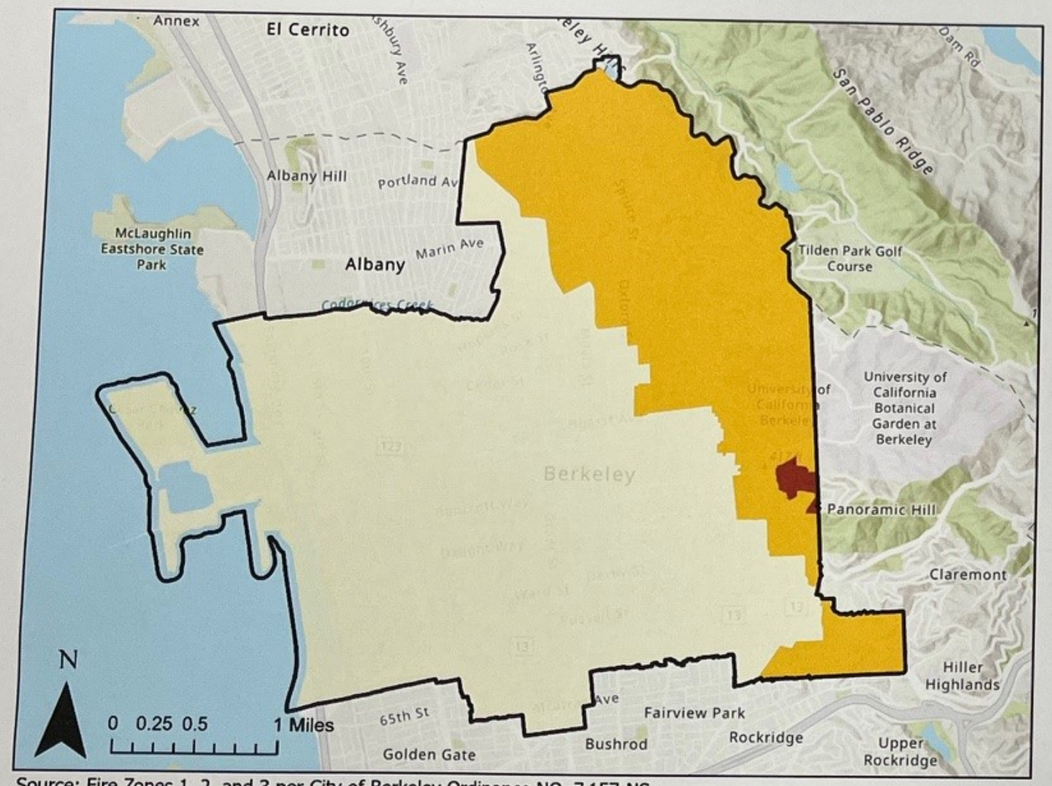
Wildland Urban Interface (WUI) Fire

Locations of WUI Fire:
Berkeley is most vulnerable to a wind-driven fire incident originating in an area adjacent to the City's eastern border. This map shows Berkeley Fire Zones.



Source: Fire Zones 1, 2, and 3 per City of Berkeley Ordinance NO. 7.157-NS.

Esri, NASA, NGA, USGS, California State Parks, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USDA, USFWS

Legend

- City of Berkeley Boundary
- Berkeley Fire Zone 1
- Berkeley Fire Zone 2
- Berkeley Fire Zone 3

PERSONAL ACTIONS TO MITIGATE RISK

PLACE A DOT NEXT TO PERSONAL ACTIONS YOU'VE TAKEN

Residents in Fire Zones 2 and 3

1. Followed instructions on your home's Defensible Space Report.
   a. Created defensible space around home
   b. Hardened home by focusing on highest priority items:
      i. Installed a fire resistive roof
      ii. Cleared decks and covered porches
      iii. Regularly clear tree debris
      iv. Removed large rugs and combustible wood, wicker, or plastic furniture
      v. Removed anything stored under the deck or stairs
      vi. Included a five-foot noncombustible buffer around deck and stairs
      vii. Installed non-combustible gutter guards
      viii. Ensured the vents to your attic, basement, and crawlspace will block wind-blown embers.

All Berkeley Residents

1. Used the free Berkeley Chipper Day Program for curbside pickup, chipping, and disposal of vegetation material from my residential property.
2. Signed up for AC Alert and bookmarked with Berkeley's Emergency Map
3. Learned the test and emergency tones from Berkeley's Outdoor Warning System
4. Made my household fire weather plan.
5. Stayed out of the hills during extreme fire weather days.

Questions or comments? Write them on a post it note!

Wildland Urban Interface (WUI) Fire

About the Hazard:
WUI fires occur where the natural landscape and urban-built environment meet or intermix. Low humidity and high sustained winds create the most dangerous conditions for wildfire spread. While WUI fires can occur at any time of the year, they are especially dangerous in fall when the landscape and vegetation are dry, and strong, hot, dry offshore winds further desiccate vegetation and can push a fire down or up a slope with amazing speed.

Berkeley has a history of devastating WUI fires, including the 1923 Fire mapped below. The fire burned from Tilden all the way to Shattuck Avenue. The map also shows the fire at the municipal dump that very same day, likely the result of embercast. This highlights the potential impacts of WUI fires on the Berkeley flatlands.

CITY ACTIONS TO MITIGATE RISK

PLACE A DOT NEXT TO THE CITY ACTIONS YOU THINK ARE MOST IMPORTANT

1. Reduce fire risk in existing development through fire code updates and enforcement.
   a. Continue YouthWorks Pilot program to staff expansion of Defensible Space Inspections in Fire Zones 2 and 3.
2. Reduce fire risk in existing development through vegetation management programs.
3. Pursue external funding to perform vegetation management on public and private property and to increase education and awareness of vegetation management standards.
4. Improve responder access and community evacution in Fire Zones 2 and 3 through roadway maintenance and appropriate parking restrictions.
   a. With multiple agency partners, clear hazardous vegetation along 45 roadways in Fire Zone 2 protecting evacuation routes
   b. Develop process to increase parking enforcement in fire-vulnerable areas during fire weather.
   c. Continue to enforce Fire Code requirement for fire fuel clearance on public roadways.
5. Coordinate regional wildfire mitigation strategies with key partners and stakeholders.
6. Manage and promote pedestrian evacuation in Fire Zones 2 and 3
7. Reduce wildfire risk throughout Berkeley by implementing the Action Plan in the Community Wildfire Protection Plan.
8. Reduce fire risk through utility undergrounding.

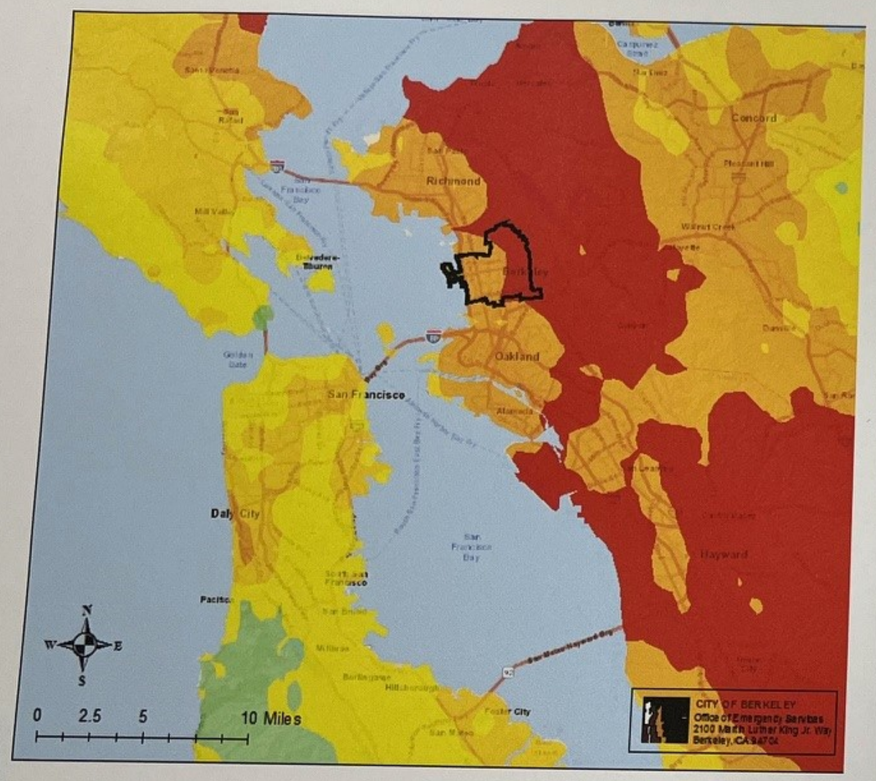
Questions or comments? Write them on a post it note!

EARTHQUAKES

About the Hazard:

According to the USGS, there is a 72% probability of one or more 6.7+ magnitude earthquakes occurring from 2014 to 2043 in the San Francisco Bay Region.

This means that many Berkeley residents will likely experience a severe earthquake in their lifetime.



This map shows the shaking associated with a magnitude 7.0 earthquake on the Hayward Fault. The City of Berkeley outlined in black would experience severe and violent shaking, indicated by orange and red coloring respectively.

CITY ACTIONS TO MITIGATE RISK

PLACE A DOT NEXT TO THE CITY ACTIONS YOU THINK ARE MOST IMPORTANT

1. Conducting ongoing building assessments for City facilities and structures
2. Strengthening and or replacing City buildings in prioritized order as funding becomes available
3. Offering the Soft Story Retrofit Program which reimburses eligible building owners up to 75%
4. Offering the Retrofit Grants Program to multi-family homes of 3+ units, non-residential buildings, hotels, and mixed-use buildings
5. Completing Concrete Retrofit Ordinance Research with a Team from the Earthquake Engineering Research Institute
6. Completing program to retrofit all non-complying Unreinforced Masonry Buildings (URM)

Questions or comments? Write them on a post

Community focused program to do in home EQ furniture bolting (Rena)

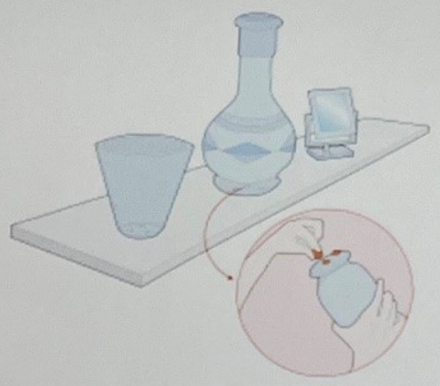
CIL John Benson – ~~[illegible]~~ designing program – housing CIL has ~~[illegible]~~ accessibility – mechanical common sense

embed code for gen/earthquake for websites

How do we ensure safe routes/evac centers, before & after earthquake?

What other carrot-or-stick incentives are available to help ~~[illegible]~~ or even force private landlords to do appropriate retrofitting?

EARTHQUAKES



Did you know that the most common cause of injuries during an earthquake is falling objects?

PERSONAL ACTIONS TO MITIGATE RISK

PLACE A DOT NEXT TO PERSONAL ACTIONS YOU'VE TAKEN.

1. Made living space more safe by storing heavy and breakable objects on low shelves.
2. Properly anchored bookshelves and heavy furniture
3. Moved beds away from windows
4. Moved or secured hanging objects over beds, sofas, or chairs
5. Used quake gel or putty to secure breakables in place
6. Had home assessed and retrofitted using available grants.
7. Talked to landlord about disaster preparedness and seismic safety of my rental.
8. Considered or bought earthquake insurance.
9. Stored water (1-2 gallons per day per person)
10. Practiced drop, cover, and hold on.
11. Learned how to turn off utilities at home or business.
12. Have taken free CERT Training.

Questions or comments? Write them on a post it note!

Utility Disruption

About the Hazard:
Utility interruption is any loss of a public service which includes but is not limited to electrical service, telecommunications, wastewater and potable water, and natural gas. Interruption can be planned and include a warning, such as with Power Safety Power Shutoffs that proactively turn off electricity to mitigate wildfire risk, or come a secondary impact of the other natural hazards included in this plan.

What will you need if you have no power? Water? Communications?

CITY ACTIONS TO MITIGATE RISK

PLACE A DOT NEXT TO THE CITY ACTIONS YOU THINK ARE MOST IMPORTANT

1. Identify and implement potential actions to mitigate energy assurance vulnerabilities at key City facilities
2. Consider opportunities to design, finance, and implement clean energy assurance strategies.
3. Provide key hazard information and best practices during utility disruptions to Berkeley's business and arts community

training and outreach for CBOs

PERSONAL ACTIONS TO MITIGATE RISK

PLACE A DOT NEXT TO PERSONAL ACTIONS YOU'VE TAKEN

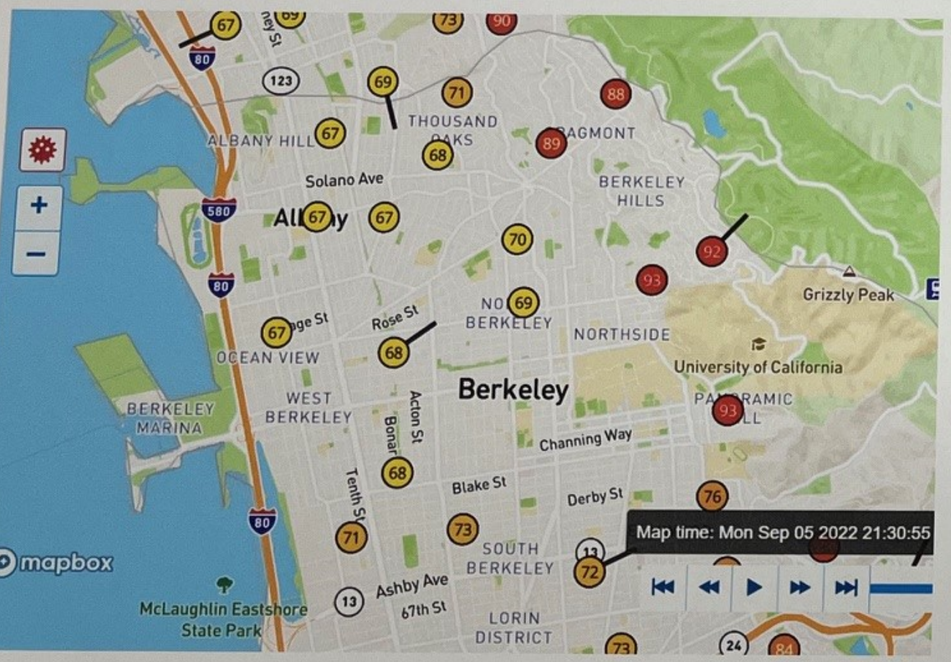
1. Made a plan to stay safe and comfortable during power outages
   a. Determined emergency power needs to stay warm, keep food and medicine cool, and to operate medical devices.
   b. Determined the power draw of these devices
   c. Considered purchasing a power bank or generator
2. Made sure outage alerts reach me by calling PG&E 800-743-5000 and updating my contact information.
3. Stored 1-2 gallons of water per person per day for at least 3 days.
4. Made a plan for alternative bathroom options, like using a bucket when the toilet can't be flushed.
5. Established backup communication with my family.
6. Printed important documents or saved them to a thumb drive.

Questions or comments? Write them on a post it note!

Extreme Heat

About the Hazard:

In Berkeley, an extreme heat day is a day above 88.3 degrees Fahrenheit. Extreme heat days can be further exacerbated by the urban heat island effect in which densely built cities experience higher temperatures due to a relative lack of vegetation, reduced air flow, and an abundance of hard, dark surfaces. However, the Berkeley hills often experiences higher temperatures than the rest of the city, due to a phenomenon known as thermal belting.



This map shows temperatures in Berkeley at 9:30 pm on September 5, 2021. Temperatures remain in the 90s in the Berkeley hills and in the 60s and 70s in the rest of Berkeley.

CITY ACTIONS TO MITIGATE RISK

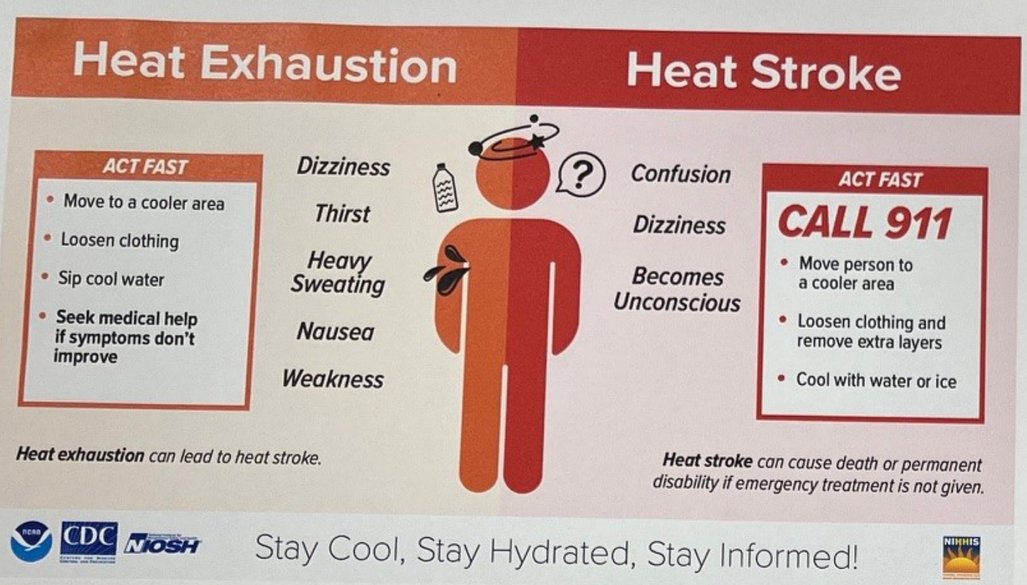
PLACE A DOT NEXT TO THE CITY ACTIONS YOU THINK ARE MOST IMPORTANT

1. Encouraging passive and energy-efficient strategies to cool down buildings including natural ventilation, shading, insulation, green/cool roofs, whole-house fans, and heat pump HVAC systems.
2. Continuing to seek out funding to use cool paving materials on streets
3. Implementing programs and projects to reduce emissions.
4. Monitoring and supporting regional and state efforts to forecast the impact of climate change on temperatures and integrate extreme heat readiness into City operations.
5. Continue Urban Forestry Unit's tree maintenance and planting programs to increase canopy coverage for extreme heat events to provide shade and mitigate impacts from poor air quality.

Questions or comments? Write them on a post it note!

investing in resilience hubs for ~~co~~ folks to access AC

Extreme Heat



Did you know that heat waves kill more people than any other type of severe weather in the US?

PERSONAL ACTIONS TO MITIGATE RISK

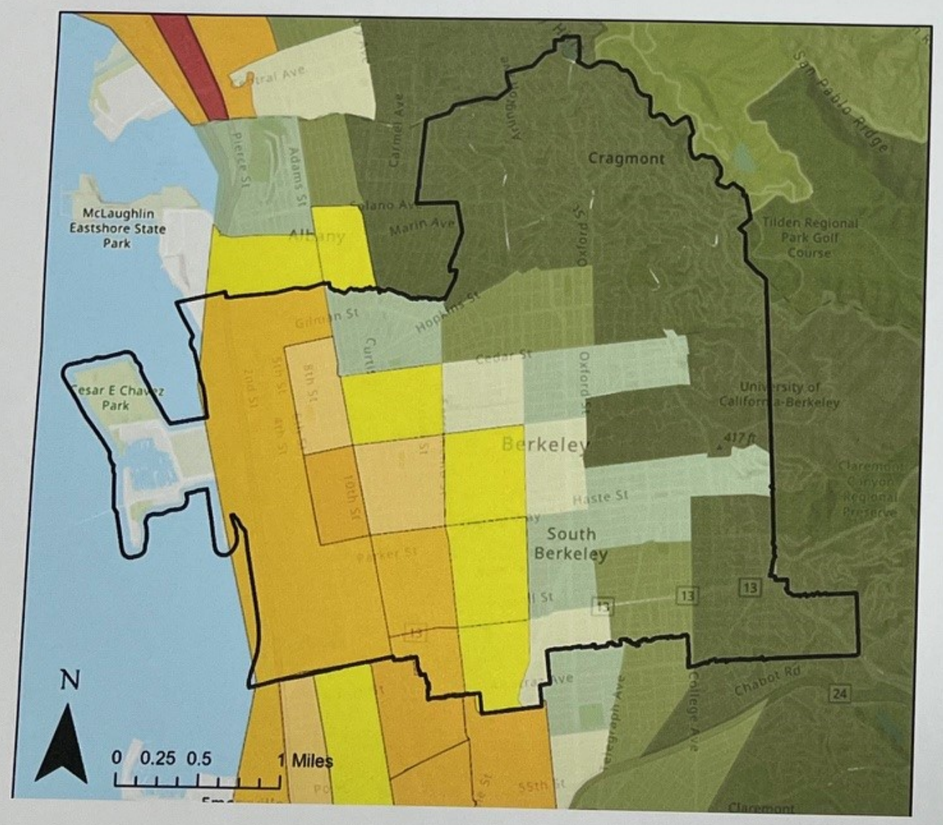
PLACE A DOT NEXT TO PERSONAL ACTIONS YOU'VE TAKEN

1. Purchased or have supplies for extreme heat events, including ice, spray bottle, and personal fan.
2. Implemented methods to keep your home cool without air conditioning, including using larger fans and blocking sunlight with blackout curtains, reflective film, or solar blankets.
3. Made a plan for where and how you will get to a cooling center during extreme heat events, like libraries.
4. Learned the signs and symptoms of heat stroke and exhaustion.
5. Checked in on friends and neighbors.
6. Prepared for power outages.
7. On previous hot days, made sure to get plenty to drink, wear lightweight clothing, and schedule outdoor activities carefully.

Questions or comments? Write them on a post it note!

Poor Air Quality

About the Hazard:
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 more of a chronic issue, especially in places near industries and highways for example.



This map shows the CalEnviroScreen Percentile for Berkeley. Higher percentiles shown in yellows and oranges in west and south Berkeley indicate higher pollution burden.

CITY ACTIONS TO MITIGATE RISK

PLACE A DOT NEXT TO THE CITY ACTIONS YOU THINK ARE MOST IMPORTANT

1. Expanding Urban Forestry team and their activities
2. Implementing programs and projects to reduce emissions, such as electrifying transportation options and improving traffic safety.

PERSONAL ACTIONS TO MITIGATE RISK

PLACE A DOT NEXT TO ACTIONS YOU'VE TAKEN

1. Prepared home by replacing or sealing leaky windows and doors.
2. Bookmarked pages to see forecasts from AirNow.gov and real-time readings from Fire.AirNow.gov
3. On poor air quality days, stayed indoors with windows and doors closed and filtered the air.
4. Installed a MERV 13 rating or higher filter on HVAC system.
5. Purchased a certified portable air cleaner or constructd one with a box fan.

Questions or comments? Write them on a post it note!

High Wind

CITY ACTIONS TO MITIGATE RISK

PLACE A DOT NEXT TO THE CITY ACTIONS YOU THINK ARE MOST IMPORTANT

1. Keep City trees maintained. These are trees located between the sidewalk and the street, in street medians, public parks, or on other properties owned by the City of Berkeley. Their maintenance is the responsibility of the forestry team of the City of Berkeley.

work w/ residents + businesses w/ trees in danger or failing through training, mitigations for maintenance/care.

PERSONAL ACTIONS TO MITIGATE RISK

PLACE A DOT NEXT TO PERSONAL ACTIONS YOU'VE TAKEN

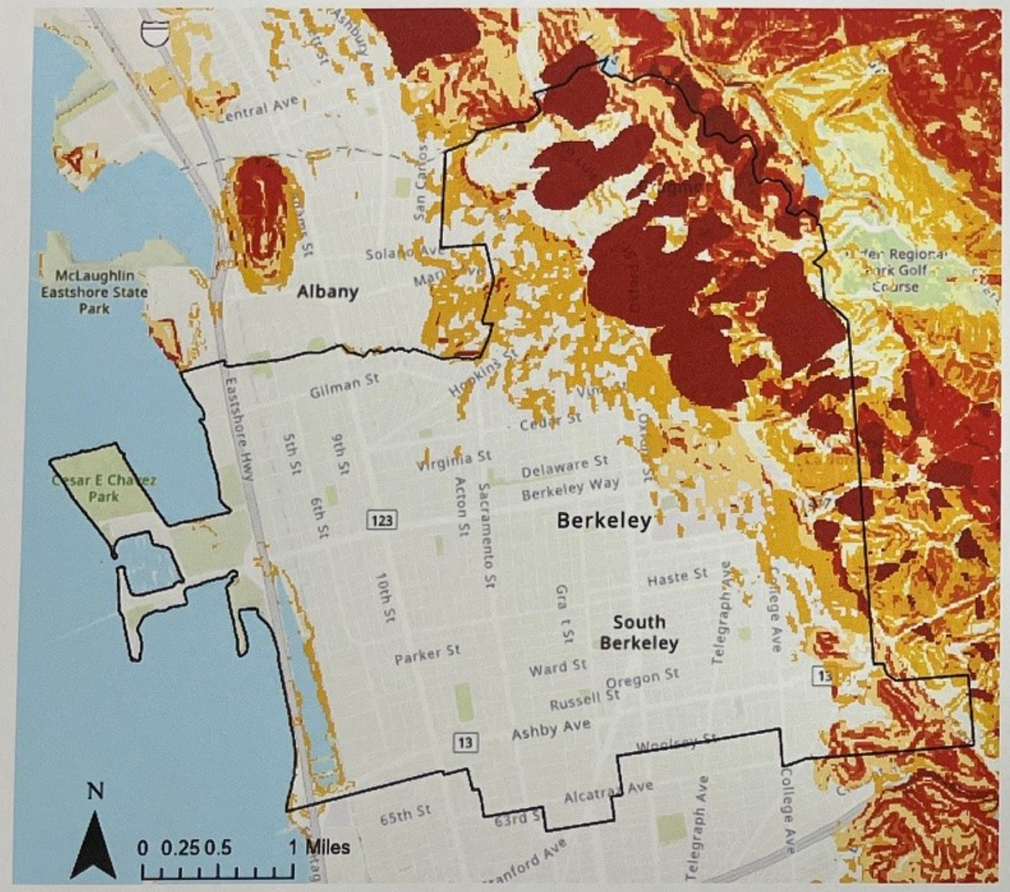
1. Kept trees on my property maintained.
2. Have submitted a request for help with public trees that require attention by calling 311 or emailing trees@berkeleyca.gov.
3. Brought in any loose outdoor items, such as holiday decorations and chairs, or securely tied them down.
4. Kept a safe distance from trees and avoided driving on high wind days.
5. Called 9-1-1 about downed power lines.

Questions or comments? Write them on a post it note!

LANDSLIDE

About the Hazard:

A landslide is a movement of a mass of rock, debris, or earth down a slope. The most frequent and widespread damaging landslides are started by prolonged or heavy rainfall. In Berkeley, there are active and dormant landslides spread throughout locations in the Berkeley hills.



This map shows landslide susceptibility in Berkeley. The dark reds and oranges throughout the Berkeley hills indicate higher susceptibility (higher susceptibility is defined by higher slopes and weaker rocks).

CITY ACTIONS TO MITIGATE RISK

PLACE A DOT NEXT TO THE CITY ACTIONS YOU THINK ARE MOST IMPORTANT

1. Collect, analyze and share information with the Berkeley community about landslide hazard and associated risk reduction techniques.
2. Track changes in landslide hazard risk using the best-available information and tools.
3. Collect and share up-to-date landslide hazard maps identifying areas subject to heightened risk from hazards.

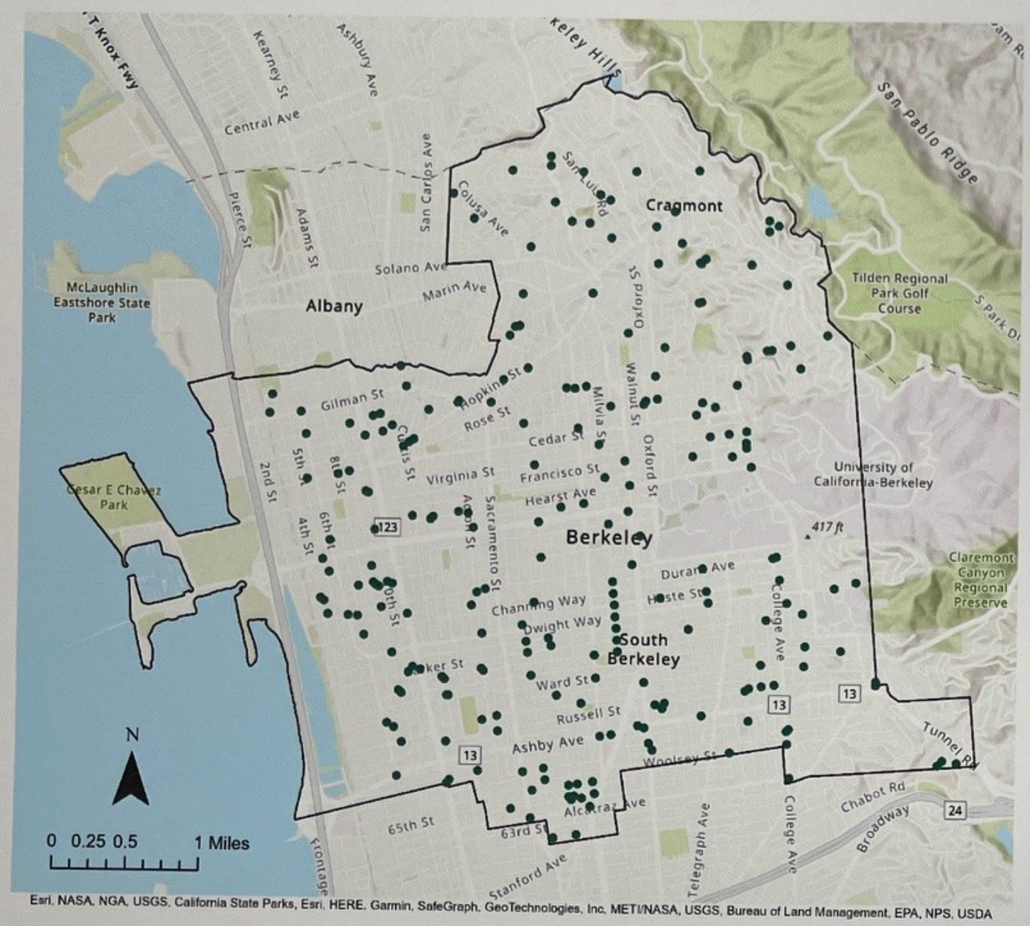
PERSONAL ACTIONS TO MITIGATE RISK

PLACE A DOT NEXT TO PERSONAL ACTIONS YOU'VE TAKEN.

1. Learned if location of home or business is susceptible to landslides.
2. Had a gas company or professional install flexible pipe fittings to avoid leaks.
3. Planted appropriate vegetation to prevent erosion risk on hillsides and other suceptible areas
4. Consider "a difference in conditions" insurance policy, which can cover the gap in traditional homeowner's insurance.

Questions or comments? Write them on a post it note!

FLOODING



Storm Drain System Issues, 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 map presents locations of community reports of these issues from January-June, 2023. This time period included two federally-declared storm emergencies.

PERSONAL ACTIONS TO MITIGATE RISK

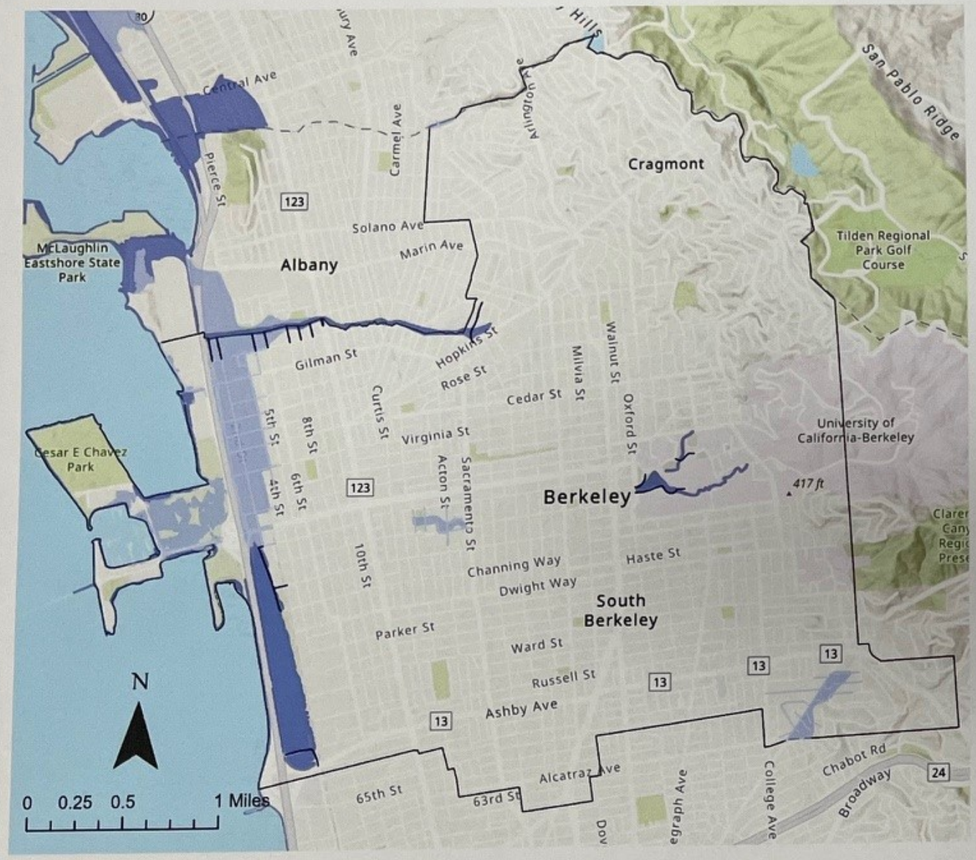
PLACE A DOT NEXT TO PERSONAL ACTIONS YOU'VE TAKEN

1. Kept neighborhood sewer grates clean by "adopting a drain."
2. Identified trouble spots around home where water accumulates and created a plan to manage them
3. Considered flood insurance, since typical homeowners insurance policies do not cover flooding.
4. Have learned how to fill sand bags and how to place them to reduce flooding problems
5. Connected with neighbors to help with sand-bagging
6. Moved important objects to higher shelves
7. Learned not to walk, swim, or drive through flooded waters.
8. Prepared for power outages and disruptions to the internet
9. Learned proper methods for clean-up after a flood occurs

Questions or comments? Write them on a post it note!

FLOODING

About the Hazard:
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.
This map shows where water will flood when creeks overflow.



Flood Zone Map

Street Segment in 500-Year Floodplain

Street Segment in 100-Year Floodplain

FEMA Floodplains
100 Year Floodplain
500 Year Floodplain

FEMA National Flood Hazard Layer
Last updated for Alameda County: June 22, 2020

CITY ACTIONS TO MITIGATE RISK

PLACE A DOT NEXT TO THE CITY ACTIONS YOU THINK ARE MOST IMPORTANT

1. Maintain City participation in the National Flood Insurance Program.
2. Use development standards to ensure that new development does not contribute to an increase potential for flooding.
3. Complete a Stormwater Master Plan for all City stormwater infrastructure to identify system deficiencies.
4. Establish a capital Stormwater Improvement Plan and identify funding mechanisms.
5. Renovate the tide tubes that remove storm water from Berkeley Aquatic Park and Potter Street to the Bay.
6. Design stormwater improvements in streets, parks and plazas.

Questions or comments? Write them on a post it note!

TSUNAMI

About the Hazard:
A tsunami occurs in a body of water when a rapid displacement of water occurs (usually following an earthquake) that creates a surge of water. Tsunamis affecting Berkeley can result from offshore earthquakes near the Bay Area, or from very distant events. Tsunamis historically impacting Northern California were usually generated by earthquakes off the shore of Oregon, Washington and Alaska.

This map shows the Tsunami Inundation Zone in Berkeley. This is generally from sixth street west to the Bay. This doesn't represent a specific scenario but rather what is possible for all types of scenarios (including the worst case scenario).

CITY ACTIONS TO MITIGATE RISK

PLACE A DOT NEXT TO THE CITY ACTIONS YOU THINK ARE MOST IMPORTANT

1. Continue to repair and replace damaged docks at Berkeley waterfront.
2. Collaborate with the California Office of Emergency Services, the California Geological Survey, and the Federal Emergency Management Agency onl tsunami hazard mitigation measures for Berkeley's maritime communities.

PERSONAL ACTIONS TO MITIGATE RISK

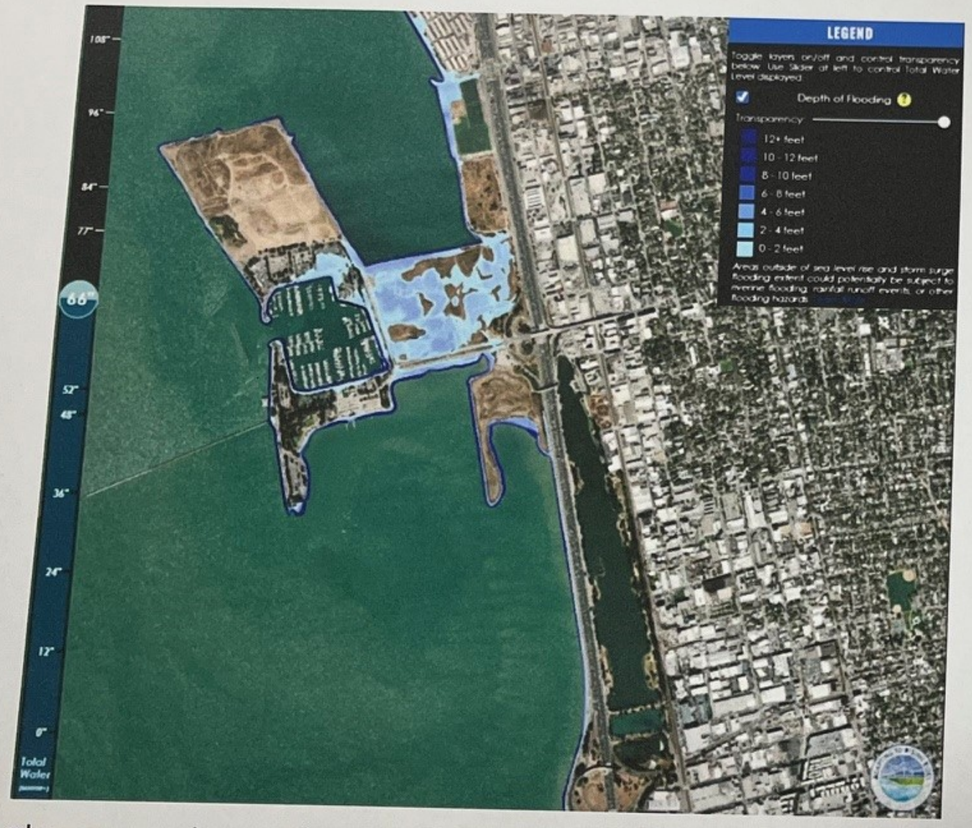
PLACE A DOT NEXT TO PERSONAL ACTIONS YOU'VE TAKEN

1. Familiarized myself with Berkeley's tsunami inundation area (map to the left).
2. Learned indications of tsunami and what to do.
3. Signed up for AC Alert and Tsunami Zone.
4. Bookmarked Berkeley's Emergency Map.
5. Familiarized myself with Berkeley's Outdoor Warning System
6. Created household evacuation plan for tsunami.
7. Considered flood insurance

Questions or comments? Write them on a post it note!

SEA LEVEL RISE

About the Hazard:
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. Damage from sea level rise may include increased infiltration rates into sewer systems, flooding of basements, and destroying underground infrastructure. Toxic materials may also move and release. Rising groundwater will also increase liquefaction hazards in response to earthquakes.



This map shows the Berkeley shoreline areas prone to permanent inundation due to 2 feet of sea level rise (a very likely scenario by 2100).

CITY ACTIONS TO MITIGATE RISK

PLACE A DOT NEXT TO CITY ACTIONS YOU THINK ARE MOST IMPORTANT

1. Continue to ensure new and existing public and private developments and infrastructure are protected from flooding due to sea-level rise through the permitting process.
2. Identify funding and nature based solutions to adapt to sea level rise at Berkeley Waterfront areas at risk of future inundation.
3. Conduct a groundwater study on impacts of groundwater rise combined with sea level rise.

PERSONAL ACTIONS TO MITIGATE RISK

PLACE A DOT NEXT TO ACTIONS YOU'VE TAKEN

1. Considered raising living spaces during a major home renovation or construction project.
2. Taken steps to reduce carbon emissions.

Questions or comments? Write them on a post it note!

Other Ideas

What level of coord-ination between CA/City for student populations (4704 area code) will campus be sanctuary?

Hazardous materials spilling during disasters (earthquake, flooding, etc.)
Encourage people to dispose before disaster

OES pres'n at Commission on Disability
→ best CBOs to engage with
→ emergency planning priorities

Dispose hazardous materials
- dispose days
Safe from EQ
High wind
fire

Electrical and removed gas
line + Meter

Arcgis map (online)
So people can zoom in
El Cerrito → real time location

other inspections?
fire Zone 1
more than five.
↳ reducing insurance

Watch Duty app