

Berkeley's Hazards

August 2025

This document provides a text-only version of analysis from the [City of Berkeley's Hazard StoryMap](#).

This document has 9 parts:

1. **Earthquake:** Explains Berkeley's local Earthquake risk and planning zones.
2. **Wildland Urban Interface Fire:** Explains Berkeley's local wildfire risk and planning zones.
3. **Extreme Heat:** Explains Berkeley's extreme heat risk.
4. **Poor Air Quality:** Explains Berkeley's poor air quality areas.
5. **Rainfall-Triggered Landslides:** Explains Berkeley's history of landslides and areas impacted.
6. **Tsunami:** Explains Berkeley's tsunami risk and areas impacted.
7. **Sea Level and Groundwater Rise:** Explains Berkeley's sea level and groundwater rise risk and areas impacted.
8. **Flooding:** Explains Berkeley's flood risk and areas impacted.
9. **Hazardous Materials Release:** Explains Berkeley's hazardous materials release risk and areas impacted.

Berkeley's Hazards

0. Introduction

Berkeley is a vibrant and dynamic community. But every aspect of the city- its economic prosperity, social and cultural diversity, and historic character- could be dramatically altered by a disaster. While we cannot prevent natural hazards, we can anticipate their many impacts and take steps to reduce those harms to our infrastructure, environment, and community.

This storymap is a summary of the maps from the risk assessment section from the 2024 local hazard mitigation plan. The plan includes a more in-depth dive into the history, impacts, connections between hazards, and vulnerabilities associated. See the full [2024 Local Hazard Mitigation Plan](#).

1. Earthquake

An earthquake is the ground shaking caused by a sudden slip on a fault. Stresses in the earth's outer layer push the sides of the fault together. Stress builds up and the rocks slip suddenly, releasing energy in waves that travel through the earth's crust and cause the shaking that we feel during an earthquake.

Earthquakes can cause the ground to fail in several ways, resulting in additional hazards: surface fault rupture, liquefaction, and seismically-triggered landslides.

Fault Maps

In the Fault Map, fault lines depicted in green running along the Berkeley Hills on the northeastern edge of the city. This is the Hayward Fault. Other fault lines in the surrounding area are depicted. Notably the San Andreas fault that goes through Daly City and Marin.

In a 6.9 magnitude earthquake on the Hayward Fault, the City estimates that over 600 buildings in Berkeley will be completely destroyed and over 20,000 more will be damaged. One thousand to 4,000 families may need temporary shelter. Commercial buildings, utilities, and public roads will be disabled or destroyed. This plan estimates that building damage in Berkeley alone could exceed \$2 billion, out of a multi-billion-dollar regional loss, with losses to business activities and infrastructure adding to this figure.

The Earthquake Planning Zone Map presents Berkeley, with borders outlined in a thick black line. The Surface Fault Rupture Zone is presented as a thick red line running along the base of the Berkeley hills in a northwest to southeast direction. The line is approximately ¼-mile wide.

Liquefaction

The USGS classified sediments in the Bay Area based on their susceptibility to liquefaction. Liquefaction takes place when loosely packed, water-logged sediments at or near the ground surface lose their strength in response to strong ground shaking.

The Liquefaction Map presents the following areas in deep green, meaning they are in the liquefaction zone and experience liquefaction risk:

- The entire Berkeley Marina and Eastshore State Park
- Interstate 80
- Aquatic Park
- Codornices Creek and Strawberry Creek.
- In Northwest Berkeley the zone begins at the shoreline and ends at San Pablo Ave
- In Southwest Berkeley the zone begins at the shoreline and ends at McGee Ave

Seismically triggered landslides

Ground shaking from an earthquake can trigger landslides. This landslide movement can range from a few inches to tens of feet. Ground surface displacements as small as a few inches are enough to break typical foundations.

The California Geological Survey has identified the areas of Berkeley with potential to experience earthquake-induced landslide. All areas underlain by known active or dormant landslides are included in the zone. These areas are identified by combining information on rock or soil strength, slope gradient (steepness), and anticipated future shaking levels. The Seismic-Induced Landslide Zone Map shows how in Berkeley, the potential for landslide from seismic activity is high in the hill areas and along creek banks. These areas are shown in light brown on this map throughout the Berkeley hills.

Earthquake Shaking

Berkeley could experience earthquakes that span the range of the MMI scale.

The MMI scale is composed of twelve increasing levels of intensity that range from imperceptible shaking to catastrophic destruction. Lower numbers on the intensity scale generally deal with the manner in which the earthquake is felt by people. Higher numbers on the scale are based on observed structural damage.

However, the most concerning is when the shaking is strong, very strong, violent, or extreme. To understand what this means for Berkeley, the HayWired Shake Map shows most of the San Francisco Bay Area and the different levels of shaking intensity anticipated with a hypothetical magnitude 7.0 earthquake on the Hayward fault. Shaded in colors of yellow, orange, and red, the map shows that very strong, severe, and violent shaking will be felt all along the East Bay, stretching from Pinole to south of Hayward.

2. Wildland Urban Interface Fire

There are two primary types of wildfire: “wildland” fire and “wildland-urban interface” (WUI) fire. WUI fires, the primary concern in Berkeley, occur where the natural

landscape and urban-built environment meet or intermix. It is especially difficult to control a fire in the wildland-urban interface, where homes and other infrastructure are close to and within wildland areas.

Fire has always been a natural part of the California and East Bay wildland ecosystem. Fire has historically been a way to maintain forest health, control invasive species, and to provide a rich habitat for wildlife. In Berkeley, densely-built homes and vegetation have been introduced to hillside areas that otherwise required burning to maintain ecological balance. For many years people have tried to prevent fire in forests and developed areas, disrupting this balance. As a result, catastrophic fires are now occurring throughout the Bay Area and the world.

Climate change is resulting in longer and drier summer conditions leading to wildfires of greater frequency and duration. Increased drought conditions cause fuels to become extremely dry and more fire prone. Additionally, climate change causes more frequent bouts of extreme weather, including low humidity and high winds associated with fire weather.

Fire Zones

The WUI fire risk facing Berkeley's wildland-urban interface area is compounded by the area's mountainous topography, dense fuel loads, constrained access and egress routes, and its location, overlaid upon the Hayward Fault.

Since before the 1920s, the City of Berkeley has established and adjusted fire zones in Berkeley. While the zones were initially established to address urban fire issues, they have evolved to designate the City's WUI fire hazard. These maps are now linked to the State Fire Marshal's work to classify fire hazards.

In the Fire Zones Map, Fire Zone 3, the Panoramic Hill area, colored in dark red. Fire Zone 2, colored in bright red, covers the remainder of the city's eastern hills up to the northern border. Fire Zone 1, with yellow coloring, covers the rest of Berkeley west of the hills.

Fire Zones 2 and 3 currently include 8,603 parcels with 32,109 residents. These zones have the strictest fire prevention standards in the City for issues such as building materials for new structures. The City also enforces vegetation management measures in these areas to create defensible space around homes.

Fire Zone 3, known as Panoramic Hill, has the greatest WUI fire vulnerability. Panoramic Hill includes areas in both Berkeley and Oakland. In the Berkeley part, there are about 277 parcels, with 989 units in 261 buildings and 2,591 residents. The Hill's minimal access and egress routes, and its exposure to fault rupture further exacerbate the area's WUI fire risk above that of Fire Zone 2.

While much of the concern for fire is placed on the Berkeley hills (Fire Zone 2 and 3), Berkeley's flatlands (Fire Zone 1) are at risk as well. The flatlands are densely covered with old wooden buildings, most not built to modern fire-resistant code. They also have a high risk of damage in an earthquake, which could spark multiple fire ignitions, for example, by damaging gas or electric lines.

Following receipt of the State recommendation of very high fire hazard severity zones, the City of Berkeley further interprets the hazard and has divided the city into Fire Zones 1, 2, and 3, designated in order of ascending fire risk.

Relative Risk to Structures

New data and modeling from Tukman Geospatial prepared for East Bay Regional Parks have characterized the relative wildfire hazard for Alameda and Contra Costa counties.

The Relative Risk to Structures Map divides the area into 10-acre hexagon shapes, and ranks the risk to structures for each shape. Areas with high housing density and high wildfire hazard have the highest hazard rating. The map shows that these areas are located on the Eastern border of the city, with most of them bordering Tilden Park. The very high hazard and high hazard hexagons are located in the Claremont Neighborhood, Southside, La Loma Park, and Berkeley Hills. The moderate hazard areas are in the same neighborhoods, and also approach Central Berkeley.

Although the Berkeley flatlands are presented as having the lowest wildfire hazard, researchers were careful to classify this hazard levels as “relative.” An area with lower relative wildfire hazard does not have no risk, it simply means that it has less risk than other areas. Researchers also noted that this data does not account for home-to-home ignitions common in dense urban areas. This means the analysis likely underrepresents the wildfire hazard in Berkeley.

1923 Historic Fire

The Berkeley Fire of 1923 began in the open lands of Wildcat Canyon to the northeast and, swept by hot September Diablo winds, penetrated residential north Berkeley.

The 1923 Historic Fire Map shows that the fire burned downhill all the way to Shattuck Avenue in central Berkeley. A total of 130 built-up acres were burned, and about 4,000 people were made homeless.

Catastrophic fires have occurred in the greater Bay Area in 2017, 2018, 2019, 2020, 2021, and 2022. Berkeley itself has significant WUI fire history, including the 2017 Grizzly Fire, the 1991 Tunnel Fire, and the 1923 Berkeley Fire.

After this devastating fire, officials stated that the only reason that the fire stopped spreading was because the northeast wind stopped and the damp western wind took over.

Fire officials at the time were certain that if the northeast wind had not stopped, the buildings would have burned all the way to the bay in Berkeley, and the fire would have devastated Emeryville and moved south and west into Oakland.

The 1923 fire stretched from East Bay Regional Parks to Shattuck Avenue. According to San Francisco Fire Department records, San Francisco sent engine companies to respond, reporting that one of the San Francisco engine companies “helped control a fire at the municipal dumps at the foot of Cedar Street.” This indicates that there was a fire on the western edge of the City, where Cedar meets the waterfront. It is possible that this dump fire was a concurrent but entirely unrelated event. However, there is a considerable likelihood that the fire at the Berkeley dump was ignited by ember cast traveling from the main fire front, which was approximately 2 miles away. This phenomenon has precedent in more recent fires, such as the 2017 Tubbs Fire, during which embers traveled over a mile from the main front. Although wildfire is generally thought of as a problem limited to the Berkeley hills, this historical anecdote, alongside these more recent experiences, indicate the wildfire vulnerability of Berkeley’s flats.

3. Extreme Heat

According to Cal-Adapt, California’s database of climate information, multiple factors contribute to the extreme heat hazard:

Extreme heat days: An extreme heat day is when temperatures reach the 98th percentile of historic maximum temperature. In Berkeley, an extreme heat day is a day above 88.3 degrees Fahrenheit (F).

Warm nights: A warm night in Berkeley is considered to be one that does not cool below 61.7 degrees F. Warm nights can increase health risks significantly, as people do not have the ability to cool down and recover.

Heat wave: When there are five or more days of extreme heat.

Duration of heat wave: Longer heat waves have proportionally more negative impacts than shorter heat waves.

Extreme heat during unexpected times of year: When extreme heat occurs outside of historically hotter months.

Urban heat island effect: Extreme heat events can be further exacerbated by the urban heat island (UHI) effect, through which densely-built cities like Berkeley experience higher temperatures in comparison to surrounding more rural areas.

Tree Coverage

Urban heat island effect

The urban heat island effect often makes temperatures hotter in the urban, more dense parts of a city. To visualize what parts of Berkeley might more likely suffer from the urban heat island effect, the Tree Coverage Map map shows the tree coverage throughout Berkeley. Urban tree canopy directly reduces surface and air temperatures through shading and absorption, combating the urban heat island effect. In addition, this shading can reduce cooling loads in buildings and provide shade for individuals as well. Trees also improve air quality that often worsens during extreme heat.

The following areas have less than 10% tree coverage: Flats and areas south of the UC Berkeley Campus. The following areas are in the 11%-20% range: Western part of Hopkins Street north to the Berkeley border, area immediately north of UC Berkeley campus, Panoramic Hill, Elmwood, UC Berkeley campus, areas to the North/ South of the western part of Derby Street. The following areas are in the 21%-40% range: Claremont, Berkeley Hills north of Marin Avenue. The following areas are in the 41% to 51% range: Berkeley Hills south of Marin Avenue, Berkeley Hills north of Cedar.

A dense tree canopy can result in fewer heat-related emergencies. Although the Berkeley hills have a greater tree canopy, temperatures are often higher there than in the rest of the city, due to a phenomenon known as thermal belting. Thermal belting occurs in areas where there is a hillside and a valley below.

For Berkeley, this means that during extreme heat events, the Berkeley hills are likely to be hotter at night than the rest of the city.

Excess ER Visits on Extreme Heat Days Per 10,000 People

The Excess ER Visits Map shows how heat waves appear to have outsized impacts on the health of people living in the Berkeley flats.

Areas of Berkeley west of San Pablo are shown to have 6 excess ER visits for every 10,000 people. Areas of Berkeley between San Pablo Avenue and Martin Luther King, Jr Way have 5 excess visits. Northeast Berkeley and the UC Berkeley campus have 1-2 excess visits. Southeast Berkeley has 3 excess ER visits for every 10,000 people.

Although the thermal belting phenomenon described above creates hotter temperatures in the Berkeley hills, the map shows that hills areas have fewer excess ER visits in heat waves. This likely relates to historic patterns of disinvestment on people with low incomes and people of color.

People with disabilities, people with access and functional needs, people with chronic diseases, the elderly, and children under five years old are the most at risk to heat-related illnesses.

People working outdoors and unhoused populations are also more exposed and at risk. Research also indicates that communities of color, and the poor suffer more during extreme heat events because of lack of access to common heat adaptation strategies, such as tree canopy for shading, air conditioning and insulation in buildings, or car ownership to travel to public cooling centers that allow them to escape the heat.

4. Poor Air Quality

Poor air quality is a major public health concern. Poor air quality can irritate the eyes, nose, and throat, cause shortness of breath, aggravate asthma and other respiratory conditions, and affect the heart and cardiovascular system. Poor air quality can last for a few hours or a few weeks, depending on its source. It can also be a chronic issue, for example in places near industry or highways. The air quality can also change quickly due to weather conditions, such as rain or wind.

While climate change can harm everyone's health, its impacts exacerbate long-standing disparities that result in inequitable health outcomes for historically marginalized people, including people of color, Indigenous Peoples, low-income communities, and sexual and gender minorities, as well as older adults, people with disabilities or chronic diseases, outdoor workers, and children.

Pollution Burden

The California Communities Environmental Health Screening Tool called CalEnviroScreen is a screening methodology that can be used to help identify California communities that are disproportionately burdened by multiple sources of pollution. The Pollution Burden map shows the CalEnviroScreen percentile for Berkeley. Higher percentiles indicate that an area experiences more pollution burden. Generally, the everyday pollution is higher in west Berkeley and lower in the eastern areas of the city. Areas in west and south Berkeley carry higher pollution burdens with percentiles in the 50s, 60s, and 70s, shown in the shades of orange and yellow colors. The marina/west Berkeley shows the highest percentage in the 90s. The Berkeley hills show percentiles of 10s, 20s, and 30s. The eastern portion of the Berkeley flats shows percentiles in the 40s.

Traffic Pollution

Poor air quality creates negative health impacts for everyone, including irritation of the eyes, nose, and throat, coughing, chest tightness, shortness of breath, fatigue, and headaches. Poor air quality can also exacerbate other respiratory problems like asthma. According to the United States Environmental Protection Agency (EPA), some studies have shown a link between poor air quality and severe cardiovascular issues. Groups most at risk during poor air quality events include the elderly, children, infants, pregnant women, people with preexisting conditions, people who work or live outdoors, and people who live in neighborhoods that have been historically overburdened by pollution and other environmental contaminants, such as West and South Berkeley.

West Berkeley has the higher percentiles scores per CalEnviroScreen. As shown on the Traffic Pollution Map, West Berkeley has the higher percentiles scores with brighter pink and fuchsia shades. The map shows the Berkeley flats having high percentages with the West Berkeley experiencing the most pollution burden at 100%.

Asthma Percentile

The biggest impacts related to poor air quality are those on human health. Southerland et al. published a [2021 study on the harmful impacts of pollution in the Bay Area](#).

According to these estimates, more than 2,500 people die and 5,200 children develop asthma every year due to traffic-related air pollution exposure in the Bay Area.

The CalEnviroScreen asthma percentile map shows the number of asthma emergency department visits per 10,000 people for the years 2015-2017. There are low rates of asthma (0-10%) across the Berkeley Hills. Rates increase markedly in the Berkeley flats. Central Berkeley between Sacramento Street and San Pablo Avenue has 80-90%. West of San Pablo, levels are 70-80%.

5. Rainfall-Triggered Landslide

The term “landslide” includes five modes of slope movement, including falls, topples, slides, spreads, and flows. They are further subdivided by the type of geologic material (bedrock, debris, or earth).

In the United States, the most frequent and widespread damaging landslides are started by prolonged or heavy rainfall. The majority of rainfall-triggered landslides are shallow (less than a few meters deep), small, and move rapidly. Rainfall-triggered landslides often turn into debris flows (fast moving slurries of water, soil, and rock) as they travel down steep slopes.

The most dangerous landslides in terms of life safety are fast-moving, generally shallow debris flows. These are triggered when intense rainfall follows storms that have already saturated hillsides. Debris flows initiate in concave slope areas where subsurface water

is concentrated, elevating pore pressure above the natural strength of the soil. Once initiated, debris flows can travel great distances at relatively high velocities, flowing down drainages and onto alluvial fans and damaging any structures lying in their paths.

Deep-Seated Landslide Susceptibility

Rock strength and slope are combined to create classes of landslide susceptibility.

These classes express the generalization that on very low slopes, landslide susceptibility is low even in weak materials, and that landslide susceptibility increases with slope and in weaker rocks.

Very high landslide susceptibility, classes VIII, IX, and X, includes very steep slopes in hard rocks, and moderate to very steep slopes in weak rocks.

The Deep-Seated Landslide Susceptibility Map shows that generally speaking, these classes in Berkeley are concentrated in northeast Berkeley and in the Berkeley hills.

The further east in the Berkeley hills have greater susceptibility with steeper slopes and weaker rocks (shown with darker red colors).

6. Tsunami

A tsunami occurs in a body of water when a rapid disturbance vertically displaces the water, causing a series of surges. These changes can be caused by an underwater fault rupture (that generates an earthquake) or underwater landslides (typically triggered by earthquakes).

Tsunamis affecting the Bay Area can result from offshore earthquakes within the Bay Area, or from very distant events. While it is most common for tsunamis impacting the Bay Area to be generated by faults in Washington and Alaska, local tsunamis can be generated from local faults running underwater (such as the [small tsunami that was triggered by the 1906 earthquake](#)). The San Andreas Fault runs along the coast off the Peninsula and the Hayward fault runs partially through San Pablo Bay.

Tsunami Zone

The tsunami zone does not reflect the inundation area from any singular tsunami, but represents what is possible from large, realistic scenarios primarily from the Alaska and Cascadia subduction zones.

Given Berkeley's sloping terrain and the Bay's waters at their current levels, tsunami inundation will not extend far inland from the shoreline, but the zone has increased slightly since the last update to reflect new science and local features. The Tsunami Zone Map shows the tsunami inundation zone. It is shaded in blue, the tsunami inundation zone extends along the entire shoreline of the Bay. Starting at the city's northern border, the zone stretches east from the Bay until it meets Fifth Street. At Page Street, the edge of the zone stretches as far east as Sixth Street until Delaware Street. At Hearst Street, the edge of the zone runs east to Fifth Street. At University Avenue, the edge of the zone runs east to Fourth Street. From Addison to Heinz Avenue the eastern edge runs to Third Street or to where Union Pacific Railroad is located. At the far south end of the city after Heinz Avenue, the eastern edge of the zone runs to Fifth Street for one block and to Seventh Street at Potter and Folger Avenue.

The zone captures Golden Gate Fields, the Tom Bates Regional Sports Complex, Eastshore State Park, the Berkeley Marina, the Dona Spring Animal Shelter, portions of Interstate 80 and the frontage roads beside it, the San Francisco Bay Trail, the Amtrak Station, and Aquatic Park. It also captures the Fourth Street Business District.

7. Sea Level and Groundwater Rise

Sea level rise will have disproportionate impacts on disadvantaged communities in Berkeley. For example, the areas most likely to experience flooding with increased sea level rise are in West Berkeley, which has a higher percentage of communities of color and low-income communities. These are the same neighborhoods that were historically redlined, have poorer air quality, and experience higher incidents of hospitalization due to asthma. West Berkeley also has a history of industrial buildings and usage, resulting in more hazardous materials stored underground. As the groundwater table rises along

with the sea level, these materials can also rise and move, causing environmental and public health hazards.

Sea Level Rise

Sea level rise is an increase in the level of the world's oceans. Warmer temperatures associated with climate change are causing global sea levels to rise through two processes:

- Warmer temperatures are increasing the amount of ice melt from the world's glaciers, ice caps and ice sheets. This melted ice increases the volume of water in the ocean.
- In a process termed "thermal expansion," warmer temperatures cause ocean water to expand, further increasing the ocean's volume.

Groundwater Rise

Low-lying inland areas could flood from below by emergent groundwater long before coastal floodwaters overtop the shoreline. As groundwater rises, it will increasingly infiltrate sewer systems, flood basements, and damage underground infrastructure.

Rising groundwater will also interact with contaminated lands around the Bay, creating a potential exposure pathway that could impact the environment and public health. And rising groundwater will increase liquefaction hazards in response to earthquakes, particularly in former open water, mudflat, marsh, and floodplain areas that have been filled for development. Liquefaction occurs when loosely-packed, water-logged sediments at or near the ground surface lose their strength in response to strong ground shaking.

According to the San Francisco Estuary Institute and the Pathways Climate Institute, "As sea levels rise in San Francisco Bay, shallow groundwater underneath low-lying coastal communities will also rise."

Current Groundwater Conditions

New data and maps from the Pathways Climate Institute LLC and the San Francisco Estuary Institute provide insight into how rising groundwater can impact coastal communities and interact with sea level rise.

The Current Groundwater Conditions Map shows that Berkeley already faces high groundwater (within six feet of the ground surface) in multiple areas, posing risks to underground infrastructure that is mostly built within 6 feet of the surface. However, emergent groundwater is limited to a small area in the northeast corner of McLaughlin Eastshore State Seashore.

Future Groundwater Conditions

Maps also show future groundwater conditions at varying levels of sea level rise with different probabilities:

- At 24" sea level rise (very likely by 2100), we begin to see "emergent" groundwater.
- At 48" sea level rise (likely by 2100), emergent groundwater increases, particularly in West Berkeley north of University Avenue.
- At 66" sea level rise (not as likely by 2100), emergent groundwater is apparent in about half of the Berkeley area north of University Avenue.
- At 96" sea level rise (probability currently unknown) a large portion of West Berkeley north of University Avenue is covered by emergent groundwater.

8. Flooding

Floods occur when there is an overflow of water in areas that are normally dry. In Berkeley, three types of flooding typically occur: coastal flooding, creek flooding, and storm drain overflow.

Climate change increases the intensity and severity of rainfall events, which leads to more frequent flooding. Climate change also creates sea level rise, which in turn will lead to rising groundwater, increasing flood risk.

The City maintains approximately 93 miles of storm drain pipelines and appurtenant structures in the public right-of-way and in easements. The City is responsible for the maintenance of approximately 0.5 miles of open creeks and nearly 4 miles of creek culverts running in the right of way or in City owned properties. A majority of the City's stormwater assets are nearing or past their expected useful life and others require an evaluation of hydraulic capacity.

Floodplains

The 100-year Floodplain area areas that have a 1% chance of experiencing creek flooding in any given year. The 500-year floodplain has a 0.2% chance of experiencing creek flooding in a given year. Areas in the 100-year floodplain are assumed to also flood in a 500-year flood scenario. Because floods reaching the level of the 500-year Floodplain occur so rarely, they are not as well-researched and specific impacts are less known

100-year Floodplain

In Berkeley the 100-year Floodplain is located:

- Along the edge of the Bay
- Along the interior edge of the Aquatic Park lagoon
- Along Codornices Creek in northwest Berkeley
- Along Strawberry Creek in central Berkeley (on the University of California campus).

The following street segments are in the 100-year Floodplain:

- Along Codornices Creek: 580 Highway, 2nd St, 5th St, 6th St, 8th St, 9th St, 10th St, Sacramento St, Monterey Ave
- Potter St
- Bay St
- W Frontage Rd
- On the UC Berkeley campus: Frank Schlessinger Way, W Entrance, Wickson Rd

500-year Floodplain

The 500-year Floodplain both expands on areas in the 100-year floodplain, and adds more area to show:

- Additional inundation along the edge of the Bay
- Significant inundation of the McLaughlin Eastshore State Park in the land north of University Avenue
- Significant inundation of the Marina in the land west of Marina Blvd and south of Spinnaker Way
- Inundation in west Berkeley between Interstate 80 and approximately 4th Street
- Inundation along Strawberry Creek in Central Berkeley, from Sacramento west to Strawberry Creek Park
- Inundation along Claremont Creek in the Temescal area, on Claremont between Hazel Road to Berkeley's southern border.

The following street segments are in the 500-year Floodplain:

- West Berkeley:
 - I-80
 - 1st St (From Harrison St to Addison St)
 - 2nd St (From Harrison St to Addison St)
 - 3rd St (From Harrison St to Addison St)
 - 4th St (From Harrison St to Addison St)

- 5th St (From Harrison St to Addison St)
- University Ave (Near Marina)
- North Berkeley:
 - Colusa Ave (along Cerrito Creek)
- Central Berkeley:
 - Allston Way (From N Valley St to Sacramento St)
 - Bonar St (Between Addison St and Allston Way)
 - West St (Between Addison St and Allston Way)
 - N Valley St
 - Acton Crescent
 - Acton Circle
 - Acton St (From Addison to Acroft Ct)
- Claremont:
 - Claremont Ave (Between Hazel Rd and Mystic St)
 - Alcatraz Ave (From Lewiston Ave to Claremont Ave)
 - Eton Ave
 - Eton Ct
 - Brookside Ave
 - Hillcrest Rd (Only near Claremont Creek)
 - Woolsey St (Between Eton Ave and Claremont Ave)
 - The Uplands (Only Near Claremont Creek)
 - Encina Pl
 - The Plaza Dr
 - Prince St (From College Ave to Claremont St)

- Oakvale Ave
- Hazel Rd
- Webster St (Between Pine Ave and Claremont Ave)

Storm Drain Overflow

The City's storm drainage infrastructure collects urban runoff and carries it either directly to the Bay or to nearby watercourses that discharge to the Bay. Causes for storm drain overflow are generally rainfall events that exceed the capacity of the storm drainage facilities, blockages in the storm drainage facilities, or damage to storm drainage infrastructure that reduces its capacity.

When storm water runoff exceeds the capacity of the storm drain infrastructure, the excess water flows into city streets. Most of Berkeley's storm drain infrastructure is engineered to accommodate a 10-year design storm. Using this 10-year design storm standard is considered the most cost-effective design practice, and provides guidance for computing flows and for sizing storm drainage infrastructure.

Community Storm Calls for Service, Jan-June 2023

During storms and flooding, community members call Berkeley's 3-1-1 service to report locations of storm drain backup or other locations where water is pooling. This time period included two federally-declared storm emergencies. The Community Storm Calls for Service, Jan-June 2023 Map shows locations throughout Berkeley.

9. Hazardous Materials Release

Hazardous materials release could harm community members by exposing people to vapors that are toxic, suffocating, cause burns or are irritating. Hazardous materials release can threaten not only life and property, but also the environment, in areas such as creeks, the Aquatic Park lagoons and the San Francisco Bay.

Connection to climate change

According to the Environmental Protection Agency, climate change may increase our exposure to chemicals. Climate change is causing more frequent and intense storms and varied weather, which can result in more release of hazardous materials.

Connection to hazards of concern

Most of the hazards of concerns in this plan can result hazardous materials release, including earthquake, flooding, wind, and wildland-urban interface fire.

Level 1 Industrial Sites

A hazardous materials release can occur throughout the city near where hazardous materials are manufactured, stored, used, or transported. Hazardous materials release can occur as a result of a natural hazard, such as earthquake shaking, or can happen accidentally. In Berkeley, a hazardous material event is more likely to occur in the City's industrial area in West Berkeley where there is a concentration of industrial sites and transportation routes.

Over the last 25 years, Berkeley has seen a more than 90 percent reduction in the number of facilities with extremely hazardous materials. The City carefully tracks hazardous materials within its borders and works closely with companies using large amounts of potentially dangerous materials.

The addresses of the hazardous sites at risk are:

- 1224 Sixth St- Airgas USA LLC
- 800 Dwight Way Bayer Healthcare LLC
- 1331 Eastshore Highway Berkeley Forge & Tool INC.

- Comeback Brewing II- 1404 Fourth Street
- Davlin Coatings- 700 Allston Way
- Electro Coatings- 893 Carleton Street
- Form Energy- 2810 7th Street
- Lawrence Berkeley National Laboratory- 1 Cyclotron Rd
- PC Cargo- 2424 4th Street
- Ployplus Battery Company- 2431 5th Street
- Takara Sake USA- 708 Addison Street
- TPMG Regional Lab (Kaiser)- n1725 Eastshore Highway
- UC Berkeley Main Campus- 200 California Hall MC.