expected to be technically feasible
	-	N/A
	0	Technical feasibility unknown or additional information needed
Benefit(s) from completion of the problem	4	Likely to meet Benefit Cost Review
	-	N/A
	2	Benefit Cost Review not required
	-	N/A
	0	Benefit Cost Review unknown
Ease of implementation	4	1 year or less
	-	N/A
	2	2 – 5 years
	-	N/A
	0	More than 5 years
Availability of resources to complete the project	4	Funding match is available, or funding match not required
	-	N/A
	2	Partial funding match available
	-	N/A
	0	No funding match available or funding match unknown

Required Action Details

Information required for each mitigation action:

- Who is responsible (agency, position, etc.)
- Estimated cost
 - \$ (\$10,000 or less)
 - \$\$ (\$10,001 to \$100,000)
 - \$\$\$ (\$100,001 to \$1 million)
 - \$\$\$\$ (over \$1 million)
- Timeframe (# of years, or estimated completion date)
- Funding sources (city funded or grant funded?)

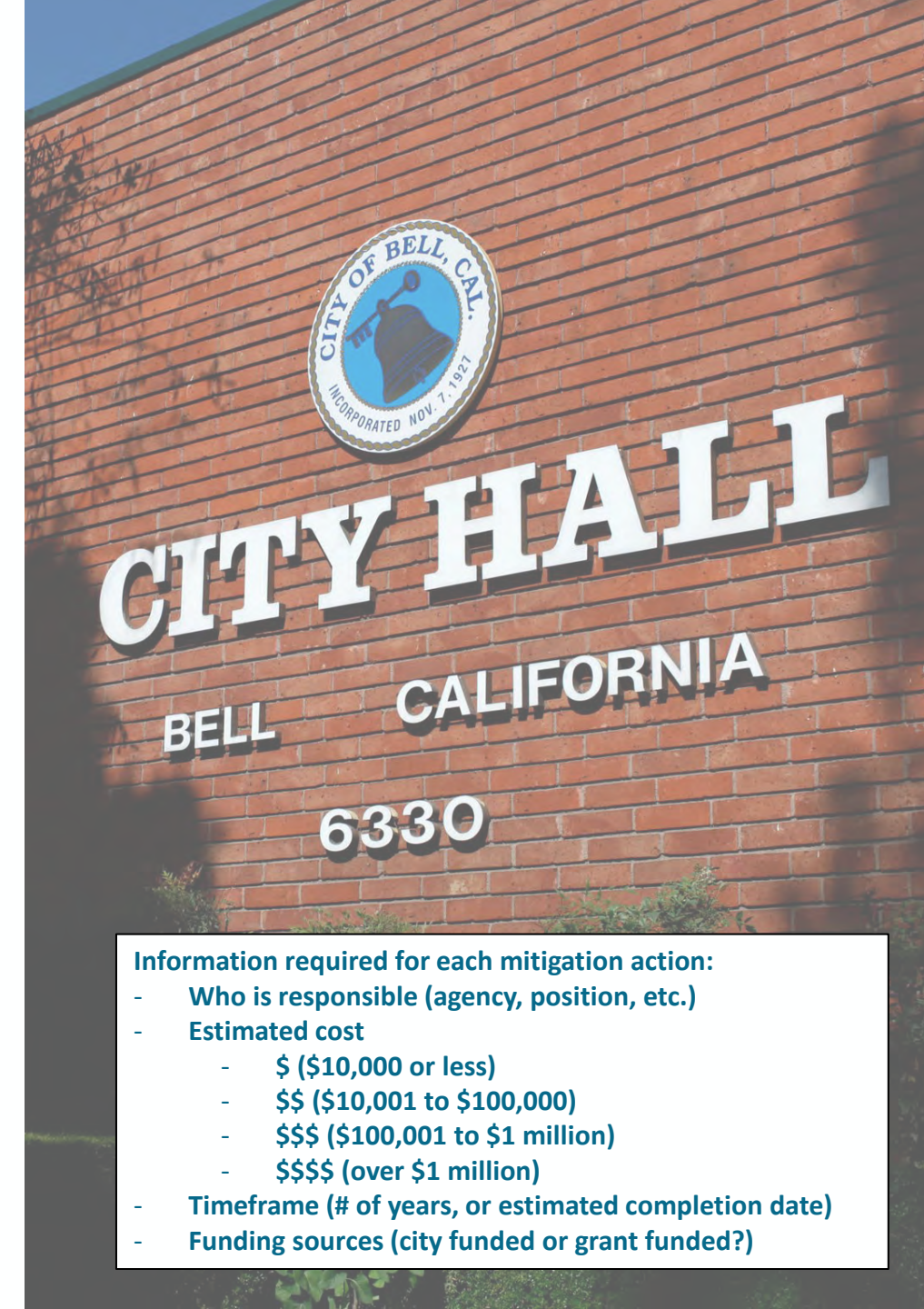


Actions for **extreme temperatures**:

1. Increase the number of native trees planted around buildings to shade parking lots and along major streets. **(12)**
2. Implement warming or cooling centers for community members to gather at during an event. **(8)**
3. None/Other **(0)**

Actions for **earthquakes**:

1. Develop an outreach program to teach families, schools, and businesses how to secure your properties and protect people before an earthquake. **(8)**
2. Develop an outreach program to teach families, schools, and businesses what to do during an earthquake. **(8)**
3. Develop an earthquake evacuation plan for community members. **(6)**
4. None **(2)**
5. Other – provide emergency toolkits **(1)**

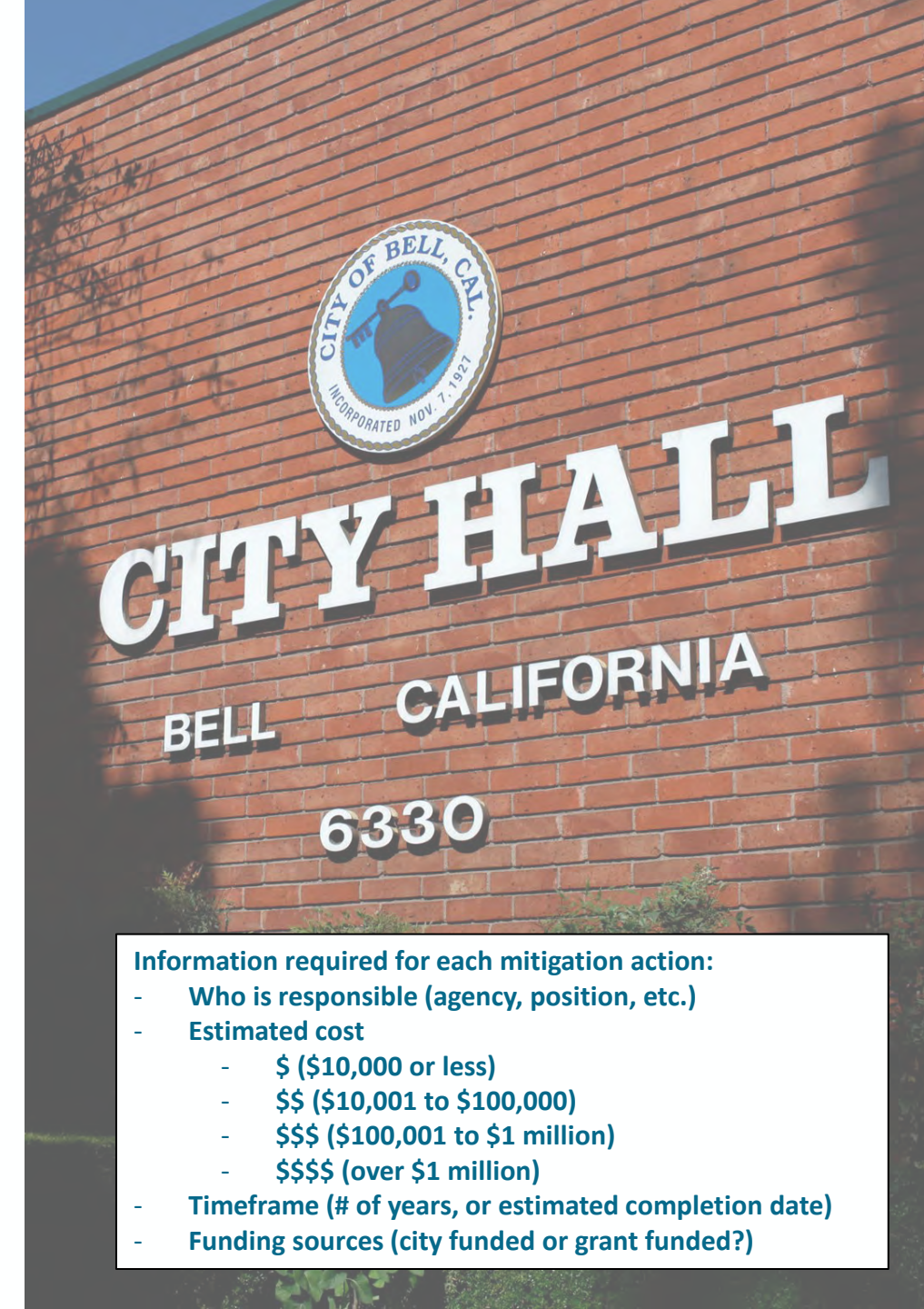


Information required for each mitigation action:

- Who is responsible (agency, position, etc.)
- Estimated cost
 - \$ (\$10,000 or less)
 - \$\$ (\$10,001 to \$100,000)
 - \$\$\$ (\$100,001 to \$1 million)
 - \$\$\$\$ (over \$1 million)
- Timeframe (# of years, or estimated completion date)
- Funding sources (city funded or grant funded?)

Actions for **fire**:

1. Installing external, structure-specific water hydration systems (sprinklers); dedicated power sources; and dedicated cisterns on public buildings. **(10)**
2. Support the construction or retrofit of non-combustible materials for homes, businesses, and schools. **(8)**
3. Replace flammable vegetation with less flammable species. **(8)**
4. Develop an outreach program to teach families, schools, and businesses how to safely dispose of flammable materials, create defensible space around buildings, maintain smoke detectors, etc. **(7)**
5. None **(1)**
6. Other - Eradicate homelessness in Bell, which pose a greater risk when they use fire to stay warm and heat food. **(1)**

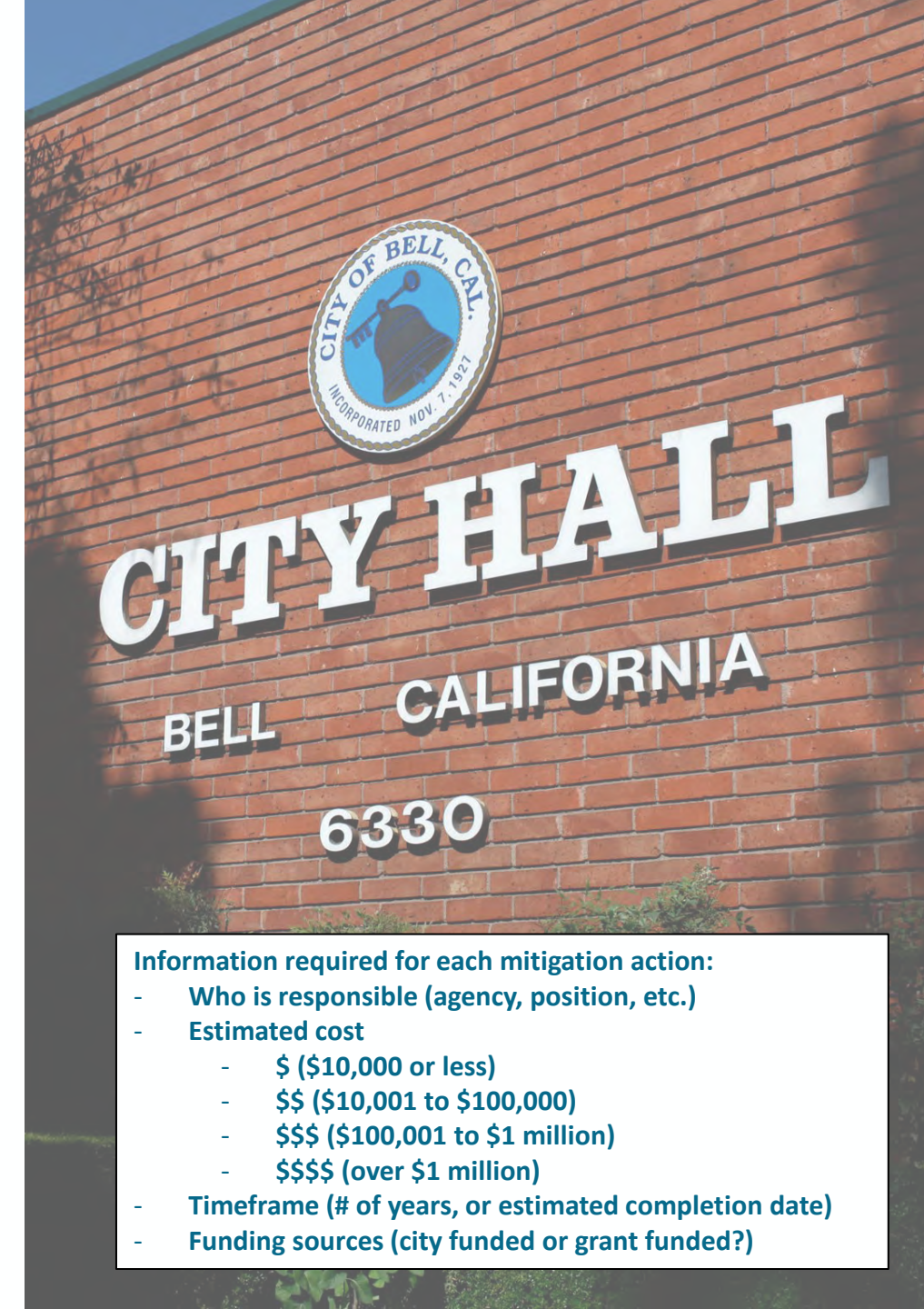


Information required for each mitigation action:

- Who is responsible (agency, position, etc.)
- Estimated cost
 - \$ (\$10,000 or less)
 - \$\$ (\$10,001 to \$100,000)
 - \$\$\$ (\$100,001 to \$1 million)
 - \$\$\$\$ (over \$1 million)
- Timeframe (# of years, or estimated completion date)
- Funding sources (city funded or grant funded?)

Actions for **windstorms**:

1. Support establishing standards for all utilities regarding tree pruning around lines and pole maintenance. **(10)**
2. Support including measures like structural bracing, shutters, and laminated glass in windowpanes in building design to minimize damage. **(10)**
3. Develop an outreach program to teach families, schools, and businesses how to safely secure things like windows, roof-mounted heating, ventilation, air conditioners, improve roof coverings, and other features. **(5)**
4. Other - Above suggestions are not necessary, Tree pruning should already be in the budget. Use the money to Earthquake Emergency Kits **(1)**
5. None **(0)**



Information required for each mitigation action:

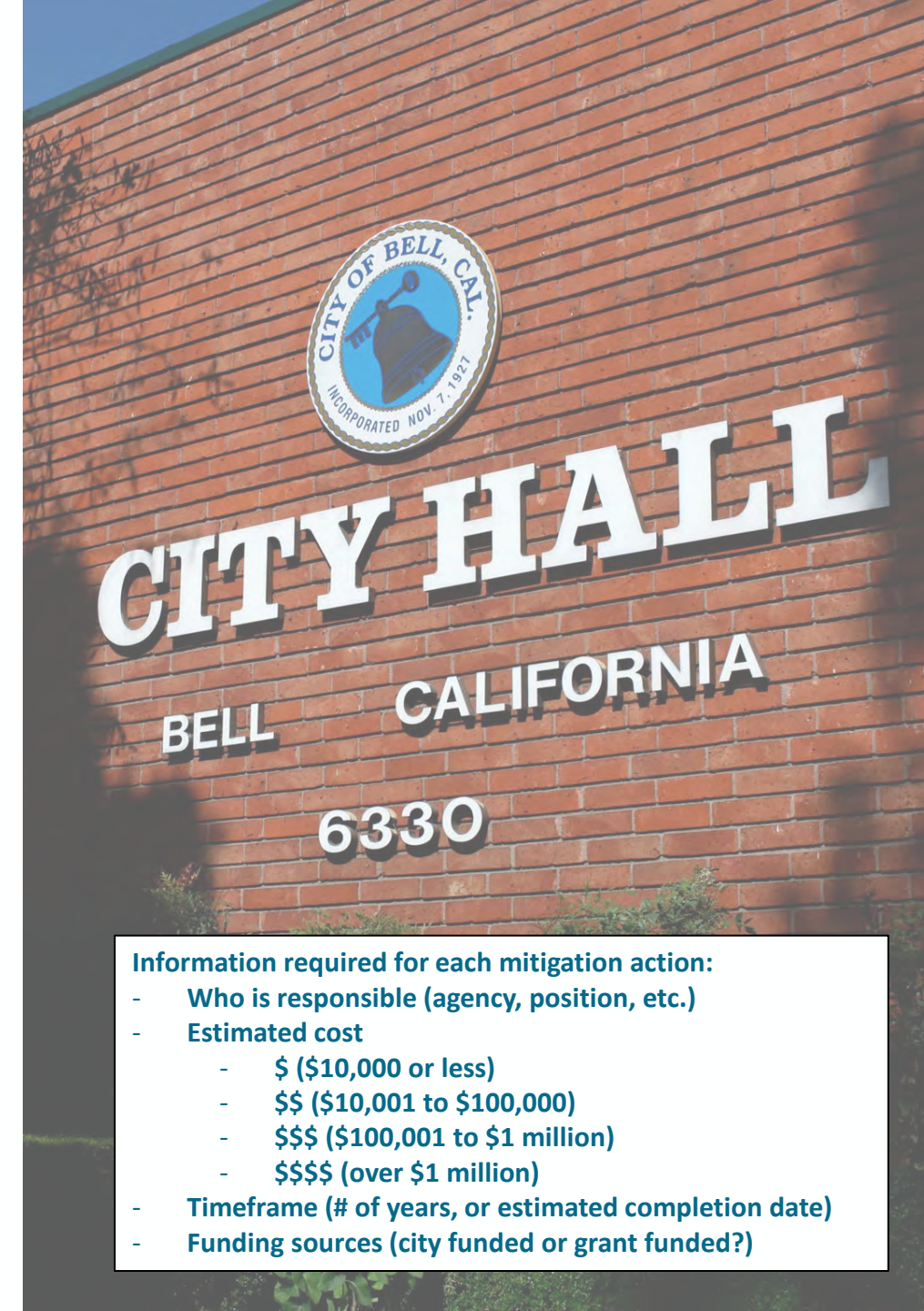
- Who is responsible (agency, position, etc.)
- Estimated cost
 - \$ (\$10,000 or less)
 - \$\$ (\$10,001 to \$100,000)
 - \$\$\$ (\$100,001 to \$1 million)
 - \$\$\$\$ (over \$1 million)
- Timeframe (# of years, or estimated completion date)
- Funding sources (city funded or grant funded?)

Actions for **severe thunderstorms**:

1. Develop an outreach program to teach families, schools, and businesses how to stay safe in a storm. **(9)**
2. Implement community shelters so community members can gather during events. **(6)**
3. None **(2)**
4. Other - Earthquake Emergency Kits per household **(1)**

Actions for **drought**:

1. Support the construction or retrofit of drought resilient landscaping (like planting native vegetation or xeriscaping). **(10)**
2. Support the construction of rain capture systems and reclaimed water usage. **(9)**
3. Develop an outreach program to teach families, schools and businesses how to use less water. **(6)**
4. Implement fines for community members who use more than the allowed amount of water per household. **(5)**
5. None **(1)**
6. Other **(0)**



Information required for each mitigation action:

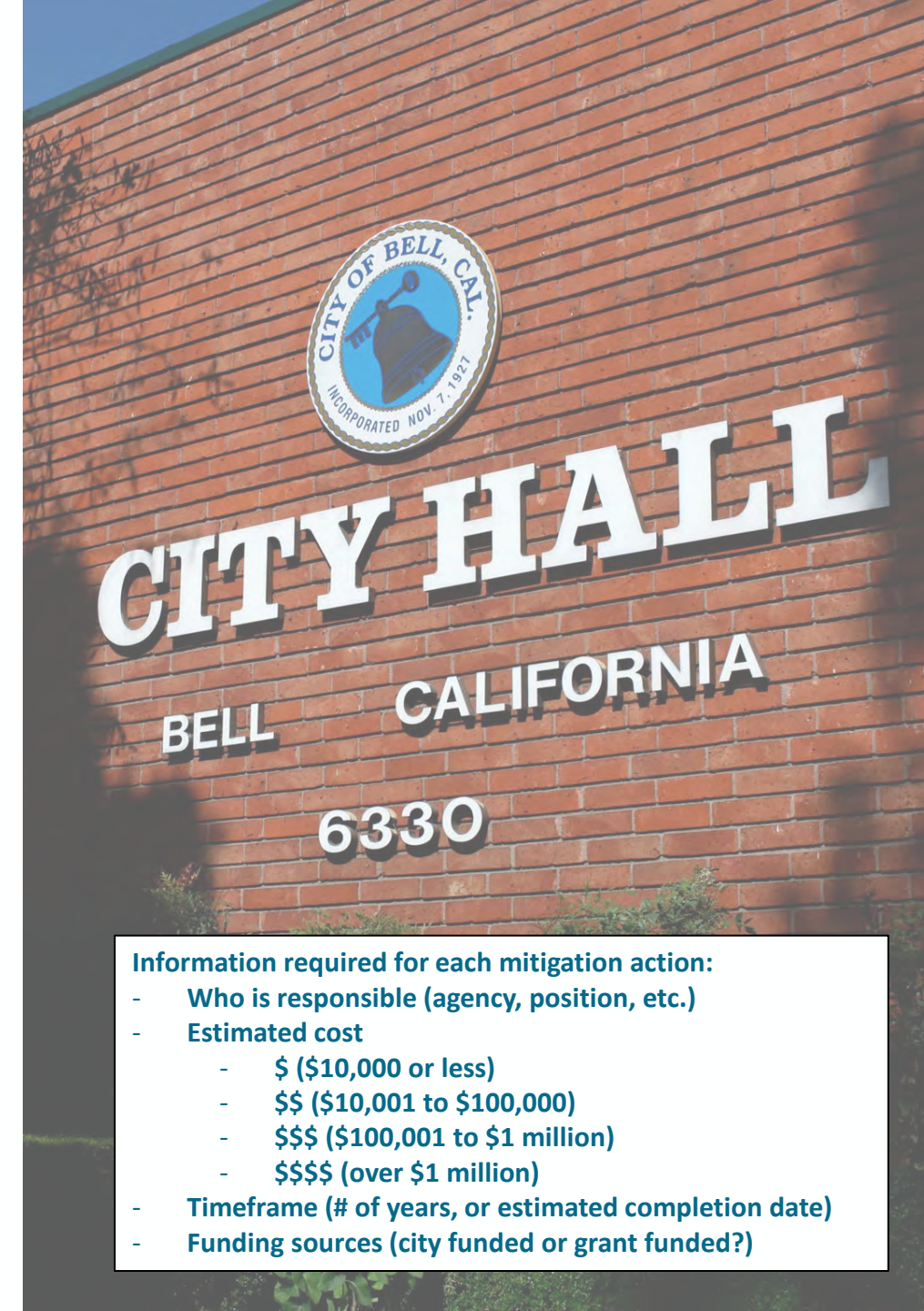
- Who is responsible (agency, position, etc.)
- Estimated cost
 - \$ (\$10,000 or less)
 - \$\$ (\$10,001 to \$100,000)
 - \$\$\$ (\$100,001 to \$1 million)
 - \$\$\$\$ (over \$1 million)
- Timeframe (# of years, or estimated completion date)
- Funding sources (city funded or grant funded?)

Actions for **landslides**:

1. Construct debris flow catchments to prevent transfer of sediment into roadways. **(7)**
2. Construct soil stabilization measures (like planting soil stabilizing vegetation on steep, publicly-owned slopes). **(6)**
3. Map and assess the probable vulnerability to landslides. **(6)**
4. None **(4)**
5. Other **(0)**

Actions for **land subsidence**:

1. Use ground-penetrating radar to detect and map possible hazard areas. **(11)**
2. Promote community awareness of subsidence risks and impacts. **(6)**
3. None **(2)**
4. Other **(0)**



Information required for each mitigation action:

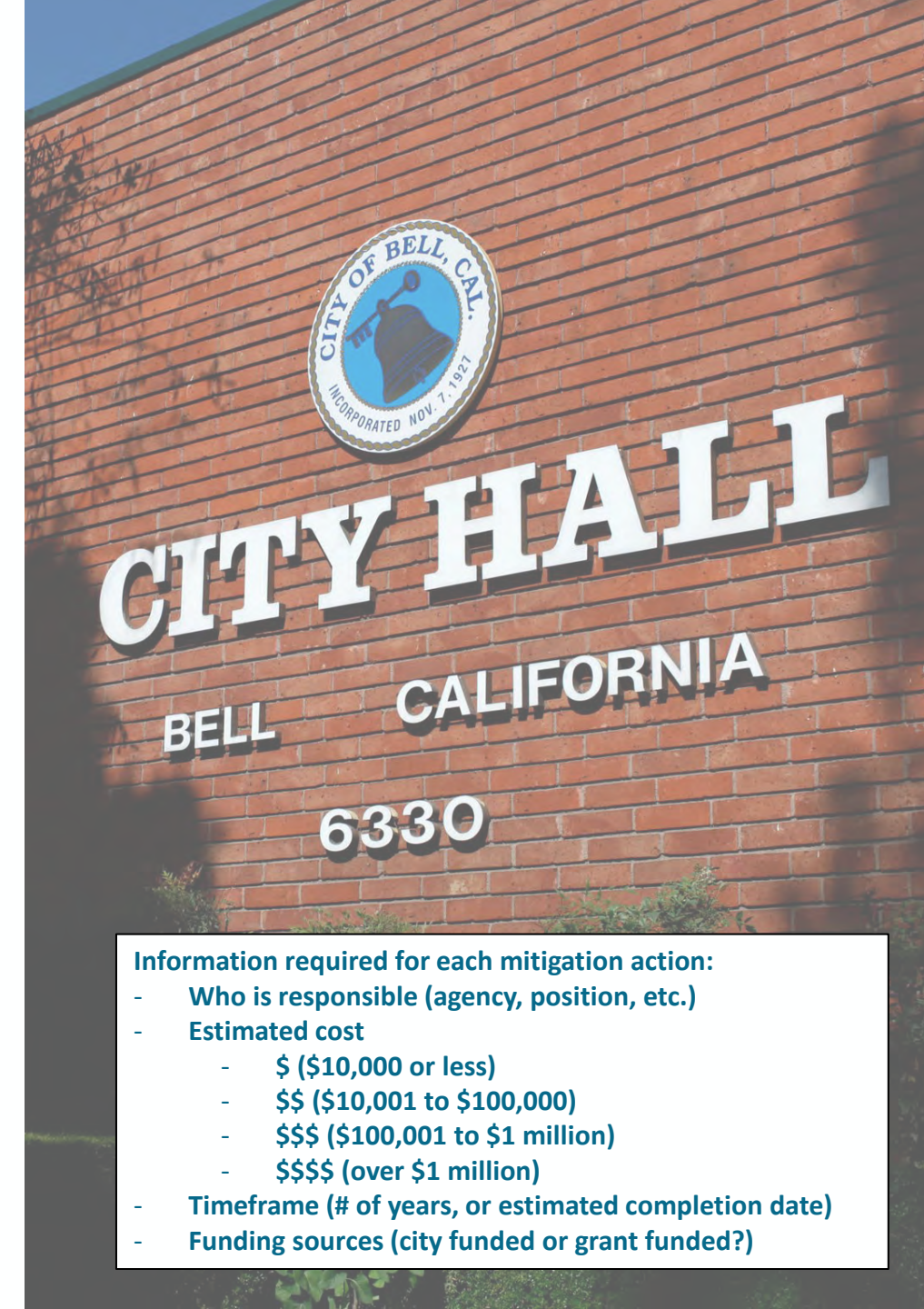
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 - \$\$\$\$ (over \$1 million)
- Timeframe (# of years, or estimated completion date)
- Funding sources (city funded or grant funded?)

Actions for **flooding**:

1. Improve the stormwater systems to pass more water. (9)
2. Modify stormwater systems so that rainfall is captured and/or absorbed into the soil, instead of being routed toward drains (bioswales, drywells, pervious pavements, rain barrels, sand filters, etc.). (9)
3. Use GIS to map hazard areas, at-risk structures, and high-risk areas. (7)
4. Encourage homeowners to purchase flood insurance. (2)
5. Other - Keep and clean out the city gutters throughout the city (1)
6. None (0)

Actions for **dam failure**:

1. Join a task force with surrounding communities that would encourage jurisdictions with high hazard dams to implement protective measures. (8)
2. None (6)
3. Advocate for a thorough watershed analysis for all proposed dam or reservoir projects. (5)
4. Encourage homeowners to purchase flood insurance. (1)
5. Other (0)

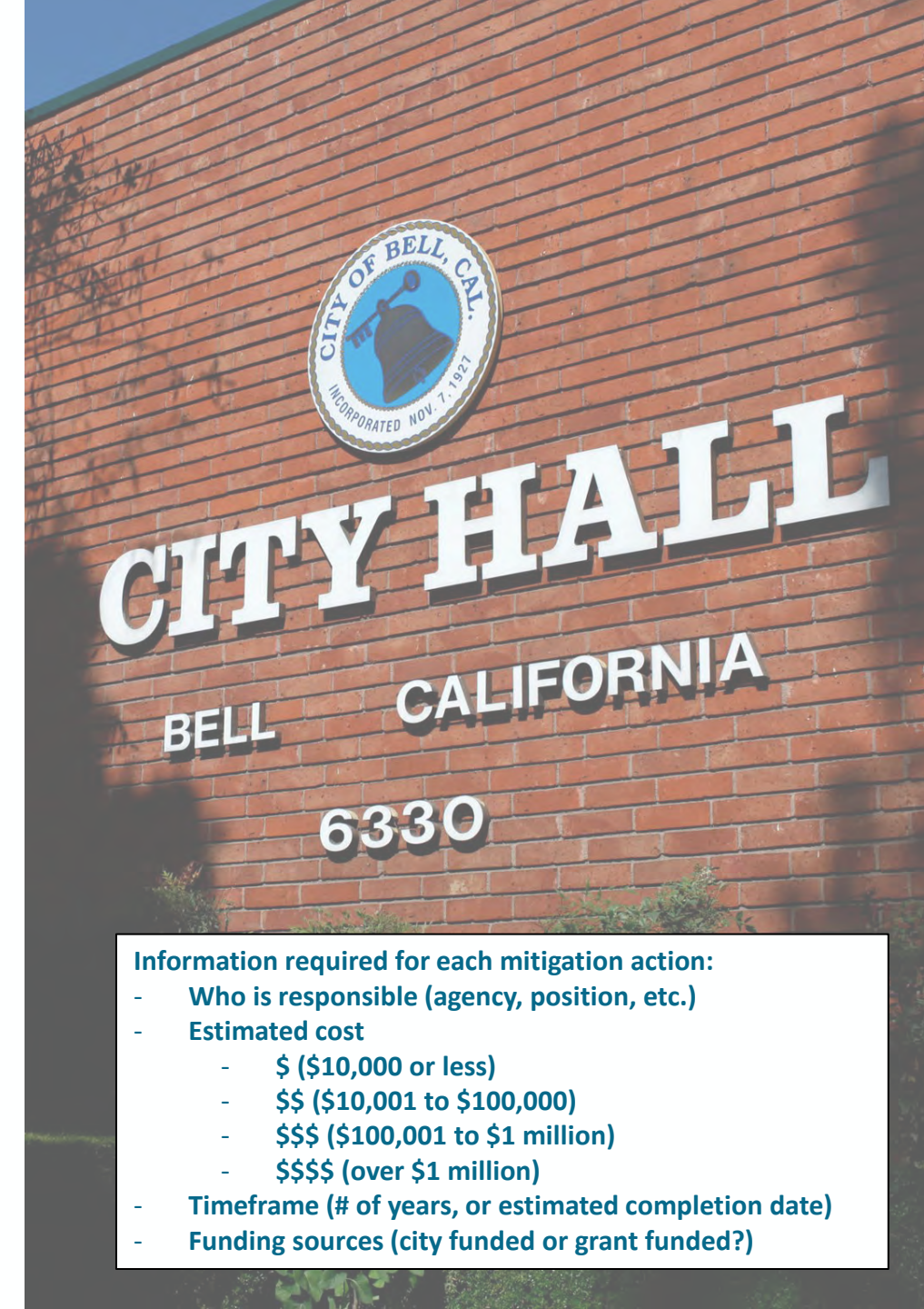


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 - \$\$\$\$ (over \$1 million)
- Timeframe (# of years, or estimated completion date)
- Funding sources (city funded or grant funded?)

Actions for **sea level rise**:

1. Join a task force with surrounding communities to implement a Mitigation Plan that outlines roles, responsibilities, and priorities to protect against impacts. **(6)**
2. Work with local utility providers to establish expectations for impacts and prioritize improvements. **(6)**
3. Model various “what-if” scenarios to estimate potential vulnerabilities in order to develop sea level rise mitigation priorities. **(4)**
4. Invest in the construction of community shelters for evacuees to utilize when impacted. **(3)**
5. None **(2)**
6. Other - Research the rate of displacement due to rising sea levels, and determine its effect on Bell population. If there is an effect, develop a plan to accommodate for it (i.e. improving residential areas to bring in prospective residents by strengthening business relations and having more recreational appeal) **(1)**

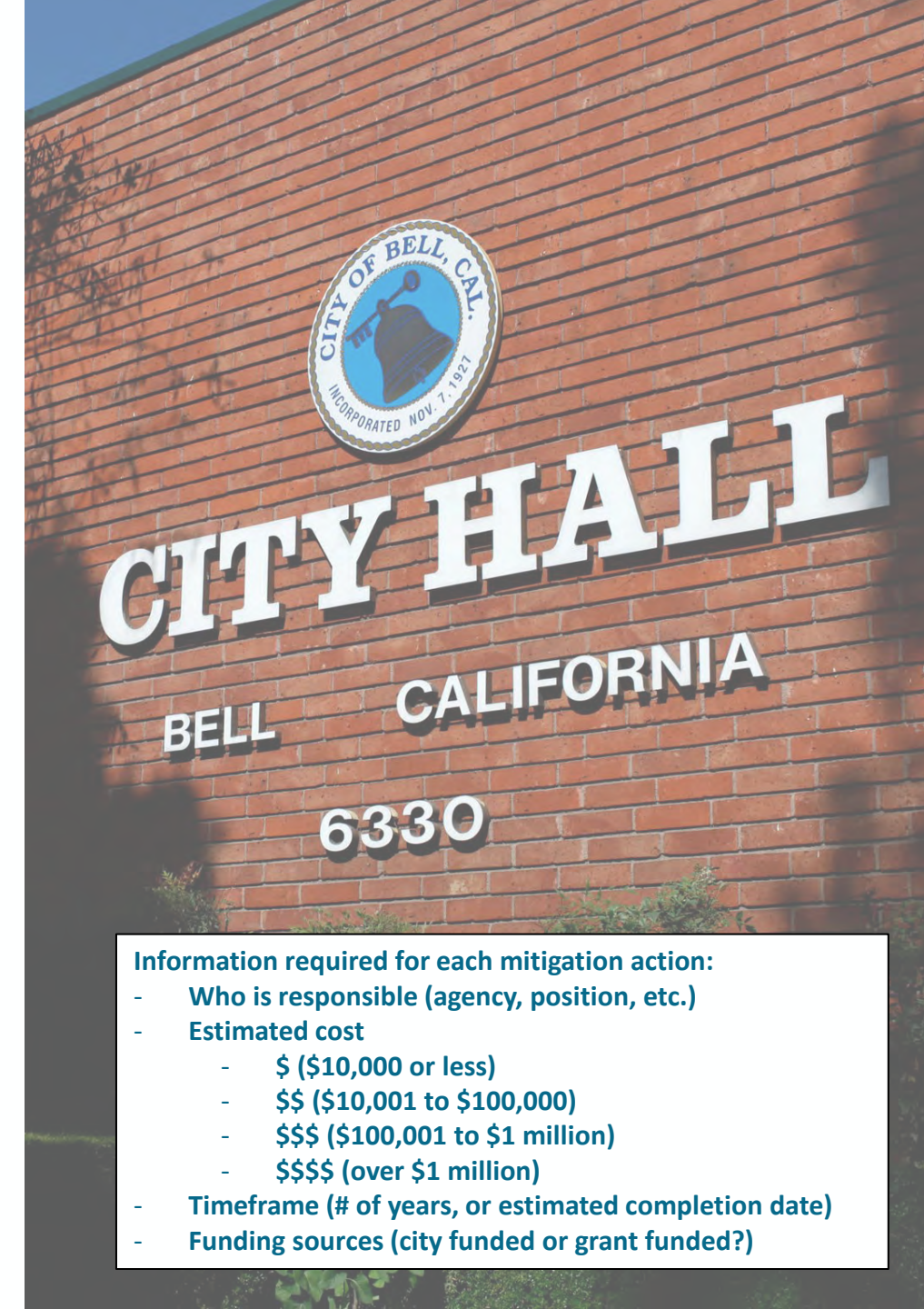


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- Timeframe (# of years, or estimated completion date)
- Funding sources (city funded or grant funded?)

Actions for **tornadoes**:

1. Support establishing standards for all utilities regarding tree pruning around lines and pole maintenance. **(7)**
2. None **(5)**
3. Develop an outreach program to teach families, schools, and businesses how to safely secure things like windows, roof-mounted heating, ventilation, air conditioners, improve roof coverings, and other features. **(3)**
4. Other - City should already be taking care of tree pruning and lines and pole maintenance **(1)**

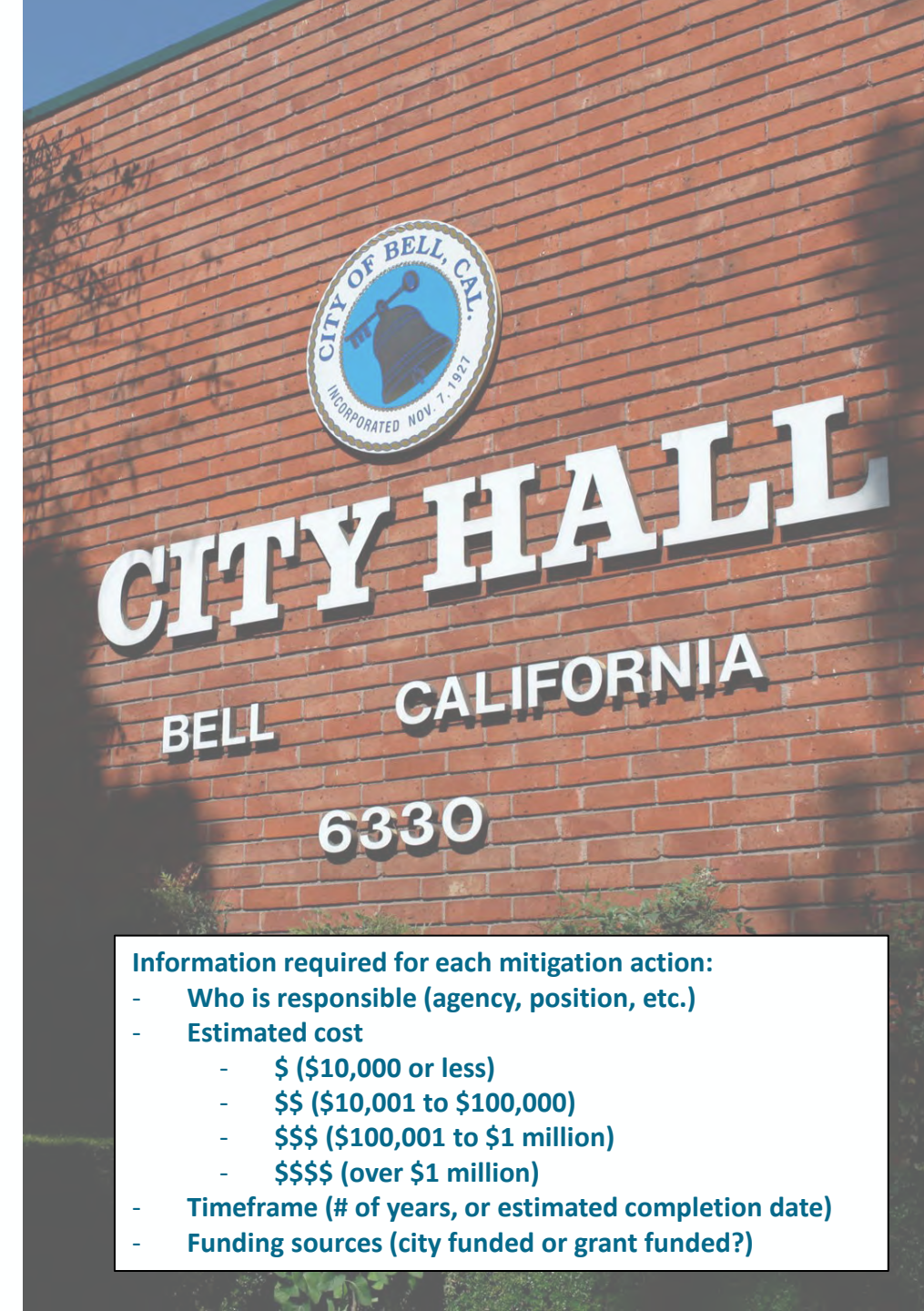


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 - \$\$\$\$ (over \$1 million)
- Timeframe (# of years, or estimated completion date)
- Funding sources (city funded or grant funded?)

Actions for **tsunamis**:

1. Join a task force with surrounding communities to implement an Emergency Response Plan that outlines roles, responsibilities, and evacuation routes. **(9)**
2. Implement an "Evacuteer" Program, where community members would volunteer to participate in trainings and learn how to support the process of an evacuation event. **(6)**
3. Invest public funds now to be accessed only to support a locally declared disaster event. **(5)**
4. Implement community shelters so evacuees can gather during events. **(4)**
5. None **(2)**
6. Other - We have FEMA **(1)**



Information required for each mitigation action:

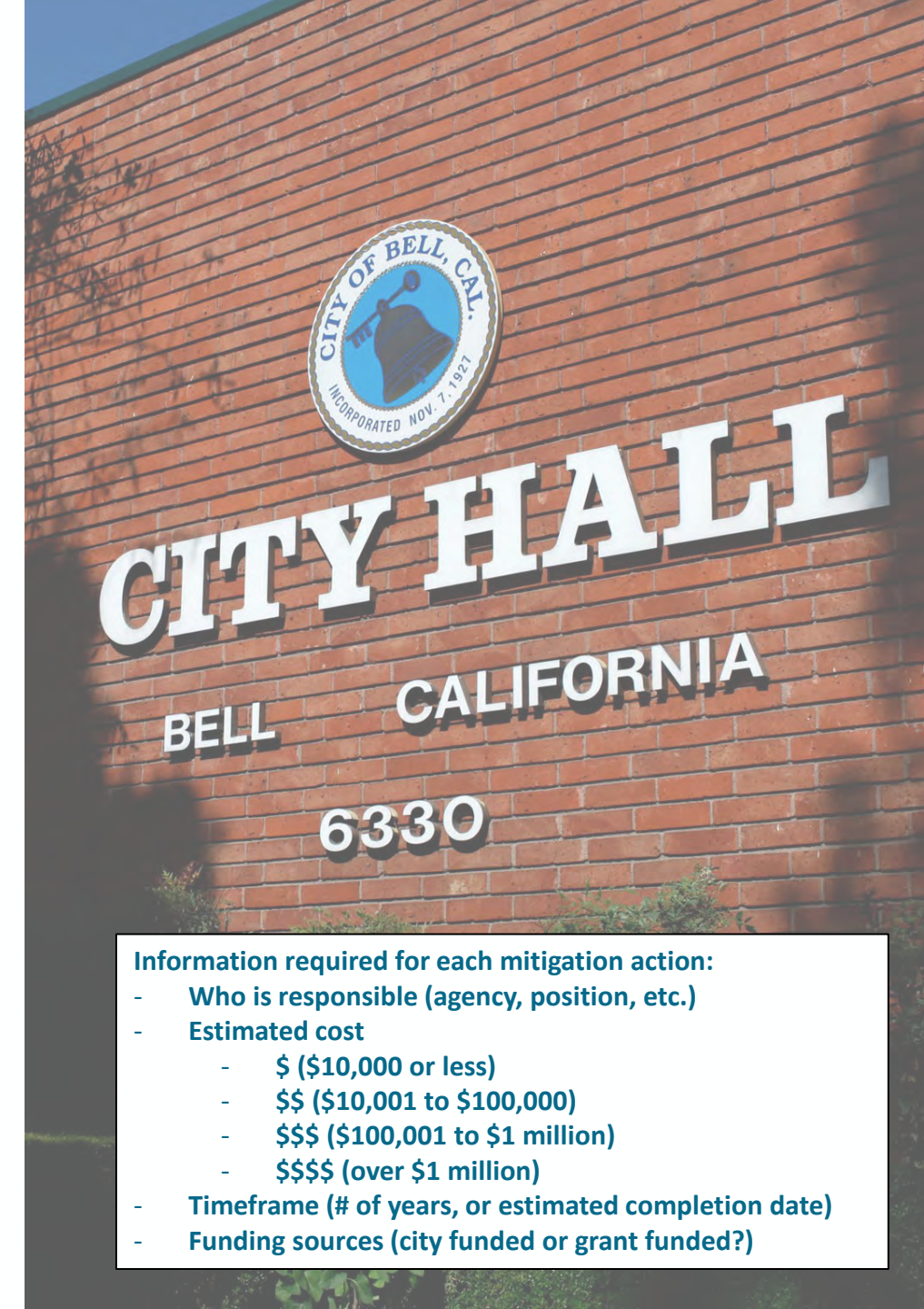
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- Timeframe (# of years, or estimated completion date)
- Funding sources (city funded or grant funded?)

Actions for **cyber attacks**:

1. Implement staff training programs on how to spot scammers and phishing attempts. **(7)**
2. Develop an outreach program to teach families, schools and businesses how to spot scammers and phishing attempts. **(5)**
3. None **(3)**
4. Spend public funds to invest in more protective online security systems or back up devices. **(3)**
5. Other **(0)**

Actions for **hazardous materials releases**:

1. Develop city ordinances that would require businesses and commercial facilities to log all materials with the fire department. **(9)**
2. Develop city ordinances that would restrict the kinds of businesses and commercial facilities able to operate within the city and the kinds of materials allowed to be stored on site. **(6)**
3. Develop an outreach program to teach families, schools and businesses how to respond in the event of different kinds of releases. **(5)**
4. None **(1)**
5. Other **(0)**



Information required for each mitigation action:

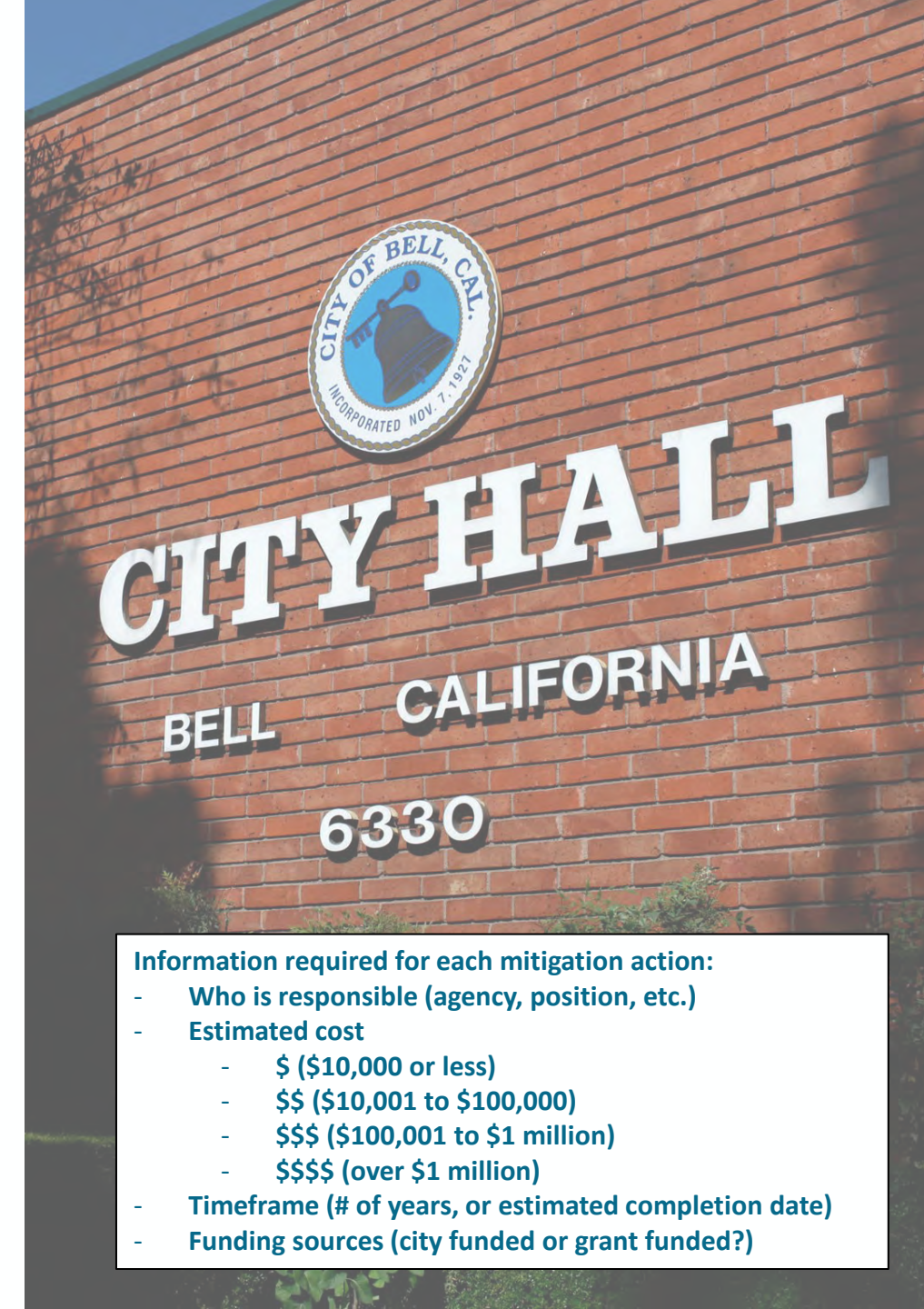
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 - \$\$\$\$ (over \$1 million)
- Timeframe (# of years, or estimated completion date)
- Funding sources (city funded or grant funded?)

Actions for **civil unrest**:

1. Develop an outreach program to teach families, schools and businesses how to protect yourselves during an event. **(5)**
2. Reinforce doors and windows on public facilities with additional locks, shutters, or security bars to protect against forced entry during riots or protests. **(4)**
3. Join a task force with surrounding communities to implement an Emergency Response Plan that outlines roles, responsibilities, and evacuation routes. **(4)**
4. None **(3)**
5. Other **(0)**

Actions for **pandemics**:

1. Develop an outreach program to teach families, schools and businesses how to protect against diseases. **(6)**
2. Create an Emergency Response Plan that outlines roles, responsibilities, and evacuation routes. **(6)**
3. Invest in a rolling stockpile of Personal Protective Equipment. **(4)**
4. None **(2)**



Information required for each mitigation action:

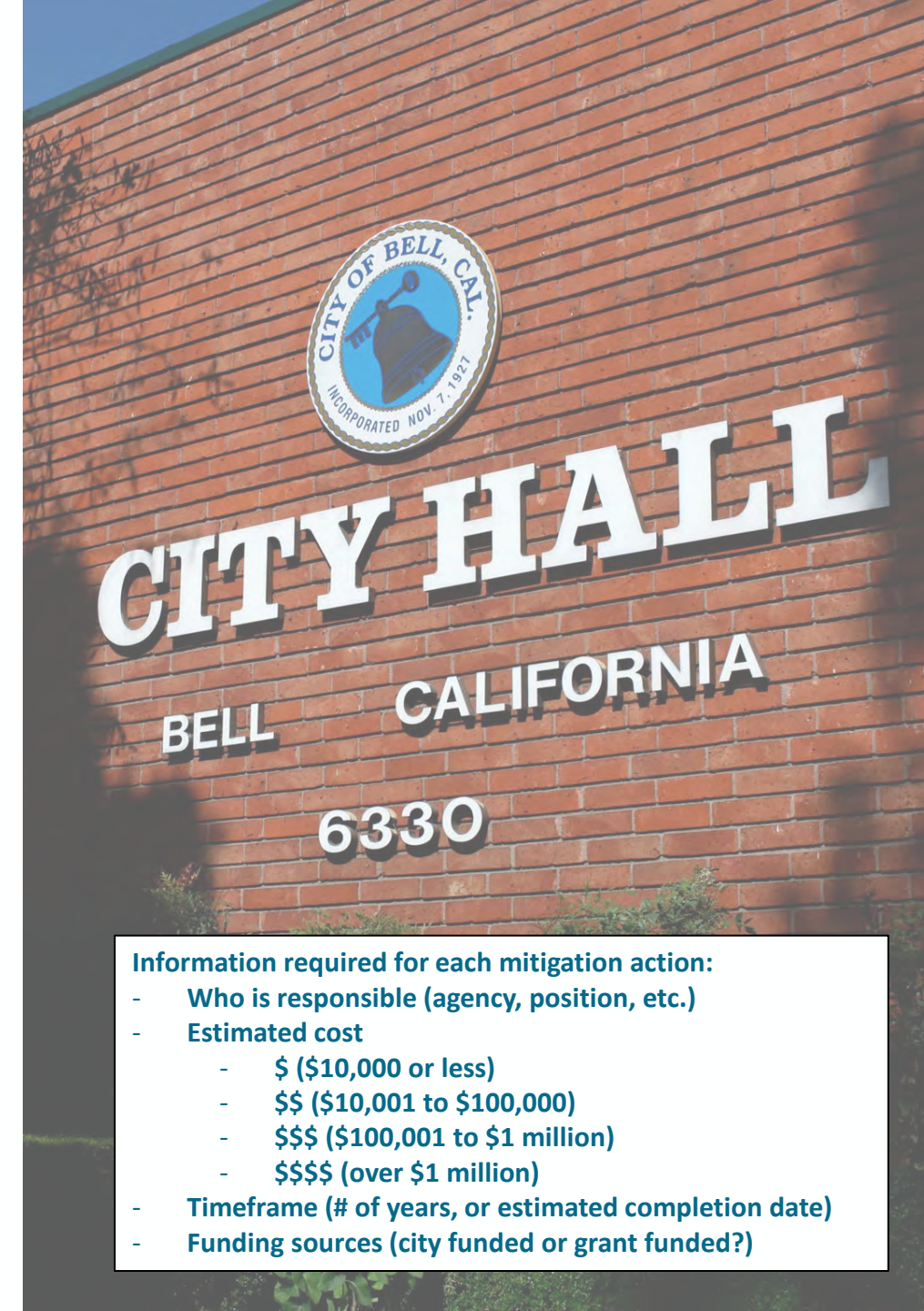
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 - \$\$\$\$ (over \$1 million)
- Timeframe (# of years, or estimated completion date)
- Funding sources (city funded or grant funded?)

Actions for **transportation accidents**:

1. Put up signage and other small road hazard identifiers to help drivers navigate in more hazardous intersections. **(10)**
2. Implement a road safety study to understand which areas of the city have the most risk and identify possible solutions. **(7)**
3. Join a task force with surrounding communities to implement an Emergency Response Plan that outlines roles, responsibilities, and evacuation routes. **(3)**
4. Other - better police enforcement of those who run red lights and drive erratically **(1)**
5. None **(1)**

Actions for **utility and infrastructure failure**:

1. Invest public funds now to be accessed only to support a local infrastructure failure. **(8)**
2. Work with local utility providers to establish expectations for impacts and prioritize improvements. **(7)**
3. Join a task force with surrounding communities that would support identification of solutions and funding infrastructure improvements. **(4)**
4. None **(2)**



Information required for each mitigation action:

- Who is responsible (agency, position, etc.)
- Estimated cost
 - \$ (\$10,000 or less)
 - \$\$ (\$10,001 to \$100,000)
 - \$\$\$ (\$100,001 to \$1 million)
 - \$\$\$\$ (over \$1 million)
- Timeframe (# of years, or estimated completion date)
- Funding sources (city funded or grant funded?)

URGENT NEEDS

- Finish stakeholder contact information
- Guidance on Survey #3
- Monitoring, Evaluating, Maintenance Decisions
- Action Prioritization
- Finish mitigation action information (cost, responsible agency, timeframe, funding sources)
- Send proof of survey distribution

State and FEMA Review Process

- Always anticipate feedback/revision from review process
- General estimate for state and FEMA review is 45 days, each.
- Witt O'Brien's will handle technical consultations with state/FEMA reviewers if the need arises
- After Approved Pending Adoption (APA) status, Bell will have 12 months to formally adopt the plan. Ideally, this also coincides with Assembly Bill 2140 adoption requirements

California Assembly Bill 2140

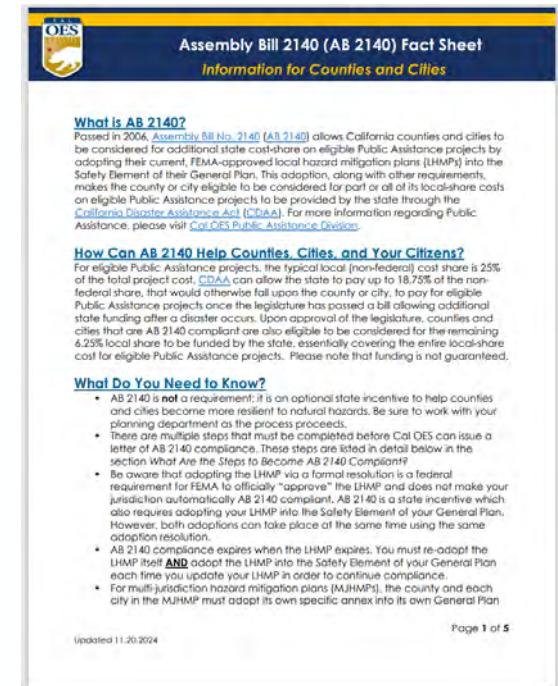
1. Complete and submit an LHMP to the Governor's Office of Emergency Services (Cal OES). A jurisdiction must have a current, FEMA-approved LHMP.
2. Adopt the LHMP via a formal resolution following your jurisdiction's typical procedure once FEMA has issued "approvable pending adoption" (APA) status. Once FEMA receives a signed adoption resolution, they can then issue an official "approval" notice for your LHMP.
3. At this time, you may also choose to adopt the LHMP into the Safety Element of your General Plan using the same resolution in order to meet a requirement of AB 2140 compliance.
4. Within the Safety Element update adoption resolution, there must be language specific to adopting the LHMP into the Safety Element of the General Plan, and the resolution must be signed and approved before the LHMP expires. This adoption can occur at the same time the LHMP is adopted to comply with FEMA requirements, or it can occur after the LHMP is approved but before it expires after five years.

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AB2140 Fact Sheet



California Assembly Bill 2140

5. The local agency must include language specific to the LHMP within the Safety Element of their General Plan and make the LHMP easily accessible in its entirety as a weblink, appendices, or attachment.
6. Jurisdictions should follow their own internal procedures for Safety Element language, however, below is sample language that may be used:

“The Local Hazard Mitigation Plan (LHMP) for the [Add Jurisdiction Name] planning area was developed in accordance with the Disaster Mitigation Act of 2000 (DMA 2000) and followed FEMA’s Local Hazard Mitigation Plan guidance. The LHMP incorporates a process where hazards are identified and profiled, the people and facilities at risk are analyzed, and mitigation actions are developed to reduce or eliminate hazard risk. The implementation of these mitigation actions, which include both short and long-term strategies, involve planning, policy changes, programs, projects, and other activities.” (Add a web link or language directing to the LHMP attachment or appendix within the Safety Element.)

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AB2140 Fact Sheet

**Assembly Bill 2140 (AB 2140) Fact Sheet**
Information for Counties and Cities

What is AB 2140?
Passed in 2006, [Assembly Bill No. 2140 \(AB 2140\)](#) allows California counties and cities to be considered for additional state cost-share on eligible Public Assistance projects by adopting their current, FEMA-approved local hazard mitigation plans (LHMPs) into the Safety Element of their General Plan. This adoption, along with other requirements, makes the county or city eligible to be considered for part or all of its local-share costs on eligible Public Assistance projects to be provided by the state through the [California Disaster Assistance Act \(CDAA\)](#). For more information regarding Public Assistance, please visit [Cal OES Public Assistance Division](#).

How Can AB 2140 Help Counties, Cities, and Your Citizens?
For eligible Public Assistance projects, the typical local (non-federal) cost share is 25% of the total project cost. [CDAA](#) can allow the state to pay up to 18.75% of the non-federal share, that would otherwise fall upon the county or city, to pay for eligible Public Assistance projects once the legislature has passed a bill allowing additional state funding after a disaster occurs. Upon approval of the legislature, counties and cities that are AB 2140 compliant are also eligible to be considered for the remaining 6.25% local share to be funded by the state, essentially covering the entire local-share cost for eligible Public Assistance projects. Please note that funding is not guaranteed.

What Do You Need to Know?

- AB 2140 is **not** a requirement; it is an optional state incentive to help counties and cities become more resilient to natural hazards. Be sure to work with your planning department as the process proceeds.
- There are multiple steps that must be completed before Cal OES can issue a letter of AB 2140 compliance. These steps are listed in detail below in the section [What Are the Steps to Become AB 2140 Compliant?](#)
- Be aware that adopting the LHMP via a formal resolution is a federal requirement for FEMA to officially “approve” the LHMP and does not make your jurisdiction automatically AB 2140 compliant. AB 2140 is a state incentive which also requires adopting your LHMP into the Safety Element of your General Plan. However, both adoptions can take place at the same time using the same adoption resolution.
- AB 2140 compliance expires when the LHMP expires. You must re-adopt the LHMP itself **AND** adopt the LHMP into the Safety Element of your General Plan each time you update your LHMP in order to continue compliance.
- For multi-jurisdiction hazard mitigation plans (MJHMPs), the county and each city in the MJHMP must adopt its own specific annex into its own General Plan.

Updated 11/20/2024 Page 1 of 5

QUESTIONS?

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City of Bell Mitigation Actions Final Items and Wrap Up

Organizer Duffy, Mark W <MDuffy@wittobriens.com>
Meeting time This event occurred 1 month ago (Fri 3/6/2026 5:00 PM - 6:00 PM)
Location Microsoft Teams Meeting
My response Accepted
Required attendees Morganti, Chelsea, jochiqui@CITYOFBELL.GOV, rmanbahal@CITYOFBELL.gov, gskibar@CITYOFBELL.GOV, david, mdumford@inftechnologies.com, rmontalvo@cityofbell.gov, Estrada, Erika Lynn
Optional attendees Harwood, Katie
Message sent Fri 2/27/2026 2:55 PM

Hello all,

The intention for this meeting is to discuss and finalize Bell's mitigation actions and other items to enable submission of the HMP for state and FEMA review.

I hope you see you all there! Please feel free to reach out if you have any questions.

Microsoft Teams meeting

Join: <https://teams.microsoft.com/meet/22161429265825?p=MGxnj1fJsF2EbqU57P>

Meeting ID: 221 614 292 658 25

Passcode: Mf3px6qQ

[Need help?](#) | [System reference](#)

Dial in by phone

[+1 281-810-2971,,690243597#](#) United States, Houston

[Find a local number](#)

Phone conference ID: 690 243 597#

For organizers: [Meeting options](#) | [Reset dial-in PIN](#)

[Org help](#)

City of Bell

Hazard Mitigation Planning Team Meeting

Mitigation Plan Review | March 6th, 2026

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CITY*of* **BELL**

Today's Agenda:

1. Review stakeholder contact information
2. Make a plan for prioritizing mitigation actions
- 3. Review proposed mitigation actions and either eliminate them or provide missing information**
4. Discuss path forward for public comment on plan draft

1. Stakeholder Contact Information

Do you have points of contact for these organizations? If not, we will identify generic email addresses and move forward.

Stakeholder Class	Name
Private Businesses & Academia	Bell High School
Private Businesses & Academia	Bell Adult School AC2T Program
Private Businesses & Academia	CEMEX Bell
Private Businesses & Academia	Navy Reserve Center
Private Businesses & Academia	Army 307 th Chemical Company
Private Businesses & Academia	Army 350 th Engineer Company
Private Businesses & Academia	Slawson Southeast Occupational Center
Local/Regional Agencies Involved in Hazard Mitigation	City of Bell Police Department
Local/Regional Agencies Involved in Hazard Mitigation	City of Bell Community Services
Local Agencies/Entities with the Authority to Regulate Development	City of Bell City Council
Non-Profit/Community Organizations	Southland Christian Church

2. Prioritizing Mitigation Actions

Reminder - FEMA C5-a:

The plan must describe the criteria used for prioritizing the implementation of the actions. The criteria must include an emphasis on the extent to which benefits are maximized, in relation to the associated costs of the action.

Our recommended path forward for prioritizing mitigation actions is to assign high, medium, or low priority based on whether the action saves lives, prevents property damage, or reduces the need for response. **Are you okay with this path forward?** We would not need support from you to identify the priority of your proposed actions.

- High Priority:
 - Saves lives, AND either reduces property damage or reduces the need for response actions
- Medium Priority:
 - Saves lives, but does not reduce property damage or the need for response actions
 - Does not save lives, but reduces property damage and reduces the need for response actions
- Low Priority:
 - Does not save lives or reduce need for response actions, but reduces property damage
 - Does not save lives or reduce property damage, but reduces the need for response actions

3. Review Mitigation Action Plan

We would like to review the mitigation action plan and discuss the outstanding required information for each mitigation action. If there is any information we cannot identify in this meeting, we will need you to provide it to us by **Friday, March 13th**.

Information required for each action includes:

- Who is responsible (agency, position, etc.)
- Estimated cost
 - \$ (\$10,000 or less)
 - \$\$ (\$10,001 to \$100,000)
 - \$\$\$ (\$100,001 to \$1 million)
 - \$\$\$\$ (over \$1 million)
- Timeframe (# of years, or estimated completion date)
- Funding sources (city funded or grant funded?)
- Priority (high, medium, low)



4. Create the Opportunity for Public Comment

Reminder - FEMA A3-a:

The plan must document how the public had an opportunity to be involved in the current planning process, and what that participation entailed. The opportunity must occur during the plan's development, which means prior to the plan's submission for formal review. In addition, the plan must document how public feedback was included throughout the planning process.

After the plan draft is finalized, it will need to be shared with the public for comment. Remaining steps are:

- Upload the plan to your website or elsewhere online to make it available for review.
- Provide us with a link to where it is hosted so we can include that link in our survey.
- *We will finalize the survey and send you a link.*
- Share the draft plan and survey with the public via your social media or other channels.
- Provide us with documentation that you have let the public know about the opportunity to review the plan (links to posts, screenshots, etc).

Remaining Steps

1. Provide stakeholder contact information
2. Finalize plan for prioritizing mitigation actions
3. Provide remaining mitigation action information (cost, responsible agency, timeframe, funding sources, assign priority)
4. Post draft plan and share link to include with Public Survey #3
5. Publicize Plan and Public Survey

Questions ?



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Capability Assessment Survey

Community/Organization:	City of Bell, California
Name and Title:	Gina Skibar , Deputy Director of Human Resources and Risk Management

Staff and Technical Assistance:

Please indicate whether your jurisdiction has the following personnel resources on-staff or available to assist with hazard mitigation efforts. If the support is provided through the county or through a contract, please indicate it in the comments section.



Staff or Personnel Resource	Yes	No	Department or Single Staff Member	Comments
Emergency Manager	X			Dual responsibility shared by multiple staff members
Engineers or professionals trained in construction practices related to buildings and/or infrastructure	X		German Alvarez Associate Engineer	Public Works /Engineering
Environmental justice specialist(s)		x		
Fiscal Management or Procurement Specialist(s)	X		Rickey Manbahal Finance Director	Finance Department
Floodplain Manager		x		Los Angeles County
Housing Specialist(s)	x		Community Development	Community Development Department
Land Surveyors		x		
Land Use/Management/Development Planning	x		Community Development	
Planners or engineers with an understanding of natural and/or human-caused hazards	X		Public Works	
Recreation/Green space specialist(s)		x	Community Services Staff as needed	Community Services Staff as needed
Resource Development Staff or Grant-writing	X		Administration	Contracted position



Scientists familiar with the hazards of the community		x		
Staff experienced with Geographic Information Systems (GIS) or HAZUS	x	x	Public Works	
Staff with education or expertise to assess the community's vulnerability to hazards		x	Public Works	
Transportation Manager/Traffic Engineer	X		Public Works	

Planning Mechanisms:

Please indicate if the following planning tools are currently in place or under development for your jurisdiction. Place an "X" in the appropriate box, followed by the date of adoption or last update (if known). If the County plan covers your jurisdiction, please place an "O" in the yes column.

Plans	In Place		Adopted/Updated	Under Development		Expected Completion
	Yes	No		Yes	No	
Capital Improvement Plan (CIP)	X		25-26	X		
Climate Action Plan/Resiliency Plan				x		2026
Community Wildfire Protection Plan (CWPP)	o					
Comprehensive Emergency Management Plan				x		2025
General Plan	X		2019			
Continuity of Operations Plan (COOP)				x		2025
Disaster Recovery Plan				x		2025
Economic Development Plan	x		2024	x		
Emergency Operations Plan (EOP)	X		2018	x		2025
Environmental Impact Report (EIR)	x		2019	x		2026
Evacuation Plan				x		2025
Flood Response Plan	o			o		
Floodplain Management Plan/Flood Mitigation Plan	o			o		
Hazard Mitigation Plan	x		2025	x		
Historic Preservation Plan				x		
Natural Resource Protection Plan (NRPP)				x		

City of Bell 2026 Hazard Mitigation Plan



Plans	In Place		Adopted/Updated	Under Development		Expected Completion
	Yes	No		Yes	No	
Open Space Management Plan (Parks & Rec/Green Plan)	x		2023	x		
Threat Hazard Identification and Risk Assessment (THIRA)	o		2024	x		

Regulatory Tools and Programs:

Please indicate if the following programs are currently in place or under development for your jurisdiction. Place an "X" in the appropriate box, followed by the date of adoption or last update (if known). If the County administers this function, please indicate with an "O" in the yes column.

Tool/Program	In Place		Adopted/Updated	Under Development		Expect to Implement
	Yes	No		Yes	No	
2WeeksReady				x		2026
Alliance of Regional Collaboratives for Climate Adaptation (ARCCA) activities				x		2025
Building Codes (please indicate UCC or IBC + year)	x		<u>2022</u>	x		
CAL FIRE's Land Use Planning Program		x				County Covers
California Adaptation planning Guide (APG)		x		x		
California Animal Response Emergency System		x		x		2026
California Urban Flood Risk Reduction Program		x		x		2026
Citizen Corps - Community Emergency Response Team		x		x		2026
Community Rating System (CRS Program of the NFIP)				x		2025
Emergency Management Accreditation Program (EMAP)		x		x		2026
Fire Code	x		2022			
Firewise Community					x	
Floodplain Management/Flood Damage Prevention Ordinance		x		x		
Geological Hazard Assessment District (GHAD)					x	



Tool/Program	In Place		Adopted/Updated	Under Development		Expect to Implement
	Yes	No		Yes	No	
Great ShakeOut Earthquake Drill	X		2025			
Land Use/Development Planning	X			x		
Listos California Program	x		2023	x		
Local Coastal Program (LCP)					x	
MyPlan/MyHazards Tool	x		2025			
National Flood Insurance Program (NFIP)	x		2025	x		
Post Disaster Redevelopment/Reconstruction Plan/Ordinance		x	2026			
Standardized Emergency Management System (SEMS)						
Storm Ready	x		2023	x		
Stormwater Management Plan/Ordinance	x		2023	x		
Subdivision Regulations/Ordinance	x		2022	x		
Unified Development Ordinance					x	
Zoning Ordinance	x		2023			

Fiscal Capacity:

Please indicate if your jurisdiction utilizes or has utilized the following financial resources.



Fiscal Resources	Never used	Previously Used	Currently Used	Comments
Capital Improvement Programming			x	Annual Budget Process
CAL FIRE Grants		x		
California Floodplain Management, Protection, and Risk Awareness Grant Program	x			
Community Development Block Grants (CDBG)			x	LA County CDBG Program
Development Impact Fees			x	
FEMA Hazard Mitigation Assistance Grants (HMGP, FMA, PDM)			X	First HMGP award for 2025 HMP
Gas/Electric Utility Fees		x		
General Obligation, Revenue, and/or Special Tax Bonds			x	
Homeland Security Grants (HSGP)			x	
Infrastructure Investment and Jobs Act (IIJA)	x			
Infrastructure State Revolving Fund loan				
Partnering Agreements or Intergovernmental Agreements			x	
Prepare California Grant(s)				
Public Assistance			X	DR-4699
Sewer/Water Fees	x			
Special Purpose Taxes (or taxing districts)				
Stormwater Utility Fees				
USDA Grants	x			
USDA Rural Development Agency Grants				
US Economic Development Administration Grants	x			

Self-Assessment of Capability:



Please provide an approximate measure of your jurisdiction's capability to effectively implement hazard mitigation strategies to reduce hazard vulnerabilities. Using the following table, please place an "X" in the box marking the most appropriate degree of capability (Limited, Moderate or High) based upon best available information and the responses provided in other sections of this survey.

Area	Degree of Capability		
	Limited	Moderate	High
Planning and Regulatory Capability		X	
Administrative and Technical Capability		X	
Fiscal Capability	X		
Available Staff	X		
Political Support/Interest		X	
Community Support		X	



Hazard Identification Exercise

Community/Organization:	City of Bell, California
Name and Title:	Bell Hazard Mitigation Planning Team

Potential Hazards

Should any of these hazards be included in the Risk Assessment as a separate, stand-alone hazard – meaning they have the potential to negatively affect your community and require a focused mitigation effort?

Other Hazards	Yes/No	NC=No Change I=Increase D=Decrease	Comments
Natural Hazards			
Dam and Levee Failure	Yes		
Earthquake/ Landslide/Mudflow/ Liquefaction	Yes		
Extreme Temperature (heat & cold)	Yes		Winter storm 2023 – funding
Fire (Urban or Wild)	Yes		
Flood	Yes		
Land Subsidence/Karst/ Sinkholes	Yes		
Sea Level Rise	Yes		
Severe Storm/Thunderstorm	Yes		
Tornado	Yes		
Tsunami	Yes		
Water Shortage/Drought	Yes		
Windstorm	Yes		Increased damages and storm events
Other?		No	
Human Caused/Man-Made Hazards			
Cyber & Security Breach	Yes		

City of Bell 2026 Hazard Mitigation Plan

Other Hazards	Yes/No	NC=No Change I=Increase D=Decrease	Comments
Hazardous Material Releases	Yes		Southgate and other neighboring releases. Vernon plants – lead investigation, soil contamination
Mass Gathering/Civil Unrest	Yes		
Public Health Emergencies (Pandemic)	Yes		
Transportation Accidents	Yes		Titan (rail) or Union Pacific
Utility and Infrastructure Failure	Yes		

1. Promote cross-sector collaboration by fostering partnerships across all sectors and levels of government and non-governmental or (NGOs).
2. Improve climate literacy
3. Improve the understanding of the locations, potential and cascading impacts, and linkages among the threats, hazards, vulnerabilities, and measures needed to protect life, community lifelines, the environment, property, and infrastructure.
4. Promote, coordinate, and implement hazard mitigation plans and projects to be consistent with and supportive of climate action and adaptation goals.
5. Work collaboratively on hazard mitigation planning efforts to foster and reinforce resilient communities
6. Promote integration of hazard mitigation plans
7. Reduce complexities, remove barriers, and streamline programs
8. measure progress toward increasing resources for communities and populations subjected to systematic, institutional, and procedural oppression.
9. Reduce mitigation-related disparities impacting underserved populations and historically marginalized communities
10. Foster a comprehensive statewide, whole-community approach to mitigation.
11. Actively promote climate-focused programs, policies, projects, and initiatives by encouraging multi-benefit projects that reduce risk using nature-based solutions.
12. Promote the use of statewide criteria and shared data
13. Develop and implement mitigation policies, protocols, programs, and procedures to address the State's changing environment and climate.
14. Encourage mitigation measures in areas at substantial risk.
15. Create financial and regulatory incentives to encourage avoiding hazardous areas, reducing risk, and using hazard-resistant building materials and methods.
16. Encourage multi-objective mitigation and resilience strategies and efforts with diverse stakeholders

- A. Protect lives and reduce injuries.
- B. Minimize damage to property and infrastructure.
- C. Preserve environmental quality.
- D. Support economic stability and recovery.
- E. Promote public awareness of hazard mitigation through outreach and education.
- F. Maintain community continuity and social connections.
- G. Prevent damage to cultural, economic, and environmental assets.
- H. Minimize downtime and accelerate recovery.
- I. Reduce costs of disaster response.

Re: HMP Kick-off Due Outs

From Gina Skibar <gskibar@CITYOFBELL.ORG>

Date Wed 10/15/2025 6:21 PM

To Morganti, Chelsea <cmorganti@wittobriens.com>

Cc Duffy, Mark W <MDuffy@wittobriens.com>; rmanbahal <rmanbahal@CITYOFBELL.ORG>

Page/ Slide 5.

Answer

The City of Bell can improve how we prepare for and reduce the impact of hazards by:

1. Finding more funding and grants to help with safety projects.
2. Providing more training for staff on emergency response and hazard planning.
3. Updating city plans and safety rules to better protect homes and neighborhoods.
4. Creating new ordinances or strengthening existing ones related to flood control and building safety.
5. Sharing more information with the public in different languages, including Spanish and Lebanese.

Page/ Slide 6.

1. Yes. The City of Bell has seen modest growth, including new residential housing, small business improvements, and infrastructure upgrades such as street and sidewalk repairs. There has also been more focus on redevelopment of older commercial properties and improving public spaces.
2. The City plans to sell or redevelop several city-owned properties to encourage private investment, create new housing, and strengthen the local economy. Future development efforts will focus on revitalizing commercial areas, improving infrastructure, and supporting projects that bring long-term community benefits.
3. Community priorities have shifted toward revitalization and economic growth. Residents and leadership are focused on creating a safer, more vibrant city with more housing opportunities, new businesses, and better public spaces. There is also continued emphasis on sustainability, public safety, and improving overall quality of life.

Page /Slide7.

1. The City will use the Hazard Mitigation Plan to update zoning rules, guide redevelopment projects, and include hazard data in the General Plan, Emergency Operations Plan, and Capital Improvement Program.
2. We'll work with local agencies, nearby cities, businesses, and non-profits, and share information in English, Spanish, and Lebanese so the whole community can participate.

Page 8.

1. Yes (under review)

2. Yes (under review)
3. Community Development Department and Public Works
4. Under review
5. ?
6. no
7. yes

From: Gina Skibar <gskibar@CITYOFBELL.ORG>
Sent: Wednesday, October 15, 2025 3:33 PM
To: Morganti, Chelsea <cmorganti@wittobriens.com>
Cc: Duffy, Mark W <MDuffy@wittobriens.com>
Subject: Re: HMP Kick-off Due Outs

Hi Chelsea,

Please see attached Capability Assessment
Page 2 , Sample Goals, let keep A, B, D, E, F, H
Page 1, Goals : 1, 2,3,4,5,6,7,8,9,10,11

From: Morganti, Chelsea <cmorganti@wittobriens.com>
Sent: Wednesday, October 15, 2025 1:24 PM
To: Gina Skibar <gskibar@CITYOFBELL.ORG>

APPENDIX B – PUBLIC PARTICIPATION

First Public Survey QR Codes



Second Public Survey QR Codes



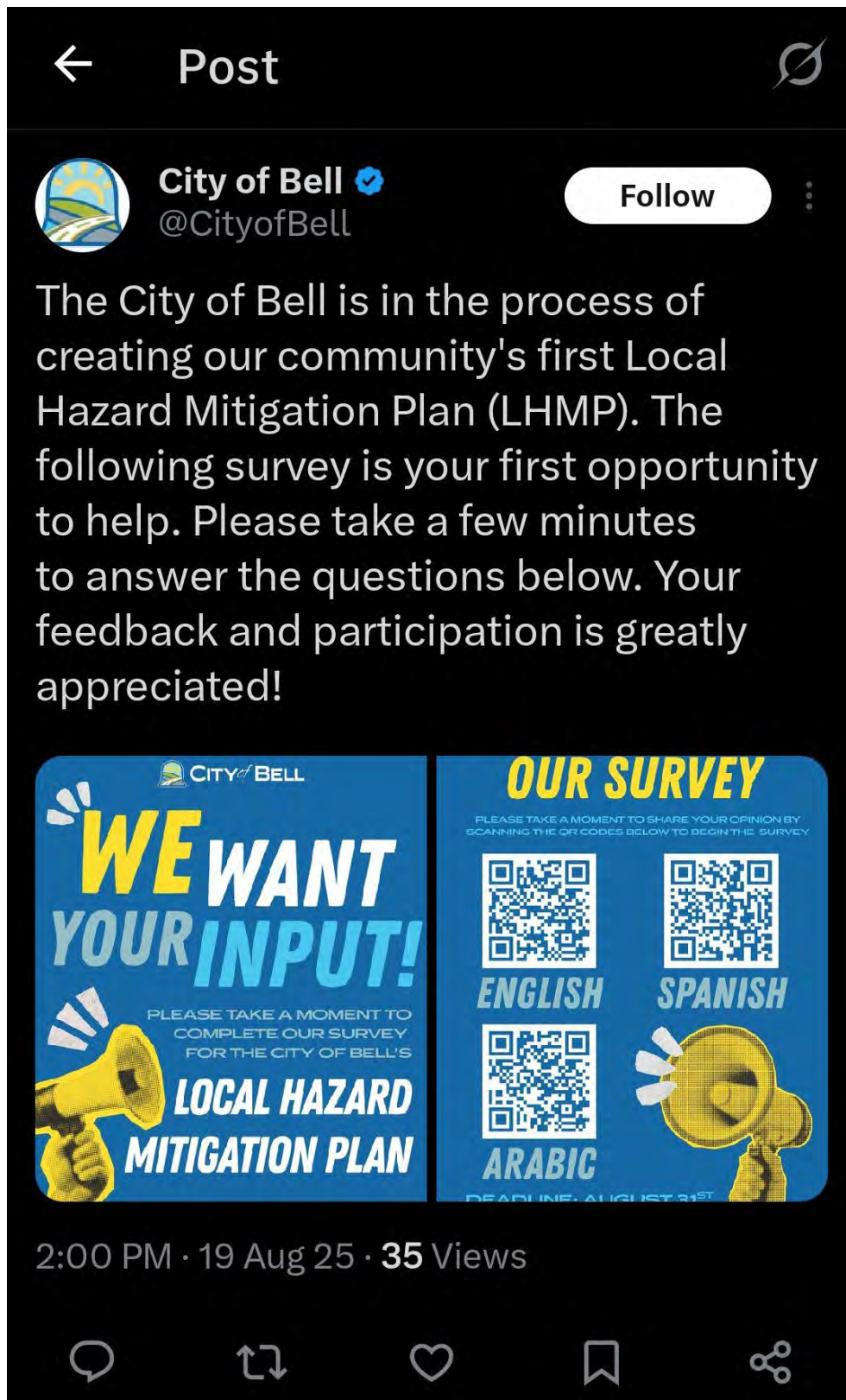
Third Public Survey QR Codes



First Public Survey Instagram Post



First Public Survey X Post



First Public Survey Facebook Post

< City of Bell

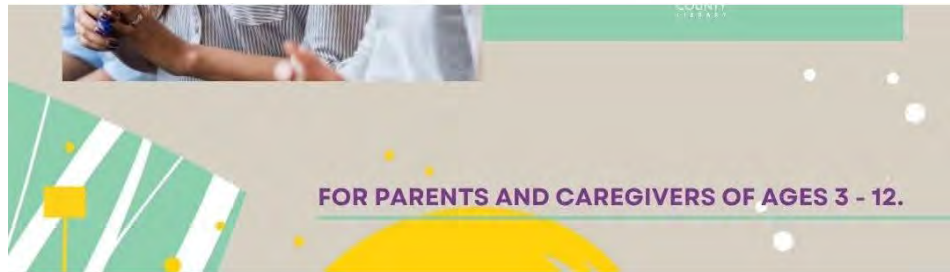


All

Photos

Reels

More ▼



City of Bell



Aug 19, 2025 · 🌐

The City of Bell is in the process of creating our community's first Local Hazard Mitigati... more

See translation



LHMP مدينة بيل | استبيان الرأي العام رقم 1 حول خطة

تخدم LHMP على مجتمعنا. وفي محاولة منها لتطوير خطة (LHMP) تعكف مدينة بيل على وضع أول خطة محلية للتخفيف من أثر المخاطر جميع السكان على أفضل وجه، تقدّم لك مدينة بيل فرصةً لطرح الأسئلة والتعبير عن مخاوفك وعرض ملاحظاتك في ما يخص التخفيف من أثر هذه المخاطر على المجتمع. والاستبيان التالي هو فرصتك الأولى للمساعدة في هذا المجال. يُرجى تخصيص بضع دقائق من وقتك للإجابة على الأسئلة أدناه. إنّ ملاحظاتك ومشاركتك هي موضع تقدير كبير لدينا!

1. أيّ ممّا يلي هو أفضل وصف لحالة إقامتك في مدينة بيل؟

- ☐ مقيم حالي
- ☐ مقيم سابق
- ☐ غير مقيم

2. إنّ المخاطر الطبيعية هي الظواهر الطبيعية التي قد تسبّب أضرارًا في الأرواح والممتلكات. ومن الأمثلة على هذه المخاطر الطبيعية نذكر الزلازل وحرائق الغابات والأعاصير والزوابع والجفاف والفيضانات وغيرها. بشكل عام، ما مدى قلقك من تأثير كارثة طبيعية على مدينة بيل؟

- ☐ قلق للغاية
- ☐ قلق إلى حدّ ما
- ☐ غير مُبالٍ
- ☐ غير قلق إلى حدّ ما
- ☐ غير قلق على الإطلاق

3. من بين المخاطر الطبيعية التالية، ما هي أكثر ثلاثة تثير قلقك بشكل أكبر من غيرها؟ يُرجى تحديد 3 خيارات

Please select at most 3 options.

- ☐ انهيار السدود وحواجز الفيضانات
- ☐ الجفاف/نقص المياه
- ☐ الزلزال/الانهيار الأرضي/الانزلاق الطيني
- ☐ درجات الحرارة القصوى (الحرارة والبرودة الشديدة)
- ☐ الحرائق (في المناطق الحضرية والغابات)
- ☐ الفيضانات
- ☐ انخساف التربة/تشكل الكارستات
- ☐ ارتفاع مستوى مياه البحر
- ☐ العواصف الرعدية الشديدة
- ☐ الأعاصير
- ☐ التسونامي
- ☐ العاصفة الهوائية
- ☐ Other

4. ما مدى قلقك بشأن الآثار المحتملة للتغير المناخي أو لأنماط الطقس المتغيرة على الظروف المستقبلية في مدينة بيل؟

- ☐ قلق للغاية
- ☐ قلق إلى حد ما
- ☐ غير مُبالٍ
- ☐ غير قلق إلى حد ما
- ☐ غير قلق على الإطلاق

5. بالإضافة إلى الكوارث الطبيعية، يمكن أن تشكّل المخاطر التي هي من صنع الإنسان أذى محتمل على الحياة والممتلكات. من بين الأمثلة على المخاطر التي هي من صنع الإنسان نذكر حوادث النقل والحوادث المتعلقة بالمواد الخطرة والأوبئة والحرائق الحضرية وغيرها. ما مدى قلقك بشأن المخاطر التي هي من صنع الإنسان؟

- ☐ قلق للغاية
- ☐ قلق إلى حدّ ما
- ☐ غير مُبالٍ
- ☐ غير قلق إلى حدّ ما
- ☐ غير قلق على الإطلاق

6. من بين المخاطر التالية التي هي من صنع الإنسان، ما هي أكثر ثلاثة تثير قلقك بشكل أكبر من غيرها؟

- ☐ الاضطرابات المدنية
- ☐ الهجمات السيبرانية
- ☐ الحوادث المتعلقة بالمواد الخطرة
- ☐ الجوائح/الأوبئة
- ☐ حوادث النقل (الطرق والسكك الحديدية)
- ☐ تعطل المرافق العامة والبنى التحتية

7. في مدينة بيل، هل كان للمخاطر الطبيعية أو تلك التي هي من صنع الإنسان المذكورة أدناه أيّ تأثير عليك؟
حدّد كل ما ينطبق.

- ☐ الاضطرابات المدنية
- ☐ الهجمات السيبرانية
- ☐ انهيار السدود وحواجز الفيضانات
- ☐ الجفاف/نقص المياه
- ☐ الزلزال/الانهيار الأرضي/الانزلاق الطيني
- ☐ درجات الحرارة القصوى (الحرارة والبرودة الشديدة)
- ☐ الحرائق (في المناطق الحضرية والغابات)
- ☐ الفيضانات
- ☐ الحوادث المتعلقة بالمواد الخطرة
- ☐ انخساف التربة/تشكّل الكارستات
- ☐ الجوائح/الأوبئة
- ☐ ارتفاع مستوى مياه البحر
- ☐ العواصف الرعدية الشديدة
- ☐ الأعاصير
- ☐ حوادث النقل (الطرق والسكك الحديدية)
- ☐ التسونامي
- ☐ تعطل المرافق العامة والبنى التحتية
- ☐ العاصفة الهوائية

8. في حال حدوث حالة طارئة اليوم، هل ستتمكن من الوصول إلى أقرب منشأة طبية في غضون 30 دقيقة سيرًا على الأقدام؟

- ☐ نعم
- ☐ لا - أنا غير متأكد من مكان أقرب منشأة طبية لي
- ☐ لا - إنّ أقرب منشأة طبية بعيدة جدًا بحيث لا يمكنني الوصول إليها سيرًا على الأقدام خلال 30 دقيقة
- ☐ لا - لا يمكنني المشي إلى أقرب منشأة طبية بسبب محدودية إمكانية الوصول/حركتي
- ☐ لا - سبب آخر (أسباب أخرى)

9. في حال حدوث حالة طارئة اليوم، هل لديك ما يكفي من الطعام والماء للعيش لمدة 72 ساعة (3 أيام) دون أي مساعدات؟

- ☐ نعم
- ☐ لا
- ☐ غير متأكد

10. كيف تتلقى التحذيرات المتعلقة بالظواهر المناخية القاسية؟

- ☐ الموقع الإلكتروني الرسمي لمدينة بيل
- ☐ الراديو
- ☐ مواقع التواصل الاجتماعي
- ☐ التلفزيون
- ☐ التنبيهات النصية/عبر التطبيقات
- ☐ من أشخاص آخرين
- ☐ Other

11. هل سبق لك أن اتخذت أي إجراءات لجعل منزلك أو مكان عملك أو المحلة أكثر جاهزية لمواجهة المخاطر الطبيعية؟

- ☐ نعم
- ☐ لا

12. هل ستدفعك بعض الحوافز، مثل خصومات التأمين والإعفاءات الضريبية على الممتلكات وما إلى ذلك، على اتخاذ خطوات إضافية لحماية منزلك أو مكان عملك من الكوارث الطبيعية؟ (مثال: حماية منزلك من الفيضانات)

- ☐ نعم
- ☐ لا
- ☐ غير متأكد

13. ما نوع الحوافز التي تودّ أن يتم عرضها عليك؟ حدّد كل ما ينطبق.

- ☐ خصومات التأمين
- ☐ الإعفاءات الضريبية على الممتلكات
- ☐ القروض بفائدة منخفضة
- ☐ تعويض تكاليف تجديد الممتلكات (جرثيًا أو كليًا)
- ☐ لا يوجد
- ☐ Other

14. بشكل عام، إلى أيّ مدى تعتقد أنّ مدينة بيل مستعدة بشكل جيد لمواجهة المخاطر الطبيعية وتلك التي هي من صنع الإنسان؟

- ☐ على أتمّ الاستعداد
- ☐ مستعدة إلى حدّ ما
- ☐ لا رأي لي
- ☐ غير مستعدة إلى حدّ ما
- ☐ غير مستعدة على الإطلاق

15. هل لديك أيّ أفكار أو آراء تود مشاركتها حول كيفية الحدّ من أثر المخاطر أو مدى المرونة في الاستجابة أو قابلية التأثر بالمخاطر الطبيعية أو تلك التي هي من صنع الإنسان؟

16. هل ترغب في مشاركة أيّ تجارب شخصية تتعلق بالمخاطر الطبيعية أو تلك التي هي من صنع الإنسان والتي قد تساعد مدينة بيل على الاستعداد بشكل أفضل لهذه الأحداث؟

معلومات ديموغرافية

تهدف الأسئلة التالية إلى جمع معلومات ديموغرافية من شأنها أن تساعد مدينة بيل على فهم خصائص أفراد المجتمع الذين يتم، أو لا يتم، الوصول إليهم من خلال هذا الاستبيان. إنّ الإجابة على هذه الأسئلة اختيارية تمامًا ويمكنك تخطيها بالكامل. ستبقى جميع الإجابات سرية.

17. كم عمرك؟

- ☐ أقل من 20 عامًا
- ☐ من 20 إلى 29 عامًا
- ☐ من 30 إلى 39 عامًا
- ☐ من 40 إلى 49 عامًا
- ☐ من 50 إلى 59 عامًا
- ☐ من 60 إلى 69 عامًا
- ☐ أكثر من 70 عامًا
- ☐ أفضّل عدم الإجابة

18. ما هو أعلى مستوى تعليمي رسمي حصلت عليه؟

- ☐ الصفوف 1 إلى 8 (ابتدائي)
- ☐ الصفوف 9 إلى 11 (تعليم ثانوي دون الحصول على شهادة)
- ☐ شهادة الثانوية العامة/شهادة التطوير التعليمي العام
- ☐ تعليم في كلية أو مدرسة فنية دون الحصول على شهادة
- ☐ (AA) درجة الزمالة
- ☐ درجة البكالوريوس (بكالوريوس في الآداب أو العلوم)
- ☐ درجة الماجستير (ماجستير في الآداب أو العلوم أو إدارة الأعمال، إلخ)
- ☐ شهادة مهنية (دكتور في القانون أو في الطب أو في الطب البيطري أو في جراحة الأسنان)
- ☐ درجة الدكتوراه (دكتور في الفلسفة أو في التربية أو في العلوم، إلخ)
- ☐ أفضّل عدم الإجابة

19. هل لديك إمكانية الوصول إلى سيارة شخصية؟

- ☐ نعم
- ☐ لا
- ☐ غير متأكد

20. ما هو متوسط الوقت الذي تقضيه للذهاب إلى العمل؟

- ☐ أقل من 10 دقائق
- ☐ من 10 إلى 25 دقيقة
- ☐ من 25 إلى 45 دقيقة
- ☐ من 45 إلى 60 دقيقة
- ☐ أكثر من ساعة

21. هل لديك أيّ إعاقات ترغب في أن يكون المستجيبون الأوائل على دراية بها في حالة الطوارئ؟

- ☐ لا
- ☐ نعم - سمعية
- ☐ نعم - عقلية
- ☐ نعم - حركية
- ☐ نعم - بصرية
- ☐ أفضل عدم الإجابة
- ☐ غير ذلك

22. ما هو متوسط الدخل السنوي للأسرة؟ (قبل احتساب الضرائب)

- ☐ أقل من 30000 دولار أمريكي
- ☐ من 30000 إلى 60000 دولار أمريكي
- ☐ من 60000 إلى 100000 دولار أمريكي
- ☐ من 100000 إلى 200000 دولار أمريكي
- ☐ أكثر من 200000 دولار أمريكي
- ☐ أفضل عدم الإجابة

23. إلى أيّ فئة جندرية تنتمي؟

24. إلى أيّ فئة عرقية تنتمي؟

This content is neither created nor endorsed by Microsoft. The data you submit will be sent to the form owner.

 Microsoft Forms

City of Bell | LHMP Public Opinion Survey #1

The City of Bell is in the process of creating our community's first Local Hazard Mitigation Plan (LHMP). In an effort to develop an LHMP that best serves all residents, the City of Bell is offering opportunities for you to ask questions, voice concerns, and provide feedback on hazard mitigation within the community. The following survey is your first opportunity to help. Please take a few minutes to answer the questions below. Your feedback and participation is greatly appreciated!

1. Which of the following best describes your residency status in the City of Bell?

- ☐ Current resident
- ☐ Previous resident
- ☐ Not a resident

2. Natural hazards are natural phenomena that may cause harm to life and property. Examples of these natural hazards include earthquakes, wildfires, tornadoes, hurricanes, drought, floods, and more. Generally speaking, how concerned are you about the City of Bell being impacted by a natural disaster?

- ☐ Very concerned
- ☐ Somewhat concerned
- ☐ Neither concerned nor unconcerned
- ☐ Somewhat unconcerned
- ☐ Very unconcerned

3. Of the following natural hazards, which three are you most concerned about?

Please select 3 options.

- ☐ Dam and levee failure
- ☐ Drought/water shortages
- ☐ Earthquake/landslide/mudflow
- ☐ Extreme temperatures (heat & cold)
- ☐ Fire (urban and wildfire)
- ☐ Flooding
- ☐ Land subsidence/karsts
- ☐ Sea level rise
- ☐ Severe thunderstorms
- ☐ Tornado
- ☐ Tsunami
- ☐ Windstorm
- ☐ Other

4. How concerned are you about the potential impacts of climate change or changing weather patterns on the future conditions in the City of Bell?

- ☐ Very concerned
- ☐ Somewhat concerned
- ☐ Neither concerned nor unconcerned
- ☐ Somewhat unconcerned
- ☐ Very unconcerned

5. In addition to natural disasters, manmade hazards can also present potential risks to life and property. Examples of manmade hazards include transportation incidents, hazardous materials incidents, pandemics, urban fires, and more. How concerned are you about manmade hazards?

- ☐ Very concerned
- ☐ Somewhat concerned
- ☐ Neither concerned nor unconcerned
- ☐ Somewhat unconcerned
- ☐ Very unconcerned

6. Of the following manmade hazards, which three are you most concerned about?

Please select 3 options.

- ☐ Civil unrest
- ☐ Cyberattacks
- ☐ Hazardous Materials Incidents
- ☐ Pandemic/epidemic
- ☐ Transportation Accidents (road and rail)
- ☐ Utility and infrastructure failure

7. Within the City of Bell, have you been impacted by any of the following natural or manmade hazards? Select all that apply.

- ☐ Civil unrest
- ☐ Cyberattacks
- ☐ Dam and levee failure
- ☐ Drought/water shortages
- ☐ Earthquake/landslide/mudflow
- ☐ Extreme temperatures (heat & cold)
- ☐ Fire (urban and wildfire)
- ☐ Flooding
- ☐ Hazardous Materials Incidents
- ☐ Land subsidence/karsts
- ☐ Pandemic/epidemic
- ☐ Sea level rise
- ☐ Severe thunderstorms
- ☐ Tornado
- ☐ Transportation Accidents (road and rail)
- ☐ Tsunami
- ☐ Utility and infrastructure failure
- ☐ Windstorm

8. If an emergency occurred today, would you be able to reach the nearest medical facility within 30 minutes on foot?

- ☐ Yes
- ☐ No - unsure of where the nearest medical facility is
- ☐ No - nearest medical facility is too far away to reach on foot in 30 minutes
- ☐ No - cannot walk to nearest medical facility due to accessibility/mobility limitations
- ☐ No - other reason(s)

9. If an emergency occurred today, do you have enough food and water to go 72 hours (3 days) without aid?

- ☐ Yes
- ☐ No
- ☐ Unsure

10. How do you receive warnings regarding severe weather events?

- ☐ Official City of Bell website
- ☐ Radio
- ☐ Social media
- ☐ Television
- ☐ Text/app alerts
- ☐ Word of mouth
- ☐ Other

11. Have you previously taken any actions to make your home, business, or neighborhood more resilient to natural hazards?

- ☐ Yes
- ☐ No

12. Would incentives such as insurance discounts, property tax breaks, etc. motivate you to take additional steps to protect your home or business from natural disasters? (Example: flood-proofing your home)

- ☐ Yes
- ☐ No
- ☐ Unsure

13. Which kind of incentives would you like to see offered? Select all that apply.

- ☐ Insurance discounts
- ☐ Property tax breaks
- ☐ Low interest loans
- ☐ Property retrofit reimbursements (partial or full)
- ☐ None
- ☐ Other

14. Overall, how well prepared do you think the City of Bell is for natural and manmade hazards?

- ☐ Extremely prepared
- ☐ Somewhat prepared
- ☐ Neutral
- ☐ Somewhat unprepared
- ☐ Extremely unprepared

15. Do you have any ideas or thoughts you would like to share about risk reduction, resiliency, or vulnerability to natural and manmade hazards?

16. Would you like to share any personal experiences with natural and manmade hazards that may help the City of Bell better prepare for these events?

Demographics

The following questions ask for demographic information that will help the City of Bell understand which community members are being reached by this survey, and who are not. These questions are completely optional and can be skipped entirely. All answers are confidential.

17. What is your age?

- ☐ Under 20
- ☐ 20-29
- ☐ 30-39
- ☐ 40-49
- ☐ 50-59
- ☐ 60-69
- ☐ 70+
- ☐ Prefer not to answer

18. What is the highest level of formal education you have attained?

- ☐ Grades 1-8 (elementary)
- ☐ Grades 9-11 (some high school)
- ☐ High school diploma / GED
- ☐ Some college or technical school
- ☐ Associate's degree (AA)
- ☐ Bachelor's degree (BA or BS)
- ☐ Master's degree (MA, MS, MBA, etc.)
- ☐ Professional degree (JD, MD, DVM, DDS)
- ☐ Doctoral degree (Ph.D., Ed.D., D.Sc., etc.)
- ☐ Prefer not to answer

19. Do you have access to a personal vehicle?

- ☐ Yes
- ☐ No
- ☐ Unsure

20. What is your average commute time (one-way) to work?

- ☐ Less than 10 minutes
- ☐ 10-25 minutes
- ☐ 25-45 minutes
- ☐ 45-60 minutes
- ☐ Over an hour

21. Do you have any disabilities that you would want first responders to be aware of in the event of an emergency?

- ☐ No
- ☐ Yes - hearing
- ☐ Yes - mental
- ☐ Yes - mobility
- ☐ Yes - vision
- ☐ Prefer not to answer
- ☐ Other

22. What is your average annual household income? (Before taxes)

- ☐ Under \$30,000
- ☐ \$30,000 to \$60,000
- ☐ \$60,000 to \$100,000
- ☐ \$100,000 to \$200,000
- ☐ More than \$200,000
- ☐ Prefer not to answer

23. How would you describe your gender?

24. How would you describe your race?

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Microsoft Forms

Ciudad de Bell | Encuesta de opinión pública n.º 1 del Plan Local de Mitigación de Riesgos

La ciudad de Bell está en proceso de crear el primer Plan Local de Mitigación de Riesgos (LHMP) de nuestra comunidad. Para desarrollar el mejor LHMP para todos los residentes, la ciudad de Bell le ofrece oportunidades para hacer preguntas, expresar preocupaciones y proporcionar comentarios sobre la mitigación de riesgos dentro de la comunidad. La siguiente encuesta es la primera oportunidad para ayudar. Tómese unos minutos para responder las siguientes preguntas. ¡Gracias por sus comentarios y su participación!

1. ¿Cuál de las siguientes opciones describe mejor su estado de residencia en la ciudad de Bell?

- ☐ Soy residente
- ☐ Fui residente
- ☐ No soy residente

2. Los riesgos naturales son fenómenos naturales que pueden causar daños a la vida y a la propiedad. Algunos ejemplos de riesgos naturales son los terremotos, los incendios forestales, los tornados, los huracanes, las sequías y las inundaciones, entre otros. En general, ¿qué tanto le preocupa que un desastre natural afecte la ciudad de Bell?

- ☐ Me preocupa mucho.
- ☐ Me preocupa un poco.
- ☐ No estoy ni preocupado ni tranquilo.
- ☐ Me preocupa muy poco.
- ☐ No me preocupa para nada.

3. De los siguientes riesgos naturales, ¿cuáles tres le preocupan más? Marque tres (3) opciones.

Please select at most 3 options.

- ☐ Falla de presa y dique.
- ☐ Sequía o escasez de agua.
- ☐ Terremoto, deslizamiento de tierra o alud.
- ☐ Temperaturas extremas (calor y frío).
- ☐ Incendio (urbano o forestal).
- ☐ Inundación.
- ☐ Subsistencia del suelo o relieve kárstico.
- ☐ Aumento del nivel del mar.
- ☐ Tormentas eléctricas graves.
- ☐ Tornado.
- ☐ Tsunami.
- ☐ Tormenta de viento.
- ☐ Other

4. ¿Qué tanto le preocupan los posibles impactos del cambio climático o los cambios en los patrones climáticos en las condiciones futuras de la ciudad de Bell?

- ☐ Me preocupan mucho.
- ☐ Me preocupan mucho.
- ☐ No estoy ni preocupado ni tranquilo.
- ☐ Me preocupan muy poco.
- ☐ No me preocupan para nada.

5. Además de los desastres naturales, los riesgos causados por el ser humano también pueden implicar daños a la vida y a la propiedad. Algunos ejemplos de los riesgos causados por el ser humano son los accidentes de transporte, accidentes con materiales peligrosos, pandemias e incendios urbanos, entre otros. ¿Qué tanto le preocupan los riesgos causados por el ser humano?

- ☐ Me preocupan mucho.
- ☐ Me preocupan un poco.
- ☐ Me preocupan un poco.
- ☐ Me preocupan muy poco.
- ☐ Me preocupan muy poco.

6. De los siguientes riesgos causados por el ser humano, ¿cuáles tres le preocupan más? Marque tres (3) opciones.

Please select at most 3 options.

- ☐ Disturbios civiles.
- ☐ Ciberataques.
- ☐ Accidentes con materiales peligrosos.
- ☐ Pandemia o epidemia.
- ☐ Accidentes de transporte (terrestre y ferroviario).
- ☐ Fallas en los servicios públicos o la infraestructura.

7. Dentro de la ciudad de Bell, ¿ha sufrido alguno de los siguientes riesgos naturales o causados por el ser humano? Seleccione todas las opciones que correspondan.

- ☐ Disturbios civiles
- ☐ Ciberataques
- ☐ Falla de presa y dique.
- ☐ Sequía o escasez de agua
- ☐ Terremoto, deslizamiento de tierra o alud.
- ☐ Temperaturas extremas (calor y frío).
- ☐ Incendio (urbano o forestal).
- ☐ Inundación.
- ☐ Accidentes con materiales peligrosos.
- ☐ Subsistencia del suelo o relieve kárstico.
- ☐ Pandemia o epidemia.
- ☐ Aumento del nivel del mar.
- ☐ Tormentas eléctricas graves.
- ☐ Tornado.
- ☐ Accidentes de transporte (terrestre y ferroviario).
- ☐ Tsunami.
- ☐ Fallas en los servicios públicos o la infraestructura.
- ☐ Tormenta de viento.

8. Si tuviera una emergencia hoy, ¿podría trasladarse hacia el establecimiento médico más cercano en 30 minutos a pie?

- ☐ Sí.
- ☐ No, no sé dónde está el establecimiento médico más cercano.
- ☐ No, el establecimiento médico más cercano está muy lejos como para llegar en 30 minutos a pie.
- ☐ No, no puedo caminar hasta el establecimiento médico más cercano por limitaciones de accesibilidad o movilidad.
- ☐ No, no puedo trasladarme por otras razones.

9. Si tuviera una emergencia hoy, ¿tiene suficiente comida y agua para pasar 72 horas (tres días) sin asistencia?

- ☐ Sí.
- ☐ No.
- ☐ No estoy seguro.

10. ¿Por qué medio recibe alertas sobre los eventos climáticos graves?

- ☐ Sitio web oficial de la ciudad de Bell.
- ☐ Radio.
- ☐ Redes sociales.
- ☐ Televisión.
- ☐ Mensajes de texto o alertas de una aplicación.
- ☐ Boca en boca.
- ☐ Other

11. ¿Ha tomado alguna medida antes para hacer que su casa, negocio o vecindario sean más resiliente a los riesgos naturales?

- ☐ Sí.
- ☐ No.

12. ¿Los incentivos como los descuentos en seguros, desgravaciones fiscales sobre la propiedad, etc., lo motivarían a tomar medidas adicionales para proteger su casa o negocio de los desastres naturales? (Por ejemplo, medidas para que su casa sea a prueba de inundaciones.)

- ☐ Sí.
- ☐ No.
- ☐ No estoy seguro.

13. ¿Qué tipo de incentivos le gustaría que se ofrezcan? Seleccione todas las opciones que correspondan.

- ☐ Descuentos de seguro.
- ☐ Desgravaciones fiscales sobre la propiedad.
- ☐ Préstamos con intereses bajos.
- ☐ Reembolsos por mejoras de la propiedad (parciales o completos).
- ☐ Ninguno.
- ☐ Other

14. En general, ¿qué tan bien preparada cree que está la ciudad de Bell para riesgos naturales o causados por el ser humano?

- ☐ Totalmente preparada.
- ☐ Un poco preparada.
- ☐ Neutral.
- ☐ Un poco desprovista.
- ☐ Totalmente desprovista.

15. ¿Tiene alguna idea o reflexión que quiera compartir sobre la disminución de riesgos, la resiliencia o la vulnerabilidad respecto a los riesgos naturales o causados por el ser humano?

16. ¿Le gustaría compartir alguna experiencia personal sobre riesgos naturales o causados por el ser humano que podrían ayudar a que la ciudad de Bell esté mejor preparada para estos eventos?

Demografía

En las siguientes preguntas se solicita información demográfica que le ayudará a la ciudad de Bell a entender el alcance de esta encuesta entre los miembros de la comunidad. Estas preguntas son totalmente opcionales y se pueden saltar por completo. Todas las respuestas son confidenciales.

17. ¿Cuántos años tiene?

- ☐ Menos de 20 años.
- ☐ Menos de 20 años.
- ☐ Entre 30 y 39 años.
- ☐ Entre 40 y 49 años.
- ☐ Entre 50 y 59 años.
- ☐ Entre 60 y 69 años.
- ☐ 70 años o más.
- ☐ Prefiere no responder.

18. ¿Cuál es el nivel más alto de educación formal que ha obtenido?

- ☐ De primero a octavo grado (primario).
- ☐ De noveno a onceavo grado (secundario incompleto).
- ☐ Diploma de secundaria o GED.
- ☐ Universitario o técnico incompleto.
- ☐ Título de asociado (AA).
- ☐ Título de bachiller (BA o BS).
- ☐ Título de maestría (MA, MS, MBA, etc.).
- ☐ Título profesional (JD, MD, DVM, DDS).
- ☐ Título de doctorado (Ph.D, Ed.D., [D.Sc.](#), etc.).
- ☐ Prefiere no responder.

19. ¿Tiene un vehículo personal?

- ☐ Sí.
- ☐ No.
- ☐ No estoy seguro.

20. ¿Cuál es su tiempo promedio de viaje (de ida) para llegar al trabajo?

- ☐ Menos de 10 minutos.
- ☐ Entre 10 y 25 minutos.
- ☐ Entre 25 y 45 minutos.
- ☐ Entre 45 y 60 minutos.
- ☐ Más de una hora.

21. En el caso de una emergencia, ¿le gustaría que los socorristas estén al tanto de alguna discapacidad que usted tenga?

- ☐ No.
- ☐ Sí, auditiva.
- ☐ Sí, mental.
- ☐ Sí, motora.
- ☐ Sí, visual.
- ☐ Prefiere no responder.
- ☐ Other

22. ¿Cuál es el ingreso anual promedio de su hogar? (Antes de impuestos)

- ☐ Menos de \$30.000.
- ☐ Entre \$30.000 y \$60.000.
- ☐ Entre \$60.000 y \$100.000.
- ☐ Entre \$100.000 y \$200.000.
- ☐ Más de \$200.000.
- ☐ Prefiere no responder.

23. ¿Cómo describiría su género?

24. ¿Cómo describiría su raza?

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Microsoft Forms

City of Bell | LHMP Public Opinion Survey #1

25 Responses

07:47 Average time to complete

Closed Status

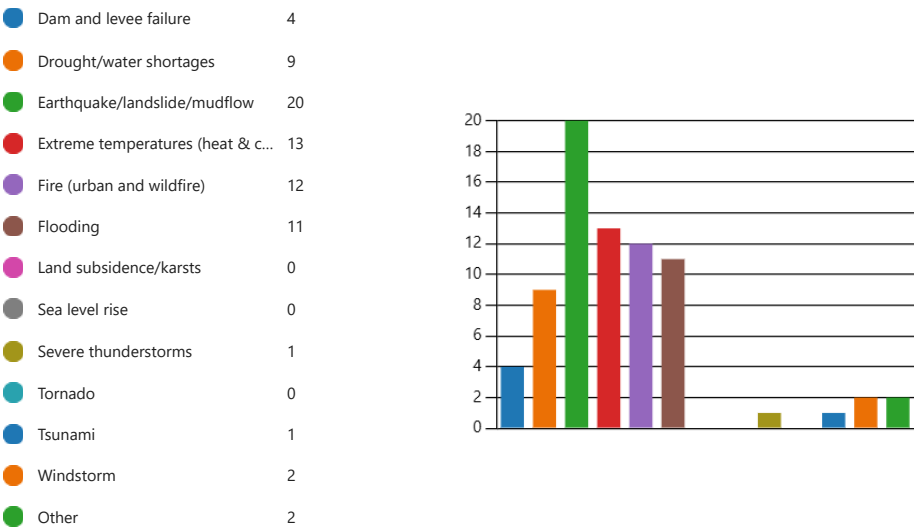
1. Which of the following best describes your residency status in the City of Bell?



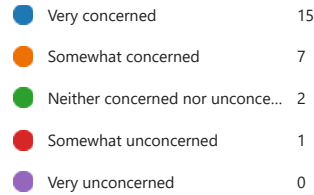
2. Natural hazards are natural phenomena that may cause harm to life and property. Examples of these natural hazards include earthquakes, wildfires, tornadoes, hurricanes, drought, floods, and more. Generally speaking, how concerned are you about the City of Bell being impacted by a natural disaster?



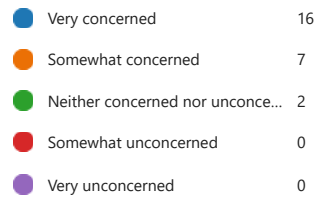
3. Of the following natural hazards, which three are you most concerned about?



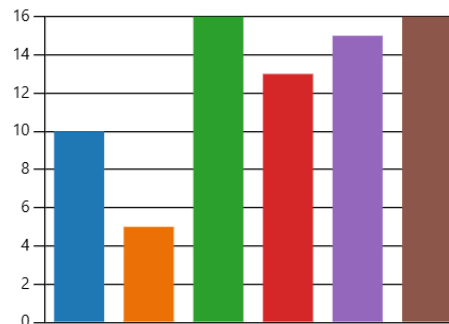
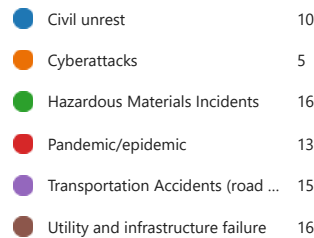
4. How concerned are you about the potential impacts of climate change or changing weather patterns on the future conditions in the City of Bell?



5. In addition to natural disasters, manmade hazards can also present potential risks to life and property. Examples of manmade hazards include transportation incidents, hazardous materials incidents, pandemics, urban fires, and more. How concerned are you about manmade hazards?

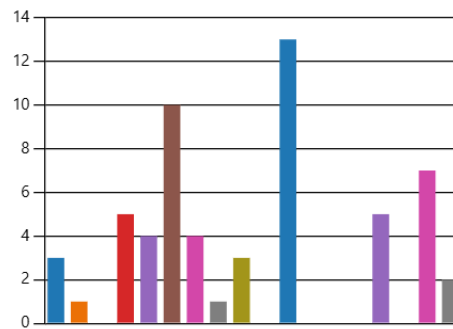


6. Of the following manmade hazards, which three are you most concerned about?



7. Within the City of Bell, have you been impacted by any of the following natural or manmade hazards? Select all that apply.

Civil unrest	3
Cyberattacks	1
Dam and levee failure	0
Drought/water shortages	5
Earthquake/landslide/mudflow	4
Extreme temperatures (heat & c...	10
Fire (urban and wildfire)	4
Flooding	1
Hazardous Materials Incidents	3
Land subsidence/karsts	0
Pandemic/epidemic	13
Sea level rise	0
Severe thunderstorms	0
Tornado	0
Transportation Accidents (road ...	5
Tsunami	0
Utility and infrastructure failure	7
Windstorm	2



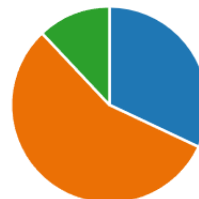
8. If an emergency occurred today, would you be able to reach the nearest medical facility within 30 minutes on foot?

Yes	3
No - unsure of where the nearest medical facility is...	7
No - nearest medical facility is too far	13
No - cannot walk to nearest medical facility	2
No - other reason(s)	0

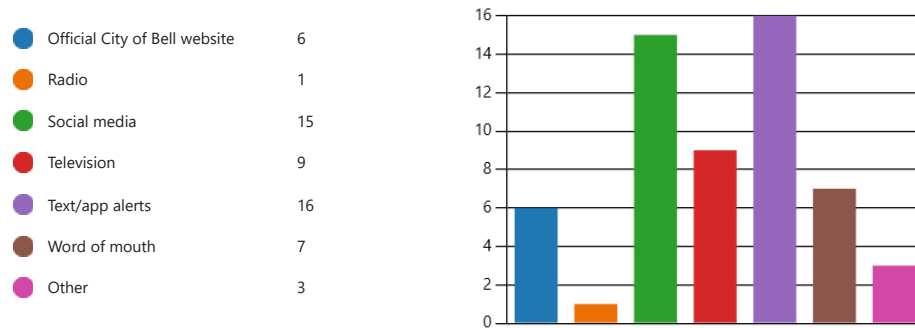


9. If an emergency occurred today, do you have enough food and water to go 72 hours (3 days) without aid?

Yes	8
No	14
Unsure	3



10. How do you receive warnings regarding severe weather events?



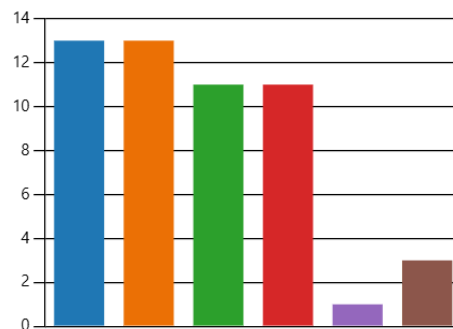
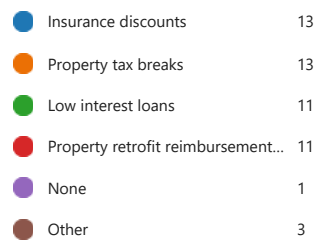
11. Have you previously taken any actions to make your home, business, or neighborhood more resilient to natural hazards?



12. Would incentives such as insurance discounts, property tax breaks, etc. motivate you to take additional steps to protect your home or business from natural disasters? (Example: flood-proofing your home)



13. Which kind of incentives would you like to see offered? Select all that apply.



14. Overall, how well prepared do you think the City of Bell is for natural and manmade hazards?

Extremely prepared	0
Somewhat prepared	1
Neutral	13
Somewhat unprepared	6
Extremely unprepared	5



15. Do you have any ideas or thoughts you would like to share about risk reduction, resiliency, or vulnerability to natural and manmade hazards?

15
Responses

Latest Responses
"CLEAR OUT ALL DEBRIS FROM GUTTERS."

2 respondents (13%) answered **city** for this question.

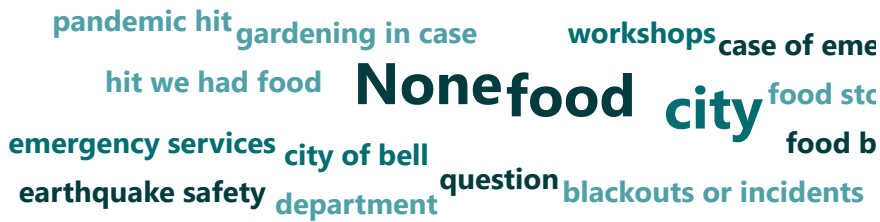


16. Would you like to share any personal experiences with natural and manmade hazards that may help the City of Bell better prepare for these events?

11
Responses

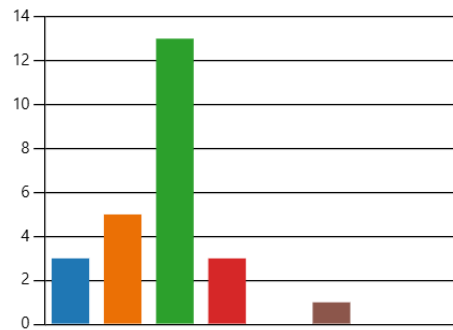
Latest Responses
"None"

2 respondents (18%) answered **food** for this question.



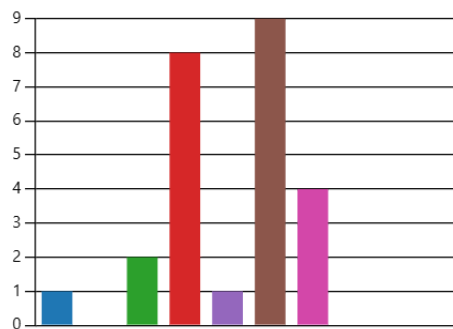
17. What is your age?

Under 20	3
20-29	5
30-39	13
40-49	3
50-59	0
60-69	1
70+	0
Prefer not to answer	0



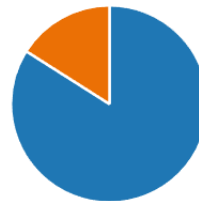
18. What is the highest level of formal education you have attained?

Grades 1-8 (elementary)	1
Grades 9-11 (some high school)	0
High school diploma / GED	2
Some college or technical school	8
Associate's degree (AA)	1
Bachelor's degree (BA or BS)	9
Master's degree (MA, MS, MBA, ...)	4
Professional degree (JD, MD, DV...)	0
Doctoral degree (Ph.D., Ed.D., D...)	0
Prefer not to answer	0



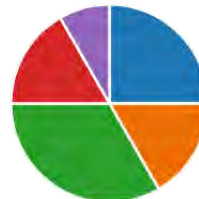
19. Do you have access to a personal vehicle?

Yes	21
No	4
Unsure	0

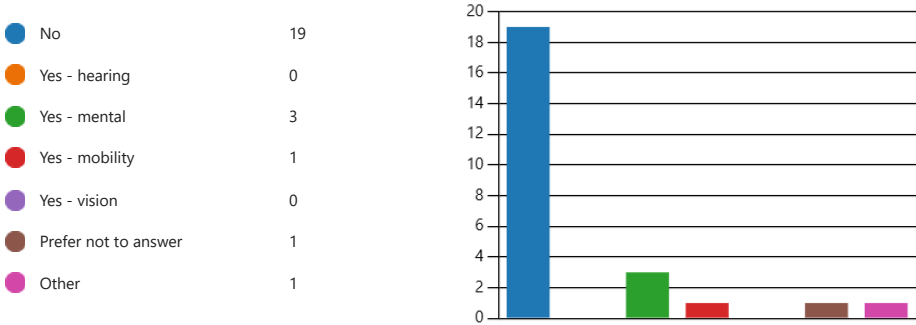


20. What is your average commute time (one-way) to work?

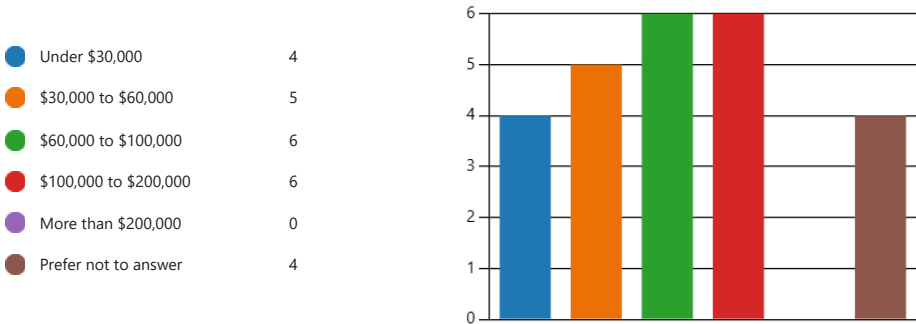
Less than 10 minutes	6
10-25 minutes	4
25-45 minutes	8
45-60 minutes	4
Over an hour	2



21. Do you have any disabilities that you would want first responders to be aware of in the event of an emergency?



22. What is your average annual household income? (Before taxes)



23. How would you describe your gender?

23
Responses

Latest Responses

"Female"

"Male"

"Female"

15 respondents (65%) answered **Female** for this question.

Woman

Female

24. How would you describe your race?

23
Responses

Latest Responses

"Hispanic "

"Spanish"

"Latina"

12 respondents (52%) answered **Hispanic** for this question.



Second Public Survey Instagram Post

cityofbell

CITYofBELL

Local Hazard Mitigation Plan Survey

City of Bell | LHMP Public Opinion Survey #2



Ciudad de Bell | Encuesta de opinión pública N.º 2 sobre el LHMP

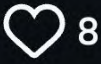


مدينة بيل | استطلاع الرأي العام بشأن خطة تخفيف المخاطر المحلية رقم 2



Scan QR code

The City of Bell is in the process of creating our community's first Local Hazard Mitigation Plan (LHMP). Help us identify the projects you would like to see in our community to help make us more resilient. Please scan the QR code and take a moment to answer a couple of short questions. Your feedback and participation is greatly appreciated!

8

cityofbell Bell Residents — We Want to Hear from You!... more

November 25, 2025

Second Public Survey X Post



Post



QR y complete una breve encuesta pública de LHMP para compartir qué proyectos e iniciativas les gustaría ver en la Ciudad de Bell.

Su opinión es esencial. ¡Gracias por tomarse un momento para hacer escuchar su voz!



CITY of BELL

Local Hazard Mitigation Plan Survey

City of Bell | LHMP Public Opinion Survey #2



Ciudad de Bell | Encuesta de opinión pública N.º 2 sobre el LHMP



مدينة بيل | استطلاع الرأي العام بشأن خطة تخفيف المخاطر المحلية رقم 2



Scan QR code

The City of Bell is in the process of creating our community's first Local Hazard Mitigation Plan (LHMP). Help us identify the projects you would like to see in our community to help make us more resilient. Please scan the QR code and take a moment to answer a couple of short questions. Your feedback and participation is greatly appreciated!

Second Public Survey Facebook Post



City of Bell

Dec 4, 2025 · 🌐



Bell Residents — We Want to Hear from You!
Help shape the future of our community... more

 **CITYofBELL**

Local Hazard Mitigation Plan Survey

City of Bell | LHMP Public Opinion Survey #2

Ciudad de Bell | Encuesta de opinión pública N.º 2 sobre el LHMP

مدينة بيل | استطلاع الرأي العام بشأن خطة تخفيف المخاطر المحلية رقم 2

Scan QR code

The City of Bell is in the process of creating our community's first Local Hazard Mitigation Plan (LHMP). Help us identify the projects you would like to see in our community to help make us more resilient. Please scan the QR code and take a moment to answer a couple of short questions. Your feedback and participation is greatly appreciated!



City of Bell | LHMP Public Opinion Survey #2

The City of Bell is in the process of creating our community's first Local Hazard Mitigation Plan (LHMP). Help us identify the projects you would like to see in our community to help make us more resilient. Please take a few minutes to answer the questions below. Your feedback and participation is greatly appreciated!

1. Which of the following best describes your residency status in the City of Bell?

- ☐ Current resident
- ☐ Previous resident
- ☐ Not a resident

2. While the climate of Bell is usually comfortable, extreme temperatures are possible. Heat waves can be particularly dangerous for seniors, young children, and people who work outdoors. Extreme cold temperatures are also possible but much less likely than extreme heat. Which of the following mitigation actions would you like to see the City of Bell pursue?

- ☐ Increase the number of native trees planted around buildings to shade parking lots and along major streets.
- ☐ Implement warming or cooling centers for community members to gather at during an event.
- ☐ None
- ☐ Other

3. Earthquakes are difficult to predict and pose a significant risk to people and property in Bell. Which of the following actions would you like to see the City of Bell pursue?

- ☐ Develop an outreach program to teach families, schools, and businesses what to do **during** an earthquake.
- ☐ Develop an outreach program to teach families, schools, and businesses how to secure your properties and protect people **before** an earthquake.
- ☐ Develop an earthquake evacuation plan for community members.
- ☐ None
- ☐ Other

4. Fires is the most common hazard in California. While the City of Bell is relatively protected from wildfire by its urban surroundings, smoke can also cause significant health impacts. Additionally, urban fires from homes and businesses can happen anywhere. Which of the following mitigation actions would you like to see the City of Bell pursue?

- ☐ Support the construction or retrofit of non-combustible materials for homes, businesses, and schools.
- ☐ Installing external, structure-specific water hydration systems (sprinklers); dedicated power sources; and dedicated cisterns on public buildings.
- ☐ Replace flammable vegetation with less flammable species.
- ☐ Develop an outreach program to teach families, schools, and businesses how to safely dispose of flammable materials, create defensible space around buildings, maintain smoke detectors, etc.
- ☐ None
- ☐ Other

5. Windstorms, like the Santa Ana winds, regularly affect the region. In the last 20 years, there have been more than 500 recorded instances of winds exceeding 57 mph in Los Angeles County. Wind gusts strain structures and debris can harm both people and property upon impact. Which of the following hazard mitigation actions would you like to see the City of Bell pursue?

- ☐ Support establishing standards for all utilities regarding tree pruning around lines and pole maintenance.
- ☐ Develop an outreach program to teach families, schools, and businesses how to safely secure things like windows, roof-mounted heating, ventilation, air conditioners, improve roof coverings, and other features.
- ☐ Support including measures like structural bracing, shutters, and laminated glass in windowpanes in building design to minimize damage.
- ☐ None
- ☐ Other

6. Severe thunderstorms can bring hail, lightning, high winds, and heavy rain to the City of Bell. Since 2005, the City has experienced a severe thunderstorm about once every 16 months, sometimes with hail as large as gum balls. These events can cause injuries and damage to property like cars and homes. Which of the following mitigation actions would you like to see the City of Bell pursue?

- ☐ Develop an outreach program to teach families, schools, and businesses how to stay safe in a storm.
- ☐ Implement community shelters so community members can gather during events.
- ☐ None
- ☐ Other

7. Drought and water shortages are hazards that occasionally affect the area. While the impacts are normally less harmful in urban areas like Bell, long-term water shortages are possible. Which of the following mitigation actions would you like to see the City of Bell pursue?

- ☐ Support the construction or retrofit of drought resilient landscaping (like planting native vegetation or xeriscaping).
- ☐ Develop an outreach program to teach families, schools and businesses how to use less water.
- ☐ Support the construction of rain capture systems and reclaimed water usage.
- ☐ Implement fines for community members who use more than the allowed amount of water per household.
- ☐ None
- ☐ Other

8. Landslides and mudslides are unlikely in the City of Bell because of the terrain. However, there are a few sloped areas around I-710 and the Los Angeles River where small landslides and mudslides are possible. Which of the following mitigation actions would you like to see the City of Bell pursue?

- ☐ Map and assess the probable vulnerability to landslides.
- ☐ Construct soil stabilization measures (like planting soil stabilizing vegetation on steep, publicly-owned slopes).
- ☐ Construct debris flow catchments to prevent transfer of sediment into roadways.
- ☐ None
- ☐ Other

9. Land subsidence, karsts, and sinkholes are unlikely but not impossible within the City of Bell. Sinkholes are particularly tricky to predict because they can result from burst water pipes, mineral extraction, and similar activities. Which of the following mitigation actions would you like to see the City of Bell pursue?

- ☐ Use ground-penetrating radar to detect and map possible hazard areas.
- ☐ Promote community awareness of subsidence risks and impacts.
- ☐ None
- ☐ Other

10. According to available records, flooding from natural sources (rivers and the coast) is virtually nonexistent. However, local flash flooding resulting from heavy rainfall may result in standing water on roadways and low-lying areas, which can create short-term hazardous conditions. Which of the following mitigation actions would you like to see the City of Bell pursue?

- ☐ Use GIS to map hazard areas, at-risk structures, and high-risk areas.
- ☐ Improve the stormwater systems to pass more water.
- ☐ Modify stormwater systems so that rainfall is captured and/or absorbed into the soil, instead of being routed toward drains (bioswales, drywells, pervious pavements, rain barrels, sand filters, etc.).
- ☐ Encourage homeowners to purchase flood insurance.
- ☐ None
- ☐ Other

11. Dam and levee failures are unlikely but potentially serious events. While there are no dams in the City of Bell, modeling of dams north of the community shows that flood waters could potentially reach parts of Bell. Some possible mitigation actions for dam and levee failures are listed below-- which of these would you like to see the City of Bell pursue?

- ☐ Join a task force with surrounding communities that would encourage jurisdictions with high hazard dams to implement protective measures.
- ☐ Advocate for a thorough watershed analysis for all proposed dam or reservoir projects.
- ☐ Encourage homeowners to purchase flood insurance.
- ☐ None
- ☐ Other

12. Sea level rise is a long-term hazard, and its impacts on the City of Bell will likely be indirect. For example, individuals living in communities along the coast may be displaced and relocate further inland. Additionally, major coastal facilities like the Port of Los Angeles may be affected, and this could have broad consequences for Bell and other communities in the region. Which of the following mitigation actions would you like to see the City of Bell pursue?

- ☐ Join a task force with surrounding communities to implement a Mitigation Plan that outlines roles, responsibilities, and priorities to protect against impacts.
- ☐ Model various "what-if" scenarios to estimate potential vulnerabilities in order to develop sea level rise mitigation priorities.
- ☐ Invest in the construction of community shelters for evacuees to utilize when impacted.
- ☐ Work with local utility providers to establish expectations for impacts and prioritize improvements.
- ☐ None
- ☐ Other

13. While there are no historical records of tornadoes impacting the City of Bell, tornadoes have been documented inside of Los Angeles County. Since 1950, tornadoes in LA County have resulted in 46 injuries and \$61 million in property damage. Which of the following mitigation strategies would you like to see the City of Bell pursue?

- ☐ Support establishing standards for all utilities regarding tree pruning around lines and pole maintenance.
- ☐ Develop an outreach program to teach families, schools, and businesses how to safely secure things like windows, roof-mounted heating, ventilation, air conditioners, improve roof coverings, and other features.
- ☐ None
- ☐ Other

14. Tsunamis are rare but potentially catastrophic hazards. While the City of Bell is far enough inland not to see the surge water, the City would experience multiple secondary or cascading impacts. If a tsunami warning is issued, many people will move inland through communities like Bell. After a tsunami impact, coastal facilities that support Bell may be inoperable, and the community may be asked to provide aid for neighboring communities in need. Which of the following mitigation actions would you like to see the City of Bell pursue?

- ☐ Join a task force with surrounding communities to implement an Emergency Response Plan that outlines roles, responsibilities, and evacuation routes.
- ☐ Implement community shelters so evacuees can gather during events.
- ☐ Invest public funds now to be accessed only to support a locally declared disaster event.
- ☐ Implement an "Evacuteer" Program, where community members would volunteer to participate in trainings and learn how to support the process of an evacuation event.
- ☐ None
- ☐ Other

15. While the majority of cyber attacks target individuals, some threat actors target major systems that can disrupt community facilities and essential services. Due to privacy concerns, it is difficult to determine how common cyber attacks are specifically within the City of Bell. However, reports from the California Attorney General's Office indicates that several nearby communities are being targeted. Which of the following mitigation actions would you like to see the City of Bell pursue?

- ☐ Spend public funds to invest in more protective online security systems or back up devices.
- ☐ Develop an outreach program to teach families, schools and businesses how to spot scammers and phishing attempts.
- ☐ Implement staff training programs on how to spot scammers and phishing attempts.
- ☐ None
- ☐ Other

16. Hazardous materials housed in the City of Bell are sometimes necessary for industrial and commercial use. An "uncontrolled release" is when hazardous materials are spilled, either from an accident or as part of the impacts from a disaster. Hazardous materials are used by various industries every day and incidents are few and far between. However, spills do occasionally occur, and it is likely that future spills will occur. In most cases, releases are small and quickly contained, although larger impacts are possible. Release of gases are more difficult to contain and may not be immediately apparent. Which of the following mitigation actions would you like to see the City of Bell pursue?

- ☐ Develop city ordinances that would require businesses and commercial facilities to log all materials with the fire department.
- ☐ Develop city ordinances that would restrict the kinds of businesses and commercial facilities able to operate within the city and the kinds of materials allowed to be stored on site.
- ☐ Develop an outreach program to teach families, schools and businesses how to respond in the event of different kinds of releases.
- ☐ None
- ☐ Other

17. Civil unrest can occur for a variety of reasons. In some cases, these events can disrupt day-to-day activity and may lead to property damage and or harm people. There have been several documented occurrences of civil unrest in Bell, although the reported damages and injuries have been minimal. Which of the following mitigation actions would you like to see the City of Bell pursue?

- ☐ Reinforce doors and windows on public facilities with additional locks, shutters, or security bars to protect against forced entry during riots or protests.
- ☐ Join a task force with surrounding communities to implement an Emergency Response Plan that outlines roles, responsibilities, and evacuation routes.
- ☐ Develop an outreach program to teach families, schools and businesses how to protect yourselves during an event.
- ☐ None
- ☐ Other

18. Pandemics are rare, but impacts can be major. The COVID-19 pandemic is the most well-known today, but older pandemics which affected the region included outbreaks of Smallpox in 1862 and Spanish Flu in 1918. Which of the following mitigation actions would you like to see the City of Bell pursue?

- ☐ Develop an outreach program to teach families, schools and businesses how to protect against diseases.
- ☐ Create an Emergency Response Plan that outlines roles, responsibilities, and evacuation routes.
- ☐ Invest in a rolling stockpile of Personal Protective Equipment (PPE)
- ☐ None

19. Transportation accidents are common and usually minor, although major events do occasionally occur. Transportation accidents in Bell mainly involve automobiles, but the City does have rail traffic which could potentially be involved in a transportation accident. Which of the following mitigation actions would you like to see the City of Bell pursue?

- ☐ Implement a road safety study to understand which areas of the city have the most risk and identify possible solutions.
- ☐ Join a task force with surrounding communities to implement an Emergency Response Plan that outlines roles, responsibilities, and evacuation routes.
- ☐ Put up signage and other small road hazard identifiers to help drivers navigate in more hazardous intersections.
- ☐ None
- ☐ Other

20. Utility and infrastructure failure includes events like bridge collapses, buckling roads, power outages, communications outages, and more. There is a relatively limited number of documented instances of these failures occurring inside the City of Bell. However, regional events like power outages and communication outages have affected the City. Which of the following mitigation actions would you like to see the City of Bell pursue?

- ☐ Join a task force with surrounding communities that would support identification of solutions and funding infrastructure improvements.
- ☐ Work with local utility providers to establish expectations for impacts and prioritize improvements.
- ☐ Invest public funds now to be accessed only to support a local infrastructure failure.
- ☐ None

21. Do you have any other suggestions that you would like to see the city implement?

Demographics

The following questions ask for demographic information that will help the City of Bell understand which community members are being reached by this survey, and who are not. These questions are completely optional and can be skipped entirely. All answers are confidential.

22. What is your age?

- ☐ Under 20
- ☐ 20-29
- ☐ 30-39
- ☐ 40-49
- ☐ 50-59
- ☐ 60-69
- ☐ 70+
- ☐ Prefer not to answer

23. What is the highest level of formal education you have attained?

- ☐ Grades 1-8 (elementary)
- ☐ Grades 9-11 (some high school)
- ☐ High school diploma / GED
- ☐ Some college or technical school
- ☐ Associate's degree (AA)
- ☐ Bachelor's degree (BA or BS)
- ☐ Master's degree (MA, MS, MBA, etc.)
- ☐ Professional degree (JD, MD, DVM, DDS)
- ☐ Doctoral degree (Ph.D., Ed.D., D.Sc., etc.)
- ☐ Prefer not to answer

24. Do you have access to a personal vehicle?

- ☐ Yes
- ☐ No
- ☐ Unsure

25. What is your average commute time (one-way) to work?

- ☐ Less than 10 minutes
- ☐ 10-25 minutes
- ☐ 25-45 minutes
- ☐ 45-60 minutes
- ☐ Over an hour

26. Do you have any disabilities that you would want first responders to be aware of in the event of an emergency?

- ☐ No
- ☐ Yes - hearing
- ☐ Yes - mental
- ☐ Yes - mobility
- ☐ Yes - Vision
- ☐ Prefer not to answer

27. What is your average annual household income (before taxes)?

- ☐ Under \$30,000
- ☐ \$30,000 to \$60,000
- ☐ \$60,000 to \$100,000
- ☐ \$100,000 to \$200,000
- ☐ More than \$200,000
- ☐ Prefer not to answer

28. What is your gender?

29. How would you describe your race?

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Ciudad de Bell | Encuesta de opinión pública N.º 2 sobre el LHMP

La ciudad de Bell está en proceso de crear el primer Plan Local de Mitigación de Riesgos (Local Hazard Mitigation Plan, LHMP) de nuestra comunidad. Ayúdenos a identificar los proyectos que le gustaría ver en nuestra comunidad para ayudar a hacernos

1. ¿Cuál de las siguientes opciones describe mejor su situación de residencia en la ciudad de Bell?

- ☐ Residente actual
- ☐ Residente anterior
- ☐ No residente

2. Aunque el clima de Bell suele ser agradable, es posible que se den temperaturas extremas. Las olas de calor pueden ser especialmente peligrosas para las personas mayores, los niños pequeños y las personas que trabajan al aire libre. Las temperaturas extremadamente frías también son posibles, pero mucho menos probables que el calor extremo. ¿Cuál de las siguientes medidas de mitigación le gustaría que adoptara la ciudad de Bell?

- ☐ Aumentar el número de árboles autóctonos plantados alrededor de los edificios para dar sombra a los estacionamientos y a lo largo de las calles principales.
- ☐ Implementar centros de calentamiento o de enfriamiento para que los miembros de la comunidad puedan reunirse durante un acontecimiento.
- ☐ Ninguna
- ☐ Other

3. Los terremotos son difíciles de predecir y suponen un riesgo importante para las personas y los bienes de Bell. ¿Cuál de las siguientes medidas de le gustaría que adoptara la ciudad de Bell?

- ☐ Desarrollar un programa de divulgación para enseñar a las familias, escuelas y empresas qué hacer durante un terremoto.
- ☐ Desarrollar un programa de divulgación para enseñar a las familias, escuelas y empresas cómo asegurar sus bienes y proteger a las personas antes de un terremoto.
- ☐ Desarrollar un plan de evacuación ante terremotos para los miembros de la comunidad.
- ☐ Ninguna
- ☐ Other

4. Los incendios son el peligro más frecuente en California. Aunque la ciudad de Bell está relativamente protegida de los incendios forestales por su entorno urbano, el humo también puede causar importantes impactos en la salud. Además, los incendios urbanos de viviendas y comercios pueden producirse en cualquier lugar. ¿Cuál de las siguientes medidas de mitigación le gustaría que adoptara la ciudad de Bell?

- ☐ Apoyar la construcción o readaptación de materiales no combustibles para viviendas, comercios y escuelas.
- ☐ Instalación de sistemas externos de hidratación específicos para cada estructura (aspersores); fuentes de energía especialmente asignadas y cisternas de uso exclusivo en edificios públicos.
- ☐ Sustituir vegetación inflamable por especies menos inflamables.
- ☐ Desarrollar un programa de divulgación para enseñar a las familias, escuelas, y empresas cómo eliminar de forma segura materiales inflamables, crear espacios protegidos alrededor de los edificios, mantener detectores de humo, etc.
- ☐ Ninguna
- ☐ Other

5. Las tormentas de viento, como los vientos de Santa Ana, afectan regularmente a la región. En los últimos 20 años, se han registrado más de 500 casos de vientos superiores a 57 mph en el condado de Los Ángeles. Las ráfagas de viento tensan las estructuras y los escombros pueden dañar tanto a las personas como a los bienes en caso de impacto. ¿Cuál de las siguientes medidas de mitigación de riesgos le gustaría que adoptara la ciudad de Bell?

- ☐ Apoyar el establecimiento de normas para todos los servicios públicos con relación a la poda de árboles alrededor de las líneas eléctricas y el mantenimiento de postes.
- ☐ Desarrollar un programa de divulgación para enseñar a las familias, escuelas y empresas cómo proteger de forma segura cosas como ventanas, calefacciones instaladas en el techo, sistemas de ventilación, aires acondicionados, mejorar los revestimientos de los techos y otras características.
- ☐ Apoyo que incluye medidas como refuerzos estructurales, persianas, y vidrio laminado en los cristales de las ventanas en el diseño de los edificios para minimizar los daños.
- ☐ Ninguna
- ☐ Other

6. Las tormentas eléctricas intensas pueden traer granizo, relámpagos, vientos fuertes y lluvias torrenciales a la ciudad de Bell. Desde 2005, la ciudad ha sufrido una tormenta intensa cada 16 meses, a veces con granizo del tamaño de bolas de chicle. Estos sucesos pueden causar lesiones y daños materiales a bienes como automóviles y viviendas. ¿Cuál de las siguientes medidas de mitigación le gustaría que adoptara la ciudad de Bell?

- ☐ Apoyar el establecimiento de normas para todos los servicios públicos con relación a la poda de árboles alrededor de las líneas eléctricas y el mantenimiento de postes.
- ☐ Desarrollar un programa de divulgación para enseñar a las familias, escuelas y empresas cómo proteger de forma segura cosas como ventanas, calefacciones instaladas en el techo, sistemas de ventilación, aires acondicionados, mejorar los revestimientos de los techos y otras características.
- ☐ Apoyo que incluye medidas como refuerzos estructurales, persianas, y vidrio laminado en los cristales de las ventanas en el diseño de los edificios para minimizar los daños.
- ☐ Ninguna
- ☐ Other

7. Las tormentas eléctricas intensas pueden traer granizo, relámpagos, vientos fuertes y lluvias torrenciales a la ciudad de Bell. Desde 2005, la ciudad ha sufrido una tormenta intensa cada 16 meses, a veces con granizo del tamaño de bolas de chicle. Estos sucesos pueden causar lesiones y daños materiales a bienes como automóviles y viviendas. ¿Cuál de las siguientes medidas de mitigación le gustaría que adoptara la ciudad de Bell?

- ☐ Desarrollar un programa de divulgación para enseñar a las familias, escuelas y empresas cómo mantenerse seguros en caso de tormenta.
- ☐ Implementar refugios comunitarios para que los miembros de la comunidad puedan reunirse durante tales eventos.
- ☐ Ninguna
- ☐ Other

8. La sequía y la escasez de agua son peligros que afectan ocasionalmente a la zona. Aunque los efectos suelen ser menos perjudiciales en zonas urbanas como Bell, es posible que se produzca una escasez de agua a largo plazo. ¿Cuál de las siguientes medidas de mitigación le gustaría que adoptara la ciudad de Bell?

- ☐ Apoyar la construcción o readaptación de zonas ajardinadas resistentes a la sequía (a través de medidas como plantar vegetación autóctona o el uso de técnicas de jardinería xerófila).
- ☐ Desarrollar un programa de divulgación para enseñar a las familias, escuelas y empresas cómo utilizar una menor cantidad de agua.
- ☐ Apoyar la construcción de sistemas de captación de agua de lluvia y uso de agua reciclada.
- ☐ Imponer multas a los miembros de la comunidad que consuman una cantidad de agua mayor que la permitida por hogar.
- ☐ Ninguna
- ☐ Other

9. Los deslizamientos de tierra y barro son poco probables en la ciudad de Bell debido al tipo de terreno. Sin embargo, hay algunas zonas inclinadas alrededor de la 1-710 y el río Los Ángeles donde es posible que se produzcan pequeños deslizamientos de tierra y barro. ¿Cuál de las siguientes medidas de mitigación le gustaría que adoptara la ciudad de Bell?

- ☐ Cartografiar y evaluar la vulnerabilidad probable a los desprendimientos de tierra.
- ☐ Implementar medidas de estabilización del suelo (como plantar vegetación estabilizadora del suelo en pendientes empinadas de propiedad pública).
- ☐ Construir cuencas de captación de flujos de escombros para evitar la transferencia de sedimentos a las carreteras.
- ☐ Ninguna
- ☐ Other

10. Los hundimientos del terreno, los karst y los socavones son poco probables, pero no imposibles dentro de la ciudad de Bell. Los socavones son especialmente difíciles de predecir porque pueden producirse por la rotura de tuberías de agua, la extracción de minerales y actividades similares. ¿Cuál de las siguientes medidas de mitigación le gustaría que adoptara la ciudad de Bell?

- ☐ Utilizar un radar de penetración en el suelo para detectar y cartografiar posibles zonas de peligro.
- ☐ Promover la concienciación de la comunidad sobre los riesgos de los hundimientos y sus efectos.
- ☐ Ninguna
- ☐ Other

11. Según los registros disponibles, las inundaciones de origen natural (ríos y costa) son prácticamente inexistentes. Sin embargo, las inundaciones repentinas locales resultantes de fuertes lluvias pueden provocar agua estancada en carreteras y zonas bajas, lo que puede crear condiciones peligrosas a corto plazo. ¿Cuál de las siguientes medidas de mitigación le gustaría que adoptara la ciudad de Bell?

- ☐ Utilizar SIG (sistemas de información geográfica) para cartografiar las zonas peligrosas, estructuras en riesgo y zonas de alto riesgo.
- ☐ Mejorar los sistemas de aguas pluviales para que puedan transportar más agua.
- ☐ Modificar los sistemas de aguas pluviales para que las precipitaciones sean captadas o absorbidas por el suelo, en lugar de dirigirse hacia los drenajes (canales de drenaje biológicos, pozos secos, pavimentos permeables, barriles de lluvia, filtros de arena, etc.).
- ☐ Animar a los propietarios de viviendas a contratar seguros contra inundaciones.
- ☐ Ninguna
- ☐ Other

12. La rotura de presas y diques es poco probable, pero puede resultar en eventos potencialmente graves. Aunque no hay presas en la ciudad de Bell, el modelado de las presas al norte de la comunidad muestra que las aguas de las inundaciones podrían llegar a partes de Bell. ¿Cuál de las siguientes medidas de mitigación frente a roturas de presas y diques enumeradas a continuación le gustaría que adoptara la ciudad de Bell?

- ☐ Unirse a un grupo de trabajo con comunidades vecinas para alentar a las jurisdicciones con presas de alto riesgo a aplicar medidas de protección.
- ☐ Abogar por un análisis exhaustivo de cuencas hidrográficas para todos los proyectos de presas o embalses propuestos.
- ☐ Animar a los propietarios de viviendas a contratar seguros contra inundaciones.
- ☐ Ninguna
- ☐ Other

13. El aumento del nivel del mar es un peligro a largo plazo, y sus efectos en la ciudad de Bell serán probablemente indirectos. Por ejemplo, las personas que viven en comunidades costeras pueden verse desplazadas y tener que trasladarse al interior. Además, las principales instalaciones costeras, como el puerto de Los Ángeles, pueden verse afectadas, lo que podría tener amplias consecuencias para Bell y otras comunidades de la región. ¿Cuál de las siguientes medidas de mitigación le gustaría que adoptara la ciudad de Bell?

- ☐ Unirse a un grupo de trabajo con comunidades vecinas para aplicar un plan de mitigación que describa labores, responsabilidades y prioridades para protegerse frente a los impactos.
- ☐ Modelar varios escenarios hipotéticos para estimar posibles vulnerabilidades con el fin de establecer prioridades para mitigar la subida del nivel del mar.
- ☐ Invertir en la construcción de refugios comunitarios para que los evacuados los utilicen cuando se vean afectados.
- ☐ Trabajar con proveedores locales de servicios públicos para establecer expectativas sobre los impactos y priorizar las mejoras.
- ☐ Ninguna
- ☐ Other

14. Aunque no hay registros históricos de tornados que hayan afectado a la ciudad de Bell, se han documentado tornados dentro del condado de Los Ángeles. Desde 1950, los tornados en el condado de Los Ángeles han causado 46 heridos y 61 millones de dólares en daños materiales. ¿Cuál de las siguientes estrategias de mitigación le gustaría que adoptara la ciudad de Bell?

- ☐ Apoyar el establecimiento de normas para todos los servicios públicos con relación a la poda de árboles alrededor de las líneas eléctricas y el mantenimiento de postes.
- ☐ Desarrollar un programa de divulgación para enseñar a las familias, escuelas y empresas cómo proteger de forma segura cosas como ventanas, calefacciones instaladas en el techo, sistemas de ventilación, aires acondicionados, mejorar los revestimientos de los techos y otras características.
- ☐ Ninguna
- ☐ Other

15. Los tsunamis son peligros poco frecuentes, pero potencialmente catastróficos. Aunque la ciudad de Bell está lo suficientemente alejada del mar como para no verse afectada por la crecida, la ciudad sufriría múltiples repercusiones secundarias o en cadena. Si se emite una alerta de tsunami, muchas personas se desplazarán hacia el interior a través de comunidades como Bell. Tras el impacto de un tsunami, es posible que las instalaciones costeras que prestan apoyo a Bell queden inoperativas, y que se pida a la colectividad que preste ayuda a las comunidades vecinas que lo necesiten. ¿Cuál de las siguientes medidas de mitigación le gustaría que adoptara la ciudad de Bell?

- ☐ Unirse a un grupo de trabajo con comunidades vecinas para aplicar un plan de respuesta ante emergencias que describa labores, responsabilidades y rutas de evacuación.
- ☐ Implementar refugios comunitarios para que los evacuados puedan reunirse durante los eventos.
- ☐ Invertir ahora en fondos públicos a los que sólo se pueda acceder para apoyar un evento catastrófico declarado a nivel local.
- ☐ Implementar un Programa "Evacuador", en el que miembros voluntarios de la comunidad puedan participar en cursos de capacitación y aprender cómo apoyar en un evento que amerite evacuación.
- ☐ Ninguna
- ☐ Other

16. Aunque la mayoría de los ciberataques se dirigen contra individuos, algunos agresores maliciosos tienen como objetivo sistemas importantes que pueden alterar instalaciones comunitarias y servicios esenciales. Por motivos de privacidad, es difícil determinar la frecuencia de los ciberataques en la ciudad de Bell. Sin embargo, los informes de la Oficina del Fiscal General de California indican que varias comunidades cercanas están en el punto de mira de estos ataques. ¿Cuál de las siguientes medidas de mitigación le gustaría que adoptara la ciudad de Bell?

- ☐ Invertir fondos públicos en sistemas de seguridad en línea o dispositivos de respaldo que brinden mayor protección.
- ☐ Desarrollar un programa de divulgación para enseñar a las familias, escuelas y empresas cómo detectar estafadores e intentos de fraude electrónico.
- ☐ Implementar programas de capacitación para el personal sobre cómo detectar estafadores e intentos de fraude electrónico.
- ☐ Ninguna
- ☐ Other

17. Los materiales peligrosos almacenados en la ciudad de Bell son a veces necesarios para uso industrial y comercial. Se habla de "vertido incontrolado" cuando se derraman materiales peligrosos, ya sea a causa de un accidente o como parte de las consecuencias de una catástrofe. Diversas industrias utilizan materiales peligrosos a diario y los incidentes son muy poco frecuentes. Sin embargo, de vez en cuando se producen vertidos y es probable que se produzcan en el futuro. En la mayoría de los casos, los vertidos son pequeños y se contienen rápidamente, aunque es posible que se produzcan incidentes de mayor magnitud. La liberación de gases es más difícil de contener y puede no ser evidente de manera inmediata. ¿Cuál de las siguientes medidas de mitigación le gustaría que adoptara la ciudad de Bell?

- ☐ Desarrollar ordenanzas municipales que exijan a las empresas e instalaciones comerciales registrar todos los materiales con el cuerpo de bomberos.
- ☐ Desarrollar ordenanzas municipales que restrinjan los tipos de empresas e instalaciones comerciales que pueden operar en la ciudad y el tipo de materiales que pueden almacenarse en las instalaciones.
- ☐ Desarrollar un programa de divulgación para enseñar a las familias, escuelas y empresas a responder en caso de diferentes tipos de vertidos.
- ☐ Ninguna
- ☐ Other

18. Pueden producirse disturbios civiles por diversas razones. En algunos casos, estos sucesos pueden interrumpir la actividad cotidiana y provocar daños materiales o personales. Se han documentado varios casos de disturbios civiles en Bell, aunque los daños y lesiones registrados han sido mínimos. ¿Cuál de las siguientes medidas de mitigación le gustaría que adoptara la ciudad de Bell?

- ☐ Reforzar las puertas y ventanas en las instalaciones públicas con cerraduras adicionales, persianas, o rejas de seguridad para evitar entradas forzadas durante disturbios o protestas.
- ☐ Unirse a un grupo de trabajo con comunidades vecinas para aplicar un plan de respuesta ante emergencias que describa labores, responsabilidades y rutas de evacuación.
- ☐ Desarrollar un programa de divulgación para enseñar a las familias, escuelas y empresas cómo protegerse durante estos eventos.
- ☐ Ninguna
- ☐ Other

19. Las pandemias son raras, pero sus efectos pueden ser graves. La pandemia de COVID-19 es la más conocida en la actualidad, pero entre las pandemias más antiguas que afectaron a la región figuran los brotes de viruela de 1862 y de gripe española de 1918. ¿Cuál de las siguientes medidas de mitigación le gustaría que adoptara la ciudad de Bell?

- ☐ Desarrollar un programa de divulgación para enseñar a las familias, escuelas y empresas cómo protegerse ante enfermedades.
- ☐ Crear un plan de respuesta ante emergencias que describa labores, responsabilidades y rutas de evacuación.
- ☐ Invertir en un inventario rotativo de equipos de protección personal (EPP).
- ☐ Ninguna
- ☐ Other

20. Los accidentes de transporte son frecuentes y suelen ser leves, aunque de vez en cuando se producen accidentes importantes. Los accidentes de transporte en Bell involucran principalmente a automóviles, pero la ciudad cuenta con tráfico ferroviario que potencialmente podría verse involucrado en un accidente de transporte. ¿Cuál de las siguientes medidas de mitigación le gustaría que adoptara la ciudad de Bell?

- ☐ Realizar un estudio de seguridad vial para comprender qué zonas de la ciudad presentan mayor riesgo e identificar posibles soluciones.
- ☐ Unirse a un grupo de trabajo con comunidades vecinas para aplicar un plan de respuesta ante emergencias que describa labores, responsabilidades y rutas de evacuación.
- ☐ Colocar señalización y otros pequeños identificadores de peligro vial para ayudar a los conductores a circular por las intersecciones más peligrosas.
- ☐ Ninguna
- ☐ Other

21. Los fallos en los servicios públicos y la infraestructura incluyen eventos como derrumbes de puentes, carreteras deformadas, cortes de electricidad, cortes de comunicaciones, etc. Existe un número relativamente limitado de casos documentados de estos fallos dentro de la ciudad de Bell. Sin embargo, acontecimientos regionales como cortes de electricidad y de comunicaciones han afectado a la ciudad. ¿Cuál de las siguientes medidas de mitigación le gustaría que adoptara la ciudad de Bell?

- ☐ Unirse a un grupo de trabajo con las comunidades vecinas para apoyar la identificación de soluciones y financiar mejoras en la infraestructura.
- ☐ Trabajar con proveedores locales de servicios públicos para establecer expectativas sobre los impactos y priorizar las mejoras.
- ☐ Invertir ahora en fondos públicos a los que solo se pueda acceder para apoyar fallos de infraestructura declarados a nivel local.
- ☐ Ninguna
- ☐ Other

22. ¿Tiene alguna otra sugerencia que le gustaría que la ciudad pusiera en práctica?

Aspectos demográficos

Las siguientes preguntas solicitan información demográfica que ayudará a la ciudad de Bell a comprender a qué miembros de la comunidad llega esta encuesta y a quiénes no. Estas preguntas son totalmente opcionales y pueden omitirse por completo. Todas las respuestas son confidenciales.

23. ¿Qué edad tiene?

- ☐ Menos de 20 años
- ☐ Entre 20 y 29 años
- ☐ Entre 30 y 39 años
- ☐ Entre 40 y 49 años
- ☐ Entre 50 y 59 años
- ☐ Entre 60 y 69 años
- ☐ Más de 70 años
- ☐ Prefiero no responder

24. ¿Cuál es el nivel más alto de educación formal que ha alcanzado?

- ☐ Del 1.º al 8.º grado (primaria)
- ☐ Del 9.º al 11.º grado (algunos años de secundaria)
- ☐ Diploma de secundaria/de educación general (General Educational Development, GED)
- ☐ Algunos estudios universitarios o técnicos
- ☐ Título de asociado (AA)
- ☐ Licenciatura (BA o BS)
- ☐ Maestría (MA, MS, MBA, etc.)
- ☐ Título profesional (JD, MD, DVM, DDS)
- ☐ Doctorado (Ph. D., Ed. D., D. Sc., etc.)
- ☐ Prefiero no responder

25. ¿Tiene acceso a un vehículo personal?

- ☐ Sí
- ☐ No
- ☐ No estoy seguro

26. ¿Cuál es su tiempo promedio de trayecto (solo ida) al trabajo?

- ☐ Menos de 10 minutos
- ☐ Entre 10 y 25 minutos
- ☐ Entre 25 y 45 minutos
- ☐ Entre 45 y 60 minutos
- ☐ Más de una hora

27. ¿Tiene alguna discapacidad que le gustaría que el personal de primeros auxilios tuviera en cuenta en caso de emergencia?

- ☐ No
- ☐ Sí: auditiva
- ☐ Sí: mental
- ☐ Sí: de movilidad
- ☐ Sí: de visión
- ☐ Prefiero no responder

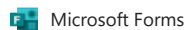
28. ¿Cuál es su ingreso familiar promedio anual (antes de impuestos)?

- ☐ Menos de \$30,000
- ☐ Entre \$30,000 y \$60,000
- ☐ Entre \$60,000 y \$100,000
- ☐ Entre \$100,000 y \$200,000
- ☐ Más de \$200,000
- ☐ Prefiero no responder

29. ¿Cuál es su género?

30. ¿Cómo describiría su raza?

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مدينة بيل | استطلاع الرأي العام بشأن خطة تخفيف المخاطر المحلية رقم 2 (2)

ساعدنا في تحديد المشروعات التي ترغب في رؤيتها في (LHMP) مدينة بيل بوضع أول خطة مجتمعية لتخفيف المخاطر المحلية

1. أي مما يلي يصف حالة إقامتك في مدينة بيل؟

- ☐ مقيم حالي
- ☐ مقيم سابق
- ☐ غير مقيم

2. على الرغم من أن مناخ مدينة بيل مريح في العادة، إلا أن درجات الحرارة القصوى محتملة. يمكن أن تكون موجات الحر خطيرة بشكل خاص على كبار السن، والأطفال الصغار، والأشخاص الذين يعملون في الهواء الطلق. درجات الحرارة شديدة البرودة محتملة أيضًا، لكنها أقل احتمالية بكثير من الحرارة الشديدة. أي من إجراءات التخفيف التالية تود أن ترى مدينة بيل تسعى لتحقيقها؟

- ☐ زيادة عدد الأشجار المحلية المزروعة حول المباني لتظليل مواقف السيارات وعلى طول الشوارع الرئيسية.
- ☐ إنشاء مراكز تدفئة أو تبريد ليجتمع فيها أفراد المجتمع أثناء وقوع حدث.
- ☐ لا يوجد
- ☐ Other

3. يصعب التنبؤ بالزلازل، كما أنها تشكل خطرًا كبيرًا على الأشخاص والممتلكات في بيل. أي من الإجراءات التالية تود أن ترى مدينة بيل تسعى لتحقيقها؟

- ☐ إعداد برنامج توعوي لتعليم العائلات والمدارس والشركات ما يجب القيام به أثناء وقوع الزلازل.
- ☐ إعداد برنامج توعوي لتعليم العائلات والمدارس والشركات كيفية تأمين الممتلكات وحماية الأشخاص قبل وقوع الزلازل.
- ☐ وضع خطة إخلاء في حالة وقوع الزلازل لأفراد المجتمع.
- ☐ لا يوجد
- ☐ Other

4. تُعد الحرائق الخطر الأكثر شيوعًا في كاليفورنيا. بينما تتمتع مدينة بيل بحماية نسبية من حرائق الغابات بفضل محيطها الحضري، يمكن أن يسبب الدخان أيضًا أضرارًا صحية كبيرة. بالإضافة إلى ذلك، يمكن أن تندلع الحرائق الحضرية في المنازل والشركات في أي مكان. أي من إجراءات التخفيف التالية تود أن ترى مدينة بيل تسعى لتحقيقها؟

- ☐ دعم إنشاء أو تعديل المباني باستخدام مواد غير قابلة للاشتعال في المنازل والشركات والمدارس.
- ☐ تركيب أنظمة رش مائية خارجية مخصصة للمباني (مرشات)؛ ومصادر طاقة مخصصة؛ وصهاريج مياه مخصصة في المباني العامة.
- ☐ استبدال النباتات القابلة للاشتعال بأنواع أقل قابلية للاشتعال.
- ☐ إعداد برنامج توعوي لتعليم العائلات والمدارس والشركات كيفية التخلص بأمان من المواد القابلة للاشتعال، وإنشاء مساحة عازلة حول المباني، وصيانة أجهزة الكشف عن الدخان، وما إلى ذلك.
- ☐ لا يوجد
- ☐ Other

5. تؤثر العواصف الرياحية، مثل رياح سانتا آنا، على المنطقة بانتظام. في السنوات العشرين الماضية، سجلت أكثر من 500 حالة تجاوزت فيها سرعة الرياح 57 ميلًا في الساعة في مقاطعة لوس أنجلوس. تؤدي هبات الرياح إلى إضعاف الهياكل وقد يضر الحطام المتطاير بالأفراد والممتلكات عند الاصطدام. أي من إجراءات الحد من المخاطر التالية تود أن ترى مدينة بيل تسعى لتحقيقها؟

- ☐ دعم وضع معايير لجميع المرافق فيما يتعلق بتقليم الأشجار حول خطوط الكهرباء وصيانة الأعمدة.
- ☐ إعداد برنامج توعوي لتعليم العائلات والمدارس والشركات كيفية تأمين النوافذ، وأجهزة التدفئة والتهوية، وأجهزة تكييف الهواء المثبتة على السطح، وتحسين أغطية الأسطح، والميزات الأخرى بأمان.
- ☐ دعم إدراج تدابير مثل تقوية الهيكل، والغوالق، والزجاج الرقائقي في ألواح النوافذ عند تصميم المباني لتقليل الضرر.
- ☐ لا يوجد
- ☐ Other

6. يمكن أن تجلب العواصف الرعدية الشديدة البرد والبرق والرياح القوية والأمطار الغزيرة إلى مدينة بيل. منذ عام 2005، شهدت المدينة عاصفة رعدية شديدة مرة واحدة تقريبًا كل 16 شهرًا، أحيانًا مع بَرَد بحجم كرات العلكة. يمكن أن تتسبب هذه الأحداث في إصابات وأضرار للممتلكات مثل السيارات والمنازل. أي من إجراءات التخفيف التالية تود أن ترى مدينة بيل تسعى لتحقيقها؟

- ☐ إعداد برنامج توعوي لتعليم العائلات والمدارس والشركات كيفية البقاء بأمان أثناء العاصفة.
- ☐ إنشاء ملاجئ مجتمعية ليجتمع فيها أفراد المجتمع أثناء وقوع الأحداث.
- ☐ لا يوجد
- ☐ Other

7. يُعد الجفاف ونقص المياه من المخاطر التي تؤثر على المنطقة من حين لآخر. وعلى الرغم من أن التأثيرات تكون عادةً أقل ضررًا في المناطق الحضرية مثل بيل، إلا أن نقص المياه على المدى الطويل أمر محتمل. أي من إجراءات التخفيف التالية تود أن ترى مدينة بيل تسعى لتحقيقها؟

- ☐ دعم إنشاء أو تعديل تنسيق الحدائق المقاومة للجفاف (مثل زراعة النباتات المحلية أو تنسيق الحدائق قليلة الري).
- ☐ إعداد برنامج توعوي لتعليم العائلات والمدارس والشركات كيفية استخدام كمية أقل من الماء.
- ☐ دعم بناء أنظمة تجميع مياه الأمطار واستخدام المياه المستصلحة.
- ☐ فرض غرامات على أفراد المجتمع المحلي الذين يستخدمون كمية من المياه تزيد عن الكمية المسموح بها لكل أسرة.
- ☐ لا يوجد
- ☐ Other

8. تُعد الانهيارات الأرضية والطينية غير شائعة في مدينة بيل بسبب طبيعة التضاريس. ومع ذلك، هناك بعض نهر لوس أنجلوس حيث يمكن حدوث انهيارات أرضية وطينية 710-1 المناطق المنحدرة حول الطريق السريع صغيرة. أي من إجراءات التخفيف التالية تود أن ترى مدينة بيل تسعى لتحقيقها؟

- ☐ رسم خرائط وتقييم احتمالية التعرض للانهيارات الأرضية.
- ☐ اتخاذ تدابير لتثبيت التربة (مثل زراعة نباتات تثبت التربة على المنحدرات العامة شديدة الانحدار).
- ☐ إنشاء مصائد لتدفق الحطام لمنع انتقال الرواسب إلى الطرق.
- ☐ لا يوجد
- ☐ Other

9. يُعد الهبوط الأرضي وتشكيل الكهوف الصخرية والحفر الانخسافية في مدينة بيل أمرًا غير شائع، لكنه ليس مستحيلًا. يصعب التنبؤ بالحفر الانخسافية بشكل خاص لأنها يمكن أن تنتج عن انفجار أنابيب المياه، واستخراج المعادن، والأنشطة المماثلة. أي من إجراءات التخفيف التالية تود أن ترى مدينة بيل تسعى لتحقيقها؟

- ☐ استخدام رادار اختراق الأرض للكشف عن مناطق الخطر المحتملة ورسم خرائط لها.
- ☐ تعزيز وعي المجتمع بمخاطر الهبوط الأرضي وآثاره.
- ☐ لا يوجد
- ☐ Other

10. وفقًا للسجلات المتاحة، فإن الفيضانات الناجمة عن المصادر الطبيعية (الأنهار والسواحل) شبه معدومة. ومع ذلك، قد تؤدي الفيضانات المحلية المفاجئة الناتجة عن الأمطار الغزيرة إلى تجمع المياه الراكدة في الطرق والمناطق المنخفضة، مما قد يخلق ظروفًا خطيرة قصيرة المدى. أي من إجراءات التخفيف التالية تود أن ترى مدينة بيل تسعى لتحقيقها؟

- ☐ لرسم خرائط مناطق الخطر، والمنشآت المعرضة للخطر، والمناطق عالية المخاطر (GIS) استخدام نظم المعلومات الجغرافية.
- ☐ تحسين أنظمة تصريف مياه الأمطار لتمرير كمية أكبر من المياه.
- ☐ تعديل أنظمة تصريف مياه الأمطار بحيث يتم تجميع و/أو امتصاص مياه الأمطار في التربة، بدلاً من توجيهها نحو المصارف (مثل الأحواض الحيوية، والآبار الجافة، والأرصعة النفاذة، وبراميل تجميع مياه الأمطار، وفلاتر الرمال، إلخ).
- ☐ تشجيع أصحاب المنازل على شراء تأمين ضد الفيضانات.
- ☐ لا يوجد
- ☐ Other

11. من غير المرجح أن يحدث فشل للسدود والحواجز الترابية، ولكن قد تكون عواقبه خطيرة. وعلى الرغم من عدم وجود سدود داخل مدينة بيل، تُظهر النماذج الخاصة بالسدود الواقعة شمال المجتمع أن مياه الفيضان قد تصل إلى أجزاء من بيل. فيما يلي بعض إجراءات التخفيف الممكنة لفشل السدود والحواجز الترابية، أي منها تود أن ترى مدينة بيل تسعى لتحقيقها؟

- ☐ الانضمام إلى قوة عمل مع المجتمعات المحيطة لتشجيع الجهات المسؤولة عن السدود عالية الخطورة على تنفيذ تدابير وقائية.
- ☐ الدعوة إلى إجراء تحليل شامل لمستجمعات المياه في جميع مشروعات السدود أو الخزانات المقترحة.
- ☐ تشجيع أصحاب المنازل على شراء تأمين ضد الفيضانات.
- ☐ لا يوجد
- ☐ Other

12. يمثل ارتفاع مستوى سطح البحر خطرًا طويل الأجل، ومن المرجح أن تكون آثاره على مدينة بيل غير مباشرة. على سبيل المثال، قد يُجبر الأفراد الذين يعيشون في المجتمعات الساحلية على النزوح والانتقال إلى مناطق أبعد داخل اليابسة. بالإضافة إلى ذلك، قد تتأثر المرافق الساحلية الكبرى مثل ميناء لوس أنجلوس، وقد يكون لذلك عواقب واسعة النطاق على بيل والمجتمعات الأخرى في المنطقة. أي من إجراءات التخفيف التالية تود أن ترى مدينة بيل تسعى لتحقيقها؟

- ☐ الانضمام إلى قوة عمل مع المجتمعات المحيطة لتنفيذ خطة تخفيف تحدد الأدوار والمسؤوليات والأولويات للحماية من الآثار.
- ☐ إعداد نماذج لسيناريوهات مختلفة "ماذا لو" لتقدير نقاط الضعف المحتملة من أجل تطوير أولويات التخفيف من ارتفاع مستوى سطح البحر.
- ☐ الاستثمار في إنشاء ملاجئ مجتمعية ليستخدامها النازحون عند تضررهم.
- ☐ العمل مع مزودي الخدمات المحليين لتحديد التوقعات بشأن التأثيرات وتحديد أولويات التحسينات.
- ☐ لا يوجد
- ☐ Other

13. على الرغم من عدم وجود سجلات تاريخية تشير إلى تأثير الأعاصير العنيفة على مدينة بيل، فقد تم توثيق الأعاصير العنيفة داخل مقاطعة لوس أنجلوس. منذ عام 1950، تسببت الأعاصير العنيفة في مقاطعة لوس أنجلوس في 46 إصابة و61 مليون دولار من الأضرار المادية. أي من استراتيجيات التخفيف التالية تود أن ترى مدينة بيل تسعى لتحقيقها؟

- ☐ دعم وضع معايير لجميع المرافق فيما يتعلق بتقليم الأشجار حول خطوط الكهرباء وصيانة الأعمدة.
- ☐ إعداد برنامج توعوي لتعليم العائلات والمدارس والشركات كيفية تأمين النوافذ، وأجهزة التدفئة والتهوية، وأجهزة تكييف الهواء المثبتة على السطح، وتحسين أغطية الأسطح، والميزات الأخرى بأمان.
- ☐ لا يوجد
- ☐ Other

14. تُعد أمواج تسونامي نادرة ولكنها تشكل مخاطر كارثية محتملة. وعلى الرغم من أن مدينة بيل تقع على مسافة كافية داخل اليابسة بحيث لا تصلها مياه الموجة، إلا أن المدينة ستشهد آثارًا ثانوية أو متتالية متعددة. إذا صدر تحذير من تسونامي، فسيُتجه العديد من الأشخاص إلى الداخل مرونًا بمجموعات مثل بيل. وبعد تأثير تسونامي، قد تتعطل المرافق الساحلية التي تخدم مدينة بيل، وقد يُطلب من المجتمع تقديم المساعدة للمجموعات المجاورة المحتاجة. أي من إجراءات التخفيف التالية تود أن ترى مدينة بيل تسعى لتحقيقها؟

- ☐ الانضمام إلى قوة عمل مع المجتمعات المحيطة لتنفيذ خطة استجابة للطوارئ تحدد الأدوار والمسؤوليات ومسارات الإخلاء.
- ☐ إنشاء ملاجئ مجتمعية ليجمع فيها النازحون أثناء وقوع الأحداث.
- ☐ استثمار الأموال العامة الآن ليتم استخدامها فقط لدعم حدث كارثة معلن محليًا.
- ☐ تنفيذ برنامج "الإخلاء التطوعي"، حيث يتطوع أفراد المجتمع للمشاركة في التدريبات ومعرفة كيفية دعم عملية الإخلاء.
- ☐ لا يوجد
- ☐ Other

15. بينما تستهدف غالبية الهجمات السيبرانية الأفراد، يستهدف بعض الفاعلين المهددين الأنظمة الرئيسية التي يمكن أن تعطل المرافق المجتمعية والخدمات الأساسية. نظرًا لمخاوف الخصوصية، من الصعب تحديد مدى شيوع الهجمات السيبرانية على وجه التحديد داخل مدينة بيل. ومع ذلك، تشير تقارير مكتب المدعي العام في كاليفورنيا إلى أن العديد من المجتمعات المجاورة تتعرض للاستهداف. أي من إجراءات التخفيف التالية تود أن ترى مدينة بيل تسعى لتحقيقها؟

- ☐ إنفاق الأموال العامة للاستثمار في أنظمة أمان إلكتروني أكثر حماية أو أجهزة نسخ احتياطي.
- ☐ إعداد برنامج توعوي لتعليم العائلات والمدارس والشركات كيفية رصد المحتالين ومحاولات التصيد الاحتمالي.
- ☐ تنفيذ برامج تدريب للموظفين حول كيفية رصد المحتالين ومحاولات التصيد الاحتمالي.
- ☐ لا يوجد
- ☐ Other

16. تُعد المواد الخطرة التي يتم الاحتفاظ بها في مدينة بيل ضرورية في بعض الأحيان للاستخدامات الصناعية والتجارية. يُقصد بـ "الإطلاق غير المنضبط" انسكاب المواد الخطرة، إما نتيجة حادث أو كجزء من التأثيرات الناجمة عن كارثة. تُستخدم المواد الخطرة من قبل صناعات مختلفة يوميًا، وتظل الحوادث قليلة ومتباعدة. ومع ذلك، قد تحدث الانسكابات في بعض الأحيان، ومن المحتمل أن تحدث انسكابات في المستقبل. في معظم الحالات، تكون التسريبات صغيرة ويتم احتواؤها بسرعة، على الرغم من أن الآثار الأكبر ممكنة. يصعب احتواء تسرب الغازات وقد لا يكون واضحًا على الفور. أي من إجراءات التخفيف التالية تود أن ترى مدينة بيل تسعى لتحقيقها؟

- ☐ وضع لوائح بلدية تتطلب من الشركات والمرافق التجارية تسجيل جميع المواد لدى إدارة الإطفاء.
- ☐ وضع لوائح بلدية تقيّد أنواع الشركات والمرافق التجارية المسموح لها بالعمل داخل المدينة وأنواع المواد المسموح بتخزينها في الموقع.
- ☐ إعداد برنامج توعوي لتعليم العائلات والمدارس والشركات كيفية الاستجابة في حال وقوع أنواع مختلفة من التسريبات.
- ☐ لا يوجد
- ☐ Other

17. يمكن أن تحدث الاضطرابات المدنية لأسباب متنوعة. في بعض الحالات، يمكن أن تعطل هذه الأحداث النشاط اليومي وقد تؤدي إلى إلحاق أضرار بالمتلكات و/أو إيذاء الأشخاص. كان هناك العديد من الحوادث الموثقة للاضطرابات المدنية في بيل، على الرغم من أن الأضرار والإصابات التي تم الإبلاغ عنها كانت ضئيلة. أي من إجراءات التخفيف التالية تود أن ترى مدينة بيل تسعى لتحقيقها؟

- ☐ تعزيز الأبواب والنوافذ في المرافق العامة بأقفال إضافية، وغالق أو قضبان أمان للحماية من الدخول القسري أثناء أعمال الشغب أو الاحتجاجات.
- ☐ الانضمام إلى قوة عمل مع المجتمعات المحيطة لتنفيذ خطة استجابة للطوارئ تحدد الأدوار والمسؤوليات ومسارات الإخلاء.
- ☐ إعداد برنامج توعوي لتعليم العائلات والمدارس والشركات كيفية حماية أنفسهم أثناء وقوع الحدث.
- ☐ لا يوجد
- ☐ Other

18. تُعد الأوبئة نادرة، لكن يمكن أن تكون تأثيراتها كبيرة. يُعد وباء كوفيد-19 هو الأكثر شهرة اليوم، ولكن الأوبئة الأقدم التي أثرت على المنطقة شملت تفشي الجدري في عام 1862 والإنفلونزا الإسبانية في عام 1918. أي من إجراءات التخفيف التالية تود أن ترى مدينة بيل تسعى لتحقيقها؟

- ☐ إعداد برنامج توعوي لتعليم العائلات والمدارس والشركات كيفية الوقاية من الأمراض.
- ☐ إنشاء خطة استجابة للطوارئ تحدد الأدوار والمسؤوليات ومسارات الإخلاء.
- ☐ (PPE) الاستثمار في مخزون متجدد من معدات الحماية الشخصية.
- ☐ لا يوجد
- ☐ Other

19. حوادث النقل شائعة وعادةً ما تكون بسيطة، على الرغم من أن الأحداث الكبرى تقع في بعض الأحيان. تتعلق حوادث النقل في بيل بشكل أساسي بالسيارات، ولكن المدينة لديها حركة قطارات يمكن أن تكون جزءًا محتملاً من حادث نقل. أي من إجراءات التخفيف التالية تود أن ترى مدينة بيل تسعى لتحقيقها؟

- ☐ تنفيذ دراسة لسلامة الطرق لفهم مناطق المدينة الأكثر عرضة للخطر وتحديد الحلول الممكنة.
- ☐ الانضمام إلى قوة عمل مع المجتمعات المحيطة لتنفيذ خطة استجابة للطوارئ تحدد الأدوار والمسؤوليات ومسارات الإخلاء.
- ☐ وضع لافتات وإشارات أخرى لمخاطر الطرق الصغيرة لمساعدة السائقين على القيادة في التقاطعات الأكثر خطورة.
- ☐ لا يوجد
- ☐ Other

20. يشمل فشل المرافق والبنية التحتية أحداثًا مثل انهيار الجسور، والتواء الطرق، وانقطاع التيار الكهربائي، وانقطاع الاتصالات، والمزيد. هناك عدد محدود نسبيًا من الحالات الموثقة لهذه الإخفاقات التي حدثت داخل مدينة بيل. ومع ذلك، أثرت الأحداث الإقليمية مثل انقطاع التيار الكهربائي والاتصالات على المدينة. أي من إجراءات التخفيف التالية تود أن ترى مدينة بيل تسعى لتحقيقها؟

- ☐ الانضمام إلى قوة عمل مع المجتمعات المحيطة بدعم تحديد الحلول وتمويل تحسينات البنية التحتية.
- ☐ العمل مع مزودي الخدمات المحليين لتحديد التوقعات بشأن التأثيرات وتحديد أولويات التحسينات.
- ☐ استثمار الأموال العامة الآن ليتم استخدامها فقط لدعم حالة فشل محلي في البنية التحتية.
- ☐ لا يوجد
- ☐ Other

21. هل لديك أي اقتراحات أخرى تود أن ترى المدينة تنفذها؟

البيانات السكانية

تطلب الأسئلة التالية معلومات ديموغرافية لمساعدة مدينة بيل في فهم أفراد المجتمع الذين وصل إليهم هذا الاستبيان، ومن لم يصل إليهم. هذه الأسئلة اختيارية تمامًا ويمكن تخطيها بالكامل. جميع الإجابات سرية.

22. كم عمرك؟

- ☐ أقل من 20 عامًا
- ☐ 20-29
- ☐ 30-39
- ☐ 40-49
- ☐ 50-59
- ☐ 60-69
- ☐ 70+
- ☐ أفضل عدم الإجابة

23. ما هو أعلى مستوى تعليمي رسمي وصلت إليه؟

- ☐ الصفوف 1-8 (المرحلة الابتدائية)
- ☐ الصفوف 9-11 (جزء من المرحلة الثانوية)
- ☐ (GED) شهادة الدراسة الثانوية / اختبار تطوير التعليم العام
- ☐ التحاق جزئي بالجامعة أو بالمدرسة الفنية
- ☐ (AA) درجة الزمالة
- ☐ (BA أو BS) درجة البكالوريوس
- ☐ درجة الماجستير (ماجستير في الآداب، ماجستير في العلوم، ماجستير في إدارة الأعمال، إلخ)
- ☐ درجة مهنية (دكتوراه في القانون، أو دكتوراه في الطب، أو دكتوراه في الطب البيطري، أو دكتوراه في طب الأسنان)
- ☐ درجة الدكتوراه (دكتوراه في الفلسفة، أو دكتوراه في التربية، أو دكتوراه في العلوم، إلخ)
- ☐ أفضل عدم الإجابة

24. هل لديك إمكانية الوصول إلى مركبة شخصية؟

- ☐ نعم
- ☐ لا
- ☐ غير متأكد

25. ما هو متوسط زمن تنقلك (ذهاب فقط) إلى العمل؟

- ☐ أقل من 10 دقائق
- ☐ دقيقة 10-25
- ☐ دقيقة 25-45
- ☐ دقيقة 45-60
- ☐ أكثر من ساعة

26. هل لديك أي إعاقات تود أن يكون فرق الإغاثة على علم بها في حالة الطوارئ؟

- ☐ لا
- ☐ نعم - سمعية
- ☐ نعم - ذهنية
- ☐ نعم - حركية
- ☐ نعم - بصرية
- ☐ أفضل عدم الإجابة

27. ما هو متوسط دخل أسرتك السنوي (قبل الضرائب)؟

- ☐ أقل من 30,000 دولار
- ☐ إلى 60,000 دولار 30,000
- ☐ إلى 100,000 دولار 60,000
- ☐ إلى 200,000 دولار 100,000
- ☐ أكثر من 200,000 دولار
- ☐ أفضل عدم الإجابة

28. ما جنسك ؟

29. كيف تصف عرقك ؟

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Responses Overview

Closed

Responses

12

Average Time

16:33

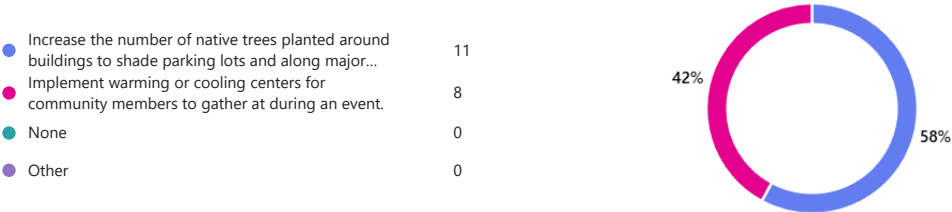
Duration

90 Days

1. Which of the following best describes your residency status in the City of Bell?



2. While the climate of Bell is usually comfortable, extreme temperatures are possible. Heat waves can be particularly dangerous for seniors, young children, and people who work outdoors. Extreme cold temperatures are also possible but much less likely than extreme heat. Which of the following mitigation actions would you like to see the City of Bell pursue?

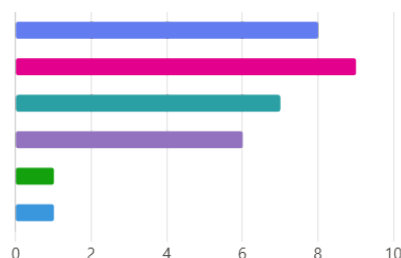


3. Earthquakes are difficult to predict and pose a significant risk to people and property in Bell. Which of the following actions would you like to see the City of Bell pursue?



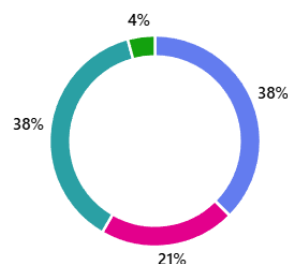
4. Fires is the most common hazard in California. While the City of Bell is relatively protected from wildfire by its urban surroundings, smoke can also cause significant health impacts. Additionally, urban fires from homes and businesses can happen anywhere. Which of the following mitigation actions would you like to see the City of Bell pursue?

- Support the construction or retrofit of non-combustible materials for homes, businesses, an... 8
- Installing external, structure-specific water hydration systems (sprinklers); dedicated... 9
- Replace flammable vegetation with less flammable species. 7
- Develop an outreach program to teach families, schools, and businesses how to safely dispose o... 6
- None 1
- Other 1



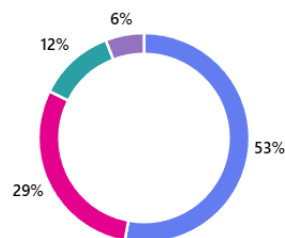
5. Windstorms, like the Santa Ana winds, regularly affect the region. In the last 20 years, there have been more than 500 recorded instances of winds exceeding 57 mph in Los Angeles County. Wind gusts strain structures and debris can harm both people and property upon impact. Which of the following hazard mitigation actions would you like to see the City of Bell pursue?

- Support establishing standards for all utilities regarding tree pruning around lines and pole... 9
- Develop an outreach program to teach families, schools, and businesses how to safely secure things... 5
- Support including measures like structural bracing, shutters, and laminated glass in windowpanes in... 9
- None 0
- Other 1



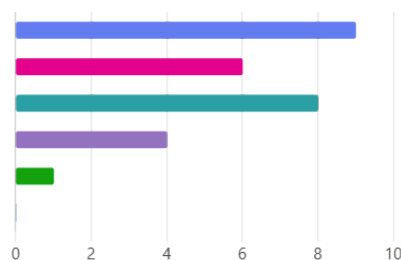
6. Severe thunderstorms can bring hail, lightning, high winds, and heavy rain to the City of Bell. Since 2005, the City has experienced a severe thunderstorm about once every 16 months, sometimes with hail as large as gum balls. These events can cause injuries and damage to property like cars and homes. Which of the following mitigation actions would you like to see the City of Bell pursue?

- Develop an outreach program to teach families, schools, and businesses how to stay safe in a storm. 9
- Implement community shelters so community members can gather during events. 5
- None 2
- Other 1

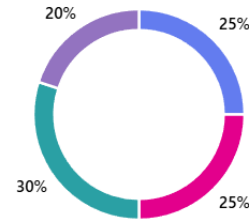
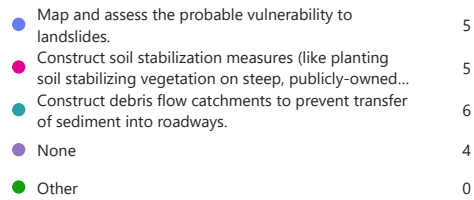


7. Drought and water shortages are hazards that occasionally affect the area. While the impacts are normally less harmful in urban areas like Bell, long-term water shortages are possible. Which of the following mitigation actions would you like to see the City of Bell pursue?

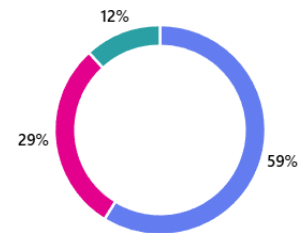
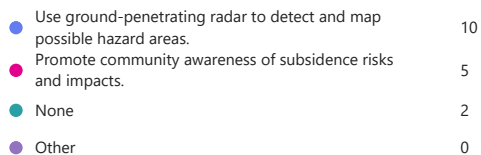
- Support the construction or retrofit of drought resilient landscaping (like planting native... 9
- Develop an outreach program to teach families, schools and businesses how to use less water. 6
- Support the construction of rain capture systems and reclaimed water usage. 8
- Implement fines for community members who use more than the allowed amount of water per... 4
- None 1
- Other 0



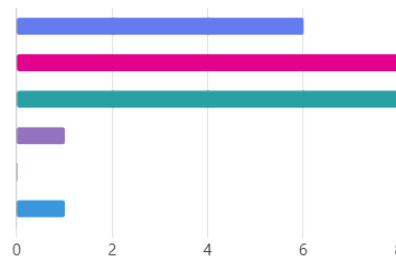
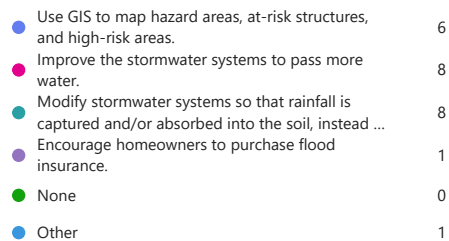
8. Landslides and mudslides are unlikely in the City of Bell because of the terrain. However, there are a few sloped areas around I-710 and the Los Angeles River where small landslides and mudslides are possible. Which of the following mitigation actions would you like to see the City of Bell pursue?



9. Land subsidence, karsts, and sinkholes are unlikely but not impossible within the City of Bell. Sinkholes are particularly tricky to predict because they can result from burst water pipes, mineral extraction, and similar activities. Which of the following mitigation actions would you like to see the City of Bell pursue?

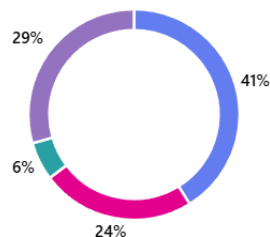


10. According to available records, flooding from natural sources (rivers and the coast) is virtually nonexistent. However, local flash flooding resulting from heavy rainfall may result in standing water on roadways and low-lying areas, which can create short-term hazardous conditions. Which of the following mitigation actions would you like to see the City of Bell pursue?



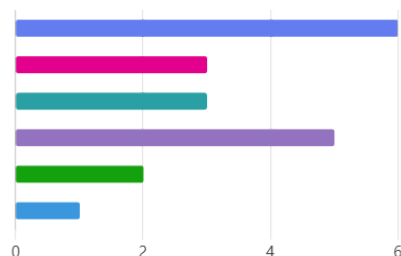
11. Dam and levee failures are unlikely but potentially serious events. While there are no dams in the City of Bell, modeling of dams north of the community shows that flood waters could potentially reach parts of Bell. Some possible mitigation actions for dam and levee failures are listed below--which of these would you like to see the City of Bell pursue?

- Join a task force with surrounding communities that would encourage jurisdictions with high hazard da... 7
- Advocate for a thorough watershed analysis for all proposed dam or reservoir projects. 4
- Encourage homeowners to purchase flood insurance. 1
- None 5
- Other 0



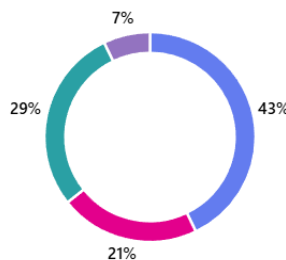
12. Sea level rise is a long-term hazard, and its impacts on the City of Bell will likely be indirect. For example, individuals living in communities along the coast may be displaced and relocate further inland. Additionally, major coastal facilities like the Port of Los Angeles may be affected, and this could have broad consequences for Bell and other communities in the region. Which of the following mitigation actions would you like to see the City of Bell pursue?

- Join a task force with surrounding communities to implement a Mitigation Plan that outlines... 6
- Model various "what-if" scenarios to estimate potential vulnerabilities in order to... 3
- Invest in the construction of community shelters for evacuees to utilize when impacted. 3
- Work with local utility providers to establish expectations for impacts and prioritize... 5
- None 2
- Other 1



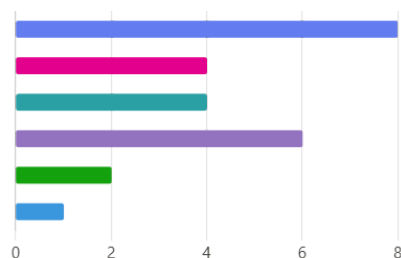
13. While there are no historical records of tornadoes impacting the City of Bell, tornadoes have been documented inside of Los Angeles County. Since 1950, tornadoes in LA County have resulted in 46 injuries and \$61 million in property damage. Which of the following mitigation strategies would you like to see the City of Bell pursue?

- Support establishing standards for all utilities regarding tree pruning around lines and pole... 6
- Develop an outreach program to teach families, schools, and businesses how to safely secure things... 3
- None 4
- Other 1



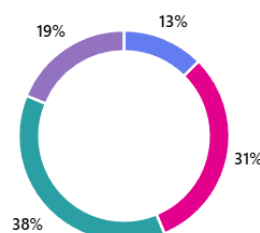
14. Tsunamis are rare but potentially catastrophic hazards. While the City of Bell is far enough inland not to see the surge water, the City would experience multiple secondary or cascading impacts. If a tsunami warning is issued, many people will move inland through communities like Bell. After a tsunami impact, coastal facilities that support Bell may be inoperable, and the community may be asked to provide aid for neighboring communities in need. Which of the following mitigation actions would you like to see the City of Bell pursue?

- Join a task force with surrounding communities to implement an Emergency Response Plan that... 8
- Implement community shelters so evacuees can gather during events. 4
- Invest public funds now to be accessed only to support a locally declared disaster event. 4
- Implement an "Evacuteer" Program, where community members would volunteer to... 6
- None 2
- Other 1



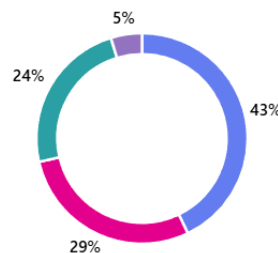
15. While the majority of cyber attacks target individuals, some threat actors target major systems that can disrupt community facilities and essential services. Due to privacy concerns, it is difficult to determine how common cyber attacks are specifically within the City of Bell. However, reports from the California Attorney General's Office indicates that several nearby communities are being targeted. Which of the following mitigation actions would you like to see the City of Bell pursue?

- Spend public funds to invest in more protective online security systems or back up devices. 2
- Develop an outreach program to teach families, schools and businesses how to spot scammers and... 5
- Implement staff training programs on how to spot scammers and phishing attempts. 6
- None 3
- Other 0



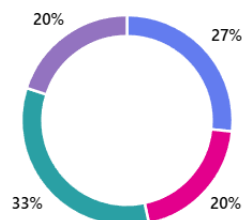
16. Hazardous materials housed in the City of Bell are sometimes necessary for industrial and commercial use. An "uncontrolled release" is when hazardous materials are spilled, either from an accident or as part of the impacts from a disaster. Hazardous materials are used by various industries every day and incidents are few and far between. However, spills do occasionally occur, and it is likely that future spills will occur. In most cases, releases are small and quickly contained, although larger impacts are possible. Release of gases are more difficult to contain and may not be immediately apparent. Which of the following mitigation actions would you like to see the City of Bell pursue?

- Develop city ordinances that would require businesses and commercial facilities to log all... 9
- Develop city ordinances that would restrict the kinds of businesses and commercial facilities able to... 6
- Develop an outreach program to teach families, schools and businesses how to respond in the even... 5
- None 1
- Other 0



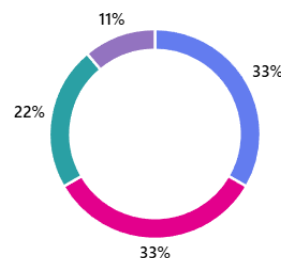
17. Civil unrest can occur for a variety of reasons. In some cases, these events can disrupt day-to-day activity and may lead to property damage and or harm people. There have been several documented occurrences of civil unrest in Bell, although the reported damages and injuries have been minimal. Which of the following mitigation actions would you like to see the City of Bell pursue?

- Reinforce doors and windows on public facilities with additional locks, shutters, or security bars to protect... 4
- Join a task force with surrounding communities to implement an Emergency Response Plan that... 3
- Develop an outreach program to teach families, schools and businesses how to protect yourselves... 5
- None 3
- Other 0



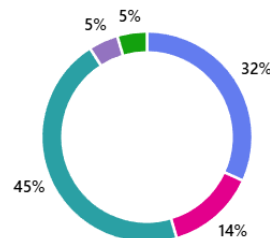
18. Pandemics are rare, but impacts can be major. The COVID-19 pandemic is the most well-known today, but older pandemics which affected the region included outbreaks of Smallpox in 1862 and Spanish Flu in 1918. Which of the following mitigation actions would you like to see the City of Bell pursue?

- Develop an outreach program to teach families, schools and businesses how to protect against... 6
- Create an Emergency Response Plan that outlines roles, responsibilities, and evacuation routes. 6
- Invest in a rolling stockpile of Personal Protective Equipment (PPE) 4
- None 2

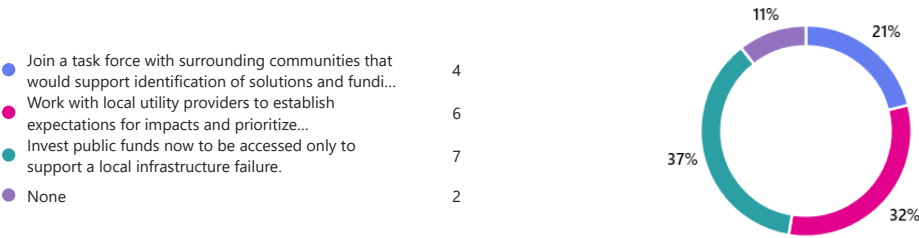


19. Transportation accidents are common and usually minor, although major events do occasionally occur. Transportation accidents in Bell mainly involve automobiles, but the City does have rail traffic which could potentially be involved in a transportation accident. Which of the following mitigation actions would you like to see the City of Bell pursue?

- Implement a road safety study to understand which areas of the city have the most risk and identify... 7
- Join a task force with surrounding communities to implement an Emergency Response Plan that... 3
- Put up signage and other small road hazard identifiers to help drivers navigate in more hazardous... 10
- None 1
- Other 1



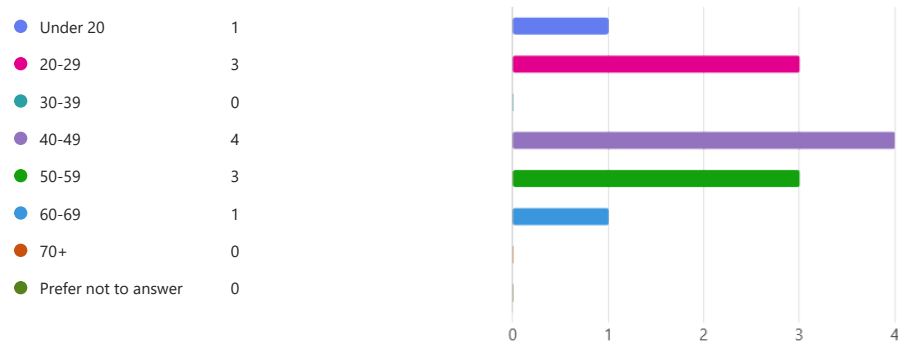
20. Utility and infrastructure failure includes events like bridge collapses, buckling roads, power outages, communications outages, and more. There is a relatively limited number of documented instances of these failures occurring inside the City of Bell. However, regional events like power outages and communication outages have affected the City. Which of the following mitigation actions would you like to see the City of Bell pursue?



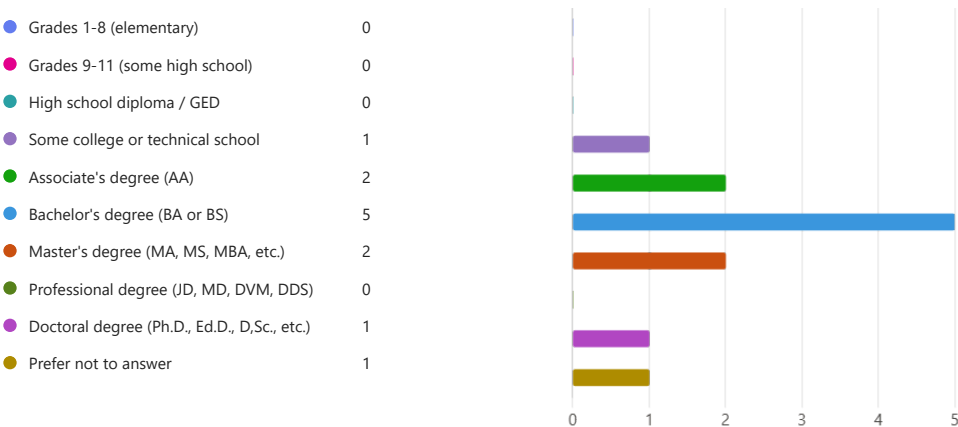
21. Do you have any other suggestions that you would like to see the city implement?



22. What is your age?

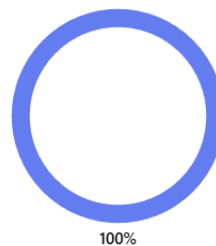


23. What is the highest level of formal education you have attained?



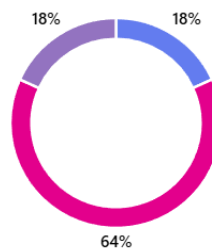
24. Do you have access to a personal vehicle?

Yes	12
No	0
Unsure	0



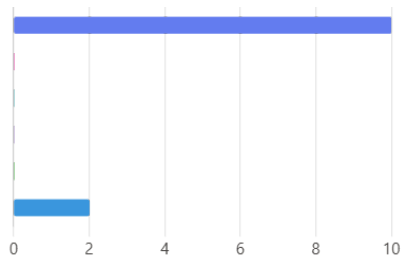
25. What is your average commute time (one-way) to work?

Less than 10 minutes	2
10-25 minutes	7
25-45 minutes	0
45-60 minutes	2
Over an hour	0



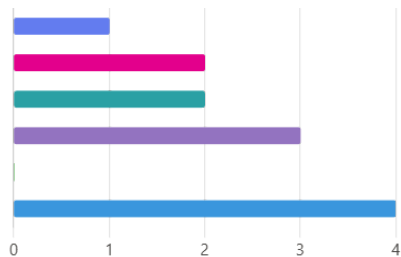
26. Do you have any disabilities that you would want first responders to be aware of in the event of an emergency?

No	10
Yes - hearing	0
Yes - mental	0
Yes - mobility	0
Yes - Vision	0
Prefer not to answer	2



27. What is your average annual household income (before taxes)?

Under \$30,000	1
\$30,000 to \$60,000	2
\$60,000 to \$100,000	2
\$100,000 to \$200,000	3
More than \$200,000	0
Prefer not to answer	4



28. What is your gender?

9
Responses

Latest Responses
"Female"
"Femaile"
...

29. How would you describe your race?

8
Responses

Latest Responses
"Greek-American"
...

Responses Overview Closed

Responses

1

Average Time

03:15

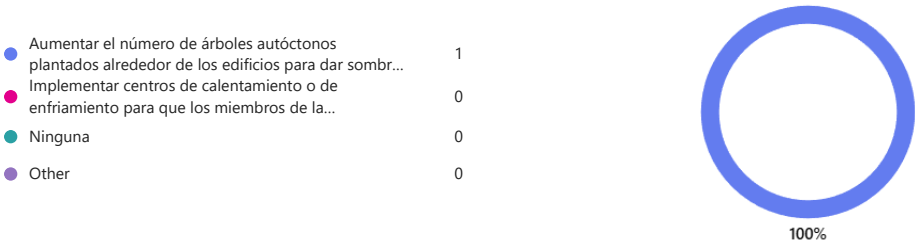
Duration

25 Days

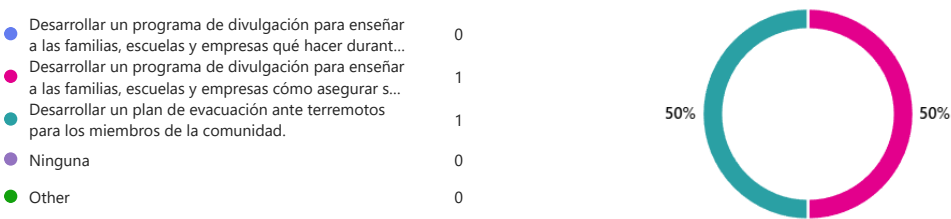
1. ¿Cuál de las siguientes opciones describe mejor su situación de residencia en la ciudad de Bell?



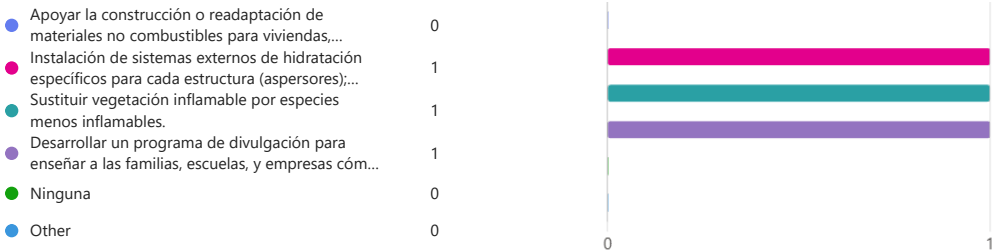
2. Aunque el clima de Bell suele ser agradable, es posible que se den temperaturas extremas. Las olas de calor pueden ser especialmente peligrosas para las personas mayores, los niños pequeños y las personas que trabajan al aire libre. Las temperaturas extremadamente frías también son posibles, pero mucho menos probables que el calor extremo. ¿Cuál de las siguientes medidas de mitigación le gustaría que adoptara la ciudad de Bell?



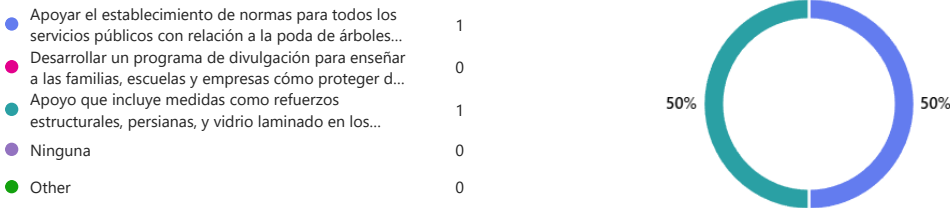
3. Los terremotos son difíciles de predecir y suponen un riesgo importante para las personas y los bienes de Bell. ¿Cuál de las siguientes medidas de le gustaría que adoptara la ciudad de Bell?



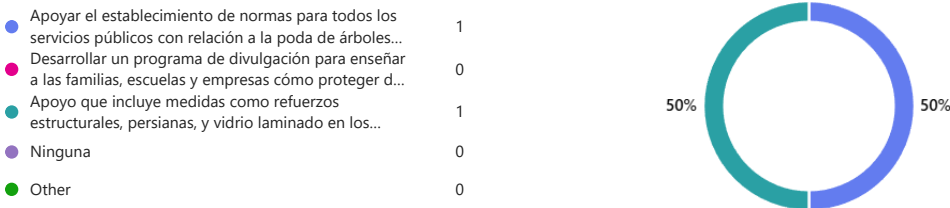
4. Los incendios son el peligro más frecuente en California. Aunque la ciudad de Bell está relativamente protegida de los incendios forestales por su entorno urbano, el humo también puede causar importantes impactos en la salud. Además, los incendios urbanos de viviendas y comercios pueden producirse en cualquier lugar. ¿Cuál de las siguientes medidas de mitigación le gustaría que adoptara la ciudad de Bell?



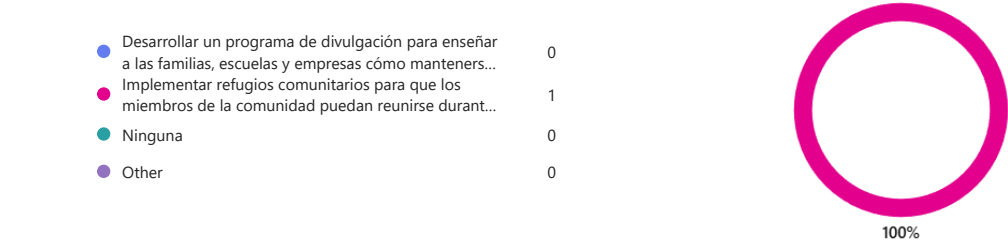
5. Las tormentas de viento, como los vientos de Santa Ana, afectan regularmente a la región. En los últimos 20 años, se han registrado más de 500 casos de vientos superiores a 57 mph en el condado de Los Ángeles. Las ráfagas de viento tensan las estructuras y los escombros pueden dañar tanto a las personas como a los bienes en caso de impacto. ¿Cuál de las siguientes medidas de mitigación de riesgos le gustaría que adoptara la ciudad de Bell?



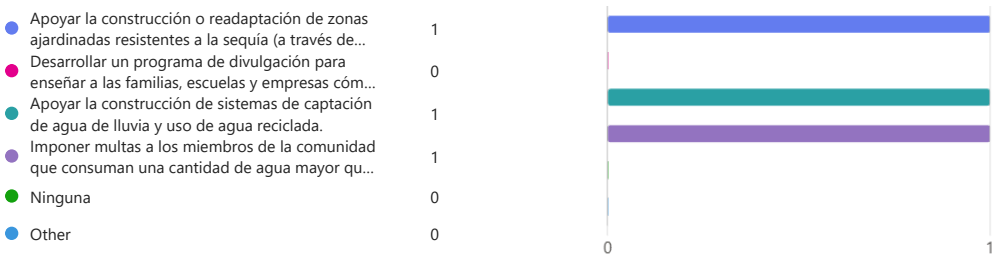
6. Las tormentas eléctricas intensas pueden traer granizo, relámpagos, vientos fuertes y lluvias torrenciales a la ciudad de Bell. Desde 2005, la ciudad ha sufrido una tormenta intensa cada 16 meses, a veces con granizo del tamaño de bolas de chicle. Estos sucesos pueden causar lesiones y daños materiales a bienes como automóviles y viviendas. ¿Cuál de las siguientes medidas de mitigación le gustaría que adoptara la ciudad de Bell?



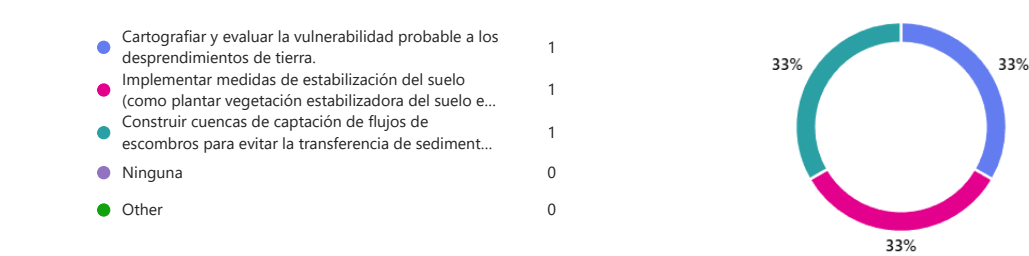
7. Las tormentas eléctricas intensas pueden traer granizo, relámpagos, vientos fuertes y lluvias torrenciales a la ciudad de Bell. Desde 2005, la ciudad ha sufrido una tormenta intensa cada 16 meses, a veces con granizo del tamaño de bolas de chicle. Estos sucesos pueden causar lesiones y daños materiales a bienes como automóviles y viviendas. ¿Cuál de las siguientes medidas de mitigación le gustaría que adoptara la ciudad de Bell?



8. La sequía y la escasez de agua son peligros que afectan ocasionalmente a la zona. Aunque los efectos suelen ser menos perjudiciales en zonas urbanas como Bell, es posible que se produzca una escasez de agua a largo plazo. ¿Cuál de las siguientes medidas de mitigación le gustaría que adoptara la ciudad de Bell?



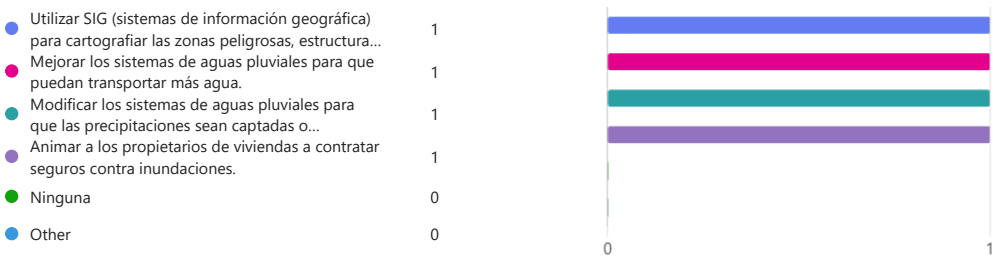
9. Los deslizamientos de tierra y barro son poco probables en la ciudad de Bell debido al tipo de terreno. Sin embargo, hay algunas zonas inclinadas alrededor de la 1-710 y el río Los Ángeles donde es posible que se produzcan pequeños deslizamientos de tierra y barro. ¿Cuál de las siguientes medidas de mitigación le gustaría que adoptara la ciudad de Bell?



10. Los hundimientos del terreno, los karst y los socavones son poco probables, pero no imposibles dentro de la ciudad de Bell. Los socavones son especialmente difíciles de predecir porque pueden producirse por la rotura de tuberías de agua, la extracción de minerales y actividades similares. ¿Cuál de las siguientes medidas de mitigación le gustaría que adoptara la ciudad de Bell?



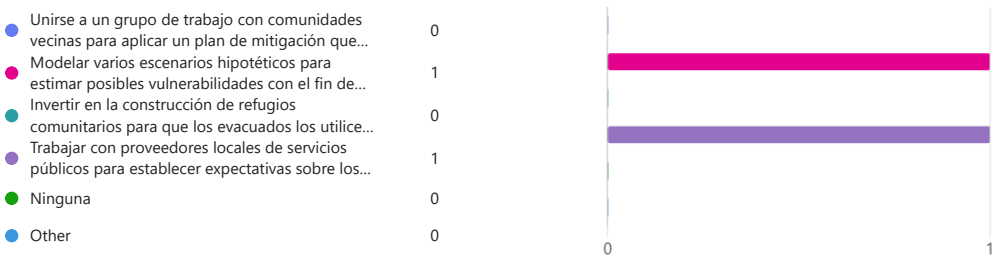
11. Según los registros disponibles, las inundaciones de origen natural (ríos y costa) son prácticamente inexistentes. Sin embargo, las inundaciones repentinas locales resultantes de fuertes lluvias pueden provocar agua estancada en carreteras y zonas bajas, lo que puede crear condiciones peligrosas a corto plazo. ¿Cuál de las siguientes medidas de mitigación le gustaría que adoptara la ciudad de Bell?



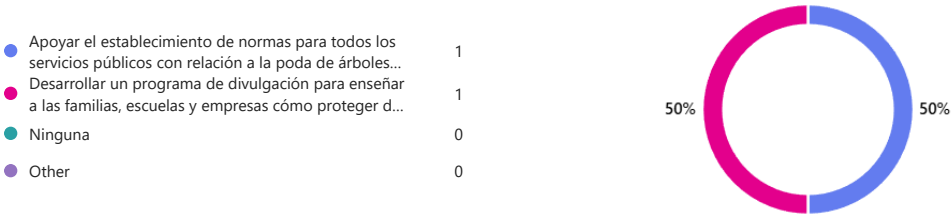
12. La rotura de presas y diques es poco probable, pero puede resultar en eventos potencialmente graves. Aunque no hay presas en la ciudad de Bell, el modelado de las presas al norte de la comunidad muestra que las aguas de las inundaciones podrían llegar a partes de Bell. ¿Cuál de las siguientes medidas de mitigación frente a roturas de presas y diques enumeradas a continuación le gustaría que adoptara la ciudad de Bell?



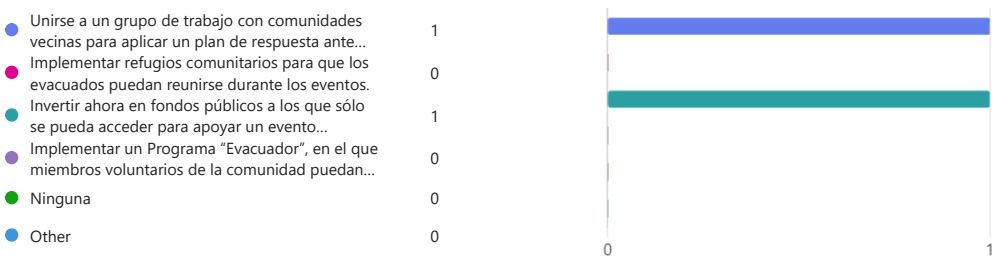
13. El aumento del nivel del mar es un peligro a largo plazo, y sus efectos en la ciudad de Bell serán probablemente indirectos. Por ejemplo, las personas que viven en comunidades costeras pueden verse desplazadas y tener que trasladarse al interior. Además, las principales instalaciones costeras, como el puerto de Los Ángeles, pueden verse afectadas, lo que podría tener amplias consecuencias para Bell y otras comunidades de la región. ¿Cuál de las siguientes medidas de mitigación le gustaría que adoptara la ciudad de Bell?



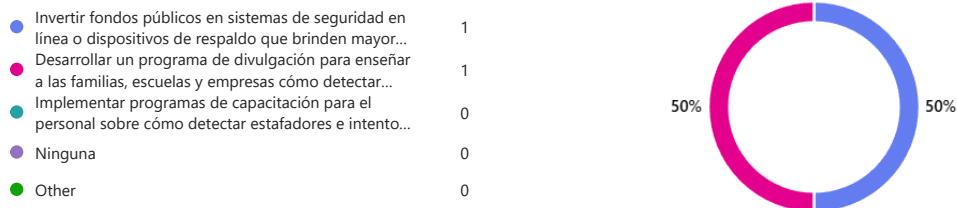
14. Aunque no hay registros históricos de tornados que hayan afectado a la ciudad de Bell, se han documentado tornados dentro del condado de Los Ángeles. Desde 1950, los tornados en el condado de Los Ángeles han causado 46 heridos y 61 millones de dólares en daños materiales. ¿Cuál de las siguientes estrategias de mitigación le gustaría que adoptara la ciudad de Bell?



15. Los tsunamis son peligros poco frecuentes, pero potencialmente catastróficos. Aunque la ciudad de Bell está lo suficientemente alejada del mar como para no verse afectada por la crecida, la ciudad sufriría múltiples repercusiones secundarias o en cadena. Si se emite una alerta de tsunami, muchas personas se desplazarán hacia el interior a través de comunidades como Bell. Tras el impacto de un tsunami, es posible que las instalaciones costeras que prestan apoyo a Bell queden inoperativas, y que se pida a la colectividad que preste ayuda a las comunidades vecinas que lo necesiten. ¿Cuál de las siguientes medidas de mitigación le gustaría que adoptara la ciudad de Bell?



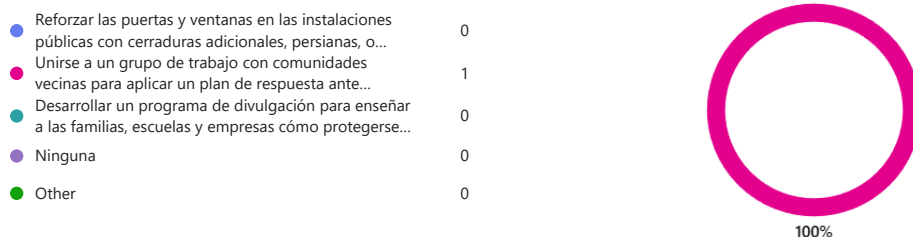
16. Aunque la mayoría de los ciberataques se dirigen contra individuos, algunos agresores maliciosos tienen como objetivo sistemas importantes que pueden alterar instalaciones comunitarias y servicios esenciales. Por motivos de privacidad, es difícil determinar la frecuencia de los ciberataques en la ciudad de Bell. Sin embargo, los informes de la Oficina del Fiscal General de California indican que varias comunidades cercanas están en el punto de mira de estos ataques. ¿Cuál de las siguientes medidas de mitigación le gustaría que adoptara la ciudad de Bell?



17. Los materiales peligrosos almacenados en la ciudad de Bell son a veces necesarios para uso industrial y comercial. Se habla de “vertido incontrolado” cuando se derraman materiales peligrosos, ya sea a causa de un accidente o como parte de las consecuencias de una catástrofe. Diversas industrias utilizan materiales peligrosos a diario y los incidentes son muy poco frecuentes. Sin embargo, de vez en cuando se producen vertidos y es probable que se produzcan en el futuro. En la mayoría de los casos, los vertidos son pequeños y se contienen rápidamente, aunque es posible que se produzcan incidentes de mayor magnitud. La liberación de gases es más difícil de contener y puede no ser evidente de manera inmediata. ¿Cuál de las siguientes medidas de mitigación le gustaría que adoptara la ciudad de Bell?

Desarrollar ordenanzas municipales que exijan a las empresas e instalaciones comerciales registrar todo...	0
Desarrollar ordenanzas municipales que restrinjan los tipos de empresas e instalaciones comerciales que...	0
Desarrollar un programa de divulgación para enseñar a las familias, escuelas y empresas a responder en...	0
Ninguna	0
Other	0

18. Pueden producirse disturbios civiles por diversas razones. En algunos casos, estos sucesos pueden interrumpir la actividad cotidiana y provocar daños materiales o personales. Se han documentado varios casos de disturbios civiles en Bell, aunque los daños y lesiones registrados han sido mínimos. ¿Cuál de las siguientes medidas de mitigación le gustaría que adoptara la ciudad de Bell?



19. Las pandemias son raras, pero sus efectos pueden ser graves. La pandemia de COVID-19 es la más conocida en la actualidad, pero entre las pandemias más antiguas que afectaron a la región figuran los brotes de viruela de 1862 y de gripe española de 1918. ¿Cuál de las siguientes medidas de mitigación le gustaría que adoptara la ciudad de Bell?

Desarrollar un programa de divulgación para enseñar a las familias, escuelas y empresas cómo protegerse...	0
Crear un plan de respuesta ante emergencias que describa labores, responsabilidades y rutas de...	0
Invertir en un inventario rotativo de equipos de protección personal (EPP).	0
Ninguna	0
Other	0

20. Los accidentes de transporte son frecuentes y suelen ser leves, aunque de vez en cuando se producen accidentes importantes. Los accidentes de transporte en Bell involucran principalmente a automóviles, pero la ciudad cuenta con tráfico ferroviario que potencialmente podría verse involucrado en un accidente de transporte. ¿Cuál de las siguientes medidas de mitigación le gustaría que adoptara la ciudad de Bell?

Realizar un estudio de seguridad vial para comprender qué zonas de la ciudad presentan may...	0
Unirse a un grupo de trabajo con comunidades vecinas para aplicar un plan de respuesta ante...	0
Colocar señalización y otros pequeños identificadores de peligro vial para ayudar a los...	0
Ninguna	0
Other	0

21. Los fallos en los servicios públicos y la infraestructura incluyen eventos como derrumbes de puentes, carreteras deformadas, cortes de electricidad, cortes de comunicaciones, etc. Existe un número relativamente limitado de casos documentados de estos fallos dentro de la ciudad de Bell. Sin embargo, acontecimientos regionales como cortes de electricidad y de comunicaciones han afectado a la ciudad. ¿Cuál de las siguientes medidas de mitigación le gustaría que adoptara la ciudad de Bell?

Unirse a un grupo de trabajo con las comunidades vecinas para apoyar la identificación de soluciones ...	0
Trabajar con proveedores locales de servicios públicos para establecer expectativas sobre los...	1
Invertir ahora en fondos públicos a los que solo se pueda acceder para apoyar fallos de infraestructura...	1
Ninguna	0
Other	0



22. ¿Tiene alguna otra sugerencia que le gustaría que la ciudad pusiera en práctica?

0
Responses

0 responses submitted

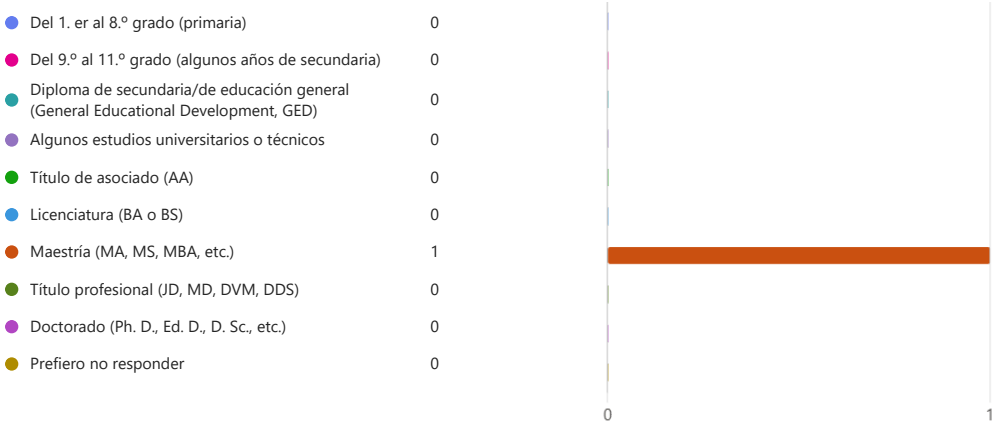


23. ¿Qué edad tiene?

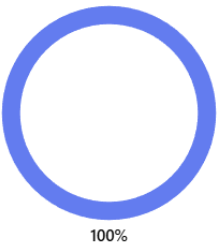
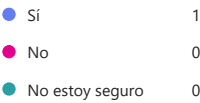
Menos de 20 años	0
Entre 20 y 29 años	1
Entre 30 y 39 años	0
Entre 40 y 49 años	0
Entre 50 y 59 años	0
Entre 60 y 69 años	0
Más de 70 años	0
Prefiero no responder	0



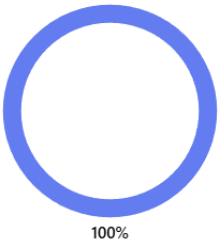
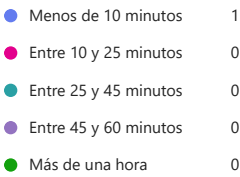
24. ¿Cuál es el nivel más alto de educación formal que ha alcanzado?



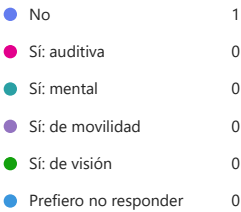
25. ¿Tiene acceso a un vehículo personal?



26. ¿Cuál es su tiempo promedio de trayecto (solo ida) al trabajo?



27. ¿Tiene alguna discapacidad que le gustaría que el personal de primeros auxilios tuviera en cuenta en caso de emergencia?



28. ¿Cuál es su ingreso familiar promedio anual (antes de impuestos)?

Menos de \$30,000	0
Entre \$30,000 y \$60,000	0
Entre \$60,000 y \$100,000	0
Entre \$100,000 y \$200,000	0
Más de \$200,000	0
Prefiero no responder	1



29. ¿Cuál es su género?

0
Responses

0 responses submitted



30. ¿Cómo describiría su raza?

0
Responses

0 responses submitted



Third Public Survey Facebook Post



City of Bell

Mar 19 · 🌐



The City of Bell is developing a Local Hazard Mitigation Plan (LHMP). To ensure the plan effectively supports and protects Bell residents, the City is seeking your feedback on the draft.

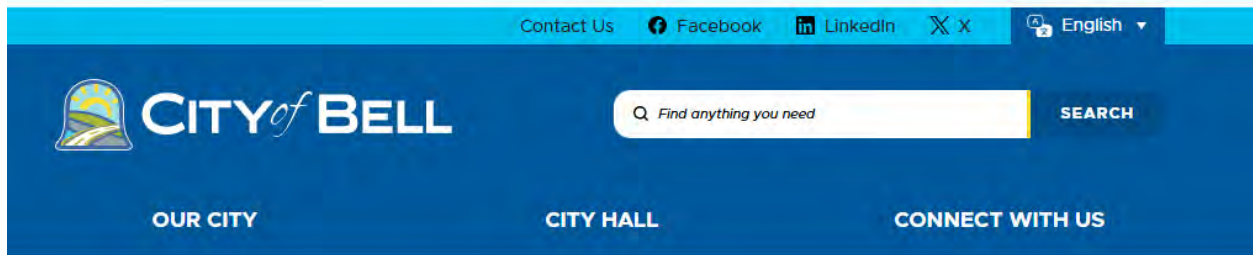
If you would like to help strengthen hazard preparedness in our community, please take a few minutes to complete a short survey. The survey is available in English, Spanish, and Arabic.

Scan the QR code or visit the City of Bell website to participate:

<https://www.cityofbell.gov/News-articles/Local-Hazard-Mitigation-Plan-LHMP>



Third Public Survey Website Information



[Home](#) / [Local Hazard Mitigation Plan \(LHMP\)](#)

LOCAL HAZARD MITIGATION PLAN (LHMP)

Published on March 18, 2026

The City of Bell's Local Hazard Mitigation Plan outlines local risks and the strategies used to reduce them, helping strengthen community resilience and support future preparedness efforts. Forms and QR Codes are available in English, Spanish, and Arabic—please take a moment to share your opinion by completing the survey below.



[ENGLISH Survey](#)

[SPANISH Survey](#)

[ARABIC Survey](#)

City of Bell | LHMP Public Survey #3

The City of Bell is in the process of creating our community's first Local Hazard Mitigation Plan (LHMP). To help create a plan that best supports Bell residents, the city is seeking your feedback on the plan draft. If you would like to help improve hazard mitigation in Bell, please take a few minutes to review the draft plan and answer the questions below.

You can access the City of Bell's Hazard Mitigation Plan draft by clicking this link:

<https://www.cityofbell.gov/files/assets/city/v/1/city-of-bell-draft-plan-03122026.pdf>

Your feedback and participation is greatly appreciated!

1. Are you a resident of Bell?

- ☐ Yes
- ☐ No
- ☐ Unsure

2. Do you represent a private business, non-profit organization, or government entity?

- ☐ No
- ☐ Yes - private business
- ☐ Yes - non-profit organization
- ☐ Yes - government entity

3. After reviewing the City of Bell Hazard Mitigation Plan draft, how well prepared to you think you community is for disasters, overall?

- ☐ Not at all prepared
- ☐ Underprepared
- ☐ Somewhat prepared
- ☐ Well prepared
- ☐ Extremely well prepared

4. How well do you think the City of Bell Hazard Mitigation Plan assesses the existing hazards that could impact Bell?

- ☐ Very well - all existing hazards included and explained
- ☐ Well - most existing hazards included and explained
- ☐ Poor - only a few existing hazards included and explained
- ☐ Very poor - no existing hazards included and explained

5. How well do you think the City of Bell Hazard Mitigation Plan describes expected future conditions and hazards?

- ☐ Extremely well - expected future conditions and hazards are fully explained
- ☐ Well - expected future conditions and hazards are mostly explained
- ☐ Poor - expected future conditions and hazards are only slightly explained
- ☐ Very poor - expected future conditions and hazards are not explained

6. After reviewing the City of Bell Hazard Mitigation Plan, how well do you think the mitigation actions put forth in the plan will help strengthen community resilience?

- ☐ Excellent improvement - the mitigation actions should dramatically improve community resilience
- ☐ Good improvement - the mitigation actions should noticeably improve community resilience
- ☐ Neutral - unclear or unsure if the mitigation actions will help improve community resilience or not
- ☐ Small improvement - the mitigation actions will only slightly help improve community resilience
- ☐ No improvement - the mitigation actions will not help improve community resilience

7. After reviewing the City of Bell Hazard Mitigation Plan, how strongly do you support the proposed project and actions that are intended to help mitigate the risk of future hazards?

- ☐ Support all proposed projects and actions
- ☐ Support most proposed projects and actions
- ☐ Only support a few proposed projects and actions
- ☐ Do not support any proposed projects and actions

8. After reviewing the City of Bell Hazard Mitigation Plan, do you have any general comments that you'd like to share with the planning team?

9. Hazard mitigation plans are good for five years--do you have any suggestions or advice for the planning team to consider for the next hazard mitigation plan update?

Demographics

The following questions ask for demographic information. These questions are optional, and you may choose to answer all, some, or none of them. The purpose for asking these questions is to help Bell better understand which community members are being reached by this survey, and which are not. All information will be kept confidential and will only be used to support the development of the City's Hazard Mitigation Plan.

10. What is your age?

- ☐ Under 20
- ☐ 20-29
- ☐ 30-39
- ☐ 40-49
- ☐ 50-59
- ☐ 60-69
- ☐ 70+
- ☐ Prefer not to answer

11. What is the highest level of formal education you have attained?

- ☐ Grades 1-8
- ☐ Grades 9-11
- ☐ High school diploma / GED
- ☐ Some college or technical school
- ☐ Associate's degree (AA)
- ☐ Bachelor's degree (BA or BS)
- ☐ Master's degree (MS or MA)
- ☐ Professional degree (JD, MD, DVM, DDS)
- ☐ Doctoral degree (Ph.D., Ed.D., etc.)
- ☐ Prefer not to answer

12. Do you have access to a personal vehicle?

- ☐ Yes
- ☐ No
- ☐ Unsure
- ☐ Prefer not to answer

13. What is your average commute time (one-way) to work?

- ☐ Less than 10 minutes
- ☐ 10-25 minutes
- ☐ 25-45 minutes
- ☐ 45-60 minutes
- ☐ More than one hour
- ☐ Prefer not to answer

14. Do you have any disabilities that you would want first responders to be aware of in the event of an emergency?

- ☐ No
- ☐ Yes - hearing disability
- ☐ Yes - mobility disability
- ☐ Yes - vision disability
- ☐ Yes - mental disability
- ☐ Prefer not to answer

15. What is your average annual household income (before taxes)?

- ☐ Under \$30,000
- ☐ \$30,000 to \$60,000
- ☐ \$60,000 to \$100,000
- ☐ \$100,000 to \$200,000
- ☐ More than \$200,000
- ☐ Prefer not to answer

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Microsoft Forms

Ciudad de Bell | Encuesta pública n.º 3 sobre el LHMP

La ciudad de Bell está elaborando el primer Plan Local de Mitigación de Riesgos (LHMP, por sus siglas en inglés) de nuestra comunidad. Para ayudar a crear un plan que respalde mejor a los residentes de Bell, la ciudad solicita su opinión sobre el borrador del plan. Si desea ayudar a mejorar la mitigación de riesgos en Bell, dedique unos minutos a revisar el borrador del plan y responder a las preguntas que figuran a continuación.

Puede acceder al borrador del Plan de Mitigación de Peligro de la Ciudad de Bell haciendo clic en este enlace: <https://www.cityofbell.gov/files/assets/city/v/1/city-of-bell-draft-plan-03122026.pdf>

¡Agradecemos enormemente sus comentarios y su participación!

1. ¿Es usted residente de Bell?

- ☐ Sí
- ☐ No
- ☐ No estoy seguro

2. ¿Representa usted a una empresa privada, una organización sin fines de lucro o una entidad gubernamental?

- ☐ No
- ☐ Sí - empresa privada
- ☐ Sí - organización sin fines de lucro
- ☐ Sí - entidad gubernamental

3. Después de revisar el borrador del Plan de Mitigación de Riesgos de la ciudad de Bell, ¿qué tan bien preparada cree que está su comunidad para los desastres en general?

- ☐ Nada preparada
- ☐ Poco preparada
- ☐ Algo preparada
- ☐ Bien preparada
- ☐ Extremadamente bien preparada

4. ¿Qué tan bien cree que el Plan de Mitigación de Riesgos de la ciudad de Bell evalúa los riesgos existentes que podrían afectar a Bell?
- ☐ Muy bien - se incluyen y explican todos los riesgos existentes
 - ☐ Bien - se incluyen y explican la mayoría de los riesgos existentes
 - ☐ Mal - solo se incluyen y explican algunos de los riesgos existentes
 - ☐ Muy mal - no se incluyen ni explican los riesgos existentes
5. ¿Qué tan bien cree que el Plan de Mitigación de Riesgos de la ciudad de Bell describe las condiciones y los riesgos previstos para el futuro?
- ☐ Extremadamente bien - se explican completamente las condiciones y los riesgos futuros previstos
 - ☐ Bien - se explican en su mayor parte las condiciones y los riesgos futuros previstos
 - ☐ Mal - solo se explican ligeramente las condiciones y los riesgos futuros previstos
 - ☐ Muy mal - no se explican las condiciones y los riesgos futuros previstos
6. Después de revisar el Plan de Mitigación de Riesgos de la ciudad de Bell, ¿qué tan bien cree que las medidas de mitigación propuestas en el plan ayudarán a fortalecer la resiliencia de la comunidad?
- ☐ Excelente mejora - las medidas de mitigación deberían mejorar drásticamente la resiliencia de la comunidad
 - ☐ Buena mejora - las medidas de mitigación deberían mejorar notablemente la resiliencia de la comunidad
 - ☐ Neutral - no está claro o no se sabe con certeza si las medidas de mitigación ayudarán a mejorar la resiliencia de la comunidad
 - ☐ Pequeña mejora - las medidas de mitigación solo ayudarán ligeramente a mejorar la resiliencia de la comunidad
 - ☐ Ninguna mejora - las medidas de mitigación no ayudarán a mejorar la resiliencia de la comunidad
7. Tras revisar el Plan de Mitigación de Riesgos de la ciudad de Bell, ¿en qué medida apoya el proyecto y las medidas propuestas para ayudar a mitigar el riesgo de futuros peligros?
- ☐ Apoyo todos los proyectos y medidas propuestos
 - ☐ Apoyo la mayoría de los proyectos y medidas propuestos
 - ☐ Solo apoyo algunos de los proyectos y medidas propuestos
 - ☐ No apoyo ninguno de los proyectos y medidas propuestos

8. Tras revisar el Plan de Mitigación de Riesgos de la ciudad de Bell, ¿tiene algún comentario general que le gustaría compartir con el equipo de planificación?

9. Los planes de mitigación de riesgos tienen una vigencia de cinco años. ¿Tiene alguna sugerencia o consejo que el equipo de planificación deba tener en cuenta para la próxima actualización del plan de mitigación de riesgos?

Datos demográficos

Las siguientes preguntas solicitan información demográfica. Estas preguntas son opcionales y puede optar por responderlas todas, algunas o ninguna. El propósito de estas preguntas es ayudar a Bell a comprender mejor a qué miembros de la comunidad llega esta encuesta y a cuáles no. Toda la información se mantendrá confidencial y solo se utilizará para apoyar el desarrollo del Plan de Mitigación de Riesgos de la ciudad.

10. ¿Cuál es su edad?

- ☐ Menos de 20
- ☐ 20-29
- ☐ 30-39
- ☐ 40-49
- ☐ 50-59
- ☐ 60-69
- ☐ 70+
- ☐ Prefiero no contestar

11. ¿Cuál es el nivel más alto de educación formal que ha alcanzado?

- ☐ Grados 1-8
- ☐ Grados 9-11
- ☐ Diploma de preparatoria/GED
- ☐ Algunos estudios universitarios o de escuela técnica
- ☐ Título de asociado/técnico (AA)
- ☐ Licenciatura/título de grado (BA o BS)
- ☐ Maestría (MS o MA)
- ☐ Título profesional (JD, MD, DVM, DDS)
- ☐ Doctorado (Ph.D., Ed.D., etc.)
- ☐ Prefiero no contestar

12. ¿Tiene acceso a un vehículo personal?

- ☐ Sí
- ☐ No
- ☐ No estoy seguro
- ☐ Prefiero no contestar

13. ¿Cuál es su tiempo promedio de viaje (ida) al trabajo?

- ☐ Menos de 10 minutos
- ☐ 10-25 minutos
- ☐ 25-45 minutos
- ☐ 45-60 minutos
- ☐ Más de una hora
- ☐ Prefiero no contestar

14. ¿Tiene alguna discapacidad que le gustaría que los rescatistas conocieran en el caso de una emergencia?

- ☐ No
- ☐ Sí - discapacidad auditiva
- ☐ Sí - discapacidad motriz
- ☐ Sí - discapacidad visual
- ☐ Sí - discapacidad mental
- ☐ Prefiero no contestar

15. ¿Cuál es su ingreso familiar medio anual (antes de impuestos)?

- ☐ Menos de \$30,000
- ☐ Entre \$30,000 y \$60,000
- ☐ Entre \$60,000 y \$100,000
- ☐ Entre \$100,000 y \$200,000
- ☐ Más de \$200,000
- ☐ Prefiero no contestar

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مدينة بيل | استطلاع الرأي العام رقم 3 لخطة الحد من المخاطر المحلية

لمجتمعنا. وللمساعدة في وضع خطة تدعم سكان (LHMP) تعكف مدينة بيل حاليًا على وضع أول خطة محلية للحد من المخاطر المحلية مدينة بيل على أفضل وجه، تطلب المدينة وضع ملاحظاتك على مسودة الخطة. إذا كنت ترغب في المساعدة على تحسين جهود الحد من المخاطر في مدينة بيل، فيُرجى تخصيص بضع دقائق من وقتك لمراجعة مسودة الخطة والإجابة على الأسئلة أدناه.

يمكنكم الاطلاع على مسودة خطة تخفيف المخاطر لمدينة بيل بالنقر على هذا

الرابط: <https://www.cityofbell.gov/files/assets/city/v/1/city-of-bell-draft-plan-03122026.pdf>

1. هل أنت من سكان مدينة بيل؟

- ☐ نعم
- ☐ لا
- ☐ غير متأكد

2. هل تمثل شركة خاصة، أو منظمة غير ربحية، أو جهة حكومية؟

- ☐ لا
- ☐ نعم - شركة خاصة
- ☐ نعم - منظمة غير ربحية
- ☐ نعم - جهة حكومية

3. بعد مراجعة مسودة خطة الحد من المخاطر لمدينة بيل، برأيك، ما مدى استعداد مجتمعك للكوارث بشكل عام؟

- ☐ غير مستعد على الإطلاق
- ☐ غير مستعد
- ☐ مستعد إلى حد ما
- ☐ مستعد جيدًا
- ☐ مستعد بشكل ممتاز للغاية

برأيك، ما مدى قدرة خطة الحد من المخاطر لمدينة بيل على تقييم المخاطر الحالية التي قد تؤثر على هذه المدينة؟

- ☐ جيد جدًا - تمّ تضمين وشرح جميع المخاطر القائمة
- ☐ جيد - تمّ تضمين وشرح معظم المخاطر القائمة
- ☐ ضئيل - تمّ فقط تضمين وشرح عدد قليل من المخاطر القائمة
- ☐ ضئيل جدًا - لم يتم تضمين أو شرح أيّ مخاطر قائمة

5. ضئيل جدًا - لم يتم تضمين أو شرح أيّ مخاطر قائمة

- ☐ جيد جدًا - تمّ شرح الظروف والمخاطر المستقبلية المتوقعة بشكل كامل
- ☐ جيد - تمّ شرح الظروف والمخاطر المستقبلية المتوقعة بشكل كبير
- ☐ ضئيل - تمّ فقط شرح الظروف والمخاطر المستقبلية المتوقعة بشكل طفيف
- ☐ ضئيل للغاية - لم يتم شرح الظروف والمخاطر المستقبلية المتوقعة

6. بعد مراجعة خطة مدينة بيل للحد من المخاطر، ما مدى اعتقادك بأنّ إجراءات الحد الواردة في الخطة ستساعد في تعزيز قدرة المجتمع على الصمود؟

- ☐ تحسّن ممتاز - من شأن إجراءات الحد أن تحسّن بشكل كبير من قدرة المجتمع على الصمود
- ☐ تحسّن ملحوظ - يجب أن تحسّن إجراءات الحد بشكل ملحوظ من قدرة المجتمع على الصمود
- ☐ محايد - غير واضح أو غير متأكد مما إذا كانت إجراءات الحد ستساعد في تحسين قدرة المجتمع على الصمود أم لا
- ☐ تحسّن طفيف - ستساعد إجراءات الحد من المخاطر فقط بشكل بسيط في تحسين قدرة المجتمع على الصمود
- ☐ لا يوجد تحسّن - لن تساعد إجراءات الحد في تحسين قدرة المجتمع على الصمود

7. بعد مراجعة خطة مدينة بيل للحد من المخاطر، ما مدى دعمك للمشروع المقترح والإجراءات التي تهدف إلى المساعدة في الحد من المخاطر المستقبلية؟

- ☐ أأدعم جميع المشاريع والإجراءات المقترحة
- ☐ أأدعم معظم المشاريع والإجراءات المقترحة
- ☐ أأدعم فقط عددًا قليلًا من المشاريع والإجراءات المقترحة
- ☐ لا أأدعم أيّ من المشاريع أو الإجراءات المقترحة

8. بعد مراجعة خطة الحد من المخاطر لمدينة بيل، هل لديك أيّ تعليقات عامة تود مشاركتها مع فريق التخطيط؟

9. إنّ خطط الحدّ من المخاطر صالحة لمدة خمس سنوات، هل لديك أيّ اقتراحات أو نصائح لفريق التخطيط للنظر فيها عند التحديث التالي لخطة الحدّ من المخاطر؟

معلومات ديموغرافية

تهدف الأسئلة التالية إلى الحصول على معلومات ديموغرافية. هذه الأسئلة اختيارية. بالتالي، يمكنك اختيار الإجابة عليها جميعها أو على بعضها أو عدم الإجابة على أيّ منها. إنّ الهدف من طرح هذه الأسئلة هو مساعدة مدينة بيل على فهم أفضل لأفراد المجتمع الذين يتم الوصول إليهم من خلال هذا الاستطلاع، والذين لا يتم الوصول إليهم. سيتم الحفاظ على سرية جميع المعلومات وسنستخدم فقط لدعم تطوير خطة الحد من المخاطر الخاصة بالمدينة.

10. كم عمرك؟

- ☐ أقل من 20 عامًا
- ☐ من 20 إلى 29 عامًا
- ☐ من 30 إلى 39 عامًا
- ☐ من 40 إلى 49 عامًا
- ☐ من 50 إلى 59 عامًا
- ☐ من 60 إلى 69 عامًا
- ☐ أكثر من 70 عامًا
- ☐ أُفضّل عدم الإجابة

11. ما هو أعلى مستوى تعليمي رسمي حصلت عليه؟

- ☐ الصفوف 1 إلى 8
- ☐ الصفوف 9 إلى 11
- ☐ شهادة الثانوية العامة/شهادة التطوير التعليمي العام
- ☐ تعليم في كلية أو مدرسة فنية دون الحصول على شهادة
- ☐ درجة الزمالة (درجة الزمالة في الآداب)
- ☐ درجة البكالوريوس (بكالوريوس آداب أو علوم)
- ☐ درجة الماجستير (ماجستير آداب أو علوم)
- ☐ شهادة مهنية (دكتور في القانون أو في الطب أو في الطب البيطري أو في جراحة الأسنان)
- ☐ درجة الدكتوراه (دكتوراه الفلسفة، دكتوراه التربية، إلخ)
- ☐ أُفضّل عدم الإجابة

12. هل لديك إمكانية الوصول إلى سيارة خاصة؟

- ☐ نعم
- ☐ لا
- ☐ غير متأكد
- ☐ أفضل عدم الإجابة

13. ما هو متوسط الوقت الذي تقضيه للذهاب إلى العمل؟

- ☐ أقل من 10 دقائق
- ☐ من 10 إلى 25 دقيقة
- ☐ من 25 إلى 45 دقيقة
- ☐ من 45 إلى 60 دقيقة
- ☐ أكثر من ساعة
- ☐ أفضل عدم الإجابة

14. هل لديك أيّ إعاقات ترغب في أن يكون المستجيبون الأوائل على دراية بها في حالة الطوارئ؟

- ☐ لا
- ☐ نعم - إعاقة سمعية
- ☐ نعم - إعاقة حركية
- ☐ نعم - إعاقة بصرية
- ☐ نعم - إعاقة ذهنية
- ☐ أفضل عدم الإجابة

15. ما هو متوسط دخل الأسرة السنوي (قبل احتساب الضرائب)؟

- ☐ أقل من 30000 دولار أمريكي
- ☐ من 30000 إلى 60000 دولار أمريكي
- ☐ من 60000 إلى 100000 دولار أمريكي
- ☐ من 100000 إلى 200000 دولار أمريكي
- ☐ أكثر من 200000 دولار أمريكي
- ☐ أفضل عدم الإجابة

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Responses Overview Closed

Responses

1

Average Time

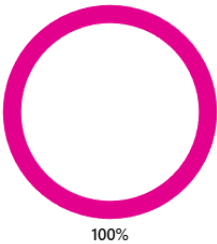
03:17

Duration

14 Days

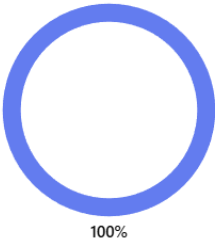
1. Are you a resident of Bell?

- Yes 0
- No 1
- Unsure 0



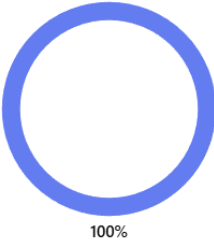
2. Do you represent a private business, non-profit organization, or government entity?

- No 1
- Yes - private business 0
- Yes - non-profit organization 0
- Yes - government entity 0



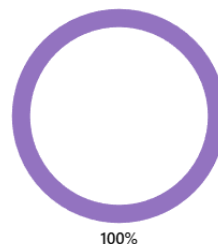
3. After reviewing the City of Bell Hazard Mitigation Plan draft, how well prepared to you think you community is for disasters, overall?

- Not at all prepared 1
- Underprepared 0
- Somewhat prepared 0
- Well prepared 0
- Extremely well prepared 0



4. How well do you think the City of Bell Hazard Mitigation Plan assesses the existing hazards that could impact Bell?

- Very well - all existing hazards included and explained 0
- Well - most existing hazards included and explained 0
- Poor - only a few existing hazards included and explained 0
- Very poor - no existing hazards included and explained 1



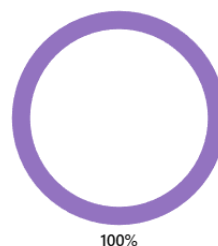
5. How well do you think the City of Bell Hazard Mitigation Plan describes expected future conditions and hazards?

- Extremely well - expected future conditions and hazards are fully explained 0
- Well - expected future conditions and hazards are mostly explained 0
- Poor - expected future conditions and hazards are only slightly explained 1
- Very poor - expected future conditions and hazards are not explained 0



6. After reviewing the City of Bell Hazard Mitigation Plan, how well do you think the mitigation actions put forth in the plan will help strengthen community resilience?

- Excellent improvement - the mitigation actions should dramatically improve community resilience 0
- Good improvement - the mitigation actions should noticeably improve community resilience 0
- Neutral - unclear or unsure if the mitigation actions will help improve community resilience or not 0
- Small improvement - the mitigation actions will only slightly help improve community resilience 1
- No improvement - the mitigation actions will not help improve community resilience 0



7. After reviewing the City of Bell Hazard Mitigation Plan, how strongly do you support the proposed project and actions that are intended to help mitigate the risk of future hazards?

- Support all proposed projects and actions 0
- Support most proposed projects and actions 1
- Only support a few proposed projects and actions 0
- Do not support any proposed projects and actions 0



8. After reviewing the City of Bell Hazard Mitigation Plan, do you have any general comments that you'd like to share with the planning team?

1
Responses

Latest Responses
"post what the mitigation plan is"

9. Hazard mitigation plans are good for five years--do you have any suggestions or advice for the planning team to consider for the next hazard mitigation plan update?

1
Responses

Latest Responses
"explain what the mitigation plan is"

10. What is your age?

Under 20	0
20-29	0
30-39	0
40-49	0
50-59	0
60-69	0
70+	0
Prefer not to answer	1



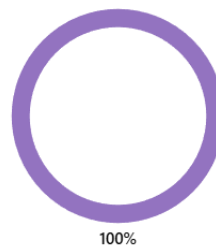
11. What is the highest level of formal education you have attained?

Grades 1-8	0
Grades 9-11	0
High school diploma / GED	1
Some college or technical school	0
Associate's degree (AA)	0
Bachelor's degree (BA or BS)	0
Master's degree (MS or MA)	0
Professional degree (JD, MD, DVM, DDS)	0
Doctoral degree (Ph.D., Ed.D., etc.)	0
Prefer not to answer	0



12. Do you have access to a personal vehicle?

Yes	0
No	0
Unsure	0
Prefer not to answer	1



13. What is your average commute time (one-way) to work?

Less than 10 minutes	0
10-25 minutes	0
25-45 minutes	0
45-60 minutes	0
More than one hour	0
Prefer not to answer	1



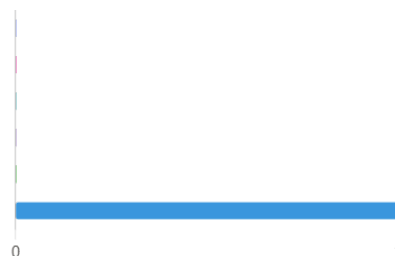
14. Do you have any disabilities that you would want first responders to be aware of in the event of an emergency?

No	0
Yes - hearing disability	1
Yes - mobility disability	1
Yes - vision disability	1
Yes - mental disability	1
Prefer not to answer	1



15. What is your average annual household income (before taxes)?

Under \$30,000	0
\$30,000 to \$60,000	0
\$60,000 to \$100,000	0
\$100,000 to \$200,000	0
More than \$200,000	0
Prefer not to answer	1



City of Bell hazard Mitigation Plan - Input from Community Stakeholders

From Duffy, Mark W <MDuffy@wittobriens.com>

Date Mon 3/23/2026 2:49 PM

Cc Mitigation <mitigation@wittobriens.com>

Bcc planning@cityofmaywood.org <planning@cityofmaywood.org>; planning@hpca.gov <planning@hpca.gov>; planning@cityofcudahyca.gov <planning@cityofcudahyca.gov>; planning@bellgardens.org <planning@bellgardens.org>; planning-division@commerceca.gov <planning-division@commerceca.gov>; fbarraga@lausd.net <fbarraga@lausd.net>; jacquelines.rivera@cemex.com <jacquelines.rivera@cemex.com>; Packageinfo.usa@asendia.com <Packageinfo.usa@asendia.com>; BellShelter.Intake@usw.salvationarmy.org <BellShelter.Intake@usw.salvationarmy.org>; abustamante@cityofbell.gov <abustamante@cityofbell.gov>; dvelasco@cityofbell.gov <dvelasco@cityofbell.gov>; jandrade@cityofbell.gov <jandrade@cityofbell.gov>; garreola@cityofbell.gov <garreola@cityofbell.gov>; office@shelterpartnership.org <office@shelterpartnership.org>; cs@moveeast.com <cs@moveeast.com>; sales@amusecosmetic.com <sales@amusecosmetic.com>; sales@amusecosmetic.com <sales@amusecosmetic.com>

Good afternoon,

The City of Bell is currently in the process of developing its Hazard Mitigation Plan. This plan outlines the city's risks and vulnerabilities across multiple natural and manmade hazards, and it describes potential actions that the community can take to help mitigate the impacts of these disasters and improve community resilience.

Hazard mitigation plans are most effective when they have broad community support and accurately describe the concerns and wishes of its community members and stakeholders. You are receiving this email because either you or the agency/entity you represent has been identified as an important community stakeholder. If you would like to review the draft of Bell's Hazard Mitigation Plan and provide feedback on the document, you can do so through the following links.

Draft plan: [city-of-bell-draft-plan-03122026.pdf](#)

Public survey questions: [City of Bell | LHMP Public Survey #3](#)

The City of Bell greatly appreciates any feedback you choose to provide, as well as your time!

Thank you,

Mark Duffy

Associate Planner II
Government Solutions
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WITT OBRIEN'S
PART OF THE **AMBIPAR** GROUP

APPENDIX C – LITERATURE CITED

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APPENDIX D – ADOPTION RESOLUTION

[Adoption will occur following plan approval]



CITY*of* **BELL**

CITY OF BELL, CALIFORNIA

2026 LOCAL HAZARD MITIGATION PLAN