Department of Fire and Emergency Services

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

DATE: **Wednesday, March 27, 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

Consent Items

2. Approval of Draft Minutes of Meeting of February 27, 2019*

Action Items

3. Support for Wildfire Evacuation, Emergency Alerting, and Public Education*

Discussion Items

4. City Manager Referral to Improve Fire Safety Standards for Rebuilt Fire Damaged Structure*
5. Report from the Community-Based Response Working Group*
6. Next Steps on the Local Hazard Mitigation Plan*
7. BAUASI cutting Alameda County funding for Urban Shield*
8. Future Agenda Items

Adjournment

Berkeley Fire/OES 2100 Martin Luther King, Jr. Way, Berkeley, CA 94704
Tel. 510.981-3473 TDD: 510 981-5799
E-mail: fire@ci.berkeley.ca.us

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

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Disaster & Fire Safety Commission
Regular Meeting
Wednesday, February 27, 2019
997 Cedar Street, Berkeley, CA 94710

Present: Paul Degenkolb, Gradiva Couzin, Bob Flasher, Toni Stein, Victoria Legg, Annie Bailey, Shirley Dean, Ruth Grimes, Toby Simmons

Absent:

Staff: Khin Chin, Keith May, Anthony Yuen, Steven Riggs

Public: David Peattie, Sarah Jones, Marisa Turner, Aram Antaramian, Alina Contantinescu

Preliminary Matters

Call to Order
P. Degenkolb called meeting to order at 7:02 pm

Approval of the Agenda
Approved by Acclamation.

Public Comment on Non-Agenda Items

David Peattie said that Berkeley Disaster Preparedness Neighborhood Network' will work on a GMRS for emergency communications drill on May 4th. BDPNN will also be tabling at District 5 Board of Supervisor's preparedness fair in April.

Gradiva Couzin, Paul Degenkolb, Ruth Grimes, and Robert Flasher spoke on behalf of commissioners and the community to thank Victoria Legg for her service to the Commission and to Berkeley.

Toni Stein arrived at 706pm.

1. Fire Department and Office of Emergency Services Staff Report

A small fire in an attic on February 5 caused by electrical.
There was an encampment fire on February 13.
On February 14 there was a small kitchen fire at Smokehouse Restaurant on Telegraph.

CERT Academy will be schedule for Spring and late Fall. OES will be taking on the Wildfire Safety Plan including safe passage, evacuation.

OES met with BUSD and established a quarterly meeting schedule on emergency services. The latest discussion included a Joint Facility Use Agreement Memorandum of Understanding.

California Office of Emergency Services has chosen not to submit the Live Oak Community Center Seismic Retrofit and renovation project to FEMA. The sub-application was deemed not cost-effective with an benefit-cost ration of .344 due to the soil type being classified as "C-Very Dense."

Consent Items

2. Approval of Draft Minutes of January 23, 2018*

Motion approve minutes as revised: R. Flasher
Second: V. Legg
Vote: 8 Ayes: Degenkolb, Flasher, Legg, Stein, Bailey, Couzin, Grimes, Dean; 0 Noes; 0 Absent; 1 Abstain: Simmons

Action Items

3. Annual Election of Commission Officers

4. Open nomination for Chair.
Motion to nominate of Gradiva Couzin for chair: P. Degenkolb
Second: R. Flasher
Vote: 9 Ayes: Degenkolb, Flasher, Legg, Stein, Bailey, Couzin, Grimes, Simmons, Dean; 0 Noes; 0 Absent; 0 Abstain:

Open nomination for Vice Chair.
Motion to nominate of Annie Bailey as vice chair: T. Stein
Second: R. Flasher
Vote: 9 Ayes: Degenkolb, Flasher, Legg, Stein, Bailey, Couzin, Grimes, Simmons, Dean; 0 Noes; 0 Absent; 0 Abstain:

5. Support for Wildfire Evacuation, Emergency Alerting, and Public Education*

Motion to send a memo to make City Council aware that the Commission was exploring sirens as an emergency alerting system and that such a system might have a

significant budgetary cost that due to the urgent nature of the issue would require consideration in the current budget cycle: G. Couzin

Second: S. Dean

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

6. Local Hazard Mitigation Plan

7. Motion to submit comment for the Local Hazard Mitigation Plan update recommending coordination with other City plans including the General Plan, the Climate Action Plan and Zero Waste Plan, addition of maps including narrow streets and pinch points and improving the plan's maps via the City's GIS portal, inclusion of a transparent process to reach homeless, ESL and disabled population, and inclusion of a list of priority goals for each of the upcoming years of the 5-year plan: T. Stein
   Second: S. Dean
   Vote: 6 Ayes: Flasher, Stein, Bailey, Grimes, Simmons, Dean; 0 Noes; 0 Absent; 3 Abstain: Couzin, Degenkolb, Legg

Discussion Items

8. Hills Fire Safety*
9. City Manager Referral to Improve Fire Safety Standards for Rebuilt Fire Damaged Structure*
10. Report from the Community-Based Response Working Group
11. Future Agenda Items

Adjournment

Motion to Adjourn: S. Dean
Second: R. Flasher
Vote: 9 Ayes: Degenkolb, Flasher, Legg, Stein, Bailey, Couzin, Grimes, Simmons, Dean; 0 Noes; 0 Absent; 0 Abstain:

Adjourned at 932pm

Berkeley Disaster and Fire Safety Commission

[CONSENT *OR* ACTION]
CALENDAR - **REVISED**
[Meeting Date (MM dd, yyyy)]

To: Honorable Mayor and Members of the City Council

From: Disaster and Fire Safety Commission

Submitted by: Gradiva Couzin, Chair, Disaster and Fire Safety Commission

Subject: Recommendation to Install an Outdoor Public Warning System (Sirens) and Incorporate It Into a Holistic Emergency Alerting Plan

RECOMMENDATION

We recommend that City of Berkeley immediately begin the process to purchase, install, and maintain an outdoor public warning system (sirens) as a supplement to other alert and warning technologies within our boundaries and coordinated with abutting jurisdictions and Alameda County.

This installation should be accompanied by the following:

- ongoing outreach and education so that the public will understand the meaning of the sirens and what to do when they hear a siren
- development of a holistic alert protocol, incorporating sirens as an additional option among the available suite of alerting methods
- staff training and drills on alerting procedures
- development of a testing and maintenance plan that will ensure the system is fully operational while avoiding unnecessary or excessive noise pollution in the City
- outreach to deaf and hard of hearing residents to encourage them to opt-in for alerting that meets their communication needs. This may include distributing weather radios or other in-home devices with accessibility options for people with disabilities.

This recommendation does not specify the number, type, or location of sirens; City staff should determine the most cost-effective system that achieves the goals described in this recommendation. This may include either mobile or fixed-location sirens.

FISCAL IMPACTS OF RECOMMENDATION

Exact costs and staff time are to be determined. However, the two estimates below give a ballpark sense of the possible cost of this installation:

- Example 1: The cost of a 23-siren system in Berkeley was estimated at $801,000 in 2004 ($1.1 million in 2018 dollars), with an additional $100,000 ($132k in 2018 dollars) for

public outreach and 0.5 FTE staff member time for 6 months to support the installation process.

- Example 2: A siren proposal in Sonoma County was recently estimated at $850,000 for design and installation of 20 sirens.

CURRENT SITUATION AND ITS EFFECTS

Berkeley faces a serious threat from a wildland-urban interface (WUI) fire that has increased for many reasons, including the growth of fuel that is happening as a result of recent rains. Based on recent experiences in the 2017 North Bay fires and the 2018 Camp Fire, it is clear that a wildfire in Berkeley would spread very quickly, expanding at many miles per hour and requiring a rapid evacuation of a large number of residents. This is especially likely in the designated Hazardous Fire Zones in the hills, but an intense and fast-moving fire threatens the entire City of Berkeley, including the flats.

Significant efforts are underway to address this increasing threat, including City staff's creation of a draft Wildfire Evacuation Plan and other wildfire safety efforts.

The City of Berkeley currently has several available alerting options that it can use in a wildfire emergency (see Attachment A) but does not have a citywide system of emergency sirens.

Recent wildfires in Northern and Southern California have shown that existing alerting systems and processes have not been sufficient. These wildfires have had tragic outcomes, with a disproportionate number of deaths of seniors and people with disabilities. Some of these locations have since initiated plans to install outdoor public warning systems (sirens).

BACKGROUND

Berkeley has considered using sirens for many years. In 2004, the City commissioned a study exploring installing emergency sirens, which included testing sirens and designing a possible layout of sirens.

In November, 2004, Bill Greulich, Emergency Services Manager at the time, recommended against installation of fixed sirens. He instead recommended exploring mobile sirens or weather radios. See Attachment B, "Alerting and warning system project update and recommendations for further action." However, in the 15 years since that discussion, neither of the suggested alternatives (mobile sirens and mass distribution of weather radios) has materialized.

Since that time, wildfires have become an increasing hazard in California due to the effects of climate change, including: increased frequency and severity of drought, tree mortality, bark beetle infestation, warmer spring and summer temperatures, and longer and more intense dry seasons. California experienced the deadliest and most destructive wildfires in its history in 2017 and 2018.[1] Fires are bigger, faster, and more intense; firefighters in the 2018 Camp Fire reported that they had never seen a fire move so quickly.[2] The length of wildfire season has expanded to

[1] http://www.fire.ca.gov/downloads/45-Day%20Report-FINAL.pdf

[2] https://www.nationalgeographic.com/environment/2018/11/how-california-fire-catastrophe-unfolded/

be nearly year-round.[3] With the continuing effects of climate change, scientists suggest that fires will continue to be a worsening threat.[4]

Also, in the years since the 2004 decision, smartphone technology has emerged, and while this has been an important addition to alerting options, it has not fully met the alerting needs or expectations of the public. A California Office of Emergency Services (Cal OES) Assessment Report on the Sonoma County wildfires of October 2017[5] concluded that public expectations for local government alert and warning services are higher than what is currently being offered. People expect to be adequately alerted, even if they have never taken any action to "opt-in" for warnings.

At this time, the City is reviewing and re-evaluating all of its emergency notification options following the 2017 and 2018 wildfires. Berkeley Fire Department has been considering the idea of installing sirens for at least a year, since January 2018.

ENVIRONMENTAL SUSTAINABILITY
Installing sirens will have an environmental impact due to the construction and maintenance required. They also create noise pollution that can be highly annoying for residents. Poles can be wood, concrete or steel. Sirens can be AC or battery-powered with solar-powered battery back-up as an option.

RATIONALE FOR RECOMMENDATION
The tragedies of the 2018 Camp Fire and the 2017 North Bay fires show the extreme danger that fast-moving wildfire events pose for both residents and responders. The objective of this Commission is to assist policy makers, responders, and residents in achieving the ultimate goal of a smooth-running, extremely fast, safe and effective evacuation with no loss of life.

Currently, Berkeley has several systems available to alert residents of an emergency. See Attachment A, "Alerting Systems Available for Berkeley Emergencies (February 2019)".

Each of Berkeley's currently-available alert systems will reach some but not all residents, and most of these systems are only available to people who have opted-in before an emergency, or who are actively seeking information about an emergency – not people who are simply going about their lives.

As an additional concern, failure rates can be high with any one system. In Sonoma County in the 2017 North Bay fires, only 51% of the 290,000 emergency alert calls reached a human or answering machine[6]. Camp Fire failure rates for alerts reportedly ranged from 25% to 94%.[7]

[3] https://www.nature.com/articles/ncomms8537
[4] https://www.theguardian.com/environment/2018/aug/07/california-wildfires-megafires-future-climate-change
[5] https://sonomacounty.ca.gov/Public-Safety/Emergency-Notification-for-Sonoma-Complex-Fires-2017/
[6] https://abc7news.com/sonoma-county-tests-emergency-phone-calls-in-wake-of-north-bay-fires/4208459/
[7] https://www.mercurynews.com/2018/12/16/camp-fire-created-a-black-hole-of-communication/

Due to various failures and limitations of emergency alerting, many survivors after the 2017 North Bay fires and the 2018 Camp Fire were left wondering why they did not receive any alert at all. These experiences and tragic outcomes strengthen the importance of redundancy through multiple alert methods.

A modern outdoor siren system, designed to blanket all of Berkeley in sound, would provide an additional layer of coverage where other systems may fail. Sirens can also provide redundancy if other communication channels are disabled due to power outage or cell tower disruption.

Here are several questions and answers about this siren recommendation:

When will sirens be activated? Currently, City staff determine what type of alerts to send out based on the level of danger, how localized the danger is, and how imminent the danger is. Sirens should be incorporated into a holistic plan for warnings and alerts so that they have the best chance of filling any gaps to alert people when there is a serious or life-threatening hazard, including wildfires, chemical spills, or other hazards.

Modern sirens allow for multiple tones, so they can be used for more than one message. In addition to wildfire and other hazard alerting, sirens could potentially be integrated with future earthquake early warning systems, which is already done in Mexico City, to provide a warning before earthquake shaking hits.[8]

This recommendation does not specify the exact criteria for determining when to activate a siren alert; the option of activating sirens should be incorporated into the City's alerting protocol based on the best professional judgement of City staff, and in accordance with appropriate state or federal guidelines.

Any alert or warning technology is only as good as the planning, training, and situational awareness that allows responders to use it well. We recommend that activation criteria and procedures be fully and clearly documented in writing, trained, and tested by City staff on a regular basis:

- Criteria for activating alerts
- Who is authorized to decide to activate an alert
- Content of alerts (message template), as applicable
- Technical operation of the alerting system

Will people hear them indoors? Outdoor public warning systems are generally considered to be for alerting people who are outdoors, not indoors. However, "practical experience and the results of tests by the Federal Emergency Management Agency (FEMA) and others have shown that siren sounds are quite effective for alerting large populations—including those indoors"[9]

[8] https://eos.org/features/lessons-from-mexicos-earthquake-early-warning-system
[9] https://asa.scitation.org/doi/10.1121/1.2024832

According to a 2006 FEMA technical bulletin, despite the limitations in sound getting inside buildings, "an outdoor [public alert system] can reasonably be expected to alert *some* people inside buildings" and "a properly designed outdoor [public alert system] may also awaken sleeping members of the public in residential areas."[10] This bulletin reports that the likelihood of a person being awakened from sleep by an outdoor siren ranges from 17% - 52%, depending on the person's age and the loudness of the sirens.

Consistent with this research, past events also show that sirens are often heard indoors. For example, in the deadly 2011 Joplin, MO tornado, sirens "could generally be heard indoors" although unfortunately many residents did not take action based on the sirens[11]. Recent siren malfunctions in 2017 and 2018 (in Dallas and Memphis) resulted in a large number of complaints about people being awakened or kept awake by the sirens.[12] And many West Berkeley residents can attest to being awakened from sleep by Bayer plant sirens.

Clearly, the City can't rely on sirens to alert everyone who is indoors, especially if people are asleep. Sirens may only reach half or a quarter of this population; because of this, sirens should be just one layer in multiple alerting methods that are used. The most effective emergency alerting combines multiple methods, both outdoor and indoor.[13]

We recommend that the selection of tones and frequencies be made to maximize the chance of the siren being audible indoors, as described here: "lower frequency components should be included for better coverage, including components between 225 Hz and 355 Hz for transmission through windows (Mahn 2013)."[14]

Will they be confusing? An ongoing public information campaign is an important part of any outdoor public warning system, so that people know what action to take when they hear a siren. Additionally, siren testing should be designed to help the public be aware of sirens and their meaning. Testing should take place at the same time of day and week (e.g. at noon on Tuesdays) to avoid any confusion, and silent testing should be used when possible.

Here are examples of siren testing programs in locations near Berkeley:

- San Francisco, which has had a siren system in place for many years, tests their system every Tuesday at noon using a single tone for 15 seconds. In an actual emergency, the sound will cycle repeatedly for 5 minutes.[15]
- Oakland and UC Berkeley test on the first Wednesday of every month at the same time, using a slow wail for 90 seconds. This is explained to the public as not only testing the

[10] https://www.midstatecomm.com/PDF/FEMA_guide.pdf
[11] https://www.nist.gov/sites/default/files/documents/2017/05/09/NCSTACmtgDec2013KuligowskiJoplin.pdf
[12] http://www.wmcactionnews5.com/2018/11/01/tornado-sirens-falsely-sound-nd-straight-morning/, https://www.nytimes.com/2017/04/08/us/dallas-emergency-sirens-hacking.html
[13] https://www.researchgate.net/profile/John_Sorensen7/publication/327226171_Rogers_and_Sorensen_1988_Diffusion_of_Emerg_Warn/links/5b816d40299bf1d5a7270825/Rogers-and-Sorensen-1988-Diffusion-of-Emerg-Warn.pdf
[14] https://nvlpubs.nist.gov/nistpubs/TechnicalNotes/NIST.TN.1950.pdf
[15] https://sfdem.org/tuesday-noon-siren

system, but "enhancing public awareness" so that if something different from the usual day, time, or tone is heard, the public should turn on radios, computers, phones or TV for more information. Three different tones are used in case of an actual emergency: A 3-minute slight wail means shelter in place, a slow wail means a tsunami, and a fast wail means a fire.[16]

- Richmond, which is on the Contra Costa County system, tests on the first Wednesday of every month at 11:00 am for less than 3 minutes, and every Wednesday at 11:00 am using a barely audible sound (known as a "growl test")[17]. There are also two systems in place controlled by the Chevron Refinery.

The typical action that people should take when they hear an emergency siren is to seek more information through other channels, which may include the radio or internet, in order to learn what they need to do next. It's very important that people get a consistent message from all of these channels, so planning for that output should be included in the holistic alerting plan.

Here are two examples of this process not working well:

- In the 2011 Joplin, MO tornado, sirens prompted people to look for more information, but they got conflicting information from different sources, which led to public confusion and is considered a major contributor to why people didn't take action and get to safety.[18]
- Another example of poorly-managed public information for outdoor public warnings is the Bayer plant in West Berkeley. Bayer alarms occasionally go off and are concerning to neighbors, but there is minimal information available online, and Bayer doesn't answer a support line after hours.

City of Berkeley would need to do a better job and provide extensive support and education, not only when the system is installed but also on an ongoing basis afterwards, and every time the sirens are activated.

Are they accessible and ADA compliant? A negative feature of sirens is that, like other audible alerts, they are not accessible to people who are deaf or hard of hearing.

Berkeley's emergency alerting must use a combination of notification methods that can reach all residents. The public outreach campaign should include a very extensive program to reach all disabled residents and encourage them to opt-in for alerting that meets their communication needs. This may include distributing weather radios or other in-home devices with strobe light or vibration options as an alternative to siren alerting for people who are deaf or hard of hearing.

We believe that despite this limitation, sirens could help deaf and hard of hearing residents. In emergencies, many people learn about the danger from a neighbor, not directly from official alerts. This is described in the 2018 Camp Fire:

[16] http://www2.oaklandnet.com/oakca1/groups/fire/documents/webcontent/oak063278.pdf
[17] https://www.ci.richmond.ca.us/331/Community-Warning-System
[18] https://www.nist.gov/sites/default/files/documents/2017/05/09/NCSTACmtgDec2013KuligowskiJoplin.pdf

> *"Some learned about the looming wildfire from neighbors knocking on their doors. Or frantic cellphone calls from friends. Others just looked out their windows and saw the smoke and flames, or heard the chaos of neighbors hustling up children and pets and scrambling to get out.*
>
> *Matthew White was sound asleep when the fire began raging around his home in Paradise, Calif., the morning of Nov. 8. But somehow he heard his cellphone ring.*
>
> *It was a friend of his shouting on the other end of the line: "Get the hell up and get the hell out! Paradise is on fire!" ".*[19]

The way this helps is analogous to the concept of "herd immunity" or "community immunity" that helps explain how vaccines make communities safer: blanketing the area with a siren will allow a larger percentage of people to get informed and to inform neighbors, and this will improve the level of protection for all, including vulnerable neighbors who may not hear the sirens.

Will they work in a power outage? Outdoor warning sirens can have backup batteries, which can be recharged using solar panels to ensure that they will work during a power outage. They can be controlled by a radio signal from a safe location.[20] Sirens may burn down in a fire, but they will at least be able to provide warning until the fire reaches their location.

What other communities in California have sirens? Many communities near Berkeley have sirens, including the City of Oakland and UC Berkeley as well as Contra Costa County, as noted above. Oakland's sirens were installed as a result of the 1991 Tunnel fire. Lake County installed sirens following the deadly Valley Fire in 2015. Sonoma County is considering installing sirens following the deadly North Bay fires of 2017 Mill Valley is exploring the use of mobile sirens. Berkeley now has the opportunity to install sirens before, rather than after, a disaster occurs.

Will people take them seriously? The decision-making process for people to decide to take action in an emergency is complicated and varies from person to person. Studies show that people look for confirmation from more than one source before they take action.[21] Sirens can reinforce other messages about imminent danger.

Although conventional wisdom may worry about a "cry wolf" or "warning fatigue" effect from too many warnings, research about these effects is mixed.[22] Ensuring the credibility of the sirens and avoiding a "cry wolf" effect should be considered when choosing a siren system and testing plan.

Can't the city go door-to-door instead? If there is a fire moving at the scale and speed of recent California wildfires, responders will not have enough time to alert a large portion of the

[19] https://www.nytimes.com/2018/11/21/us/paradise-fires-emergency-alerts.html
[20] https://www.dhs.gov/sites/default/files/publications/Outdoor-Sirens-MSR_0315-508.pdf
[21] https://www.osti.gov/servlets/purl/6137387
[22] https://nvlpubs.nist.gov/nistpubs/TechnicalNotes/NIST.TN.1950.pdf

population by going door-to-door. The City will be balancing its resources between fighting the fire, clearing the roads, and knocking on doors. According to Berkeley's draft Evacuation Plan:

> *"Community members should not expect door-to-door notifications or assistance from emergency responders during evacuation."*

What is the best siren system? This recommendation does not specify a specific siren brand or system. A 2015 FEMA survey of available siren systems[23] shows that there are many features that can be varied in different systems, including:

- Price
- Number and location of sirens
- Static or mobile sirens
- Materials (concrete, wood, or metal poles)
- Type of sounds (wailing, beeping, voice)
- Power backup
- Methods of activation (in-person, radio, wired, wireless)
- Testing options (low-volume and silent testing)

We recommend that Berkeley select a system that provides the most cost-effective solution to meet the goals described in this recommendation: providing reliable coverage for the maximum number of Berkeley households possible, while offering enough flexibility of controls so that sirens can be effectively integrated into a complete alerting protocol.

ALTERNATIVE ACTIONS CONSIDERED

Several interrelated recommendations were made to City Council in 2017 and 2018 addressing fire safety and community disaster preparedness. These recommendations included many possible actions covering a broad range of preparedness and hazard mitigation activities. Progress is already being made on some of these priorities.

Sirens should be part of a suite of emergency alerting options; other options could also be enhanced in addition to this one:

- Berkeley could forgo installing sirens, and focus on improving existing protocols to get the maximum effectiveness from the existing suite of alerting tools, particularly Wireless Emergency Alerts (WEA, also used for Amber Alerts). A new set of guidelines for WEA and Emergency Alert System (EAS) alerting is expected from Cal OES in July 2019, and Berkeley will be required to comply with those guidelines within six months. We look forward to Berkeley's continued improvement of these protocols.
- Mass distribution of NOAA weather radios has been discussed as an alternative to sirens. However, the cost to distribute weather radios to every household in Berkeley would reach $1+ million, and each radio would need to be programmed to receive appropriate alerts. It would also be challenging to ensure proper maintenance and testing of the radios over time. However, a limited distribution to residents who are deaf and hard of hearing should be considered as an accessible supplement to sirens.

[23] https://www.dhs.gov/sites/default/files/publications/Outdoor-Sirens-MSR_0315-508.pdf

- Relying on police and fire vehicle apparatus (bullhorns or sirens) is another option. However, these have a limited audible range[24] and would not be able to alert large portions of the city at once. There may also be physical obstacles that could limit the ability of vehicles to reach all the areas that need alerting. It should not be forgotten that such systems may have a substantial role to play in an early warning system specifically designed to evacuate seniors and people with disabilities.

CITY MANAGER
The City Manager [TYPE ONE] concurs with / takes no position on the content and recommendations of the Commission's Report. [OR] Refer to the budget process.

Note: If the City Manager does not (a) concur, (b) takes any other position, or (c) refer to the budget process, a council action report must be prepared. Indicate under the CITY MANAGER heading, "See companion report." Any time a companion report is submitted, both the commission report AND the companion report are Action reports.

CONTACT PERSON
[Name], [Title], [Department]

[24] https://www.fireapparatusmagazine.com/articles/print/volume-22/issue-4/features/siren-limitation-training.html

ATTACHMENT A
Alerting Systems Available for Berkeley Emergencies (February 2019)

Alerting system	Requires Opt-in?	Description	Reaches these people	Will not reach these people
Systems to alert people who are not actively seeking information:				
WEA (Wireless Emergency Alert)	Does not require opt-in	An Amber Alert-style message with a loud squawking sound, vibration, and brief text message on cell phones.	Anyone with a cell phone that is powered on. Reaches all phones in an area, including residents and visitors passing through.	Anyone without a cell phone or with their cell phone in airplane mode or fully turned off. It is also possible for people to opt out of WEA alerts.
AC Alert (Alameda County Alert)	Requires opt-in except landlines	Sends emergency messages by landline phone, email and cell phone.	Houses with a landline, plus people who have opted in for cell phone or email messages. Reaches people based on their residence address, not their current location.	Anyone without a landline, unless they have opted in. Less than 15% of Alameda Cty residents are opted in for this system.
Emergency Alert System	n/a	National public warning system that broadcasts on TV, radio, cable, and satellite TV. Also broadcasts to weather radios.	Anyone who is watching or listening to broadcast TV or radio in a specified area.	Anyone not watching or listening to a live TV or radio broadcast at the time of the emergency. Streaming (Netflix, Hulu etc.) do not show EAS messages.
Nixle	Requires opt-in	Sends messages by email and cell phone and on the web. Often used for lower-urgency messages.	Anyone who has signed up to get messages.	Anyone who has not signed up.
Information that people can actively seek in an emergency, but won't receive passively:				
City Website, Twitter, Facebook, Nextdoor	n/a	The City plans to post emergency messaging on the City website and social media.	People who are actively seeking information, able to access the internet, and know where to look for City information.	Anyone not actively seeking information online, or not able to access the internet.
1610 AM Radio	n/a	The City plans to output emergency messages on 1610 AM radio.	People who are actively seeking information, have a radio, and know to go to 1610 AM.	Anyone not actively seeking information online, or who does not have a radio. Also, 1610 AM radio does not reach all of Berkeley.

Department of Fire and Emergency Services
Office of Emergency Services Division
William Greulich, Manager

MEMORANDUM

Date: November 5, 2004

To: Phil Kamlarz, City Manager

Cc: Lisa Caronna, Deputy City Manager
Arrietta Chakos, Chief of Staff
Reginald Garcia, Fire Chief
Roy Meisner, Police Chief

From: Bill Greulich, Emergency Services Manager

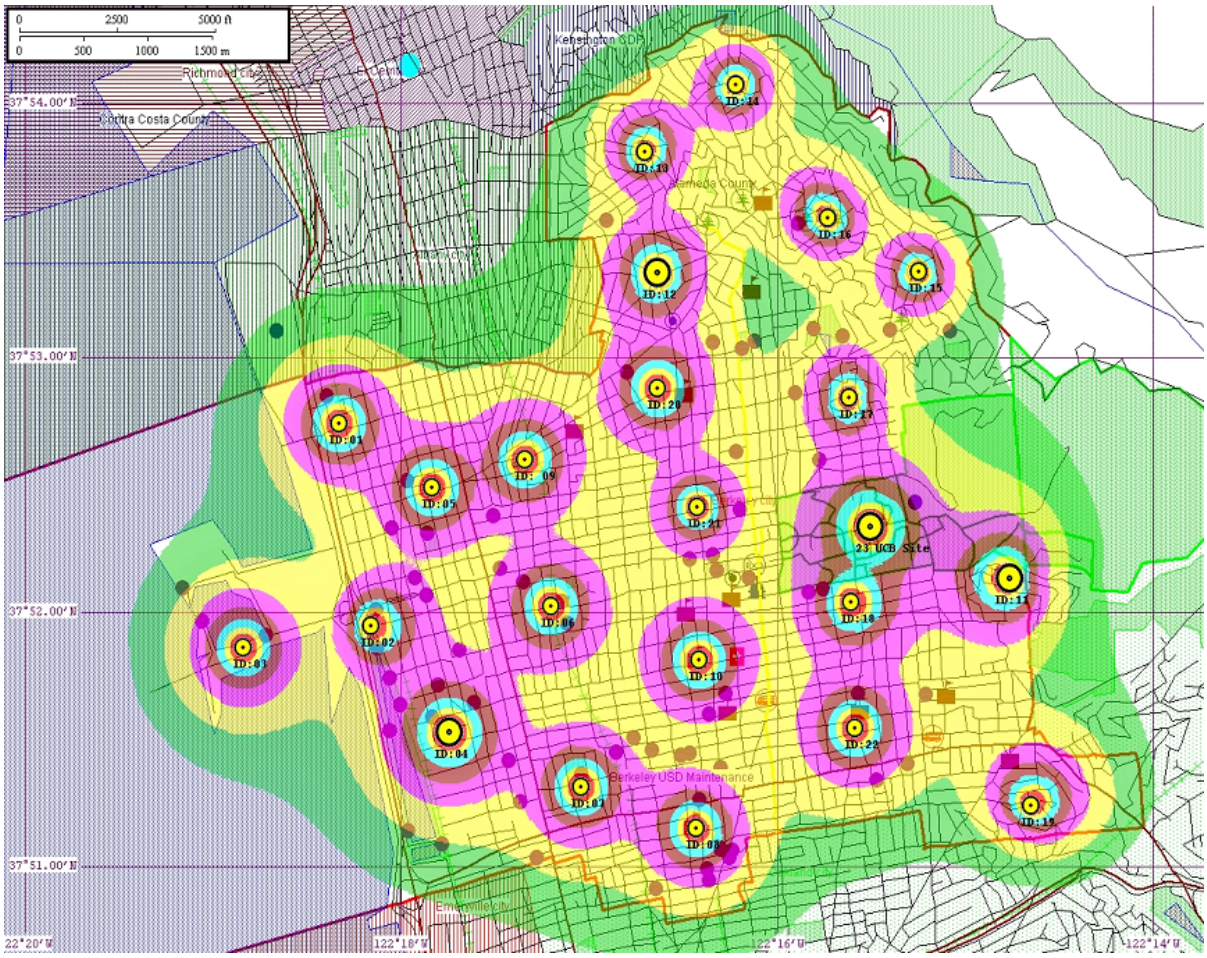
Alerting and warning system project update and recommendations for further action

As discussed in our quarterly meeting of May 28th, here is a summary of work completed to date and my recommendations for further action.

The first phase of the project as outlined in my memorandum of October 14, 2003, "Berkeley Outdoor Warning System (Siren) Project Recommendation" has been completed. Hormann America, Inc. of Martinez, CA in partnership with ProComm Marketing was awarded the contract under IF-9046-04 for $9,250. Hormann and ProComm designed, installed and continue to support Contra Costa County and the City of Oakland Alerting and Warning Systems (AWS).

Based on criteria derived from the FEMA "*Outdoor Warning Systems Guide*", Civil Preparedness Guideline 1-17, Hormann produced a design requiring the placement of 23 sirens (19 @ 118 dB and 4 @ 121 dB). This design was field verified at four Berkeley locations.

Here are my recommendations.



Sound intensities are shown as contours, the outermost is 70 – 75 dB.

Recommendations –

1. Discontinue the implementation of a citywide siren system. Implementation of a citywide siren system is of limited emergency value, may be detrimental to the health of the community, and exhibits poor cost benefit characteristics.

Cost considerations –

The non-recurring capital estimate is based on City funding of 21 sirens totaling **$801,000**. This is in alignment with the cost to the City of Oakland of $1.03 million for 27 units. There would be recurring costs associated with power and maintenance.

The initial public education campaign is estimated at **$100,000**. There would be recurring costs associated with public education.

Cost estimates for the permitting process are difficult. It is likely that significant staff time would be required to complete an EIR and the other associated work. It is estimated that **0.5 FTE** of City staff would be necessary over a six-month period to accomplish this.

Public and Environmental Health Consequences -

The FEMA "*Outdoor Warning Systems Guide*" has guided the design of siren systems nationwide since May of 1980. Recent work has challenged some of the fundamental assumptions on which the guide was based. The current conclusion is that 123 dB sources will likely be considered "highly annoying" by a noticeable segment of the population.

The FEMA guide also proposed the public would accept loud warning devices regardless of their perceived annoyance because of the potentially life saving value. This belief however, does not accurately reflect the possibility that a 118 or 121 dB sound could in fact contribute to public hearing loss, especially to those who are most sensitive, such as children or the frail. While the guide makes a valid point in light of a life-threatening emergency, it does not accommodate the need to activate the sirens regularly to familiarize the public with their existence. A perceived reduction in quality of life is likely in those members of the community who view the siren testing as "highly annoying". This phenomenon was demonstrated during the field-testing of Phase I.

City Environmental Health staff has concluded that the sirens would qualify for the emergency use exemption of the City Noise Ordinance. It is also their conclusion that preparation of an Environmental Impact Report (EIR) would be necessary.

Siren System Efficacy -

Sirens target only the community members capable of hearing the warning or alerting tone. Many factors contribute to limiting the number of people who are able to recognize the alert or warning. These include hearing impairments, being inside a building at home, school or work, in an automobile, or in a higher noise environment, i.e. listening to music or operating a power tool.

Hearing a siren sounding is not enough in and of itself. In order to be effective the public must know the system exists before it is used, how to recognize an alert, warning, or test, and what subsequent actions are expected or necessary.

2. Continue to work with Toxics Management and the two private facilities covered by the California Accidental Release Prevention Program (CalARP).

Hazardous materials and the related use of such materials in an act of terror are the best matches to a citywide siren system. In fact, the "East Bay Corridor of Safety" community direction of "Shelter, Shut and Listen" comes from the Contra Costa County alerting and warning system which is focused on and funded by local chemical manufacturing companies. Two facilities in Berkeley possess hazardous materials in quantities requiring implementation of State accidental release prevention programs. Sirens would benefit the community in the event of a release of material from either of these facilities.

3. Continue to work with UCB and the "Corridor of Safety" concerning their siren programs.

UCB has a limited outdoor warning and alerting system in place. Neighboring communities, in particular the City of Oakland, have sirens that may also impact Berkeley when activated.

These agencies have not currently produced a complete, integrated set of procedures and protocols for system activation. It is recommended that staff continue to work with UCB and the "Corridor of Safety" on the creation of protocols for the activation of their systems.

4. Investigate alternative alerting and warning technologies – mobile siren.

Berkeley has a history with these systems and has experienced their lack of utility in public safety programs and their long-term resource burden. However, the potential use of a small number of deployable or mobile sirens with voice capability may be valuable. Mobile sirens could be pre-deployed or brought to areas of high risk as needed, such as placement in the Hills during fire season. Addition of a voice capability could expand their utility as a potential public address tool. While they would be more costly on a unit basis, the city would not need to purchase a large number, and a basic capability in outdoor warning might be had at a more affordable cost.

5. Investigate alternative alerting and warning technologies – weather radio.

Currently, only two Federal programs exist to alert and warn the public, the commercial radio and television based Emergency Alerting System (EAS), and the National Weather Service (NWS) weather radio program. The City of Berkeley has the ability to utilize the EAS; it is recommended the City investigate the weather radio program. The program is very simple. Radios are available which turn themselves on when a NWS alert signal is received. Community members are not burdened by having to listen all the time to the warning station. The NWS signal is broadcast from a tower in San Francisco or on Mt. Diablo. Several key findings are:

- The radios can be placed anywhere, including in schools, and with members of vulnerable populations.
- The alert would be citywide; all radios in the reach of the Diablo or SF tower would be activated.
- The radios are affordable at approximately $30 each.
- The radios do not have any obvious adverse health impact and can be acquired with visual aids for the hearing impaired.
- Significant Federal support for this program exists.

It is recommended that staff investigate the possibilities of utilizing the NWS system.

Office of the City Manager

[CONSENT *OR* ACTION]
CALENDAR
[Meeting Date (Month Day, yyyy)]

To: Honorable Mayor and Members of the City Council

From: Dee Williams-Ridley, City Manager

Submitted by: David Brannigan, Fire Chief, Berkeley Fire Department

Subject: Referral Response: Referral to Improve Fire Safety Standards for Rebuilt Fire-Damaged Structures

RECOMMENDATION

Based on certain drawbacks inherent in a post-fire retrofit ordinance, significant obstacles to implementation and possible unintended consequences which may result from such a policy, the Berkeley Fire Department is currently recommending against moving forward with a post-fire, fire code upgrade ordinance.

SUMMARY

This report responds to a Council referral sponsored by Councilmember Worthington. The referral expresses concern that the City does not require that buildings be brought up to current fire and life safety standards after experiencing a fire. Councilmember Worthington states that this lack of a local upgrade mandate has resulted in multiple local property owners being unable to pay for desired fire safety upgrades after a fire using insurance settlements.

Councilmember Worthington referenced two communities in California with retrofit programs that might be used as potential models for a Berkeley ordinance. Of the two referenced programs, the City already enforces requirements that mirror one of the referenced programs. The other program does not address fire or life safety elements and would not be analogous to a potential Berkeley program.

There are many benefits to the Berkeley community when fire safety retrofit programs are implemented. The City of Berkeley has a significant history of requiring fire code upgrades in existing buildings, principally fire protection system upgrades. Unfortunately, there are a number of inherent limitations and drawbacks to a retrofit requirement which is triggered by a fire event occurring in a building. Drawbacks include the fact that fire system retrofit work can be cost-prohibitive for property owners, especially when the work must be performed on short notice following a fire. Construction activities associated with retrofit are

disruptive to tenants. Many building occupancies which commonly experience fires may never be subjected to the retrofit requirements because they aren't large enough to trigger fire sprinkler installation, even under current codes. Also, property owners of retrofit buildings may exploit reduced building standards allowed in sprinkler equipped buildings even though the existing building may not have been properly designed for such reduced standards. .

Finally, the premise of a proposed post-fire retrofit requirement is that a property owner's insurance settlement would pay for such upgrades. Standard insurance coverage specifically exempts building upgrades that are required by a law or ordinance unless owners carry specialized code upgrade coverage. The City cannot compel property owners to obtain such coverage. Given these and other inherent limitations of such a program the Berkeley Fire Department recommends that a post-fire, building fire safety retrofit program not be pursued at this time.

FISCAL IMPACTS OF RECOMMENDATION

Fiscal impacts to the City budget resulting from a post-fire, code retrofit ordinance are expected to be minimal. The number of structures impacted by fire annually in Berkeley are relatively insignificant compared to the work load imposed on City staff by routine building construction and renovation work. Also, the City's policy of using enterprise funds to defray the cost of regulating building development and renovation allows the City to recapture a significant portion of the expense involved in regulating such activities.

CURRENT SITUATION AND ITS EFFECTS

This report responds to referral #2018-29 that originally appeared on the agenda of the November 14, 2017, Council meeting and was sponsored by Councilmember Worthington.

In the Council referral document Councilmember Worthington expresses concern that the City does not currently require that fire damaged structures be reconstructed to meet current fire safety standards. Councilmember Worthington observes that when fire damage to a property occurs, that insurance companies have denied portions of damage claims by owners that may seek to add fire sprinkler or other fire safety systems in damaged buildings. In such cases, the lack of a local mandate for such code upgrades means that proposed upgrades are viewed as voluntary by insurance companies. This situation leaves building owners without leverage when negotiating loss claims with insurance companies even though a property owner may have invested in optional "code upgrade" coverage in their insurance policy. The referral contends that were such fire code upgrades mandatory insurance coverage may pay for the cost of important fire safety upgrades to structures such as the installation or updating of fire sprinkler and fire alarm systems.

BACKGROUND

In the referral, Councilmember Worthington identifies two municipalities as communities with post-fire building and fire code upgrade mandates that may serve as a model for the City of Berkeley. These communities are Oakland and Lancaster, California.

A careful analysis of the post-fire upgrade policy published by Oakland reveals that their fire repair policy closely mirrors the policy already in place in Berkeley. Both cities require that when fire damage is repaired that the materials and methods used for repair must meet the current building codes, not the building code used for original construction of the structure. Of the eleven separate points of upgrade related to post-fire repair that are listed in the Oakland policy, ten are routinely required by the Berkeley Building & Safety Division. The eleventh point is a requirement to replace damaged ½" thick gypsum wallboard with 5/8" thick, fire resistive type gypsum wallboard. This requirement maintains consistency with a local Oakland building code amendment which disallows use of 1/2" thick gypsum wallboard in favor of 5/8" thick fire resistive wallboard. Based on the data submitted to BFD for analysis, the Oakland policy does not require that existing structures be retrofit with either fire alarm or fire sprinkler systems as part of a post fire repair or upgrade.

A review of the Lancaster retrofit requirements (contained in Lancaster Municipal Code Chapter 15.04.010, Section 324) shows that the Lancaster requirements are focused on structural and seismic upgrade of buildings after a fire or natural disaster. The character and scope of structural and seismic upgrades and State laws which drive the upgrade process are significantly different than would be the case for a fire or life-safety system upgrade in a building that has experienced a fire. As a result, the Lancaster retrofit requirements are not analogous to the type of building upgrades under consideration in the Council referral and a direct and meaningful comparison of the Lancaster program to a potential Berkeley program is not possible.

The fact that the two exemplar programs referenced by Councilmember Worthington do not precisely match the Council referral's stated intent does not mean that a fire code upgrade program is without merit. The City has long recognized the benefits of exceeding basic fire code requirements and has a significant history of requiring substantial fire and life safety upgrades in existing structures. Significant fire safety retrofit requirements enacted in Berkeley in the recent past are outlined in Table 1.

Table 1- Significant Fire Code Retrofit Requirements Adopted by the City of Berkeley

Date	Upgrade Topic	Summary of Requirements
8/19/1982	Fire Alarm	Certain hotels, apartment buildings and other State Fire Marshal regulated occupancies are required to retrofit manual or automatic local fire alarm systems. [Ord. 5474-N.S.]
2/6/1992	Fire	Certain building defined as "Hotels" in the ordinance (motels,

Table 1- Significant Fire Code Retrofit Requirements Adopted by the City of Berkeley

	Sprinklers	dormitories, rooming houses, congregate residences above a size or occupant threshold) are required to retrofit the building with fire sprinkler systems. Apartment buildings are specifically exempt from the retrofit requirement. The need to comply with the ordinance was triggered by certain events such as the transfer or foreclosure of the property, reoccupancy of a building after 6 months of vacancy or a remodel costing >50k or involving the addition of >1000 sq. ft. In any case, compliance was required not later than 1/1/1997 if no other triggering event occurred at a property [Ord. 6108.N.S.]
8/15/1996	Fire Alarm	Hotels, motels, apartment houses and large congregate residences are required to retrofit manual and automatic fire alarm systems (applied to buildings built prior to 1990) [Ord. 6334-N.S.]

The provisions of the 1992 fire sprinkler and 1996 fire alarm retrofit ordinances are still in effect in Berkeley. In the case of both the fire alarm and fire sprinkler retrofit ordinances, the requirements were driven by local tragedies and the focus in each case is on the life-safety of residential occupants. Since life-safety is the primary focus both retrofit requirements have significant exemptions that allow a building owner to forego retrofit when conditions exist which limit the overall life-safety exposure or otherwise provide an acceptable (if not identical) level of safety to a building retrofitted fire safety systems.

ENVIRONMENTAL SUSTAINABILITY

The logical outcome of a requirement to retrofit fire protection equipment into existing structures would be fewer fires and/or smaller fires which require manual firefighting efforts by the fire department. This reduces the quantity of fire related combustion products and water runoff from firefighting efforts released into the environment and therefore the overall environmental impact of fires on the environment. Any policy resulting in fewer or smaller fires is therefore considered environmentally friendly.

RATIONALE FOR RECOMMENDATION

The Council referral's initiative to explore the concept of upgrading fire damaged buildings to current standards contained minimal specific recommendations but could take many forms. The two criteria presented in the referral for consideration are:

1. A retrofit triggering event which consists of a fire with subsequent repairs to the structure, and
2. Retrofit work which includes fire sprinkler and/or fire alarm installation when such an installation would be required in a similar, newly constructed building.

In order to create a functional and effective fire code upgrade program a potential ordinance would also need to specify a retrofit trigger threshold in addition to the fire triggering event. A trigger threshold generally specifies a level of work or damage which must occur to trigger retrofit requirements. This ensures that a small fire in a large building does not unintentionally trigger an

expensive retrofit requirement and allows for a reasonable and fair implementation of a retrofit program. Several forms of triggering thresholds are common, such as a specified percentage of a building area being effected by a fire, a specified percentage of walls in the structure being repaired or a dollar valuation of the repair and renovation work expressed as a percentage of the assessed building valuation (i.e., if the value of all repairs is 50% or greater of the assessed value of the structure, a retrofit would be triggered).

In general, certain aspects of building design and construction are fixed at the time of the original design and cannot realistically be brought up to current code. Historic features such as the type of materials used to construct a building often cannot be changed without completely demolishing and rebuilding a structure. Other features such as exit stairway widths can technically be upgraded but often require extensive redesign of the building and structural changes which would also amount to completely rebuilding the structure. From a fire protection and life safety standpoint, the most practical fire code upgrades with the largest return on investment for the owner and occupants will generally mean the installation of any fire alarm or fire sprinkler systems that would be required in a similar, newly constructed building.

There are many benefits that can be realized when older, preexisting buildings are retrofit with modern fire protection systems. A traditional view of such retrofit requirements often concentrates on the life safety and property protection benefits of early fire detection and extinguishment. As previously stated in this report, Berkeley has already adopted retrofit requirements intended to extend protection to residential occupants who may be vulnerable to fire based on the fact that they reside in congregate and group living environments.

National fire statistics show that a majority of small businesses that experience a fire in their place of business are never able to recover from the event and eventually fail. While some businesses may carry business interruption insurance, there are many factors that cannot be compensated by insurance. This includes the fact that customers are often forced to switch service vendors during a business closure and that key or valuable employees may be forced to find other employment. These business changes can be crippling and are often permanent.

There are a number of inherent limitations when a local initiative requires the retrofit of existing buildings with fire protection systems according to current code. Any bias in the current building and fire codes will apply to retrofit buildings. Such bias within the codes does exist and can have unexpected consequences. For instance, any existing building with a residential area such as a small rectory attached to a church sanctuary, or a small mixed-use building with one or more apartments above a shop could subject the entire structure to a fire sprinkler retrofit. Any building containing one or more drinking or dining spaces large enough to require two exits could be subject to fire sprinkler installation if the structure is more than 5,000 sq. ft. in size. Such work is often

cost-prohibitive for smaller property owners. Also the related construction activities needed to install systems are inherently invasive can severely impact building occupants not originally effected by a fire.

Conversely, many types of commercial buildings including businesses, merchant shops, storage warehouses and factories which commonly experience fires don't require fire sprinkler installation until reaching a size over 12,000 sq. ft. Such buildings may never trigger a retrofit.

Another inherent weakness in a retrofit program that is driven by a structure having a fire event is that the program requires a safety upgrade of the building after a significant fire event has already occurred. While buildings and occupants may ultimately still benefit from fire system installation after a fire event, post-fire retrofit of fire systems is not the most proactive retrofit model available.

In addition to these inherent qualities, retrofitting to current fire code standards after a fire does have other drawbacks. One obvious drawback is the sudden, unexpected monetary expense to the owners of the building in addition to direct losses caused by the fire. An owner may not be reimbursed by an insurance company after a fire. Another potential drawback is that when an existing building is retrofit with a fire sprinkler system that building becomes eligible for numerous tradeoffs which exist in the building code. A building owner may choose to exploit these tradeoffs even though they may not be appropriate for the building in a specific situation. Examples of such tradeoffs include an allowance for increased building area and height, a decrease in the fire resistance of materials, an increase in the number and area of allowable openings in a building next to a property line and decreased levels of safety in the occupant exit system.

Finally, overreliance on fire sprinklers in a community for fire protection can ultimately decrease community resilience in seismic areas. Sprinklers are seismically vulnerable. Studies from the 1990's showed that 34-41% of installed fire sprinkler systems were impaired by shaking following major earthquakes[i]. Where loss of municipal water supply occurs, the result is that essentially 100% of fire sprinkler systems will be impaired.

In addition to the drawbacks previously mentioned, there is a significant obstacle to the implementation of a retrofit program when it is driven by a fire event. The premise of the Council referral is that if the City mandates post-fire code upgrades to structures, insurance settlements could be used to fund the required work. This funding source may or may not be available to a particular property owner. In standard property insurance policies "Ordinance or Law" exclusions disallow reimbursement of a policy holder for costs associated with upgrading of a building to current codes following a loss. Such "Ordinance and Law" exclusions are a standard element of insurance contracts (ref. Insurance Services Office, Commercial Property "Cause of Loss" form exclusion B.1.a).

This contract term effectively excludes loss or damage caused directly or indirectly by the enforcement of any ordinance or law regulating the construction, use or repair of a property. It is currently possible for a building owner to obtain insurance coverage endorsements which nullify an insurance policy Ordinance or Law exclusion. However, a series of significant disasters across the country has resulted in increased demand for and reliance on insurance company claims by the covered insurance pool. These increased disaster losses have prompted insurance companies to become much more conservative in administering claims. The future of such insurance coverage endorsements is not clear.

Also, insurance coverage (including coverage for code upgrades and Ordinance or Law Exclusion) is voluntary and represents a real, recurring cost to building owners. Predicating an upgrade program on the regulated community carrying voluntary elements of insurance coverage could result in a property owner being faced with a local mandate to retrofit fire systems after an incident when no insurance assistance is available due to a lack of appropriate coverage. This could have many unintended consequences such as fire damaged buildings sitting damaged and vacant for prolonged periods of time, taking housing stock off the market, the forced sale of property when upgrades cannot be implemented, etc.

Based on these inherent limitations, drawbacks and obstacles to implementation the Berkeley Fire Department is recommends that a post-fire, building fire safety retrofit program not be pursued at this time.

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[i] Dembsey, Nicholas A.; Meacham, Brian J.; Wang, Honggang. *A Literature Review of Sprinkler Trade-Offs*, Report of Literature Review for National Association of State Fire Marshals Fire Research & Education Foundation (Project FAIL-SAFE): Worcester Polytechnic Institute, (date of publication unavailable); pp 35-36; URL (accessed March 19, 2019); https://www.Firemarshals.org/resources/Documents/FAIL-SAFE /The%20Goals%20and%20Objectives%20of%20Project%20FAIL.pdf

ALTERNATIVE ACTIONS CONSIDERED
None

CONTACT PERSON
David Brannigan, Fire Chief, Fire Department, (510) 981-3473

Attachments
1. Original Referral Report from November 14, 2017

Kriss Worthington
City of Berkeley, District 7
2180 Milvia Street, 5th Floor, Berkeley, CA 94704
PHONE 510-981-7170, EMAIL
kworthington@cityofberkeley.info

CONSENT CALENDAR
November 14, 2017

To: Honorable Mayor and Members of the City Council

From: Councilmember Kriss Worthington

Subject: City Manager Referral to Improve Fire Safety Standards for Rebuilt Fire-Damaged Structures

RECOMMENDATION:
Refer to the City Manager to require repair and replacement of fire damaged buildings to be brought up to current fire safety standards.

BACKGROUND:
In recent years, a number of buildings - both commercial and residential - have burned down. Currently, the owners of fire damaged structures are not required by the City of Berkeley to reconstruct properties to meet today's fire safety standard. This results in the inability of multiple owners of fire-damaged properties to receive coverage from insurance companies/providers for the upgrading of fire preventative measures including fire sprinklers, and alarm systems.

The City of Oakland, with whom we share a vulnerable hills region, mandates all portions of building structures in need of repair following fire damage to meet the current Building and Fire Code for fire protection. Similarly, the City of Lancaster requires that structural repairs to buildings with a damage ratio more than 0.10 (10 percent) be strengthened and brought into compliance with code. In the light of the recent disasters in the North Bay, and the growing threat of climate-induced wildfires, it is prudent that Berkeley follow the lead of our fellow cities to protect building occupants and Berkeley residents from hazard.

This will benefit landlords, who will be able to access insurance reimbursement and tenants, who will live in more fire safe buildings.

FINANCIAL IMPLICATIONS:
Minimal

ENVIRONMENTAL SUSTAINABILITY:
Consistent with Berkeley's Environmental Sustainability Goals and no negative impact.

CONTACT PERSON:
Councilmember Kriss Worthington 510-981-7170

ATTACHMENT:
1. City of Oakland Residential Fire Damage Repair

City of Oakland

BUILDING SERVICES

250 Frank H. Ogawa Plaza, 2nd Floor Oakland, California 94612

RESIDENTIAL FIRE DAMAGE REPAIR

A field check by a City inspector is required for a building permit to repair a fire-damaged structure. The purpose is to verify the extent of damage and to determine what plans, approvals, and related permits (electrical, mechanical, and plumbing) may be required. The field check is before the permit is issued.

All portions of the structure that need to be repaired must meet current Oakland Building and Fire Code requirements for load bearing support, seismic resistance, sound and energy insulation, fire protection, egress, etc.

A separate permit to either remove or legalize all unapproved additions, conversions or alterations to the building, whether damaged or not, must be applied for before issuance of the fire repair permit. All required approvals and related permits (electrical, mechanical, and plumbing) will also need to be obtained for this.

Zoning approval is required for all exterior repairs to the building, including in-kind replacement. If the damage is minor, such as window replacement or minor siding repair, then only exterior photographs of all sides of the building need to be submitted to zoning for review. If damage is extensive, such as rebuilding an exterior wall, then complete plans (site plan, floor plan, and exterior elevations) must be submitted along with the photographs for zoning approval.

All fire-damaged materials must be removed and all smoke-damaged areas must be cleaned and sealed with an approved smoke encapsulating product.

All wood structural members fire-damaged to a depth greater than 1/8 inch must be either replaced or repaired with a new full length sister attached to the damaged member. All charring must be scrapped down to solid wood and sealed with an approved encapsulating primer. These two members must be face nailed along the top and bottom edges with minimum 10d nails spaced a maximum of 16" apart and staggered on opposite sides. All new framing shall be sized per the Oakland Building Code and span between supports. All partial length "sistering" must be engineered. The field check will determine if plans are needed for repairs to the framing. All damaged engineered members (*gluelams, parallams, strongwalls, shear walls, steel, etc*.) shall be evaluated and any replacement or repair designed by a licensed Engineer.

When portions of walls and/or ceiling finishes separating dwelling units, public areas, or service areas such as interior corridors, garages, and mechanical spaces are replaced, the new finishes must be 5/8" type "X" gypsum wall board attached to resilient channels with minimum 3 ½ inch thick insulation batts to achieve the required 1-hour fire separation and STC 50 sound ratings. Other construction methods can be approved if they are listed and tested to meet these ratings.

Current code requires that bedrooms have an emergency egress window (or exterior door). If a non egress compliant bedroom window is damaged, it may be replaced only with windows that do not modify the existing structure or framing opening per CBC Section 3405.A Windows that do not comply with current codes should not increase the level of non-compliance (such as reducing the glazing area) and efforts must be made to increase the level of compliance (such as replacing a double-hung unit with a casement window) whenever possible. All safety glazing, where required must be replaced per current code.

Smoke and Carbon Monoxide detectors must be installed at all locations per 2013 California Residential Building Code.

All damaged wiring must be replaced. All replacement wiring and circuits must meet the current electrical code requirements. Additional circuits and a service upgrade (under a separate permit) may be required.

Community Response Working Group

This working group was formed to explore ways to support community-based post-disaster response, creating an inclusive, broad-based response that better meets the post-disaster needs of all people in Berkeley:

- explore options to help give **the community a better structure or pathway to participate in disaster response**.
- explore ways to improve and **support social cohesion** throughout the city that will naturally increase post-disaster assistance, information-sharing, and shared resources among neighbors.

Community Response Working Group

Who we are:

- members of Berkeley's Disaster & Fire Safety Commission
- BPDNN leadership
- Disaster first aid trainer, expert
- CERT volunteer, former commissioner on D&FSC

Community Response Working Group

Questions we looked at:

– What currently exists?

– Where are gaps?

– What more can/should the City do?

How we learned:

- meetings with a variety of stakeholders (govt and non-govt)
- Phone conversations w/Portland emergency mgr

Community Response Working Group

Who we met with:

- Berkeley CERT advisory group
- Berkeley OES – Keith May + Khin Chin
- Berkeley OES/BFD: Jennifer Lazo + Chief Brannigan
- Berkeley's Disaster and Disability Group (includes Easy Does It leadership)
- SF Neighborhood Empowerment Network (Daniel Homsey)
- Ana-Marie Jones Formerly of Oakland's CARD
- Geoff Lomax, BeCERTAINN
- CERT District Coordinators

Community Response Working Group

We started by identifying and assessing what currently exists, what the needs are, and where there are gaps.

- Berkeley's professional responders expect to be overwhelmed and not able to meet the full needs of Berkeley residents after a disaster.
- A supplement to professional response is needed to serve all of Berkeley
- People with disabilities have particular needs re: potentially being trapped or unable to get out to get help

Community Response Working Group

Expected needs after a large earthquake or regional-level disaster:

- emergency first aid
- emergency food
- emergency water
- emergency search & rescue
- emergency fire suppression
- emergency shelter
- emergency communications
  - between members of the public (individuals or groups) seeking help, resources, sharing information
  - *from* EOC (announcements, evacuation orders, etc.)
  - *to* EOC (communicating urgent needs)
- security

Community Response Working Group

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Community Response Working Group

Existing or in-progress approaches to community response:

- CERT Trainings
- CERT Neighborhood Group Cache Program
- Community Resilience Centers & Apartment Resilience Centers
- Berkeley CERT District Coordinator initiative
- BDPNN – non-govt. support for neighborhood preparedness
- BeCERTAINN communication initiative
- OES support for school preparedness

Gaps in what exists now:

- Limited in scale – programs don't directly reach the vast majority of residents
- Mostly designed to help people who have prepared or connected with a group before a disaster, not those who haven't
- Inclusive in theory, but less so in practice
- Participation doesn't appeal to most people
- No communication from neighborhoods to EOC

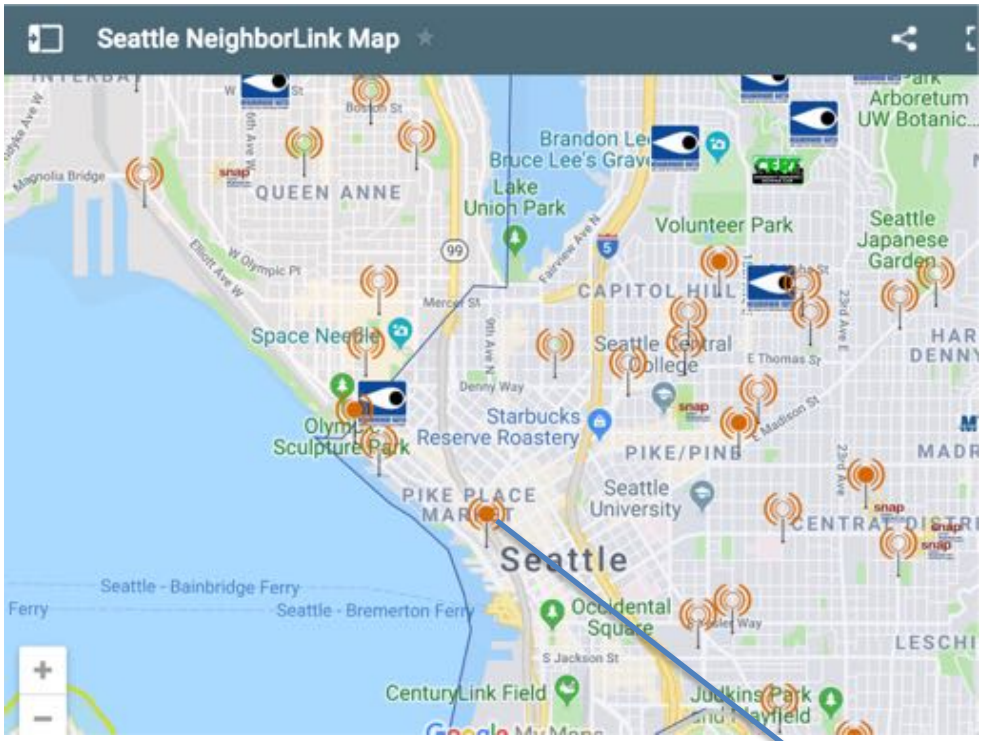
Our Initial Idea: After an earthquake, Information & communication hubs are set up by volunteers at predetermined central locations throughout the city

Hub idea loosely modeled on Portland & New Zealand

Portland's BEECN (Basic Earthquake Emergency Communication Node)

New Zealand Community Emergency Hubs

Seattle has Community Emergency Hubs with the same idea

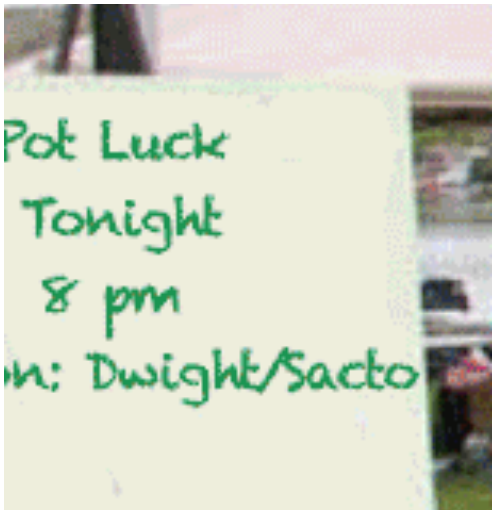


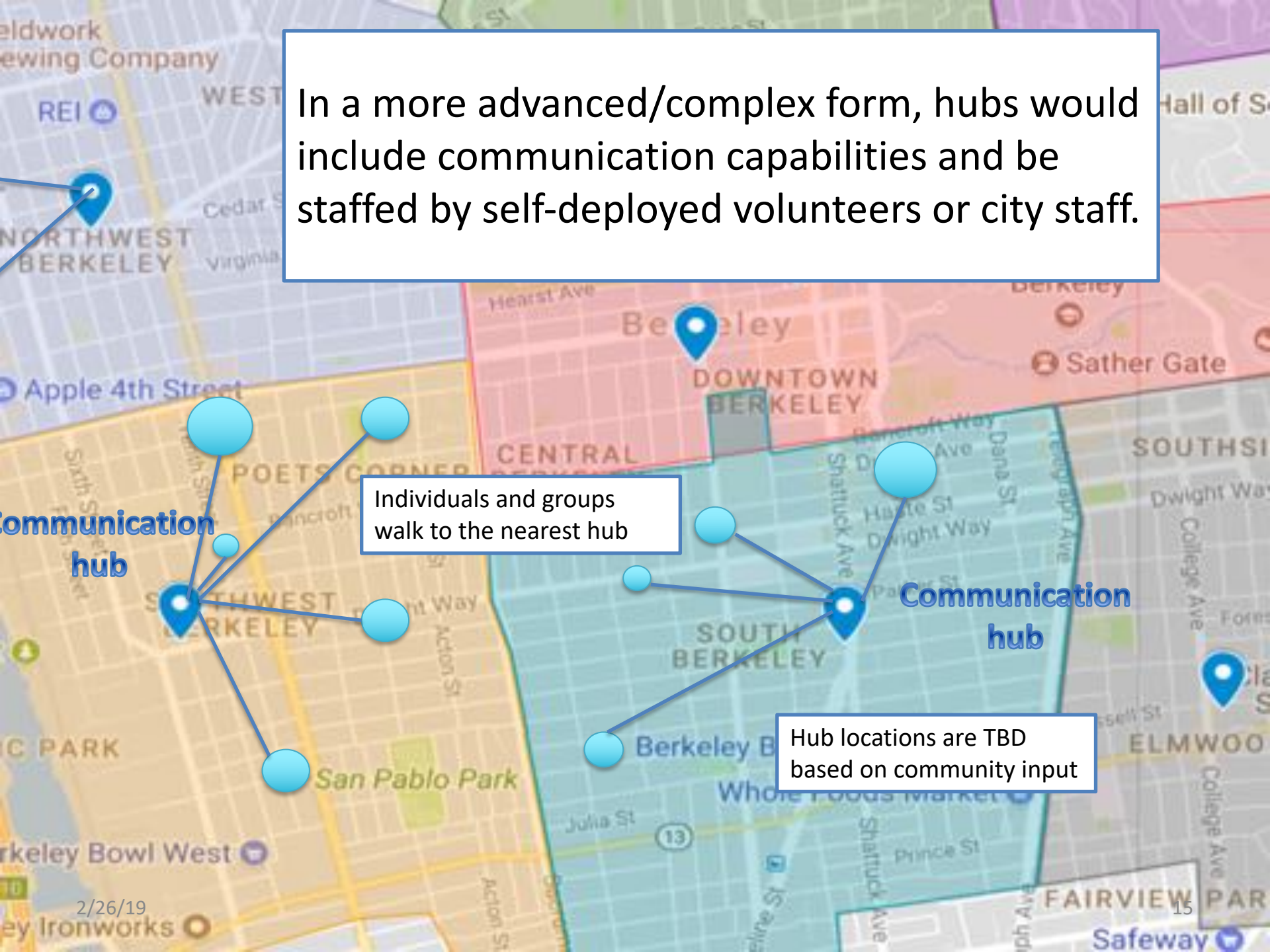
*A **Seattle Community Emergency Hub** is a pre-determined location where neighbors and community members are likely to gather to begin exchanging information and resources among themselves without outside assistance from City services*

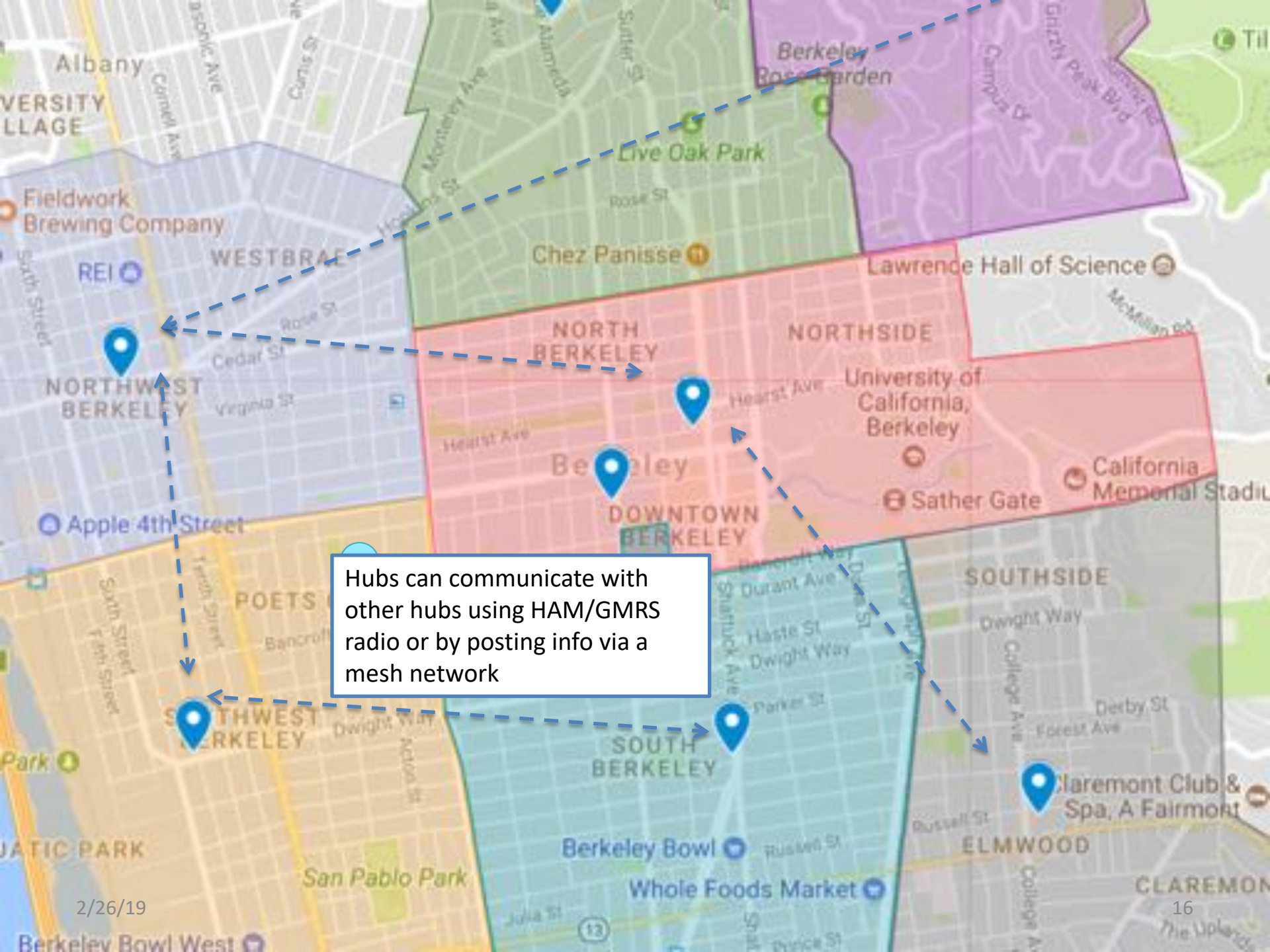
"elite" hubs can communicate to the EOC

Unlike existing emergency neighborhood groups in Berkeley, hub points would be prearranged and publicized

A simple “hub” might be just a community bulletin board.




In a more advanced/complex form, hubs would include communication capabilities and be staffed by self-deployed volunteers or city staff.
Individuals and groups walk to the nearest hub
Communication hub
Communication hub
Hub locations are TBD based on community input
San Pablo Park
DOWNTOWN BERKELEY
CENTRAL
SOUTH BERKELEY
Sather Gate
Apple 4th Street
REI
NORTHWEST BERKELEY
Berkeley Bowl West
Safeway


Albany
Fieldwork Brewing Company
REI
WESTBRAE
NORTHWEST BERKELEY
Apple 4th Street
POETS
SOUTHWEST BERKELEY
Live Oak Park
Chez Panisse
NORTH BERKELEY
DOWNTOWN BERKELEY
NORTHSIDE
University of California, Berkeley
Lawrence Hall of Science
Sather Gate
California Memorial Stadium
SOUTH BERKELEY
SOUTHSIDE
Berkeley Bowl
Whole Foods Market
San Pablo Park
ELMWOOD
Claremont Club & Spa, A Fairmont
Hubs can communicate with other hubs using HAM/GMRS radio or by posting info via a mesh network


Hubs can also send & receive messages to and from the EOC via the mesh network
Communication hub
Albany
Berkeley Rose Garden
Live Oak Park
Fieldwork Brewing Company
REI
WESTBRAE
Chez Panisse
Lawrence Hall of Science
NORTH BERKELEY
NORTHSIDE
NORTHWEST BERKELEY
University of California, Berkeley
Sather Gate
California Memorial Stadium
Apple 4th Street
DOWNTOWN BERKELEY
SOUTHSIDE
POETS
SOUTH BERKELEY
Claremont Club & Spa, A Fairmont
Berkeley Bowl
Whole Foods Market
ELMWOOD
San Pablo Park
Berkeley Bowl West

Hubs: What it would Take

- Simplest form of hubs might just need a marker (flag, pole, etc.) bulletin board, and radio at each location
  - Even in simplest form, access & funding is needed to put up poles etc. at public locations

- For more advanced form of hubs, more is needed:
  - 10 or more locations, each staffed by trained volunteers who will self-deploy in an emergency. Portland project having difficulty staffing with volunteers equitably in all neighborhoods.
  - Recruiting, maintaining and training volunteers for each location = substantial staff time.
  - HAM or GMRS radio operators to deploy to hubs
  - Supplies for each location: canopy, radio, vests, table, white board, etc.
  - Communications link to EOC

Based on our conversations with city staff, we don't see "hub" idea support from the City at this time

...what are realistic next steps we can take right now?

Challenges and new directions

Challenge: Neighborhoods have no EOC communications

New direction: EOC may be able to communicate with CRCs

Next steps:

Get a CERT/Community seat staffed at EOC

Practice radio communication between CRC and EOC

Challenges and new directions

Challenge: Not enough CRCs

New direction: Potentially create a CRC-lite that is easier to adopt

Next steps:

This is something for Jennifer Lazo to consider

Challenges and new directions

Challenge: Seeking help for people with disabilities

New direction: Radio communications seeking wellness check

Next steps:

Practice radio communication between Easy Does it and BeCERTAINN network – Drill planned for May 4th.

Who is BeCERTAINN?

- Over 30 licensed GMRS users located all over Berkeley
- Plus dual licensed HAM / GMRS users

Challenges and new directions

Challenge: Most people aren't interested in joining a neighborhood group

New direction: Support for social cohesion

Next steps:

Pursue Measure GG funding for block parties (Free pizza? Waive block party permit fees & other fees? Tie in with Neighborhood Night Out?). Also fund District Coordinator stipend.

Challenges and new directions

Challenge: City not particularly interested in leading “pod” program

New direction: Pursue a non-govt approach

Next steps:

Our group will continue exploring this idea and speaking with other cities who are doing it

February 27, 2019

To:
From: Disaster and Fire Safety Commission
Subject: Comments to the 2019 Local Hazard Mitigation Plan

1. Coordination:
   The 2019 Plan should be coordinated with other existing major policy plans, specifically the General Plan, Climate Action Plan and Zero Waste Plan. Such coordination would provide hazard mitigation information as a part of land use decisions in designated hazard zones before such decisions are made rather than after they have been made. In addition, it increases the opportunity to incorporate into City actions the continuing tide of new information regarding climate change, as well as encourage re-use of materials rather than just depositing them into near or distant landfills.

2. Maps/Tables:
   a. Add to the Plan existing maps, specifically but not limited to maps and tables regarding Berkeley's Narrow Streets (24 feet and 22 feet) and Pinch Points depicting locations where responders have difficulty navigating.
   b. Improve maps in the Plan using the GIS Portal layering system so that people reading the Plan will have a better understanding of the location of designated hazard zones, evacuation routes, and the like by showing street names.

3. Outreach:
   Include information on how our homeless, ESL, and disabled population will be informed regarding such matters as to where and when to shelter. The process to do this must be transparent and accessible to these populations.

4. Objectives:
   An appendix should be added to the Plan that contains a "To Do List" of priority goals with measurable outcomes for the coming year. The Disaster and Fire Safety Commission and appropriate City staff would develop the list and at the end of the year, provide a report to the Council that includes a new/continued list for the next year. This would be repeated each year for the five-year-period covered by the Plan. This process would provide an on-going opportunity for the Council, City staff and residents to evaluate how well we are achieving the agreed upon policies and goals expressed in the Plan, what, if any, changes we might need to make to better achieve those goals and also provide opportunities for the continued engagement of residents in safety issues.

Chin, Khin

From: bob flasher <rangerdude333@hotmail.com>
Sent: Wednesday, March 13, 2019 5:52 PM
To: Chin, Khin
Subject: Re: Agenda items for the Disaster and Fire Safety Commission Meeting of March 27, 2019

Khin,

Here is the article to accompany the UASI discussion item for March 27:

Alameda County Supervisors approve Urban Shield reforms; sheriff says action will result in loss of $5.5m grant

The Alameda County Board of Supervisors narrowly approved a number of reforms to the controversial Urban Shield training event Tuesday, even after Alameda County Sheriff Gregory Ahern continued to say some of the recommendations will likely result in the loss of $5.5 million in federal grants for regional disaster preparedness training.

The move sets off a period of uncertainty and potential political blowback for the supervisors. Members of the regional body overseeing the federal grant will meet this Thursday to discuss its next steps and whether the grant funding will be forfeited.

During Tuesday's tense board meeting, Alameda County Sheriff Gregory Ahern maintained the board's action will likely result in the federal grant being reallocated to another jurisdiction and potentially adversely affect disaster preparedness training for law enforcement in the entire Bay Area and region.

"If you accept the recommendations, as I told you 13 times during the last meeting, it will jeopardize the grant and the funding will go away," Ahern warned the county supervisors before their vote.

East Bay Citizen March 12, 2019

The Board of Supervisors voted to put all its Homeland Security $5.5 million funding on citizen training, to the detriment of medical and police first responders. They specifically excluded our SRT and other city's SWAT teams. They eliminated the vendor exhibit, which has helped finance the training.

Bob

NBC Report on 1991 Tunnel Fire based on the FEMA report and interviews with citizens (excerpt)

…Steep, narrow roads hampered the ability of the large firefighting vehicles to quickly maneuver while the winds split the fire into two fronts moving toward homes.

A strong headwind slowed the response of a Cal Fire helicopter unit dispatched from Morgan Hill, nearly doubling its 15- to 20-minute flight time to the scene.

Radio communications were jammed with messages from teams deployed above and below the fire, and phones in the fire department's communications center rang continuously as more people reported the blaze and called asking whether they should evacuate.

But things were about to get worse. By 11:30 a.m., several homes were engulfed in flames and crews had to abandon their posts as the fire leapt across roads and roared in all directions. The smoke was so thick that a commanding officer stationed at the bottom of the hill near Highway 24 could no longer see the blaze or give instructions on how to attack it.

As the fire grew, power lines fell and poles burned, the California Highway Patrol closed the Caldecott Tunnel and five strike teams were called to a spot half a mile ahead of the fire at Tunnel Road and Hiller Road, which is one of the hillside's only wide access roads.

At 11:35 a.m., police were asked to send as many officers as possible to assist with evacuations, but the narrow streets were jammed with confused fleeing residents.

Ten minutes later many roads also became blocked by flames. The fire swept downhill, destroying the Parkwood Apartments, which consisted of three- and four-story buildings tucked below Tunnel Road just north of the Caldecott Tunnel entrance.

At that point, fighting the fire took a backseat to saving lives until help could arrive from outside agencies.

The wind carried embers ahead of the rapidly moving fire, and emergency responders could not move quickly enough to rescue those trapped in their homes or on the blocked streets.

Some -- including Oakland police Officer John Grubensky and Oakland fire Battalion Chief James Riley -- died in the streets trying to outrun the fire, according to the federal report.

Peter Scott, an Alvarado Road resident, said the city and community are more prepared now than they were 20 years ago, but that more needs to be done.

During the 1991 fire, 800 structures burned in the first hour, and more than 300 burned per hour for the next seven hours. When the inferno was at its most intense, one home was consumed every 11 seconds, according to the federal report.

Scott said vegetation close to homes, as well as crowded narrow streets, exposed utilities and an inadequate water system, are all vulnerabilities. All were identified as problems in a 2006 citizens' review by an Oakland Hills community association. Scott said those issues and others have yet to be resolved.

He said roadways through the neighborhoods remain problematic because they are still narrow and crowded with cars. Sometimes it is even hard for regular traffic to navigate the streets, he said.

Of the 25 people who perished in the fire, 24 people died on the narrow roads, where traffic was stopped because of panic-induced collisions.

"We ought to take a hint from that and establish dedicated evacuation routes where on red flag days there is no parking allowed," he said. Year-round parking restrictions could also help clear room for emergency vehicles, he said.

Now that two decades have passed and the communities

have rebuilt, turnover in homeownership in the area means that many of the current residents did not witness the fire.

Scott said he and his wife, because they were the first to rebuild in their neighborhood, became stewards of their community and leaders in pushing for improvements to reduce the risk of another fire disaster.

"In an emergency like that, you really have to depend on the neighborhood that you're in," Scott said.