SAN RAMON VALLEY FIRE PROTECTION DISTRICT

FINDINGS IN SUPPORT OF AMENDMENTS TO THE 2025 CALIFORNIA BUILDING STANDARDS CODE, TITLE 24, PART 7, CALIFORNIA WILDLAND-URBAN INTERFACE CODE

The California Building Standards Commission has adopted and published the 2025 California Wildland-Urban Interface Code. The purpose of this code is to establish minimum requirements to reduce the likelihood of life and property loss due to a wildfire through the use of performance and prescriptive requirements for construction and development in all Fire Hazard Severity Zones in State Responsibility Areas (SRA) and Local Responsibility Areas (LRA) designated as a Very High and High Fire Hazard Severity Zone; increase the ability of buildings located in any Fire Hazard Severity Zone within State Responsibility Areas (SRA), Local Responsibility Area (LRA), or Wildland-Urban Interface (WUI) Areas to resist the intrusion of flames or burning embers projected by a vegetation fire; and contribute to a systematic reduction in conflagration losses and reduce the likelihood of life and property loss due to a wildfire.

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. 2025-41 adopts the 2025 California Wildland-Urban Interface 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 San Ramon Valley Fire Protection District Board of Directors finds that the more restrictive standards contained in Ordinance No. 2025-41 are reasonably necessary because of certain local climatic, geological, and topographic conditions that are described below.

Climatic

Precipitation and Relative Humidity

Conditions

Precipitation ranges from 15 to 24 inches per year with an average of approximately 20 inches per year. Ninety-six (96) percent falls during the months of October through April and four (4) percent from May through September. This is a dry period of at least five (5) 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 twenty-five (25) to sixty-five (65) percent during spring, summer, fall, and from sixty (60) to ninety (90) percent in the winter. It occasionally falls as low as ten (10) percent.

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.

Temperature

Conditions

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

Impact

High temperatures cause rapid fatigue and heat exhaustion of firefighters, hereby 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 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.

Winds

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 teens to twenty mph ranges, gusting to twenty-five (25) to forty-five (45) mph. At mid-elevations forty (40) to fifty (50) mph winds are common and winds up to fifty-five (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.

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 will grow in magnitude and be fanned to an intensity beyond the control capabilities of ground forces from the Fire District. When such fires are not controlled, they can extend to nearby buildings, particularly those with untreated wood shakes or shingles.

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.

Summary

These local climatic conditions affect the acceleration, intensity, and size of fire in the community. Times of little or no rainfall, of low humidity, and high temperatures create extremely hazardous conditions, particularly as they relate to wood shake and shingle roof fires and conflagrations. The winds experienced in this area can have a tremendous impact upon structure fires. During woodshake and shingle roof fires, or exposure fires, winds can carry sparks and burning brands to other structures, thus spreading the fire and causing conflagrations. In building fires, winds can literally force fires back into the building and can create a blow torch effect.

Geological and Topographic

Seismicity

Conditions

The Seismic Design Category found in Contra Costa County varies based on mapped acceleration parameters and risk category of a structure. In general, Seismic Design Category in Contra Costa County are D or E for risk category I, II, or III structures and D or F risk category IV structures.

Contra Costa County is near 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 fora 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.

Interstate 680 runs the length of the San Ramon Valley to Interstate 580 in Alameda County. The interstate divides the valley into a west and east side. Through the valley, the interstate is transversed by 8 underpasses and 7 overcrossings. An overpass or undercrossing collapse would significantly alter the response route and time of responding emergency equipment. This is due to limited crossings of the interstate and that the valley has only one surface street, which runs parallel to the interstate which, would be congested during a significant emergency.

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 department resources; hereby 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 would be inoperative, thereby resulting in loss of life and/or major firelosses in such buildings.

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.

Soils

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 San Ramon Valley, 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. The majority 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 impassable.

Examples:

1. Roundhill Estates in Alamo - access restricted for fire equipment due to road grade and width.
2. West hillside area in Danville and Alamo would restrict access for Station's 31, 32, and 33.
3. Tassajara Valley and Morgan Territory roads would restrict access for Station's 30, 35, 36 and 37.

Topographic

Conditions

Vegetation

Highly combustible dry grass, weeds, and brush are common in the hilly and open space areas adjacent to built-up locations six (6) to eight (8) 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 District, especially in those developed and developing areas of the District.

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 feasible response routes for Fire District resources in and to District areas.

Buildings, Landscaping and Terrain

Many of the "newer" large buildings and building complexes have building access and landscaping features and designs, which preclude or greatly limit any approach or operational access to them by Fire District vehicles. In addition, the presence of security gates and roads of inadequate width and grades which are too steep for Fire District vehicles adversely affect 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 that fire personnel both in numbers and in stamina. Access problems often result in severely delaying, misdirecting, or making impossible fire and smoke control efforts.

Impact

The above local geological and topographical conditions increase the magnitude, exposure, accessibility problems, and fire hazards presented to the San Ramon Valley 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 tend to 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.

Summary

Local climatic, geologic, and topographic conditions impact fire prevention efforts, and the frequency, spread, acceleration, intensity, and size of fire involving buildings in this community. Further, they impact potential damage to all structures from earthquake and subsequent fire. An example of this was the October 17, 1989, Loma Prieta earthquake measuring 6.9 on the San Andreas fault centered near Santa Cruz, caused one residential fire and numerous commercial buildings to have damage.