Hills Conservation Network comments on Oakland Vegetation Management Plan
6/11/18

Overview

While we are encouraged that the City is moving forward with a formal plan for managing public lands in the urban-wildland interface we are concerned that portions of the plan are at odds with the objectives of the plan: “to minimize the potential for ignition, facilitate suppression activities and reduce the likelihood of extreme fire behavior.”

At a macroscopic level we are concerned that instead of developing an approach to increasing public safety that focuses on the most important elements, this plan focuses on a small subset of the problem. This subset is vegetation management, more specifically fuels management. It could be argued that this represents a less than optimal use of public funds at a time when the Ghost Ship fire resulted in the deaths of 36 people—far more than died in the 1991 Oakland Hills fire. In fact, both the FEMA and Mayor’s Task Force analyses of the ’91 fire made it clear that vegetation had a negligible impact in causing the ‘91 fire to be so disastrous. While we are encouraged that OFD and the City have taken the recommendations in the Mayor’s Task Force analysis to heart, we wonder why those who promote fuels reduction in the urban-wildland interface continue to cite the ’91 fire as the reason for aggressive woodland management.

The cause of the 1991 Tunnel Fire was not use of machinery, as stated (p. 69). The Saturday fire was ignited by a workers’ construction debris fire behind a residence on Buckingham. The Sunday fire was a rekindle in the burned area from the Saturday fire, the result of the failure of the OFD to turn over the burned material on the ground (negligence), and to do it before disconnecting the hoses and, except for one engine company, leaving the scene. (incompetence).

It should be noted that the rekindle occurred in dry grass, dry brush and scrub oak, not in trees, and it was a vegetation fire only for the first three minutes, until the first house ignited. The fire spread by a combination of strong, gusty winds, leaking gas lines, high tension electric lines that fell across roads, inadequate separation between natural fuels and houses, the unregulated use of wood shingles as roof and siding material, steep terrain, narrow roads, limited access, and limited water supply. After the fire had spread to the first house, for the next two days, the Tunnel Fire was a structure fire, with one house igniting the next house and igniting adjacent vegetation. The Mayor’s Task force concluded that the spread of the fire was due mostly to the radiant heat generated by burning houses. “A burning house has a sustained radiant heat transmission of 2500-3000 degrees. The spread of the fire was not due primarily to burning trees—eucalyptus or any other species.” [Mayors’ Task Force on Emergency Preparedness and Community Restoration (1992, 1993 -Final Report)]

Putting this macroscopic concern aside we have reviewed the Vegetation Management Plan in detail and found a number of areas where the plan either didn’t seem to be advancing the cause of reduced wildfire risk or it made unsubstantiated assertions to justify specific vegetation removal objectives.

Key concerns with the plan:

- that while the objective is clear there are many places where the Plan doesn't actually support the objective or contains unsupported assertions
- this has not been an open and transparent process
- this Plan is focused too much on native plant restoration instead of fire risk mitigation
- this Plan would result in extensive herbicide use over an extended period, potentially damaging human and animal life for years to come
- this Plan is based on faulty fire modeling that has limited understanding of eucalyptus
- this Plan will create vegetation regimes that are far more dangerous that what is there now
- this Plan doesn't specify the particulars of ongoing maintenance as part of the plan, instead assuming that it will happen while not specifying it, while where there is no funding for such maintenance
- this Plan will result in the release of high levels of sequestered greenhouse gasses, likely in violation of BAAQMD standards, to achieve negligible fire risk mitigation

Specific comments:

1. Elements of the Plan will increase rather than decrease wildfire risk.

   A. While the Plan rightfully focuses on flame length as a key determinant of fire risk; yet in many cases it proposes actions that increase flame length.

   B. Flame lengths in various vegetation types are not adequately discussed in the Plan (p. 68, Table 5), for, if they had been, they would have demonstrated that the VM treatments as proposed – with emphasis on tree removal as opposed to fine fuels management – would result in an environment with longer flames: up to 69' for grass, brush and scrub, compared to 21' for eucalyptus forests versus up to 34' for mixed hardwood forests. Source: 1995 VMC "Fire Hazard Mitigation Program and Fuel Management Plan for the East Bay Hills."

   C. The Hills Emergency Forum, an organization of virtually all local land management agencies, published their flame length data to guide local agencies in making prudent vegetation management decisions.

Species	**Flame Length Range, ft.**	**Average Flame Length, ft.**
Eucalyptus	6-21	13.5
Monterey Pine	2-16	9
Acacia	Not stated	---
Mixed hardwoods (incl. oak and bay)	1-34	17.5
Brush	14-69	41.5
Grasses	12-38	25

Both the VMC and the HEF data on flame lengths do not appear in the VMP. Yet, given the data available to fire management professionals it is clear that focus on managing brush and grasses is extremely important. Strategies that target eucalyptus and pines, however, will actually result in replacing vegetation that has relatively low flame lengths with vegetation such as oak/bay woodlands (mixed hardwoods), brush and grass that has far greater fire risk potential.

2. The plan ignores recent California fire history.

Recent history of fires in both Northern and Southern California has made it clear that oak, grass and chaparral environments have burned with great frequency and ferocity because of long periods of drought followed by a year of heavy rainfall. By comparison there is little evidence of fire risk in eucalyptus forests because eucalypts have deeper roots than oaks, grass and chaparral, and eucalypts hold more moisture in their trunks. After the Lake County fires, a newspaper article with the headlines "Parched brush breeds extreme fire behavior" and "Dried out brush spawns fires that are harder to fight," included the following: "The state's hills and valleys—made up largely of chaparral, heavy brush, manzanita and oak—are as dry as they have ever been, according to laboratory measurements of moisture."[Peter Fimrite in SF Chronicle, pfimrite@sfchronicle.com]

The tragic fires in the North Bay are an example of fires that burned mostly native trees, without any eucalyptus trees involved. At the November 16, 2017 meeting of the Bay Area Open Space Council, the director of conservation showed a slide of the vegetation species that burned in the fire. The slide showed that except for 2% of the burned vegetation that was classified as "urban," and the vineyards, all of the vegetation that burned was native grassland, chaparral, and native trees. [https://openspacecouncil.org/2017/novgathering]

The apparent nativist bias of this Plan towards removing eucalyptus and pines while encouraging the growth of mixed hardwood forests and chaparral will result in encouraging the very vegetation regime that has been shown to be extremely dangerous while eliminating those species that have been shown to be relatively safe.

3. The Plan fails to consider the risks associated with vegetation that would replace vegetation that was removed.

The Plan calls for removal of virtually all eucalyptus trees with a diameter of 8" or less but fails to consider what would replace these trees. The most egregious example of this strategy is the North Oakland Sports Field, where the vast majority of the eucalyptus trees would be removed.

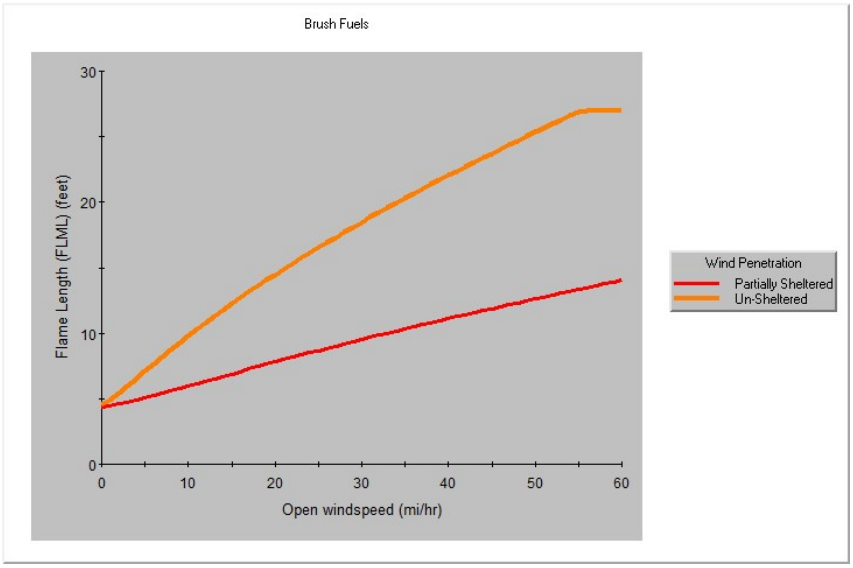
There are several issues with this. First, the Plan makes it clear that retaining canopy is a good thing. The retention of canopy is viewed by woodland fire managers as essential to not only minimize the growth of extremely fire prone species (hemlock, thistle, broom, poison oak) but also to reduce ground temperatures, increase moisture and disrupt fire-driven winds. The US Forest Service published an opinion on this for the recent FEMA EIS as follows:

"From a fire behavior standpoint commercial thinning from below that would target smaller diameter trees leaving the largest dominate trees on the landscape, followed by surface and ladder fuel treatments provides the highest level of reduction in potential fire behavior. These treatments and combinations of these treatments would break up the horizontal and vertical continuity from the surface fuels to the canopy fuels, by increasing canopy base height, and reducing canopy bulk density thus reducing the likelihood of crown fire ignition. Aerial fuels separated from surface fuels by large gaps are more difficult to ignite, thus requiring higher

intensity surface fires, surface fires of longer duration, or ignition from spotting to ignite the crowns, and of course wind."

"Removal of the eucalyptus overstory would reduce the amount of shading on surface fuels, increase the wind speeds to the forest floor, reduce the relative humidity at the forest floor, increase the fuel temperature, and reduce fuel moisture. These factors may increase the probability of ignition over current conditions.

"Furthermore, complete removal of the eucalyptus overstory would result in increases in wind speed which result in a more severe range of fire behavior effects as previously mentioned above. The following illustration is an example of predicted or anticipated flame length for a partially sheltered and an un- sheltered brush fuel model to illustrate lower wind speeds for a thinned stand versus higher wind speeds found with complete removal of eucalyptus trees."



[AMSET comments, prepared by U.S. Forest Services Enterprise Team, 9/27/2013

In spite of the USFS assessment, the VMP calls for doing exactly what the US Forest Service says will significantly increase risk to the public. We think this would be highly irresponsible as it would not only result in the negative effects that the US Forest Service predicts but it would encourage the growth of the very surface and ladder fuels species that are unanimously viewed as unacceptable from a fire risk perspective: Hemlock, broom, thistle and poison oak.

We suggest that a more rational approach would be to thin the existing eucalyptus forest to maintain canopy while encouraging and maintaining the larger trees. This would result in avoiding the dangerous conditions that the Forest Service cautions against while preventing the growth of far more dangerous species.

4. The Plan fails to consider what will result from a number of the proposed actions.

While the Plan acknowledges the benefits of maintaining canopy (but fails to acknowledge the other benefits of tall trees as described by the USFS), the Plan in several cases calls for removal of large numbers of certain nonnative species while essentially ignoring other native species that are more flammable. The Plan makes vague references to the need for maintenance but it does not include any maintenance activities. Essentially the Plan acknowledges that absent high levels of ongoing maintenance the vegetation that would result from some of the plans' proposed actions would create an environment with unacceptable fire risk.

The problem with this logic is that unless the Plan specifies ongoing maintenance activities these activities cannot be assumed to happen. Hence, when the Plan calls for removing all eucalyptus trees with a diameter of less than 8" it must then assess the fire risk associated with what might replace these trees. It is not acceptable to simply look at the reduction in fire risk that would happen the day after these trees are removed and declare a successful outcome. Everyone knows that almost immediately after removal of trees that provide shade canopy, other species will move in. In this area those species have been hemlock, thistle, broom and poison oak as well as several types of undesirable grasses.

To somehow assume that these highly fire prone invasive weeds would somehow not thrive in unshaded areas is unrealistic. The assumption that the growth of these invasive weeds could be controlled through aggressive and ongoing maintenance (that's not part of this Plan) or by the spontaneous emergence of an oak bay woodland (which would have higher flame lengths than the trees that would be removed) doesn't make any sense and is not supported by any evidence provided in the Plan.

According to URS, the consulting firm that was hired by FEMA to analyze the original UC FEMA EA in 2009:

"Issue 1. Evidence that the supposed habitat restoration benefit will occur, since no plan for revegetation is included in the grant.

"The UC responds accurately that, post-treatment, the project area will provide better growing conditions for plants in the understory because the plants will have increased access to resources (e.g., sunlight and soil nutrients) that will allow them to grow faster. In the absence of eucalyptus trees … it is likely that a new community of plants would rapidly colonize the site. However, we question the assumption that the types of vegetation recolonizing the area would be native. Based on conditions observed during site visits in April 2009, current understory species such as English ivy, acacia, vinca sp., French broom, and Himalayan blackberry would likely be the first to recover and recolonize newly disturbed areas once the eucalyptus removal is complete. These understory species are aggressive exotics, and in the absence of proactive removal there is no evidence to suggest that they would cease to thrive in the area . . . ."

"As written, the current plan assumes native vegetation will reclaim the treatment areas but does not include any plans for native revegetation. Instead, in order to 'reduce undesirable weed invasions' and thus encourage the development of native grasslands, chaparral, and bay/redwood communities, UC plans to apply chip mulch to the ground. This mulch would be derived from the cut, non-native eucalyptus trees. It is not clear how the mulch would prevent the proliferation of invasive species while simultaneously encouraging the growth of existing native species. Despite thorough research, we were unable to find documentation of the ability of exotic chip mulch to suppress undesirable species while encouraging favorable species. . . ."

"In the absence of a revegetation plan for the site, all possible future vegetation types in the treatment area must be analyzed; these vegetation types include native and non-native grasslands, chaparral, non- native shrub/scrub communities, and oak-bay forests. Fire conditions in each of these landscapes are unique, for instance, grasslands fuels burn cooler and faster than eucalyptus material, yet they are easier to ignite and carry fire quickly across a landscape. Chaparral is one of the most hazardous wildland fuel types in California due to the woody, persistent nature of the plants. A chaparral-dominated landscape in the post-treatment project area would create a fire hazard profile with its own suite of risks and concerns for fire protection, including flame lengths that far exceed those of the other possible vegetation types

(Carle 2008). Although spotting distance is not as great for the fuels that make up chaparral communities when compared to a eucalyptus forest, chaparral fires burn with great intensity and are difficult to fight based upon the spatial arrangement of fuels on the landscape. "[URS letter to FEMA 5/27/2009]

5. The Plan makes unsubstantiated assertions about ridge line ember spotting.

The VMP justifies removing certain species from ridge lines due to concerns over ember spotting but fails to provide anything other than anecdotal evidence for this strategy. While there is little doubt that vegetation on ridge lines, if ignited, has a greater likelihood of having embers carried by winds to other areas advancing the flame front, there is little evidence that only certain species have this risk, or that the risk of ember spotting associated with some species is unacceptable while that associated with others is acceptable.

To suggest that only certain species should be removed from ridge lines while either ignoring what would replace these species or accepting the risk associated with "desired" species is simply not rational.

To also ignore the likelihood of ignition of one species versus another is not rational.

While it is widely understood that a crown fire of ANY species is dangerous, to ignore the likelihood of a crown fire from one species to another is irrational if the intent is to enhance public safety. While it is argued that eucalyptus and pines should be removed from ridge lines what is not stated are the relative risks of those species that would replace them on ridge lines.

It is well known that, in most cases, and certainly where surface fuels are managed (as EBRPD and EBMUS do in their ridge line eucalyptus groves), that the likelihood of a crown fire and the resultant ember spotting is virtually nil because the canopy of a tall tree such as eucalyptus is much further from the ground than the top of chaparral shrubs, for instance, that are closer to the ground, and contain dry, small, extremely flammable leaves right under their crown level.

In the SF Chronicle article by Peter Fimrite referenced above, while viewing the area burned in Lake County, Fimrite reports that Scott Upton, unit chief for the California Department of Forestry and Fire Protection, said, " See up those ridges where there is nothing left?" Upton pointed at "a huge finger of hillside burned to ash next to an unburned tangle of green, forest-like brush." That's called chamise brush. We call it standing gasoline."

By comparison a fire in an environment dominated by grasses, chaparral, brush, oaks and bays will almost surely crown due to the proximity of the crowns of these species to the ground. Again, evidence has shown that due to the location of the eucalyptus crown ten feet or more above the surface, ignition of the crown simply won't happen unless there is an abundance of surface fuels and fire ladder components.

Bay trees and chaparral (which contain more aromatic oils than eucalyptus) will almost always experience crown fires due to the fact that the crowns of these species ARE part of the surface fuels.

But back to the question of ember spotting. If somehow a eucalyptus crown ignited would the resultant ember spotting risk be greater than that of an oak and bay crown fire? The plan simply doesn't provide any evidence that this is the case.

In summary, to suggest that two species of trees be removed from ridge lines while ignoring what would replace them, does not consider the relative risks of crown fires of different

In two recent fires at the top of Grizzly Peak, everything but the eucalyptus shaded fuel breaks burned.

The fire burned almost all surface fuels wile not igniting even the lowest branches and leaves of this eucalyptus grove below Grizzly Peak.

species. Having little evidence of the relative risks of ember spotting among various species would seem to be a conclusion that was reached for reasons other than to protect the lives of area residents. In fact, we would assert that this policy of removing tall trees from ridge lines, which would facilitate the growth of more flammable shrubs and weeds on ridges, will if anything increase the wildfire risk to local residents.

6. The Plan seems to conflate biomass with fuel.

As explained by Richard Rothermel and others in How to Predict the Spread and Intensity of Forest and Range Fires, USDA Forest Service, General Technical Report,1983, there is a difference between biomass and fuel. Fire scientists describe fuel as biomass that is likely to ignite. This biomass is generally in the form of dead vegetation and fine fuels, vegetation with a diameter of less than 3 inches. [See Rothermel: p. 37, or, based on Rothermel's original research on fuel models and flame lengths, see Figure 3.8 in Introduction to Wildland Fire, 2nd ed., Stephen J. Pyne, Patricia Andrews, and Richard Laven, John Wiley and Sons, 1996] Rothermel's graphs and mathematical calculations show that fires move much more quickly and intensely, and have higher flame lengths in flashy fuels such as grass and brush than in trees.

While we would question the efficacy of a plan that doesn't attempt to include risk of ignition as part of the assessment of the fire risk of any particular vegetation, there is a yet greater issue with the notion that removing trees with a diameter of greater than 3 inches is in fact reducing fuel at all.

During the FEMA EIS lawsuit this matter was litigated at length with the conclusion that the only portion of a eucalyptus tree of greater than 3 inch diameter that constituted fuel was the crown and the litter. The tree trunk itself contains so much moisture that it is simply not considered fuel.

Given this, the idea that a plan is achieving fuel reduction by cutting down large trees defies logic. And to make matters worse, once this large tree is cut down what will happen to its remains—which are now considered to be fuel? The VMP calls for chipping these dead trees and leaving up to 6 inches of chips on the ground. While a chip depth of this magnitude doesn't create a huge fire risk it must be stated that these chips that were formerly NOT fuel have now become fuel. The bottom line is that in simply cutting down and chipping live trees with a diameter of greater than 3 inches fire risk is in fact being INCREASED rather than decreased because what was formerly non-fuel biomass is now fuel.

Of course larger trees (>24 inches) cannot be chipped on site and must be removed from the site to be put in landfill. There is little question that logs and large branches cannot be left on site as what was significant amounts of non-fuel biomass has now become fuel.

The problem with all this is that in removing trees with a diameter of greater than 3 inches one is significantly increasing the fire risk. This occurs as a result of losing shade canopy, losing fog drip, increasing ground temperatures and removing the wind breaking capabilities that tall trees provide. To make matters far worse, while removing vegetation with a diameter of less than 3 inches is very effective at reducing fire risk with relatively little biomass loss (and the resultant loss of carbon sequestration), removing larger trees nets very little (if any) reduction in fuel while causing the loss of enormous amounts of sequestered carbon and the ability to continue to sequester carbon.

For the VMP to call for removing large numbers of trees that simply aren't fuel (or are highly unlikely to ignite) in favor of retaining or encouraging vegetation largely comprised of fine fuels is in direct opposition to the intent of the Plan: to reduce fire risk.

7. The Plan removes significant recreation opportunities for ALL residents in order to advance an agenda that is favored by a small number of relatively affluent residents who live in the hills.

The key drivers for this project are a small number of hills residents who are fortunate enough to live in an area where vegetation and wildlife are abundant, the air is clean, the city noise is muted and where shade provided by private gardens is just a few feet away. Essentially what's being proposed is an environment where shade and abundant vegetation exists on private property while public property is devoid of shade.

While their concern is the potential loss of life and property from a major fire, the reality is that the lessons learned from the 1991 fire were that basic training and infrastructure were simply not in place in '91 resulting in a needlessly destructive conflagration.

Unfortunately those with an agenda apart from fire risk mitigation seized on the idea of funding native plant restoration by using fear of fire, specifically eucaphobia, as the funding mechanism. We see the same pattern in this document, where what likely started out as an objective piece focused on making Oakland residents safer morphed into a document that consistently targets vegetation for removal that is deemed unacceptable because it is non-native, thus labelled "exotic" or "alien" by this contingent.

While this scare-mongering is completely disingenuous what makes it worse is that it actually increases the risk of fire while at the same time decimating the forest in the hills. While hills residents may think this is acceptable because they can afford to travel where they would see forested areas and beautiful vistas, hardworking people struggling to survive on limited incomes, many of whom live in the flatlands, will lose a valuable source of recreation. Not only that, but the immense amount of herbicides that will be used to kill species considered undesirable by hills folks will inevitably wash down the hill, likely concentrating in the flatlands and ultimately the bay.

Not only is this a reckless plan that will increase fire danger, but it will disproportionately affect people that rely on these urban forests as a respite from urban life. Oakland's city-owned lands are owned by all the citizen taxpayers. The plan to manage the vegetation in the parks should not be overly influenced by the wealthy and politically savvy.

8. The modeling used to determine risk is flawed in that it used Flammap while ignoring VESTA and that it only considers the vegetation the day after the trees are removed.

The commonly used Flammap software was never intended to model risks associated with eucalyptus trees; yet because this software is readily available and widely understood in this region it tends to be the modeling software of choice. By comparison VESTA was developed by the Australian government specifically to understand the characteristics of eucalyptus trees. In a conversation with the fire scientist Patricia Andrews of the USDA Fire Science Laboratory in Missoula, Montana, Ms Andrews stated unequivocally that eucalyptus has never been analyzed or modeled by fire scientists in this country.

Unfortunately the authors of the plan used Flammap instead of VESTA, leading one to question the results. We repeat: The Vesta model developed by Australian researchers is the only study that analyzes the unique characteristics of eucalyptus fuels. They are based on laboratory

studies and long range field studies. [Fuel Assessment and Fire Behavior Prediction in Dry Eucalypt Forest, by Jim Gould and others, Ensis Bush Fire Research, 2007, 2008] The inputs for eucalyptus in Flammaps, on the other hand, were created by local consultants using consensus as their method.

Had VESTA been used the following would have been revealed:

“Rate of [fire] spread is directly related to characteristics of the surface fuel bed and understory layers, but is only weakly related to fuel load alone.” “There is very little published data to demonstrate a direct relationship between rate of spread and fuel load.” “The relationship between surface fuel load and rate of spread has been accepted in previous fire behavior guides.” [Sneenwjagt + Peet, 1985, 1998; McArthur, 1962,1967; Peet 1967.]

“The near-surface fuel is the principal layer responsible for determining rate of spread. The best variables to build a model to predict fire spread were fine fuel moisture, wind speed, surface fuel hazard score and a combined variable of near-surface fuel and height.”

“There was no significant difference in the temperature of the flames in different fuel ages or different fuel types.”

“Surface fuel layer – leaf, twigs and bark of the overstory and understory plants . . . usually makes up the bulk of the fuel consumed and provides most of the energy released by the fire.”

“There is no evidence that spotting was an important mechanism in fire spread. Most firebrands burn out within the convection column. If the burnout time of the firebrand is longer than its flight time, it will land alight and may start a spotfire. If its flight time is longer than its burnout time, it will not be alight when it lands and will not start a spotfire. Most firebrands would probably be effective to a few tens of meters [approximately 30 – 70 feet]; all spotfires that did occur were overrun by the main fire while they were small and did not have any effect in increasing the rate of spread of the main fire.”

Vesta demonstrates that statements about tall trees/eucalyptus lofting embers – burning leaves, bark, twigs – for hundreds and even thousands of meters cannot be true. While flying firebrands certainly occurred in the 1991 Tunnel Fire, they were undoubtedly bits of burning houses, fences and decks, since those materials will stay alight for the longer flight. Note that the ’91 fire was a “vegetation fire” for only the first three minutes; after the first house ignited, it was a structure fire throughout the next two days. The common perception that trees ignited houses is the opposite of reality. The official report following the fire, by FEMA and California’s OES, does not mention trees as a causal factor.

In view of the fact that it is the ground fuel and near-ground fuel, the fine fuel and “cured” (dried out) fuel that is the source of ignition, that provides the most energy, and determines the speed, severity and spread – including causing crown fires – it is clear that ground fuel should be the focus of fuel reduction / vegetation management, not mature trees of whatever species. Further, it indicates that the proposed methodology of spreading cuttings and chips on the ground where they will dry out in the sun, as Oakland’s Plan proposes, is clearly dangerous, creating a fire hazard. A spark from a cigarette, for instance, can smolder under bark chips for days or weeks until a gust of wind causes it to break out to ignite nearby dry weeds or grasses.

The litter under eucalyptus and pines is repeatedly mentioned as a fire hazard, but litter accumulates under other species too: “Oak leaves and litter burn much more readily than litter and leaves of other hardwoods. They tend to be drier, making them more flammable. Oak leaves curl . . . this puts the fire up off the ground making it capable of spreading more effectively. Oak leaves are thicker, giving them greater resistance to decomposition, and

contain more tannin which makes them resistant to decay. The amount of burnable material on the oak forest floor is greater than that of other species . . . " (Managing Fire in Oak Savannahs – Savannah Oak Foundation)

Additionally, the modeling is flawed in that it doesn't actually model the environment that would result from the plan actions. To model the conditions that exist the moment the vegetation is removed, while interesting, doesn't make much sense since it is understood that almost immediately after the plan actions are taken vegetation will begin to re-emerge. To accurately model the relative risks one would first need to use modeling software that was developed for the species being affected and then one would need to model the expected replacement vegetation regime. Neither was done in this case, rendering the modeling of little value in either developing a plan or assessing the risks that would exist once the plan was implemented.

9. The plan ignores relevant information.

It is significant that the history of fuel reduction/vegetation management on Angel Island is never mentioned in the proposed fire risk mitigation plans. There had never been a wildfire on the island, but fire officials worried that the eucalyptus forest was a hazard, and should be replaced with a fire-safe [??] grass-and-brush savannah. Within a few years after the deforestation, the island suffered three major out-of-control wildfires (so much for reducing risk); ironically, the only surviving grove was six acres of eucalyptus.

It is also significant that the VMP ignores serious, informed recommendations made previously, by the Vegetation Management Consortium (VMC) in 1995, the Mayors' Task Force in 1992; Hills Emergency Forum (HEF) in 2008; and even by the recognized local consultant, Carole Rice:

VCM: "Maintain canopy closure to reduce weed invasion." "Encourage dense, healthy canopy." "Reduce depth of duff to less than 4".

Mayors' Task Force: "Do not target specific species, such as Blue Gum Eucalyptus or Monterey Pine, for eradication . . . existing stands must be regularly maintained and debris processed to substantially reduce susceptibility to fire. Rapid conversion of these stands could cause negative ecological impacts, such as erosion . . . "

HEF: "Grassland flames can reach lengths ranging from 12' to 38' that could overwhelm suppression forces. The more critical concern is the rate at which grassland fires can spread, and the ease of ignition. This is one of the most dangerous types of fires . . . " "The ignition potential [of eucalyptus] is directly related to the depth of litter and amount of dead materials on the ground." (This agrees with the USFS rating for the flammability of eucalyptus – that it is based on the ground litter – while the tree itself is fire-resistant.)

Rice: (Carole has, over time, offered varying opinions, but these statements were made in a legal declaration.): "The linkage between large trees and fire hazard reduction is not based on science." "The focus of treatment should be on surface fuels rather than crown fuels. (Agee + Skinner, 2005) "Intense surface fires are necessary to maintain a crown fire. Surface fuels are key to understanding fire hazard potential." (MacKenzie (Stine) 2005) "There is little justification in terms of fire hazard reduction for targeting larger trees."

The Draft VMP, in its Introduction, says it intends to "improve the ability to control or combat wildfire." Yet the Plan recommends converting existing mature forests – where fire advances slowly and relatively predictably – to "Oak Bay savannahs," which are actually grass and brush with a few oaks and bays near creeks or shady draws– where fires move and change direction

so quickly and unpredictably that firefighters won't confront them. This clearly does not make sense.

10. Miscellaneous concerns

Sudden Oak Death (SOD): If the treatments amount to a conversion of the forests to "Oak-Bay Savannahs," will the actual surviving landscape be -- NOT a "savannah," but bare, grassy hills (ignition-prone!), after the known carrier of SOD (bays) infects the oaks? In fact, at this moment, SOD is occurring in the Oakland hills, and the added disturbance of vegetation management activity would heighten this possibility. It must be noted that SOD killed 5 million oak trees in California from 1994-2016. Other native plants such as manzanitas, and of course, bays, have been infected by SOD.

Impact of long-term, repeated application of herbicides, even if done legally and according to best management practices: In addition to immediate impacts, including habitat damage, herbicides will poison the soil, the watershed, and eventually enter the bay – with known and unknown environmental impacts. The only realistic answer is to drastically reduce the application of herbicides by drastically reducing the number of eucalyptus to be cut.

Former City Attorney John Russo, in a letter to the Oakland City Council on April 5,2005, warned of the dangers of relaxing the herbicide policy on city-owned lands in Oakland. He pointed out that the City could be liable for exposing city workers, firefighters and others who would be working with or close to herbicides such as Garlon and Roundup. In public comment meetings on the DEIR that FEMA held, it was clear that many Oakland residents were concerned about the toxic effects of Garlon (Triclopyr) and Roundup (Glyphosate). Several EU countries and cities in California have banned the use of Glyphosate. According to the Marin Municipal Water District Herbicide Risk Assessment, Draft 8/26/2008, "There is no such thing as a safe herbicide; all herbicides have the potential to use adverse health effects at some level of exposure. . .Triclopyr poses the highest risk to workers, the general public and most aquatic and terrestrial wildlife." Also see the Scientific American article by Crystal Gannon, "Weed Whacking Herbicide Proves Deadly to Human Cells," 6/23/2009.

Cost of treatment, both short- and long-term: Costs are not discussed in the VMP! Funding is known to be limited, yet the Plan fails to consider alternative methods of vegetation management, and fails to prioritize what can be accomplished within a realistic budget. Such a discussion would, for example, expose the high costs of tree-removal, earthwork and heavy equipment, and the long-term cost of erosion and environmental damage, and therefore demand alternative methods.

Aesthetics: Unfortunately, we now have examples of so-called vegetation management treatments made in the past dozen years, and they not only flammable but incredibly, unacceptably ugly. Signpost 29 on Claremont Avenue is an area that was logged of tall trees – in the name of fire-risk mitigation? Or was it native-plant restoration?? – and it is now choked 8' deep with invasive, weedy, flammable species. Rotting logs and chips lie about. Advocates like to point out that "native" trees are flourishing but that is not the point – because just as in '91, they too will burn. On the other side of the road, the areas of deforestation in 2004-2008 are still raw, blighted and succumbing to erosion, with no recovery in sight.

Community support: Some self-appointed spokespersons claim that elimination of "non-natives" and tall trees in the hills enjoys widespread support of residents, but that is resoundingly false. For years, numerous East Bay volunteer organizations have organized to voice their objections, but they do not get media attention. Following the public hearings on the FEMA proposals, an astounding 13,000 written comments were submitted and, by FEMA's

count, 90% were against the plans to remove three species of non-native trees, supposedly to mitigate fire risk.

It should be pointed out that a model of effective, affordable vegetation management in the hills already exists: EBRPD's and EBMUD's treatments in the forests above (east of) Grizzly Peak Boulevard.

Removing all of the eucalyptus, Monterey pine and acacia trees, the drastic action preferred by some residents in the hills, could be a disaster for endangered and threatened species as well as for the many animals and insects that are present now. Wildlife would be more likely to return to the project areas if the trees are judiciously trimmed and thinned, not eradicated. Species such as monarch butterflies and honey bees/wild bees depend on the nectar in flowers of eucalyptus trees during the winter.

11. Specific deficiencies

Section 9: Standards and Implementation:
VMP ignores recommendations of 1995 VMC: "maintain canopy closure to reduce weed invasion" "encourage dense healthy canopy," etc.

VMP ignores VESTA in terms of identifying primary risk (ground fuel, not trees) and blaming spread of fire on embers from tall trees ("spotting").

VMP ignores established flame length data in comparing grass/brush/scrub to mature trees and in making its recommendations; creating an environment with flame lengths less than 8' is unrealistic. Ground fuel – grass/brush/scrub – has the longest flame lengths (1995 VMC).

VMP calls for absolute removal of eucs in three environments (page 158, bullet 3, and pages 129 - 130) – amounts to a blank check for species-specific deforestation. As for repeated reference to eucalypts starting or spreading fires, there is no objective science or evidence to support these dramatic, although false, anecdotes.

VMP erroneously uses fuel load (tons/acre) as criteria for threat (page 9, bullet 4), ignoring the fact that only a small portion of that tonnage actually burns, and represents no ignition potential.

VMP focuses on canopy only in terms of potential crown fire (Table 7, page 75), but fails to give canopy adequate credit for its fire-resistant benefits -- including reducing wind speed, resisting weed invasion, increasing moisture and lowering temperature at ground level (VMC 1995 recommendations).

VMP claims oil in eucalyptus leaves "increases fire hazard" but fails to mention higher oil content in the leaves of Bay trees (in Oak-Bay woodland); it also fails to mention that eucalyptus leaves resist ignition (page 62). Flammable gasses released from the trees "at very high temperatures" sometimes results in a short, sudden flare (similar to many other trees and some chaparral shrubs) but there is no evidence that this flaring "increases fire hazard."

VWP repeatedly stresses importance of long-term maintenance in the WUI, but provides no description or specification for what that maintenance might be. (VMC recommends 2 – 3 year interval for litter up to 3" dia and to combat weed invasion.)

VMP presumes that fire potential of a treated area is based on its condition immediately following treatment. This assumes a constant state, which requires long-term maintenance – but maintenance is not specified or delineated in the VMP.

VMP uses terms devoid of scientific or evidence-based support: “invasive, native, pyrophytic” (Pyrophytic = “fire bearing; capable of igniting spontaneously” that are not accurate as applied. The VMP also exhibits its nativist bias by excluding many highly flammable native trees (i.e., madrones, manzanitas, some ceanothus species and non deciduous oaks) and many chaparral shrubs from its tables and lists of “Pyrophytics.” Napa Firewise and Firesafe Marin websites have more objective lists that exclude nativist bias.

VMP incorporates subjective fire behavior modeling (FlamMap, page 74, section 3.3) but ignores actual, on-the-ground fire behavior studies (Project VESTA) and makes inaccurate and unsubstantiated claims re: spotting.

VMP fails to assess damage to soil stability from heavy equipment, cutting roads, dragging trees.

VMP ignores the potential damage to both environmental, wildlife and human health resulting from herbicides.

12. Elements of the plan make little or no sense from a fire risk mitigation perspective

While the plan speaks about the need to reduce wildfire risk, and in many cases suggests activities that will accomplish this goal, some of the recommendations seem to have nothing to do with wildfire risk mitigation.

Specific examples of this are:

The call the remove eucalyptus trees from mixed forests. Since there is no obvious fire risk mitigation benefit to this proposal one would have to conclude that the rationale for taking this action have more to do with a native plant restoration agenda than a fire risk mitigation agenda. As such this is inappropriate as part of a fire risk mitigation plan.

The plan to remove essentially all the eucalyptus trees above the North Oakland Sports Field while ignoring that what would replace these trees would represent a far more dangerous fire regime is clearly at odds with taking actions that would reduce fire risk. Again, this is inappropriate as part of a fire risk mitigation plan.

Statements in the VMP that open the door for removing eucalyptus and pines anywhere the implementers deem appropriate is highly problematic as these actions are not in any way associated with fire risk mitigation. Instead they represent a consistent bias against certain species for reasons unrelated to their fire risk. These actions are inappropriate as part of a fire risk mitigation plan.

Additionally, Jack Cohen, internationally recognized USDA fire research scientist, developed the concept of defensible space and the home ignition zone as the best way to have one’s home survive a major fire. In “The Wildland-Urban Interface Fire Problem,” Forest History Today, 2008, he described how a home could be fireproofed and landscaped so that it could withstand burning objects within 100 ft..

"The WUI fire loss problem can be defined as a home ignitability issue largely independent of wildland fuel management issues." [Jack Cohen, Journal of Forestry, 2000]

His research makes it clear that removing vegetation more than a few hundred feet away from structures will have almost no impact in reducing fire risk to the inhabitants of these structures. His research has shown that the most important steps that one can take to minimize fire risk is to create defensible space around structures.

Based on this one has to wonder at the wisdom of removing large amounts of beneficial vegetation thousands of feet from structures….while allowing new structures to be built where it's all but impossible to achieve reasonable levels of defensible space.

We see this as yet another example where widely accepted research from fire scientists has been ignored in favor of actions that will most certainly NOT reduce the risk of fire but will likely increase it….while doing little to take actions that could actually make us safer.

13. Global warming impacts

Another important issue is climate change, which affects all of us. As the planet warms, certain native species such as redwoods, don't do well. It is sad that hundreds of redwood saplings planted in the past 5 years have died because no one apparently realized that young redwoods need water and shade to survive until they can create their own shade and fog drip.

To slow global warming, we can STOP cutting down trees, especially the tall hardwoods like eucalyptus trees that take in carbon dioxide from the atmosphere, store most of it in their trunks, branches, and roots, and release the oxygen they have converted from the CO2 back into the air. The amount of carbon stored in the tree depends on the volume of the tree. The bigger the tree's diameter, the more carbon it stores.

Trees also reduce other pollutants including sulphur dioxide and nitrogen oxide among others.

Before removing large hardwood trees, the VMP must count the ones it wants to keep at each site, and also count the loss of carbon storage in the big trees it would remove. Oakland must protect large eucalyptus trees and encourage the growth of forests.

It can be argued that replacing healthy, living, green trees, with all the health and psychological benefits they provide, with a sea of drying chips, opportunistic shrubs and dying oaks, will undoubtedly INCREASE the risk of fire, not decrease it.

14. Slope stability

The importance of large trees in maintaining slope stability should not be underestimated. Disturbance of the ground by heavy equipment, whether it be for fire fighting, native plant "restoration" where those specific native plants never existed before, tree removal, or dragging away of vegetation killed by chemicals or manually uprooted, will increase the susceptibility of the ground to erosion, debris flows, mud slides and slope instability. Roots of tree stumps left in the ground in an effort to keep the soil in place will eventually decay.

15. Lack of transparency

None of the stakeholders listed by HCN in a letter to the the City were included in the discussions leading to the development of this plan. It is little wonder then that the VMP does not consider the inputs of the vast majority of the citizens of Oakland.

Conclusion

While we are encouraged by much of the plan, especially where it truly addresses wildfire risk in a pragmatic and responsible manner, unfortunately large portions of the plan appear designed not to reduce wildfire risk, but to remove certain species that the nativist community thinks shouldn't exist here.

In order for this plan to attain widespread community support, not just the support of a small number of influential hills residents, it must be species neutral and must focus entirely on the stated objective of the plan. Reducing risk to the public.

The fact that there is consistent bias throughout this document against a few species of trees that are on the nativist hit list is worrisome in that it detracts from the portions of the plan that truly address the hazard.

We think this plan needs to be reworked to make it species neutral, to not use use specious logic to justify a predetermined outcome and to not make assertions based almost entirely on local anecdotes. The plan needs to be based on science, not ideology. The plan must consider not only "fuel" but the likelihood and consequences of this fuel igniting. The plan cannot conflate fuel with biomass.

The worst thing that could happen is for the community to spend millions of dollars to implement a plan such as described in this document and significantly increase wildfire risk. Unfortunately, the plan as currently written will do just that.