The Maloney Report

David Maloney:

• **served on 1991** ***Task Force on Emergency Preparedness & Community Restoration*** created to investigate causes of the 1991 Oakland-Berkeley Hills Fire and prevent its recurrence

• ***Chief of Fire Prevention*** at **Oakland Army Base,** appointed by U.S. Dept. of the Army, 1989

• **firefighter, Oakland Fire Dept**., retired 1988

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FROM: October 29, 2009
David Maloney
San Francisco, CA

TO:
Brian Wiese
Chief, Planning and Stewardship
East Bay Regional Park District

Dear Mr. Wiese:

I retired from the Oakland Fire Department in 1988. In 1989 I was appointed by the United States Department of the Army to be Chief of Fire Prevention at the Oakland Army Base. In 1991, I was appointed to serve on the Task Force on Emergency Preparedness and Community Restoration. This task force was formed to inv theestigate the causes of the most destructive wildland/urban interface fire in the history of the United States, the Oakland-Berkeley Fire of 1991, and make recommendations to prevent its recurrence.

Following are my comments about the East Bay Regional Park District's Wildfire Hazard Mitigation Plan (the Plan), and EIR.

An inordinate amount of the Plan is an attempt at land transformation disguised as a wildfire hazard mitigation plan. If it is implemented it will endanger firefighters and the general public; and it will be an outrageous waste of the taxpayer's money.

The objectives of a land transformation plan are different than the objectives of a wildfire mitigation plan. The only way a land transformation plan can succeed in masquerading as a wildfire mitigation plan is if it treats important data needed to compose a sound wildfire mitigation plan in a superficial manner, or ignores such data or circulates misinformation.

The Plan submitted to the East Bay Regional Park District (hereafter referred to as the Park, or EBRPD) does all three. It omits important Fire Science principles, disseminates misinformation about selected fuels, and ignores data that would be contrary to its aim of land transformation.

CLEAR CUTTING

Section IV: Fuel Treatment Methods; subsection A.2 of the Plan advocates clear cutting of trees. Not only does it advocate clear cutting with the phrase "…completely removing an overstory canopy;" it justifies this by standing fire science on its head by ignoring the significant role that tree canopies play in facilitating moisture which dampens ground fuels, and ignoring that volatile grasses will grow on the ground below the canopy gaps.

Clear cutting is anathema to the Fire Service. Clear cutting to effect wildfire hazard mitigation violates every Fire Science principle relative to wildfire mitigation. Clear

cutting dramatically increases the chance of a wildfire. It is a tool of land transformation. Therefore the Plan has a prominent self-contradiction.

Fire Science has proven that every living tree — regardless of its species — due to its moisture content and canopy coverage of ground fuels, contributes to wildfire hazard mitigation.

"The shade and protection afforded by timber stands influence fuel type ratings due to favorable fuel moisture conditions that are created. In a dense forest, ground fuels are protected from the sun and wind. Temperatures and wind velocities are lower so that moisture does not evaporate as readily from the dead fuels situated beneath dense timber canopies." The Fire Protection Handbook (20th edition, 2008), published by the National Fire Protection Association, Volume II, pg. 13-63.

"If too much wood was in the forests, it seemed intuitive, to some people, that cutting down tress must help the situation. Many pointed to the massive fires in the 1990's as evidence that not enough logging was going on. Yet, throughout the [20th] century large fires had followed logging." Burning Questions: America's Fight With Nature's Fire, pg. 253, by David Carle.

[It was the logging of the trees on Angel Island in 1999 that caused the Angel Island Fire of 2008.]

"While fuel is a key ingredient for any blaze, and fuel accumulations can exacerbate fire intensity, most large blazes result from drought and wind – not fuels. Yet, because fuel treatments are emphasized in management prescriptions, the general public is led to believe that fuels are the driving force in large blazes and, by inference, that fuel reduction by tree thinning will prevent large fires." Wild Fire: A Century of Failed Forest Policy. Pg. xiii, part of the section entitled 'Myth: Big Fires Are the Result of Too Much Fuel.' Edited by George Wuerthner.

There is not one single fire science authority who supports clear cutting for the sake of wildfire hazard mitigation.

MOISTURE

"Two conditions of fuel moisture have major influence on the rating of fuel types. One concerns the greenness, or curing stage, of vegetation. The other relates to the shade and protection furnished by green timber." The Fire Protection Handbook, previously cited, pg. 13-63

The Plan ignores the relationship between specific tree moisture, amount of canopy protection afforded to ground fuels by copses of trees due to the shade and windbreak these trees provide, amount of ground moisture which is created and dependent on the tree canopy above the ground, and ground moisture created by the size and type of the leaves of

trees. (One of the major contributions leaves make to wildfire hazard mitigation is collecting moisture and dripping it onto the ground.)

Even though moisture is a critical key element in evaluating wildfire hazard, there is no mention of use of a hygrometer to evaluate how much moisture, according to season, is present in the various sections of the EBRPD, especially those sections where clear cutting might be considered.

Additionally, there is no mention of the specific hygroscopocity, according to season, of the various species of trees within the Park, especially of those species of trees for which clear cutting is recommended.

There is no discussion, or even a mention, of the average daily, weekly, and monthly dew, dewfall and dew point in those sections of the EBRPD affected by the Plan.

The Plan confuses cloud cover and precipitation with moisture. Moisture is different than cloud cover and precipitation. Cloud cover and precipitation contribute to moisture levels, but they are not the sole determinants of moisture. The Plan barely mentions the moisture content of the lands and sections of the East Bay Regional Park District. Again, it cannot be over emphasized, moisture content is one of the most important factors in determining wildfire risk.

The EBRPD is located in a moisture rich environment. Its location is the envy of wildfire managers across our nation. Yet, there is not one chart or graph that shows the average weekly and monthly moisture content within the Park's boundaries or within specific sections of the Park, especially within those sections where it is proposed that clear cutting of trees take place. There is not one chart that compares the amount of moisture in the holdings of the EBRPD with the moisture content of other areas in California and the United States.

Are these omissions because showing the moisture content of the EBRPD, would lead to a downsize of the Plan, thereby negatively impacting land transformation?

[It was the moisture laden air coming from the Pacific Ocean through the Golden Gate, crossing San Francisco Bay and interfacing with the Oakland Hills Fire of 1991 that lowered the temperature of the fire sufficiently to halt its spread and allow firefighters to contain it. The fire began in grasses, spread to the rooftops of houses, where it attained sufficient heat to dry out the moisture in the trees of the East Bay Hills, and then caught the trees on fire.]

PRESCRIBED BURNING

The Plan recommends prescribed burning in a cavalier manner. Prescribed burning is a very serious and dangerous undertaking. It is only to be used narrowly and judiciously. It is only to be used to effect wildfire hazard mitigation by clearing underbrush and ground

fuels, and even then it is used sparingly. It is never to be used to effect land transformation by preventing trees from sprouting.

Due to the fact that so many prescribed burns have "escaped" the boundaries to which it was thought they would be confined, there is more and more momentum in the Fire Service to use prescribed burns less and less. A moratorium was put on prescribed burns after the Bandelier National Monument Fire in the year 2000. That fire was a prescribed fire that got out of control and burned 47,650 acres and destroyed 235 homes. The moratorium was lifted after new, more stringent guidelines governing prescribed burns were promulgated.

Still, prescribed burns continue to get out of control with alarming frequency. In August of 2009 the Big Meadow Fire in Yosemite began as a prescribed fire that was planned to burn 91 acres. It got out of control and burned 7,425 acres. That same month a prescribed burn in Scofield, Utah, got out of control and almost burned down 50 homes.

The Plan states in Appendix G page 5, "The California Invasive Plant Council has published a manual on the use of fire as a tool for controlling invasive plants that should be referred to for further information than that provided here."

The California Invasive Plant Council is not a fire prevention or fire suppression organization. Its primary goal is land transformation. Why is an organization that is not a fire service organization, but primarily a land transformation organization, being used as a reference for the very dangerous undertaking of prescribed burning? Is it because the objective is not wildfire hazard mitigation, but land transformation?

Again, this Plan treats prescribed burning in a cavalier manner, which is inconsistent with safe wildfire hazard mitigation.

INVASIVE SPECIES

Sound wildfire hazard mitigation does not make a distinction between whether a species was here before or after Columbus landed in the Caribbean. Sound, effective, wildfire hazard mitigation does not determine that a plant or species is a fire hazard because of where it originated.

Such a determination is putting idealogical or economic considerations ahead of the safety of firefighters and the public, and gives rise to propagandistic statements which are designed to scare the public, but which have no basis in fire science. Below are several examples of such statements from the Plan.

"Eucalyptus is well known for its long distance ember distribution, casting firebrands miles from the flaming front to ignite spot fires in grass, brush or roofs ahead of the main fires."

"The presence of volatile oils in the trees increases the speed of fire spread, total output and overall ignitability. Ignited leaves and bark are easily lofted into the air by heavy winds and increase the potential for starting new fires long distances from a fire."

"The size of leaves and bark from mature eucalyptus trees are typically large enough to ensure that the ember is still burning (versus small particles that could be extinguished in flight) when it lands. Heat output from mature eucalyptus fires is high when sufficient fuel has accumulated in the area."

To refute these statements it is worth quoting extensively from Vol. II, page 13-62 of the Fire Protection Handbook.

"Aerial Fuels: Tree Branches and Crowns. " The live needles of coniferous trees are a highly flammable fuel. Their arrangements on the tree branches allow free circulation of air. In addition, the upper branches of trees are more freely exposed to wind and sun than most ground fuels. These factors, plus the volatile oils and resins in coniferous needles, make tree branches and crowns important components in aerial fuels."

Nowhere in the twenty editions and tens of thousands of pages of the Fire Protection Handbook is there a mention of the leaves or bark of the Eucalyptus trees. The only aerial fuel singled out for mention because of its high flammability and volatility are the needles of coniferous trees. The oils and resins of Euclyptus leaves and barks are not mentioned because they are not as flammable as the oils and resins of the needles of coniferous trees.

If the leaves and bark of Eucalyptus trees were more of a fire hazard than the thousands of other species of trees that are in California it would be noted in the Fire Protection Handbook.

[Any tree, no matter what its species, that is close to ignition point or is on fire, is going to have its sap, resins, and oils boiling.]

Again, from Vol. II, page 13-62 of the Fire Protection Handbook,

"Snags, or tree stumps, are one of the most important aerial fuels that influenced fire behavior. Although green trees greatly outnumber snags in most forests, more fires start in snags because they are drier and are arranged for easier ignition."

"Burning embers blown from shaggy-barked snags are prolific starters of spot fires."

There is no mention of any particular species of tree. The entire passage concerns dead fuels. Some people have it backwards. They want to give a high fire hazard rating to green (living) trees and cut them down, because they did not originate in California, when it has been shown over and over again that green trees, regardless of where they originated, are a bulwark against wildfire because of the moisture they contribute to the ground fuels and because they act as windbreaks.

From page 13-63 of the Fire Protection Handbook*: "As the amount of flammable materials in a given area increases. The amount of heat a fire produces also increases. The hottest fires, as well as those most difficult to control, occur in areas containing the greatest quantity of fuel."*

The statement from the Plan: "Heat output from mature Eucalyptus fires is high when sufficient fuel has accumulated in the area" is misleading and disingenuous. It strongly, and erroneously, implies that the heat from a Eucalyptus forest fire is greater than the heat from a forest fire involving other species of trees. In fact, the heat generated by a forest fire is not dependent on the species of tree involved in the fire, but on the quantity of fuel in the area of the fire.

The Fire Protection Handbook on page 13-63 of volume II addresses the issue of spot fires.

"The development of spot fires depends not only on topographic and weather factors but also on the character of the fuels in the main fire and fuels beyond the main fire. In the main fire, rotten, shaggy barked snags, such as broken-topped hemlock snags, and large quantities of ground fuels, such as heavy logging slash, are the fuels most likely to cause spot fires."

No species of living tree is singled out as being more likely to cause spot fires than ground fuels or dead fuels, because ground fuels and dead fuels are more likely to cause spot fires than living trees no matter what their species.

On page 13-64, Vol. II, of the Fire Protection Handbook is a section dealing with the characteristics of crown fires. None of the various species of Ecualyptus tree is mentioned in this section. Why not? Because any species of living tree that has had the moisture dried out of it by a fire, and then catches fire, can "throw burning embers far out ahead of the main fire."

Table 13.5.3 on page 13-63 vol. II of the Fire Protection Handbook gives the time lag relationship to fuel size for dead fuel moisture. This table should have been used as a reference point by the authors of the Plan, and coordinated with the moisture levels of the land holdings of the EBRPD.

The fuel hazard ratings relative to the Eucalyptus trees are ideologically driven and therefore cannot be trusted.

In fact one of the Eucalyptus species mentioned, the Blue Gum, is very fire resistant.

As S.T. Michaletz and E.A. Johnson showed in their article "Heat Transfer Processes Linking Fire Behavior and Tree Mortality," the three characteristics that determine a tree's ability to withstand fire are the thickness of its bark, the height of its branches from the ground and its bark water content.

The Blue Gum has a thick bark, branches that are high from the ground, and because it evolved in the arid and fire rich climates of northern Australia and Tasmania, an astounding ability to retain moisture, which ability gives it a high bark water content.

The Plan makes no mention of the ratio of surface area to volume of a wildfire fuel. This is an important ratio in contributing to determining the flammability of a wildfire fuel.

RECOMMENDATION ON HOW TO IMPROVE THE PLAN:

Prepare a grid map for EBRPD land holdings. Set up a rotational schedule so that every four or five years ground crews have gone into each section and removed ground fuels and ladder fuels. This is ecologically safe and will cost the taxpayer a fraction of what the other methods and schedules in the proposed Plan will cost.

Pay attention to the causes of wildfires as listed in the Fire Protection Handbook, Vol II. Page 13-56, table 13.5.2:

1) Arson: 25-39% of wildfires are caused by arsonists.
2) Trash Burning – 18-23%
3) Careless Smoking – 17-19%
4) Miscellaneous/unkown- 10-14%
5) Lightning- 9%
6) Machine use – 7-8%
7) Railroads- 5%
8) Campers- 3-6%

Develop programs that will specifically address and preclude fires due to the above reasons.

CONCLUSION:

The Plan has serious flaws that need to be addressed and rectified. Among these flaws are erroneous explanations of fire dynamics.

These erroneous explanations lead the public to believe statements such as, "The leaves of Eucalyptus trees are oily and so are highly flammable," which simplify and reduce fire science and fire dynamics to a highly inaccurate sound bite; and apparently are designed to mislead the public, and thereby enlist public support for a fundamentally flawed wildfire hazard mitigation agenda, which, if implemented, will have major negative ecological and financial repercussions on the taxpayer.

There is nothing wrong with advocating for native plant restoration. There is nothing wrong with advocating for land transformation. There is everything wrong with trying to effect either one or both under the guise of wildfire hazard management. It injures the

reputation of the fire service; endangers the firefighters, who will be called to fight the fires that will be caused by improper wildfire hazard management due to putting ideology ahead of fire science; and imperils the public.

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