

CONTRA COSTA COUNTY, CONTRA COSTA COUNTY FIRE PROTECTION DISTRICT,  
AND CROCKETT-CARQUINEZ FIRE PROTECTION DISTRICT  
FINDINGS IN SUPPORT OF ORDINANCE 2023-07

Ordinance No. 2023-07 adopts fuel mitigation and exterior hazard abatement standards in all State Responsibility and Local Responsibility Areas in the Contra Costa County and Crockett-Carquinez Fire Protection District territories, requires documentation of compliance with such standards prior to sale of any property, and adopts requirements for fuel breaks on parcels in all State Responsibility and Local Responsibility Areas in the Contra Costa County and Crockett-Carquinez Fire Protection District territories.

The Contra Costa County Board of Supervisors, in its capacity as the Board of Supervisors and the Board of Directors of the Contra Costa County Fire Protection District and the Crockett-Carquinez Fire Protection District, finds that the standards contained in Ordinance No. 2023-07 are reasonably necessary because of certain local climatic, geological, and topographic conditions, and because of the absence of fuel break standards as required by the Public Resources Code, that are described below.

Local Conditions

A. Climatic

1. Precipitation and Relative Humidity

(a) Conditions

Precipitation ranges from 15 to 24 inches per year with an average of approximately 20 inches per year. 96% of precipitation falls during the months of October through April and four percent from May through September. This is a dry period of at least five months each year. Additionally, the area is subject to occasional drought. Relative humidity remains in the middle range most of the time. It ranges from 45-65% during spring, summer, fall, and from 60-90% in the winter. It occasionally falls as low as 15%.

(b) Impact

Locally experienced dry periods cause extreme dryness of untreated wood shakes and shingles on buildings and non-irrigated grass, brush, and weeds, which are often near buildings with wood roofs and sidings. Such dryness causes these materials to ignite very readily and burn rapidly and intensely.

Because of dryness, a rapidly burning grass fire or exterior building fire can quickly transfer to other buildings by means of radiation or flying brands, sparks, and embers. A small fire can rapidly grow to a magnitude beyond the control capabilities of the Fire District resulting in an excessive fire loss.

2. Temperature

(a) Conditions

Temperatures have been recorded as high as 114° F. Average summer highs are in the 90° range, with average maximums of 105° F.

(b) Impact

High temperatures cause rapid fatigue and heat exhaustion of firefighters, thereby reducing their effectiveness and ability to control large building and wildland fires.

Another impact from high temperatures is that combustible building material and non-irrigated weeds, grass, and brush are preheated, thus causing these materials to ignite more readily and burn more rapidly and intensely. Additionally, the resultant higher temperature of the atmosphere surrounding the materials reduces the effectiveness of the water being applied to the burning materials. This requires that more water be applied, which in turn requires more Fire District resources in order to control a fire on a hot day. High temperatures directly contribute to the rapid growth of fires to an intensity and magnitude beyond the control capabilities of the Fire District.

3. Winds

(a) Conditions

Prevailing winds in the area are from the south or southwest in the mornings and from the north or northwest in the afternoons. However, winds are experienced from virtually every direction at one time or another. Velocities are generally in the 14 mph to 23 mph ranges, gusting to 25 to 35 mph. 40 mph winds are experienced occasionally and winds up to 55 mph have been registered locally. During the winter half of the year, strong, dry, gusty winds from the north move through the area for several days creating extremely dry conditions.

(b) Impact

Winds such as those experienced locally can and do cause fires, both interior and exterior, to burn and spread rapidly. Fires involving non-irrigated weeds, grass, and brush can grow to a magnitude and be fanned to intensity beyond the control capabilities of the Fire District very quickly even by relatively moderate winds. During wood shake and shingle roof fires, or exposure fires, winds can carry sparks and burning brands to other structures, thus spreading the fire and causing conflagrations. When such fires are not controlled, they can extend to nearby buildings, particularly those with untreated wood shakes or shingles. In building fires, winds can literally force fires back into the building and can create a blow torch effect, in addition to preventing “natural” ventilation and cross-ventilation efforts.

Winds of the type experienced locally also reduce the effectiveness of exterior water streams used by the Fire District on fires involving large interior areas of buildings, fires which have vented through windows and

roofs due to inadequate built-in fire protection and fires involving wood shake and shingle building exteriors. Local winds will continue to be a definite factor towards causing major fire losses to buildings not provided with fire resistive roof and siding materials and buildings with inadequately separated interior areas or lacking automatic fire protection systems. National statistics frequently cite wind conditions, such as those experienced locally, as a major factor where conflagrations have occurred.

B. Geological and Topographic

1. Seismicity

(a) Conditions

Contra Costa County is located in Seismic Risk Zone 4, which is the worst earthquake area in the United States. Buildings and other structures in Zone 4 can experience major seismic damage. Contra Costa County is in close proximity to the San Andreas Fault and contains all or portions of the Hayward, Calaveras, Concord, Antioch, Mt. Diablo, and other lesser faults. A 4.1 earthquake with its epicenter in Concord occurred in 1958, and a 5.4 earthquake with its epicenter also in Concord occurred in 1955. The Concord and Antioch faults have a potential for a Richter 6 earthquake and the Hayward and Calaveras faults have the potential for a Richter 7 earthquake. Minor tremblers from seismic activity are not uncommon in the area.

The fire environment of a community is primarily a combination of two factors: the area's physical geologic characteristics and a historic pattern of urban-suburban development. These two factors, alone and combined, create a mixture of environments which ultimately determines the area's fire protection needs. The Fire District has 3 distinct areas. They are: the West, which includes the City of San Pablo and the communities of North Richmond, El Sobrante, and East Richmond Heights; the Central, which includes the Cities of Lafayette, Martinez, Pleasant Hill, Concord, Walnut Creek, Clayton, and the communities of Clyde, Pacheco, Alhambra Valley, and Alamo; and the East, which includes the Cities of Antioch and Pittsburg and the community of Bay Point.

Because of the size of the Contra Costa County Fire Protection District (304 square miles), the characteristics of the fire environment changes from one location to the next. Therefore the District has not one, but a number of fire environments, each of which has its individual fire protection needs from two major oil refineries, to heavy industrial facilities, freeways, rail lines, waterways, port facilities, wildland areas, urban and suburban town settings, and major downtown areas.

Interstates 80 and 680, State Highways 4, 24, and 242, Bay Area Rapid Transit District (BART), and major thoroughfares travel throughout the

District. There are 2 major rail lines which run through the District. An overpass or underpass crossing collapse would alter the response route and time for responding emergency equipment. This is due to the limited crossings of the major highways and rail lines.

Earthquakes of the magnitude experienced locally can cause major damage to electrical transmission facilities, which, in turn, cause power failures while at the same time starting fires throughout the Fire District. The occurrence of multiple fires will quickly deplete existing fire district resources; thereby reducing and/or delaying their response to any given fire. Additionally, without electrical power, elevators, smoke management systems, lighting systems, alarm systems, and other electrical equipment urgently needed for building evacuation and fire control in large buildings without emergency generator systems would be inoperative, thereby resulting in loss of life and/or major fire losses in such buildings.

(b) Impact

A major earthquake could severely restrict the response of the Fire District and its capability to control fires involving buildings of wood frame construction, with ordinary wood shake and shingle exteriors, or with large interior areas not provided with automatic smoke and fire control systems.

2. Soils

(a) Conditions

The area is replete with various soils, which are unstable, clay loam and alluvial fans being predominant. These soil conditions are moderately to severely prone to swelling and shrinking, are plastic, and tend to liquefy.

Throughout the Fire District, the topography and development growth has created a network of older, narrow roads. These roads vary from gravel to asphalt surface and vary in percent of slope, many exceeding twenty (20) percent. Several of these roads extend up through the winding passageways in the hills providing access to remote, affluent housing subdivisions. Many of these roads are private with no established maintenance program. During inclement weather, these roads are subject to rock and mudslides, as well as down trees, obstructing all vehicle traffic. It is anticipated that during an earthquake, several of these roads would be practically impassable.

3. Topographic

(a) Conditions

(i) Vegetation

The service area of the Contra Costa County Fire Protection District has a varied topography and vegetative cover. A conglomeration of flat lands, hills, and ridges make up the terrain. Development has occurred on the flat lands in the District and in

the past 15 years development has spread into the hills, valleys, and ridge lands of the District.

Highly combustible dry grass, weeds, and brush are common in the hilly and open space areas adjacent to built-up locations six to eight months of each year. Many of these areas frequently experience wildland fires, which threaten nearby buildings, particularly those with wood roofs, or sidings. This condition can be found throughout the Fire District, especially in those fully developed areas and those areas marked for future development.

(ii) Surface Features

The arrangement and location of natural and manmade surface features, including hills, creeks, canals, freeways, housing tracts, commercial development, fire stations, streets, and roads, combine to limit efficient response routes for Fire District resources into and through many areas.

(iii) Buildings, Landscaping and Terrain

Many of the “newer” large buildings and building complexes have access and landscaping features or designs which preclude, or greatly limit, efficient approach or operational access to them by Fire District vehicles. In addition, the presence of security gates, roads of inadequate width and grades which are too steep for Fire District vehicles create an adverse impact on fire suppression efforts.

When Fire District vehicles cannot gain access to buildings involved with fire, the potential for complete loss is realized. Difficulty reaching a fire site often requires additional fire personnel and resources to successfully and safely mitigate the event. Access problems often result in severely delaying, misdirecting, or making fire and smoke control efforts unsuccessful.

(b) Impact

The above local geological and topographical conditions increase the magnitude, exposure, accessibility problems, and fire hazards presented to the Contra Costa County Fire Protection District. Fire following an earthquake has the potential of causing greater loss of life and damage than the earthquake itself. Hazardous materials, particularly toxic gases, could pose the greatest threat to the largest number, should a significant seismic event occur. Public Safety resources would have to be prioritized to mitigate the greatest threat, and may likely be unavailable for smaller single dwelling or structure fires.

Other variables may intensify the situation:

1. The extent of damage to the water system.

2. The extents of isolation due to bridge and/or freeway overpass collapse.
3. The extent of roadway damage and/or amount of debris blocking the roadways.
4. Climatic conditions (hot, dry weather with high winds).
5. Time of day will influence the amount of traffic on roadways and could intensify the risk to life during normal business hours.
6. The availability of timely mutual aid or military assistance.
7. The large portion of dwellings with wood shake or shingles coverings could result in conflagrations.

### Fuel Breaks

- (a) Public Resources Code Section 4290, adopted in 1987, requires the Board of Forestry and Fire Prevention (“the Board of Forestry”) to adopt regulations implementing minimum fire safety standards in State Responsibility Areas, including regulations requiring fuel breaks, green belts, and signs for identifying streets, roads, and buildings. In 2018 the Legislature amended Section 4290 to require that the regulations also apply to areas within Local Responsibility Areas classified as very high fire hazard severity zones. Section 4290(c) provides that such regulations will not supersede more restrictive local regulations that equal or exceed the state regulations.
- (b) In accordance with Public Resources Code Section 4290, the Board of Forestry has adopted regulations setting some of the requisite minimum fire safety. These regulations, established in the California Code of Regulations, Title 14, Sections 1270.00-1276.04 (“the Fire Safe Regulations”), do not include standards for fuel breaks as specifically mandated by Public Resource Code Section 4290(b), which states that the Board of Forestry shall, on and after July 21, 2021:

Periodically update regulations for fuel breaks and greenbelts near communities to provide greater fire safety for the perimeters to all residential, commercial, and industrial building construction within state responsibility areas and lands classified and designated as very high fire hazard severity zones, as defined in subdivision (i) of Section 51177 of the Government Code, after July 1, 2021.

To date, no such regulations have been provided.

- (c) Fuel breaks are a critical tool intended to reduce fire spread rates and intensity to allow the timely containment of wildfire. By interrupting the continuity of the fuel beds through which fire spreads, their presence decreases the potential for small fires spreading to the lands of another and slows the rate at which large fires travel, buying time for orderly evacuations and the aggregation of an effective firefighting response for the protection of lives and structures.
- (d) On October 27, 2021, the California Department of Forestry and Fire Protection (CAL FIRE) delegated to the Contra Costa County Fire Protection District and the Crockett-

Carquinez Fire Protection District the authority to inspect and enforce the Fire Safe Regulations promulgated under Section 4290. These standards for fuel breaks are consistent with that delegation and with the provisions of Public Resources Code Sections 4117 and 4290(c).

- (e) Pursuant to Section 4117 of the Public Resources Code, which provides that fire prevention districts may adopt ordinances providing fire prevention regulations that are necessary “to meet local conditions of weather, vegetation, or other fire hazards,” the Board of Directors finds that the fuel break standards in this Ordinance are necessary in light of the fire hazards created by the above local conditions.