

Department of Fire and Emergency Services

**Agenda  
For the Regular Meeting of the  
Disaster and Fire Safety Commission**

**DATE: Wednesday, October 23, 2019**  
**TIME: 7:00 PM**  
**PLACE: Fire Department Training Facility - 997 Cedar Street**

**Preliminary Matters**

Call to Order.

Approval of the Agenda

Public Comment on Non-Agenda Matters

1. Fire Department and Office of Emergency Services Staff Report Including Measure GG  
Budget Update

**Consent Items**

2. Approval of Draft Minutes of Meeting of August 7, 2019\*
3. Approval of Draft Minutes of Meeting of September 25, 2019\*

**Action Items**

4. Council Referral to Update Seismic Transfer Tax Rebate Program for Sustainability Measures\*
5. 2019 Local Hazard Mitigation Plan Update\*

**Discussion Items**

6. Measure GG Public Outreach Update

7. Special Tax Assessment for Wildfire Prevention Possible Future Action\*
8. October's Public Safety Power Shutoff (PSPS) and Plans for Future PSPS's\*
9. Report from Community Disaster Prep Fair
10. Public Outreach on Emergency Preparedness
11. Future Agenda Items

## Adjournment

(\*Material attached for Commissioners for this month's meeting)

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Disaster & Fire Safety Commission  
Regular Meeting  
Wednesday, August 7, 2019  
997 Cedar Street, Berkeley, CA 94710

Present: Ruth Grimes, Gradiva Couzin, Bob Flasher, Jose Luis Bedolla, Annie Bailey, Toby Simmons, Shirley Dean, Paul Degenkolb

Absent: Toni Stein (Excused)

Staff: Khin Chin, Keith May

Public: Sarah Jones, Susan St. George, Chris Cullander

**Preliminary Matters**

Call to Order

G. Couzin called meeting to order at 7:01 pm

Approval of the Agenda

Move item 5 ahead of Item 3. Approved by Acclimation

Public Comment on Non-Agenda Items

Susan St. George said BDPNN is hosting a disaster preparedness Demo fair in October 2012.

Chris Cullander said McGee Baptist Church National Night Out went very well and was well attended.

Robert Flasher read an excerpt from the SF Chronicle article “8 fires prompt shelter in place order by Clayton”

1. Fire Department and Office of Emergency Services Staff Report

6/9 Grass fire on Olympus and Wilson. Area burned was contained to 100’x15’ area. Cause was the discharging of fireworks.

6/27 tree fire next to the train tracks at the end of Dwight. Homeless area abut no physical signs that camp is occupied.

7/4 BFD responded for a fire on the 1200 block of Josephine (not caused by fireworks). Fire contained to a shed in the backyard, a car and fence.

7/5 & 8/1 small homeless encampment fires.

8/4 BFD responded for an alarm sounding at 1501 Blake (senior living facility). A small fire in an apartment was extinguished by the sprinkler system, but caused a lot of smoke in the building. Cause determined to be discarded cigarette ashes in an unattended paper bag next to the couch.

7/25 BFD responded to a woman who was in the water for nearly an hour holding onto a support column. BFD deployed swimmers and Rescue Boat 456. Patient suffered from hypothermia but survived.

Interviews for the Emergency Services Coordinator position were held in July. Khin Chin has accepted one of the positions and we have submitted a name to HR for the other position.

Falck is the new 911 provider and the City of Berkeley contracted ambulance provider for 5150 non-emergency calls

The wildfire evacuation drill was conducted on August 4 with two more schedule for August 11 and August 25. Approximately 70 community members participated.

### **Consent Items**

2. Approval of Draft Minutes for Meeting of June 26, 2019\*

Motion approve minutes as revised: R. Grimes

Second: J. Bedolla

Vote: 8 Ayes: Grimes, Flasher, Bailey, Couzin, Degenkolb, Simmons, Dean, Bedolla;  
0 Noes; 1 Absent: Stein; Abstain:

### **Action Items**

3. Pacific Gas & Electric (PG&E) Public Safety Power Shutoff (PSPS)

Motion submit a memorandum to City Council that Outdoor Public Warning Siren System is made more crucial by PG&E planned power outages: Flasher

Second: Couzin

Vote: 8 Ayes: Grimes, Flasher, Bailey, Couzin, Degenkolb, Simmons, Dean, Bedolla;  
0 Noes; 1 Absent: Stein; Abstain:

4. Memo on Coordination of Vegetation Management\*
5. Recommendation for City Council Action on Ensuring Fire Equipment Access\*

**Discussion Items**

6. Public Outreach on Emergency Preparedness
7. Wildfire Priority Issues: Parking and Prevention\*
8. Future Agenda Items

**Adjournment**

Adjourn

Motion approve minutes as revised: R. Flashers

Second: P. Degenkolb

Vote: 8 Ayes: Grimes, Flasher, Bailey, Couzin, Degenkolb, Simmons, Dean, Bedolla;

0 Noes; 1 Absent: Stein; Abstain:

Adjourned at 9:09pm

Disaster & Fire Safety Commission  
Regular Meeting  
Wednesday, September 25, 2019  
997 Cedar Street, Berkeley, CA 94710

Present: Ruth Grimes, Gradiva Couzin, Jose Luis Bedolla, Annie Bailey, Toby Simmons, Shirley Dean, Paul Degenkolb, Jennifer Lombardi, Toni Stein

Absent:

Staff: Khin Chin, Keith May

Public: Sarah Jones, Chris Cullander, Mike Hoey, Greg Crutsinger

**Preliminary Matters**

Call to Order

G. Couzin called meeting to order at 7:00 pm

Approval of the Agenda

Move Item 4 and 5 forward of Item 3.

Approved by Acclimation

Public Comment on Non-Agenda Items

Mike Hoey from Berkeley Disaster Preparedness Neighborhood Network announced the East Bay Community Emergency Prep Fair on October 12, 10am-3pm at James Kenney Park.

1. Fire Department and Office of Emergency Services Staff Report

9/14 Small grass fire on Grizzly Peak Blvd. Area of burn was contained to 100'x50' area. Cause of the discharging of fireworks. Incident received a response from Berkeley, Moraga-Orinda, and Alameda County Fire Departments.

9/12 Two pedestrians were struck by an Amtrak train. Both victims were deceased – investigation turned over to Union Pacific Railroad.

A total of 5 fatalities within the City of Berkeley response area during a four day period.

Kino, Captain Wong's Search & Rescue canine, passed away on September 11<sup>th</sup>. Kino was able to deploy and work at multiple incidents and exercises. Katherine Hawn has been hired as an Emergency Services Coordinator. Her start date will be October 21.

The Berkeley Fire Department Accredited Local Academy (ALA) received unanimous Re-Accreditation approval at the September 12, 2019 State Board of Fire Services meeting. The ALA Re-Accreditation will be recognized for another five-year period.

Recruit Academy #109 is scheduled to begin October 21 and run for 20 weeks.

After Action reports for the evacuation exercises are currently being written.

### **Consent Items**

2. Approval of Draft Minutes for Meeting of August 7, 2019\*

Hold over to the next meeting due to discussion.

### **Action Items**

3. Recommendation for City Council Action on Ensuring Fire Equipment Access\*

Motion to Recommend to Immediately Fund and Implement the Safe Passages Program and Additional Actions to Ensure Emergency Equipment Access to All Parts of the City: Dean

Second: Stein

Vote: 9 Ayes: Grimes, Stein, Lombardi, Bailey, Couzin, Degenkolb, Simmons, Dean, Bedolla; 0 Noes; 0 Absent; 0Abstain:

### **Discussion Items**

4. Safe Passages Project Update
5. Vegetation Management Update
6. Wildfire Priority Issues: Parking and Prevention\*
7. Public Outreach on Emergency Preparedness

8. Update on Sirens Recommendation\*
9. Public Safety Power Shut-offs Possible Actions\*
10. Special Tax Assessment for Wildfire Prevention Possible Future Action\*
11. Drone Technology for Disaster Management
12. Future Agenda Items

### **Adjournment**

Adjourn

Motion adjourn: Couzin

Second: Simmons

Vote: 9 Ayes: Grimes, Stein, Lombardi, Bailey, Couzin, Degenkolb, Simmons, Dean, Bedolla; 0 Noes; 0 Absent; 0 Abstain:

Adjourned at 9:16pm



# Property Tax Transfer Rebate Program Update

Disaster & Fire Safety Commission

10/23/19

# Existing Seismic Retrofit Program

- **Eligibility**

- Voluntary program for residential properties or mixed-use with 2+ units
- Specific seismic improvements listed in guidelines (e.g. bolting, foundation)
- Permit required

- **Amount:**

- Up to 1/3 of the base 1.5% transfer tax rate
  - For an average Berkeley home currently selling for \$1.2M, this is a \$6,000 rebate
- Last 2 years, less than 10% of rebates have been redeemed

- **Process:**

- 1 year after transfer to complete seismic retrofit work
- Resident submits application, if work approved after final inspection then the City sends applicant a check

# Existing Transfer Tax Rebate Program

- 1/3 of 1.5% of property price eligible for seismic tax rebate

Year	# of Transfer Tax	# Seismic Tax Rebates	Residential Transfer Tax \$ amount	Total Eligible Rebate \$	Seismic Tax Rebate \$ Spent	% Rebate Funding Used
2016	933	142	\$13.7M	\$4.6M	\$ 826,993	18%
2017	869	77	\$13.5M	\$4.5M	\$ 518,057	10%
2018	885	72	\$14.5M	\$4.8M	\$ 538,805	9%

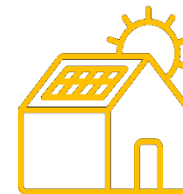
# Council Short Term Referral

- **Overview**

- Amend BMC Ch. 7.52, to expand existing Seismic Transfer Tax Rebate Program for qualifying electrification, energy efficiency & water conservation retrofits
- Passed 11/27/19, link:  
[https://www.cityofberkeley.info/Clerk/City\\_Council/2018/11\\_Nov/Documents/Item\\_24\\_Rev\\_Harrison.aspx](https://www.cityofberkeley.info/Clerk/City_Council/2018/11_Nov/Documents/Item_24_Rev_Harrison.aspx)

- **Goals**

- Incentivize electrification, energy efficiency, water efficiency, resilience
- Improve health and safety of existing homes
- Reduce greenhouse gas emissions
- Expand utilization of transfer tax rebate program



# Program Options for Consideration

## Potential Program Options

- What additional qualifying measures should be added?
  - Permit required; or
  - Permit not required
- Include Commercial/Industrial?
- Require seismic before sustainability?

## Potential Impacts

- Equity - Who is benefitted/burdened/excluded
- Potential for greenhouse gas emissions reductions, being fossil-fuel free
- General fund impacts
- Staffing impacts

# Potential Example Measures – Permit Required

Electrification	
1. Electrification-Ready Package: Panel upgrade plus wiring for circuits and outlets (240v)	10. Electric heat pump central heater
2. Electric HVAC Retrofit Package: Panel upgrade, wiring, circuit, outlet, HP HVAC install, cap gas	11. Electric heat pump water heater (replacing gas only)
3. Package HPWH Retrofit-panel upgrade, plus wiring, circuit, outlet and HPWH install, cap gas	12. Solar panel installation
4. Electric heat pump space heating/cooling	13. Electric vehicle charging station – Level 1
5. Upsize service drop line from electricity service line to roof (if required by PGE&)	14. Electric vehicle charging station – Level 2, likely needs panel upgrade
6. Electric service panel upgrade (if under 200 amps)	15. Wind energy generation installation
7. Upgrade wiring to code	16. Solar thermal water heater
8. Electrical work - wiring, circuit and outlet (240v) to replace gas appliances	17. Professional fees for energy consultants to demonstrate compliance with Energy Code
9. Electric heat pump ductless mini-split (replacing gas only)	

*Notes: These are potential measures only and are subject to change. Eligible items for electrification would only be accepted if applicant is replacing an existing natural gas system for electricity.*

# Potential Example Measures – Permit Required

Energy Efficiency	Water Efficiency	Resilience
1. Attic Insulation + Air Sealing (Quality Insulation Installation)	1. Water storage	1. Solar + storage
2. Window Replacements	2. Graywater 3-way valve system	2. Battery storage
3. Duct Replacement		3. Automatic gas shut-off valve

*Note: These are potential measures only and are subject to change.*

# Potential Example Measures – NO Permit Required

Electrification*	Energy Efficiency	Water Efficiency
1. Electric induction stove	1. Duct sealing	1. Water efficient toilet
2. Electric heat pump dryer	2. Wall or floor insulation	2. Water efficient irrigation system
		3. Graywater - Laundry to landscape
		4. Graywater - Non-potable rainwater catchment system



# Pilot Equity Program

- Existing transfer tax rebate program only provides benefits to those able to afford purchasing a home in Berkeley. There is a need to advance resilience in all homes.
- **Proposal:** Design a parallel pilot program for low-income homeowners and renters:
  - Propose Council recommend allocating funds for the development of this program, with funding for community groups to help develop the program
  - Program could directly fund existing single family and multifamily programs to streamline implementation process.
  - Equity white paper from UC Berkeley graduate student will provide background case and potential options for Council to consider.

# Draft Proposed Timeline/Next Steps

Month	Activities
October 2019	<ul style="list-style-type: none"><li>• Presentation - Disaster &amp; Fire Safety Commission</li></ul>
December 2019	<ul style="list-style-type: none"><li>• Presentation - Energy Commission</li></ul>
January 2020	<ul style="list-style-type: none"><li>• UC Berkeley Equity White Paper Complete</li></ul>
February 2020	<ul style="list-style-type: none"><li>• Final Council Report &amp; Amendment to Council</li></ul>

# Contact

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Climate Action Program Manager  
(510) 981-7403  
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# City of Berkeley

## Office of Emergency Services

Date: October 15, 2019

To: Members of the Disaster and Fire Safety Commission (DFSC)

From: Sarah Lana, Emergency Services Coordinator

Subject: Final Draft 2019 Local Hazard Mitigation Plan (LHMP)

### STAFF RECOMMENDATION TO DFSC

Recommend to the City Council that the Final Draft 2019 LHMP be adopted at its December 10, 2019 meeting.

### SUMMARY

Staff has developed the Final Draft 2019 LHMP to update the 2014 Local Hazard Mitigation Plan. The LHMP identifies natural hazards and their possible impacts on the Berkeley community and outlines a five-year strategic plan to protect the Berkeley community from future disasters. The Final Draft 2019 LHMP will come before Council at its December 10, 2019 meeting.

Adoption of the LHMP is required for the City to receive mitigation grant funding, and maximizes the City's post-disaster recovery funding. The Final Draft 2019 LHMP has undergone a thorough review process by the Berkeley community and reflects community concerns, as well as technical review by the California Board of Forestry, California Governor's Office of Emergency Services, and Federal Emergency Management Agency (FEMA), which has approved the document pending its adoption by City Council.

### CURRENT SITUATION AND ITS EFFECTS

The City of Berkeley's Local Hazard Mitigation Plan is an Appendix to the General Plan's Disaster Preparedness and Safety Element. The Plan was originally adopted by the City Council on June 22, 2004, and Council adopted an update in 2014. The plan must be updated once every five years, and the 2014 LHMP expires on December 16, 2019.

The LHMP is written in accordance with federal requirements so that Berkeley can maintain eligibility for federal mitigation grant funding. On September 20, 2019, FEMA determined the Final Draft LHMP to be eligible for final approval pending its adoption by the Berkeley City Council.

At this time, staff is requesting the Disaster and Fire Safety Commission (DFSC) and Planning Commission to each recommend to the City Council that Council adopt the Final Draft 2019 LHMP. The DFSC meets on October 23, 2019 and the Planning Commission is meeting on November 6, 2019, which will also serve as the First Public Hearing for the Final Draft 2019 LHMP. Staff will bring the Final Draft 2019 LHMP to the



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City Council for adoption at its December 10, 2019 meeting. If the plan is adopted by the City Council at this meeting, the City will not lapse in its compliance and will retain eligibility for mitigation grant funding described below in *Fiscal Impacts of Recommendation*.

To update the Plan for 2019, staff followed a multi-phased and broadly-inclusive process utilizing the latest hazard information. The Final Draft Plan reflects input from community members, City Commissions, institutional partners, and technical experts. Because the LHMP is written primarily to achieve compliance with federal requirements, it can be challenging for community members to navigate. To make the Final Draft 2019 Plan's contents more user-friendly for community members, staff also created the Digital LHMP, available at <https://arcg.is/reqbG>.

### FISCAL IMPACTS OF RECOMMENDATION

Council adoption of the 2019 LHMP will ensure that the City of Berkeley maintains eligibility for:

1. FEMA Hazard Mitigation grant applications in the approvals process. This includes \$4.5 million for the City's Retrofit Grants program, which helps Berkeley building owners increase safety and mitigate the risk of damage caused by earthquakes;
2. Additional FEMA Hazard Mitigation grant funding for future projects, including many described in the 2019 LHMP;
3. Receipt of additional post-disaster recovery funding from the State of California. Following a disaster, recovery costs are generally borne as: 75% federal, 18.75% State, 6.25% City. If the City has a current, adopted LHMP, the Governor and State Legislature can vote to authorize the State to cover the 6.25% City share. In a catastrophic disaster with public infrastructure losses in the hundreds of millions of dollars, this 6.25% cost share would be very significant.

### BACKGROUND

#### Description of Local Hazard Mitigation Plan

The city writes this plan based on federal requirements and to meet federal requirements as outlined in the Disaster Mitigation Act of 2000. By fulfilling these requirements with an LHMP that is updated on a five-year cycle, the City of Berkeley retains eligibility for federal Hazard Mitigation grant funding.

The LHMP has two functions. First, it identifies natural hazards in Berkeley and their possible impacts on Berkeley's people, buildings, infrastructure, and environment. Because of their potential to catastrophically impact Berkeley, earthquake and wildland-urban interface fire are considered to be Berkeley's hazards of greatest concern. Other



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hazards of concern include landslide, flooding, tsunami, extreme heat, climate change, and hazardous materials release.

Second, the Plan outlines a five-year strategy to reduce Berkeley's vulnerabilities to these potential impacts. The multi-faceted strategy builds on collaboration among City government, external partners, and community members to implement mitigation programs. Proposed Actions include strengthening Berkeley's building stock, reducing fire risk through code enforcement and vegetation management, and continuing research to better understand all hazards.

#### First Draft Plan Development Process

The first draft plan was developed using a collaborative process with partners and technical experts. The First Draft LHMP was circulated for public review for 73 days (December 18, 2018 through February 28, 2019). During this period, staff made presentations at 11 Commission meetings to provide interested persons with an in-person opportunity to ask questions and provide feedback on the First Draft 2019 LHMP.

#### *Plan Development*

In August 2018, the City convened an interdepartmental planning team to develop the First Draft 2019 LHMP. Over the three months, this Core Planning Team collaborated with numerous partner representatives, scientists, and hazard experts to update information in the 2014 Hazard Analysis. The 2019 LHMP accounts for new scientific research on hazards that could affect Berkeley, their areas of exposure, and their potential impacts.

City and partner representatives worked with the project manager to identify Berkeley's progress mitigation actions identified in 2014 (Element D.2). Next, the project manager, City representatives, and partner representatives combined information on the success of 2014 actions, updates to the hazard analysis, and guidance from the City's General Plan to identify "pre-draft" actions for the 2019 Mitigation Strategy (Element C).

These pre-draft actions were initially vetted by the City's Core Planning Team in October 2018. They were then further vetted by a diverse group of partner representatives at the December 2018 Institutional Community Partner Meeting. The Core Planning Team revised actions to reflect feedback received from institutional partners, then incorporated the actions into a complete 2019 First Draft Plan.

#### *Public Outreach Process*

In June 2018, staff released a survey to collect information from the community about their hazard concerns. The 518 responses informed the First Draft 2019 LHMP.

City staff has provided updates and presentations to the community throughout the 2019 LHMP development process, starting during development of the First Draft Plan



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with the Planning Commission (November 7, 2018) and Disaster and Fire Safety Commission (December 5, 2018).

On December 18, 2019, the City made the First Draft 2019 LHMP a public document for review and comment by the Berkeley community. Additionally, the City Manager sent a memo to City Council members and to secretaries of all City Commissions. The memos outlined the process for Commissions to provide feedback and attached the First Draft Plan's Executive Summary and Actions.

From December 18, 2018 to February 28, 2019:

- The City posted the First Draft Plan on the City website and at City libraries, and community members were invited to provide feedback on the plan.
- Staff presented the First Draft 2019 LHMP to Commissioners and community members for review and feedback at the following meetings:
  - January 3, 2019 Housing Advisory Commission
  - January 9, 2019 Parks and Waterfront Commission
  - January 9, 2019 Commission on Disability
  - January 10, 2019 Public Works Commission
  - January 16, 2019 Planning Commission
  - January 16, 2019 Commission on Aging
  - January 23, 2019 Disaster and Fire Safety Commission
  - February 4, 2019 Energy Commission
  - February 4, 2019 Peace and Justice Commission
  - February 7, 2019 Landmarks Preservation Commission
  - February 14, 2019 Community Environmental Advisory Commission

### Final Draft Plan Development Process

Development of the Final Draft 2019 LHMP involved incorporation of community feedback and technical review by State and federal authorities. These activities are detailed below.

### *Incorporating Community Feedback*

Following the February 28, 2019 comment deadline, City staff reviewed feedback from commissions and community members. Staff provided responses, as documented in *Public Comments and Staff Responses: First Draft 2019 Local Hazard Mitigation Plan*.

Four topics emerged repeatedly in community responses to the First Draft 2019 LHMP:

1. **Scope and Detail of the Mitigation Plan**  
Community comments included a number of questions and suggestions regarding hazards, topics, and programs to consider for inclusion in the LHMP. Many of those suggestions related to emergency management, but were not within the scope of the LHMP.



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Mitigation describes pre-disaster activities that reduce the impact of a disaster by providing passive protection at the time of disaster impact. If an activity or system creates a steady state of protection that exists both before and after a disaster occurs, then it is likely a mitigation activity. If the activity creates a system that can be “activated” after a disaster to reduce vulnerability, then it is likely not considered a mitigation activity.

### 2. Hazard Information: Digital LHMP

Many community members recommended that the plan include information on topics and hazards that were in fact addressed by the plan, but were likely challenging to find for community reviewers. Because the LHMP is written primarily to achieve compliance with federal requirements, staff recognizes that the document can be difficult to navigate. To address this gap and make the plan more user-friendly for community members, the LHMP Coordinator created the Digital LHMP, available at <https://arcg.is/reqbG>.

This web-based tool highlights key hazard information, interactive maps, and associated mitigation actions in a much more user-friendly interface than can be provided in document version being provided to FEMA. Staff hopes that this structure helps to better educate the community about the key information contained in the plan. Staff also plans to adapt a version of the Digital LHMP that can be updated at more regular intervals as new hazard information arises.

### 3. Evacuation in the Berkeley Hills

Many responses included concerns about Wildland-Urban Interface Fire risk in the Berkeley Hills and how people will evacuate. The City is finalizing its draft Wildfire Evacuation Plan, which addresses evacuation strategy and process. While evacuation is not considered mitigation and is not described in detail in the plan, there are mitigation activities addressed in the plan that can make evacuation easier:

- a. Hills Roadways and Parking: As part of the Hills Roadways and Parking Action, the City is currently developing the Safe Passages Program, which is a project to support the City’s emergency evacuation plan by helping to ensure clear ingress for emergency vehicles and egress routes for evacuation. Project implementation will include evaluation of streets requiring parking restrictions, enforcement mechanisms, vegetation clearing and management, and a robust public education campaign to reduce risks and maximize benefits.
- b. Vegetation Management: The City runs a number of vegetation management programs. The Fire Department inspects over 1,400 parcels





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in Hazardous Fire Zones 2 and 3 in addition to responding to complaints. Many responses on this topics indicate that this may not be enough. As part of the Vegetation Management Action, the City's currently in-development Safe Passages Program includes seeking funding for vegetation clearing and management. The goal is to create a crew that would be available to assist with vegetation management on private and public property.

- c. **Pedestrian Evacuation Routes in the Hills:** The 2019 LHMP highlights paths in the hills areas as important elements of Berkeley's evacuation network. The Wildland-Urban Interface Fire information in Element B: *Hazard Analysis* describes how these pathways significantly reduce evacuation distances when compared to City streets alone. The *Hills Pedestrian Evacuation* Action presented in Element C: *Mitigation Strategy* outlines how the City hopes to continue working with partners to maintain and promote these public pathways for pedestrian evacuation. Some community responses identified concerns about the state of these pathways and who they serve. These concerns are noted. The City is focusing on path maintenance and key improvements as an important supplement to the existing network of streets in the hills. Paths can contribute to the limited evacuation routes currently available to community members in the hills.

#### 4. Overhead Utility Lines

Many responses expressed concerns about the threat of overhead utility wires. The 2019 LHMP includes the *Undergrounding* Action in Element C: *Mitigation Strategy*. This action describes the City's efforts to reduce the potential threat of these wires specifically in the Berkeley Hills. The action describes undergrounding projects that have been prioritized and or are underway. Each year, Pacific Gas & Electric credits the City of Berkeley with 525,000 credits for use in undergrounding utilities. Under Rule 20A, the City utilizes these credits on utility undergrounding projects that PG&E performs. The City may also borrow up to five years (2.6 million) of future credits at a time to help fund existing approved projects.

At this time, funding alternatives have not been identified.

The General Plan prioritizes undergrounding utilities along designated evacuation routes. See *Disaster Preparedness and Safety Element Policy S-1: Response Planning, Actions B and C*, *Policy S-22: Fire Fighting Infrastructure, Action A*; and *Transportation Element Policy T-28, Action E*.



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Based on feedback, staff incorporated appropriate changes into the Final Draft Plan, as documented in *Summary of Changes to the City of Berkeley's First Draft 2019 Local Hazard Mitigation Plan*. Both of these documents are available at [www.CityofBerkeley.info/Mitigation](http://www.CityofBerkeley.info/Mitigation) and at City libraries (see attachment: Review Guide for 2019 Final Draft LHMP).

### *Board of Forestry Review*

When adopted by City Council, the 2019 LHMP will serve as an Appendix to the General Plan's *Disaster Preparedness and Safety* Element. As part of the 2019 LHMP update, City staff worked with the California Department of Forestry and Fire Protection (Cal Fire) to meet requirements of Government Code 65302.5. This new code requires that when the City updates the LHMP, the City also review and update the Safety Element of the General Plan to address fire risk. The City submitted the current General Plan and the Final Draft 2019 LHMP for Board of Forestry Review. At its meeting on June 11, 2019, the Board of Forestry and Fire Protection reviewed these documents, determined that they met Code requirements, and provided general recommendations for future collaboration.

### *Federal Emergency Management Agency Review*

The LHMP is written in accordance with federal requirements so that Berkeley can maintain eligibility for federal mitigation grant funding. Review of the Final Draft Plan included assessment by the Federal Emergency Management Agency in August 2019. On September 20, 2019, FEMA determined the Final Draft LHMP to be eligible for final approval pending its adoption by the Berkeley City Council.

### CONCLUSION

Development of the 2019 LHMP update involved a highly-collaborative process with hazard experts, scientists, key Berkeley institutions, City Commissions, and individual community members. This inclusive effort has resulted in a cutting-edge document that describes the risks our community faces, as well as a path forward to protect our people, buildings, infrastructure, and environment in the next disaster.

Adopting the 2019 LHMP will provide a roadmap for the City to continue its work to make the community safer. It will also enable the City to use external resources for the effort. The Final Draft 2019 LHMP meets the technical needs of City government and reflects the will of the community.

### Attachments:

- 1) Review Guide: 2019 Final Draft LHMP
- 2) Executive Summary of 2019 Final Draft LHMP



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## Office of Emergency Services

### **Review Guide: 2019 Final Draft LHMP**

The complete Final Draft 2019 Local Hazard Mitigation Plan (LHMP) is over 300 pages long. For this reason, it has not been printed and appended to this letter. Printed copies of the complete Final Draft 2019 LHMP have been placed at all City libraries and digital versions are available for review at [www.CityofBerkeley.info/Mitigation](http://www.CityofBerkeley.info/Mitigation).

In addition to the complete Final Draft Plan, the Mitigation webpage also provides:

**1) Public Comments and Staff Responses: First Draft 2014 Local Hazard Mitigation Plan**

This document provides all feedback received as part of the community review process for the First Draft 2019 Local Hazard Mitigation Plan, along with staff responses to this feedback. When feedback resulted in modifications to the Plan, those modifications are described as part of the staff response.

**2) Summary of Changes to the City of Berkeley's First Draft 2019 Local Hazard Mitigation Plan**

This document outlines the revisions made to the First Draft LHMP that are present in the Final Draft 2019 Local Hazard Mitigation Plan.

**3) Link to the Digital Mitigation Plan (also at <https://arcg.is/reqbG>)**

This web-based tool highlights the Final Draft 2019 LHMP's key hazard information, interactive maps, and associated mitigation actions in a much more user-friendly interface than can be provided in the traditional plan created to meet FEMA requirements.

# Executive Summary

Berkeley is a vibrant and unique community. But every aspect of the city – its economic prosperity, social and cultural diversity, and historical character – could be dramatically altered by a disaster. While we cannot predict or protect ourselves against every possible hazard that may strike the community, we can anticipate many impacts and take steps to reduce the harm they will cause. We can make sure that tomorrow’s Berkeley continues to reflect our current values.

City government and community members have been working together for years to address certain aspects of the risk – such as strengthening structures, distributing disaster supply caches, and enforcing vegetation management measures to reduce fire risk. The 2004 Disaster Mitigation Plan formalized this process, ensuring that these activities continued to be explored and improved over time. The 2014 Local Hazard Mitigation Plan continued this ongoing process to evaluate the risks that different hazards pose to Berkeley, and to engage the community in dialogue to identify the most important steps that the City and its partners should pursue to reduce these risks. Over many years, this constant focus on disasters has made Berkeley, its residents and businesses, much safer.

The federal Disaster Mitigation Act of 2000 (DMA 2000) calls for all communities to prepare mitigation plans. The City adopted a plan that met the requirements of DMA 2000 on June 22, 2004, and an update on December 16, 2014. This is the 2019 update to that plan, called the 2019 Local Hazard Mitigation Plan (2019 LHMP).

## ***Plan Purpose***

The 2019 LHMP serves three functions:

1. The 2019 LHMP documents our current understanding of the hazards present in Berkeley, along with our vulnerabilities to each hazard – the ways that the hazard could impact our buildings, infrastructure, community, and environment.
2. The document presents Berkeley City government’s Mitigation Strategy for the coming five years. The Mitigation Strategy reflects a wide variety of both funded and unfunded actions, each of which could reduce the Berkeley’s hazard vulnerabilities.
3. By fulfilling requirements of the DMA 2000, the 2019 LHMP ensures that Berkeley will remain eligible to apply for mitigation grants before disasters, and to receive federal mitigation funding and additional State recovery funding after disasters.

## ***Plan Organization***

Unlike prior versions of the plan, the 2019 LHMP has been structured to specifically address DMA 2000 requirements. The 2019 LHMP is organized as follows:

### *Element A: Planning Process*

This section of the 2019 LHMP describes the process used to develop the document, including how partners, stakeholders, and the community were engaged. It also addresses the City’s approach to maintaining the 2019 LHMP over the five-year planning cycle.

*Element B: Hazard Analysis*

This section of the 2019 LHMP outlines the different hazards present in Berkeley. Analysis of each hazard includes the areas of Berkeley with exposure to the hazard, the potential impacts of each hazard, and Berkeley's vulnerabilities to each hazard.

*Element C: Mitigation Strategy*

The Mitigation Strategy section first documents the authorities, policies, programs, and resources that the City brings to bear in implementing mitigation actions. Second, this section outlines a comprehensive range of specific mitigation actions and projects designed to reduce Berkeley's hazard vulnerabilities. This section also describes how the 2019 LHMP is integrated with other City plans.

*Element D: Plan Review, Evaluation, and Implementation*

This section describes how changes in development have influenced updates to the 2019 LHMP. It also provides a detailed description of Berkeley's progress on the Mitigation Strategy proposed in 2014.

*Element E: Plan Adoption*

This section will be used to document formal adoption of the Final Draft 2019 LHMP by the Berkeley City Council.

In the pages that follow, this Executive Summary describes highlights from Element B: *Hazard Analysis* and Element C: *Mitigation Strategy*, as well as any key updates that were made to the section since the 2014 version.

## Element B: Hazard Analysis

To become disaster resilient, a community must first understand the existing hazards and their potential impacts. Berkeley is exposed to a number of natural and human-caused hazards that vary in their intensity and impacts on the city. This mitigation plan addresses six natural hazards: earthquake, wildland-urban interface (WUI) fire, flood, landslide, and tsunami. Each of these hazards can occur independently or in combination, and can also trigger secondary hazards.

Although this plan is focused on natural hazards, four human-caused hazards of concern are also discussed: hazardous materials release, climate change,<sup>1</sup> extreme heat events, and terrorism. They are included because of their likelihood of occurrence and the magnitude of their potential consequences, as outlined in the table below.

**Table 1. Summary of Hazard Analysis**

<b>Hazard</b>	<b>Likelihood</b>	<b>Severity of Impact</b>
<b>Earthquake</b>	Likely	Catastrophic
<b>Wildland-Urban Interface Fire</b>	Likely	Catastrophic
<b>Rainfall-Triggered Landslide</b>	Likely	Moderate
<b>Floods</b>	Likely	Minor
<b>Tsunami</b>	Possible	Moderate
<b>Climate Change</b>	Likely	Moderate to Catastrophic*
<b>Extreme Heat</b>	Likely	Moderate to Catastrophic*

*\*Consequence levels for climate change and extreme heat depend highly on the success of global climate mitigation over the coming decades. If greenhouse gas emissions are significantly reduced, and carbon sequestration is increased, impacts may be moderate. If emissions remain steady at present levels or even increase, consequences may increase to catastrophic, although effects will differ widely over the globe.<sup>23</sup>*

Hazardous materials release is described only as a cascading impact of a natural hazard. Because this plan focuses on natural hazards as emphasized in DMA 2000, likelihood and consequence levels for hazardous materials release and terrorism are not defined.

## ***Hazards of Greatest Concern***

### **Earthquake**

We do not know when the next major earthquake will strike Berkeley. The United States Geological Survey states that there is a 72% probability of one or more M 6.7 or greater earthquakes from 2014 to 2043 in the San Francisco Bay Region.<sup>4</sup> There is a 33% chance that a 6.7 or greater will occur on the Hayward fault system between 2014 and 2043.<sup>5</sup> This means that many Berkeley residents are likely to experience a severe earthquake in their lifetime.

A catastrophic earthquake on the Hayward Fault would cause severe and violent shaking and three types of ground failure in Berkeley. Surface fault rupture could occur in the Berkeley hills along the fault, damaging utilities and gas lines that cross the fault. Landslides are expected in the Berkeley hills during the next earthquake, particularly if the earthquake occurs during the rainy winter months. Landslide movement could range from a few inches to tens of feet. Ground surface displacements as small as a few inches are enough to break typical foundations. Liquefaction is very likely in the westernmost parts of the city and could occur in much of the Berkeley flats. Liquefaction can destroy pavements and dislodge foundations.

Shaking and ground failure is likely to create impacts that ignite post-earthquake fires. Firefighting will be simultaneously challenged due to broken water mains and damage to electrical, transportation, and communication infrastructure.

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. Depending on the disaster scenario, one hundred people could be killed in Berkeley alone, and many more would be injured. 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.

Low-income housing units are expected to be damaged at a higher rate than other residences. Other types of housing, such as condominiums, may replace them when land owners rebuild. This could lead to profound demographic shifts in Berkeley.

### **Wildland-Urban Interface Fire**

Berkeley is vulnerable to a wind-driven fire starting along the city's eastern border. The fire risk facing the people and properties in the eastern hills is compounded by the area's mountainous topography, limited water supply, minimal access and egress routes, and location, overlaid upon the Hayward Fault. Berkeley's flatlands are also exposed to a fire that spreads west from the hills. The flatlands are densely-covered with old wooden buildings housing low-income and vulnerable populations, including isolated seniors, people with disabilities, and students.

The high risk of wildland-urban interface (WUI) fire in Berkeley was clearly demonstrated in the 1991 Tunnel Fire, which destroyed 62 homes in Berkeley and more than 3,000 in Oakland. Accounts of major wildfires in Berkeley date back to at least 1905 when a fire burned through

Strawberry Canyon and threatened the University campus and the small Panoramic Hill subdivision. Other major fires occurred in the 1970s and 1980s.

In 1923, an even more devastating fire burned through Berkeley. It began in the open lands of Wildcat Canyon to the northeast and, swept by a hot September wind, penetrated residential north Berkeley and destroyed nearly 600 structures, including homes, apartments, fraternities and sororities, a church, a fire station and a library. The fire burned downhill all the way to Shattuck Avenue in central Berkeley.<sup>6</sup>

If a fire occurred today that burned the same area, the loss to structures would be in the billions of dollars.<sup>7</sup> Destruction of contents in all of the homes and businesses burned would add hundreds of millions of dollars<sup>8</sup> to fire losses. Efforts to stabilize hillsides after the fire to prevent massive landslides would also add costs. Depending on the speed of the fire spread, lives of Berkeley residents could also be lost. Many established small businesses, homes, and multi-family apartment buildings, particularly student housing, would be completely destroyed, changing the character of Berkeley forever.



### ***Natural Hazards of Concern***

This plan identified three additional natural hazards of concern: rainfall-triggered landslide, floods, and tsunami. These hazards could cause significant damage and losses in Berkeley. However, unlike earthquake and WUI fire, their impacts are likely to be smaller, and confined to specific areas.

#### **Rainfall-Triggered Landslide**

Berkeley has a number of deep-seated landslides that continuously move, with the rate of movement affected by rainfall and groundwater conditions. Significant localized areas of the Berkeley hills face risk from landslide, and a major slide could endanger lives and impact scores of properties, utilities and infrastructure.

#### **Floods**

Floods also could damage property and cause significant losses in Berkeley. Flooding can occur when stormwater exceeds the capacity of a creek channel, or the capacity of the storm drain system. Creek flooding in Berkeley has the potential to affect about 675 structures, mainly in the western, industrial area of the city. It is unlikely that floodwaters will reach higher than three feet, but damages to homes, businesses, and their contents could total over \$160 million. Storm drain overflow creates localized flooding in many known intersections in Berkeley. With few properties covered by flood insurance, these costs would be borne primarily by Berkeley residents and businesses.

#### **Tsunami**

Tsunamis, though rare inside the San Francisco Bay, can occur from large offshore subduction style earthquakes around the Pacific Rim. Small, local tsunamis can also result from offshore strike-slip Faults such as parts of the San Andreas Fault of the Peninsula and the Hayward Fault through San Pablo Bay. The March 2011 Japan earthquake generated a devastating tsunami, which reached the Bay Area and caused minor damage to docks and floats in the Berkeley Marina. A larger tsunami could impact much more of Berkeley's western shores. Buildings, infrastructure, and roadways could be damaged, and debris and hazardous materials could cause post-tsunami fires. Deaths are possible if individuals choose not to evacuate hazardous areas, do not understand tsunami warnings, or are unable to evacuate.

## ***Manmade Hazards of Concern***

While the focus of the 2019 LHMP is on natural hazards as emphasized in the Disaster Mitigation Act of 2000 (DMA 2000),<sup>9</sup> the plan provides analysis of four manmade hazards of concern. Climate change is described because its impacts are likely to exacerbate the natural hazards of concern identified in the plan. The 2019 LHMP specifically addresses the hazard of extreme heat events because they are projected to increase exponentially in the next century as climate change continues. Hazardous materials release is addressed in this mitigation plan as a potential impact from a natural hazard. Terrorism is identified as a hazard of concern but is not analyzed in-depth.

## **Climate Change**

Like regions across the globe, the San Francisco Bay Area is already experiencing negative impacts of climate change. These impacts will continue to grow in intensity and will disproportionately affect communities such as the elderly, children, people with disabilities, and people with low incomes.

The severity of these impacts will depend on the amount of greenhouse gas emissions produced worldwide over the coming decades. Mitigation of further emissions will reduce Berkeley's exposure to climate change. Berkeley's Climate Action Plan<sup>10</sup> identifies the City's plan for emissions reductions, known as climate change mitigation. Simultaneously, we are already experiencing climate change impacts that will intensify over time—including sea level rise, prolonged poor air quality from wildfires, drought, severe storms, and extreme heat – so it is also critical that Berkeley adapt to current and projected impacts in order to protect Berkeley's community, infrastructure, buildings, and economy, known as climate change adaptation.

Climate change will have direct impacts and will also exacerbate the natural hazards of concern outlined in this plan. Rising sea levels have the potential to impact infrastructure and community members in west Berkeley and the Berkeley waterfront. This will increase Berkeley's exposure to tsunami inundation and to flooding of critical infrastructure in these areas, which includes sanitary sewers, state highways, and railroad lines. Increased temperatures, when coupled with prolonged drought events, can increase the intensity of wildfires that may occur, and pose significant health and safety risks to people. By 2100, most of the Bay Area will average six heat waves per year, each an average length of ten day.<sup>11</sup> Shorter, more intense wet seasons will make flooding more frequent, and may increase the landslide risk in the Berkeley hills. California may experience greater water and food insecurity, and drought will become a more persistent issue as the effects of climate change deepen.

## **Extreme Heat Events**

Multiple factors contribute to the extreme heat hazard, including very high temperatures, nights that do not cool down, consecutive days of extreme heat, and extreme heat during unexpected times of the year. Extreme heat events impact public health, increase fire risk, damage critical facilities and infrastructure, and worsen air quality.

Social factors play a key role in vulnerability to extreme heat events, meaning that people with disabilities, chronic diseases, the elderly, and children under five are the most at risk to heat-

related illnesses.<sup>12</sup> Across California, the highest risk of heat-related illness occurs in the typically cooler regions found in coastal areas like Berkeley.

Projections indicate that the number of extreme heat days, warm nights, and heat waves will increase exponentially: by 2099, the City of Berkeley is expected to average 18 days per year with temperatures over 88.3 degrees F.

### **Hazardous Materials Release**

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 City has identified fifteen facilities in Berkeley with sufficiently large quantities of toxic chemicals to pose a high risk to the community. Hazardous materials also travel through Berkeley by truck and rail. Natural hazards identified in the plan could trigger the release of hazardous materials.

### **Terrorism**

It is not possible to estimate the probability of a terrorist attack. Experts prioritize terrorism readiness efforts by identifying critical sites and assessing these sites' vulnerability to terrorist attacks. City officials are currently working with State and regional groups to prevent and prepare for terrorist attacks.

### ***Access and Functional Needs***

This plan recognizes that there are many individuals that are still disproportionately vulnerable during disasters. People with access and functional needs are defined as community members who may have additional needs before, during and after an incident in functional areas, including but not limited to: maintaining independence, communication, transportation, supervision, and medical care. Individuals in need of additional response assistance may include those who have disabilities, live in institutionalized settings, are elderly, are children, are from diverse cultures, have limited English proficiency, or are non-English speaking, or are transportation disadvantaged. An individual with a disability is defined by the ADA as a person who had a physical or mental impairment that substantially limits one or more major life activities, a person who has a history or record of such an impairment, or a person who is perceived by others as having such an impairment. The ADA does not specifically name all of the impairments that are covered.

## ***Summary of Changes to the Hazard Analysis***

The 2019 LHMP contains numerous updates to facts, figures, and descriptions. The City has incorporated the newest-available hazard data, including impact maps for particular scenarios. The City and its partners have provided additional descriptions, details and definitions to explain the science of these hazards and their potential impacts. Advances in GIS mapping technology have enabled the City to present maps that help to visualize information.

Institutional community partners have updated information regarding their vulnerabilities to the described hazards, as well as significant mitigation activities that they have completed, are in progress, or planned for the coming five years.

Within the historical section for each hazard, the City has added information about any instances of the hazard affecting Berkeley since 2014. Throughout the plan, the City has updated financial loss estimates for inflation.

## **Hazards Described in the 2014 Plan**

For the first time, the plan identifies extreme heat events as a hazard of concern. Significant changes and updates to the analysis of each hazard are described below:

### **Earthquake (Section B.5)**

- The 2019 LHMP integrates the 2018 HayWired scenario developed by the USGS to help illustrate the potential impacts of a catastrophic earthquake near Berkeley. The plan now includes five maps with data from the scenario.
- Berkeley's liquefaction hazard is now mapped using both overall levels of susceptibility and probability of liquefaction in the 7.0M HayWired scenario.
- The seismic stability of City-owned and leased buildings has been updated to reflect significant retrofit and rebuilding efforts since 2014.
- The City has updated the plan to describe Berkeley's progress on mitigating earthquake vulnerabilities in privately-owned buildings. Detailed analysis along with three new maps have been provided to describe and illustrate the locations of potentially seismically vulnerable buildings, including unreinforced masonry buildings, soft story buildings, non-ductile concrete buildings, and tilt-up or other rigid-wall flexible diaphragm buildings.
- The Earthquake section includes updated descriptions from Key Institutional Partners about mitigation efforts completed or planned. Updated partner profiles include UC Berkeley, Berkeley Lab, Berkeley Unified School District, East Bay Municipal Utility District, AT&T, and Alta Bates Summit Medical Center.
- Earthquake risk and loss estimates have been updated to integrate regional estimates from the 2018 HayWired earthquake scenario.

### **Wildland-Urban Interface Fire (Section B.6)**

The 2019 LHMP integrates hazardous fire zones as defined by the City of Berkeley and the California Department of Forestry onto one map.

The 2019 LHMP presents a new map overviewing the locations of pedestrian pathways in Berkeley. These pathways are key resources for pedestrian evacuation from wildland-urban interface fire.

### **Rainfall-Triggered Landslide (Section B.7)**

This section has been updated to describe hazard occurrences in Berkeley since 2014.

### **Floods (Section B.8)**

The Floods section has been updated to include newly-revised flood exposure maps for Berkeley from the FEMA National Flood Insurance Program.

### **Tsunami (Section B.9)**

The Tsunami section now includes a map of Tsunami Evacuation Playbook zones. These zones, developed by the California Geological Survey, California Governor's Office of Emergency Services, and the National Ocean and Atmospheric Administration (NOAA), reflect more refined and detailed planning, in which forecasted tsunami amplitudes, storm surge, and tidal information can help guide what areas might be inundated.

The Tsunami section also includes new information about infrastructure vulnerabilities of the Berkeley Marina, based on recent tsunami inundation modeling by the California Geological Survey, University of Southern California, California State Lands Commission, and California Governor's Office of Emergency Services.

### **Climate Change (Section B.10)**

The Climate Change section has been updated to use the latest available science and policy guidance on the direct and secondary impacts of climate change. It describes recent events that demonstrate climate change impacts that we are already experiencing.

The section provides new analysis of amounts of sea-level rise anticipated under different projected carbon emissions scenarios, as well as new maps of expected levels of inundation from 2-ft, 4-ft, and 5.5-ft sea level rise scenarios using the Adapting to Rising Tides Bay Shoreline Flood Explorer.

### **Extreme Heat Events (Section B.11)**

Extreme heat events are a newly-introduced hazard of concern for the 2019 LHMP. The extreme heat events section describes factors that contribute to the extreme heat hazard, and describe how the Urban Heat Island Effect can further exacerbate impacts of extreme heat events. The section outlines the secondary hazards created by extreme heat, including public health impacts, fire, damage to critical facilities and infrastructure, and worsened air quality.

The section also describes the predicted average number of extreme heat days in Berkeley through the end of the century.

### **Hazardous Materials Release (Section B.12)**

The Hazardous Materials Release section contains updated figures on the number of sites with hazardous materials in Berkeley. Additionally, the section has been updated since 2014 to reflect Berkeley industrial sites with large quantities of extremely hazardous materials. These sites have been mapped for reference.

## Element C: Mitigation Strategy

### *Authorities, Policies, Programs and Resources*

Through many years of diligent effort by City government and the community, Berkeley has developed many innovative initiatives to increase our disaster resilience. The authorities, policies, programs and resources that Berkeley will use to support execution of the 2019 LHMP Mitigation strategy include:

- The City has strengthened its ability to serve the community during and after disasters by seismically upgrading or replacing buildings that house critical City functions. In 2017, work was completed on the James Kenney Recreation Center and the Center Street Garage. Since 2004 the City has strengthened or rebuilt all seven of the City's fire stations, the historic Ratcliff Building (which houses the Public Works Department Operations Center), the Civic Center (which houses many key government functions), the Public Safety Building, a new animal shelter, and all libraries.
- The Berkeley Unified School District, supported by voter-approved bonds, has strengthened all public schools.
- The City of Berkeley has worked diligently to enhance public safety and reduce physical threats from earthquakes by requiring owners of soft story and unreinforced masonry buildings to retrofit their structures.
  - Berkeley was the first city in the nation to inventory the community's soft-story buildings. In 2014 Berkeley mandated retrofit of soft story buildings with five or more dwelling units. Since then, 61 percent of these identified buildings have had retrofits completed.
  - Over 99% of Berkeley's 700 unreinforced masonry buildings have been retrofitted or demolished since a City mandate began in 1991.
- The City offers a comprehensive suite of programs to encourage the community to strengthen buildings to be more hazard-resistant.
  - In early 2017, the Building and Safety Division developed a new Retrofit Grants program with funding from a Hazard Mitigation Grant from the Federal Emergency Management Agency (FEMA) and the California Governor's Office of Emergency Services (Cal OES).
  - Since July 2002, the City has distributed over \$12 million to homeowners through the Transfer Tax Rebate Program, which reduces the real estate transfer tax to building owners who perform seismic safety work.
  - The City participates in the Earthquake Brace + Bolt (EBB) program, a grant program administered by the California Earthquake Authority, providing grants of up to \$3,000 for seismic retrofits of owner-occupied residential buildings with 1-4 dwelling units.
- The City, working together with key partners, is using a comprehensive strategy to aggressively mitigate Berkeley's wildland-urban interface (WUI) fire hazard. These approaches include:

- Prevention through development regulations with strict building and fire code provisions, as well as more restrictive local amendments for new and renovated construction;
- Enforcement programs including annual inspections of over 1,200 high-risk properties annually;
- Natural resource protection through four different vegetation management programs;
- Improvement of access and egress routes;
- Infrastructure maintenance and improvements to support first responders' efforts to reduce fire spread.
- The Disaster Cache Program incentivizes community-building for disaster readiness. To date, the City has awarded caches of disaster response equipment to neighborhoods, congregations, and UC Berkeley Panhellenic groups that have undertaken disaster readiness activities.
- Berkeley's 2009 Climate Action Plan has served as a model for jurisdictions across the nation. The Climate Action Plan also guides the City's new climate adaptation strategy.

These programs, and many others, place Berkeley as a leader in disaster management. Long-term maintenance and improvements to these programs will support execution of the 2019 LHMP Mitigation strategy, and will help to protect the Berkeley community in our next disaster.

### ***Disaster Mitigation Goals and Objectives***

Berkeley will focus on three goals to reduce and avoid long-term vulnerabilities to the hazards identified in Element B: *Hazard Analysis*:

1. The City will evaluate and strengthen all City-owned properties and infrastructure, particularly those needed for critical services, to ensure that the community can be served adequately after a disaster.
2. The City will establish and maintain incentive programs and standards to encourage local residents and businesses to upgrade the hazard resistance of their own properties.
3. The City will actively engage other local and regional groups to collaboratively work towards mitigation actions that help maintain Berkeley's way of life and its ability to be fully functional after a disaster event.

Five objectives guide the mitigation strategy:

- A. Reduce the potential for loss of life, injury and economic damage to Berkeley residents and businesses from earthquakes, wildfires, landslides, floods, tsunamis, climate change, extreme heat, and their secondary impacts.
- B. Increase City government's ability to serve the community during and after hazardous events by mitigating risk to key City functions.
- C. Connect with residents, community-based organizations, institutions, businesses, and essential lifeline systems in order to increase mitigation actions and disaster resilience in the community.
- D. Preserve Berkeley's unique character and values from being compromised by hazardous

events.

- E. Protect Berkeley’s historically underserved populations from the impacts of hazardous events by applying an equity focus, including equal access, to mitigation efforts.

**Overview of Actions**

This plan identifies and analyzes 27 mitigation actions to reduce the impacts from hazards described in Element B: *Hazard Analysis*. This suite of actions addresses every natural hazard posing a threat to Berkeley, with an emphasis on new and existing buildings and infrastructure.

Tables 1, 2, and 3 below summarize all of the actions. The tables group actions by their priority level (see Element C.5.a for details on prioritization of actions), and identify the hazard(s) and each action addresses.

**Table 2. High-Priority Actions in mitigation strategy**

Name	Action	Hazards
<b>Building Assessment</b>	Continue appropriate seismic and fire safety analysis based on current and future use for all City-owned facilities and structures.	Earthquake Wildland-Urban Interface Fire Landslide Floods Tsunami Climate Change Extreme Heat
<b>Strengthen and Replace City Buildings</b>	Strengthen or replace City buildings in the identified prioritized order as funding is available.	Earthquake Wildland-Urban Interface Fire Landslide Floods Tsunami Climate Change Extreme Heat



<b>Name</b>	<b>Action</b>	<b>Hazards</b>
<b>Buildings</b>	Reduce hazard vulnerabilities for non-City-owned buildings throughout Berkeley.	Earthquake Wildland-Urban Interface Fire Landslide Floods Climate Change Extreme Heat
<b>Retrofit Grants</b>	Implementation of the Retrofit Grants Program which helps Berkeley building owners increase safety and mitigate the risk of damage caused by earthquakes	Earthquake
<b>Soft Story</b>	Continued Implementation of the Soft Story Retrofit Program, which mandates seismic retrofit of soft story buildings with 5+ residential units.	Earthquake
<b>Unreinforced Masonry (URM)</b>	Complete the ongoing program to retrofit all remaining non-complying Unreinforced Masonry (URM) buildings.	Earthquake
<b>Concrete Retrofit Ordinance Research</b>	Monitor passage and implementation of mandatory seismic retrofit ordinances for concrete buildings in other jurisdictions to assess best practices.	Earthquake
<b>Gas Safety</b>	Improve the disaster-resistance of the natural gas delivery system to increase public safety and to minimize damage and service disruption following a disaster.	Earthquake Wildland-Urban Interface Fire Landslide Tsunami
<b>Fire Code</b>	Reduce fire risk in existing development through fire code updates and enforcement.	Wildland-Urban Interface Fire
<b>Vegetation Management</b>	Reduce fire risk in existing development through vegetation management.	Wildland-Urban Interface Fire Climate Change
<b>Hills Pedestrian Evacuation</b>	Manage and promote pedestrian evacuation routes in Fire Zones 2 and 3.	Earthquake Wildland-Urban Interface Fire

<b>Name</b>	<b>Action</b>	<b>Hazards</b>
<b>Hills Roadways and Parking</b>	Improve responder access and community evacuation in Fire Zones 2 and 3 through roadway maintenance and appropriate parking restrictions.	Earthquake Wildland-Urban Interface Fire
<b>Undergrounding</b>	Coordinate with PG&E for the construction of undergrounding in the Berkeley Hills within approved Underground Utility Districts (UUDs).	Earthquake Wildland-Urban Interface Fire
<b>EBMUD</b>	Work with EBMUD to ensure an adequate water supply during emergencies and disaster recovery.	Earthquake Wildland-Urban Interface Fire
<b>Extreme Heat</b>	Reduce Berkeley's vulnerability to extreme heat events and associated hazards.	Climate Change Extreme Heat
<b>Hazardous Materials</b>	Mitigate hazardous materials release in Berkeley through inspection and enforcement programs.	Earthquake Wildland-Urban Interface Fire Landslide Floods Tsunami Climate Change
<b>Air Quality</b>	Define clean air standards for buildings during poor air quality events and use those standards to assess facilities for the Berkeley community.	Wildland-Urban Interface Fire Climate Change Extreme Heat
<b>National Flood Insurance Program (NFIP)</b>	Maintain City participation in the National Flood Insurance Program.	Floods
<b>Hazard Information</b>	Collect, analyze and share information with the Berkeley community about Berkeley hazards and associated risk reduction techniques.	Earthquake Wildland-Urban Interface Fire Landslide Floods Tsunami Climate Change Extreme Heat

<b>Name</b>	<b>Action</b>	<b>Hazards</b>
<b>Partnerships</b>	Coordinate with and encourage mitigation actions of key City partners.	Earthquake Wildland-Urban Interface Fire Landslide Floods Tsunami Climate Change Extreme Heat

**Table 3. Medium-Priority Actions in mitigation strategy**

<b>Name</b>	<b>Action</b>	<b>Hazards</b>
<b>Severe Storms</b>	Reduce Berkeley’s vulnerability to severe storms and associated hazards through proactive research and planning, zoning regulations, and improvements to stormwater drainage facilities.	Landslide Floods Climate Change
<b>Energy Assurance</b>	Implement energy assurance strategies at critical City facilities.	Earthquake Wildland-Urban Interface Fire Landslide Floods Tsunami Climate Change Extreme Heat
<b>Climate Change Integration</b>	Mitigate climate change impacts by integrating climate change research and adaptation planning into City operations and services.	Earthquake Wildland-Urban Interface Fire Landslide Tsunami Climate Change Extreme Heat
<b>Sea Level Rise</b>	Mitigate the impacts of sea level rise in Berkeley.	Climate Change
<b>Water Security</b>	Collaborate with partners to increase the security of Berkeley’s water supply from climate change impacts.	Climate Change

**Table 4. Low-Priority Actions in mitigation strategy**

Name	Action	Hazards
<b>Tsunami</b>	Mitigate Berkeley’s tsunami hazard.	Tsunami
<b>Streamline Rebuild</b>	Streamline the zoning permitting process to rebuild residential and commercial structures following disasters.	Earthquake Wildland-Urban Interface Fire Landslide Floods Tsunami

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<sup>1</sup> Human action directly influences the probability that climate change will occur. Climate change is referenced as a natural hazard here because of its potential to exacerbate natural hazards described in this plan.

<sup>2</sup> Ackerly, David. 2018. California’s Fourth Climate Change Assessment, San Francisco Bay Area Region Report. <http://www.climateassessment.ca.gov/regions/docs/20190116-SanFranciscoBayArea.pdf>

<sup>3</sup> <https://cal-adapt.org/tools/extreme-heat/>

<sup>4</sup> Detweiler, Shane and Wein, A., 2018, The HayWired Earthquake Scenario – Earthquake Hazards: U.S. Geological Survey Scientific Investigations Report 2017-5013-A-H, p.3.

<sup>5</sup> Detweiler, Shane and Wein, A., 2018, The HayWired Earthquake Scenario – Earthquake Hazards: U.S. Geological Survey Scientific Investigations Report 2017-5013-A-H, p.4.

<sup>6</sup> City of Berkeley. *Fire Hazard Mitigation Plan*. February 25, 1992.

<sup>7</sup> Total square footage of buildings in burn area is 9,386,281 square feet.

<sup>8</sup> In 2004, estimate was \$500 million.

<sup>9</sup> Public Law 106-390

<sup>10</sup> Berkeley Climate Action Plan (City of Berkeley, 2009) [www.cityofberkeley.info/climate/](http://www.cityofberkeley.info/climate/)

<sup>11</sup> San Francisco Bay Area 2017 Risk Profile (ABAG, 2017, p58-59)

[http://resilience.abag.ca.gov/wp-content/documents/mitigation\\_adaptation/RiskProfile\\_4\\_26\\_2017\\_optimized.pdf](http://resilience.abag.ca.gov/wp-content/documents/mitigation_adaptation/RiskProfile_4_26_2017_optimized.pdf)

<sup>12</sup> San Francisco Bay Area 2017 Risk Profile (ABAG, 2017) [http://resilience.abag.ca.gov/wp-content/documents/mitigation\\_adaptation/RiskProfile\\_4\\_26\\_2017\\_optimized.pdf](http://resilience.abag.ca.gov/wp-content/documents/mitigation_adaptation/RiskProfile_4_26_2017_optimized.pdf)

MEMO FOR DISCUSSION ON SPECIAL TAX ASSESSMENT FOR WILDFIRE PREVENTION – REVISED  
FOR OCTOBER COMMISSION MEETING- G COUZIN

To: Disaster and Fire Safety Commission  
From: Gradiva Couzin  
Date: 10/15/2019  
RE: Special tax assessment for wildfire prevention - Possible Future action

Greetings Fellow Commissioners,

I would like to share some information that may be useful in our discussion of a recommendation to City Council for reinstating a special assessment zone in the hills for Wildfire prevention.

Here's the background as I understand it:

- There was previously a special assessment (tax) in the Berkeley Hills for five years 1992-1997
- The tax was \$50 per household for 8300 households, which comes to \$415,000/yearly
- The district boundaries covered the hill area, and were the same as the zoning ordinance hill overlay district, under the assumption that the special zoning requirements for the hill area would cover the properties that should have the special requirements for vegetation management due to fire risk in the hills.
- This assessment funded fire prevention staff members: 3 civilian inspectors, one civilian supervisor, and a small portion of the salaries for the Fire Marshal, Deputy Chief and Fire Chief.
- The staff did extensive inspections and education efforts in the area, both scheduled and in response to complaints. They were able to work with people and get compliance, but were not in a capacity to fine or enforce compliance. In the event of a difficult situation, the Fire Marshal, as the person with authority, was called in.
- Money from the assessment district was also used to purchase three vans for the inspectors, to set up and pay for the chipper program, as well as some demonstration garden events to educate home owners and their landscape contractors.
- State law changed in 1997 and the special assessment district was found to not be in compliance. The city council at the time chose to allow it to lapse.

Here are some back-of-the-envelope calculations that might help to get us started in this conversation:

- Cost for 4 additional fire prevention staff: very rough estimate \$600k /year
- Approx 8300 households in the Hills Fire Zones 2 & 3
- Estimated per household assessment = \$72/year

I look forward to your thoughts and insight. Thank you,

Gradiva

MEMO FOR DISCUSSION ON PUBLIC SAFETY POWER SHUTOFFS - OCTOBER MEETING - G COUZIN

To: Disaster and Fire Safety Commission  
From: Gradiva Couzin  
Date: 10/15/2019  
RE: PG&E Power Safety Power Shutoffs - Notes and possible actions

Greetings Fellow Commissioners,

In light of the recent PG&E Power Safety Power Shutoff (PSPS) that impacted Berkeley, I would like to discuss what steps the City of Berkeley needs to take to better support our vulnerable populations.

The shutdown took place during a high fire hazard period, and we can expect this will be the case with future shutdowns as well.

What can the city do in the event of a PSPS to make sure that seniors, people with disabilities, and all of our community is safe?

I would like to discuss possible ideas with the Commission, such as the following:

- \* Can Senior Centers offer temporary shelter for Berkeley seniors who do not feel safe in their homes due to a PSPS?
- \* Can Berkeley's public buildings offer free charging stations for phones & devices? {NOTE: This was provided at Berkeley Public Libraries}
- \* If Berkeley is forecasted to have a PSPS and has 7 days to prepare, what public outreach and other actions will the city take? Can the city distribute LED lights or other emergency supplies?
- \* Does Berkeley (perhaps in combination with other cities or the state) have any ability to pressure PG&E to provide MORE power charging stations or other support in the event of a PSPS? {NOTE: Only a single location in Alameda County, located in Oakland Lake Merritt, was provided}
- \* Can the City set up generators at key locations such as the senior centers?

I look forward to your thoughts and suggestions.

Thank you,

Gradiva



# National Network

Information, Guidance and Training on the  
Americans with Disabilities Act



Call us toll-free  
1-800-949-4232 V/TTY

Find your regional center at  
[www.adata.org](http://www.adata.org)

Provided By:  
Pacific ADA Center  
1-800-949-4232 (Voice/TTY)  
(510) 285-5600 (Voice/TTY)  
[adatech@adapacific.org](mailto:adatech@adapacific.org)  
[www.adapacific.org](http://www.adapacific.org)

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## Emergency Power Planning for People Who Use Electricity and Battery Dependent Assistive Technology and Medical Devices

This emergency power planning checklist is for people who use electricity and battery dependent assistive technology and medical devices. Electricity and battery-dependent devices include.

- breathing machines (respirators, ventilators),
- power wheelchairs and scooters, and
- oxygen, suction or home dialysis equipment.

Some of this equipment is essential to your level of independence while other equipment is vital to keeping you alive! Use the checklist to make power-backup plans.

Review and update this checklist every six months (one way to remember to do this is when you set your clocks forward in the spring and back in the fall).





# Emergency Power Planning for People Who Use Electricity and Battery Dependent Assistive Technology and Medical Devices Checklist

Date Complete	Does not Apply	Item
<b>Planning Basics</b>		
		Create a plan for alternative sources of power.
		Read equipment instructions and talk to equipment suppliers about your backup power options.
		Get advice from your power company regarding type of backup power you plan to use.
		Regularly check backup or alternative power equipment to ensure it will function during an emergency.
		Teach many people to use your backup systems and operate your equipment.
		Keep a list of alternate power providers.
		<ul style="list-style-type: none"> <li>Ask your nearby police and fire departments and hospital if you could use them as a backup for your equipment power if your backup systems fail.</li> </ul>
		Label all equipment with your name, address, and phone number. Attach simple and clear instruction cards to equipment and laminate them for added strength.
		Keep copies of lists of serial and model numbers of devices, as well as important use instructions in a waterproof container in your emergency supply kits.
<b>Life-Support Device Users</b>		
		Contact your power and water companies about your needs for life-support devices (home dialysis, suction, breathing machines, etc.) in advance of a disaster.
		<ul style="list-style-type: none"> <li>Many utility companies keep a “priority reconnection service” list and map of the locations of power-dependent customers for use in an emergency. Contact the customer service department of your utility companies to learn if this service is available.*</li> </ul>
		Let your fire department know that you are dependent on life-support devices.
		All ventilator users should keep a resuscitation bag handy. The bag delivers air through a mask when squeezed.



Date Complete	Does not Apply	Item
		If you receive dialysis or other medical treatments, ask your provider for the plans in an emergency and where you should go for treatment if your site is not available after an emergency.
		<b>Oxygen Users</b>
		Check with your provider to determine if you can use a reduced flow rate in an emergency to extend the life of the system. Record on your equipment the reduced flow numbers so that you can easily refer to them.
		Be aware of oxygen safety practices:
		<ul style="list-style-type: none"> <li>• Avoid areas where there are gas leaks or open flames.</li> </ul>
		<ul style="list-style-type: none"> <li>• Post "Oxygen in Use" signs.</li> </ul>
		<ul style="list-style-type: none"> <li>• Always use battery powered flashlights or lanterns rather than gas lights or candles when oxygen is in use (to reduce fire risk).</li> </ul>
		<ul style="list-style-type: none"> <li>• Keep the shut-off switch for oxygen equipment near you so you can get to it quickly in case of emergency.</li> </ul>
		<b>Generator Users</b>
		Make sure use of a generator is appropriate and realistic.
		A 2,000 to 2,500-watt gas-powered portable generator can power a refrigerator and several lamps. (A refrigerator needs to run only 15 minutes an hour to stay cool if you keep the door closed. So, you could unplug it to operate other devices.)
		Operate generators in open areas to ensure good air circulation.
		Safely store fuel.
		<ul style="list-style-type: none"> <li>• The challenge when you live in an apartment is knowing how to safely store enough gasoline.</li> </ul>
		<ul style="list-style-type: none"> <li>• Store a siphon kit.</li> </ul>
		Test generators from time to time to make sure it will work when needed.
		<ul style="list-style-type: none"> <li>• Some generators can connect to the existing home wiring systems; always contact your utility company regarding critical restrictions and safety issues.</li> </ul>



Date Complete	Does not Apply	Item
		<b>Rechargeable Batteries</b>
		Create a plan for how to recharge batteries when the electricity is out.
		Check with your vendor/supplier to find alternative ways to charge batteries. Examples include:
		<ul style="list-style-type: none"> <li>• Connecting jumper cables to a vehicle battery.</li> <li>• Using a converter that plugs into a vehicle's cigarette lighter.</li> </ul>
		If you substitute a vehicle battery for a wheelchair battery, the charge will not last as long as a charge for a wheelchair's deep-cycle battery.
		If you use a motorized wheelchair or scooter, if possible store a lightweight manual wheelchair for emergency use.
		<ul style="list-style-type: none"> <li>• Stored extra batteries require periodic charging even when they are unused. If your survival strategy depends on storing batteries, closely follow a recharging schedule.</li> </ul>
		Know the working time of any batteries that support your systems.
		When you have a choice, choose equipment that uses batteries that are easily purchased from nearby stores.
		<b>When Power is Restored</b>
		Check to make sure the settings on your medical device have not changed (medical devices often reset to a default mode when power goes out).
		<b>Other Backup Plans</b>

\* Even if you are on the “priority reconnection service” list, your power could still be out for many days following a disaster. It is vital that you have power backup options for your equipment

## Sources for More Information

Emergency Preparedness: Taking Responsibility for Your Safety - Tips for People with Activity Limitations and Disabilities

[www.espfocus.org](http://www.espfocus.org)

Power-Dependent Equipment

<http://www.redcross.org/prepare/disaster/power-outage>

Disaster Resources for People with Disabilities and Emergency Managers

<http://www.jik.com/disaster.html>

Videos regarding generators:

- Generator Buying Advice - Consumer Reports' tests reveal the pros and cons of portable generators and the advantages of more expensive alternatives.

<http://www.consumerreports.org/cro/video-hub/home--garden/tools--power-equipment/generator-buying-advice/17037617001/5030179001/>

Portable Generators - When your power goes out, a portable generator can be a big help. But these generators can also pose hazards.

<http://www.consumerreports.org/cro/search.htm?query=generators&isTypeAhead=false>

For more information, call and speak to an ADA specialist at **1-800-949-4232**. All calls are confidential.

Content was developed by the Pacific ADA Center, and is based on professional consensus of ADA experts and the ADA National Network.



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## Chin, Khin

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**From:** bob flasher <rangerdude333@hotmail.com>  
**Sent:** Tuesday, October 01, 2019 10:43 AM  
**To:** Chin, Khin  
**Subject:** McBride/Conservancy Vegetation Management Plan Is Announced

Khin,

Will you forward this vegetation management plan to commissioners?

Bob

### **Professor McBride Releases Plan for Wildfire Prevention**

UC Berkeley Forestry Professor Emeritus Joe McBride and the Claremont Canyon Conservancy today issued a plan to manage vegetation in Strawberry and Claremont Canyons. The plan is published in anticipation of a grant that the University will be receiving from CalFire to make the hills above the campus, the campus itself, and the surrounding community safer in the event of another major wildfire.

McBride's plan is a comprehensive prescription using the best available wildfire and vegetation management science to mitigate fire hazards on the University Hill Campus which the California Department of Forestry and Fire Prevention (Cal Fire) considers to be a Very High Fire Severity Zone.

McBride cited three components of the plan which make it a valuable tool to guide the University. "The plan addresses the eucalyptus and conifer problem not addressed in previous plans. It addresses evacuation routes that could be blocked by fallen trees during a firestorm by removing those trees. "And, McBride noted, "the plan responds to the rare and endangered Alameda Whipsnake by setting aside 170 acres of habitat."

Speaking for the Conservancy, its president Jon Kaufman said, "Professor McBride's plan is the standard for future vegetation management locally. We urge the University to adopt it. In addition, it also is a model for other communities where managing vegetation is needed to limit the damage of future wildfires. We are extremely grateful to Professor McBride for developing this plan."

Jerry Kent, Conservancy Board Member and retired East Bay Regional Park District Assistant General Manager, warned "the current situation in the UC Hills is identical to what existed prior to the 1991 Oakland/Berkeley Tunnel Fire. Annual fall Diablo winds, steep inaccessible hillsides and unmaintained vegetation create the risk of ignition during any red flag condition.

Dr. Joe R. McBride is Professor Emeritus of Forestry and Landscape Ecology in the Department of Landscape Architecture and Environmental Planning and in the Department of Environmental Science, Policy and Management at UC Berkeley. He has specializations in vegetation and ecological analysis, urban forestry and historic landscape restoration. In addition to teaching, Professor McBride is a licensed forester who has worked as a consulting forester and landscape ecologist in the Bay Area for more than 40 years.

The plan is available for all to see on the Conservancy's website, <http://www.claremontcanyon.org/fuel-management-proposal>.

--  
Sue Piper

**Chin, Khin**

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**From:** Toni Stein <tweil@igc.org>  
**Sent:** Tuesday, September 24, 2019 6:06 PM  
**To:** Gradiva Couzin; Chin, Khin  
**Subject:** FW: Rethinking resilience, out-of-the-box solutions, proactive power company and more -

Fwd-Gradiva should I fwd this to the full Commission in next meeting packet or bring the link to the meeting for interested parties to look at after this meeting?

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**From:** Cohesive Strategy West <westerncohesivestrategy@gmail.com>  
**Sent:** Tuesday, September 24, 2019 4:10 PM  
**To:** tweil@igc.org  
**Subject:** Rethinking resilience, out-of-the-box solutions, proactive power company and more -

September 24, 2019

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## WESTERN REGION

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*A publication by the Western Region to highlight progress within the framework of the Cohesive Wildland Fire Strategy and demonstrations of successful implementation across the West.*

**Newsletter #66**  
**In this issue:**

- [Rethinking Resilience to Wildfire](#)
  - [Rocky Mountain Power Implements Proactive Prevention](#)
  - [Fire and Smoke Modeling Update](#)
  - [Expanded Good Neighbor Authority Allows for Additional Restoration on the Chugach](#)
  - [Hard Truth: Ready is a Verb](#)
  - [Upcoming Events](#)
- 



The Horseshoe Fire burns east of Clarkston, Montana. Photo: Jeff Krogstad

**~ New Research ~**

***Rethinking Resilience to Wildfire***  
**Response to large, destructive fires**  
**needs to change across the globe**

The world's response to wildfires that tear through towns and housing developments may need to change, according to [this study](#) out of Montana State University.





Map of critical areas for wildfire mitigation strategy implementation in Utah. Photo: Rocky Mountain Power.

## Rocky Mountain Power Implements Proactive Prevention in Park City, Utah

Rocky Mountain Power is doing its part to create fire-adapted communities in the west by rolling out its first dedicated wildfire mitigation strategy. Designed to increase fire resistance, a new policy will preemptively shut down select transmission lines when a combination of factors - including wind, humidity, temperature and dry vegetation - creates a situation of extreme fire risk.

[Read more](#)



Manning Creek fire on June 20, 2019. Photo: Roger Ottmar

## Fire and Smoke Modeling Update

"Use fire where allowable," is one of the components of the Cohesive Strategy and in an effort to help support the increase in the use of prescribed and managed fires where it makes sense, the Fire and Smoke Model Experiment (FASMEE) is identifying and collecting critical fuel, fire behavior, and other measurements that will be used to advance scientific understanding as well as operational and research modeling capabilities associated with wildland fire. FASMEE is a large, multi-agency effort funded by the Joint Fire Science Program and the US Forest Service. Read more [here](#).

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Chugachmiut members clearing a trail project on the Chugach National Forest. Photo: Nathan Lojewksi, Chugachmiut.

## **Expanded Good Neighbor Authority Allows for Additional Restoration on the Chugach**

The Chugach National Forest is utilizing the expanded Good Neighbor Authority to complete priority restoration projects with the regional tribal consortium Chugachmiut. The Chugach has partnered with the Chugachmiut to perform forest restoration activities through an agreement that enlists the Chugachmiut workforce and their expertise in completing restoration projects associated with forest health issues. The Cohesive Strategy promotes the use of the Good Neighbor Authority as a method to increase local capacity and improve landscape resiliency. Read more [here](#).

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Sonoma County, CA Supervisor James Gore with local firefighters. Photo: James Gore.

## Hard Truth: Ready is a Verb

In October 2017, northern California experienced multiple fires (Tubbs, Nuns, Atlas Fires and more) that killed 44 civilians and damaged 8,900 structures. Since then, Sonoma County Supervisor James Gore has worked with local stakeholders and fire responders to talk about being truly ready and prepared to respond to the next fire siege. *"Ready,"* says Supervisor Gore, *"is about imperfect, relentless progress. Ready is not a state to achieve, but rather a culture to embrace."* Through some hard truths about the realities of large-scale fire response, he and local fire leaders are asking community members to participate in the effort to improve response and real-time communications during an incident. Read [more here](#) about Sonoma County's efforts to become more fire-adapted and [click here](#) for his short video on lessons learned for building community resiliency.

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## Upcoming Events



**Third Annual NATIONAL  
COHESIVE WILDLAND  
FIRE MANAGEMENT STRATEGY**  
OCT. 21-24, 2019 PLYMOUTH, MA *workshop*

**October 21-24, 2019** [3rd Annual Cohesive Strategy Workshop](#) October 21-24, 2019  
Plymouth, MA.

**October 4, 2019** [Tri-State Fine Fuels Management Field Day](#), Jordan Valley,  
Oregon

**October 15, 2019** [Nevada Prescribed Fire Alliance 2nd Annual Meeting](#) - New  
Washoe City, NV

**November 18-22, 2019** [Cultivating Pyrodiversity: The 8th International Fire Ecology  
and Management Congress](#), Tucson, AZ.



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Articles and information from around the West that demonstrate collaborative efforts  
and meaningful progress towards Resilient Landscapes, Fire Adapted Communities  
and Safe & Effective Wildfire Response.

Contact: Kate Lighthall, WRSC Coordinator: [westerncohesivestrategy@gmail.com](mailto:westerncohesivestrategy@gmail.com)

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