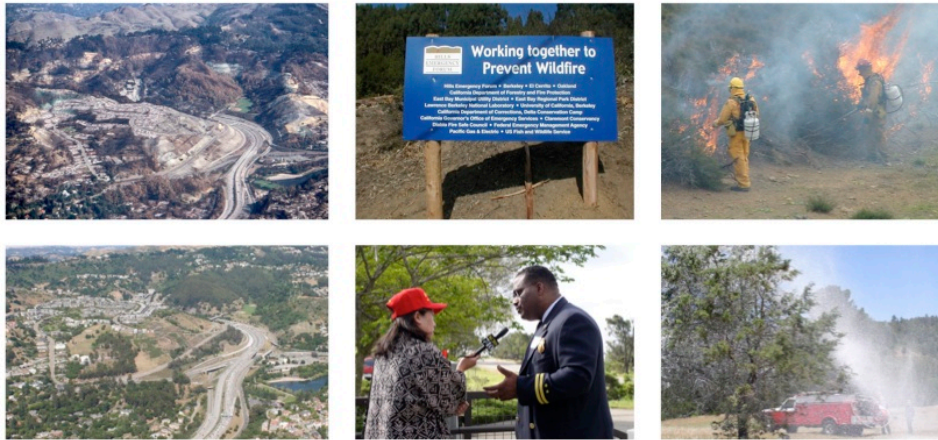




20 Years After



**City of Berkeley
City of El Cerrito
City of Oakland**

**California Department of Forestry and Fire Protection
East Bay Municipal Utility District
East Bay Regional Park District
Lawrence Berkeley National Laboratory
Moraga Orinda Fire District
University of California at Berkeley**

TWENTY YEARS AFTER EXECUTIVE SUMMARY

20-years after the 1991 Tunnel Fire in the Berkeley Oakland Hills the agencies responsible for fire fighting, public safety, emergency planning and land management have made considerable collective progress addressing the region's vulnerability to wildland fire. Significant accomplishments have been made in terms of preparedness before a fire strikes; strategy, tactics and command to respond to wildfires; as well as partnering with the community and each other to improve public safety. There is still room for improvement as agency staff members change, new residents move into the hills, technological improvements allow for better coordination, and funding or resource shortfalls require prioritization of projects and trimming of programs.

Preparedness

Twenty years after the Tunnel Fire the HEF member agencies better comprehend the components pertinent to wildfires. They monitor regional weather changes and have developed operations plans for periods of high fire danger. Collectively they have increased fire hazard mitigation measures that they coordinate across jurisdictions and government levels. Wildfire control is a regular component of training and promotion. Education and awareness activities repeatedly remind the public about the issue and the effectiveness of mitigation actions before a fire strikes.

All member agencies are better prepared for wildland fire. State of the art remote area weather stations and fire weather operating plans facilitate coordinated decision-making and response. Fire behavior modeling has increased the understanding of risks throughout the region. Member agencies utilize the red flag warning system and update their responses based on nationally recognized standards. All member agencies continue to expand and improve interagency pre-suppression planning and response capability. The past 20 years have seen exponential growth of fire hazard abatement programs on both private and public properties.

The HEF has expanded its memberships from the original six agencies to nine members that focus on interagency relationships. They have participated in multi-hazard mitigation planning, as well as joint projects that include other intra-governmental disciplines. Examples have included mobile incident command and alternate emergency operations, FEMA approved multi-hazard mitigation plans, development of regional best management practices for fuel reduction projects, and preparation of wildfire evacuation tips (www.hillsemergencyforum.org/wildfireevacuation.html.)

Response

Prior to the Tunnel Fire agencies were not adequately prepared to function in interagency operations when responding to the dynamic nature of wildland urban interface (WUI) fires. The dynamic nature of a large WUI fire requires more versatile strategy and tactics than in a traditional urban environment.

Twenty years after the Tunnel Fire the HEF member agencies are dedicated to training in the nationally recognized incident command system (ICS), including training in air operations. ICS is the combination of facilities, equipment, personnel, procedures, and communications operating within a common organizational structure with responsibility for the management of assigned resources. The increased demand for interagency operations requires that a common system be used for all emergencies. Alameda and Contra Costa Counties formed the joint county East Bay Incident Management Team (IMT) in 2005. The IMT responds to all 3rd Alarm incidents in the two county areas. HEF member agencies also have expanded their capacity through mutual aid, recognition of mutual threat zones, enhanced exercises and support on WUI fires outside of the area, as well as participated in regional improvements of alert protocols and various annual interagency drills. HEF members in both Alameda and Contra Costa County regularly communicate and work together to move resources quickly to incidents.

A Mutual Threat Zone (MTZ) is an area that is not in CAL FIREs jurisdiction. It is typically in a city jurisdiction that is susceptible to large loss wildland fires. MTZs were developed to assist local government in 1998 to combat wildland fires in their area. MTZ responses provide specialized CAL FIRE wildland equipment into the city jurisdictions. Equipment includes wildland fire engines, bulldozers, 15 person fire crews, air tankers, helicopters and CAL FIRE chief officers. Use of the MTZ agreements has played a significant role in interagency coordination. By utilizing MTZs we exercise the ordering process for emergencies on a weekly and daily basis. The majority of these responses are small and are mitigated quickly. During times of critical fire weather and high fire activity there is susceptibility for a large damaging fire. Because of the frequency of these MTZ responses, when a large fire does occur the process works effectively due to familiarity of the system.

Members have continued to upgrade the water delivery system completing many of the projects identified as a result of the Tunnel Fire. Upgrades have included such improvements as Berkeley's disaster firefighting water system and the fire flow improvement program in Kensington. Recommendations from the Tunnel Fire to change over 6500 hydrants to national standard threads were completed. As of 2010, many of the projects to improve the pumping system for refilling all upper water zones in the hill areas have been completed. HEF members as part of their mutual aid agreements utilize water tenders through the County or State Mutual Aid systems to supplement local water supplies for fire fighting.

Partnering with the Community and Each Other

Public education, awareness and fuel mitigation actions, were not evaluated immediately following the Tunnel Fire. However, today they are recognized as critical components of successfully living with wildfire. For the past 20 years, HEF Members have focused much of their time and efforts in this area. Public outreach and programs, such as those supporting defensible space clearance, have been very effective. The cities of Berkeley and Oakland have adopted and are enforcing the latest fire codes and more restrictive building codes, including Chapter 7A to apply to the Very High Fire Hazard Severity Zones.

HEF members coordinate their pre-suppression fire hazard reduction and vegetation management activities on both public and private properties. Members have completed many outstanding projects to date that have greatly reduced the risk to the communities for catastrophic wildfires. Funding strategies vary by member agency and include general funds; Oakland's Wildfire Protection Assessment District and East Bay Regional Park District's bond measures. HEF members have made great strides in working together to achieve a comprehensive vegetation management program for the entire area. This process is on-going and should continue indefinitely.

The need to safely utilize spontaneous volunteers in a fire situation is well recognized. The challenge is to utilize untrained, but well intended citizens. HEF member agencies use their community emergency response training (CERT) or similar programs to augment existing personnel and resources; incorporating these volunteers in both drills and emergencies. Many members also have on-going volunteer programs and specific programs to deal with spontaneous volunteers early in the incident.

Twenty years after the HEF member agencies also have enhanced their regional capacity through mutual aid, mutual threat zones, enhanced exercises, support on fires outside of the area, as well as participation in regional improvements of alert protocols and various annual interagency drills. HEF members have continued to enhance their training exercises with a variety of scenarios and equipment designed to enhance the regional capacity for wildland firefighting, including live fire drills. Due to unforeseen circumstances, live fire has not been part of the yearly drill consistently. In some years it has been due to fire weather and resource availability, in other years the distant location of the live fire drill has reduce participation.

Twenty years after the HEF member agencies follow State of California's Standardized Emergency Management System guidelines with law enforcement having lead role for evacuations. Police and fire vehicles are equipped with public address systems to inform citizens. HEF members are active with state and regional information exchanges and exercises, regional programs for alerting and warning systems and have begun a regional public information campaign. HEF member agencies also recognize the value

of their Public Information Officers, dispatching them to incidents and using them to keep the public adequately informed in a rapidly changing incident. The Joint Information Center allows for coordinated, consistent and factually accurate information available using a variety of technologies. New technology, including the internet and mobile communication equipment, provides media reporters with access to information. Use of automated systems for emergency response notifications is extremely beneficial. With technology expanding and homeowners slowly deleting land-line phones from their homes, technology like the “WarnMe” system should be expanded. HEF members will continue to work with regional partners on evacuation plans, drill with local community and exercise the local Community Emergency Response Training teams.

Continuing Challenges

Communications capabilities historically have been a major problem on every large incident. The lack of knowledgeable supervisory personnel has been identified as a major contributing factor to communication and coordination issues when responding to catastrophic events. Twenty years after the HEF member agencies have made great strides towards radio frequency coordination. An interface system is in place using VHF, which most emergency vehicles now have for common communications. HEF members are involved in on-going regional interoperability communications improvements with the East Bay Regional Communications System Authority. Communications will always be a challenge with multi-agency responses. Many accomplishments have been made in efforts to have common radio system and frequency coordination throughout the area. Efforts should continue until the interoperability is resolved.

For the past 20 years, HEF Members have focused much of their time and efforts on fire hazard mitigation. Long term funding for fuel reduction and hazard mitigation has been an on-going challenge. Members have received grant funding, developed an assessment district and passed voter supported bond measures, as well as used funding allocated as a part of annual operating budgets. Prior to beginning many of those projects, environmental clearances have been needed to comply with both federal and state laws. Members continue to work with environmental regulators and the public to complete environmental reviews and identify required mitigation measures to allow fuel mitigation projects to move forward. However, resolution of environmental compliance and legal issues will likely continue to slow fuel reduction actions.

The cities in the Hills Emergency Forum are primarily build-out. New construction places continued pressure to accept more exotic developments that address wildfire in less effective ways. As the cities reinforce fire safety standards this increased development pressure shifts to nearby state responsibility lands. The city and county planning and fire departments continue to be challenged to help create more fire safe communities.

Many of the recommendations arising from this 2011 review involve continued or additional training, multi-agency exercises and coordination. These activities are often the first curtailed during times of budget deficits, strained staffing and other resource shortfalls. While the recommendations have merit, implementation will be challenging due to economic constraints.

Regardless of the challenges facing us in the future, the Hills Emergency Forum is dedicated to continue to provide a sustainable framework to achieve both short and long-term improvements in fire prevention mitigation, suppression and emergency planning for the wildland urban intermix area of the Oakland-Berkeley Hills.

HILLS EMERGENCY FORUM MEMBERS AND COOPERATORS

HEF Members

City of Berkeley
City of El Cerrito
City of Oakland
CAL FIRE
East Bay Municipal Utility District
East Bay Regional Park District
Lawrence Berkeley National Laboratory
Moraga Orinda Fire Protection District
University of California, Berkeley

Cooperators

Alameda City Fire Department
Alameda County Fire Department
Albany Fire Department
Berkeley Fire Department
Contra Costa Fire Protection District
Diablo Fire Safe Council
East Contra Costa Fire Protection District
El Cerrito Kensington Fire Department
Emeryville Fire Department
Fremont Fire Department
Hayward Fire Department
Livermore Pleasanton Fire Department
Moraga Orinda Fire District
Oakland Fire Department
Piedmont Fire Department
Pinole Fire Department
Richmond Fire Department
Rodeo Hercules Fire Department
San Ramon Valley Fire Department

Tunnel Fire - Twenty Years After

REPORT PREPARATION

In the Fall of 2009, the HEF requested that Steve Woodill, Chief of the Santa Clara Unit of the California Department of Forestry and Fire Protection (CAL FIRE) lead a review of progress of the member agencies in the 20 years since the 1991 Tunnel Fire in the Oakland-Berkeley Hills. A similar review had been undertaken in 2000 through 2001 to document progress made ten years after the fire – “*The Tunnel Incident – Oakland 1991 Ten Years After*” (dated October 3, 1991). The ten year after review focused on recommendations made in the 1992 after action report by the Governor’s Office of Emergency Services (OES) titled “*The Oakland Hills Fire – A Multi-Agency Review of the October 1991 Fire in the Oakland/Berkeley Hills*” dated February 27, 1992. Additionally the “Hazard Mitigation Report” (FEMA-919-DR-CA) provided additional review and recommendations related to land use planning issues.

The original 1992 and the 2001 ten year after reports were organized in sections that address operations in each arena of firefighting from training and preparedness to mop-up. Although the focus is on firefighting organizations these reports also review public information, law enforcement and emergency management operations.

The HEF member agencies feel strongly that this 20th anniversary is an opportunity to review our collective progress. This provides the decision makers and staff with a long-term view, allowing them to address the on-going issues of fire risk.

Each member agency was provided a list of the original recommendations as questions to determine the changes both from 1991 and from ten years ago. The report is based primarily on the responses given by each member agency. The original responses are synthesized into this report.

The fire history of this area is significant. Many reports and proposed action items have followed past major fire events. It is the observation of the authors that numerous accomplishments have been achieved, however, a significant amount of opportunities continue to exist to reduce fire risk, and to enhance the mutual aid response capabilities of the responding agencies in a disaster. The realization that these accomplishments have enhanced the ability of fire responders to face any kind of natural or manmade catastrophic incidents is apparent. The emergency management recommendations in this report could apply to all risk situations making for a more effective response.

The HEF now provides the foundation for the continuing challenges and opportunities to further reduce the fire risk in the future. The coordinated approach of the HEF is critical in addressing the many issues related to fire safety in the wildland urban intermix.

TWENTY YEARS AFTER - RESPONSES FROM AGENCIES

The following questions and responses are organized according to various emergency management strategies. The first ten sections (I-X) were taken from the recommendations in the 1992 after action report written by the State Office of Emergency Services titled “The East Bay Hills Fire”. The last section (XI) was taken from the recommendations found in the report by 1992 Federal Emergency Management Agency titled “Hazard Mitigation Report for the East Bay Fire in the Oakland-Berkeley Hills”, FEMA-919-DR-CA. Reports can be found online at www.hillsemergencyforum.org/Afteractionreports.html

Not all areas are relevant to all agencies. Some questions may appear to be directed to a city or county agency. However, laws passed since the 1991 Tunnel Fire, such as the Standardized Emergency Management System considered the Special Districts as a local government, equivalent to a city or county.

I. PREPAREDNESS

Prior to the Tunnel Fire, agencies were not adequately prepared to function in interagency operations when responding to the dynamic nature of Wildland Urban Interface (WUI) fires.

20 Years After

Twenty years after the HEF member agencies understand the components pertinent to wildfires, monitor regional weather changes, have developed operation plans for periods of high fire danger, have increased fire hazard mitigation measures which they coordinate across jurisdictions and government levels, make wildfire control a component of training and promotion and have increased public education and awareness around the issue.

1. Improve public safety agencies’ understanding of the national fire danger rating system (NFDRS). Components related to ignition, spotting potential, expected rates of spread and fire behavior are pertinent to wildland intermix fires.

2001 Report

Oakland Fire Department (OKL), East Bay Regional Parks District (EBRPD) and El Cerrito (ECF) have adopted the Weather Information Management system (WIMS). EBRPD is a leader in this area with a completed fire weather plan that triggers park use restrictions, closures, dispatch levels, staffing changes and public information.

2001 Recommendation: *Member agencies to continue to standardize use of WIMS for uniform decision-making and response.*

20 Years After

All member agencies have continued to increase their understanding of wildland fire. State of the art remote area weather stations and fire weather operating plans facilitate coordinated decision-making and response. Fire behavior modeling has increased the understanding of risks throughout the region.

Agency Specific Responses

Berkeley: The Berkeley Fire Department (BFD) monitors the weather closely, and follows all predicting agencies forecasts. Patrols are provided with field weather kits and regularly report weather conditions in the various microclimates during high fire danger days. In 2005 parcel based assessments were completed for the high fire area.

El Cerrito: All Battalion Chiefs (4) have received CFESTES Command IIE Wildland Command Training. Most Captains have received the same. Wildland components have been added to written and practical portions of Promotional tests. Fire Modeling was performed and staff is aware of and drills with results. In addition, the El Cerrito Fire Department receives RAWS weather updates throughout the day. When indicated, additional staffing is provided and park restrictions are put in place for bar-b-cue use.

East Bay Regional Park District (EBRPD): In 1994 EBRPD purchased and installed four Handar 540A Remote Automated Weather Stations (RAWS). The stations complement RAWS that were already in place operated by the OKL and CAL FIRE. The RAWS monitor weather and allow EBRPD to calculate Fire Danger indices using NFDRS. The Park District currently calculates fire danger indices for dispatch levels three times each day. Forecast indices are retrieved each evening for the next day to set adjective class information and park closure and visitor use restrictions. The fire danger rating information is shared electronically with fire and open space agencies throughout the East Bay.

EBRPDs RAWS were upgraded to the Visalia/Handar 555 data collection platform in 2001. In 2009, both OKL and the EBRPD replaced out-dated RAWS with new, state of the art equipment from Forest Technology Systems.

In order to make better use of the Fire Danger Rating information EBRPD developed its own Fire Weather Operating Plan. The plan defines actions to be taken by Park District staff during different levels of fire danger. Actions range from adjusting the number of fire engines that respond to an incident to closing park areas and restricting visitor use.

The District's Communications Center uses the national interagency, WIMS to produce "Forecast Fire Danger Indices" each evening. Fire Danger Rating information triggers park use restrictions, closures, dispatch levels, staffing changes and public information. The District sent its Fire Captain to the two-week, NFDRS Instructor training in Marana, AZ. In 2008, the District's Supervisory Fire Dispatcher attended regional NFDRS training. The District's Assistant Fire Chief has served for several years on the regional and national instructor cadres for NFDRS training. Following the earlier training and implementation of a fire weather-operating plan, the District hosted a class for fire dispatchers and local government fire managers on the NFDRS and WIMS. In 2010, EBRPD updated its plan using recently developed, nationally adopted fire weather and fire occurrence analysis tools applied to a more robust information database.

EBRPD initiated the "East Bay RAWS and Fire Weather Coordinator's Group". The group meets annually to coordinate fire weather and RAWS operations issues.

In 2008, EBRPD contracted for a detailed FlamMap based assessment of fuel conditions and fire potential on 20,000 acres of parklands in the East Bay Hills. Within the larger study area, the FlamMap analysis identified 3,000 acres of high priority areas for hazard reduction treatment work. This information was used for the preparation of the 2010 Wildfire Hazard Reduction and Resource Management Plan and associated California Environmental Quality Act (CEQA) compliant Environmental Impact Report.

In 2010, EBRPD conducted an EMT-Basic course to prepare personnel for a Fire Academy to be offered in early 2011. Graduates will meet state Firefighter I certification requirements for wildland and structure fire responses, as well as hazmat and BLS medical incidents.

Lawrence Berkeley National Laboratory (LBNL): Understanding and training related to the components of a wildland intermix fire has increased significantly since 1991. LBL Fire Department participates fully and trains regularly with the City of Berkeley, the City of Oakland, and the East Bay Regional Parks District fire departments to assure effective control and management of urban-wildland interface fires in the East Bay Hills, and has recently included participants from national, state and local agencies throughout northern California.

University of California, Berkeley (UCB): Both academics and environmental planners, in modeling the potential progression of wildland fires on University property, have broadly used the fire behavior software "FARSITE". This software, incorporating data developed by the regional Vegetation Management Consortium, has guided efforts to strategically manage and direct wildland fuel reduction and control. UCB, in collaboration with EBRPD, installed a set of

large wildfire awareness signs along Grizzly Peak Blvd. and along Claremont Ave, with the intention of both raising fire awareness and informing the public that the vegetation management (primarily tree and brush thinning) were fire mitigation related activities and not precursors to development.

Fire Behavior Modeling in Eucalyptus: UCB used an assessment methodology, fire assessment and prediction tool developed by Australia's Department of Environment and Conservation through Project Vesta. The report and modeling methodology provides a systematic method for assessing fuel hazard and predicting potential fire behavior (rate of spread, flame height, spotting distance) in dry eucalypt forest. Citation: *Gould JS, McCaw WL, Cheney NP, Ellis PF, Matthews S, Project Vesta: Fuel assessment and fire behavior prediction in dry eucalypt forest. Ensis-CSIRO, Canberra, ACT and Department of Environment and Conservation, Perth, WA. 2007.*

Moraga Orinda Fire District (MOFD): In 2007 MOFD published a risk map of the District based in part on FlamMap modeling of anticipated fire behavior based upon fuel data collected from hyperspectral imaging and historical weather data. Staff receives fire weather reports twice daily and all personnel have completed S-190.

2011 Recommendations:

- Continue education on fire weather by all agencies.
- Identify websites where local fire weather is posted.
- Continue education of the public and community to understand what fire weather means.
- Standardize fire weather observation times.
- Ensure regular maintenance occurs on existing weather stations. Make known to other agencies when weather stations are not functioning properly.

2. Develop local emergency action plans that deal effectively with the "red flag" program. Urban fire departments with hillside/ wildland intermix areas should train staff in the application of the NFDRS.

2001 Report

All Hills Emergency Forum (HEF) members have incorporated the National Weather Service and the California Inter-agency Fire Forecast Weather Unit's Red Flag announcements and have developed operational plans that enhance response capabilities during red flag periods.

2001 Recommendations: *Member agencies continue to utilize the red flag warning system in both planning and response. Continue to train all levels of personnel in the applicability and value of the red flag warning system.*

20 Years After

All member agencies continue to utilize the red flag warning system and update their responses using nationally recognized standards.

Agency Specific Responses

Berkeley: BFD provides annual wildland training to all fire fighters, The Department utilizes low, medium, high hazard day deployment checklists and notification sheets, and has fire hazard rating signs posted in front of all fire stations.

El Cerrito (ECF): ECF provides fire services for Kensington Fire Protection District (KFPD) as well as the city of El Cerrito. Red flag operational plans are developed and include development, adoption and use of Mutual Response Agreements (MRA) in the hillside/wildland intermix areas. Current MRA agreements include: BFD, EBRPD and Richmond Fire Department. ECF also provides enhanced staffing on Red Flag Days and enhanced patrols on Red Flag Days. Enhanced

training prior to and during “Fire Season”, including NFDRS, and annual enhanced interagency training. Two Stations have been equipped with type 3 vehicles and one station is equipped with a type 4 vehicle to run tandem with engines during the “Fire season.” Red flag warning flags are flown at the fire stations and fire danger signs are placed at parks within the Very High Fire Hazard Severity Zone.

Oakland: Oakland Fire Department (OKL) monitors the weather closely and follows all agencies’ forecasts. We have adopted the WIMS weather information and forecast system. This is the same system that both CAL FIRE and EBRPD use. By adopting this system, OKL, CAL FIRE and EBRPD are observing and using the identical rating and warning system.

East Bay Municipal Utilities District (EBMUD): EBMUD maintains a Red Flag Action Plan in response to the National Weather Service announcements of Red Flag Watches or Warnings. The plan calls for raising the water levels in the reservoirs, filling water trucks, relocating emergency equipment in proximity of the high hazard areas, and putting staff on alert. Following the announcement of a Red Flag Warning the Watershed and Recreation Division intensifies patrols in high-risk areas and monitor RAWS for early warning of changing climatic conditions. The Watershed and Recreation Division coordinates Red Flag response actions with local agencies to establish a pro-active, unified response during these weather conditions. Under very high fire danger conditions, key areas of the Watershed close to the public.

EBRPD: The NFDRS has been integrated into the daily operations of the District. In 2010, EBRPD completed a significant revamping of its Fire Danger Operating Plan using nationally recognized fire weather and fire occurrence data analysis tools and the methods and formats specified by current NFDRS training.

EBRPD Fire Department staff has developed a positive working relationship with the National Weather Service, Monterey Fire Weather Forecast Office. District staff has been called by the Monterey fire weather forecaster for field observations and to confirm developing weather patterns prior to Red Flag Warnings being issued.

The District’s Public Safety Communications Center receives the KSAC fire weather forecast via direct e-mail two times each day. The morning fire weather forecast is broadcast daily to all District staff and fire personnel between 10:30 a.m. and 11:30 a.m. Information related to Red Flag Warning and Fire Weather Watch is monitored. A portion of the EBRPD fire weather-operating plan is dedicated to actions to be taken during Red Flag Warning and Fire Weather Watch periods. The Park District ensures that actions are coordinated with adjacent fire and open space agencies.

LBNL: In addition to LBNLs Master Emergency Plan and Wildland Evacuation/Relocation Plan, the Lab has signs posted at each of our three public entrances, and at the firehouse itself, to indicate the level of fire danger and the existence of Red Flag days. The Alameda County Fire Department provides fire services for LBNL.

MOFD: In 2010, MOFD established a staffing policy for “Red Flag” days that includes additional on duty staff, ability to offer CAL FIRE resources a place to stage in MOFD when available, and posting fire weather notifications to the community.

UCB: The campus community has been made aware of the “Red Flag” warning system. The summer “Hill Patrol” (trained student Community Service Officers and police officers on foot, bike, and in 4-wheel drive vehicles) also sends special patrols into the Hills area to spot potential ignition sources and small fires during high fire season. Several “Code Blue” emergency phones have been placed along heavily pedestrian trafficked fire roads to facilitate early notice of ignition or other hazards.

2011 Recommendations:

- Develop consistent and standardized procedures by all agencies for work in the field during red flag days. Develop stop work triggers based on weather conditions standardize thresholds.
- Continued education of the communities on their impacts on a red flag warning day.
- Develop standardized nomenclature and use of emergency notification tools for the public.

3. Revise local hillside/ intermix fire plans in light of the experience of October 19-20, 1991. Fire hazard mitigation measures are essential.

2001 Report

Over the last 10 years, "Mutual Response Area" (MRA) agreements have been developed between most of the member agencies. The plans outline an increase in the number of interagency fire suppression resources responding to initial dispatches. Interagency MRA drills are held each year. The drills stress wildland fire suppression skills, public information, interagency coordination and communications.

2001 Recommendations: *Continue developing and improving the interagency pre-suppression planning and response capability.*

20 Years After

All member agencies continue to expand and improve interagency pre-suppression planning and response capability. The past 10 years have included expansion of fire hazard abatement programs on both private and public properties.

Agency Specific Responses

Berkeley: The City of Berkeley enacted an assessment district after the fire, which was in effect until Prop. 218 passed. Fuel management programs and inspections of the 1,449 properties are still ongoing, though reduced, after Prop 218. The designated hazardous fire area has been expanded. BFD with OKL started the MRA agreements after the 1991 fire to ensure a large number of resources would be responding and that agencies that had a shared interest would be involved from the very start of a fire incident. A new fire station was opened in 2002 to serve the Berkeley hill area.

El Cerrito: El Cerrito in 1994 and Kensington in 1998 adopted an aggressive fire hazard abatement program. El Cerrito and Kensington adopted the 2009 CAL FIRE Very High Fire Hazard Severity Zone maps for local responsibility areas. ECF is also an advocate for vegetation management zones inspecting 4,000 properties annually. ECF participates in regional efforts to establish fuel management zones and fuel breaks with an interagency regional emphasis.

EBMUD: The primary objective in urban/wildland interface fuel mitigation is protection of life and property. Fuel modification activities along the watershed boundary and the urban interface are designed to reduce the potential of a wildland fire spreading from the watershed to the residential area. Interface areas are continually monitored to assess the current level of fire protection. Costs for interface vegetation management average about \$70,000 annually in the Watershed.

EBMUD updates and maintains their Fire Atlas with maps and natural resource management information. This information is available to local fire agencies to assist them when responding to wildland fires on District watershed lands. Information includes: location, potential fire severity, fuel type, slope, special habitat, and fuel reduction activities. Annual maintenance costs for updating the data and printing copies averages about \$1,000.

EBRPD: EBRPD participates in MRAs with many of the adjacent cities and CAL FIRE. EBRPD fire apparatus respond into municipal fire department areas and they, in turn respond into

park areas. Acknowledging the fact that wildland fires do not recognize political boundaries has resulted in a great increase in the number of fire suppression resources responding on the initial dispatch to inter-mix fire incidents. The Park District hosts several MRA drills each year. The drills stress wildland fire suppression skills, public information, inter-agency coordination and communications.

MOFD: Has established exterior hazard abatement standards that are enforced on an annual basis. 4,000 properties are noticed and inspected.

Oakland: OKL has established and uses various updated wildland firefighting plans through the use of various MRAs we have established with EBPRD, CAL FIRE, BFD and MOFD. The Oakland Wildfire Prevention Assessment District was created in 2004 and inspects 22,000 properties. Since 1991 a new Fire Station 7 was opened.

2011 Recommendation:

- Annually review mutual threat zones, very high fire severity hazard zones, and update as needed mutual response plans for all responding agencies affected.

4. Coordinate plans and mitigations measures with other jurisdictions and government levels.

2001 Report

All HEF members are actively participating in interagency forums including: Diablo Fire Safe Council; Alameda and Contra Costa County Chiefs Associations; The East Bay Hills Vegetation Management Consortium; East Bay RAWS and Fire Weather Coordinators Group. Additionally, the HEF has provided an excellent venue for coordinating plans and mitigation measures with other jurisdictions and government levels. HEF is comprised of local, state and federal government working together towards a common goal. Two examples of this are: 1) member agencies sponsored FireSafe 2001 which includes the Wildfire Interface Conference and public events and 2) EBMUD is an active member in HEF and continues to remedy the community fire flow issues.

2001 Recommendations: Member agencies should continue to strengthen interagency relationships by focusing on the HEF goals of assessment, mitigation, preparedness and response. Additionally, continued efforts to include other intra-governmental disciplines such as law enforcement, planning, building and roads departments are needed both at the local and state levels.

20 Years After

The HEF has expanded its memberships from the original six agencies to nine members that focus on interagency relationships. They have participated in multi-hazard mitigation planning, as well as joint projects that include other intra-governmental disciplines. Examples have included mobile incident command and alternate emergency operations and FEMA approved multi-hazard mitigation plans and development of regional best management practices.

Agency Specific Responses

Berkeley: The City of Berkeley participates fully in the HEF, the Diablo Fire Safe Council, and has a number of MRAs with surrounding jurisdictions and agencies. Berkeley completed their multi-hazard planning to comply with the Disaster Mitigation Act of 2000.

El Cerrito: ECF is an active participant in Diablo Fire Safe Council and continues aggressive efforts to keep the El Cerrito City Manager and Council and the Kensington Fire Protection District Board Members informed on wildfire issues. El Cerrito participated in the regional multi-hazard planning efforts in 2004 and 2009 coordinated by the Association of Bay Area Governments (ABAG) to comply with the Disaster Mitigation Act of 2000.

EBMUD: EBMUD worked with the City of Oakland, Alameda County and Contra Costa County under the Urban Area Security Initiative (UASI) to purchase and outfit a mobile emergency command center. This is a commercial-grade 28' command center trailer, staged at the Walnut Creek Water Treatment Plant and maintained in a condition of readiness to support incident management across the District.

EBMUD has maintained a fully-functional Emergency Operations Center (EOC) in Oakland for several years, but advanced planning efforts recently led to the build-out of an alternate EOC on the property of one of the District's water treatment facilities in Walnut Creek. Strategically this gives the District a back-up location to manage emergency response in the event the main administration building on Oakland is not available for occupancy following an emergency.

EBMUD stands prepared to work in unified command with fire agencies, establish common operational objectives in incident action planning, and plan and coordinate response; whether it be from the EOC in Oakland, the alternate EOC in Walnut Creek, or the mobile emergency command center trailer at an incident command post in the field. EBMUD participated in the regional multi-hazard planning efforts in 2004 and 2009 coordinated by ABAG to comply with the Disaster Mitigation Act of 2000.

EBRPD: EBRPD actively participates in the HEF and the East Bay Hills Vegetation Management Consortium. Mitigation project partners have included the cities of Oakland, Berkeley, Moraga/Orinda, Richmond, El Cerrito, the University of California, Lawrence Berkeley Lab and CAL FIRE. In 2008, EBRPD completed the build-up of a self-contained Mobile Incident Command vehicle that features an interoperable radio system, several dispatcher workstations, and helicopter downlink for video, infrared and other data transmission. It has been used on numerous law enforcement and other emergency management incidents since its completion. EBRPD participated in the regional multi-hazard planning efforts in 2004 and 2009 coordinated by ABAG to comply with the Disaster Mitigation Act of 2000.

HEF: Member agencies have participated in development of regional best practices including publication of the Vegetation Management Almanac (2001), Roadside Clearance Standards (2002), Biomass Management white paper (2007), Best Management Practices white paper (2008). Members have jointly addressed issues involving multiple members such as joint agency parking restrictions along Grizzly Peak Boulevard involving UCB, EBRPD & City of Oakland. HEF has also sponsored regional programs such as the FIREWISE training for planners, government officials, and fire agencies in 2004.

MOFD: Active participant in HEF. The Fire Chief is a designated FIREWISE instructor and several District personnel have attended national FIREWISE training. The Fire Marshal was a member of the State Fire Marshal's Office Task Force to develop ignition resistant construction regulations for structure in interface areas. In 2009, the District participated in a community wildfire education forum for the residents in Orinda, Moraga and Lafayette.

Oakland: The OKL has established and updated various MRA with surrounding agencies. They also fully participate in the HEF, Diablo Fire Safe Council and various community fire safety groups. Oakland participated in the regional multi-hazard planning efforts in 2004 and 2009 coordinated by ABAG to comply with the Disaster Mitigation Act of 2000.

UC Berkeley: UCB completed a FEMA approved Multi Hazard Mitigation Plan to comply with the Disaster Mitigation Act of 2000, considering both natural and man-made disasters and detailing response, mitigation, planning and recovery actions that have been incorporated into the campus administrative structure and key employees have received appropriate training. UCB also prepared its 2020 Hill Area Fire Fuels Management Plan (2003) and the 2020 Long Range

Development Plan (2005), both of which detail plans and goals for the management of the hill campus and areas at risk for vegetation control and mitigation.

2011 Recommendations

- Continued to enhance the support of HEF and branch out to other agencies not currently involved to strengthen further the interagency relationships and continued development and focus of mitigation, preparedness and response.

5. Make wildfire control a component of schedule training.

2001 Report

Agencies in Alameda and Contra Costa Counties participate in the annual wildland training at Camp Parks. ECF includes wildland components in written and practical portions of promotional tests.

2001 Recommendations: *Agencies must continue to improve formal wildland training and practical exercises. Agencies should incorporate standardized wildland fire components into promotional processes.*

20 Years After

HEF members continue to improve their formal wildland training and take part in annual exercises. They incorporate standardized wildland fire components into their promotional processes.

Agency Specific Responses

Berkeley: BFD annual training includes state provided interactive training, specialized training on compressed air foam, 4-wheel drive patrol operations and wildland fire fighting. These items are listed on the master training calendar.

Oakland: OKL annual firefighters training includes specialized training on mop up operations and wildland firefighting. This training is scheduled through our Training Division.

EBMUD: All Ranger and Ranger Supervisory staff complete a 40-hour Fire Fighter I training course that emphasizes wildland fire suppression. Supervisory staff completes an additional course series (200 hours of class time) that includes advanced ICS training and qualifies them as a Squad Boss under the National Wildfire Coordination Groups classification system. Annual refresher training consists of a two-day course for all staff (including supervisors) and a 3-day supervisory refresher course. This effort costs about \$9,000 annually.

EBRPD: Wildfire control is a key component of the District's fire training program. EBRPD attempts to meet the standards set by the National Wildfire Coordinating Group for wildland firefighters. District Firefighters complete S-130 (basic wildland fire suppression operations) and S-190 (basic wildland fire behavior) as part of the new firefighter training program. Firefighter safety, wildland fire apparatus operations, helicopter-based fire suppression operations and wildland-urban inter-mix fire operations are covered in seasonal fire department drills. In addition, firefighters attend a variety of other wildfire training. They build expertise in firing operations, progressive hose lays, mobile attack, and hand tools operations through the Department's prescribed fire program. In 2008, EBRPD presented S-290 Fire Behavior training for its fire personnel, helicopter pilots and representatives of other agencies. That same year, eleven new firefighters graduated from the District's Industrial Fire Academy. Eight young adults from Civicorps Schools attended the weeklong basic wildland firefighting (S-130 and S-190) portion of the Fire Academy, and received certification as wildland firefighters. Their new skills have since been employed on prescribed burns, wildland fire mop-up and fuels treatment projects

MOFD: All suppression personnel have attended S-130 and S-190 wildland firefighting training and attend annual refresher training.

2011 Recommendations

- Develop preplans for response, evacuations and staging in high fire areas. Use preplans to train with all involved agencies yearly.
- Continue annual live fire training exercises. If live fire is not an option, develop sand table exercises that can be used by an interagency training workshop.
- Conduct mobilization drills by all HEF agencies in the Oakland Berkeley Hills.
- Develop and implement levels of training from Initial Attack to Extended Attack under Unified Command.
- Seek grant funding for disaster training to be used by HEF members.

6. Public Education and Awareness

2001 Report

Public education and awareness were not evaluated in the initial reports. However, they are recognized as critical components of preparedness.

20 Years After

For the past 20 years, HEF Members have focused much of their time and efforts in this area. Public outreach and programs, such as those supporting defensible space clearance, have been very effective.

Agency Specific Responses

Berkeley: In 2005 and 2006 BFD developed their Home Fire Risk Assessment, a parcel based evaluation, through a FEMA funded Fire Prevention and Safety Grant. This assessment can be viewed on the BFD website to inform property owners on opportunities to reduce their risk.

El Cerrito and Kensington: ECF has developed and continues to enhance public education programs to keep the citizens current on wildfire laws and practices. This is done through Community Emergency Response Training (CERT) and community workshops.

HEF: HEF sponsored public outreach and awareness activities have included development and maintenance of website www.hillsemergencyforum.org, development and distribution of Bay Area on Fire DVD (2008), sponsoring of FIREWISE Workshop (2002), and sponsoring of Media Safety Days in 2004 and 2005. Input to national research has included the National Academy of Public Administrator report to Congress (2003) and North Central Research Station case study (2006). HEF members have participated in activities developed by regional partners such as the weed identification training using the Vegetation Almanac (2003). HEF has also sponsored presentations and mobile workshops to professional organizations such as the American Planning Association (2005); Disaster Resistant California (2005); California Board of Forestry (2005) and an article in Journal of Emergency Management (2005). Members have provided legislative support for bills including AB 1216 Building Standards for Structures (Vargas). On the 10th and 15th anniversary of the 1991 Tunnel Fire HEF members have sponsored a conference (2001) and public events (2006). As new codes or requirements are developed the HEF has sponsored training related to fire safety amendments, such as for Chapter 7A of the California Building Codes (2008)

MOFD: In 2007 MOFD published a risk map of the District based in part on FlamMap modeling of anticipated fire behavior based upon fuel data collected from hyperspectral imaging, historical weather data, and individual property construction and vegetation management features. This

information is available to the public on MOFDs web site in an interactive format to educate property owners on opportunities they have to reduce their risk.

Oakland: Oakland's Wildfire Prevention Assessment District has sponsored community education and contractor training on defensible space requirements (2008 – present).

2011 Recommendations:

- Public education in fire prevention and awareness is a key component of wildfire prevention. Develop a yearly public education day on fire weather and red flag warning days. Emphasize the role of the public in being fire wise. Implement on or about the anniversary of the Tunnel Fire.
- Local evacuation plans should be made public and practiced by the community. Ensure the reverse 911 systems are working by using during the drills. CERT teams should be exercised as part of the drills.
- Expand the use of automated or website notification systems which utilize text messaging and email for emergency notifications throughout the area.
- Continue to educate the public in Fire Safety using known campaign slogans, such as CAL FIREs "Why 100 Feet".
- Develop chipping programs and other assistance programs for residents.

II. COMMUNICATIONS

Communications capabilities historically have been a major problem on every large incident. The lack of knowledgeable supervisory personnel has been identified as a major contributing factor to communication and coordination issues when responding to catastrophic events.

20 Years After

Twenty years after the HEF member agencies have made many strides towards radio frequency coordination. An interface system is in place using VHF, which most emergency vehicles now have for common communications.

1. Assign a supervising fire dispatcher to be present in dispatch centers at all times. A working knowledge of the fire terminology and mutual aid procedures is important to handle complex or large emergencies.

2001 Report

All four dispatch centers (OKL, BER [Berkeley], ERC [Richmond Dispatch Center] and EBRPD) are addressing this issue. The OKL currently has a Battalion Chief, Communications Officer and three dispatch supervisors assigned to the Fire Dispatch Center. A minimum of one supervisor is on duty at all times. BER, ERC and EBRPD have joint Police/Fire dispatch centers. ERC and BER assign firefighting personnel to the communications center during major incidents. EBRPD has a supervisor dispatcher on duty two of the three shifts. Although all dispatch centers have addressed the need for supervisory oversight, the issue is the knowledge and capability required to address the extraordinary demands of complex situations.

2001 Recommendation: The agencies need to recognize that their day-to-day operational procedures will not be adequate for addressing major events. Agencies should continue the training and development of dispatching and supervisory personnel to provide them the knowledge necessary to transcend from day-to-day operations to major events.

20 Years After

HEF members continue to train to ensure knowledgeable dispatch personnel react appropriately.

Agency Specific Responses

El Cerrito: East Richmond Dispatch Center handles fire dispatch for ECF and several West County Policy Agencies. Dispatchers are trained to perform both police and fire functions. Supervisors are dual role also. At all 2nd alarm or greater fire calls a Chief Officer is assigned to the Dispatch Center. The City of El Cerrito has been instrumental in development and implementation of standardized emergency communications system throughout the Bay Area. On September 20, 2010 the El Cerrito City Council approved the funding for El Cerrito's portion of the standardized communication system being developed.

EBRPD: Supervising Dispatcher is currently assigned to the "Day" and "Swing" shifts to oversee communications activities. One of the Supervisory Dispatchers is a long-experienced firefighter. Others have a working knowledge of fire terminology and procedures.

LBNL: Has a 24-hour fire dispatch facility at Lawrence Livermore Lab (LLNL), which takes all incoming calls and dispatches the LBNL units.

UCB: Has no internal fire department, but has direct communications with both BER and LBNL fire dispatch centers for coordinate support of evacuation and notification.

MOFD: Fire dispatch is provided by Contra Costa County Fire Protection District (CCCFFPD) communications center that provides fire dispatch services for MOFD, CCCFFPD, Rodeo-Hercules Fire Department and others.

Oakland: Deputy Chief, and 4 dispatch supervisors are assigned to OKL Dispatch Center. A minimum of one supervisor is on duty 24 hours a day. Dispatchers have completed ICS-100 curriculum and are familiar with fire terminology, utilize and have working knowledge of County Mutual Aid Plan and procedures. 2009 / 2010 OKL competed radio system rebanding proving narrow banding of frequency for compatibility with fire agencies within Alameda County. City of Oakland radio system has been upgraded to P-25 Standard to support inter-operability. The City of Oakland has install emergency sirens to notify the public for protective action instructions in the event of an emergency.

2011 Recommendations:

- Agencies should continue the training and development of dispatching and supervisory personnel to provide them the knowledge necessary. Cross training with other departments and at other dispatch center is highly recommended to learn from others.

2. Separate fire and police dispatch functions whenever possible. This assures that the fire dispatcher is knowledgeable and paying undivided attention.

2001 Report

Three of the four dispatch centers are joint law enforcement/fire centers. The key issue is the knowledge and experience necessary to address these major fire incidents.

2001 Recommendation: *Continued training to ensure knowledgeable dispatch personnel react appropriately. Review current staffing levels to ensure adequate staffing.*

20 Years After

Members continue to train to ensure knowledgeable dispatch personnel react appropriately.

Agency Specific Responses

El Cerrito: Fire dispatch is from a dedicated “fire console” position that is not police dispatch capable.

Berkeley: BFD has an official fire dispatcher-training program, but they are still joint police/fire dispatchers. In the event of a major incident, fire fighters are assigned to the dispatch center as additional resource.

Oakland: OKL and Oakland Police Department have separate dispatch centers. The Police Department maintains the Public Safety Answering Point and transfers fire and emergency medical services related “911” calls to the Fire Department. This separation of functions provides for the respective agency dispatcher personnel to be knowledgeable and to pay undivided attention to their specific operations and processes.

EBRPD: Has a co-located Police and Fire Communications Center. Dispatchers are cross trained for both functions. The radio consoles are dedicated to the police and fire functions when staffing allows. This staffing pattern provides EBRPD with the ability to shift its dispatch focus to handle emergency traffic for any type of incident.

LBNL: Utilizes services of UCB Police Department for the internal police department.

MOFD: Dispatch services are from the Contra Costa Regional Fire Communications Center that is designated as the Regional Fire dispatch center for Contra Costa County.

UCB: Has no internal fire department, though dispatch staff monitor and report to BFD all alarm activations, gas leaks and injuries requiring a fire response.

2011 Recommendations:

- Continue training to ensure knowledgeable dispatch personnel react appropriately. Review annually current staffing levels to ensure adequate staffing is available at all times.

3. Train fire dispatchers in terminology, mobilization of fire and support services apparatus, and air operations deployment. An ability to keep track of resources and their locations is also necessary.

2001 Report

Because communications centers have a high rate of personnel turnover, continual dispatcher training in Incident Command System (ICS), mutual aid, and regional dispatching procedures are essential. The four communication centers indicate they are doing continual in-service training. It is unknown what capability and or processes are used to track and allocate resources.

2001 Recommendation: Agencies need to minimize turnover to the point where adequate training and established proficiency are not compromised by continual personnel changes. Member agencies should analyze their existing resource ordering and status keeping processes to ensure adequate capabilities during a major incident.

20 Years After

HEF members are using the Resource Ordering Status System (ROSS) that has been implemented for the last 6 years to address the tracking of resources on major incidents within California.

Agency Specific Responses

Berkeley: Dispatchers receive specific training. They are also included in all of the MRA drills.

El Cerrito: ECF has recurring fire oriented dispatch training.

EBRPD: Communication center personnel are trained as Incident Dispatcher when appropriate. They attend the inter-agency wildland training and function in the incident dispatcher role. Communications personnel have been trained to the ICS 200 level and routinely coordinate responses to emergency incidents involving multiple agencies. EBRPD dispatchers have toured their counter-part communications centers at CAL FIRE in Morgan Hills and Contra Costa County Fire in Pleasant Hill. EBRPD hosted "Power Phone" training for dispatch personnel. Personnel attended the California Specialized Training Institute Fire Dispatch training in San Luis Obispo.

LBNL: Alameda County Regional Fire Communications Center provides services for LBNL. All dispatchers are trained fire and incident dispatchers and are fully trained in ICS 100/200/300, as well as qualified in ROSS. They are currently the "CAL EMA Region II Fire-Rescue Branch Coordination Center".

Oakland: Dispatchers have completed the ICS 100 curriculum and is familiar with fire terminology. They are familiar with appropriate types, and requesting air operations deployment. Resource tracking occurs through the Fire Department's Computer Aided Dispatch (CAD) system and through completion of specific forms. Training is twice per year.

UCB: UCB has trained all Police and Dispatch personnel in ICS 100, 200 and National Incident Management System (NIMS) 700, and 800 to provide consistency in interagency communications. Incident Command staff has been further trained in ICS 300 and 400 to ensure that command post protocol is well understood by assisting agencies during multi-agency events.

2011 Recommendations:

- Consider cross training with other large departments and other dispatch centers to effectively communicate between agencies.

4. Train dispatchers in initiating mutual aid request and recognizing the “intent” of the mutual aid request.

2001 Report

The response to this question is varied. EBRPD indicates that daily operational interactions with other agencies provide knowledge and capability to utilize the mutual aid system. Lawrence Berkeley National Lab (LBNL), which relies on the Lawrence Livermore National Lab (LLNL) for after hours dispatch, indicates that they have fully trained fire dispatchers. Other member agencies indicate reoccurring training at some unspecified level or failed to respond to the question.

2001 Recommendation: Continued training and use of the mutual aid system by dispatch personnel is necessary to maintain proficiency and understanding. To efficiently utilize this system the skills of dispatchers must allow them to recognize the intent. One option is to implement formal regional and/or interagency training programs for dispatch personnel.

20 Years After

Members continue to train to ensure using nationally recognized formal programs. ROSS has been established as the nationally recognized program standardizing how fire resources are ordered. This system is supported by the California Emergency Management Agency Fire/Rescue Branch and California Fire Mutual Aid System. Each fire agency has been trained how to place “Order and Requests” into the system when agencies require additional resources.

Agency Specific Responses

El Cerrito: ECF includes this as a part of their recurring training.

Oakland: Each Fire Department Dispatcher has completed the ICS – 100 Curriculum, and is familiar with fire terminology. Several dispatchers within the department have been certified as incident dispatcher for wildland incidents.

EBRPD: EBRPD is unique in that the vast majority of calls for emergency service require contact with cooperating agencies. Dispatchers routinely coordinate “mutual aid” responses with adjacent municipal fire departments, emergency medical services (EMS) providers and CAL FIRE.

LBNL: All dispatchers are fully trained fire dispatchers.

UCB: While UCB is not, and does not operate as a fire response agency, the campus has documented the fire response system, including appropriate agencies, level of response to given conditions, and Mutual Response Areas and Agreements. They also make this documentation available as an informational service to all interested campus individuals and units. UCB has trained all Police and Dispatch personnel in ICS 100, 200 and NIMS 700, 800 to provide consistency in interagency communications. Incident Command staff has been further trained in ICS 300 and 400 to ensure that command post protocol is well understood by assisting agencies during multi-agency events.

2011 Recommendations:

- Conduct annual multi-agency mutual aid drills focusing on communication. Incorporate ROSS, the resource ordering process and multiple Region requests into the training.

II. COMMUNICATIONS

5. Plan to allocate radio frequencies by function, operational division and support services. Monitor each frequency at the command center.

2001 Report

The response to this question is fragmented. It appears that each department has developed an intra-departmental strategy for responding to the communications needs of a large incident. Most of the departments have developed some interdepartmental communication capability i.e. white frequency. OKL, EBMUD and EBRPD utilize the white frequency as a communication link with their cooperators. Additionally, OKL, BER and LBNL have established daily check-in procedures. ECF acknowledges having operational policies and practices in place. UCB and OKL adopted the 800 MHz public safety radio system after the 1991 fire. All of these departments have developed efficient communications capabilities for normal workloads. It is unclear how the communications needs would be expanded for a large incident.

2011 Recommendations: *The member agencies develop a communications working group to determine the potential large incidents communications need. Then assess the existing interagency capability and recommend a formal communications strategy (written plan) to the HEF membership for interagency implementation.*

The Bay Area Urban Security Initiative (UASI) has developed a communications plan known as “Tactical Interoperability Communications Plan” which outlines what communication resources are available within the region. It also identifies what frequencies are available for mutual aid communications and interoperability with other agencies. The East Bay has begun to implement a regional radio communications system that will support communication interoperability between local government agencies between both Alameda and Contra Costa Counties.

The East Bay Regional Communications System Authority (EBRCSA) was officially created on September 11, 2007 with the formation of a Joint Powers Authority (JPA). In California State Statute, a JPA is viewed as an independent governmental agency with the same powers that accrue to one of the member agencies. Currently there are 38 **member agencies** consisting of both counties, 30 cities, 4 special districts, the University of California, and the California Department of Transportation serving a population of over 2.5 million people. The **Board of Directors** is made up of 23 representatives consisting of Elected Officials, Police Chiefs, Fire Chiefs, and City Managers who will be responsible for the overall development, operations and funding of the system.

Representatives from both counties have been working together for over 6 years using Homeland Security grants funds from the Bay Area Security Initiative (**UASI**), State Homeland Security (**SHSGP**) grant programs, and COPS grant funds to fund infrastructure build out while the JPA formation process moved forward. CTA Communications completed a detailed system design and operational cost model, the system is estimated to cost approximately \$70 million. To date, the EBRCSA has secured close to \$46 million in Federal Homeland Security grants to build out the infrastructure.

EBRCSA, Motorola Solutions, and AECOM have long been working to finalize the site selection and coverage design for the two-county EBRCSA P25 trunked radio system. The EBRCSA system once completed in June 2012 will provide coverage and interoperability to all agencies operating on the system. This system will improve safety, eliminate duplication of overlapping independent systems and provide interoperable voice communications. This will enable EBRCSA to provide improved public safety services.

The EBRCSA P25 System consists of an IP-based P25 Phase I simulcast subsystem and ASTRO 25 standalone repeater sites. The Motorola ASTRO 25 trunked system incorporates the latest technology, delivering the flexibility of an IP transport, FDMA operation and simulcast frequency efficiency. The Several sites will cover the hill area: the UC repeater site at the Lawrence Hall of Science, a site on Bald Peak to cover the Tilden Park area, a site on East Bay Parks land above the Caldecott tunnel, a

site in Redwood park next to the Chabot Science Center, a site in Moraga Alta Mesa covering the back side of the hills, Nichol Knob in Richmond covering the Northern hills and San Leandro Hills covering the Southern hills.

For more detail and status updates see: www.ebrcsa.org/

Agency Specific Responses

Berkeley: Went from one or two channels to a 5-channel system, in addition to the state channels that include mutual aid and tactical channels. The channels are used regularly. Member of EBRCSA.

El Cerrito: Operational policies and practices are in place.

Oakland: OKL uses the City of Oakland P-25 new digital radio system which provides for increased radio coverage and interoperability with surrounding communities and jurisdictions. As a result of the upgrade, Fire and Police have improved communications capability. This system provides for multiple channels (talk groups) and systems. Additionally, the radio system utilizes a minimum of six VHF radio frequencies, which are common to all Alameda County Fire Departments. Those channels include White Fire 1, VFIRE 22 and 23, and Allotac 4, and 5. These radio systems allow incident command operations to be broken down by function, operational division, and support service.

EBRPD: EBRPD is unique in that the vast majority of calls for emergency service require contact with cooperating agencies. Dispatchers routinely coordinate “mutual aid” responses with adjacent municipal fire departments, EMS providers and CAL FIRE. Member of EBRCSA.

UCB: UCB Police Department adopted the 800 MHz public safety radio system after the 1991 fire. This computer-based radio communications system allowed the development of multiple talk-groups, defined by function and operational division. Essential public safety frequencies are monitored by the 911 dispatch center. Additionally, talk-groups on each radio include common frequencies with the other 8 UC campuses, allowing the rapid growth of the response force when mutual aid is called in to any campus. In 2008, the UC Police Department completed a major facilities and equipment upgrade in its communications center, greatly enhancing the department’s ability to coordinate with outside agencies and providing additional dispatch stations for expansion of operations during a major event. Member of EBRCSA.

2011 Recommendations:

- Continue to coordinate with EBRCSA and support communication interoperability between local government agencies between both Alameda and Contra Costa Counties.

6. Set up dedicated “outgoing only” telephone lines in the dispatch centers. Do not list or post the outgoing line numbers.

2001 Report

All member agencies have enhanced their communications capability by adding dedicated “out-going” telephone lines.

20 Years After

Members continue to have dedicated “out-going telephone lines”.

Agency Specific Responses

El Cerrito: Dedicated outgoing lines are in place. Dedicated Fire Administration and Operations priority is on incoming lines as well

EBMUD: Dispatch center maintains a policy-fire emergency phone number and “red phone” line the number for which is not published outside EBMUD for outgoing calls.

Oakland: OKL established line in the Fire Dispatch is for outgoing calls. It is a separate phone, on a separate phone cable, not to be confused with the routine switchboard operation. This number is not published.

EBRPD: Communications Center established two dedicated out-going phone line for this purpose.

LBNL: BFD requests dispatch of ACFD firefighters at LBNL by telephone. Once enroute the firefighters notify their dispatch that they have accepted the request. The LBNL dispatch center is located inside LLNL and is staffed 24/7. There is the old dispatch center located at the fire station at LBNL that could be used in an emergency if communication with LLNLs dispatch center was lost.

UCB: Dedicated outgoing lines are in the dispatch center, as well as special incoming lines dedicated to use by the Chancellor’s Emergency Policy Group. This system is intended to speed decision-making and policy setting during times of emergency.

2011 Recommendations:

- No further recommendations.

7. Conduct frequent interagency radio communications exercises. All fire departments in an area should participate.

2001 Report

All departments participate in regular tactical mutual aid exercises. These exercises often are designed to focus on field resources rather than dispatchers.

2001 Recommendations: Continue efforts to use and develop tactical mutual aid exercises as a way to enhance interdepartmental incident response. Develop interagency dispatch drills and communications exercises to establish standard protocols for large incidents. Establish a yearly interagency dispatcher workshop focusing on interagency communications issues and opportunities.

20 Years After

Members participate in interagency and interdepartmental annual mutual response drills. The Bay Area participates in an annual regional training response drill that supports the exercise of incident radio communications between disciplines. Fire resources continue to participate annually in a regional Wildland Fire training sponsored by Alameda and Contra Costa Counties that provides incident communications training both operationally and technically.

Agency Specific Responses

Berkeley: BFD participates in the MRA drills. City of Berkeley also has an agreement with the Alameda County ham radio operators and they are included in the training. BFD and surrounding fire agencies participate in annual MRA drills.

El Cerrito: ECF regularly practices these procedures through mutual/automatic aid and MRA exercises with fire departments in multiple jurisdictions and counties.

Oakland: Battalion Chief vehicles have the mutual aid frequencies. This is a common communication link between the various fire response agencies. Staff participates in interagency radio communications when available. These exercises typically occur every other year and are organized by local municipal fire agencies.

EBMUD: District Ranger vehicles have the “fire white” radio frequency. This is a common communication link between the various fire response agencies. Staff participate in interagency radio communications when available, exercises typically occur every other year and are organized by local municipal fire agencies. EBMUD also participates in control burns on an annual basis. These exercises provide opportunities to utilize common radio frequencies, which are necessary in mutual aid response incidents. Costs are minimal. Through EBMUD-provided training, staff members hold ham radio operator licenses. Using the Emergency Amateur Radio System (EARS) and ARES/RACES they can provide emergency backup communication links with state agencies and other public safety and service responders during emergency operations. Activities of amateur radio operators in these circumstances will follow EBMUD and Federal Communications Commission guidelines as well as defined operational procedures and protocols.

EBRPD: This recommendation was originally implemented through the Mutual Response Area drills and inter-agency wildland fire training exercises. EBRPD currently uses inter-agency tactical frequencies on the majority of multi-agency responses in the East Bay Hills.

LBNL: As part of LBNLs automatic aid agreement with the City of Berkeley, ACFD fire fighters stationed at LBNL often respond to calls for the City of Berkeley. This requires that effective communication be available at all times. ACFD fire fighters carry the county’s standard 800 MHz radio as well as the Berkeley standard VHF radio. These VHF radios not only assure ease of communication with BFD but also with the mutual aid channels and CAL FIRE channels that can be monitored by OKL. ACFD often coordinates with Oakland Fire as they have a shared response area located near the San Leandro Oakland border.

2011 Recommendations:

- Continue to conduct MRA training exercises annually with all agencies.

III. STRATEGY AND TACTICS

The dynamic nature of a large wildland urban interface (WUI) fire requires more versatile strategy and tactics than in a traditional urban environment.

20 Years After

Twenty years after the HEF member agencies are dedicated to training in the nationally recognized incident command system (ICS), including training in air operations, and have continued to upgrade the water delivery system completing many of the projects identified in the 2001 review.

1. Expand operational level command staff to meet recognized standards for span of control in fire fighting. One chief officer for each five to seven operation companies is optimal.

2001 Report

Span-of-control: the supervisory ratio of from three to seven individuals with five being established as optimum. PMS 410-1, NFES #0065

OKL operates with a span-of-control of eight to ten. LBL, ECF and EBRPD rely on the ICS organization to meet their on-scene management needs. Span of control for day-to-day operations remains difficult to achieve due to minimum chief officer staffing.

2001 Recommendation: The agencies form a Regional Operations Chief Working Group to identify ways to respond sufficient command personnel to all major emergencies. Fully integrate the ICS into the daily operations of all departments to minimize the impact of reduced chief officer staffing.

20 Years After

All HEF Members agencies are dedicated to training in the nationally recognized Incident Command System (ICS). Mutual aid plans and drills allow them to minimize the impact of reduced chief officer staffing. Alameda and Contra Costa Counties formed the joint county East Bay Incident Management Team (IMT) in 2005. The IMT responds to all 3rd Alarm incidents in the two county area.

Agency Specific Responses

El Cerrito: ECF uses the following standards: All Chief Officers receive advanced incident management training at the Incident Command, Incident Manager or Executive Manager Level at CAL FIRE, Ione, or CSTI or the National Fire Academy. All Chief Officers participate in County or Regional Command Team response. All Personnel are trained to or beyond the appropriate SEMS level. All Chief Officers are trained and participate in the County Overhead Team Plan. Recently, all El Cerrito fire personnel, supervisors from the Police Department and all supervisory personnel working in the EOC have completed ICS 300 training. All EOC management personnel and all public safety managers have completed ICS 400.

Oakland: OKL utilizes a three (3)-battalion system. Although we recognize that the optimum span of control is 5 – 8 operations units, we are unable to meet that standard. OKL chief officers operate with a span of control of 1 chief officer for 8-10 units.

EBRPD: Strives to respond an adequate number of fire officers to each incident. ICS has been used to organize all types of incidents and ensure span of control is not exceeded. Fire Officer response is a component of the emergency response plans in the Communications Center. On low dispatch days one officer is scripted to respond. On medium dispatch days three officers respond. On high dispatch days four to five officers respond. EBRPD fire officers complement other agencies Fire Officers that are also responding to the incident. Every attempt is made to fill the ICS positions required to manage the incident with qualified personnel.

LBNL: Uses the standard ICS for all its operational functions.

MOFD: One Battalion Chief is on duty at all times to oversee our five companies and one additional chief officer is designated to be available to respond back to MOFD should the need arise. MOFD also has a mutual aid plan in place in which on duty CCCFPD Battalion Chiefs will respond to fire incidents.

2011 Recommendations:

- Continue to exercise and support the Chief Officers with training for ICS positions for large scale incidents.

2. Appoint a duty chief to enhance inter-platoon coordination and to ensure unity of command concepts.

2001 Report

OKL appointed a Deputy Chief to coordinate shift activities. Most departments coordinate shift activities through the Fire Chief or an Operations Chief.

2001 Recommendations: Implement the recommendations as outlined above to minimize the impact of reduced senior command officer positions.

20 Years After

All HEF Members agencies are dedicated to training in the nationally recognized ICS and SEMS. Mutual aid plans and drills allow them to minimize the impact of reduced chief officer staffing.

Agency Specific Responses

EL Cerrito: Conducts semi-annual SEMS drills including concepts of unified command, span of control, unity of command concepts, and other terminology common to SEMS.

Oakland: A deputy chief supervises inter-platoon operations. The deputy chief works a 40-hour schedule and is available for recall within 30 minutes.

EBRPD: This responsibility has always been assigned to EBRPDs Fire Captain.

2011 Recommendations:

- No further recommendations

3. Recognize the limitations of air tankers and water-dropping helicopters. Agencies with those resources should provide all urban fire departments with guidelines for safe and effective air operations.

2001 Report

Annual regional training exercises include air operations safety. CAL FIRE and the United States Forest Service (USFS) have published training material on operations where aircraft, both fixed wing and rotary, are utilized. The EBRPD has two Type III multi-mission helicopters. These aircraft are used for firefighting and to orient and train cooperating agency personnel. The intention of this recommendation was to increase the awareness of ground fire fighting personnel on aircraft operations.

2001 Recommendations: Develop programs based on National Wildfire Coordinating Group (NWCG) S-270 Basic Air Operations to increase the awareness of all firefighting personnel on air operations. The current use of large capacity heli-tankers and the increased use of aircraft generally make this a high priority item.

20 Years After

HEF Members include training in air operations. CAL FIRE and EBRPD have helicopter resources that are called frequently to respond to fires in the region.

Agency Specific Responses

El Cerrito: ECF conducts air operations drills periodically as part of the periodic regional training program.

Oakland: OKL does not have this internal resource. They request and utilize these resources from other agencies. OKL participates in training related to the safety aspects of working around aircraft.

EBRPD: Since 1991 EBRPD has developed fire suppression capability within its own helicopter unit. EBRPD maintains a fleet of two, type-three, multi-mission helicopters. The Aerospatiale, AS-350, B-2 helicopters use a Bambi-bucket and can carry 144 gallons of water to the fire line. The pilot staff continues to orient and train both EBRPD and cooperating agency personnel on the limitations and capabilities of the aircraft.

In 2009, EBRPD replaced its aging Eagle V with the newer Eagle VII. This newer helicopter has greater water handling capacity, as well as infrared detection and night-flying capability. Both Eagle VI and Eagle VII are called frequently to respond to EBRPD and mutual aid fires.

2011 Recommendations:

- Include awareness training of aviation equipment in the Strike Team Leader annual refresher and/or include in the multi-agency annual wildland drills.

4. Develop a more expedient means of adapting hydrant outlet from 3" to 2-1/2" National Standard Thread. Investigate the feasibility of installing adapters with breakaway caps.

2001 Report

The EBMUD completed the change over of all 6500 hydrants in the City of Oakland to 2 1/2" NST in July 1998.

2001 Recommendation: None

20 Years After

Recommendations from original report were completed.

Agency Specific Responses

Oakland: In 1994, the OKL completed the installation of adapters on approximately 6500 hydrants within the City of Oakland. However, the adapters did not function properly and a more effective means to adapt these hydrants was explored. In 1997, the City of Oakland and EBMUD negotiated an agreement to install hydrant nozzles and replace hydrant bodies as appropriate. The cost of this program was approximately \$0.75 million and was shared by the City of Oakland and by EBMUD). Per the agreement, this major work was started in February 1997 and completed in July 1998 by EBMUD. In May 2001, EBMUD completed the final remaining work by upgrading approximately 240 hydrants via another cost sharing agreement entered into with OKL.

EBMUD: Since 1994, EBMUD, with the cooperation and assistance of various local fire agencies, has been conducting hydrant flow tests as part of the Hydrant Testing Program. The purpose of the program has been to gain more knowledge of the hydraulic capacity of the water distribution system and to determine the actual fire flow capacity and condition of the hydrants. The goal of the program is to flow test as many of the 30,000 hydrants as possible over a ten-year cycle. Not all hydrants are actually tested due to either proximity of other very similar hydrant

locations or environmental constraints. However, all testing groups use the same hydrant testing kit and the same flow testing protocols to ensure accurate results. Approximately 15,000 hydrants have been tested to date. Not all of the fire agencies participate. At the EBMUD/Fire Agency Forum, EBMUD and the fire agencies meet annually to review testing progress by all participating groups and to keep each other up to date and exchange information on relevant coordination issues. The EBMUD contributes about \$45,000 per year to maintain the Fire Agency Forum and Hydrant Testing Program.

2011 Recommendations:

- No further recommendations.

5. Upgrade the water grid sufficiently to produce a fire flow consistent with building density and size.

2001 Report

Water service is provided to both Alameda and Contra Costa Counties by EBMUD. EBMUD has undertaken numerous projects to improve supply, increase fire flow (new standards set by a number of cities) and make improvements to ensure an adequate water supply is maintained. Much of this work was done in conjunction with their Seismic Improvement Program. EBMUD has worked with individual fire departments to upgrade areas of weakness. In some cases, new mains and hydrants were added where supply was non-existent or inadequate. Some local communities have entered into cost share agreements with the EBMUD to complete these projects. A major improvement project, at a cost of \$3.1 million, was undertaken in Oakland's Rockridge district, an area that suffered heavy losses during the Tunnel Incident.

2001 Recommendation: *Continue the upgrading of the water delivery system to meet the fire flow requirements based on current and future fire service needs.*

20 Years After

HEF Members have continued to upgrade the water delivery system with such improvements as Berkeley's disaster firefighting water system and the fire flow improvement program in Kensington.

Agency Specific Responses

Berkeley: The City of Berkeley has funded the provision of additional hydrants along Wildcat Canyon Drive on the eastern side of the City, where supply was inadequate. In addition, the City has funded hydrant upgrades when appropriate. BFDs Disaster Firefighting Water System is operational for those times when the regular firefighting water system is not available or has limited flow. Department wide training was completed in October 2010. The system has two 6,000 gallon per minute pumps HS-900s, six Hose-layer units each with a mile of 12 inch ultra large diameter hose and the necessary connections to create a firefighting water main flowing up to 12,000 gallons a minute. Normal distance the hose can be deployed depending on elevation is three miles. Longer deployments of up six miles are possible at 5,000 to 6,000 gallon per minute flows.

The pumps do not depend on drafting for access to the bay or lakes for water. The system is truck transportable and the hose is deployed at speeds up to 15 mph. Deployment time from pump at water source to hose deployed with water flowing over a two mile distance is one hour or less depending on conditions with a crew of five people. The system has Hose Recovery Units that assist loading hose back into the Hose-layers. The equipment is containerized and only two transport trucks are need to deploy the system.

In addition the system has a smaller pump HS 150 and 5-inch hose system, which can provide 1,000 gallon per minute flows over a mile for smaller operations or extension of the larger

system. The system is not part of the mutual aid system at this time but regional events that impact on Berkeley could warrant use of the system outside of Berkeley.

El Cerrito: KFPD has completed the first three phases of a fire flow improvement program extending fire mains into underserved areas, upsizing undersized water mains, looping dead end fire mains and adding additional fire hydrants to meet CA Fire Codes. The City of El Cerrito has worked with EBMUD to improve the community water supply over the past dozen years. El Cerrito has established 1000 gpm as the fire flow minimum. Approximately 75 new hydrants have been added to the City since 1991.

EBMUD: Generally this goal is achieved throughout EBMUD. Programs like Distribution System Upgrade, main replacement and relocation, site-specific new development or re-development projects (applicant funded) are used to provide infrastructure (mainly pipelines), which is sized for modern fire flow requirements. EBMUD worked with individual communities and fire jurisdictions to identify improvements needed to increase fire flow goals. Fire flow improvements in Rockridge area were successfully completed in 1997 for a cost of \$3.1 million (cost share between EBMUD, OKL and City of Oakland). KFPD adopted Kensington Water System Improvements Master Plan to fund \$1.5 million upgrades completed in 2009. City of Orinda and MOFD have placed measure on the ballot multiple time to fund \$13 million of the \$50 million master plan for fire flow improvements. The last measure in 2007 failed to pass the required two-thirds majority.

The EBMUD SIP team, in coordination with other departments, works to inform cities, fire departments and other public agencies of impacts from SIP projects. The SIP team has a supervisor assigned to coordinate these activities. The Operations Department has a procedure to notify fire departments of planned tank outages. The SIP staff works with the Operations Department to coordinate this notification while seismic work is being performed. The SIP staff participates in the Joint EBMUD/Fire Agency Forum in quarterly meetings to coordinate EBMUD activities that impact fire agencies. Planning and public works departments are included in the mailing list for neighborhood notices describing SIP projects in their communities and invited to comment. Presentations on the SIP were included in the briefing for City Managers and for the joint meeting with the Contra Costa County Board of Supervisors. This effort incurs an annual cost of about \$30,000. The SIP construction program is now nearly complete.

LBNL: Maintains its own back up water supply in three 200,000 gallon elevated tanks.

UCB: Upgrades in service and capacity follow the guidance outlined in the 2020 Long Range Development Plan and EIR, outlining close coordination between engineers, the City, Fire Marshals and Project management staff involved with building development on the campus. Current and immediately upcoming system-wide upgrades have or will greatly improve(d) water flow. New fire hydrants were emplaced in conjunction with Silver Lab addition and Hill Terraces Parking project and have been added to the Field Station for Behavioral Research (23 acres) along adjacent to Grizzly Peak Blvd. and within one-quarter mile of residential neighborhoods.

2011 Recommendations:

- No further recommendations.

6. Install a permanent auxiliary pumping system for refilling all upper water zones in hill areas.

2001 Report

EBMUD has acquired twelve (12) portable pumping units with a capacity range of 150 to 2,000 gallons per minute for emergency deployment. All pumping plants are equipped with an emergency generator connection and a few of the 150 pumping plants have a dedicated emergency backup generator.

2001 Recommendation: Continue efforts to meet this goal.

20 Years After

As of 2010, many of the projects identified in 1999 – 2001 review have been completed.

Agency Specific Responses

Berkeley: The City of Berkeley voters have passed Measure Q, which provided for the purchase of mobile pumps and above ground ultra large diameter hose to provide for an auxiliary water supply when necessary.

Oakland: EBMUD is responsible for this service. However, the OKL has acquired an above ground hydrant system that is equipped with 5 in. hose. In the event of a large-scale incident, the system can be placed in service to provide a reliable auxiliary water system.

EBMUD: Maintains and operates more than 150 pumping plants ranging in capacity from 20 gallons per minute (gpm) to 70 million gallons per day. These pumping plants contain pumps ranging in size from 5 horsepower (HP) to 3,600 HP and each plant is equipped with an emergency generator connection and a few have dedicated backup generators. EBMUD also has twelve back up portable pump units with a capacity range of 150 to 2,000 gpm that can be deployed as necessary in emergencies.

Under the EBMUD Seismic Improvement Program up to six 6.0-MGD portable pumps will be obtained as part of the Transmission System Upgrade Project. The pumps will be used for conveying water amongst the major transmission water lines after a major earthquake.

To mitigate earthquake damages, including post quake fires, EBMUD embarked on a Seismic Improvement Program (SIP). Each upgrade to a pipeline, building, pumping plant or treatment plant provides EBMUD and its customers more protection against long disruptions in water service after a serious earthquake. During the first five years of the 10-year SIP, EBMUD seismically improved more than 200 critical facilities, components and pipelines throughout the water system. By 2008 EBMUD upgraded another 150 vital facilities and construct two significant projects, the Claremont Tunnel and the Southern Loop Pipeline, projects essential for overall post-earthquake system performance.

The SIP assesses the potential impacts of earthquakes and mitigates seismic risks by upgrading critical facilities and backbone piping throughout the water system. Though the need to prepare for earthquakes is evident, experts recognize that it is impossible to shield all facilities completely from major earthquake damage. SIP upgrades have taken two forms: either by strengthening the facility to minimize damage and risk, or by providing a temporary alternate water route after the quake while repairs are made.

Focusing retrofits on key facilities and pipelines will allow EBMUD crews to respond to localized breaks and disruptions after a major earthquake. For example, the retrofit of the Claremont Tunnel means minimal disruption to water supply for most of the East Bay in EBMUD, as opposed to the six months or maybe a year required to repair massive damage to this tunnel after an earthquake. The SIP reduces the amount of time needed to recover the system and will allow restoration of water service more quickly after a catastrophic earthquake, when water will be most needed.

Anchoring and reinforcing reservoir walls and foundations improves fire-fighting capability, keeps water available for drinking, and provides pressure needed for water distribution. Upgrades protect the lives of the public and our employees.

Strengthening EBMUD facilities and anchoring equipment protects the lives of the public and our employees, and helps ensure functionality after a disaster.

Upgrades protect pumping equipment, prevent the loss of electrical power to the plant, or provide an alternate way to pump water after a major earthquake. Upgrades to water treatment plants minimize damage and improve EBMUDs capability to supply treated water after an earthquake for customers and firefighters. These improvements aid our ability to fight fires and restore service and protect the lives of EBMUD employees.

Backbone and transmission system pipelines may be vulnerable to seismic hazards such as faulting, landslide or liquefaction. EBMUD uses innovative techniques to keep critical pipelines intact or provides for emergency connections that improve fire-fighting capability and allow service restoration while pipeline repairs are made.

Southern Loop and Claremont Tunnel projects strengthen the most critical lifelines in the transmission system and provide system redundancy, flexibility and reliability. The Southern Loop Pipeline provides emergency water to the southern part of EBMUD service area.

UC Berkeley: The campus embarked on a system wide effort to upgrade its fire flow capacity with the Underground Utility Projects. As of 2010, the projects identified in 1999 – 2001 have been completed. In addition, the LRDP mandates that all new construction adhere to current fire flow requirements. All new construction since 2005 complies with the fire safety design requirements set forth in the 2020 LRDP and EIR.

2011 Recommendations:

- No further recommendations warranted.

7. Maintain a list of locally available water tenders at all fire dispatch centers.

2001 Report

Other than agency owned equipment, fire dispatch centers do not keep status on water tenders. Most departments surveyed stated they would order water tenders through the Operational Area Fire and Rescue Mutual Aid System.

2001 Recommendation: *Fire departments develop an Operational Area and Regional Emergency Resource Directory for all resources including water tenders, agency and privately owned.*

20 Years After

HEF members as part of their mutual aid agreements utilize water tenders through the County or State Mutual Aid systems.

Agency Specific Responses

Berkeley: The City of Berkeley does not do this.

El Cerrito: List revised & updated annually.

Oakland: As a part of the County Mutual Aid System, OKL requests resources through the County Mutual aid system.

EBMUD: Maintains a current list of where its water trucks are located for daily dispatch for construction work

EBRPD: Replaced fleet of aging fire service water tenders with one upgraded 1800 gallon fire dedicated water tender. Three additional water trucks were purchased for park operations. These units are available for fire response and have limited fire suppression/water supply capabilities. In 2010, EBRPD augmented its watertender fleet with a second, short-wheelbase 1500-gallon watertender.

MOFD: Through Contra Costa County Fire Dispatch, has access to water tenders available through the State Mutual Aid System.

2011 Recommendations:

- Maintain an Emergency Response Directory (ERD) that is updated yearly and available to all mutual aid agencies. Incorporate the ERD usage into annual drills with multi agency drills.

IV. MUTUAL AID SYSTEM

The California Fire and Rescue Service Mutual Aid System is a critical component of all large emergency management responses. The increasing demand for resources requires that response agencies thoroughly understand all components of the Mutual Aid System.

20 Years After

Twenty years after the HEF member agencies have enhanced their regional capacity through mutual aid, enhanced exercises and support on fires outside of the area, as well as participated in regional improvements of alert protocols and various annual interagency drills.

1. Prepare all fire service agencies for “worst case” scenarios, particularly fires, earthquakes, hazardous material and mass casualty incidents.

2001 Report

All fire department employees have received Standardized Emergency Management System (SEMS) and ICS training. ECF uses contract emergency planners to design realistic and useful plans and drills. Many cities have sent personnel to California Specialized Training Institute (CSTI) and Emergency Management Institute (EMI) for training in “all-risk” disaster preparedness. The addition of fire apparatus designed and equipped for wildland firefighting has enhanced the regional capability.

2001 Recommendation: Develop annual “tabletop exercises” to exercise command and control systems. Worst-case scenarios should include Weapons of Mass Destruction (WMD) problems.

20 Years After

HEF members have continued to enhance their training, exercises with a variety of scenarios and equipment designed to enhance the regional capacity for wildland firefighting.

Agency Specific Responses

Berkeley: Two multi-agency drills, Berkeley Alert (2003) and Berkeley Alert II interagency preparedness exercises (2004) included Berkeley, LBNL and UCB.

El Cerrito: ECF designs annual drills to incrementally increase the organizations emergency response capabilities. Contract planners and outside vendors are used to design realistic and useful plans and drills. All public safety supervisors and all EOC supervisors have been trained to ICS 300.

Oakland: The City of Oakland and OKL fully participate in the State and the County Mutual Aid System. Additionally, we have provided all fire department employees with SEMS training and/or ICS 100 - 200. Supervisors and Command staff have completed ICS 300, 400 and the City of Oakland is NIMS compliant.

EBRPD: Trained field staff to the ICS 100 level. Fire, Police, Park Rangers Lifeguards and Communications Center Staff use the Incident Command System for emergency response. The Park District implemented a program designed to replace and upgrade its fire apparatus fleet. Four, type-three wildland urban intermix engines were added to the fleet. These engines were designed to meet the challenges of both wildland and structural fire suppression in the East Bay Hills. The fire suppression capabilities of the eight, type-four engines that have been replaced was significantly increased with the addition of Class A foam, larger pumps, an increased hose complement and enhanced mutual aid communications.

In 2009, EBRPD received a new CAL EMA Type I/Type III Urban Rescue engine. The apparatus has been deployed on numerous mutual aid responses both within the region and

statewide. EBRPD has trained additional personnel to meet the special requirements for staffing this apparatus.

An EBRPD fire lieutenant serves as a Division Supervisor on an interagency Type 2 Incident Management Team. In 2008, the Assistant Fire Chief served as Coordinator of the California Multi-Agency Coordinating Support Team for an extended period during the early summer, statewide fire siege.

LBNL: All emergency plans that are written and exercised at LBNL are based on worst-case scenarios. The major threats to LBNL come from the possibility of a major earthquake on the Hayward fault, and an urban-wildland interface fire.

MOFD: MOFD fully participates in the State Mutual Aid System. Several chief officers are members of the East Bay Incident Management Team which trains annually and has been activated several times to provide overhead command services for wildfire and other all-risk incidents.

UCB: Since the 9/11 attack, special emphasis has been placed on developing multi-agency protocols, training and exercises associated with a potential terrorist threat, including, but not limited to, arson and explosives. The UC Berkeley campus has modeled exercises based on an Active-Shooter scenario (Virginia Tech) and on earthquake scenarios. The agencies have also included the coordinated response to a pandemic as one of the possible threats that would trigger the emergency management system.

2011 Recommendations:

- Take full advantage of the yearly Golden Guardian Training that incorporates multi-agency, multi-jurisdictional and multi-disciplinary events.

2. Increase the response speed and capability of California's mutual aid systems.

2001 Report

Individual departments participate in their respective county mutual aid plans. MRAs have been established in high hazard areas to provide an initial response from multiple fire agencies. "Threat Zones" have been identified to speed the response of CAL FIRE to high-risk areas adjacent to State Responsibility Areas (SRA). The EBMUD, working with the State Office of Emergency Service (OES), developed the Water Agency Response Network (WARN). The agreement now includes 185 water utilities statewide. A web-based program maintains the status of equipment available for deployment in an emergency.

2001 Recommendation: *Continue the programs outlined above. Develop operations plans that include county (Operational Area) and regional responses for fire, law enforcement, emergency medical and emergency management personnel.*

20 Years After

HEF members have continued their participation with mutual aid plans, mutual response area agreements and expanded the water agency response network.

Agency Specific Responses

Oakland: OFD utilizes the notification system outlined in the Alameda County Mutual Aid Plan. Speed and capability of the state mutual system is based upon the notification components and the availability of county and statewide resources. In Oakland Mutual Response Area Agreements and a Memorandum of Understanding have been established with the CAL FIRE to increase the speed of mutual aid responses based on pre-designation threat zones and potentially critical fire danger areas in Oakland and surrounding communities.

EBMUD: Following the firestorm, staff from the California Utilities Emergency Association, State Office of Emergency Services, State Department of Health Services, and the Department of Water Resources met with EBMUD and other Bay Area water utility representatives to evaluate the use of mutual aid for water utilities. While individual utilities had independent mutual aid agreements, EBMUD spearheaded the effort to create the Water Agency Response Network (WARN). The initial effort to establish WARN by EBMUD has grown over the years. In California, it is now called CalWARN and includes water and wastewater agencies. Other states have mirrored the program and it is used across the US. EBMUD has also established a mutual assistance agreement with LADWP, with the understanding being that when they have an emergency we would likely not be affected by their emergency and could respond to assist them if needed, and they would be available to respond to assist EBMUD if we were impacted by an emergency and they are not.

EBRPD: EBRPD supports mutual aid and is participating in implementing changes to the program through its participation in the Alameda and Contra Costa County Fire Chief's associations. EBRPD supplies engines and personnel to county interagency strike teams, as well as the CAL EMA engine for state engine strike teams.

LBNL: LBNL participates fully in the local Mutual Aid system, and has a written automatic aid agreement with the City of Berkeley, with priority response to most of the area around the Lab (including the UCB campus).

MOFD: MOFD has established "Threat Zones" with CAL FIRE and CAL FIRE resources are automatically dispatched to all wildland fires occurring in those areas.

2011 Recommendations:

- Continue the programs as outlined above.

3. Improve inter-regional alert protocols

2001 Report

Improvements have been made in Alameda County. Inter-regional alert protocols have not been written. The Region II Fire and Rescue Coordination Center in St. Helena notifies the Operational Areas of major fire activity.

2001 Recommendation: *Ensure that Operations and Communication Plans include inter-regional alert protocols and personnel are familiar with their use.*

20 Years After

HEF members have participated in regional improvements through CAL EMA Region II Coordinator, and more local efforts such as the Corridor of Safety.

Agency Specific Responses

Oakland: OKL mutual aid is managed through the Operational Area ACFD – CAL EMA Region II Coordinator.

EBRPD: EBRPD developed Mutual Response Areas Agreements with many neighboring jurisdictions. Any agency can initiate an emergency response to an incident in the East Bay Hills. Rapid notification of other agencies needed to respond to the incident has been integrated into the protocols.

UCB: The University of California system has these protocols in place, through the UC Office of the President, for alerts to UC campuses with fire departments. In 2003, UCB, Oakland and Alameda formed the Corridor of Safety. This system involved the installation of sirens and

loudspeakers throughout the respective jurisdictions to instruct the public to Shelter, Shut and Listen when activated. Detailed information is delivered by SMS, web, phone, radio and other technologies to rapidly alert the public to a major emergency and to provide precise instructions, not rote procedures, during activation. This is especially useful in alerting the community to the onset of a potentially dangerous fire well in advance, to facilitate full evacuations from tightly packed residential neighborhoods.

2011 Recommendations:

- Increase understanding of pre-notification and ordering of Mutual Aid Resources. Understand protocols and trigger points for ordering. Incorporate this into annual training and drills.

4. Hold more frequent mutual aid mobilization exercises. Design them to be real time.

2001 Report

Agencies conduct MRA exercises two or three times per year. Intra-county strike teams are dispatched to emergencies on a routine basis. Agencies recognize that this is ongoing need.

2001 Recommendation: *Continue to hold Operational Area mutual aid mobilization exercises. Conduct field exercises in conjunction with "table top" exercises to increase coordination between field and EOC.*

20 Years After

HEF members have continued to hold a variety of drills and exercises to improve their interagency coordination.

Agency Specific Responses

Berkeley: Two multi-agency drills, Berkeley Alert (2003) and Berkeley Alert II interagency preparedness exercises (2004) included Berkeley, LBNL and, UCB.

Oakland: The OKL continues to participate in MRA drills with various agencies within the county.

EBRPD: EBRPD hosts and is an active participant in several mutual aid drills each year. The Tilden Mutual Response Area drill is a real-time wildland fire suppression response drill organized in cooperation with the Moraga-Orinda, Oakland, Berkeley, CAL FIRE, LBNL and the EBMUD fire responders.

UCB: Each year since 1997, the campus has implemented one or more large-scale exercises of its emergency response system elements to ensure skills are current and new staff are trained and prepared. All exercises use SEMS/NIMS compliant protocols and typically involve outside agencies, either exercising in tandem or through simulations.

2011 Recommendations:

- Continue to exercise and drill with HEF members in MRA drills.

5. Include a designated strike team leader in all pre-arranged strike team consignments.

2001 Report

Strike Team Leaders (STL) are pre-identified. Battalion Chiefs are expected to be STL qualified. Many are fully qualified in this position and have gained experience while deployed on out-of-county assignments.

2001 Recommendation: *All fire departments must continue to provide their pre-designated strike team leader information to their respective operational area.*

20 Years After

HEF members continue to provide designated Strike Team Leaders through the Mutual Aid ordering system as requested.

Agency Specific Responses

EI Cerrito: All ECF Battalion Chiefs and acting Battalion Chiefs are certified Strike Team Leaders.

Oakland: As a member of the County North Zone, OKL fully participates in providing resources including providing pre-designated Strike Team Leaders and other overhead resources as part of the ALCO IMTs.

EBRPD: EBRPD provides a designated Strike Team Leader through the Mutual Aid ordering system as requested.

MOFD: MOFD provides a designated Strike Team Leader through the Mutual Aid ordering system as requested.

2011 Recommendations:

- This has been a very positive policy for all fire agencies involved. Continue as recommended.

6. Begin moving requests resources immediately.

2001 Report

Based on availability, resource requests are filled on an immediate need basis. Most agencies have pre-designated apparatus for mutual aid dispatch.

2001 Recommendation: *Ensure that Operations Plans include clear descriptions of "Initial Attack", "Immediate Need", and "Planned Need" resource request procedures. Develop policies and practices that ensure that resources are dispatched when requested.*

20 Years After

HEF members in both Alameda and Contra Costa County regularly communicate and work together to move resources quickly to incidents.

Agency Specific Responses

Oakland: OKL is committed to immediate deployment of requested resources from on-duty units.

EBRPD: In the case of MRA incidents, EBRPD fire resources are often mobilized prior to formal communication with the primary responding agency. Fire personnel routinely monitor radio communications from adjacent departments and will begin responding if an incident is in the Mutual Response Area. In other cases, EBRPD resources are dispatched as requested. The EBRPD response system may be slower than many of its municipal counterparts because many firefighters respond to the stations from an "on-call" status. During normal working hours, the Tilden fire station is staffed with permanent fire personnel. Additional firefighters may be paged from other Park District assignments or from home to respond to an incident. EBRPD Fire Department protocol pre-approves sending two engines, one water tender and one overhead to any incident within Alameda or Contra Costa County if requested.

2011 Recommendations:

- Agencies should continue to work together to achieve quick responses to incidents.

7. All fire departments should plan for receiving mutual aid from many participants. Include in plans reporting, staging, deployment, supporting and demobilization protocols.

2001 Report

Using the basic ICS structure, most agencies have developed plans to receive mutual aid.

2001 Recommendations: In conjunction with #4 above, develop full-scale exercises that require agencies to plan for receiving large mutual aid resource requests. Conduct exercises that require Incident Management Teams (IMT) to set up check-in, staging, operations, logistics, support and demobilization functions. Send non-fire personnel to annual wildland exercises to work as trainees in support functions.

20 Years After

HEF members have continued to hold a variety of drills and exercises to improve their interagency coordination. The Contra Costa and Alameda Counties Incident Management Team was formed in 2005 and has been utilized on many incidents throughout the bay area. The IMT meets and trains yearly.

Agency Specific Responses

El Cerrito: The City of El Cerrito has included the use of mutual aid in our emergency response plan.

Oakland: The OKL has adopted the ICS system, which includes plans section, staging, deployment, and demobilization.

EBRPD: Routinely makes use of mutual aid resources in its parklands. Incident managers are trained to plan for responding mutual aid resources by designating staging areas and identifying contact frequencies. They are familiar with resource deployment and demobilize resources when appropriate.

LBNL: Internal plans and training include these items.

MOFD: All operations personnel and chief officers are trained in ICS and routinely implement these protocols.

2011 Recommendations:

- Continue to utilize the Contra Costa Alameda Counties Incident Management Team on large scale incidents and in yearly training drills. Provide training to recruits to build depth to the team as attrition occurs.

8. Make exercises for wildland/ structural fires part of the regular training schedule. Interagency, multiple company exercises should be held yearly.

2001 Report

Since 1994, agencies in both counties have participated in the annual multi-agency wildland exercise held at Camp Parks. Other smaller exercises are held prior to fire season. EBMUD sponsors a prescribed fire exercise on their property.

2001 Recommendations: In addition to Wildland training exercises held annually, conduct full-scale exercises in hill area locations. Utilize resources from outside the community to increase awareness. Incorporate MRA drills into these exercises.

20 Years After

HEF members have continued participate in various annual inter-agency drills.

Agency Specific Responses

Oakland: The OKL participates in various yearly inter-agency drills. These drills cover structural, wildland, firefighting, safety concerns and communication procedures and protocols.

EI Cerrito: ECF holds multi-company, multi-agency drills annually.

EBMUD: The Watershed and Recreation Division requires annual, mandatory wildland suppression and structure protection training for all employees involved in fire operations. These annual training courses include one or more live fire exercises. In addition, employees involved in fire operations participate in monthly training drills during fire season. The cost for this support is about \$1,000 annually.

EBRPD: EBRPD conceived of and, in cooperation with CAL FIRE, organized the first “Alameda and Contra Costa County Inter-agency Wildland Exercise.” The drill has been an annual event since 1994 and is now organized by a consortium from the Alameda and Contra Costa County Fire Training Officers Associations. The two-days of training is organized using the Incident Command System. Over 400 fire personnel from both counties participate in exercise each year. Instruction is designed to sharpen both wildland fire suppression and structure fire protection skills as well as promote inter-agency communication. EBRPD continues to support the event by providing instructors, overhead, planning and support resources.

MOFD: MOFD conducts multi-company wildland fire drills and participates in the “Alameda and Contra Costa County Inter-agency Wildfire Exercise” annually.

2011 Recommendations:

- Live fire drills are very important to all agencies. Due to unforeseen circumstances, live fire has not been part of the yearly drill consistently. In some years it has been due to fire weather and resource availability. In other years it has been due to the location of the live fire drill. It is recommended to develop alternate sites for live fire drills to continue yearly training. In years when no live fire drills can occur, training events such as table top exercises should take the place of live fire.

9. Establish automatic mutual aid, boundary drops, and interagency response for mutual threat zones, including multi-disciplinary incidents.

2001 Report

Fire Departments have designed programs, i.e. MRA, to address these issues. Some areas have response plans that include boundary drops. Comprehensive inter-county plans, following the State Fire and Rescue Mutual Aid Plan are being developed. Most wildland and high-rise exercises do not include other disciplines. Law enforcement and Emergency Medical Services (EMS) are included in airport exercises, held every other year, at the Oakland Airport.

2001 Recommendation: Continue to develop and implement intra-county response plans that include boundary drops. Plans should include law enforcement and EMS responders and interface with city, county and state emergency management systems.

20 Years After

HEF members continue to develop and implement intra-county response plans that include boundary drops.

A Mutual Threat Zone (MTZ) is an area that is not in CAL FIREs jurisdiction. It is typically in a city jurisdiction that is susceptible to large loss wildland fires. MTZs were developed in 1998 to assist local government to combat wildland fires in their areas. MTZ responses provide specialized CAL

FIRE wildland equipment into the city jurisdictions. Equipment includes wildland fire engines, bulldozers, 15 person fire crews, air tankers, helicopters and CAL FIRE chief officers.

Use of the MTZ agreements has played a significant role in interagency coordination. By utilizing MTZs we exercise the ordering process for emergencies on a weekly and daily basis. The majority of responses are small and are mitigated quickly. During times of critical fire weather and high fire activity there is susceptibility for a large damaging fire. Because of the frequency of these MTZ responses, when a large fire does occur the process works effectively due to familiarity with the system.

Agency Specific Responses

El Cerrito: West County agencies, including El Cerrito, have established automatic response agreements that include boundary drops.

Oakland: The OKL is a full participant in various MRA agreements with agencies throughout the county and state. We are capable of responding and dispatching resources directly to the incident or to a designated staging area.

EBRPD: EBRPD developed Mutual Response Areas Agreements with many neighboring jurisdictions. Any agency can initiate an emergency response to an incident in the East Bay Hills. Rapid notification of other agencies needed to respond to the incident has been integrated into the protocols.

MOFD: MOFD has established automatic response agreement with CCCFPD that include boundary drops.

2011 Recommendations:

- Continue to foster agency relationships and intra-county response plans.

10. Familiarize all personnel with protocols, procedures and terminology for requesting air support.

2001 Report

As a part of ICS training, personnel are familiarized with proper protocols for ordering air resources.

2001 Recommendation: Continue to conduct specific training for fire operations and dispatch personnel in proper procedures, ICS terminology and protocols for requesting specific Kinds and Types of firefighting aircraft. Develop Dispatch Procedures Guides to ensure that requests for firefighting aircraft are processed in a timely manner. Dispatch centers should be aware of aircraft availability.

20 Years After

HEF members continue to train operations personnel in ICS training and periodically with air resources.

Agency Specific Responses

El Cerrito: Air Operations Drills are held annually. CAL FIRE reviews air operations annually at special training sessions.

Oakland: As a component of ICS 100 - 200, the use of supporting air operations is taught. In addition, on all 4th or greater alarms, we request the County IMT for overhead support.

EBRPD: EBRPD fire personnel attend training with the helicopter unit and Fire Department Command staff related to appropriate use of and request protocols for all types of aircraft.

MOFD: All MOFD operations personnel have completed ICS training and attend periodic training with air resources.

2011 Recommendations:

- Continue to train operational personnel in ICS and in the use of air resources.

V. INCIDENT COMMAND SYSTEM

ICS is the combination of facilities, equipment, personnel, procedures, and communications operating within a common organizational structure with responsibility for the management of assigned resources. The increased demand for interagency operations requires that a common system be used for all emergencies. (2001 Report)

20 Years After

Twenty years after the HEF member agencies continue to train on and use the ICS system.

1. Provide training to all local emergency response personnel in the ICS system. Personnel outside emergency services should also be trained in the areas of logistics and finance.

2001 Report

All agencies have adopted SEMS. Training and implementation for fire and non-fire personnel varies in the agencies surveyed. Most have conducted ICS 100 and 200 level classes for firefighters, and ICS 300 and 400 level classes for Chief Officers. Once again, the use of the county IMT has increased awareness in command and general staff positions. Most fire agencies do not have qualified Finance Section personnel.

2001 Recommendation: Utilize all available resources to continue ICS training and certification. The California Incident Command Certification System should be used as the standardized reporting system.

20 Years After

HEF members continue their commitment to ICS training and certification.

Agency Specific Responses

Berkeley: City of Berkeley employees in all departments have been provided SEMS training, and the City participates in the County IMT.

El Cerrito: All fire personnel have received SEMS training. All elected officials and city staff have received SEMS training. Over 1000 citizen volunteers have received SEMS training as part of our ongoing Community Emergency Response Training (CERT) Program. All ECF personnel have been trained to ICS 300 and all EOC personnel have been trained to ICS 300 as well. All public safety personnel as well as all EOC managers will be trained to ICS 400.

Oakland: OKL uses the ICS system at all operations. OKL personnel are trained to the ICS 100 - 200 levels and advance levels of Incident Management. Fire department personnel also participate as members of the East Bay IMT.

EBMUD: EBMUD adopted the regulations, updated its Emergency Operations Plan, trained its employees on the SEMS protocols, conducted internal drills, and participated in drills with jurisdictions within the EBMUD service boundaries.

In 2009, EBMUD rewrote their Emergency Operations Plan to meet or exceed the NIMS guidelines and the National Response Framework. EBMUD Emergency Operations Team and many of the support staff, which includes watershed District Rangers are trained in Incident Command, with basic course on SEMS (SEMS Intro) ICS 100 (SEMS) ICS 200 (Single-Incident response) ICS 700 (NIMS Intro) ICS 800 (National Response Framework) and Intermediate and Advanced training (ICS 300 and ICS 400).

EBRPD: Currently provides ICS 100 level training to its Park Ranger Staff. ICS 200 training is the standard for Police Officers, Sergeants, Communications Center personnel, Firefighters and Fire Officers. Emergency response personnel wishing to qualify for more complex overhead assignments have attended the ICS 300 and 400 level courses. Several of the Park District's fire personnel are on Inter-agency IMT.

LBNL: LBNL emergency plans are consistent with the California SEMS management system. The Emergency Command Center is fully staffed with designated and trained Lab personnel in all ICS positions. Lab specific response personnel (i.e.: radiation technicians) are also introduced to the ICS system.

MOFD: All MOFD personnel have completed SEMS training and uses ICS on a regular basis. Concepts of ICS are also taught to citizens attending CERT.

UCB: All response personnel on the UC Berkeley campus have been trained and exercised in SEMS ICS. This includes all teams reporting to the EOC, the Chancellor's Policy Group, people reporting to their Department Operations Centers, field level personnel, and the 600+ campus-wide disaster volunteers. Since 2006, staff has been further trained according to NFPA 1600 standards, which include ICS 100, 200, 300, 400 and NIMS 700 and 800. The scope of training has extended beyond response personnel to include building and area coordinators, who may be tasked with supporting Incident Command posts. Specific checklists have been prepared for such personnel, and for convergent volunteers. An MOU with the ROTC cadre stationed on the Berkeley campus integrates the cadets as volunteer leaders, as the ROTC provides command and control training similar to SEMS/NIMS and the student population is likely to be an available resource during an emergency.

2011 Recommendations:

- No further recommendations

2. Schedule increased interdepartmental drills in ICS.

2001 Report

Fire departments participate in MRA drills, regional wildland exercises and other training opportunities to promote the use of ICS. The agencies surveyed recognize the need for additional ICS position training.

2001 Recommendations: *Incorporate ICS into day-to-day operations. Fire departments should continue ICS position training and increase the depth of personnel assigned to IMTs. Utilize full-scale field and tabletop exercises to enhance interagency ICS training.*

20 Years After

HEF members continue their ICS position training, with regular exercises and personnel assigned to IMTs.

Agency Specific Responses

EI Cerrito: ECF conducts annual training.

Oakland: OKL participates in MRA drills with external agencies and provides ongoing ICS training for employees.

EBMUD: EBMUD holds Homeland Security Exercise and Evaluation Program compliant ICS-SEMS-NIMS exercises at least annually, including the California statewide Golden Guardian exercise. In addition, there are several tabletop and functional drills hosted within departments and divisions testing emergency communications, business continuity plans, evacuation, shelter in place, and functional exercises of emergency equipment, such as fault crossing hose trailers.

EBRPD: EBRPD Fire Department uses the Incident Command System on all emergency incidents. Mutual response area drills as well as the Inter-agency Wildland Drill use and are organized using ICS.

LBNL: All interdepartmental and Mutual Aid drills at LBNL are conducted using the ICS management system.

MOFD: ICS is used on all incident responses in MOFD. Several chief officers are members of the East Bay IMT which trains annually and has been activated several times to provide overhead command services for wildfire and other all-risk incidents.

UCB: UCB participates in regularly scheduled ICS training and annual disaster exercises, from table top drills for the campus executives to fully functional field level exercises involving activation of the EOC, 7 DOCs, and all field responders – over 350 personnel. Each year since 1997, the campus has implemented one or more large-scale exercises of its emergency response system elements to ensure skills are current and new staff are trained and prepared.

2011 Recommendations:

- Continue with regular ICS position exercises.

3. Reduce incompatibility in communications systems at all levels and between local and state agencies.

2001 Report

Departments in the Bay Area have a variety of radio communications systems, including 800 Mhz. Most departments with 800 MHz systems have added VHF radios to apparatus that respond on mutual aid responses. EBRPD has added 800 MHz scanners to monitor radio traffic in Oakland, Alameda County, and Richmond.

2001 Recommendation: Fire departments should incorporate the guidelines outlined in ICS 420-1, Appendix A, FIRESCOPE Radio Communications.

20 Years After

HEF members are involved in on-going regional interoperability communications improvements.

Agency Specific Responses

Berkeley: This is done through MRAs outside the City, and also through exercises internally in the City.

El Cerrito: On-going effort. The El Cerrito City Council approved funding for our share of the Bay Area interoperability radio system

Oakland: OKL employs the 800 MHz radio systems and VHF radios which have a compatible system for state and countywide communications.

EBMUD: EMBUD is involved in the Urban Area Security Initiative (UASI) Interoperable Communications effort. The East Bay Regional Communications System project is the lead program in this field, working to bring P-25 compatible radios to the East Bay and engage all agencies that use radios to communicate to be part of the system as it builds out. To EBMUD, this would mean the availability of 16 channels of radio communications on the network for daily and emergency use, each capable of communicating with the traditional police and fire first responder agencies. EBMUD offered three of its 800 MHz frequencies in order to be part of the system. This program is expected to roll out in 2011 and 2012.

EBRPD: EBRPD routinely uses Fire White 2 as the initial attack, tactical frequency for wildland fire incidents in the East Bay Hills. Fire Department command staff have been issued OKL 800 MHz portable radios for their vehicles. This equipment allows direct communications with responding OKL engines and their Communications Center. EBRPDs Fire Chief has been provided with an Alameda County 800 MHz portable radio for direct communications. Communications equipment in the Park District's type-three fire engines is being supplemented with 800 MHz "trunk-tracker" programmable scanners. The equipment will allow engine company personnel to monitor radio traffic from other East Bay Fire Departments including; Oakland, Alameda County, and Richmond Fire. All fire officer

vehicles are equipped “King” portable, programmable high-band radios and can coordinate operations on the CAL FIRE tactical nets and “White Fire” frequencies.

MOFD: The MOFD carries both the 800 MHz radio systems and VHF radios which are compatible system for state and countywide communications.

UCB: Through regularly scheduled meetings with the Alameda County Operational Area team, the UC campus is trained in the use of the county protocols, and in the use of the RIMS and EDIS systems. Through annual drills with the county EMS system, the campus has also honed communications systems that are compatible with this group as well. The renovation of the UC Police Communication Center provided the resources to acquire and install radio systems for nearby emergency responders, facilitating the multi-agency coordination link and the Dispatch and Command levels. Police Supervisors also have enhanced multi-agency communications equipment in patrol cars.

2011 Recommendations:

- Communications will always be a challenge with multi-agency responses. Many accomplishments have been made in efforts to have common radio system and frequency coordination throughout the area. Efforts should continue until the interoperability is resolved.

4. Include in ICS training and drills opportunities to learn and practices from single resource to multi-agency incident. Both command and support staff benefit from working on this complex set of procedures.

2001 Report

Full-scale exercises, with wildland and high-rise, are held 1 to 3 times per year. Some of these exercises include the transition from single resource to multi-agency operations. Most agencies realize that they have to maintain ongoing training programs to accomplish these goals.

2001 Recommendations: Conduct annual, full-scale exercises that begin with single agency response, then develop into a multi-agency situation and then expand into “disaster” proportions. A Multi-Agency Coordination System (MACS) should be incorporated into tabletop exercises.

20 Years After

HEF members continue regular exercises as part of their ICS training including those that expand to multi-resource responses.

Agency Specific Responses

Berkeley: The City of Berkeley participates in MRA drills, high rise drills on a county wide or regional basis.

El Cerrito: On-going effort.

Oakland; OKL participates in MRA drills and conducts high-rise and communication drills for internal units. Departmental personnel also receive training in unified command principles. OKL, surrounding jurisdictions, CAL FIRE and the Fire Protection Bureau participate in mutual aid mobilization exercises 3 to 6 times a year. They are based on real time, following applicable safety measures, laws, codes and ordinances.

EBMUD: In the ICS training provided to EBMUD staff the practice of transitioning from single resources to multi-resources is included in the training material and the practical exercise conducted during the course (ICS 200-ICS300-ICS400)

UCB: The University of California adopted a revised Disaster Response Plan that brings the University into full compliance with H & S 8607 -- Standardized Emergency Management System. The University holds annual exercises at the Management, Departmental and Field level in order that

staff are trained and tested in operating under the Incident Command System. UCB Police Officers, who serve as the campus Incident Commanders, are trained annually in the IC system, which includes developing a unified command during multi-agency jurisdictional incidents. Since 2005, NIMS has been integrated into the training, and multi-agency exercises have been emphasized. Exercises of the response system are conducted frequently, from monthly tests of the Alerting and Warning System to annual full-scale exercises involving the EOC, DOCs, Incident Commanders and response personnel.

2011 Recommendations:

- Continue annual full scale exercises as recommended in 2001.

5. Design exercises to allow all officers to gain experience in all operational roles.

2001 Report

Some chief officers participate in their county IMTs. Most have not had the opportunity to develop operational skills in all command and general staff positions.

2001 Recommendation: *Utilize practical exercises to provide position training. Include trainees on all IMTs.*

20 Years After

HEF members have routinely participated in both exercises and mutual aid responses outside of the region to gain experience in a variety of operational roles.

Agency Specific Responses

EI Cerrito: On-going effort. ICS training is ongoing with enhanced exercises being planned for early 2011.

Oakland: OKL has and continues to train all officers to the ICS 100-200 level. All chief officers are to be trained to the 300 level.

EBMUD: EBMUD Emergency operations team structure is robust, allowing for up to three persons deep for redundant staffing of the Command/Management group as well as the Operations, Planning Logistics and Finance Sections.

EBRPD: EBRPD Fire Department staff actively participated in the inter-agency wildland fire season kick off in 2001. EBRPD personnel developed a table top exercise scenario based on a wildland fire in Redwood Regional Park. During the exercise all of the primary functions of ICS were implemented to meet the needs of the incident. Over 60 Chief Officers from both Contra Costa and Alameda Counties participated.

MOFD: MOFD personnel routinely participate in mutual aid responses to southern California and several have responded as “Trainees” ultimately received Red Card certifications. Several chief officers are members of the East Bay IMT which trains annually and has been activated several times to provide overhead command services for wildfire and other all-risk incidents.

UCB: The UCB Police department has developed a department operations plan and has exercised its members using functional check sheets that any officer can use to fulfill a particular function. UCPD officers and sergeants are cross-trained as incident commanders, to allow a unified field command structure during major incidents. The introduction of NIMS has been completed at the Berkeley campus and the program is in substantial compliance with most elements outlined in the NFPA 1600 evaluation standards.

2011 Recommendations:

- Continue to train all emergency response staff and participate in mutual aid response exercises.

6. Include a communications function in the ICS structure.

2001 Report

OKL has assigned a Battalion Chief as the Communications Officer. Only a few departments have personnel certified as Communications Unit Leaders and Incident Dispatchers.

2001 Recommendation: Train personnel to ICS Communications Unit Leader level. Utilize the FIRESCOPE Communications Specialist Group (north) for technical advice and support.

20 Years After

HEF members continue to train to the communications unit leader level and utilize and participate in the FIRESCOPE Communications Specialist Group.

Agency Specific Responses

El Cerrito: On-going effort.

Oakland: OKL has a Deputy Chief in charge of the Communication Division communications manager. This provides direct supervision and oversight for Dispatch Manager who has oversight of the Dispatch Supervisors.

EBMUD: All EBMUD Incident Action Plans include the ICS 205 (Communications) form. EBMUD staff uses Nextel radios across most divisions and departments, and radios in the watershed/recreational areas in the East Bay and Upcountry.

EBRPD: EBMUD has trained several of its Communications Center staff as "Incident Dispatchers." Personnel from the Communications Center attend the annual inter-agency Wildland Fire drill. The Communications Manager has been integrated into the fire dispatch protocols and coordinates communications issues at the incident.

LBNL: The ECC includes a position for communications, which is jointly staffed by the Facilities Radio shop and the Networking/Telecommunication division.

UCB: As noted in the UCB Disaster Response Plan there are two Communications functions in the EOC in the Operations Team. Primary responsibilities for the first function include communications support for EOC operations, restoration of communications infrastructure, and location and securing of alternative communications means. Primary responsibilities for the second function include: support communications leader, monitor and dispatch for EOC Operations and UCB radio channels, EOC FAX operations, EOC TV operation/news updates, and message delivery (runners/radios). Both functions also provide support for the Situation Status team. The UCB Communications have been enhanced to include WEB EOC, the Alerting and Warning System, and Warn Me (a system using voice, data, text and phone alerts to subscribers within the Berkeley community.)

2011 Recommendations:

- Emergency response agencies should continue to participate in training opportunities.

7. Plan for early information/ intelligence gathering and procedure for sharing with Emergency Operations Center and the media.

2001 Report

Each agency's Emergency Operations Plans (EOP) provide for sharing information from field operations to the agency EOC and then to the city, county or region EOCs. Most EOPs provide for public information officers at incidents, media centers and the EOC. Information is then disseminated to the media.

2001 Recommendation: Train and staff the intelligence positions in the EOC.

20 Years After

HEF members have trained and staff the EOC with PIOs when incidents warrant.

Agency Specific Responses

El Cerrito: On-going effort.

EBMUD: The EBMUD Emergency Operations Plan provides a process of activating each level of the SEMS Emergency Management Organization from the field to local to Operational Area to Region and to State responders. Each level is responsible for collecting information, summarizing it, and providing accurate information to the next level and to the media. The Incident Action Planning (IAP) process allows for early information processing and sharing among the responders, and the writing and publishing of a new IAP for each operational period. Key to the success of the IAP in SEMS/NIMS is the concept of establishing common objectives and working in unified command with other first responders, such as fire and police.

LBNL: The LBNL ECC includes a position for a PIO, which is staffed by the Lab's Public and Community Information office.

UC Berkeley: Early information/intelligence gathering is accomplished in a variety of fashions, including police officers in the field, Physical Plant and Capital Projects field crews, and an established and well-trained network of campus Building Coordinators and Emergency Management Area (EMA) Coordinators. Building Coordinators send runners with building status information to the EMA assembly area, where the EMA Coordinator relays the information via 800 MHz radio to the EMA Liaison position in the EOC. The EMA Liaison informs the Situation Status team, who posts the information on maps and "sit stat" boards for all EOC teams to use as a resource. Past exercises and actual emergencies have shown this to be an effective and timely procedure. The EOC Manager discusses this information with the Public Information Officer for dissemination to the campus radio station (an EBS station) and to other media.

In 2004, the campus, City, LBNL, School District and the Operational Area formally instituted Joint Information Center (JIC) protocols and have established pre-set locations for JIC operations. This is to ensure that communications to the public via the media are coordinated, consistent and factually accurate to the greatest extent possible. It also serves as an efficient means of providing updated briefing to the press at regular intervals and ensuring that the key spokespersons are available for press conferences.

2011 Recommendations:

- No further recommendations.

VI. EVACUATION

In potentially catastrophic situations the need to move large numbers of citizens out of harms way can become paramount. It is the responsibility of law enforcement to carry out evacuation procedures in coordination with other emergency response personnel. It is the responsibility of the individual citizen to understand their role in evacuation plans. (2001 Report)

20 Years After

Twenty years after the HEF member agencies follow SEMS guidelines with law enforcement having lead role for evacuations. Policy and fire vehicles are equipped with public address systems to inform citizens. HEF members are active with state and regional information exchanges and exercises, regional programs for alerting and warning systems and have begun a regional public information campaign.

1. Clarify in each jurisdiction which agencies have statutory authority to order and supervise evacuation.

2001 Report

In most jurisdictions following SEMS guidelines, law enforcement has the lead role in evacuation. This function is coordinated from the EOC(s) of the involved communities. SEMS provides for coordination at each level (city/county/region) to be performed at the next level EOC.

2001 Recommendations: Review Emergency Operating Plans. Exercise this function during full-scale drills.

20 Years After

HEF members follow SEMS guidelines for evacuation with law enforcement as lead role. Many members conduct drills to exercise this function.

Agency Specific Responses

Berkeley: This is a Police Department responsibility in the City of Berkeley.

El Cerrito: An Ordinance ratified in 1993 clarifies local authority and provides basic guidelines.

Oakland: OFD follows SEMS standardized procedures for emergency response. New procedures for evacuation and movement of large populations have been developed and distributed to all city and county fire and law enforcement agencies in the State of California.

EBMUD: EBMUD conducted a series of drills involving engineers and Rangers in response to dam failure scenarios in both Operational Area, Alameda and Contra Costa Counties. In both sets of exercises, EBMUD staff worked with responders from each operational area to understand the role of the Sheriff to be responsible for evacuation and public notification. We discussed and exercised how the communication between EBMUD and the operational area offices would work.

EBMUD staffs the Command/Management Liaison Officer positions, and trains those persons to be the Liaison Officer as well as an "Other Agency Rep" in an operational area EOC. Liaison staff from Security and Emergency Preparedness have worked with the operational area staff in Alameda and Contra Costa Counties in the East Bay, and with Amador and Calaveras Counties upcountry; as well as the Coastal REOC in Oakland. In additional, these staff members are trained to work in the Utility Operations Center at the SOC in Sacramento

EBRPD: The EBRPDs Police Department has the authority to order and supervise evacuations of park facilities. The General Manager has delegated, by ordinance, the authority to close park areas and restrict use in the case of extreme fire danger to the Fire Chief. The General Manager or a designee is authorized to impose use restrictions or close lands operated by the EBRPD pursuant to Ordinance 38 section 907.

LBNL: Primary concern would be to evacuate the approximately 3000 employees. Once the need is identified, all employees would be instructed to evacuate according to the LBNL Wildland Evacuation/Relocation Plan. The plan includes coordination with the City of Berkeley for traffic.

MOFD: MOFD recognizes that law enforcement has primary responsibility for evacuation.

UCB: The UCB Chancellor's Emergency Policy Group, or their representative, will make the evacuation decision for the Berkeley campus. The UC Police will supervise evacuation of the campus, with support from the City of Berkeley Police and the California Highway Patrol. Adjuncts to this effort will include local transportation systems. In directing campus evacuations, UC Police use a Geographic Information System (GIS) based model that provides planning information useful in ordering a large scale evacuation. The Emergency Evacuation Plan Model accounts for the dynamic population variations that occur on campus during the workweek, as well as pathway distances and topography. The model was developed by graduate students under the auspices of Professor John Radke's City and Regional Planning 255 course. Detailed information about planning assumptions, time to evacuate and precise evacuation routes are provided in the model.

2011 Recommendations:

- No further recommendations.

2. Equip all fire vehicles with loudspeakers so that firefighters can inform citizens of the need for evacuation.

2001 Report

Police and fire vehicles are equipped with public address systems.

2001 Recommendation: Completed

20 Years After

Recommendations from original report were completed.

Agency Specific Responses

Berkeley: This has been done.

EL Cerrito: All new vehicles are specified for PA systems. Current PA capability about 90%.

Oakland: All Police and OKL response vehicles are now equipped with a public address system as part of standard equipment. Additionally the Police Helicopter also has a PA system.

EBRPD: Loud speakers and public address systems are standard equipment on EBRDP emergency vehicles.

LBNL: LBNL has a lab-wide Public Address system to notify employees. Our fire fighters have mobile public address loudspeakers to assist emergency communication efforts.

MOFD: Loud speakers are standard equipment on all MOFD emergency vehicles.

UCB: Police patrol vehicles are so equipped. Additionally, an outdoor Public Address system, installed atop buildings across campus, allows officers in the field to broadcast evacuation instructions over the entire campus simultaneously. All automatic aid agreements are maintained and a Terrorism related working group, lead by the FBI, brings national threat concerns to the local level

2011 Recommendations:

- No further recommendations

3. Schedule information exchanges among all operational level fire and police personnel from all jurisdictions in a mutual threat zone. Discuss local procedures, authority and automatic mutual aid agreements.

2001 Report

Mutual Aid Region Advisory Committee (MARAC) meets quarterly in OES Region II. The EBMUD has established a Fire Agency Forum to exchange information with the fire departments in their district. County Fire and Police Chiefs meet independently on a monthly basis. Fire departments in Alameda County have established MRAs. County fire chiefs are developing intra-county automatic mutual aid programs.

2001 Recommendations: *Include command level law enforcement officers in all MRA exercises.*

20 Years After

HEF members are active with state and regional information exchanges and exercises.

Agency Specific Responses

El Cerrito: ECF has joined with the multiple East Bay Hill communities in the development and implementation of mutual response areas to automatically respond to wildfire emergency.

Oakland: State OES has created a Mutual Aid Response Area Coordinators group that meets regularly to review and discuss mutual response issues relative to major disasters. The City of Oakland participates on local level Fire and Police Chiefs Associations. OKL has instituted MRA with all cities that border Oakland.

EBMUD: The primary purpose of the EBMUD Fire Agency Forum is to exchange information regarding hydrant testing and other issues affecting the fire agencies relative to EBMUD operations and maintenance of the water distribution system. The forum, which began in February 1994, continues to provide a venue to discuss general technical day-to-day issues of mutual interest to EBMUD and fire agencies.

EBMUD is a signatory to the Operational Area Agreements in Contra Costa and Alameda Counties. The members of the agreement gather during scheduled meetings to review issues such as evacuation planning and response. EBMUD is active in both counties. Cost is limited to labor to attend the meetings.

LBNL: The Alameda County Mutual Aid plan calls for the institution of a joint command center to facilitate information exchange. LBNL participates fully in the Mutual Aid system.

UCB: UC Police participates in a variety of local and regional mutual aid planning, involving coordination with City, County and UC System wide public safety responders.

2011 Recommendations:

- No further recommendations.

4. Use the Emergency Broadcast System (EBS) and Emergency Digital Information System (EDIS) to its fullest benefit.

2001 Report

Emergency Alerting System (EAS) and EDIS are utilized by most jurisdictions. This includes monthly testing and annual drills. Contra Costa County's emergency notification system has been used in a number of refinery emergencies. The City of Oakland is scheduled to implement a citywide emergency alerting system in 2002.

2001 Recommendations: *Expand the use of these systems by HEF members.*

20 Years After

HEF members have joined with others in regional programs for alerting and warning systems.

Agency Specific Responses

Berkeley: This is not used much.

El Cerrito: Monthly tests. Annual drills.

Oakland: The EBS has been replaced by the EAS. All California Counties and Cities with populations in excess of 250,000 are authorized to access EAS via confidential code words. However, EAS is still controlled by the individual Radio and TV Stations and any message sent would be broadcast to all jurisdictions within the listening and viewing audience. To that end, the City of Oakland has developed its own radio (530AM) and cable TV (KTOP) alerting systems that it will use exclusively in an emergency. The City also is implementing its own citywide siren system controlled by OKL and Police Departments.

EBMUD: The EBMUD EOP outlines the use of the EDIS system to provide public information at the time of an emergency. EBMUD used these protocols very effectively in response to a roof collapse and possible contamination of a potable water covered reservoir.

EBRPD: EBRPD has access to the Regional Information Management System through the Alameda County Office of Emergency Services.

MOFD: MOFD has access to Contra Costa County CWS. All chief officers have been trained in its use.

UCB: The campus radio station, KALX (90.7 FM) is an EBS station, and is on back-up generator both at the station and at the hillside transmission tower. The City of Berkeley also has an EBS station (1610 AM). Both stations are operational 24 hours a day, 7 days a week.

UCB also participate in “Corridor of Safety – Community Alerting and Warning System” regional program/ monthly test of sirens along with Berkeley and Oakland (2003-present).

The Alerting and Warning System (AWS) is a network of safety sirens and communications links that warn and inform the community of what to do in an emergency or disaster. Local systems are operational in the Cities of San Leandro, Alameda and Oakland, with additional Alameda County cities to join in the coming years. The University of California, Berkeley currently has sirens covering the main campus in the heart of the city.

The AWS, a critical element of the campus emergency preparedness program, was developed to save lives and minimize property damage during an emergency. The hazard warning sirens and communications links will work in tandem to alert, warn and provide specific emergency information to citizens in the event of certain emergencies. This includes dangers resulting from natural or technical hazards such as chemical spills, flooding, fires, storms, power outages, transportation incidents, and other public safety incidents. Upon hearing a siren, community members should immediately Shelter-Shut-Listen, then use the communications links to quickly obtain emergency information, such as disaster type, evacuation routes, shelter and aid locations, special instructions, etc. Community members should remain in the Shelter-Shut-Listen mode until further notification from the university.

UCB also has “WarnMe,” a proactive notification system. Affiliated community members (faculty, staff, and students) must visit warnme.berkeley.edu and submit their contact information. In the event of an emergency, officials at UC Berkeley will use the system to broadcast a message to those registered users, reaching them directly at the phone numbers or email addresses they have specified. For more information about WarnMe, and to add your contact information to the system, visit warnme.berkeley.edu.

2011 Recommendations:

- Use of automated systems for emergency response notifications is extremely beneficial. With technology expanding and homeowners slowly deleting land line phones from their homes, technology like the “WarnMe” system should be expanded.

5. Conduct public information campaigns throughout California on Evacuation issues.

2001 Report

The various agencies have emergency/disaster plans that include evacuation procedures. The LBNL conducts employee evacuation drills on an annual basis. Public information campaigns on evacuation procedures need to be conducted.

2001 Recommendations: *Local law enforcement has this responsibility. Individual neighborhoods should develop evacuation plans.*

20 Years After

HEF members are working with regional partners in a public information campaign.

Agency Specific Responses

Berkeley: This has not yet been done.

El Cerrito: Evacuation plans have been developed and are being reviewed for accuracy and completeness.

Oakland: OKL is working with the Hill Emergency Forum to produce a evacuation guidance document. The California Fire Protection Officers are working on a policy document. State OES has issued SEMS approved evacuation and movement procedures that have been distributed to all fire and police agencies.

HEF: In 2010, HEF Staff Liaison Committee developed public information regarding Wildfire Evacuation tips brochure and web based information for regional distribution.

LBNL: LBNL advises each new employee about the emergency plans that exist; annual evacuation drills are held in May; the Emergency Preparedness office maintains a web page with information specifically for employees.

UCB: UC Berkeley routinely trains its building managers and emergency area managers in up-to-date evacuation protocols and distributes new tools and maintains existing equipment to ensure a fully functional field evacuation program.

2011 Recommendations:

- Continue to work with regional partners on evacuation plans. Drill with local community. Exercise the local CERT teams.

VII. VOLUNTEERS

The need to safely utilize spontaneous volunteers in a fire situation is well recognized. The challenge is to utilize untrained but well intended citizens. In the early stages of a major fire this can become problematic. Many departments have had success with specially trained volunteers to assist fire department staff. (2001 Report)

20 Years After

Twenty years after the HEF member agencies use their community emergency response training (CERT) or similar programs to augment existing personnel and resources; incorporating these volunteers in both drills and emergencies.

1. Plan and prepare to deal with and use spontaneous volunteers and resources early in the incident.

2001 Report

OKL and BER have developed plans to deal with spontaneous volunteers. LBL and UCB have developed formal volunteer programs for employees with training components. ECF indicates on-going efforts. EBRPD has an extensive volunteer program, however, it doesn't appear that there is a procedure for dealing with spontaneous volunteers.

2001 Recommendation: Member agencies to review the existing spontaneous volunteer programs and develop a standardized policy and program.

20 Years After

HEF members have on-going volunteer programs and many members have specific programs to deal with spontaneous volunteers early in the incident.

Agency Specific Responses

Berkeley: City of Berkeley has a spontaneous volunteer policy that is managed by the City's Human Resources Department.

El Cerrito: El Cerrito has an ongoing effort to train and coordinate citizen volunteers to enhance the overall response to a disaster.

Oakland: OFD has developed a generic plan and procedures for the use of spontaneous volunteers. However, this activity is one of the more difficult to implement and requires the cooperation of existing non-profit agencies to provide support.

EBRPD: The EBRPD routinely uses volunteers in a variety of roles. Early detection of fire, law enforcement and EMS incidents is a primary role for volunteers. The volunteer patrol program has enlisted the participation of more than 150 personnel. Patrollers can report and update incident information directly to the EBRPD Communications Center via radio system or cellular phone. Volunteer patrol personnel also help secure areas and provide public information at scheduled prescribed fire projects. This experience enhances their ability to assist the fire department on wildfire assignments.

LBNL: Not applicable to LBNL. However, many of the employees volunteer to be part of the Lab's amateur radio or auxiliary firefighter teams.

UCB: As outlined in the campus Disaster Response Plan, the EOC and essential services departments have included a position and plan for personnel and volunteers. Various duties have been developed and HOME Team volunteers have been cross-trained in several disciplines: disaster first aid and triage; light urban search and rescue; shelter operations; and emergency communications. Since 2006, an MOU with the ROTC cadre stationed on the Berkeley campus integrates the cadets as volunteer leaders, as the ROTC provides command and control training similar to SEMS/NIMS and the student

population is likely to be an available resource during an emergency. The University has designated its personnel department as a key Department Operations Center for the purposes of managing staff, faculty and student resources, as well as operating a convergent volunteer assignment center and associated protocols.

2011 Recommendations:

- Continue to support training and encourage new participation by local community members in CERT teams.

2. Create an organizational element in fire departments to manage and use voluntary resources.

2001 Report

OKL, BER, EBRPD, ECF, LBNL, and UCB provide leadership by incorporating volunteer programs into their organizations.

2001 Recommendations: *Continue to explore ways volunteers can be effectively used to augment existing personnel and resources.*

20 Years After

Many HEF members use their community emergency response training (CERT) or similar programs to augment existing personnel and resources; incorporating these volunteers in both drills and emergencies.

Agency Specific Responses

Berkeley: Not yet.

EL Cerrito: The Fire Department's CERT program volunteers have been effectively integrated into emergency operational plans. CERT volunteers have been used in drills and emergencies.

Oakland: The City of Oakland has the Citizens of Oakland Respond to Emergencies (CORE) program. This program utilizes neighborhood-based volunteers that have been trained to respond and support first responders in the event of a major disaster.

EBRPD: EBRPD's, Department of Public Safety, Volunteer Patrol program has enlisted the participation of more than 150 personnel.

50: Volunteer Mounted Patrollers (VMP)

50: Volunteer Bicycle Patrollers (VBP)

50: Volunteer Hiking and Companion Dog Patrollers (VHP/CDP)

In addition, a specialty Volunteer Search and Rescue group has emerged from the membership of the Trail Safety Patrol. The Unit is a sub-unit of all the Patrols. They are Hikers, Bicycle, and Mounted Patrollers that are specially trained in Search and Rescue techniques to further the mission of EBRPD. The Trail Safety Patrol / Volunteer Resources are available to all Public Safety and Park Personnel. The Volunteers assist in early detection and reporting of incidents in parks. Only a small percentage of volunteers are equipped with mobile radios directly connected to Public Safety, but they serve as additional "eyes and ears" for EBRPD in their function. They report suspicious fires and any suspicious activity in the Parks.

MOFD: Supports and participates in Lamorinda CERT program

2011 Recommendations:

- Continue as recommended in 2001.

3. Develop a policy in every emergency organization to promote and use volunteers.

2001 Report

All member agencies have stated that they have a volunteer policy.

2001 Recommendation: Informally share successful approaches between agencies in using volunteers.

20 Years After

HEF members use community emergency response training (CERT) programs based on similar curriculums.

Agency Specific Responses

Berkeley: BFD runs CERT classes for all residents and employees in Berkeley. This provides a level of training for the volunteers. In addition, all City employees receive training as disaster workers.

El Cerrito: Incorporated into the City's emergency plan.

Oakland: Currently OKL is not aware of a statewide policy for the promotion and use of volunteers, however, the City of Oakland has incorporated the use of volunteers within its own Emergency Response Plan.

EBRPD: The Volunteer Program currently has several methods to provide service and assistance to the EBRPD and Public Safety department.

Search and Rescue (SAR): Public Safety Dispatch currently has a list of the SAR members and established protocol regarding emergency call out for volunteer SAR personnel. The members have provided telephone numbers and pager numbers to assist in the call out for assistance.

Trail Safety Patrollers: Public Safety Dispatch currently has a list for each individual patrol group. When patrollers are needed for assistance, they can be called in by the same method as the SAR unit. The majority of the patrollers are trained in traffic control, and have been used to secure parameters during fires and prescribed fire operations.

The Trail Safety Patrol group is directed and controlled by the Special Operations Division of the Department of Public Safety under the supervision of a full time, paid Volunteer Coordinator and Managed by the Police Lieutenant for Special Operations.

MOFD: Supports and participates in Lamorinda CERT program

2011 Recommendations:

- Continue to use and support the use of local CERT teams.

VIII. MOP-UP

Mop-up is the critical act of making a wildfire safe after it is controlled. This includes thoroughly extinguishing or removing burning material along or near the control line or in the total fire area if conditions warrant. (2001 Report)

1. Make wildland fire mop-up techniques a component of scheduled training

2001 Report

Wildland fire mop-up is integrated into all training programs.

2001 Recommendation: *Continue existing levels of training and utilize new technology as it becomes available.*

20 Years After

HEF members continue training on mop up techniques; many use penetrating class-A foam.

Agency Specific Responses

Berkeley: BFD provides the necessary tools, practices, and uses foam extensively.

El Cerrito: Mop-up and overhaul techniques are a component of annual training. Penetrating foam systems have been added to all firefighting vehicles. Foam is used in perimeter mop-up. A 24-hour fire scene watch policy is in effect for all interface zones.

Oakland: The OKL has and continues to provide extensive training in this area. In addition, we provide a 24-48 hour fire watch for any affected area.

EBMUD: All EBMUD fire fighting staff are trained in mop-up procedures as part of the required training and annual refresher. Procedures for mop-up are outlined in the Fire Response Plan, which discusses responsibilities and procedures for release from a wildland fire. Typically, EBMUD fire crews remain on scene for mop-up for one operational period after fire containment. Mop-up on fires that occur on EBMUD property requiring overnight surveillance are monitored by EBMUD fire personnel. Costs for this are approximately \$2500 annually.

EBRPD: Proper wildland fire mop-up operations are part of EBRPDs ongoing firefighter training program. Mop-up procedures have been dramatically enhanced by the addition of class A foam on EBRPD fire apparatus. Firefighters have integrated hand tools into mop-up operations and routinely establish cold trails around wildland fires.

MOFD: Proper wildland fire mop-up operations are part of initial and annual firefighter training program.

2011 Recommendations:

- No further recommendations.

IX. EMERGENCY PUBLIC INFORMATION

The importance of an organized, trained public information capability has been recognized by all member agencies. Upon review of the 1991 OES East Bay Hills report, it appears that there is still a strong need to develop ways to keep the public informed during initial phases of an incident. This is especially important to allow dispatchers to focus their efforts on response rather than dealing with public concerns. (2001 Report)

20 Years After

Twenty years after the HEF member agencies recognize the value of their PIOs, dispatching them to incidents and using them to keep the public adequately informed in a rapidly changing incident. New technology, including the internet and mobile communication equipment, has allowed them to provide media reporters with access to information.

1. Dispatch a trained Public Information Officers (PIO) immediately to any major incident. Give public information provision a high priority.

2001 Report

All member agencies realize the value of an effective media and public information program. All member agencies, as a minimum, dispatch a representative to function as a PIO to potentially major incidents.

20 Years After

HEF members continue to utilize their PIOs and dispatching them to incidents.

Agency Specific Responses

Berkeley: The City of Berkeley dispatches PIOs to incidents automatically.

El Cerrito: El Cerrito has created a citywide PIO position, as well as ECF has assigned departmental PIOs. This is still an ongoing effort and ongoing need.

Oakland: OKL has designated a member of the Public Information Office (PIO) to respond to incidents that are 3rd alarm or greater. The PIO also responds to incidents that are news worthy based on self-initiative or after consultation with the Incident Commander or designate. As part of the city's emergency plans, a media team consisting of the various agencies within the City of Oakland would be established for each incident.

EBMUD: The EBMUD PIO is prepared to respond to the scene of a major EBMUD event. The procedures are outlined in the EBMUD EOP.

EBRPD: EBRPD's Public Information Supervisor responds to all major incidents to assist EBRPD public safety officials in providing timely and accurate information to the media and the public. The public information function is coordinated with any and all other agencies that are present at the scene. In general, fire prevention and education are a major component of the Park District's public information effort. Through press releases, media interviews, community meetings, distribution of brochures, public service announcements and other initiatives, the Park District endeavors to inform the public of the importance of fire prevention and fire safety. Topics covered include fire safety in the parks, the need for prescribed burning, and the function of the 15-mile fuel break that EBRPD maintains along the urban interface in the East Bay Hills. Since 2008, all of EBRPDs fire officers and senior firefighters have received specific training in public information and media relations related to fire and other incidents.

LBNL: The LBNL EOC includes a staff and desk position for PIO, which is staffed by the Lab's Public and Community Information office. They are responsible for all communication with employees or the media.

MOFD: MOFD has a designated Public Information Officer that responds to significant events within MOFD jurisdiction.

UCB: In the UC Berkeley EOC, there is a PIO representative at all times. This position works with the EOC management and the Chancellor's Emergency Policy Group to develop and disseminate, through a variety of means, information for the campus community and others.

2011 Recommendations:

- No further recommendations.

2. Include a team of PIOs in the emergency response plan for every city and county.

2001 Report

The question missed the essence of the issue that was brought forward in the 1991 report. The original report identified a need for a large team of public information specialists (25-30) to staff all levels of the information process required to provide accurate timely information. The key is to keep the public adequately informed in a rapidly changing, potentially life threatening situation. This aside, PIOs are included as members of incident management teams.

2001 Recommendation: Develop some way to continually inform the public about potentially threatening situations that may require them to take action to keep them out of harms way. This includes using technologies that were not available 10 years ago such as public information websites that could provide real time information.

20 Years After

HEF members have PIO teams that manage information to the public during an incident. The Joint Information Center (JIC) allows for coordinated, consistent and factually accurate information available using a variety of technologies.

Agency Specific Responses

Berkeley: The City of Berkeley has a PIO team.

El Cerrito: The City of El Cerrito has developed a position for a Public Information Specialist.

Oakland: The PIO team has been established as part of the City of Oakland's emergency plan.

EBMUD: The EBMUD Public Affairs office provides PIO staff and clerical support to any disastrous event. These actions are outlined in the EBMUD Emergency Operations Plan.

EBRPD: EBRPD has access to a team of trained Incident Information Officers through Alameda County's, type-two IMT. The teams are comprised of personnel from local Fire Departments whose role is to assist the requesting agency in managing all aspects (including Information) of a significant incident.

MOFD: MOFD has access to the East Bay IMT that includes PIOs.

UCB: There is a PIO position within the UC Berkeley EOC, and the campus Office of Public Affairs constitutes the staff of the PIO field team. In 2004, the campus, City, LBNL, School District and the Operational Area formally instituted JIC protocols and have established pre-set locations for JIC operations. This is to ensure that communications to the public via the media are coordinated, consistent and factually accurate to the greatest extent possible. It also serves as an efficient means of providing updated briefing to the press at regular intervals and ensuring that the key spokespersons are available for press conferences.

2011 Recommendations:

- No further recommendations.

3. Equip the PIO team with a mobile and EOC information center, complete with staff, phones and fax machine.

2001 Report

Although all member agencies have designated information centers, the goal of having mobile facilities has not been met.

2001 Recommendation: *To re-evaluate the need for mobile facilities.*

20 Years After

HEF members have met their PIO teams information needs through a variety of methods including mobile communication vehicles, access to satellite phones, web site, mobile fax and e-mail capabilities using the internet.

Agency Specific Responses

Berkeley: This has not yet been done. The City has an EOC information Center but it is not mobile.

Oakland: The EOC is equipped with a media room, and has access to the Emergency Alert System, Emergency District Information System, staff phones, and fax machines. In addition, OAK has purchased a mobile communications vehicle.

EBMUD: EBMUD staff is prepared to respond to the field, facility or joint information officer center to provide information to the media. ()

MOFD: MOFDs PIO has mobile access to dispatch information, and has mobile fax and email capabilities through the internet.

UCB: UCBs EOC is equipped with phones, fax machines and 800 MHz radio equipment to support central PIO functions. The Public Affairs Department was designated as a campus Department Operations Center, whose mission is the efficient and effective dissemination of information, staffing the Policy Group, EOC and JIC. Satellite phones, emergency generator and offsite web locations augment the tools available.

2011 Recommendations:

- No further recommendations.

4. Plan to provide media reporters with access to information, whether by phone or by entrance to the disaster area.

2001 Report

All member agencies are aware of the necessity of providing PIOs for larger more complex incidents. It is the primary responsibility of PIOs to facilitate the access to the information for reporters.

2001 Recommendation: *Continue to provide adequate training of PIOs and develop a standardized approach to facilitate access to information.*

20 Years After

HEF members continue to provide training and plan for media reporters access to information; most follow established ICS protocols.

Agency Specific Responses

Berkeley: The City of Berkeley has such a plan.

Oakland: The City of Oakland's emergency plan, media section, has outlined to provide timely up-to date information to the media by phone and provides tours of the disaster impacted area when deemed safe by city officials.

EBMUD: Access to the scene of a major event is the responsibility of the city or county law enforcement agencies. In past events on EBMUD sites, the media has been allowed access as long as public health or safety remains uninterrupted.

EBPRD: Follows established ICS protocols in preparing and releasing information to the media at emergency scenes. At large incidents, the Information Officer function is activated and staffed. Prepared information releases provided by the incident are distributed by the Communications Center and the EBRPDs Public Information Officer.

MOFD: MOFD provides information through press releases emailed to the media and posted on the MOFD web site and provides for a PIO to be available to the media at the scene of significant incidents.

UCB: This will be done through the Public Information Officer and the Office of Public Affairs. Police Department employees are regularly trained in the legal aspects of the press's rights to entry during critical incidents. The Public Affairs Department was designated as a campus Department Operations Center, whose mission is the efficient and effective dissemination of information, staffing the Policy Group, EOC and JIC. Satellite phones, emergency generators and offsite web locations, the People Locator, Warn Me and the Alerting and Warning system are all integrated.

2011 Recommendations:

- Ensure intelligence provided to PIOs is timely and accurate. IMTs should develop procedures to ensure release of intelligence is correct before release to the media.

5. Train law enforcement personnel from all cities in recognizing the access rights of media representatives.

2001 Report

Access rights for media representatives as outlined in the California Penal Code Section 409.5 is part of routine law enforcement training programs.

2001 Recommendation: Continued training to ensure all emergency management personnel recognize and understand the rights of the media.

20 Years After

HEF members continue training to ensure personnel recognize and understand the rights of the media.

Agency Specific Responses

Berkeley: This has been done. It is understood and practiced.

Oakland: As part of the police training program, the Oakland Police Department, provides training for officers on penal code sections relative to media access.

EBRPD: Media access rights at emergency incidents has been included in both initial and advanced officer training for Park District Police Officers and EBRPD Command Staff.

UCB: Access rights of media representatives are well known to the UC Police command personnel, through training, which includes study of the State of California Penal Code. The California Penal Code, Section 409.5 states: "Authority of peace officers, lifeguard or marine safety officer to close disaster area; exclusion from police command post area; unauthorized entry; exception"). Sub-section 409.5 (d) states: "Nothing in this section shall prevent a duly authorized representative of any news service, newspaper, or radio or television station or network from entering the areas closed pursuant to this section." Additional training has been provided to a wide cross section of campus staff by CAL EMA outlining the rights of the media to enter an operational zone and the specific rules by which the

media may be lawfully excluded and how these rules are applied in various scenarios. Members of the press are allowed to place themselves in harms way, as long as such intrusion does not interfere with operations or violate the isolation and containment of a crime scene.

2011 Recommendations:

- Hold annual media training refreshers for agency PIOs. Foster relationships ahead of time with local media. Include local media in the annual agency PIO training.

X. EMERGENCY MANAGEMENT

As a result of the 1991 Tunnel Fire, SEMS was implemented by the State of California. This system is mandated for use by all agencies in the State of California. (2001 Report)

1. Enhance multi-discipline coordination, particularly between fire, law and emergency services agencies at all levels.

2001 Report

Agencies participate regularly in disaster planning and exercises in their respective operational areas and within OES Region II. Departments respond on a daily basis with law enforcement and EMS personnel. Cooperation and coordination are supported by ICS, especially common communications, integrated command staff, and shared resources.

2001 Recommendation: Utilize ICS and SEMS at all levels.

20 Years After

HEF members continue to enhance their multi-discipline coordination with participation in training and exercises at the local and regional levels.

Agency Specific Responses

Berkeley: This is an ongoing project.

El Cerrito: Ongoing effort. Annual training provided. Contra Costa County Chiefs Association makes annual efforts to invite law enforcement agencies to interface and training with fire agencies.

EBMUD: EBMUD is a member of the California Emergency Management Agency Advisory Group, and an active member of the Emergency Management Associations at the Op Area, and the state and federal level. Locally EBMUD sponsors the Fire Agency Forum, and participates in the city and county trainings and exercises. Costs for this effort are born in overhead labor costs to attend meetings.

LBNL: Maintains an Emergency Preparedness office, staffed by a Certified Emergency Manager, who updates the emergency plans and procedures, oversees and conducts all training, and maintains the Emergency Command Center in constant readiness.

MOFD: MOFD participates in disaster planning and exercises with City of Orinda and Town of Moraga.

Oakland: OKL participates in the Statewide Golden Guardian exercise and other emergency response drill to improve and exercise multi-discipline compliance.

UCB: Participates regularly in disaster planning and exercises with City of Berkeley and Alameda County.

2011 Recommendations:

- Continue participation in multi-agency disaster planning.

2. OES should develop formal mutual aid procedures for emergency services personnel.

2001 Report

All agencies participate in the California OES Emergency Manager Mutual Aid System (EMMA).

2001 Recommendation: Completed.

2011 Recommendations:

- No further recommendations

XI. LAND USE PLANNING

Land use planning is the basis from which most wildland urban interface issues can be complicated or mitigated. The key to dealing with potentially catastrophic WUI fire is through pre-suppression planning. This includes, but is not limited to: appropriate infrastructure design, building construction and fuel hazard reduction. (2001 Report)

20 Years After

Twenty years after the HEF member agencies continue to focus their pre-suppression activities on fire hazard reduction and vegetation management on both public and private properties. The past ten years members have completed many of the environmental clearance documents to comply with the California Environmental Quality Act. A review for compliance with the National Environmental Protection Act will be completed in 2011. Members continue to enforce local ordinances and have adopted the State Fire Marshal Office 2008 building code.

1. Develop vegetation management programs in the Oakland-Berkeley Hills:

1.0 To identify short and long term plans to reduce fuel loading within existing high hazard areas.

2001 Report

All agencies have developed vegetation management programs. They are having varying levels of success in implementing elements of these programs. Previously, each member agency had approached the environmental documentation process individually with limited success. As a result, they have agreed to a regional strategy that includes all member agencies. This unique effort will result in a single Environmental Impact Report (EIR). The East Bay Hills Fire Study Area Geographic Information System (GIS) is an interactive computer program developed to analyze fire hazard on a landscape scale. The GIS is used for charting vegetation types, fuel model, development stage, crowning potential, slope class, flame lengths, rate of spread, heat per area and ignition potential rating. This information is used for regional work plan development.

2001 Recommendation: Continue to pursue a comprehensive vegetation management strategy for the entire East Bay Hills area regardless of jurisdiction and develop dedicated ongoing hazard mitigation funding.

20 Years After

HEF members continue to coordinate vegetation management strategies on both public and private lands. Funding strategies vary by member agency and include general funds, Oakland's Wildfire Protection Assessment District and EBRPDs bond measure.

Agency Specific Responses

EI Cerrito: ECF and KFPD continue to have a very aggressive vegetation management program. The vegetation management program has visibly reduced fuel loads in the High Fire Zones. The City has aggressively pursued vegetation management at the interface of parkland (EBRPD & city parks) and residential properties. The City also aggressively pursues fuel breaks in vegetation management zones, and fuel transition zones.

EBMUD: High intensity wildfire is potentially very damaging to watershed biodiversity, reservoir water quality, plant communities, and other natural resources. In response to these concerns, the Watershed and Recreation Division Fire Management Plan, (FMP, October 2000) was developed to provide EBMUD fire personnel direction to determine appropriate levels of fire protection for all watershed lands. The FMP emphasizes the protection of life, public safety, and private property in interface areas, while minimizing environmental impacts of fire prevention and suppression.

However, it is not feasible or desirable to treat all hazardous fuels that create these conditions. Therefore, strategic implementation of hazard abatement activities is critical to maximizing the desired level of fire protection while minimizing the negative impacts on watershed values.

Fire suppression and pre-suppression activities also contribute to the immediate and cumulative long-term effects of wildland fire management. In addition, management practices and environmental regulations regarding the management of these watershed values is subject to change, requiring an approach which is dynamic and flexible with alternatives varying by location and treatment method.

The planning goals of the FMP are to contain fire ignitions to within each Fire Management Unit (FMU) of origin, reducing the potential spread of a catastrophic wildland fire across watershed lands. Therefore, the primary planning objective of fuel modification activities is to support or enhance the existing fire containment locations around the perimeter the FMU. Additional fuel modification activities may occur within the FMU to enhance wildland fire control or help protect sensitive watershed resources. Costs for maintaining the vegetation management program in the Oakland-Berkeley Hills is about \$70,000 annually.

EBRPD: Since its creation in 1934, EBRPD has been a major property owner in the East Bay Hills, and has long recognized the risks of uncontrolled wildfire. EBRPD has its own fire department, has conducted numerous vegetation management programs to reduce wildfire risks. EBRPD has also implemented a program of "high fire danger" park closures and park use restrictions to reduce the chances of an accidental ignition occurring on regional parklands during extreme red flag conditions.

Park staff annually mows approximately 219 acres of road shoulders in the above parks for both travel and fire safety.

Fuel break Construction and Maintenance: EBRPD currently maintains a 15 mile 450 acre fuel break planned as a mosaic of grassland, thinned brush, and well spaced trees along the western boundary of its East Bay Hill parks between Lake Chabot and Wildcat Canyon.

Eucalyptus and Pine Plantation Management: Management of 1,547 acres of eucalyptus and 300 acres of pine plantations in East Bay Hill parks is by far the most difficult, potentially upsetting, and potentially costly element related to reducing fire hazards in the East Bay Hills. Major eucalyptus tree plantations were planted for timber and real estate purposes on private lands in the early 1900's that were eventually acquired by the Park District. Eucalyptus plantations now occur in each of the following parks:

Anthony Chabot	987 acres	Redwood/Roberts	72 acres
Claremont Canyon	27 acres	Sibley	76 acres
Huckleberry	3 acres	Tilden	382 acres

Following the 1991 fire EBRPD removed or thinned approximately 200 acres of eucalyptus along the Anthony Chabot west boundary and to create 6 new fuel breaks to segment the Park's main grove, and thinned another 200 acres in the main grove.

Paid logging contracts to thin or clear either eucalyptus or pine have ranged between \$3,000 to \$6,000 per acre, depending on the size of the grove and its location. Recently, logging of eucalyptus and pine for paper production has made "lower cost" tree removal possible on some sites however the current market for eucalyptus and pine logs will not currently support this approach. In addition, follow-up stump treatments and vegetation conversion costs will require an ongoing commitment of staff and resources to ensure a completed project that will eventually blend in with other low cost "natural" parklands.

Grazing: EBRPD currently uses a combination of cattle and goat grazing to reduce fuel levels in the East Bay Hills. Cattle grazing is currently used on 3,379 acres to maintain the few remaining large East Bay Hill park grasslands with perimeter fencing:

Wildcat Canyon	2,200 acres	Sibley	400 acres
Anthony Chabot	475 acres	Lake Chabot	304 acres

Goats are used in the fuel break for grazing narrow strips of grassland and/or brush land that are not permanently fenced along the residential edge. Goat grazing is currently used on 85 acres of the fuel break each year, 40 acres at the North end of Wildcat and on approximately 2,000 acres of winter grazing of fuel breaks and brush lands at Anthony Chabot.

In 2010, Eight young adults from Civicorps Schools attended the weeklong basic wildland firefighting (S-130 and S-190) portion of EBRPDs Fire Academy, and received certification as wildland firefighters. They became the “Grizzly Crew,” and their new skills have since been employed on prescribed burns, wildland fire mop-up and fuels treatment projects.

Fire Trails for Access, Fire Fighting, and Pre suppression Work: EBRPD currently maintains a well placed network of park roads and trails that are designed and maintained for both recreational uses and fire safety purposes. The road and fire trail system totals 154 miles in the East Bay Hill parks including:

Lake Chabot	18 miles	Anthony Chabot	39 miles
Leona	3 miles	Redwood/Roberts	33 miles
Sibley/Huck/Claremont	10 miles	Tilden	21 miles
Wildcat	30 miles.		

HEF: Following the Oakland-Berkeley fire of 1991, the East Bay Hills Vegetation Management Consortium was formed by the HEF to develop a fire hazard mitigation program and fuel management plan for the East Bay Hills. The Plan is based on fire science concepts and recommends a unified approach for public agencies and homeowners to follow in reducing the considerable fire risks. The Plan was reviewed and approved by the East Bay Hills Emergency Forum at their October 19, 1995 meeting.

HEF members regularly track new threats to the health of local vegetation that may impact fuel loads or disposal options. These have included: eucalyptus borer beetle, pine pitch canker, sudden oak death and light brown apple moth.

Members have participated in joint fuel reduction projects including: Claremont head slope/ Grizzly Peak, CAL FIRE grant to Oakland for Shepherd Canyon, UCB FEMA grant for Panoramic Hills and the PDM 2006 FEMA Regional Fuels Management Project.

LBNL: LBNL established a wildland fire safety program designed to allow structures to survive a Diablo-wind driven firestorm. As part of this program, the Lab has created a vegetation fuel break at the Urban-Wildland Interface on the eastern edge. To manage the ignitions caused by the firebrands that will cross over the fuel break, LBNL has also implemented a site-wide vegetation management program. LBNL initiated this program through its participation in the East Bay Vegetation Management Consortium, which mapped and prioritized fire hazard in the East Bay Hills after the 1991 fire. LBNL refined the findings for the area within and around the Lab, and used computer simulation to predict the fire behavior of existing vegetative fuels. In developing the program LBNL staff solicited input from an array of sources: Lab employees, University of California professors, neighbors, and members of various conservation groups. LBNL has nearly completed the initial implementation phase of its program and is now acting to ensure that the prescribed level of protection is maintained in the long-term. LBNL adopted their Long Range Plan and EIR in 2007 that guides vegetation management and other activities.

Oakland: The City of Oakland is a member of the Hills Emergency Forum and with its fellow members attempt to establish both long and short-term goal for vegetation management. This includes the development of joint fuel mitigation projects and public information materials. In addition, the City of Oakland has created a “large parcel group.” This group meets prior to the fire season to discuss and develop short-term fuel mitigation projects for the up coming year. Oakland has prepared a long-range vegetation management plan that addresses strategic and long-range fire hazard reduction

projects. The City of Oakland was awarded a Pre-Disaster Mitigation (PDM) Grant from FEMA to fund fuel reduction projects. The grant is currently under environmental review.

UCB: The campus Fire Mitigation Program is responsible for planning and directing the vegetation management efforts required to mitigate the threat of a wildland fire. The Physical and Environmental Planning Office, a unit within the University Facilities Services, administers the program. In carrying out the program, the manager of OEP is guided by the campus Fire Mitigation Committee, chaired by a professor of the College of Natural Resources. The committee is charged by the Vice Chancellor for Facilities Services, on behalf of the Chancellor to formulate and recommend policy that will support the management of fire hazards within the U.C. Berkeley Hill Campus. The Committee is composed of students, academics and administrative staff who have a professional concern for or interest in the Hill Campus and its wildlands.

The Fire Mitigation Program develops and implements the annual fire management work plan and plans and executes large projects as set forth in the 2020 Fire Plan. The annual work plan involves the clearing of light fuels (annual grasses and brush) from building perimeters, roadsides and turnouts. Both hand crews and goat herds are used to conduct this work. Additionally, prescribed fire is also available as a tool that may be used as conditions warrant. In 2006, UC Berkeley opened the Center for Fire Research and Outreach, including the ongoing work of directors, faculty and researchers, collaborators and staff.

The Hill Campus is designated by CAL FIRE and by the Cities of Oakland and Berkeley to constitute a Very High Fire Hazard Severity Zone - the most dangerous rating of state land. To manage this threat, the Fire Program develops large projects -- strategic fuel reduction efforts intended to create fire safety improvements over many years. Typically, large projects remove invasive eucalyptus trees, acacia trees and pine trees and decadent brush from locations necessary to fight or contain a wildfire. For campus lands, these locations are found along the upper canyons, roughly parallel to Grizzly Peak Blvd. Additional strategic sites include the ridgeline between Strawberry and Claremont Canyons, neighborhood interface zones near the Panoramic Hill and North Berkeley neighborhoods, and the Hill Area management zone protecting the UCB facilities and the Lawrence Berkeley National Laboratory. Between 2001 and 2010, UCB has removed eucalyptus, pine and acacia from over 160 acres, totaling nearly 17,000 stems.

Since 2001, the campus has implemented over 17 fire fuel management projects, strategically converting eucalyptus and Monterey pine dominated forests to oak/bay woodland and native north coastal scrub vegetation communities.

2011 Recommendations:

- The HEF members have completed many outstanding projects to date that have greatly reduced the risk to the communities for catastrophic wildfires. Many additional projects continue and more are being developed. HEF members have made great strides in working together to achieve a comprehensive vegetation management program for the entire area. This process is on going and should continue indefinitely.

1.1 Existing development: Adopt ordinances requiring compliance with uniform Fire Codes or standards similar to Public Resources Code (PRC) 4290 and 4291.

2001 Report

Member agencies have adopted similar or more restrictive ordinances. As an example, OKL has adopted Municipal Code 15.12.040 Uniform Fire Code Appendix II-A, "Suppression and Control of Hazardous Fire Areas" Section 16(a) amended which adopts PRC 4291 type fuels hazards reduction standards.

20 Years After

HEF members continue to require compliance with more restrictive local ordinances and have adopted the CAL FIRE Very High Hazard Severity Zone maps. All three cities also have adopted the State Fire Marshal Office 2008 building code Chapter 7A.

Agency Specific Responses

Berkeley: This is an on going project.

El Cerrito: The City has adopted an aggressive vegetation management ordinance similar to P.R.C. 4290-4291. Over 10,000 vegetation management inspections are performed annually. In addition the City of El Cerrito has adopted the CAL FIRE Very High Fire Hazard Severity Zone (VHFHSZ) Maps that have significantly increased our VHFHSZ.

MOFD: In 2009 the MOFD adopted the Very High Fire Hazard Severity Zone maps recommended for the local responsibility area by Cal Fire. As a result, all properties in those areas must meet the vegetation management standards outlined in the PRC. Annual exterior hazard abatement program notices and inspects 4,000 properties to ensure compliance with minimum vegetation management standards. Additionally MOFDs Fire Code Ordinance adopted in 2007 requires all properties to meet minimum exterior abatement standards.

Oakland: The City of Oakland has adopted and enforces Appendix IIa of the Uniform Fire Code; Vegetation management inspectors assigned to the Fire Prevention Bureau are responsible for the compliance of its requirement for all property owners in the High Fire Hazard Area. In 2004 the residents of the City of Oakland concerned about the need to prevent a future firestorm voted to create the Wildfire Prevention Assessment District. The purpose of the district was to provide fire hazard fuel mitigation in the High Fire Severity Area. An assessment of \$75 dollar per parcel is used to fund a comprehensive inspection and prevention program in the area, including: goat grazing, roadside management, chipping programs, public outreach and various community fire management projects.

UCB: Compliance is achieved by the University via plan review by the Campus Fire Marshal and via a range of CEQA reviewed public safety project mitigation measures, typically vegetation management of the urban-wildland interface.

2011 Recommendations:

- Continue as recommended in 2001.

1.2 Wildlands – vegetation in wildlands should be managed for wildlife habitat and slope protection in addition to fire protection.

2001 Report

There as been a lot of work in this area. HEF developed a Fuels Management Plan (FMP) in 1996. The plan and the required environmental quality regulations reviews address wildlife habitat and slope protection.

2001 Recommendation: *Continue to comply with state and federal law and policies.*

20 Years After

HEF members continue to expand their fuel management programs and incorporate best management practices and mitigation measures to address environmental protection regulations.

Agency Specific Responses

El Cerrito: This is an on going effort.

Oakland: In Oakland, prior to the initiation of major fuel mitigation projects staff from the various habitat protection agencies are consulted. In addition, the City has staff in its agencies that process these areas of expertise.

EBMUD: EBMUD has been involved in significant efforts to ensure that wildlife habitats and slopes are appropriately considered and managed in fire planning. EBMUD completed the East Bay Watershed Master Plan in 1996 that required protection of water quality and biodiversity in fire mitigation planning and, to the extent practicable, wildland fire suppression. The subsequent Fire Management Plan and Fire Atlas, completed in late 2000, carries this requirement forward by identifying known sensitive resources, protocols for pre and post project biological monitoring, and a range of land management techniques to ensure minimum environmental impact. The Fire Atlas, in particular, has been made available to adjacent fire agencies to ensure their opportunity for pre-attack planning.

EBMUD actively participated in the development of the Caldecott Corridor Management Plan as a member of the Contra Costa-Alameda County Biodiversity Working Group. The Caldecott Corridor is a land bridge in the Oakland-Berkeley Hills that funneled the winds to the Oakland Firestorm and is also the only Wildlife Corridor that crosses HWY 24. Over a two-year period, EBMUD collaborated with Contra Costa County, EBRPD, City of Oakland, UCB and a number of private landowners, fire control advocates and wildlife proponents, to identify issues and obtain consensus on a range of management actions designed to minimize fire risk, maximize protection of biodiversity and protect private property interests within this unique landscape feature.

The Building Maintenance crews employ a variety of treatments to manage vegetation on EBMUD property that supports a particular facility like a reservoir or pumping plant. Treatment methodologies include spraying herbicides, use of goats to graze and contracts with the East Bay Conservation Corp for manual labor to remove stumps and other vegetation. The costs run about \$588,000 per year with an additional \$546,000 in labor.

EBRPD: In 2010, EBRPDs Board of Directors approved a comprehensive Wildfire Hazard Reduction and Resource Management Plan and certified the associated CEQA-compliant Environmental Impact Report. The Plan provides direction and guidance for fuels management activities on over 130 recommended treatment areas, covering 3000 acres within a 20,000-acre study area that stretches the length of the East Bay Hills. State-of-the-art analysis tools were used to identify the highest priority areas for treatment, and a wide variety of treatment tools and methods were analyzed. Implementation of the plan is well underway.

The Plan and EIR provide direction and guidance for fuels management activities. Protection of endangered and sensitive plant occurrences, wildlife habitat, cultural properties, scenic values, soil stability and water quality are given a high priority. Implementation of the plan is well underway.

HEF: HEF provides a forum for members to share best management practices and information regarding protection of the environment during fuel reduction projects. In 2003, the members provided input on Draft Recovery Plan for Chaparral and Scrub Community Species East of San Francisco Bay with US Fish and Wildlife Service. Members continue to work with regulatory agencies for management of species such as Alameda Manzanita, Presidio clarkia as well as compliance with local creek protection ordinances.

UCB UCB maintains the Hill Campus as a natural resource for research education and recreation, with focused development on suitable sites. While the 800 acres managed by UCB contains several campus public and research facilities concentrated along Centennial Drive, including the Lawrence Hall of Science, the Botanical Garden, the Space Sciences Laboratory and the Mathematical Sciences Research Institute, the primary use of the Hill Campus is natural open space, including the 300 acre Ecological Study Area.

The Hill Campus landscape is managed to reduce fire and flood risk and restore native vegetation and hydrology patterns. UCB maintains an ongoing program of fire fuel management in the Hill Campus to reduce fire risk to the campus, LBNL, neighboring residents, and recreational visitors to adjacent park and watershed lands. While the treatment used in a given area must be customized to address its specific conditions, including vegetation type, access, and proximity to roads and structures, in general the treatments are designed to meet one or more of the following goals:

- reducing fuel load by removing dead material, reducing plant density, and favoring species with lower fuel content,
- reducing horizontal spread by reducing fine fuel material and by separating dense clusters of vegetation with areas of lower fuel load, and
- reducing vertical fire spread by increasing separation of understory and crown fuels.

Whenever feasible, future fuel management practices should include the selective replacement of high-hazard introduced species with native species: for example, the restoration of native grassland and oak-bay woodland through the eradication of invasive exotics (broom, acacia, pampas grass) and the replacement of aged Monterey pines and second growth eucalyptus. Such conversions must be planned with care, however, to avoid significant disruptive impacts to faunal habitats.

New building projects within the Hill Campus should be designed to minimize fire risk to neighbors as well as occupants, but this should be achieved as part of a larger, holistic design strategy. Some older areas of LBNL, for example, include extensive alteration of natural contours and large areas of built and paved surfaces. While this does reduce fire risk, it also increases runoff and degrades habitat and scenic value. Risk mitigation measures, such as low-fuel buffers and fire-resistive materials, should be incorporated into the design of Hill Campus projects in ways that respect the integrity, ecology, and visual quality of the natural landscape.

Vegetation is managed for habitat and slope protection (erosion control) through regular maintenance limited planting programs, through CEQA vegetation and wildlife project mitigation measures, and in compliance with EPA Critical Habitat guidelines and requirements.

2011 Recommendations:

- Efforts to use best management practices are on-going. No further recommendations required.

1.3 Areas subject to development/ rebuilding – rebuilding and other new development in similar hillside areas of city should meet standards similar to PRC 4290 and 4291 while protecting existing riparian zones.

2001 Report

In the rebuilding of the Tunnel Fire area utilities were under-grounded, the water delivery system was upgraded and some access roads were widened. As in the answer above, riparian zones have protections through the state and federal laws and policies.

2001 Recommendation: *Continue to comply with state and federal law and policies.*

20 Years After

HEF members continue to comply with state and federal laws and policies and have adopted the State Fire Marshal Office new building code Chapter 7A.

Agency Specific Responses

Berkeley: The City of Berkeley initiated a special assessment district in 1992. An assessment of \$50 per lot was used to fund a comprehensive inspection and prevention program in the area, including a very successful chipper and drop box program aimed at removing excess vegetation. After the passage of Proposition 218, the assessment was discontinued; the chipper and drop box programs have continued with funding from other sources, and a more limited inspection program, utilizing the fire

companies, is still ongoing. In addition, the City of Berkeley also approved a series of building code requirements governing new construction and the replacement of roofs in the Berkeley hill area.

El Cerrito: City Recovery Plan includes recommendations to enforce all codes ordinances and regulations.

MOFD: For new developments MOFD utilizes the CEQA process to identify the management process and the proposed mitigations are reviewed for potential environmental impacts to riparian Zones. Open space management plans are required where applicable to identify project specific mitigation needs. In 2009 the MOFD adopted the Very High Fire Hazard Severity Zone maps recommended for the local responsibility area by Cal Fire. As a result, all properties in those areas must meet the vegetation management standards outlined in the PRC. Additionally MOFDs Fire Code Ordinance adopted in 2007 requires all properties to meet minimum exterior abatement standards.

Oakland: The City of Oakland passed in 1997 a Creek Protection Ordinance, which requires all construction activities with riparian areas require approval from the city and state agencies with oversight prior to the issuance of a building permit. Failure to obtain the appropriate permit will result in fines and additional penalties. In 2008, they adopted the fire safety amendments to Chapter 7A California Building Codes and associated Very High Fire Hazard Severity Zone map.

2011 Recommendations:

- No further recommendations.

2. Ensure that fire protection agencies and water utilities are incorporated into planning stages involving land use and new development decisions in high hazard areas.

2001 Report

This goal is achieved throughout the EBMUD service area with regard to selecting fire flows and appropriate storage for the flow and duration. In all low-pressure situations, each fire agency is notified in writing to ensure appropriate consideration is given at the building and occupancy permit stages.

2001 Recommendation: Continue the current notification process.

20 Years After

HEF members continue their review and notification processes.

Agency Specific Responses

Oakland: All building activities (i.e. parcel divisions, new construction, additions) in the High Fire Hazard area are routed to the Fire Department, Fire Prevention Bureau for review prior to the issuance of a building permit.

EBMUD: This goal is achieved throughout EBMUDs service area with regard to selecting fire flows and appropriate storage for the flow and duration. In all low-pressure situations, each fire agency is notified in writing to ensure appropriate consideration is given at the building and occupancy permit stages.

MOFD: MOFD actively participates in the planning and development process for all new projects. Plans are reviewed and firefighting water supply requirements are identified and enforced. Additionally, with the 2007 adoption of the California Fire Code, MOFD included an amendment requiring the installation of fire sprinklers in all new residential structures regardless of size. Residential sprinkler systems must also be installed in existing residences when major remodel or additions to the structure occur.

UCB: In the University Long Range Development Plan, a range of CEQA public safety and utility project mitigation measures require the involvement of EBMUD and the Office of the Campus Fire Marshal.

2011 Recommendations:

- Continue as recommended in 2001 with the current notification process.

3. Local government should not waive substantive provisions of local, state or federal codes, specifications, standards or environmental assessment requirements during reconstruction.

2001 Report

The lack of response to this question indicates that this is not solely a fire department issue as much as it is an issue for local government generally and building departments specifically. While the fire department plays an integral role in compliance with uniform fire codes and PRC 4291, it's the policy makers that dictate the degree to which local ordinances will be adopted and enforced.

2001 Recommendation: *In fire prone areas, risk and hazard need to be formally addressed if there is going to be any mitigation of future loss of life and property to interface fire. It behooves all jurisdictions to fully embrace appropriate fire ordinances and codes.*

20 Years After

HEF members have adopted and are enforcing the latest fire codes. Fire Hazard Severity Zone mapping assessing hazards have been updated. The places in the East Bay hills where it was relatively easy to build were developed long ago. As more people want to live in the hills, city planners are pressured to accept new construction that addresses wildfire in less effective ways. As a result of the Tunnel Fire, all of the surrounding cities have adopted new building requirements for more fire safe structures. However the topography, access roads, and other supporting infrastructure remain the same. New homes are built in places that are difficult for firefighters to reach, surrounded by flammable vegetation, steep slopes and in configurations that make them hard to protect. New construction places continued pressure to accept more exotic developments that address wildfire in less effective ways. As the cities reinforce fire safety standards this increased development pressure shifts to nearby state responsibility lands.

Agency Specific Responses

El Cerrito: City Recovery Plan includes recommendations to enforce all codes ordinances and regulations.

Oakland: No waiver of the City of Oakland, Building and Fire Code requirements can be obtained without the approval of the Fire Chief or Fire Marshal.

LBNL: LBNL follows applicable state and federal requirements . No waiver of code requirements can be obtained without the approval of the Fire Marshal and, as applicable, the Department of Energy

MOFD: No waiver of the MOFD Fire Code requirements can be obtained without the approval of the Fire Chief or Fire Marshal.

UCB: Enforces all applicable codes, specifications and standards as adopted by the Office of the State Fire Marshal within Title 24, Part 2, California Building Code. In the University Long Range Development Plan, a broad range of over 160 CEQA mitigation measures require the incorporation of appropriate codes and standards into all Campus projects. In addition, the University regularly incorporates existing and innovative new specifications into project contracts to ensure a high level of public safety.

2011 Recommendations:

- No further recommendations.

4. Adopt most recent edition of Uniform Building Code (UBC). Berkeley and Oakland should also adopt, in those areas designed as High Hazard Fire Areas more restrictive building ordinances (spelled out in 1980 Fire Safe Guides).

2001 Report

All cities have adopted the more restrictive provisions of the building code.

2001 Recommendation: Continue to adopt the most recent versions of the Uniform Building Code that are appropriate for High Hazard Fire Areas.

20 Years After

HEF members have adopted the more restrictive codes, including Chapter 7A to apply to the Very High Fire Hazard Severity Zones.

Agency Specific Responses

Berkeley: The City of Berkeley has adopted more restrictive building code requirements in the Berkeley hill area.

El Cerrito: Most recent edition of the UBC adopted cyclically. Local Fire Code is more restrictive than state code. Ongoing effort to adopt fire sensitive building code provisions.

Oakland: In addition, the City of Oakland adopted Municipal Code Chapter 15, Section 12, which adopted Uniform Fire Code Appendix II-A, Section 7 that established a series of building code and fire prevention requirements governing new construction in the designated High Fire Hazard area. The City of Oakland adopted Chapter 7A of the California Building Code providing more restrictive building code requirements in the Oakland hill area. The requirements also established a more restrictive policy for allowing the construction of homes on roads with narrow widths. A mandatory residential sprinkler requirement was also part the adoption of the Oakland Fire Code.

MOFD: With the 2007 adoption of the California Fire Code MOFD included an amendment requiring the installation of fire sprinklers in all new residential structures regardless of size. Residential sprinkler systems must also be installed in existing residences when major remodel or additions to the structure occur.

LBNL: Actions are intended to protect its structures from the two main types of fire threat: radiation from the heat of a fire front and countless ignitions from a storm of flying embers. The main buildings have been 'hardened' so that primary structural ignition risks are managed or eliminated. Moreover, once the fire front reaches the Lab grounds, this combination of a fuel-break and site-wide vegetation management (focused on firebrands) creates an optimum situation for mutual aid firefighters to contain the fire front.

UCB: In the University Long Range Development Plan, a range of CEQA project mitigation measures require the incorporation of appropriate portions of the UBC.

2011 Recommendations:

- No further action recommended.

5. The cities of Berkeley and Oakland should adopt an ordinance that requires, as a minimum, Class C roof coverings. The cities should adopt more stringent requirement (Class A) for areas identified as High hazards. Wood roof coverings materials thus would not be allowed in areas designated as high hazard or greater.

2001 Report

The cities of Berkeley and Oakland have adopted ordinances requiring Class A roof coverings in High Hazard Fire Areas.

2001 Recommendation: None

Agency Specific Responses

Berkeley: The City of Berkeley requires Class A roofs in the hazardous Berkeley hill area. Wood roof assemblies meeting the Class A standard cannot be prohibited.

El Cerrito: Adopted a Class B or better roofing ordinance that prohibits all use of wood shingle or shakes. Class A roofing is required in the Very High Fire Hazard Severity Zone.

Oakland: The City of Oakland requires Class A roofs in the High Fire Hazard area. The Oakland Municipal Code Chapter 15, Section 12 which adopted California Fire Code Chapter 47 established the requirements for Class A roofing and minimum 1 hour exterior construction for buildings in this area.

UCB: The University voluntarily complies with the relevant California Building Code (CBC). CBC Table 15A mandates a Class A or B roof on almost all Campus structures. The few R-3 structures owned by the campus are allowed a Class C rated roof, but none of these are within the campus Hill Area.

2011 Recommendations:

- No further recommendations.

6. Funding for fire hazard mitigation

2001 Report

Funding for fire hazard mitigation was not evaluated in the initial reports. However it is recognized as critical a component of land use and pre-suppression planning.

20 Years After

For the past 20 years, HEF Members have focused much of their time and efforts on fire hazard mitigation. Long term funding has been an on-going challenge. Members have received grant funding, developed an assessment district and passed voter supported bond measures, as well as used funding allocated as a part of annual operating budgets.

Agency Specific Responses

EBRPD: In 2004, nearly 70% of voters in the East Bay Hills area of Contra Costa and Alameda counties voted to support a parcel tax to raise nearly \$9 million dollars over 15 years to fund fuels treatments on EBRPD lands to reduce the potential for severe wildland-urban interface fires in the future.

In 2007, EBRPDs Board of Directors set aside \$1.5 million to supplement hazard reduction treatments District-wide. EBRPD, individually and as a partner agency, has been successful in competing for grants from state and federal sources to fund initial and maintenance fire hazard reduction activities.

FEMA Grant Funds: FEMA has selected four hazard mitigation grants for fuel reduction projects in the East Bay Hills area in California from EBRPD, City of Oakland and UCB. The proposed action is to fund these four projects under Section 404 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act), Public Law 93-288, as amended, establishing the Hazard Mitigation Grant Program (HMGP) and Section 203 of the Stafford Act, establishing the Pre-Disaster Mitigation (PDM) grant program. FEMA anticipates environmental review to be completed by the end of 2011 – required prior to release of the grant funds.

UC Berkley PDM04 – Strawberry Canyon. The UCB Strawberry Canyon Vegetation Management Project involves the thinning of 60 acres of eucalyptus trees (18,000 stems),

chipping the downed trees, the spreading of up to 24 inches of these chips in the cleared area, and the semiannual application of herbicides to eliminate eucalyptus trees from the area.

UC Berkley PDM04 – Claremont Canyon. The UCB Claremont Canyon Vegetation Management Project involves the thinning of 45 acres of eucalyptus, Monterey pine, and acacia trees (12,000 stems), chipping the downed trees, the spreading of up to 24 inches of these chips in the cleared area, and the semiannual application of herbicides to eliminate eucalyptus trees from the area.

Joint Oakland, UC Berkeley and EBRPD PDM 06 The joint City of Oakland, UCB and EBRPDs project involves thinning techniques within 325 acres.

EBRPD HMG 2009. The EBRPD project involves the treatment of 550 acres to reduce fuel load through brush removal (mechanical and hand), chemical treatment, limbing and mowing, thinning, and grazing techniques. These projects will affect approximately 980 acres of the Wildland-Urban Interface in the East Bay Hills running from Lake Chabot to Wildcat Canyon and Sobrante Ridge.

2011 Recommendations:

- Unfortunately funding for projects is not always readily available. Grant funding and other funding mechanisms should continued to be pursued.

7. Environmental clearances related to fire hazard mitigation/ fuel management (NEPA and CEQA)

2001 Report

Environmental regulations were not evaluated in the initial reports. However, they are recognized as critical a component of fire hazard mitigation projects.

20 Years After

For the past 20 years, HEF Members have focused much of their time and efforts on fire hazard mitigation. Prior to beginning many of those projects, environmental clearances have been needed to comply with both federal and state laws.

Agency Specific Responses

EBRPD: In 2010, EBRPDs Board of Directors approved a comprehensive Wildfire Hazard Reduction and Resource Management Plan and certified the associated CEQA-compliant Environmental Impact Report. The Plan provides direction and guidance for fuels management activities on over 130 recommended treatment areas, covering 3000 acres within a 20,000 acre study area that stretches the length of the East Bay Hills. State-of-the-art analysis tools were used to identify the highest priority areas for treatment, and a wide variety of treatment tools and methods were analyzed. Protection of endangered and sensitive plant occurrences, wildlife habitat, cultural properties, scenic values, soil stability and water quality are given a high priority. Implementation of the plan is well underway.

FEMA: The development of an EIR is underway (2010-2011) related to the four FEMA grants: UC Berkley PDM04 (Strawberry and Claremont Canyons), Joint Oakland, UC Berkeley and EBRPD PDM 06, and EBRPD HMG 2009. FEMA anticipates completion of the EIR by end of 2011.

UCB: Under the auspices of a federal nexus relating to its FEMA grant applications, the US Fish and Wildlife Service (USFWS) issued two biological opinions in 2007 allowing the thinning of forests dominated by eucalyptus and pine in the UC Berkeley PDM 05 grants. The service required the Conservation Measures be employed as a condition of the work, and found that the projects would have a net benefit on the endangered species Alameda Whipsnake and California Red Legged Frog.

UCBs 2020 Long Range Development Plan and EIR, adopted by Regents in 2005, provides a framework for land use and capital investment to meet the academic goals and objectives of the university through the year 2020. It describes both the scope and nature of development anticipated within this timeframe, as well as policies to guide the location, scale and design of individual capital projects. The 2020 LRDP does not commit the university to any specific project, but rather provides a strategic framework for decisions on those projects. The capital investment program described in the 2020 LRDP does, however, establish a maximum amount of net new growth in the UC Berkeley space inventory during this timeframe, which the campus may not substantially exceed without amending the 2020 LRDP. The potential environmental impacts of the 2020 LRDP were evaluated in an EIR, as required by CEQA.

The 2020 LRDP and its EIR provide a framework for the subsequent review of individual projects as they occur at UC Berkeley. Each project with potential to affect the physical environment will be assessed within this framework to determine the appropriate level of CEQA review. Once CEQA review is complete, each individual project must then be approved by the Regents, the President of the University of California, or the Chancellor of UC Berkeley, depending on the scope and nature of the project.

2011 Recommendations:

- Continue to work with environmental regulators and the public to complete environmental reviews and identify required mitigation measures to allow fuel mitigation projects to move forward.

KEY TO ABBREVIATIONS

ABAG	Association of Bay Area Governments
ACFD	Alameda County Fire Department
BFD	Berkeley Fire Department
CAL EMA	State Office of Emergency Services (formerly OES)
CAL FIRE	California Department of Forestry and Fire Protection
CCCFPD	Contra Costa County Fire Protection District
CERT	Community Emergency Response Training
CEQA	California Environmental Quality Act
EBMUD	East Bay Municipal Utilities District
EBRPD	East Bay Regional Park District
ECF	El Cerrito Fire Department
EIR	Environmental Impact Report
EMS	Emergency Medical Services
EOC	Emergency Operations Center
FEMA	Federal Emergency Management Agency
HEF	Hills Emergency Forum
ICS	Incident Command System
IMT	Incident Management Team
JIC	Joint Information Center
KFPD	Kensington Fire Protection District
LBNL	Lawrence Berkeley National Laboratory
LLNL	Lawrence Livermore National Laboratory
MRA	Mutual Response Agreements
MOFD	Moraga Orinda Fire District
NFDRS	National Fire Danger Rating System
NIMS	National Incident Management System
OKL	Oakland Fire Department
PIO	Public Information Officer
RAWS	Remote Automated Weather Stations
ROSS	Resource Ordering Status System
SEMS	Standardized Emergency Management System
UCB	University of California, Berkeley
UASI	Bay Area Urban Security Initiative
WARN	Water Agency Response Network
WIMS	Weather Information Management System
WUI	Wildland Urban Interface

CONTRIBUTORS

California Department of Forestry and Fire Protection (CAL FIRE)

The following CAL FIRE staff participated in preparing this summary:

Unit Chief, Steven F. Woodill

Division Chief, Shana Jones

Battalion Chief, Mike Martin

City of Berkeley

The following City of Berkeley staff provided responses to the questions:

Deputy Chief David Orth

Assistant Fire Chief/ Fire Marshal John Fitch

City of El Cerrito

The following City of El Cerrito staff provided responses to the questions:

Battalion Chief/Fire Marshal, Michael J. Bond

City of Oakland

The following Oakland Fire Department and City of Oakland staff provided responses to the questions:

Deputy Chief James Williams

Emergency Services Manager, Renee Domingo

Asst. Fire Marshal, LeRoy Griffin

East Bay Municipal Utility District (EBMUD)

The following East Bay Municipal Utilities staff provided responses to the questions:

Bill Kirkpatrick, Manager of Distribution Planning

Jose Rios, Sr Civil Engineer

Scott Hill, Manager of Watershed and Recreation

Steve Frew, Manager of Security and Emergency Preparedness

East Bay Regional Park District (EBRPD)

The following East Bay Regional Park District staff provided responses to the questions:

Assistant Chief John Swanson.

CAL EMA

The following CAL EMA staff participated in preparing this summary:

Division Chief, John Clary

Contra Costa Fire Protection District (CCCFPD)

The following CCCFPD staff participated in preparing this summary:

Communications Chief, Kody Kerwin

Hills Emergency Forum (HEF)

The following Hills Emergency Forum staff assisted with the preparation of this summary:

Cheryl Miller, HEF Support Staff

Lawrence Berkeley National Laboratory

The following Lawrence Berkeley National Laboratory staff provided responses to the questions:

Fire Marshal Gary Piermattei

Moraga Orinda Fire District

The following Moraga Orinda Fire District staff provided responses to the questions:
Fire Marshal Michael Mentink

University of California Berkeley

The following UC Berkeley staff provided responses to the questions:
Tom Klatt, Environmental Projects Manager