CONTRA COSTA COUNTY, CONTRA COSTA COUNTY FIRE PROTECTION DISTRICT, AND CROCKETT-CARQUINEZ FIRE PROTECTION DISTRICT
FINDINGS IN SUPPORT OF AMENDMENTS TO THE 2025 CALIFORNIA BUILDING STANDARDS CODE, TITLE 24, PART 9, CALIFORNIA FIRE CODE

The California Building Standards Commission has adopted and published the 2025 California Fire Code. The purpose of the code is to regulate and govern the safeguarding of life and property from fire and explosion hazards arising from the storage, handling, and use of hazardous substances, materials, and devices, and from conditions hazardous to life or property in the occupancy of buildings and premises.

Health and Safety Code section 13869.7, 17958.5, and 18941.5 authorize a local jurisdiction to modify or change the statewide codes and establish more restrictive building standards if the jurisdiction finds that the modifications and changes are reasonably necessary because of local climatic, geological, or topographical conditions.

Ordinance No. 2025-14 adopts the 2025 California Fire Code and amends it to address local conditions. Pursuant to Sections 13869.7, 17958.5, and 17958.7 of the Health and Safety Code, 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 more restrictive standards contained in Ordinance No. 2025-14 are reasonably necessary because of certain local climatic, geological, and topographic conditions 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 Cities of San Pablo, Pinole, and Hercules 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, Pittsburg, Brentwood and Oakley and the unincorporated communities of Bay Point, Bethel Island, Discovery Bay, Knightsen, Byron and Marsh Creek and Morgan Territory.

Because of the size of the Contra Costa County Fire Protection District (733 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 extent 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.

Necessity for More Restrictive Standards

Because of the conditions described above, 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 there are building and fire hazards unique to Contra Costa County that requires the increased fire protection requirements set forth in Ordinance No. 2025-14.

The ordinance amends Chapter 1 (Scope and Administration) of the statewide Fire Code by requiring a permit for certain activities and operations that pose fire hazards. The ordinance amends the statewide Fire Code by incorporating into Chapter 3 (General Precautions Against Fire) the fire districts' exterior fire hazard control. The ordinance amends Chapter 4 of the statewide Fire Code (Emergency Planning and Preparedness) to require standby EMS personnel for large events as well as standby fire personnel to account for the fact that the fire district is both the local fire and EMS provider. The ordinance amends Chapter 5 (Fire Service Features) and Appendix D (Fire Apparatus Access Roads) of the statewide Fire Code to establish requirements for fire apparatus access roads to include protection of designated emergency evacuation routes as adopted by the local governing body as part of their emergency evacuation plan. The ordinance amends the statewide Fire Code by reducing the square footage thresholds found in Chapter 9 (Fire Protection Systems) for installation of automatic fire sprinkler systems in most commercial buildings and in private and charter schools. The ordinance amends Chapter 50 (Hazardous Materials - General Provisions) of the statewide Fire Code to enhance fire service response and information available to occupancies in the District. The ordinance amends Chapter 56 (Explosives and Fireworks) of the statewide Fire Code to prohibit all fireworks in the District without a permit and an increase to the financial liability for permitted events. The ordinance amends Chapter 57 (Flammable and Combustible Liquids) of the statewide Fire Code to amend where above ground storage tanks may be located. The ordinance amends Chapter 58 (Flammable Gasses and

Flammable Cryogenic Fluids) of the statewide Fire Code to amend where storage may be located. The ordinance amends Appendixes B and C (Fire-Flow Requirements for Buildings, Fire Hydrant Locations and Distribution) of the statewide Fire Code to amend the reduction of fire flow needed and the location of where hydrants are required.