

INTERIM REPORT NO. 29

FIRE PREVENTION 2008

REPORT OF THE

SAN DIEGO CITY ATTORNEY

MICHAEL J. AGUIRRE

**OFFICE OF
THE CITY ATTORNEY
CITY OF SAN DIEGO**

**1200 THIRD AVENUE, SUITE 1620
SAN DIEGO, CALIFORNIA 92101-4178
TELEPHONE: (619) 236-6220**

7 March 2008

Table of Contents

	<u>Page No.</u>
I. EXECUTIVE SUMMARY	1
II. ANALYSIS.....	1
A. ECOLOGICAL FIRE-RISK LAND MANAGEMENT	1
B. ADDITIONAL FIRE FIGHTING RESOURCES	7
More Equipment Needed Say Experts	8
C. FIRE-RESISTIVE CONSTRUCTION METHODS AND MATERIALS	10
D. FIRE-SAFE COMMUNITY DESIGN AND PLANNING	12
III. RECOMMENDATIONS	13
A. ECOLOGICAL FIRE-RISK LAND MANAGEMENT	14
B. ADDITIONAL FIRE-FIGHTING RESOURCES.....	14
C. FIRE-RESISTIVE CONSTRUCTION METHODS AND MATERIALS	15
D. FIRE-SAFE COMMUNITY DESIGN AND PLANNING	15
E. RECOMMENDATIONS FOR FURTHER STUDY.....	15
IV. CONCLUSION.....	16

I. EXECUTIVE SUMMARY

On 1 November 2007, the Office of the City Attorney issued Interim Report No. 21 detailing Preliminary Findings related to the recent San Diego 2007 wildfires and recommending the need for brush management, timely notification of fire danger, and an evacuation plan. Since the issuance of Interim Report No. 21, the City Attorney has continued to investigate additional measures that would minimize the risk of fires resulting in the loss of life and property. This report explains why a more comprehensive and scientifically sound fire risk-reduction program should also include:

- 1) ecological fire-risk land management;
- 2) increased fire-rescue resources, especially in high fire hazard locations;
- 3) fire-resistive construction and landscaping; and
- 4) improved land use planning and community design.

These measures should be adopted by the City through applicable land use plans, codes, policies, regulations, and guidelines.

II. ANALYSIS

The City Attorney's preliminary findings recommended the need for brush management as a measure to prevent fire. Interim Report No. 21, noted that the San Diego County Fire Siege Safety Report of November 2003, the Governor's Blue Ribbon Fire Commission Report of 4 April 2004, and the San Diego Regional Fire Prevention and Emergency Preparedness Task Force Report of 7 October 2004, among others, found that "brush management was a key tool in avoiding future fires."¹

A. ECOLOGICAL FIRE-RISK LAND MANAGEMENT

Since the 2007 Interim Report and preliminary findings, the City Attorney has continued to investigate ways to effectively implement brush management pursuant to the prior recommendation. This investigation has revealed that brush management is not the sole fire prevention measure available to the City.² Furthermore, brush management must be implemented in an ecological manner, or it can increase the risk of wildfires.³ In other words, the ecological management of land and vegetation can prevent fires,

¹ 1 November 2007, Report of the San Diego City Attorney, Interim Report No. 21, SAN DIEGO 2007 FIRES, p. 4, fn. 14.

² 2007, 32nd Street Canyon Task Force, Canyon Policy Portfolio Pre-Release: Our Financially Rewarding Natural Wildlands, Part 1, p. 4, Exhibit 2.

³ The California Chaparral Institute, Old Growth Chaparral, available at <http://www.californiachaparral.com/oldgrowthchaparral.html>.

while preserving San Diego's precious natural areas. The term ecological fire-risk land management is therefore a more appropriate term than "brush management" because it connotes a comprehensive, effective, and environmentally sound way to manage vegetation near development.

Ecological fire-risk land management requires the scientific reevaluation of the policies for clearance of old growth chaparral. The August 2003 San Diego County Wildland Fire Task Force Mitigation Findings and Recommendations stated that due to the age of the vegetation in San Diego's wildland areas, there was an increased risk of fire. The report stated:

San Diego's huge areas of aged fuel...can lead to vast acreages burning in a single summertime event like the 61,690 acre Pines Fire of 2002 or the 62,000 acre Conejos Fire of 1950. Santa Ana winds and old fuel can result in conflagrations like the record-setting 190,000 acre Laguna/Boulder Fire of 1970.

Presently, almost one-half of the vegetation in San Diego County's wildland is over 50 years old. Another 30% is over 20 years old. This means that almost 80% of the wildland areas in San Diego will burn explosively under typical periods of high fire danger.⁴

Based on that premise, the August 2003 San Diego County Wildland Fire Task Force Report went on to recommend brush management through prescribed burns, chemical treatments (herbicides), and mechanical treatments (bulldozing, crushing, chaining, etc.) to reduce vegetation and create fuel breaks and defensible space around structures.⁵ However, the idea that older vegetation in San Diego creates higher fire risk and that prescribed burns, chemical and mechanical treatments of vegetation will reduce fire risk, has since been questioned by the scientific community.⁶

⁴ 13 August 2003, Mitigation Strategies for Reducing Wildland Fire Risks, San Diego County Wildland Fire Task Force Findings and Recommendations, Report to the Board of Supervisors, pp. 8-9, Exhibit 4.

⁵ 13 August 2003, Mitigation Strategies for Reducing Wildland Fire Risks, San Diego County Wildland Fire Task Force findings and Recommendations, Report to the Board of Supervisors, p. 12, Exhibit 4.

⁶ 12 February 2007, "The perfect is the enemy of the good," The controversy concerning San Diego County's 2003 Mitigation Strategies for Reducing Wildland Fire Risks Report, by Richard W. Halsey, portion of unpublished manuscript, Exhibit 21; 5 February 2004, San Diego Fire Recovery Network letter to Mr. Walter Ekard, Chief Administrative Officer, County of San Diego, Exhibit 23; 19 January 2004, C.J. Fotheringham letter to San Diego Fire Recovery Network re: Mitigation Strategies for Reducing Wildland Fire Risks Report, Exhibit 24; 26 January 2004, Frederic Paik Schoenberg and Roger Dean Peng letter to the San Diego Fire Recovery Network, Exhibit 25; 17 January 2004, Jon E. Keeley of USGS Biological Resources Division letter to San Diego Fire Recovery Network, Exhibit 20.

A key United States Geological Survey [USGS] study, for example, revealed that fire risk was not increased dramatically by the age of the fuel and “that the problem of wildfire destruction started with population growth into the foothills.”^{7,8}

The 1999 Keeley, Fotheringham, and Morais article, published in Science journal, explained:

Large fires were not dependent on old age classes of fuels, and it is thus unlikely that age class manipulation of fuels can prevent large fires. Expansion of the urban-wildland interface is a key factor in wildland fire destruction.⁹

And a 2004 Report authored by scientists Max Moritz, Jon Keeley, Edward Johnson, and Andrew Schaffner reached the same conclusion:

Fire frequency analysis of several hundred wildfires over a broad expanse of California shrublands reveals that there is generally not, as is commonly assumed, a strong relationship between fuel age and fire probabilities. Instead, the hazard of burning in most locations increases only moderately with time since the last fire, and a marked age effect of fuels is observed only in limited areas. Results indicate a serious need for a re-evaluation of current fire management and policy, which is based largely on eliminating older stands of shrubland vegetation. In many shrubland ecosystems exposed to extreme fire weather, large and intense wildfires may need to be factored in as inevitable events.¹⁰

Because “[u]nder Santa Ana conditions, fire rapidly sweeps through all chaparral stands, regardless of age,” prescribed burns to reduce aged fuels would not reduce the risk of fire.¹¹ In fact, leading scientists have indicated that clearing the landscape through prescribed burning, chemical treatments, or mechanical means will increase the growth of “flashy fuels” such as non-natives and grasses, thus increasing the fire risk.¹²

⁷ 10 June 1999, United States Geological Survey Western Ecological Research Center, News Release, USGS Study Casts Doubt on Role of Fire Suppression in Causing Catastrophic Shrubland Wildfires, Exhibit 5.

⁸ Jon E. Keeley, Curriculum Vitae, Exhibit 22.

⁹ 11 June 1999, “Reexamining Fire Suppression Impacts on Brushland Fire Regimes,” by Jon E. Keeley, C.J. Fotheringham, and Marco Morais, SCIENCE Vol. 284, www.sciencemag.org, p. 1839, Exhibit 26.

¹⁰ 2004, “Testing a basic assumption of shrubland fire management: how important is fuel age?,” by Max A. Moritz, Jon E. Keeley, Edward A. Johnson, and Andrew A. Schaffner, *Frontiers in Ecology and the Environment*, 2(2): 67-72, Exhibit 12.

¹¹ The California Chaparral Institute, *Fire & Science: Fire Suppression, Science, and Personal Opinion*, available at <http://www.californiachaparral.com/firescience.html>, p. 3, Exhibit 1.

¹² San Diego Natural History Museum, *Earth, Wind & Wildfire: learning to live with fire*, available at <http://www.sdnhm.org/exhibits/fire/index.html>, Exhibit 3, (The Earth, Wind & Wildfire exhibit was co-

“Simply ‘clearing’ the land as San Diego County recommended [and as Mayor Jerry Sanders urged on 8 May 2007]¹³ may create a worse situation by encouraging the growth of weedy annuals, considered flashy fuels due to their ease of ignition. It is best to reduce fuels in the 30-to 100-foot zone (depending on the situation) away from the home by heavy trimming rather than disturbing soil with aggressive clearance. And keep the pine and Eucalyptus trees far from any structure; they can be explosive.”¹⁴

“Shrub-removal often damages soil, water, and wildlife, and further, the fast-growing weedy fuel that replaces the shrubs extends fire vulnerability, resulting in higher, not lower, risk to life and property.”¹⁵ Soil erosion and diminished water quality result from over aggressive brush management, after shrubs are removed that had kept the soil stable. Wildlife diminishes as native plants and habitats are cleared from the City’s natural and open space areas.¹⁶

Despite the evidence that over-aggressive brush management damages our natural areas, the City provides only limited restrictions on brush management. The City’s Land Development Code Biology Guidelines are at odds with scientific research because the guidelines erroneously state that brush management is “impact neutral.”¹⁷ The City’s Landscape Standards of the Land Development Manual provide these requirements:

- a. 3.2-3 Zone 2 Requirements – All Structures
 - i. 3.2-3.01 Individual non-irrigated plant groupings over 18 inches in height may be retained provided they do not exceed 400 square feet in area and their combined coverage does not exceed 30 percent of the total Zone 2 area.

The above description is insufficient guidance for neutral-impact brush management. Moreover, the City’s non-binding brush management guidelines found in

curated by Dr. Anne S. Fege, current Botany Research Associate for the San Diego Museum of Natural History and retired Forest Supervisor for the Cleveland National Forest. The Exhibit explained that, “When burned too frequently, whether by wildfires or prescribed burns, chaparral and coastal sage scrub will be taken over by highly flammable, weedy, non-native grasslands even more often.”)

¹³ 8 May 2007, Mayor Jerry Sanders’ New Release Fact Sheet, Exhibit 6 (the Mayor “urged San Diegans to be ever vigilant in clearing brush away from residences and businesses.”).

¹⁴ 22 July 2004, “The Cedar fire: a question of blame?,” The San Diego Union-Tribune, By Richard W. Halsey, Exhibit 7 (Scientist Richard Halsey is a trained type II fire fighter and Director of the California Chaparral Institute).

¹⁵ 2007, 32nd Street Canyon Task Force, Canyon Policy Portfolio Pre-Release: Our Financially Rewarding Natural Wildlands, Part 1, p. 11, Exhibit 2; *see also* 12 February 2007, The California Chaparral Institute letter to San Diego County Department of Planning and Land Use (stating “the footprint of inappropriate vegetation clearing can have a dramatic impact on natural resources. This not only destroys valuable native habitat, but increases erosion, allows the invasion of fine, highly flammable weedy fuels, and requires expensive maintenance year after year. There is limited natural open space in San Diego County. As the population grows, the demand for such space will only increase. Expanding the footprint of development by requiring unnecessary clearance will eliminate thousands of acres of habitat.”), Exhibit 27.

¹⁶ 12 February 2007, The California Chaparral Institute letter to San Diego County Department of Planning and Land Use, Exhibit 27.

¹⁷ San Diego Municipal Code, Land Development Code, Biology Guidelines, p. 20, Exhibit 8.

Bulletin #1 entitled, “Brush Management Guide for Private Property” and Bulletin #2 entitled, “Use of Goats for Brush Management,” are also insufficient. Bulletin #1 states that 50% of vegetation needs to be cleared, but does not explain that hand pruning is the best practice for vegetation management. Bulletin #2 allows goats to eat green/non-dead shrubs and does not account for fire resistive natives that should be left in place.¹⁸

To be impact neutral, the guidelines and the Land Development Manual should recommend leaving in place all fire-resistive native species, rather than limiting the native plants to no more than 10% as is currently provided. The guidelines and Land Development Manual should also recommend removing non-native and invasive vegetation before removing natives.¹⁹

Other inadequacies are found in the City’s current method of inspection. Specifically, “[i]nspections of brush-covered areas adjacent to buildings are performed on a complaint basis only.”²⁰ Thus, there are no regular brush management inspections, unless prompted by complaint.

The Fire Department for the City of Carlsbad, on the other hand, notifies property owners each April of brush management requirements. Most property owners are compliant by mid-May. The Carlsbad Fire Department inspectors assist non-complying property owners with compliance.²¹

C.J. Fotheringham, University of California at Los Angeles fire-ecology scientist describes sound vegetation management as requiring the following:

Hand thinning by crews is potentially the least damaging to native scrublands, provided adequate training and supervision is provided. Crews can be trained to avoid and minimize impacts to desirable and special status species as well as to avoid removing fire resistant species...With hand crews, dead material in shrubs and flash fuels such as annual grasses can be removed while leaving green canopy intact that, in the absence of dead branches, will resist fires. Hand pruning of dead material while leaving as much of the canopy cover as is safe helps minimize colonization by alien species, which form flash fuels and act to increase the probability of ignition and the rate of fire spread.

Chipping of removed woody materials and dispersing on the site in any openings created will inhibit alien materials

¹⁸ 2007, 32nd Street Canyon Task Force, Canyon Policy Portfolio Pre-Release: Our Financially Rewarding Natural Wildlands, Part 1, p. 19-23, Exhibit 2.

¹⁹ 2007, 32nd Street Canyon Task Force, Canyon Policy Portfolio Pre-Release: Our Financially Rewarding Natural Wildlands, Part 1, p. 19-23, Exhibit 2.

²⁰ San Diego Fire-Rescue Department, Brush Management, available at <http://www.sandiego.gov/fireandems/inspections/brush.html>.

²¹ City of Carlsbad Fire Department available at <http://www.carlsbadca.gov/fire/brushman.html>.

and also protect soils from erosion. Sites treated thoroughly do not typically need to be treated again for several growing seasons until sufficient quantities of dead material accumulate again, depending on site productivity.²²

Based on the foregoing, an ecological fire-risk land management program would require:

- 1) Leaving fire resistive native species in place;
- 2) Removing non-native and invasive vegetation, including flashy fuels and grasses;
- 3) Prohibiting the use of goats for vegetation management;
- 4) Hand pruning vegetation to the maximum extent feasible;
- 5) Implementing an annual vegetation management inspection schedule to ensure compliance with proper vegetation management for areas on or near the wildland-urban interface; and
- 6) Development of further “land management policies that will lower the risk of fire crossing over the wildland-urban interface without compromising” the environment.²³

The 32nd Street Canyon Task Force, assembled by the City’s Forest Advisory Board, analyzed the wildfires and brush management practices in the City of San Diego in response to the 2007 wildfires. The task force explains that in addition to vegetation management, new and existing developments “must have comprehensive fire-safe features, and the City must invest in many more staffed fire stations, together with fire-support infrastructure.”²⁴

According to Richard Halsey, Director of the California Chaparral Institute and a trained fire fighter, reducing the risk of fire to development should start “from the structure out, not from, the wildland in.”²⁵ Thus, the City should take action to:

- 1) discourage or prohibit development in the wildland-urban interface;

²⁶ 2007, 32nd Street Canyon Task Force, Canyon Policy Portfolio Pre-Release: Our Financially Rewarding Natural Wildlands, Part 1, p. 19, Exhibit 2, (citing 2006 “Preliminary Observations of City of Laguna Beach Goat-mediated Fuel Modification Program and the Impacts to Aliso and Wood Canyons Wilderness Park and the NCCP Reserve”).

²³ The California Chaparral Institute, available at <http://www.californiachaparral.com>.

²⁴ 2007, 32nd Street Canyon Task Force, Canyon Policy Portfolio Pre-Release: Our Financially Rewarding Natural Wildlands, Part 1, p. 34, Exhibit 2.

²⁵ The California Chaparral Institute, Protecting Your Home From Fire, why we are concerned about over exuberant clearance regulations, available at <http://www.californiachaparral.com/bprotectingyourhome.html>, Exhibit 9.

- 2) ensure that development in the wildland-urban interface is designed or retrofitted to include fire-resistive construction methods and materials;
- 3) ensure landscape surrounding development in wildland-urban interface areas is fire-resistive and non-combustible;
- 4) ensure vegetation management is completed in a sound manner and does not result in over clearing, increased fire risk, needless destruction of natural areas, or increased flooding, landslides, and erosion;
- 5) design or retrofit streets, driveways, and infrastructure to accommodate necessary fire equipment and provide adequate supply and flow of water, especially in high fire hazard areas;
- 6) ensure placement of fire stations with adequate resources and equipment near wildland-urban interface development and in other high to very high fire hazard areas.²⁶

B. ADDITIONAL FIRE FIGHTING RESOURCES

In the aftermath of the Cedar Fire, then-Fire Chief Jeff Bowman reported that “the SDFD [San Diego Fire Department] is under-funded, under-staffed and inadequately trained to respond effectively to complex incidents for extended operational periods. SDFD senior management has historically documented that continued budget reductions, deferred apparatus purchases and maintenance, and lack of staffing to keep up with community growth would have serious implications on its ability to respond to emergencies.”²⁷

According to Mark Rey, the Under Secretary for Natural Resources and the Environment at the United States Department of Agriculture, the costs of fire fighting keep rising as development increases in wildland-urban interface areas. As he explained, “growth in the number of people living in harm’s way... has bumped up costs, because defending structures is inherently more expensive than wilderness firefighting.”²⁸

²⁶ See e.g., The California Chaparral Institute available at <http://www.californiachaparral.com/bprotectingyourhome.html>, Exhibit 9; 2007, 32nd Street Canyon Task Force, Canyon Policy Portfolio Pre-Release: Our Financially Rewarding Natural Wildlands; San Diego Natural History Museum, *Earth, Wind & Wildfire: learning to live with fire*, available at <http://www.sdnhm.org/exhibits/fire/index.html>, Exhibit 3; 2004, Rancho Santa Fe Fire Protection District, *Sheltering in Place During Wildfires: A modern approach to living safely in a wildland-urban interface community*, available at <http://www.rsf-fire.org>, Exhibit 18.

²⁷ June 2004, Jeff Bowman, City of San Diego Fire-Rescue Department Cedar Fire 2003 After Action Report, excerpt p. 88, Exhibit 10.

²⁸ 2007, 32nd Street Canyon Task Force, Canyon Policy Portfolio Pre-Release: Our Financially Rewarding Natural Wildlands, Part 1, p. 4, Exhibit 2.

In San Diego, moreover, the Fire Department has taken on duties in addition to fire suppression, including emergency medical care and heavy rescue.²⁹ This means that the fire fighters must first focus on saving lives through emergency medical treatment and technical rescue operations, then focus on getting people out of the area of danger through evacuation, and, finally, on the fire suppression itself. The additional responsibilities require more personnel, equipment, and resources.

A New York Times story about the October 2007 fires described the frustration of fire chiefs and elected officials at the failure of the state to increase firefighting resources as recommended by the 2003 blue-ribbon panel:

“There were a lot of calls for equipment and resources,” said Assemblyman Todd Spitzer, who represents a district in Orange County. “When you have a finite amount of resources, you have to prioritize life and property first, and so we didn’t get water dropping until we started to lose structures.”³⁰

In the year preceding the 2007 wildfires, the City added to its firefighting resources.³¹ The office of Mayor Jerry Sanders explained, “[f]or years the Fire Rescue Department has gone without critical equipment. While acknowledging that this will not address or solve all of the equipment needs, the Mayor believes that this is a step in the right direction.”

More Equipment Needed Say Experts

Late last year, Jeff Bowman, former San Diego Fire Chief, said not enough had been done to remedy the critical funding shortfalls for the San Diego Fire Department.³² The Los Angeles Times reported that, “Bowman, who resigned as the city's fire chief in 2006 out of frustration at what he felt was a dangerously penny-pinching attitude toward fire protection, warned that San Diego could be on the verge of a familiar pattern: a destructive fire followed by recommendations for improved fire protection followed by a

²⁹ San Diego Fire-Rescue Department, Fire Suppression, available at <http://www.sandiego.gov/fireandems/about/suppress.html>.

³⁰ 25 October 2007, Firefighters Get Control as Questions Rise, by Kirk Johnson and Jennifer Steinhauer, New York Times, Exhibit 11.

³¹ 24 October 2006, Fact Sheet, Additional Fire-Rescue Equipment and Building Code Changes Enhance Safety of San Diegans Three Years After 2003 Firestorm, (On 24 October 2006, Mayor Jerry Sanders announced that the City added new Fire-Rescue Equipment that would “better position San Diego to prevent and fight future wild fires.”), Exhibit 15.

³² 28 November 2007, “Feinstein exhorts San Diego to increase fire department funding,” by Tony Perry, Los Angeles Times, (covering Congressional Hearing held at the San Diego City Council Chambers by Senator Diane Feinstein), Exhibit 13.

lack of action.”³³ More recently Bowman added, “They write these reports, and they put them on a shelf. And then, they have no money. So nothing gets done.”³⁴

On 30 November 2007, The San Diego Union-Tribune reported: “The city's Fire-Rescue Department has long pushed for more resources. Earlier projections indicated the city needs at least 20 new fire stations at a cost of \$100 million, along with annual allocations of \$40 million to operate them. Emergency response times also have lagged behind national standards.”³⁵

On 6 December 2007, The San Diego Union-Tribune reported:

Fire Chief Tracy Jarman plans to ask the San Diego City Council to buy a second firefighting helicopter that would be ready to fly in August.

The council would need to find nearly \$1 million to help pay for and operate Fire-Rescue Copter 2. As with Copter 1, the bulk of the money will come from corporate donations...

Unfortunately, the cash-strapped city doesn't have all of the money it needs to pay for a second helicopter. The city has 5½ more years of payments due on Copter 1, which runs largely on corporate sponsorships that could dry up...

To pay for Copter 2 – at a cost of \$16 million over 15 years – Jarman would dip into the \$2.25 million in donations collected each year for the helicopter program. She also would need money from the city's general fund.

Jarman is asking the City Council for \$826,000 in fiscal 2009, which begins July 1, and that figure would increase in subsequent years. A vote wouldn't be taken until the end of next month...

Along with a second helicopter, Jarman outlined a series of needs last week, including at least 20 new fire stations and dozens of reserve engines.

³³ 28 November 2007, “Feinstein exhorts San Diego to increase fire department funding,” by Tony Perry, Los Angeles Times, Exhibit 13.

³⁴ 2 March 2008, “Former San Diego Fire Chief Jeff Bowman,” The San Diego Union-Tribune at G5 (describing Bowman’s statement as “blasting the leadership of San Diego Mayor Jerry Sanders, County Supervisor Ron Roberts and others in addressing the region’s fire-protection needs.”).

³⁵ 30 November 2007, City to examine funding for opening fire stations, by Jennifer Vigil, SignOnSanDiego.com for The San Diego Union-Tribune, Exhibit 14.

Jarman plans to ask the state Office of Emergency Services to buy 50 engines that would be divided between the Fire-Rescue Department and smaller agencies across the county.

It would cost at least \$10 million to build a single station, which would soak up at least \$2 million more in annual operation costs. New engines cost \$700,000 apiece.

“The San Diego Fire-Rescue Department expects to take delivery of Copter 2 in August, weeks before seasonal Santa Ana winds blow into town.”³⁶

C. FIRE-RESISTIVE CONSTRUCTION METHODS AND MATERIALS

The City enacted revised building codes in 2006 that exceeded the state requirements, but still fall short of what is needed. The revised building codes required:

- 1) Amending the Municipal Code to require Class “A” roofing assembly for all new buildings, and throughout the roof of all existing buildings, where more than 25 percent of the total roof area is replaced over a 12-month period.
- 2) Amending the Municipal Code to prohibit the use of wood shake or wood shingle roof coverings on all new roofs, and to require the removal and replacement of all wood roof coverings within 25 years. The entire roof of all existing buildings covered with wood roof covering is required to be replaced with a Class “A” roofing including no wood coverings where more than 25 percent of the total roof area is replaced over a 12-month period.
- 3) Changing the Municipal Code to require additional fire-resistant building materials and fire safety systems for all buildings subjected to fire hazards adjacent to high fire hazard areas.
- 4) Adding new building and brush management regulations to the Municipal Code. Brush management is required to reduce fire hazards around structures by providing an effective fire break between all structures and contiguous areas of native or naturalized vegetation. The new regulations provide for a uniform 100 ft deep defensible space.³⁷

³⁶ 2 March 2008, “City to get second firefighting copter,” The San Diego Union-Tribune at B5.

³⁷ 24 October 2006, Fact Sheet, Additional Fire-Rescue Equipment and Building Code Changes Enhance Safety of San Diegans Three Years After 2003 Firestorm, Exhibit 15.

Studies show that fire-resistive construction requirements could reduce the risk of fire to typical California homes and developments by 60-70%.³⁸ Construction weaknesses increase the chance of ignition caused by:

- 1) direct flames striking ignitable siding, roofing, fencing, decking, and other materials;
- 2) embers getting inside structures when windows blow out due to extreme temperature and pressure changes;
- 3) embers getting lodged in nearby combustible objects or structures; or
- 4) embers getting inside structures through unscreened openings.³⁹

The 13 February 2004 California Fires Coordination Group Report to the Secretary of Homeland Security explained, “[w]hile local building codes have developed over time to encourage more fire-resistant construction, older buildings pose a challenge to local communities.”⁴⁰

While the City has implemented measures to increase fire safety, the 32nd Street Canyon Task Force says more needs to be done:

Post-fire evidence showed that many homes ignited from flaming wooden fences and decks that then breached flammable siding causing “piloted ignition” of the homes. Embers landed on wooden roofs or siding, and ignited them, or embers entered through unprotected openings including garage or service door voids, or windows that were not closed when people evacuated. Skylights, doors or windows buckled in winds 200 degrees or more in temperature because they [sic] not designed to resist the difference between inside and outside temperatures... Another large number of homes were consumed when flammable plant debris, wood piles, furniture, fencing, awnings, and flimsy wood structures near homes ignited from embers long after the fire front had passed, and these flames were large enough to breach house walls and ignite the homes.⁴¹

³⁸ 2007, 32nd Street Canyon Task Force, Canyon Policy Portfolio Pre-Release: Our Financially Rewarding Natural Wildlands, Part 1, p. 7, Exhibit 2.

³⁹ 2007, 32nd Street Canyon Task Force, Canyon Policy Portfolio Pre-Release: Our Financially Rewarding Natural Wildlands, Part 1, pp. 7-8, Exhibit 2.

⁴⁰ 13 February 2004, The California Fires Coordination Group, A Report to the Secretary of Homeland Security, FEMA, Exhibit 16.

⁴¹ 2007, 32nd Street Canyon Task Force, Canyon Policy Portfolio Pre-Release: Our Financially Rewarding Natural Wildlands, Part 1, p. 8, Exhibit 2.

This post-fire evidence indicates that despite the new building codes that were enacted in 2006, the 2007 fires still caused loss of life and property due in large part to construction weaknesses.⁴² This indicates the need for stricter building code requirements and further retrofitting requirements.

Creating a defensible space through vegetation management without additional measures such as stricter building codes is “not an adequate solution” to reduce fire risk to lives and property in San Diego.⁴³ Rather, “[i]t is better to create a ‘survivable space’ in which the home can survive on its own. This means fire-safety needs to focus on fire-resistant construction as well as proper vegetation management.”⁴⁴

In other words, brush management alone is insufficient. Reliance on brush management as the primary means of reducing fire risk is predicated on the idea that “wildfires are small and firefighting resources will always be available.”⁴⁵ But an effective fire reduction strategy also requires the development of more strict building codes.⁴⁶

D. FIRE-SAFE COMMUNITY DESIGN AND PLANNING

“California’s exploding population growth has put exponentially more homes and workplaces next to wild landscapes, often called ‘wildlands.’ Urbanized lands in the city of San Diego expanded 39% between 1985 and 2002, jamming 30,977 acres of development on flat mesas or valleys, right up against sloping canyons that are too steep for buildings or for roads.”⁴⁷ United States Geological Survey scientists indicate “that urban sprawl . . . is largely responsible for the wildfires that occur in the shrublands of southern and central-coastal California.”⁴⁸ The report emphasizes that “[t]he number of fires and area burned increases as population density increases.”⁴⁹

The other “challenge is to implement fire-safe community planning and long-term education programs to help maintain the public’s fire vigilance.” Community planning

⁴² The California Chaparral Institute, Protecting Your Home From Fire, Why We are Concerned about Over Exuberant Clearance Regulations, available at <http://www.californiachaparral.com/bprotectingyourhome.html>, Exhibit 9.

⁴³ *Id.*, Exhibit 9.

⁴⁴ *Id.*, Exhibit 9.

⁴⁵ *Id.*, Exhibit 9.

⁴⁶ The California Chaparral Institute, Fire & Science: Fire Suppression, Science, and Personal Opinion, available at <http://www.californiachaparral.com/firescience.html>, Exhibit 1.

⁴⁷ 2007, 32nd Street Canyon Task Force, Canyon Policy Portfolio Pre-Release: Our Financially Rewarding Natural Wildlands, Part 1, pp. 3-4, Exhibit 2.

⁴⁸ 10 June 1999, United States Geological Survey Western Ecological Research Center, News Release, USGS Study Casts Doubt on Role of Fire Suppression in Causing Catastrophic Shrubland Wildfires, p. 1, Exhibit 5.

⁴⁹ 10 June 1999, United States Geological Survey Western Ecological Research Center, News Release, USGS Study Casts Doubt on Role of Fire Suppression in Causing Catastrophic Shrubland Wildfires, p.2, Exhibit 5.

should not allow development in backcountry, high-fire-risk areas.⁵⁰ Also, communities need to be planned with adequate “roadway and driveway widths, designed to accommodate two-way traffic and large firefighting apparatus,” and “[a]dequate water supply and water flow for fire fighting efforts.”⁵¹ The reality is that fire management resources are scarce and they need to be allocated “at the urban interface between development and chaparral.”⁵²

After the recent fires in San Diego, it may be tempting to think that the worst of the fire events are behind us. However, this is not the case. Scientific evidence indicates that global warming will increase drought and reduce water supplies, which will in turn increase the severity of wildfires in San Diego.⁵³ Thus, reducing the City’s greenhouse gas emissions that contribute to global warming is also an important aspect of fire risk reduction. The City’s current draft General Plan includes policies to reduce greenhouse gas emissions.⁵⁴

III. RECOMMENDATIONS

Based on current scientific post-fire data, there remain measures available to the City to further reduce the risk of fire to life and property. Currently, City Planning and Community Investment staff has made recommendations for edits to the draft General Plan relating to wildfires.⁵⁵ Those recommendations are commendable, but it is incumbent on the City to incorporate additional measures. “With fire-wise planning and design of communities and structures, we can reduce the risk to human life and property and preserve native biological communities.”⁵⁶

The recommendations focus on resolving the areas discussed above including: 1) implementation of ecological fire risk land management; 2) prioritization of funding for fire prevention and rescue equipment and facilities; 3) stricter building and construction requirements; and 4) improved land use planning and community design. The following

⁵⁰ The California Chaparral Institute, *Fire & Science: Fire Suppression, Science, and Personal Opinion*, available at <http://www.californiachaparral.com/firescience.html>, Exhibit 1; *see also* 25 October 2007, *Building patterns are to blame, critics say: Home development in fire-prone areas a ‘national problem,’* by Mike Lee, available at http://www.signonsandiego.com/uniontrib/20071025news_1n25build.html, Exhibit 17.

⁵¹ 2004, Rancho Santa Fe Fire Protection District, *Sheltering in Place During Wildfires: A modern approach to living safely in a wildland-urban interface community*, available at <http://www.rsf-fire.org>, Exhibit 18.

⁵² The California Chaparral Institute, *Fire & Science: Fire Suppression, Science, and Personal Opinion*, available at <http://www.californiachaparral.com/firescience.html>, Exhibit 1.

⁵³ Dr. Anne S. Fege and Dr. Phil Pryde, *The San Diego Earth Times*, “*Climate Changes in San Diego*,” April 2007, available at <http://www.sdearthtimes.com/et0407s2.html>, Exhibit 19.

⁵⁴ 2 February 2008, letter from Edmund G. Brown, Jr., California Attorney General to Nancy Bragado, General Plan Program Manager, RE: General Plan Update, Project No. 104496, Exhibit 29.

⁵⁵ The City Planning and Community Investment staff recommendations relating to wildfires has been attached hereto as Exhibit 28.

⁵⁶ San Diego Natural History Museum, *Earth, Wind & Wildfire: Learning to Live with Fire*, available at <http://www.sdnhm.org/exhbits/fire/index.html>.

recommendations should be incorporated into future changes or updates to City land use plans, codes, policies, regulations, and guidelines:

A. ECOLOGICAL FIRE-RISK LAND MANAGEMENT

- Require that fire resistive native species be left in place and that non-native and invasive vegetation, including flashy fuels and grasses, be removed.
- Implement an inspection schedule, establish an annual deadline for vegetation management compliance, assist communities in complying with vegetation management responsibilities, and enforce vegetation management requirements within wildland-urban interface areas.
- Strategically utilize fire-resistive landscape to reduce fire risk and create defensible space, especially near wildland-urban interface areas.
- Prohibit or remove highly flammable plants and trees from close proximity to any structures, including but not limited to, pine trees, palm trees, Eucalyptus trees and Arundo (invasive giant reeds).
- Create defensible space around structures adjacent to the wildland-urban interface that reduces fuels while avoiding aggressive clearing, which may increase fire risk.
- Reevaluate vegetation management practices to make a thoughtful determination as to what space is defensible for any given area or project based on past event analysis, scientific modeling, and evaluation of impacts to sensitive plant and animal species.
- Require the creation of “greenbelts” with lightly irrigated, properly thinned and spaced shrubs that will absorb heat and deflect embers, thus reducing fire risk.
- Prohibit the use of goats for vegetation management in high fire-risk areas to prevent over-clearing, increased fire risk, and needless damage to native plant communities.
- Regularly inform community groups and property owners about proper management of vegetation in natural areas, the danger of over clearing, and ways to enjoy natural areas without increasing fire risk through continuing community education programs.
- Require hand pruning of vegetation to the maximum extent feasible.

B. ADDITIONAL FIRE-FIGHTING RESOURCES

- Provide resources recommended by the Fire Chief and the fire experts.
- Finance public facilities to meet needs associated with prevention, risk reduction, and response to emergency and potential emergency events including but not limited to, wildfires, landslides, and flooding.
- Pursue opportunities to apply for grants and matching funds from federal, state and local agencies and programs.
- Locate and prioritize public facilities and services for high fire hazard and wildland-urban interface areas to ensure adequate fire, police, and other safety facilities and services necessary for the prevention, risk reduction, and response to

emergency and potential emergency events including but not limited to, wildfires, landslides, and flooding.

- Require development and construction projects to provide facilities or services for fire, police, and other first responders as necessary for the prevention, risk reduction, and response to emergency and potential emergency events including but not limited to, wildfires and landslides.

C. FIRE-RESISTIVE CONSTRUCTION METHODS AND MATERIALS

- Require design and construction of new buildings and retrofitting of existing buildings to reduce loss of life and property from fire through the use of these and similarly effective techniques: fire-resistive material and landscape, boxed or enclosed eaves, fire sprinklers, rooftop misters, non-combustible roofing, sealing gaps between roof tiles and decks, dual pane or tempered glass windows, spark resistor screening, avoidance of exposed wood and wood fencing materials, prohibiting combustible fencing materials adjacent to open space especially that connect to buildings or structures.
- Prohibit wooden or combustible fencing in wildland-urban interface areas or where wood or other flammable materials would require an increase in vegetation management in open space areas.

D. FIRE-SAFE COMMUNITY DESIGN AND PLANNING

- Develop new and apply existing regulations to prohibit, discourage, or limit development in the wildland-urban interface.
- Prohibit development on hillside parcels and other areas where there is a high risk of fire danger and limited ability for fire, police, and other first responders to access the site.
- Require increased setbacks on canyon rims and change setback patterns where it would reduce fire risk.
- Pursue opportunities to relocate burned structures, through condemnation or otherwise, as an alternative to rebuilding in fire prone areas.
- Place, design, or retrofit fire hydrants and similar features to assure adequate water supply and flow to the maximum extent feasible, with priority given to wildland-urban interface and other underserved areas.
- Design or where feasible retrofit streets and driveways to maximize the ability to accommodate first responders, including fire and police, in the event of emergency or potential emergency.
- For all new development or major remodels, require the decision-maker to make a finding that the development will not increase the risk of fire.

E. RECOMMENDATIONS FOR FURTHER STUDY

The City Attorney is aware that a concern has arisen regarding whether electric power lines started several of the region's recent and devastating wildfires. Although state fire and utility officials prepared a detailed plan in 2001 to reduce the risk of fires

from electric power lines, allegations have also arisen that implementation of at least one key aspect of the plan remains undone.⁵⁷ This matter merits further scrutiny.

The design of power poles and the presence of above-ground power lines in backcountry areas susceptible to fires also require further study.⁵⁸

The City Attorney's Office will continue to monitor these issues and encourages all who are interested in reducing the region's fire risk to assist in the study.

IV. CONCLUSION

The City Attorney recommends incorporating the above requirements relating to ecological fire risk land management, additional fire prevention and fire response resources, fire-resistive construction and landscaping, and fire-safe land use, community design, and planning for high fire hazard locations into the City's land use plans, codes, policies, regulations, and guidelines.

Date: 7 March 2008

Michael J. Aguirre
San Diego City Attorney

⁵⁷ 11 November 2007, "A-1, Power Lines Get Little Priority in Fire Prevention," The San Diego Union-Tribune.

⁵⁸ 16 February 2008, "Black Smudges on Power-Line Support Cables Raise Red Flags," The San Diego Union-Tribune; 28 February 2008, "All Oppose Sunrise at Final Public Hearing," The San Diego Union-Tribune.