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May 27, 2021

Honorable Members of the Public Safety Committee
c/o Office of the City Clerk
City Hall, Room 395
Los Angeles, California 90012

Report Relative To Expanding Fire District 1, California Department Of Forestry, Very High Fire Hazard Severity Zone, City High Wind Velocity Zone; CF 19-0603

Dear Honorable Members,

On April 6, 2021, the City Council amended and adopted the Public Safety Committee report from Council File 19-0603 (Blumenfield-Rodriguez-Harris-Dawson) relative to expanding Fire District 1 that directed the Departments of Building and Safety, Fire Department and City Planning, with the assistance of the City Attorney, to report back on the following items:

1. Feasibility of an ordinance to expand Fire District 1 to areas within the City that are similar to existing conditions, including but not limited to, high density multi-family and commercial land use, and zoning designations that allow for tall buildings, to achieve greater fire life safety.
2. Current fire life safety codes applicable to structures within the Very High Fire Hazard Severity Zones and High Wind Velocity Zones, and the feasibility of amending the current code requirements with additional fire life safety measures.

3. Develop a Fire Protection Plan, as allowed under Chapter 33 of the Los Angeles Fire Code, for all new and significantly altered projects over 150,000 square feet and/or 100,000 square feet if the building is over 30 feet in height, and make recommendations to ensure proper enforcement.
4. Provide recommendations on how to ensure that top-quality, skilled and responsible construction practices are utilized and guaranteed for new multifamily and commercial structures within the high risk areas encompassed in Fire District 1.
5. Explain the impacts of expanding Fire District 1 on construction and materials costs and housing affordability
6. Instruct the Los Angeles Department of Building and Safety, Department of City Planning, and the Los Angeles Fire Department to include in their report an analysis of the viability of heavy/mass timber and light wood frame, and to explore options to allow type IV construction.
7. Provide a study on the loss of life and/or property at buildings with similar characteristics in recent years and whether other cities within Los Angeles County or the State adopted similar requirements.

OVERVIEW

Origins and Purpose of Fire District 1

Fire districts have been in the Los Angeles Building Code (LABC) since at least the turn of the 20th century. Historically, jurisdictions established these fire districts as a means to control the threat of urban fires often referred to as conflagrations. Most notably, the conflagrations in Chicago in 1871 and San Francisco in 1906 caused massive destruction of all, or most of, their urban areas which resulted in the implementation of Fire District ordinances throughout various jurisdictions throughout the nation. Fire district provisions included more stringent fire safety requirements in building design and construction, such as limiting the amount of combustible materials in the building structure. In addition, bonds were issued in Fire Districts to finance the installation of fire sprinkler systems in qualifying buildings.

The history of Fire District 1 in Los Angeles is somewhat obscured due to its age. News articles reference a fire district downtown as early as 1874, which required buildings be

constructed of non-combustible materials.¹ At the time of adoption, the fire district was controversial and articles show contention over the application of the boundaries for the district. In 1889, the City adopted Ordinance 287², which established Fire Districts 1, 2, 3, and 4 and expanded the restrictions within those districts to other areas of downtown. The ordinance restricted the storage of burnable items, building materials, wall thickness, window openings, roof coverings and structure, corridors, sewage, heating apparatuses, among other items. At this time, cities authored their own building codes and fire districts were introduced due to the lack of comprehensive fire and safety building codes to address the urban conflagration hazards and to fill in the gaps of the local building code. Fire districts were some of the City's earliest building code standards.

Boundaries of Current Fire District 1

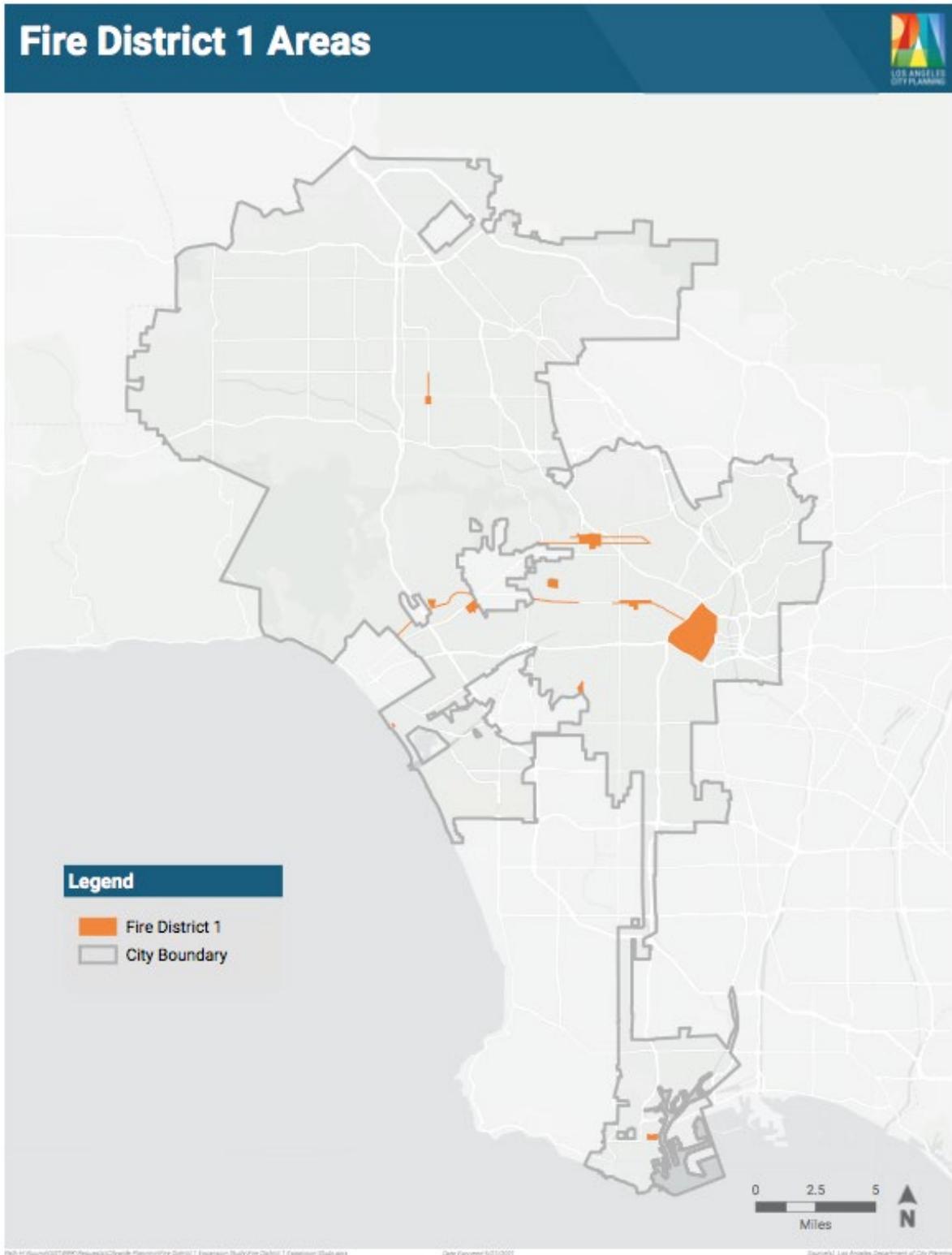
While some references to Fire District 1 have been found, it has been difficult to ascertain exactly how Fire District 1 came to encompass its current boundaries. Records indicate Fire District 1, 2, 3, and 4 were adopted in 1943. In 1944, Fire Districts 3 and 4 were removed from the code. Over time, it appears the boundaries of Fire District 1 were altered and expanded. In 2008, Fire District 2 was removed, which coincided with the implementation of the Very High Fire Severity Zone. Today we have two fire districts, the Very High Fire Severity Zone and Fire District 1.

Today Fire District 1 affects some of the most significant regional places of importance in the City including Downtown, Hollywood, Century City, the Grove and Farmers Market, Baldwin Hills Crenshaw Plaza, and Wilshire Boulevard. Fire District 1's boundaries are described in Los Angeles Municipal Code (LAMC) Section 91.7201.1 (see map below).

¹ The New Fire Resolution, Los Angeles Evening Express, May 11, 1874.

² Ordinance No.287, Los Angeles Herald, June 28, 1889

Map 1. Boundaries of Fire District 1



Regulations of Current Fire District 1

In addition to expanding geographies, the regulations of Fire District 1 have evolved with the adoption of standardized building codes. The current Fire District 1 imposes additional fire life safety regulations on new construction and additions to buildings within its boundaries. Fire District 1 limits the type of construction as defined in the California Building Code (CBC) to Types I, II and III, prohibits Types IV and V construction, and provides for additional fire life safety requirements. Fire District 1 is a building code provision found in Chapter 9, Article 1, Division 72 of the LAMC (Section 91.7201.1).

Summary of Fire District 1 regulations:

- Allows Types I, II, and III Construction
- Prohibits Types IV and V Construction
- Openings in exterior walls (i.e., windows and doors) must have additional fire resistant protection
- Additional roof covering requirements beyond regular code
- Additional structural fire rating requirements
- Additional fire protection requirements for exterior walls, architectural trim, canopies, roof structures, plastic signs and plastic veneer

Building Construction Types

The most significant aspect of Fire District 1 is the prohibition on certain construction types. Therefore it is important to understand how the CBC classifies different types of construction. The California Building Code specifies types of construction for the design of buildings into one of five major categories: Type I (A,B), Type II (A,B), Type III (A,B), Type IV, and Type V (A,B). Each type of construction dictates the permissible material used for building construction and the minimum fire resistance ratings required to be added to the structural elements. With these prescribed fire safety design requirements, each type of construction is associated with its own maximum height, stories, and allowable floor area based on the occupancy type of the building (i.e., office, residential, or retail). The scale goes from Type I to Type V, with Type I being the most restrictive in terms of materials permitted and fire resistance ratings required and Type V being the least restrictive. With this scale of requirements, it generally translates to Type I allowing the highest amount of floor area and unlimited height of buildings and Type V having the most restrictive heights and floor areas. There are exceptions to the Building Code that allow for buildings to be designed to have two types of construction, typically called “podium” buildings. This mixed type of construction design allows for one to two levels of Type I construction (concrete podium) at street level with one of the other types of

construction allowed above (Type II, III, IV or V). The podium building is limited in height based on the most restrictive of heights of the two types of construction used. This podium style building is typically used in apartment buildings or mixed use residential and commercial buildings that house their parking or storefront commercial spaces in the “podium” portion of the building.

Other terms used in the building code when referring to types of construction are non-combustible materials, combustible materials, heavy timber, and fire-resistance ratings. Non-combustible materials include steel, concrete, and masonry. Combustible materials include wood and plastic. “Heavy Timber (HT)” is a term used for Type IV construction and includes a group of large size wood members mainly consisting of laminated wood, heavy timber, or structural composite lumber. Fire resistant rating is defined in the CBC as “the period of time a building element, component or assembly maintains the ability to confine a fire, continues to perform a given structural function, or both, as determined by the tests, or the methods based on tests.” The types of construction in the CBC require certain fire resistant ratings (0, 1, 2, or 3 hours) for each type of construction and building element.

General Summary of Types of Construction per CBC typical for Residential Multi-Family Occupancies³

Type I

- Type IA (concrete; fire-protected steel)
 - Non-combustible construction only
 - Highest fire resistant ratings required
 - Unlimited building height (in feet and stories) and Unlimited floor area

- Type IB (concrete; fire-protected steel)
 - Non-combustible construction only
 - 180’ allowable building height and Max. 12 stories
 - Unlimited floor area

³ This summary gives a general overview of requirements per Type of Construction and does not take into account all of the detailed requirements of the CBC. The CBC has additional restrictions, exceptions and allowances that may result in higher or lower allowable heights and areas for certain occupancies.

Type II

- Type IIA (fire-protected steel)
 - Non-combustible construction only
 - Max. 85' building height and Max. 5 stories (Additional stories allowed with the podium exception)
 - Max. 72,000 sf
- Type IIB (bare steel)
 - Non-combustible construction only
 - Max. 75' building height and Max. 5 stories (Additional stories allowed with the podium exception)
 - Max. 48,000 sf

Type III

- Type IIIA (fire-protected light wood frame or masonry/steel/concrete exterior walls)
 - Non-combustible construction on exterior; non-combustible and combustible materials in the interior
 - Max. 85' building height and Max. 5 stories (Additional stories allowed with the podium exception)
 - Max. 72,000 sf
- Type IIIB (fire-protected light wood frame or masonry/steel/concrete exterior walls)
 - Non-combustible construction only
 - Max. 75' building height and Max. 5 stories (Additional stories allowed with the podium exception)
 - Max. 48,000 sf

Type IV

- Current Type IV is not subdivided into separate categories (heavy timber)
 - Non-combustible construction on exterior; non-combustible and “heavy timber” materials in the interior
 - Max. 85' building height and Max. 5 stories (Additional stories allowed with the podium exception)
 - Max. 61,500 sf

Type V

- Type VA (protected wood frame)
 - Combustible construction allowed
 - Max. 70' building height and Max. 4 stories (Additional stories allowed with the podium exception)
 - Max. 36,000 sf
- Type VB (unprotected wood frame)
 - Combustible construction allowed
 - Max. 60' building height and Max. 3 stories (Additional stories allowed with the podium exception)
 - Max. 21,000 sf

Figure 2: Example of a Type I Building, Path Montclair Gramercy, View from Across the Street at 4220 Montclair St.



Figure 3: Example of a Type III over Type I building, Flor 401 Lofts, Located at 401 E 7th St. View from Crosswalk at 7th & Wall St.



Figure 4: Example of a Type V over Type I Building, Summit View Apartments, View from Across the Street at 11681 Foothill Blvd.



DISCUSSION

- 1. Feasibility of an ordinance to expand Fire District 1 to areas within the City that are similar to existing conditions, including but not limited to, high density multi-family and commercial land use, and zoning designations that allow for tall buildings, to achieve greater fire life safety.**

Present Characteristics of Fire District 1

As referenced in the motion, areas of the City located within Fire District 1 encompass a variety of areas, but largely include dense, urban, and regional places of importance in the City, including Regional Centers, major boulevards, malls, and destinations. While currently Fire District 1 encompasses just 13,223 parcels, which is less than 1.5% of parcels Citywide, it encompasses some of the most visited areas of the City including downtown, Wilshire, Hollywood, Venice, and the Civic Centers.

As Fire District 1 was expanded over time, the parcels affected tend to be organized by a cohesive geographic character. For instance in downtown, Fire District 1 is bounded by the 110, 10, and 101 freeways. When applied to major boulevards such as Wilshire Blvd., Sunset Blvd., or Hollywood Blvd., typically only parcels or blocks abutting the street are included in the Fire District. Other districts encompass defined commercial districts like Westwood Village, Baldwin Hills Crenshaw Plaza, and Century City. The existing boundaries of Fire District 1 contain a patchwork of smaller geographic areas, each successively added to the District. As expansions to Fire District 1 are explored, it would be consistent with the existing characteristics of the district to explore aligning the District boundaries to places with similar land use and other geographic characteristics.

Land Use

In examining a potential expansion to the District, the motion provides direction to consider existing and similar conditions including land use and height regulations. Land Use refers to the City's General Plan designation for a site. Of the 13,223 parcels in Fire District One, approximately 4,227 or 32% of parcels are located in Regional Centers.

Regional Centers are characterized in the General Plan Framework Element as higher-density places whose physical form is substantially differentiated from the lower-density neighborhoods of the City. This includes areas with mid- and high-rise structures

concentrated along major street frontages (e.g., Wilshire and Hollywood Boulevards) or on large independent lots set back from the property frontages (e.g., Warner Center and most of Century City), as well as retail commercial "malls," characterized by low- and mid-rise buildings clustered around common pedestrian areas.

These 4,227 Fire District 1 parcels represent over half of all Regional Center and Regional Center Commercial parcels in the City indicating a significant correlation between the Regional Center Land Use designation and Fire District 1. Other Land Use designations included in Fire District 1 include varying amounts of land designated for Light Manufacturing, Community Commercial, and Public Facilities. High Residential, High Medium Residential, and Highway Oriented Commercial land use, are found in the District but not prevalently). While Light Manufacturing represents a significant percentage (approx. 30%) of the existing Fire District 1, residential uses are not permitted in Light Manufacturing areas, and therefore exploring an expansion in them may not meet the intent of the motion to improve fire life safety in residential buildings. Table 5 shows the number of parcels of each Land Use designation located within Fire District 1, as well as the percentage of the total parcels in the District.

Table 5. Most Common Land Use Designations Found in Fire District 1

Land Use Designation	Number of Parcels in FD1	Percent of Total FD1
Grand Total	13,223	
Regional Center Commercial/ Regional Commercial	4,227	32%
Light Manufacturing	3,940	29.8%
Community Commercial	1,667	12.6%
Public Facilities	946	7.2%
High Residential	562	4.3%
Highway Oriented Commercial	434	3.3%
High Medium Residential	340	2.6%
Public Facilities - Freeways	285	2.2%
Neighborhood Office Commercial	234	1.8%
Other	588	4.45%

Height

Height Districts regulate the allowable building volume referred to as floor area ratio (FAR) and height. Height Districts are hierarchical with Height District 4 being the most permissive and Height District 1XL the most restrictive. Within each Height District these maximums then vary based on the zone category (R1, R3, C2, etc.). A parcel may have a development limitation applied to the Height District which further restricts the site's development potential; these limitations are reflected by a "D" accompanying the Height District (2D, 4D, etc.).

Generally, Height Districts 3 and 4 permit multifamily buildings to achieve heights of 75 feet and over, and FARs of up to 10:1 or 13:1. Within the City, very limited areas are zoned for Height Districts 3 and 4, with almost 97% of these parcels located in Fire District 1. This indicates a very strong connection between Height Districts 3 and 4 and Fire District 1.

Height District 2 is also a less commonly found regulation; it represents only 3% of the City's parcels. Height District 2 may permit multifamily buildings to achieve heights of 75 feet and over, and FARs of up to 6:1. Approximately 32% of all Height District 2 parcels are located in Fire District 1.

Height District 1 has more variation and includes sub height districts of 1, 1L, 1VL, and 1XL. These districts regulate the vast majority of parcels in the city, with height district 1 being the most permissive and 1XL the most restrictive. These districts may permit multifamily⁴ buildings to achieve heights of between two-stories and 75 feet, and FARs of 1.5:1 to 3:1. Approximately 16% of Fire District 1 parcels are located within a variation of Height District 1.

Of all Fire District 1 parcels, 82% are located in Height Districts 2, 3, or 4, with the majority of parcels found in Height District 2. Notably, many of the Height District 2 parcels have D limitations which further restrict their development. The table below shows the number of parcels in Fire District 1 by Height District.

⁴ RD1.5 and more permissive zones. R2 and RE zones have additional limitations.

Table 6: Height Districts within Fire District 1 by Parcel Count

Height District	Number of Parcels in FD1	Percent of Total FD1
Total	13,223	
2D	7,425	56.2%
4D	2,200	16.6%
2	1,064	8.0%
1	895	6.8%
1D	439	3.3%
1L	435	3.3%
1VL	224	1.7%
1XL	191	1.4%
3	107	0.8%
CSA1 ⁵	91	0.7%
Other	152	1.1%

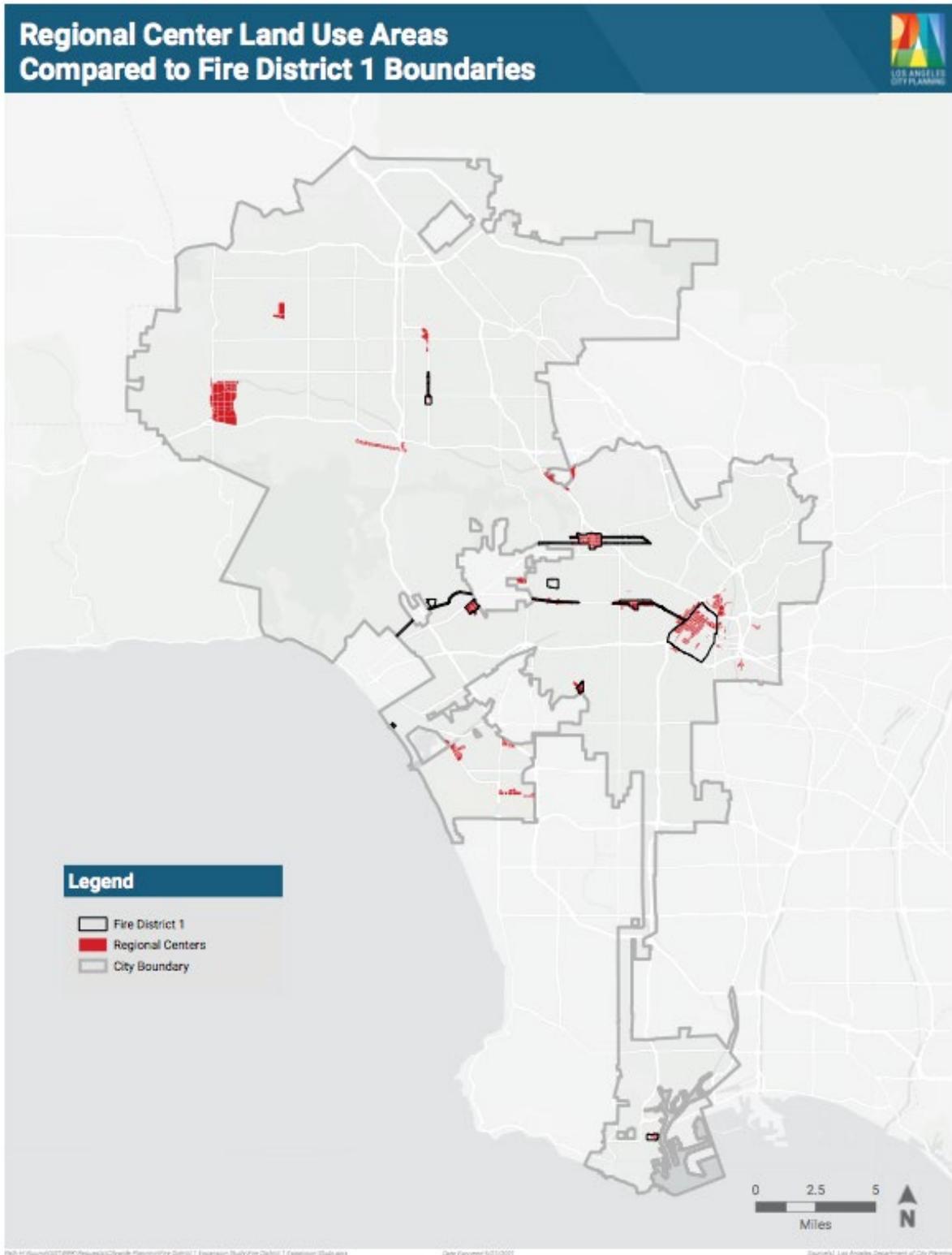
Considerations for Expansion:

The motion provides direction to consider Land Use, height, and other similar characteristics for expansion of the District. Of Fire District 1's existing characteristics, high densities and permissive height districts are most clearly prevalent.

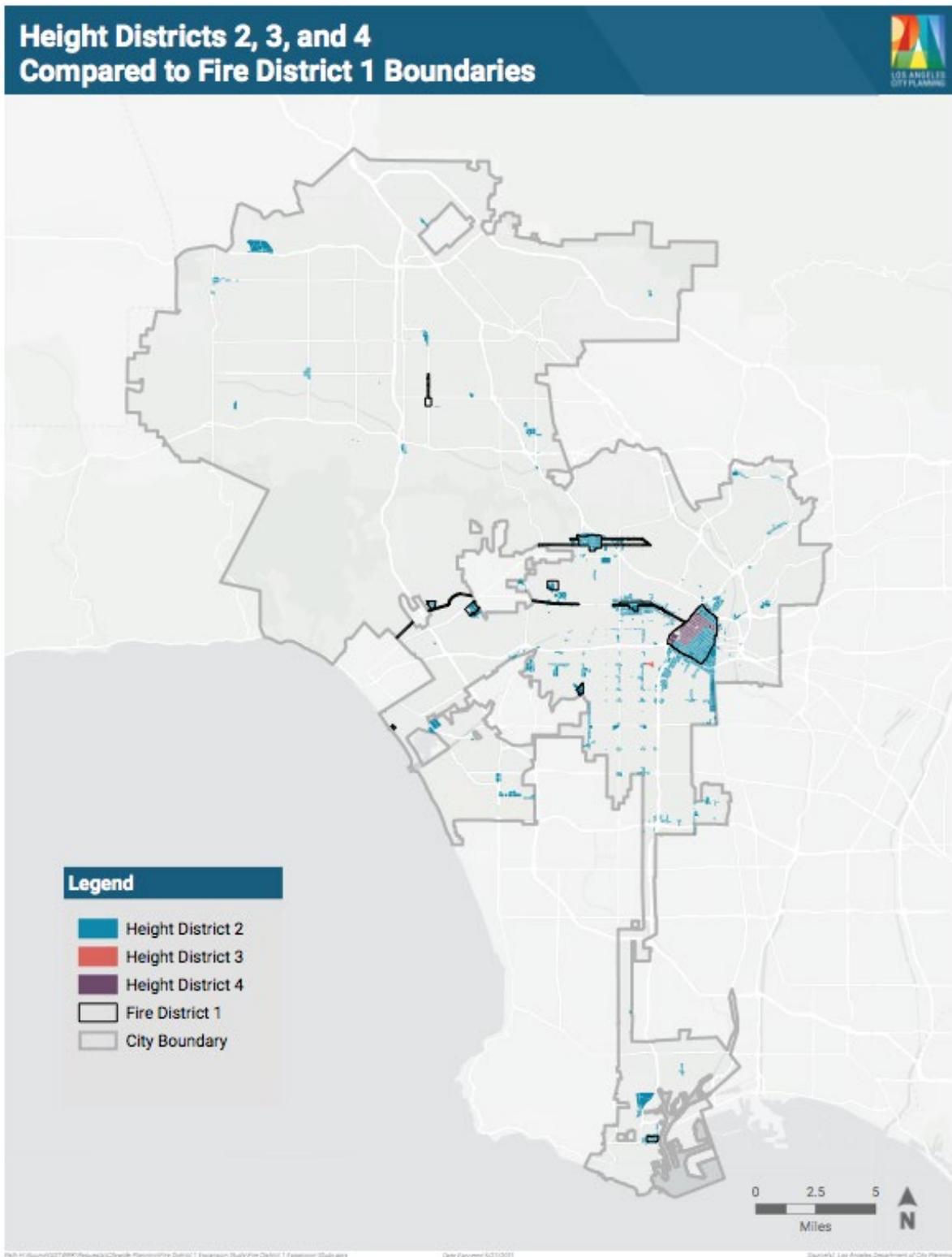
Of the City's Land Use designations, Regional Centers were most represented in the existing District. Regional Centers outside of the District include (but are not limited to) Warner Center, Ventura Boulevard, Universal City, the Northridge Fashion Valley Mall, Panorama City, Century Boulevard, Westchester, the Beverly Center and Cedar Sinai area, Playa Vista, Chinatown, and other blocks surrounding existing Fire District One areas as shown in Map 7.

⁵ CSA refers to the Centers Study Area, a special zoning district.

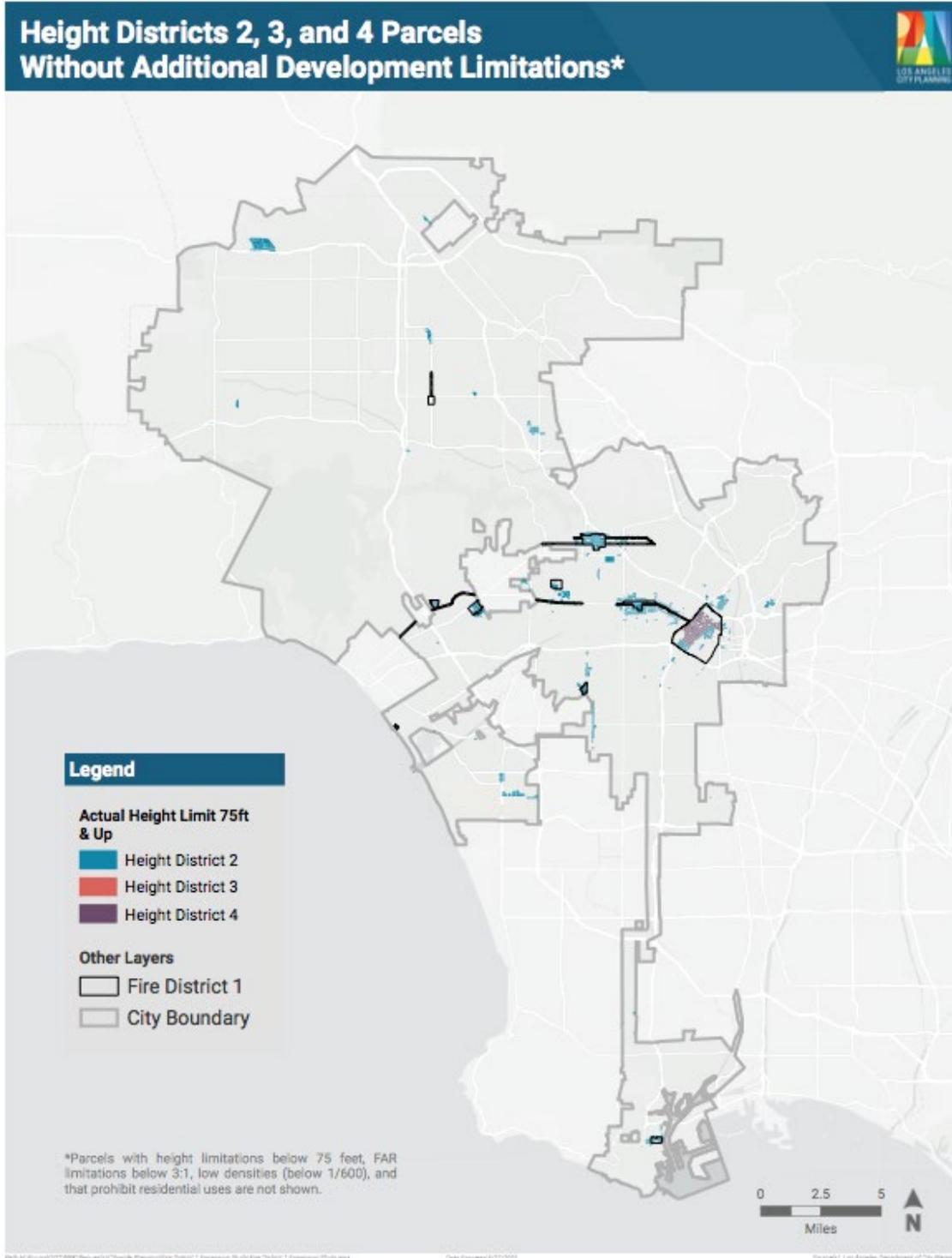
Map 7: Regional Center Land Use Areas Compared to Fire District 1 Boundaries



Map 8: Height Districts 2, 3, and 4 Compared to Fire District 1 Boundaries



Map 9: Height Districts 2, 3, and 4 Parcels Without Additional Development Limitations



Of existing height requirements, Height Districts 2, 3, and 4 were most consistent with the attributes of the existing District. Unlike Land Use Designations which are typically applied to larger block groups and areas, Height Districts can be applied locally at a parcel level to address specific desired outcomes. D limitations further restrict height and FAR, which can result in large variations in allowable heights and FARs even within a single Height District. This can be seen when comparing Map 8 and 9 below. In Map 8, all Height District 2, 3, and 4 parcels are shown, including areas that include overlay designations that may further limit development including D limitations, CPIOs, and Specific Plans. After conducting further research on these parcels, it was discovered that many had height and FAR limitations that restricted their development well below the potential of Height District 2 and what is typically found in Fire District 1. To better represent areas similar to those within Fire District 1, in Map 9 parcels with height limitations below 75 feet, FAR limitations below 3:1, and low densities (below 1/600) were removed. This significantly reduced the number of parcels found and resulted in a scattering of parcels rather than the clear geographic markers typically found in the current Fire District 1.

Fire District 1 is composed of dense, urban, and regional places of gathering in the City. As potential areas of expansion are explored, geographic significance and natural boundaries should also be considered, in addition to the land use and height criteria discussed above. An expansion area should consider block faces, neighborhood boundaries, and the parcel boundaries of a particular site such as a mall. If the City Council wishes to adopt an expansion to Fire District 1, staff recommends that precise boundaries based on these considerations be established.

Building Code Amendment Process as Governed by State Law

Expanding Fire District 1's boundaries requires a Building Code amendment. California State laws govern the Building Code adoption and amendment process. Since 1988, California State legislation (SB 2871, Marks) mandated that all occupancies must conform to a uniform set of building standards found in Title 24 of the California Code of Regulations. Part 2 of Title 24 is the California Building Code (CBC) which all jurisdictions in the state must adopt. The California code adoption cycle occurs every three years as the codes are continuously updated by statute or by way of the code adoption process through the model code agency (International Code Council (ICC)). When our City adopts the CBC via local ordinance, it becomes the Los Angeles Building Code (LABC). Local jurisdictions may amend the Building Code through the authority found in Title 24, which allows amendment only if express findings are made to show that the proposed amendment is reasonably necessary due to local climatic, geological, or topographic conditions. If directed by the City Council, the City Attorney can draft an ordinance for a

proposed building code amendment only if the Department determines, after analyzing the proposed ordinance and relevant conditions, that "the modifications or changes" in such ordinance "are reasonably necessary because of local climatic, geological, or topographical conditions." California Health and Safety Code Sections 17958.5 and 17958.7. The amendment does not become operative until it is filed with the appropriate state agency.

Feasibility of an Ordinance

Fire District 1 is a building code provision found in Chapter 9, Article 1, Division 72 of the LAMC (Section 91.7201.1). As such, any amendment to this section requires the City to make express findings that the amendment is reasonably necessary because of climatic, geological, or topographic conditions as described in the paragraph above. Merriam-Webster defines climatic as *of or relating to climate or resulting from or influenced by the climate rather than the soil*; geological is defined as *of or relating to a science that deals with the history of the earth and its life especially as recorded in rocks*; and topography is defined as *the configuration of a surface including its relief and the position of its natural and man-made features*. If Council directs the City Attorney to draft an ordinance expanding Fire District 1, the Departments will analyze whether such a building code amendment is reasonably necessary because of climatic, geological, or topographic conditions. Such conditions vary across the City's regions. For example, the man-made topographic characteristics shared among the ten existing Fire District 1 areas can be classified as Land Use designations such as high density and tall structures. These areas possessed these characteristics over a century ago. With the passage of time and updates to the Community Plans and Land Use designations throughout the City, other areas may now share these similar topographic, land use characteristics as those that existed when Fire District 1 was initially created. Combined with Fire Department data, similar topography could necessitate the expansion of Fire District 1 to areas of similar man-made topography. If directed to prepare an ordinance, the Departments will analyze these three conditions across the City, and with data from the Fire Department, to determine if expanding the boundaries of Fire District 1 is reasonably necessary because of climatic, geological, or topographic conditions.

- 2. Current fire life safety codes applicable to structures within the Very High Fire Hazard Severity Zones and High Wind Velocity Zones, and the feasibility of amending the current code requirements with additional fire life safety measures.**

DESCRIPTION OF EXISTING BUILDING CODE AND MEASURES

LOS ANGELES BUILDING CODE:

In addition to complying with other Los Angeles Building Code requirements such as allowable floor area, height, and exiting, new buildings located in the Very High Fire Hazard Severity Zone shall also comply with Chapter 7A of the Los Angeles Building Code: *Materials and Construction Methods for Exterior Wildfire Exposure*

Chapter 7A, first adopted into the Building Code in 2008, establishes the minimum requirements of the building materials, systems, and assemblies used in the exterior design and construction of new buildings located in the Very High Fire Hazard Severity Zone (VHFHSZ) to increase the ability of the building to resist the intrusion of flames or burning embers projected by a vegetation fire and contributes to a systematic reduction of conflagration losses. Over the years, more stringent requirements were added to Chapter 7A from previous fire experiences. For example, the wire mesh opening dimensions of attic vents were reduced from ¼" in 2008 to ⅛" in the current code to preclude the intrusion of fire and embers into attics. The current requirements of Chapter 7A include roofing, vents, exterior covering, exterior glazing, and decking as follows:

1. The roofing covering for buildings located in the Very Fire Hazard Severity Zone shall be Class A materials. All spaces between the roof covering and roof decking shall be constructed to resist the intrusion of flames and embers using the approved firestop or mineral-surfaced cap sheet. Valley sheet metal flashing shall be min. 0.019 -inch thick to withstand the flames (Section 705A).
2. The ventilation openings for enclosed attics, eave soffit spaces, rafter spaces, and underfloor ventilation shall be fully covered with corrosion-resistant metal wire mesh or vents with min dimensions of openings of 1/16-inch and the max dimension of 1/8 inch (Section 706A).

3. To create an exterior building envelope that resists building ignition and safeguard against the intrusion of flames resulting from a small ember, the exterior wall covering or wall assembly shall comply with one of the following requirements:
 - a. noncombustible material
 - b. ignition-resistant material
 - c. lumber with a minimum nominal dimension of 4 inches
 - d. approved fire-resistance wall assemblies
4. The same type of protection applies to the exposed underside of the roof eave overhangs, exterior porch ceilings, underside of floor projections, and exterior underfloor area. (Section 707A).
5. As part of the exterior safeguard against the intrusion of flames, the exterior glazings such as windows, skylights, exterior glass doors, glass openings within exterior garage doors shall comply with one of the following requirements:
 - a. constructed of multi pane glazing with a minimum of one tempered pane
 - b. constructed with glass block units
 - c. have a fire-resistance rating of not less than 20 minutes
6. An openable skylight shall be protected by a noncombustible mesh screen where the dimensions of openings in the screen shall not exceed 1/8-inch. Similarly, the exterior doors shall have a fire-resistance rating of not less than 20 minutes (Section 708A).
7. The decks, porches, balconies, and exterior stairs are often the first building components that are attacked by a vegetation fire. The walking surface of the decks, porches, balconies, and stairs shall be constructed with one of the following materials:
 - a. ignition-resistance material
 - b. fire retardant treated wood
 - c. noncombustible material (Section 709A).

For High Wind Velocity Areas, the Los Angeles Building Code (LABC) and applicable standards such as ASCE 7 mainly address the minimum structural requirements to prevent structural damages to the building elements due to high wind velocity. The code

requires all roof beams and supporting posts to be anchored to provide resistance against uplift. Cantilever overhangs of the building that exceed six feet shall be designed for a minimum wind uplift pressure of 54 pounds per square foot. Asphalt and slate shingles shall be bonded to the underlay with a one-inch diameter spot of asphalt cement under each tab or by using a 1/8-inch diameter bead of asphalt cement in addition to the customarily required fasteners to resist wind uplift. Similarly, tile roofs shall have all boundary tiles attached with either 11-gage nails or approved ties.

Although there are two separate sets of code requirements for buildings located in the High Wind Velocity Area and Very High Fire Hazard Severity Zone, they work well together in protecting buildings, which are subject to both. The High Wind Velocity Area requirements are designed to protect the building components from wind damage, including the exterior fire-resisting envelope, which will protect the building in the case of a fire.

LOS ANGELES FIRE CODE

Background:

The Very High Fire Hazard Severity Zones (VHFHSZ) are areas that have been identified by local and state agencies as having a high fire hazard based on conditions such as fuel, slope and fire weather.

The current Los Angeles Fire Code (LAFD) largely adopts the California Fire Code (CFC) fire protection standards relating to buildings or structures built in the VHFHSZ. Though much of the regulation comes from the CFC, the LAFD has adopted, through local ordinance, more restrictive and clearer requirements for vegetation management, activities, access, and building standards for buildings and structures built within the VHFHSZs. Below is a brief summary of the current CFC and LAFD requirements that apply to VHFHSZs within the City of Los Angeles:

Current Fire Code Requirements

Section 322 of the Los Angeles Fire Code, Specific Requirements for Hazardous Vegetations

Section 322 is a City of Los Angeles specific ordinance that regulates the maintenance of hazardous weeds, trees, or other vegetation which are in such condition and location as to provide ready fuel supply to augment the spread or intensity of a fire.

Specifically, Section 322 requires vegetation clearance within 100 feet of buildings, sets standards for trees within 200 feet of buildings, and establishes vegetation clearance standards near chimneys, roofs, combustible fences and roads.

In 2018, the LAFD amended Section 322 via ordinance to limit the use of metal cutting blades to those that are non-sparking within the VHFHSZ and established regulation for brush clearance operations.

Section 4905 of the Los Angeles Fire Code, Wildfire Protection Building Construction

Section 4905 is a State Code requiring buildings or structures within the VHFHSZ to be built per Chapter 7A of the California Building Code.

Section 4906 of the Los Angeles Fire Code, Hazardous Vegetation and Fuel Management

Section 4906 is a State Code that requires buildings and structures within all unincorporated lands designated by the State Board of Forestry and Fire Protection as State Responsibility Areas (SRA) including Moderate, High and Very-high Fire Hazard Severity Zones and lands designated as VHFHSZ by local agencies to manage hazardous vegetation and fuels per state codes such as:

1. Public Resources Code, Section 4291.
2. California Code of Regulations, Title 14, Division 1.5, Chapter 7, Subchapter 3, Section 1299.
3. California Government Code, Section 51182.
4. California Code of Regulations, Title 19, Division 1, Chapter 7, Subchapter 1, Section 3

Section 4907 of the Los Angeles Fire Code, Defensible Space

Section 4907 is a State Code that requires defensible space to be maintained around all buildings and structures in State Responsibility Areas (SRA) as required in Public Resources Code 4290 and “SRA Fire Safe Regulations” California Code of Regulations, Title 14, Division 1.5, Chapter 7, Subchapter 2, Section 1270.

It also requires Building and Structures within the VHFHSZ of a Local Responsibility Area (LRA) to maintain defensible space as outlined in Government Code 51175 – 51189 and any local ordinance of the authority having jurisdiction.

Section 4908 of the Los Angeles Fire Code, Very High Fire Hazard Severity Zone (VHFHSZ) Requirements Specific to Los Angeles

Section 4908 is a Los Angeles City specific ordinance that establishes boundary lines for the VHFHSZ and prohibits certain activities within the VHFHSZ such as smoking and open burning.

It also speaks to vegetation clearance from electrical transmission lines and fire road, fire trails and fire break construction and maintenance.

Proposed Legislation

The State Legislature currently has introduced two bills that provide financial support and incentives for new development in the VHFHSZ or SRA's where the local agency has adopted a comprehensive and necessary wildfire prevention and community hardening strategy to mitigate significant risk of loss, injury, or death. Below is a brief description of each bill:

AB-1459 - Home Hardening and Defensible Space Clearance

AB-1459 is a California State Assembly Bill introduced February 19th, 2021 that would enact legislation to provide funding for grants to homeowners in Very-high Fire Hazard Severity zones for home hardening and defensible space clearance efforts.

SB-55 - Very High Fire Hazard Severity Zone: State Responsibility area: Development Prohibition: Supplemental Height and Density Bonuses

This Senate Bill introduced on December 7th, 2020 would amend an existing Density Bonus Law that would provide a qualifying developer a supplemental height bonus and a supplemental density bonus if the development is located in a moderate, high, or very high fire hazard severity zone.

State vs. City of Los Angeles Requirements

The LAFC currently imposes more restrictive requirements for buildings and structures within the City of Los Angeles VHFHZs than the State. See the table 10 below:

Table 10: Comparison of the LA Fire Code with the California Fire Code

LAFC Code Section	CFC	LAFC
322- Requirements for Hazardous Vegetations		X
4905 - Wildfire Protection Building Construction	X	X
4906 - Hazardous Vegetation and Fuel Management	X	X
4907 - Defensible Space	X	X
4908 -LA Specific Requirements		X

Feasibility of Code Amendment

As previously discussed in Item 1, the City of Los Angeles is permitted to implement more restrictive building standards that are reasonably necessary because of local climactic, geological or topographical conditions. Changes to the LAFC will require an ordinance along with the findings to be reviewed and approved by the City Council. Once approved by the City Council, findings relating to the more restrictive building standards require filing with the California Building Standards Commission before they become effective.

The current building codes have robust building standards for new construction. Recent fires in the state have led the Office of the State Fire Marshal (OSFM) to amend the codes at the state level to require more restrictive building standards for building

construction in the VHFHSZ. In 2019, the OSFM created a task force to revise requirements in Chapter 7A which sets the rules for VHFHSZ construction. The codes are constantly changing at the state level giving new construction an advantage by requiring it to be built to resist wildfire hazards.

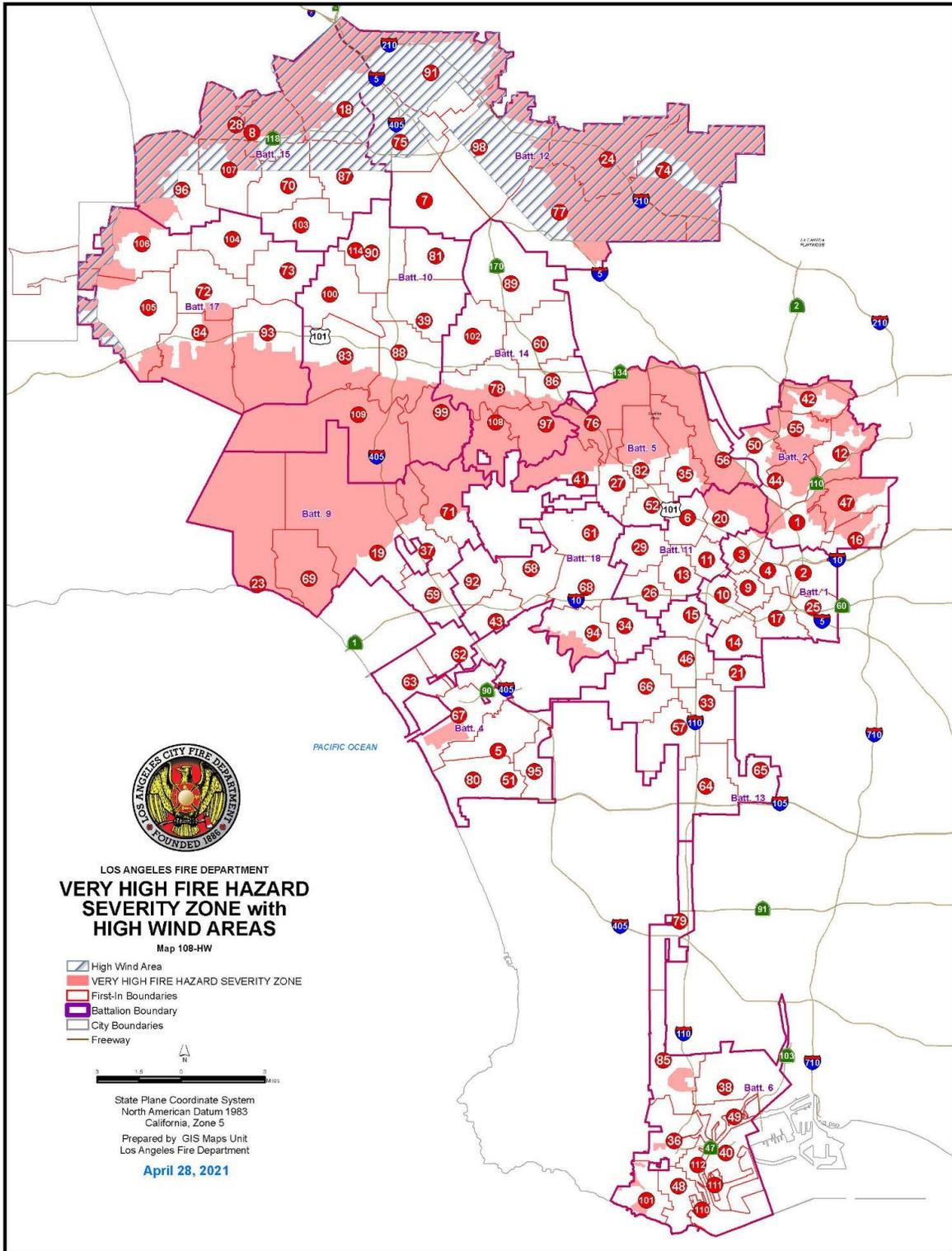
By means of education, incentives, or mandatory retrofit code requirements, the City may compel owners to harden buildings and structures within the VHFHSZ to better protect them from direct flames, radiant heat from nearby burning plants or structures, and flying embers.

Methods of home hardening vary and range from simple to complex. Simple methods which are currently enforced by the LAFD Brush Unit, include clearing combustible vegetation and creating defensible space and clearing gutters and roofs from dead, dry vegetation.

Although the LAFD Brush Unit enforcement of defensible space for buildings and structures in the Very High Fire Hazard Severity Zones has proven to make an impact on home hardening, complex home hardening methods such as replacing combustible roofs, boxing in combustible roof eaves, replacing windows and skylights with multi-pane or tempered glass, and replacing attic or crawl space vents that prevent flame intrusion can better prepare a building or structure from wildfires.

The map below identifies the VHFHSZ (covering approximately 36% of the City's area) and the High Wind Velocity Zones (covering approximately 18% of the City's area):

Map 11: Very High Fire Severity Zone Areas and High Wind Velocity Zone Areas



- 3. Develop a Fire Protection Plan, as allowed under Chapter 33 of the Los Angeles Fire Code, for all new and significantly altered projects over 150,000 square feet and/or 100,000 square feet if the building is over 30 feet in height, and make recommendations to ensure proper enforcement.**

The Fire Department has developed a Fire Prevention Bureau and Public Safety Requirement # 07, Fire Safety at Construction Sites, that requires the development of a Fire Protection Program (FPP) complying with Chapter 33 of the Los Angeles Fire Code and the Standard 241 of the National Fire Protection Association. The Program is required for construction projects exceeding 150,000 square feet, or exceeding 100,000 square feet for projects that are over 30 feet in height.

The following actions have to be taken to properly enforce the FPP:

1. Create a new fee associated with the review and enforcement of the FPP.
2. Add two Inspector positions for the enforcement of the Requirement. The added review and inspection of the FPP would create an increase in the inspection workload.
3. Fund an update to the Fire Inspection Management System (FIMS) in order to track the submittal and approval of the FPP.
4. Communicate the new requirement to industry and inform industry that the general contractor, or other designee of the building owner, shall be responsible for compliance with the FPP.
5. Inspect the construction site to ensure compliance with the approved FPP.

4. Provide recommendations on how to ensure that top-quality, skilled and responsible construction practices are utilized and guaranteed for new multifamily and commercial structures within the high risk areas encompassed in Fire District 1.

The Los Angeles Building Code provides required codes and standards to ensure that the design and construction of new multi-family and commercial structures in high risk areas meet appropriate safeguard thresholds for high risk areas encompassed in Fire District 1. The plan check services provided by the Department of Building and Safety (LADBS) and the Los Angeles Fire Department verify that these code standards are met, which include a number of code provisions to control the qualifications of certain construction personnel involved in structural design and the installation of building components. In addition, LADBS inspection personnel perform physical site inspections to confirm that construction installations meet the required code and design standards that would be achieved through responsible construction practices.

The Building Code includes requirements for structural design to be justified by a written record of computations which along with structural drawings shall be signed or bear the approved stamp of an engineer or architect licensed by the State of California for the type of service provided. Per LAMC Section 91.106.3.3.3, the Superintendent of Building has the authority to require the property owner to designate a registered design professional to be in charge of the project and be responsible for reviewing and coordinating documents for compatibility with the design of the building.

Other code requirements that may ensure that top-quality, skilled, and responsible construction practices are utilized are listed below:

1. The Los Angeles Building Code requires that State licensed contractors register to the Superintendent of Building as Certified Licensed Contractors. The process includes an examination that may consist of a written test, practice tests as required, and an oral interview. Each certificate shall be issued for each type of specialty category and shall expire twelve (12) months from the issuance date (Section 1704.1.1 to 1704.1.5). The Los Angeles contractor certification program and the required qualifying experience from the Contractors California State License Board ensure that licensed contractors are fully qualified installers and the performed work is in compliance with approved manufacturer's instructions, specifications, and the applicable building code requirements.
2. Special inspections (Section 1705.1 to 1705.19 of LABC) are in addition to the normally performed inspections where the strength and safety of materials have been determined to be critical. Special inspections are comprehensive,

systematic, and detailed, focusing on materials, quality, and processes. These inspections reinforce compliance with the building codes, project specifications, drawings, and industry standards through scrupulous testing and observations of the construction materials and installation.

The following list identifies some of the special inspections required by the code.

- a. Steel Construction: Verify integrity of framing welds, joints, high-strength bolts, locations of bracing and stiffening materials.
 - b. Concrete Construction: Check reinforcing steel, connecting bolts, application technique, strength, required design mix, and curing maintenance.
 - c. Masonry Construction: Assess mortar joint construction, grout placement, reinforcement welding, and prestressing techniques.
 - d. Wood Construction: Check high-load diaphragms, framing members at panel edges, nail or staple diameters, and length.
 - e. Pile and pier foundations: Evaluate materials, sizes, lengths, placement, plumbness, diameters, and embeddedness.
 - f. Soils: Test soil classification, bearing capacity, fill quality, and density.
 - g. Sprayed fire resistant materials: Measure thickness, density, and bond strength to floors, walls and structural elements.
 - h. Mastics and Intumescent coatings: Establish compliance with Association of the Wall and Ceiling Industries standards.
 - i. Smoke control: Verify performance, operation, and interaction with other systems.
 - j. Special cases: Validate unusual designs and materials that must be installed to the manufacturer's specifications, alternate methods, and materials.
3. Statement of Special Inspections (the list of all the special inspections required for the project per the building code per section 1704.2.3 of LABC) shall be prepared by the registered design professional in responsible charge and approved by the Building Official before the building permit is issued.

4. Section 1704.2 of LABC requires the special inspections to be performed only by Registered Deputy Inspectors. The Registered Deputy Inspector shall be a qualified person as outlined in Section 1704.2.1 and shall demonstrate competence to the satisfaction of the Superintendent of Building for inspection of the particular type of construction or operation requiring special inspection. The Registered Deputy Inspector shall be approved by and shall be responsible to the registered design professional in charge of the structural design.
5. Structural Observation (section 1704.6 of LABC) focuses on the building's structural system, rather than on the use of particular materials or processes. It is typically performed by the engineer-of-record, is non-continuous, and uses visual means only to determine if the construction is in general conformance with the intent of the plans and specifications.

The criteria for requiring structural observations are defined in the Building Code, as shown below:

- a. Structural observations shall be provided for important structures such as hospitals, fire stations, police stations, designated earthquake emergency shelters, power-generating stations, aviation control towers, high-rise buildings (Section 1704.6.1)
- b. The engineer of record shall provide structural observations for the seismic resistance systems of the structures located in the high to very high seismic area (Section 1704.6.2).
- c. The engineer of record shall provide structural observation for the wind resisting systems of the structures located in the area with wind speed over 130 miles per hour (Section 1704.6.3).

LADBS contends that existing Los Angeles Building Code provisions provide adequate safeguards to ensure that responsible construction practices are utilized for new multifamily and commercial structures in Fire District 1 and has no further recommendations.

5. Explain the impacts of expanding Fire District 1 on construction and materials costs and housing affordability

Impacts on Construction and Material Costs (LADBS)

LADBS does not directly track or analyze data on construction and material cost or on housing affordability. This information is not necessary to perform the Department's duty to advise and guide customers to achieve compliance with the Building Code and other codes that the Department is responsible to enforce.

LADBS does utilize an estimation of construction work valuation to determine permit fees. Per Section 107.2.1 of the Los Angeles Building Code, permit fees are based on the total valuation of the proposed work. The International Code Council, which develops the model building code, publishes Building Valuation Data (BVD) every six months. The BVD provides jurisdictions with a simplified way to determine the estimated valuation of construction work that does not rely on the permit applicant or a bidding process for the value of that work. The BVD provides national average construction costs per square foot based on occupancy group and type of construction which can be used by jurisdictions to determine the permit valuation data used to determine the permit fees.

For the purpose of this report, LADBS will utilize BVD published in February 2021 to illustrate the probable impact on construction and material cost by expanding Fire District 1. While the BVD determines an estimated construction valuation for a building, the data is only intended to assist jurisdictions in determining permit fees. The BVD is not intended to be used as a construction estimating guide because the data only reflects average costs and is not representative of specific construction or regional differences. The BVD also contains information on current Type IV construction and does not account for the new tall wood building code provisions (mass timber) that will become effective in July 2021.

To illustrate the probable construction cost impacts of expanding Fire District 1, LADBS will analyze the BVD data of two different construction type projects as examples. One example being a low-rise multi-family housing project and the second a commercial building.

Example 1 – Multi-Family Housing: 4-story residential apartment building with 6,000 square feet of floor area per story. Total area of building = 24,000 square feet

The following table provides the total construction valuation for this type of building based on type of construction per the Building Code.

Table 12: Total Construction Valuation based on Type of Construction per BVD for Example 1

	Type IA	Type IB	Type IIA	Type IIB	Type IIIA	Type IIIB	Type IV	Type VA	Type VB
Est. Construction Valuation (Millions)	\$4.30M	\$4.12M	\$3.98M	\$3.79M	\$3.44M	\$3.32M	\$3.79M	\$3.00M	Not Permitted

By comparing the total construction valuation for each construction type presented in this table, the overall construction and materials cost will increase between 10.6% to 43.3% depending on the type of construction chosen.

Example 2 – Commercial Building: 2-story office building with 10,000 square feet of floor area per story. Total floor area of building = 20,000 square feet

The following table provides the total construction valuation for this type of building based on type of construction per the Building Code.

Table 13: Total Construction Valuation based on Type of Construction per BVD for Example 2

	Type IA	Type IB	Type IIA	Type IIB	Type IIIA	Type IIIB	Type IV	Type VA	Type VB
Est. Construction Valuation (Millions)	\$4.25M	\$4.09M	\$3.96M	\$3.76M	\$3.44M	\$3.31M	\$3.61M	\$3.02M	\$2.89M

By comparing the total construction valuation for each construction type presented in this table, the overall construction and materials cost will increase between 14.5% to 47.1% depending on the type of construction chosen.

Based on the two examples above, expanding Fire District 1 to more areas of the City would result in an overall increase in construction and materials cost.

Impacts on Housing Affordability (HCIDLA)

Using a sample of 84 recent city-funded affordable housing projects, HCIDLA also estimated the potential impacts of expanding Fire District 1 on the production of subsidized affordable housing. Approximately 60% of all HCIDLA-funded projects (48 projects) were four stories or less and only six of these smaller projects met the compliance requirements for Fire District 1. Among the four-story buildings funded by HCIDLA, Fire District 1 compliant projects had an average construction cost of approximately \$3.23 million more than non-compliant four-story buildings. Due to the higher cost of construction, there are very few HCIDLA financed projects located in Fire District 1 areas. For example, of the 84 projects, only seven were located in Fire District 1 areas (five downtown and two in Hollywood). Based on this initial analysis, an expansion of Fire District 1 would likely reduce the financial feasibility of affordable housing projects and may result in fewer affordable housing units in the City.

- 6. Instruct the Los Angeles Department of Building and Safety, Department of City Planning, and the Los Angeles Fire Department to include in their report an analysis of the viability of heavy/mass timber and light wood frame, and to explore options to allow type IV construction.**

Background

Mass timber is a relatively new wood building material that consists of large-sized wood members that can be used in the construction of a building. These large wood members can be solid sawn or laminated timber such as Cross-Laminated Timber (CLT), Nail-Laminated Timber (NLT), Glue-Laminated Timber (glulam), Dowel-Laminated Timber (DLT), Structural Composite Lumber (SCL), and Wood Concrete Composites. Mass timber is different from light frame wood construction, which consists of small-sized wood members (i.e., 2x4 dimensional lumber) that are closely spaced to form the structural components of a building. Light frame wood construction is typically used in the construction of single family dwellings, low-rise commercial buildings, and three to four story apartment buildings. Type VA and VB construction allows the use of light frame wood construction and has the most restrictive heights and areas for buildings. These restrictions are meant to mitigate the hazards of the combustibility of light frame wood construction.

In December 2015, the International Code Council (ICC), which develops the model building codes that are adopted by the State of California and throughout the nation, established the Ad Hoc Committee on Tall Wood Buildings (TWB) to study the building science of tall wood buildings and mass timber. This committee consisted of design professionals, building and fire code government officials, fire service personnel, testing laboratory representatives, and other material experts. In addition, over 170 interested parties were invited to sign up to be on the TWB distribution list to follow the progress and comment on the committee proceedings. Over a span of two years, the TWB engaged with interested parties through conferences and meetings to ensure that the process for their findings was open and inclusive. Their work resulted in the development of code proposals to the 2021 edition of the International Building Code (IBC) for mass timber inclusion in tall building construction.

The TWB undertook new fire testing on a larger scale to confirm that the Building Code requirements for fire protection performance of mass timber buildings were retained. A series of full scale, multi-story fire tests performed by the TWB in the U.S. Government's ATF Fire Research Laboratory verified that the code change proposals were more conservative than the present level of protection required by the current Building Code

for high-rise buildings. A comparison between Type IA construction (non-combustible) and Type IVA construction (mass timber) illustrates that the code change proposals were intended to make Type IVA mass timber more conservative in terms of fire protection performance:

1. Type IA is allowed to reduce the required fire resistance of building elements such as structural frame, columns, walls, floor and roof members by 1 hour with supervisory initiating sprinkler devices for buildings less than 420 feet high. Type IVA is not allowed to have the same reductions
2. Type IVA mass timber high rise buildings are limited to 18 stories high. Type IA non-combustible construction high rise buildings do not have a maximum height limit.
3. Type IVA requires a dual water supply for fire suppression systems at 120 feet elevation and above versus Type IA requires a dual water supply at 420 feet elevation.
4. Where mass timber building construction exceeds six stories, at least one layer of noncombustible protection and required exterior wall coverings shall be installed on all building elements more than four floor levels before erecting additional floor levels.
5. Mass timber buildings greater than six stories will require standpipes to be provided with water supply for fire department operations, as approved by the fire official.

On May 10, 2018, California Governor Jerry Brown issued Executive Order B-52-18 to address California's devastating wildfires and climate impacts through an increased focus on forest management and resilience, increasing forests' capacity for capturing carbon, and efforts on curbing extensive tree mortality. A key issue addressed in this Executive Order was support for wood product innovation, such as mass timber, in order to improve California forests' economic and ecological sustainability.

In the normal course of the triennial Building Code adoption, the new mass timber code provisions that are a part of the 2021 IBC would not become effective in the City of Los Angeles until January 1, 2023. The natural progression for code adoption would be for the State of California to adopt the model 2021 IBC in 2022 as the California Building Code (CBC) and the City of Los Angeles then in turn to adopt the CBC as the Los Angeles Building Code (LABC) in 2023. However, due to the Governor of California's Executive Order B-52-18 and Assembly Concurrent Resolution No. 102, which directed the Office of the State Fire Marshal to take the lead in adopting standards for mass timber use in building construction, the mass timber code provisions were approved as express terms in the intervening code cycle for early use starting July 1, 2021. This means that

developers can use the new mass timber code provisions throughout the State of California in the design of buildings, including tall structures, except in Fire District 1 here in Los Angeles.

New Mass Timber Building Code Provisions

The new mass timber code provisions will be inserted in various sections of the Building Code that will allow this type of construction to be used for taller buildings in conjunction with added fire protection and additional requirements for fire safety during construction. The main revision is to the Type IV construction classification. The new Type IV construction will be divided into four categories and is summarized below.

Summary of new Type IV Construction Requirements allowed July 1, 2021 for Residential Multi-Family Occupancy⁶

Type IV-A (Fully protected mass timber, exterior and interior)

- Max. 270' high and Max. 18 stories
- Max. 184,500 sf
- Mass timber members are fully protected

Type IV-B (Mass timber exterior protected, limited amounts of exposed (bare) timber interior)

- Max. 180' high and Max. 12 stories
- Max. 123,000 sf
- Mass timber members are fully protected with limited amounts of interior timber elements allowed to be exposed

Type IV-C (Mass timber protected on the exterior, exposed mass timber interior)

- Max. 85' high and Max. 8 stories
- Max. 76,875 sf
- Mass timber members are fully protected with interior timber elements allowed to be unprotected

⁶ This summary gives a general overview of requirements for the new Type IV Construction requirements and does not take into account all of the detailed requirements of the CBC. The CBC has additional restrictions, exceptions and allowances that may result in higher or lower allowable heights and areas for certain occupancies.

Type IV-HT - (NO CHANGE)

- Max. 85' building height and Max. 5 stories
- Max. 61,500 sf.
- Non-combustible construction on the exterior; non-combustible and “heavy timber” materials in the interior

The new Type IV construction categories were assigned maximum heights (in stories and number of feet) and maximum allowable areas based on the fire resistant requirements for each category's building elements and the fire performance for each mass timber construction type. The fire resistance rating of a building element assembly is the period of time that it confines a fire, continues to perform the given structural function, or both. Certain additional materials are added to the main construction to achieve the required level of fire resistance. The type A categories within each Type of Construction do require higher levels of fire resistance ratings which translates to higher allowable stories and floor area compared to the type B categories.

Viability of Heavy/Mass Timber and Light Wood Frame Construction

Recognizing the viability of mass timber, the International Code Council (ICC) approved 17 changes to the 2021 editions of the International Building Code (IBC) and International Fire Code, allowing for mass timber buildings to be constructed up to 18 stories high. With the addition of three new mass timber construction types (Type IV-A, IV-B, and IV-C), this is the first time in the history of the modern building code that significantly new construction types have been added to the code. The State of California also recognized the viability of mass timber and instructed the State Fire Marshal to prepare the mass timber code provisions for insertion into the California Building Code and expedite the adoption to July 1, 2021. Since mass timber will be a part of the building code and was vetted through the code development process and supported by the State of California, mass timber is viable as a construction material.

Similarly, the use of light wood frame construction (Type V-A and V-B construction) for single-family dwellings, duplexes, and small apartment buildings has been successfully used as a sustainable, low-cost, low carbon footprint, and efficient way to build. The California Building Code already allows the use of light wood frame construction with prescribed fire resistance ratings and other building standards meant to address structural and fire life safety concerns.

Options to allow Type IV Construction

Starting July 1, 2021, the new Type IV construction categories (mass timber) will be allowed to be used in the design of buildings as long as all the Building Code requirements are met. However, the City's current Fire District 1 requirements prohibit the use of Types IV construction. This means that the new mass timber code provisions that are a part of the new Type IV construction categories would not be allowed within Fire District 1's boundaries as currently described in the LA Building Code. If Fire District 1 is expanded, Type IV construction would be prohibited in the localities of the expansion. As discussed above, with regard to the feasibility of a geographic expansion of Fire District 1, Council could direct the City Attorney to prepare an ordinance expanding Fire District 1 to certain geographic areas and the Department would evaluate whether the amendment is necessary due to local climatic, geological, or topographic conditions. Likewise, if Council wishes to allow Type IV Construction in Fire District 1, Council could direct the City Attorney to prepare an ordinance amending Fire District 1 to include the new Type IV construction categories (Type IV-A, IV-B, IV-C, IV-HT). As with the other amendments discussed in this report, the Department would need to make the appropriate climatic, geological, or topographic findings and file with the State of California, Building Standards Commission.

Other Policy Considerations in Allowing Type IV Construction in Fire District 1

Fire District 1 regulates the core of Los Angeles's city centers, particularly the areas of the City where tall and dense buildings can be built. While mass timber structures can vary in size, the ability to construct tall wood buildings in Los Angeles is limited by the locations and regulations of Fire District 1. Once the new Type IV Building Code requirements are in effect, as discussed above, it will still not be possible to build tall wood buildings in much of Hollywood, Downtown, or any of the other Fire District 1 areas. As new building typologies emerge, new questions arise, including how should Los Angeles's urban places be built out?

While tall wood buildings are relatively new to California, many mass timber buildings have been constructed outside of the United States. Canada first permitted mass timber in 2020 and it is already being utilized to construct multifamily, industrial, commercial, and public structures, such as fire stations. Notably building scales of these projects vary from 1 to 18 stories, indicative of the materials' many applications. In addition to flexibility in design, project designers using mass timber commonly discuss the sustainability benefits of utilizing a renewable building material. Designers for the Main and Cordova project in Vancouver, an 11-story, 120-unit affordable housing project, are seeking a carbon reduction of 50 percent (compared to a baseline building) by using eight floors of CLT panels. "It's their hope that the project can serve as a template for future affordable

housing solutions. According to estimated calculations, if all mid-rise buildings in Metro Vancouver were built with MAC's CLT-steel hybrid over the next ten years there would be 0.57 megatonnes of GHG reduction in Metro Vancouver municipalities. That's nearly a third of British Columbia's goal of reducing 2.0 megatonnes of GHG by 2030."⁷

Locally, Los Angeles has two proposed mass timber projects, including 853 Spring Street (image 14) and 609-623 East 5th Street (Image 15). The first, 853 Spring, is currently under construction in Chinatown. Lever Architecture designed the project, and utilizes an existing parking podium, with five new mass timber floors above commercial office uses. The second project is proposed at 609-623 East 5th Street in Skid Row, which is within Fire District 1. The proposed project, designed by Michael Maltzan for Skid Row Housing Trust, filed for entitlements (CPC-2017-324-GPAJ-ZCJ-HD-SPR) to construct a 14-story (12 mass timber, with 2 floor podium) structure with 150 affordable housing units. In March 2020, the project received a \$200,000 award from the California Mass Timber Building Competition.⁸ The Forest Management Task Force sponsored the competition with leadership from the Office of Planning and Research, Natural Resources Agency, and Government Operations Agency.

Figure 14: Rendering of 853 Spring St., via Urbanize Los Angeles



⁷ <https://www.naturallywood.com/project/main-and-cordova-mac/>

⁸ <https://resources.ca.gov/Newsroom/Page-Content/News-List/California-Promotes-Architectural-Innovation-Through-Mass-Timber-Competition>

Figure 15: Rendering of 609-623 E. 5th St., via Urbanize Los Angeles



While construction utilizing mass timber is still in its early days, proponents frequently emphasize the sustainability of building material as both a renewable resource and source of carbon sequestration.⁹ As wood can be grown locally, trees then reduce carbon dioxide levels, can be replanted, and have lower transportation GHG emissions. In terms of construction, wood weighs less than other heavy materials which can reduce the material loads of the building and lowers seismic forces.¹⁰ This also allows for smaller foundations, which can reduce excavation needs and construction time.

Although mass timber is a relatively new construction type, it offers new possibilities for the urban fabric of Los Angeles. As Fire District 1 includes the densest, tallest and regional destinations of Los Angeles, the prohibition of Type IV in Fire District 1 prevents this construction. It is particularly notable that of the two mass timber projects proposed,

⁹ https://www.ccala.org/clientuploads/directory/whitepapers/CCA_Mass_Timber_White_Paper_final.pdf

¹⁰ <https://www.awc.org/pdf/education/des/ReThinkMag-DES610A-MassTimberinNorthAmerica-161031.pdf>

one is currently within Fire District 1 and the other is an area meeting the criteria for expansion. The Building Code will continue to change and adapt as innovation occurs; in considering mass timber's relationship to Los Angeles, Fire District 1 is integral as it contains the key places where tall wood buildings can be built.

- 7. Provide a study on the loss of life and/or property at buildings with similar characteristics in recent years and whether other cities within Los Angeles County or the State adopted similar requirements.**

STUDY ON LOSS OF LIFE AND/OR PROPERTY

Background

The FireStat Section (FireStat) was requested to analyze five years of National Fire Incident Reporting System (NFIRS) data for loss of life and loss of property for Fire District 1. It was also requested that FireStat compare the Fire District 1 analysis to like incidents across the City. This report outlines the methodology used and the findings.

Methodology

NFIRS data for fire incidents between 2015 and 2020 are included in this analysis. In order to analyze the data based on the request, the list of fire incidents was filtered down to the property use types and incident types found in Fire District 1 and compared to similar incidents Citywide. The complete list of incident types and property uses included in the analysis is included in the Appendix.

NFIRS data tracks property loss by a monetary value. For the average property loss calculations, incidents where the property loss value is either 0 or null were filtered out in order to get a more accurate value.

For loss of life data, FireStat worked with the Arson Section to verify the fire fatalities over the five-year period. A list of fatalities is compiled for Fire District 1 and Citywide.

Incidents were determined to be within Fire District 1 based on the latitude and longitude of the incident and using the shape map of Fire District 1 boundaries. All incidents within Fire District 1 boundaries, as well as incidents within 50 feet of the boundaries are considered to be within Fire District 1. The 50-foot buffer is included in order to account for GPS inaccuracies.

Data Overview

A total of 56,969 incidents Citywide are included in this analysis. Of these, 4,706 incidents (8.26% of total) occurred in Fire District 1.

The total property loss for the incidents included in this analysis across the city is \$789,946,502. Of these, \$67,326,698 (8.52% of total) is incurred in Fire District 1. The average property loss for fire incidents Citywide is \$40,291.06; and the average property loss in Fire District 1 is \$74,641.57.

The total loss of life due to fires within Fire District 1 between 2015 and 2020 was 5 fatalities. Over the same period of time, there were 145 fire fatalities Citywide.

The tables below show the breakdown of the number of incidents as well as the total property loss for fire incidents in Fire District 1 and Citywide, broken down by Incident Type and Property Use. In addition, there is a table that demonstrates the total fatalities for Fire District 1 broken down by structure type, along with the total Citywide fatalities for the given structure Types.

Table 16: By Incident Type

The following table shows the top 10 incident types in Fire District 1 and their percentage compared to citywide between 2015 and 2020.

NFIRS Code Description	Fire District One	Citywide	Percent in Fire District One
Total Incidents	4,706	56,969	8.26%
Trash or rubbish fire-contained	1,554	14,904	10.43%
Outside rubbish-trash or waste fire	1,469	11,531	12.74%
Outside rubbish fire(other)	453	4,741	9.55%
Passenger vehicle fire	347	9,353	3.71%

Building fire	283	5,998	4.72%
Fire(other)	229	2,891	7.92%
Dumpster or other outside trash receptacle fire	212	1,517	13.97%
Natural vegetation fire(other)	30	1,150	2.61%
Fires in structures other than in a building	29	593	4.89%
Special outside fire(other)	24	319	7.52%

Table 17: The following table shows the top 10 incident types with the highest total property loss in Fire District 1 and Citywide between 2015 and 2020, broken down by incident type.

NFIRS Code Description	Fire District One	Citywide	Percent in Fire District One
Total	\$67,326,698	\$789,946,502	8.52%
Building fire	\$59,726,155	\$595,416,827	10.03%
Outside storage fire	\$3,740,500	\$4,823,960	77.54%

Passenger vehicle fire	\$2,628,400	\$72,374,112	3.63%
Fire(other)	\$673,161	\$27,522,164	2.45%
Outside rubbish fire(other)	\$121,075	\$2,350,580	5.15%
Outside rubbish-trash or waste fire	\$111,225	\$2,948,491	3.77%
Trash or rubbish fire-contained	\$82,707	\$951,222	8.69%
Outside equipment fire	\$50,300	\$5,406,151	0.93%
Fires in structures other than in a building	\$38,700	\$5,938,746	0.65%
Dumpster or other outside trash receptacle fire	\$38,650	\$452,287	8.55%

Fatalities

Table 18: The following table shows the total fatalities for Fire District 1 broken down by structure type, along with the total Citywide fatalities for the given structure types.

Structure Type	Fire District One Total	Citywide Total
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16 Story High Rise	1	1
2 Story Assisted Living	1	1
25 Story Residential High Rise	1	1
Tent	1	3
Under Blanket on Street	1	1

Survey of Other Jurisdictions

Ten local jurisdictions were surveyed whether they have adopted Fire Districts or any similar requirements which impose regulations beyond what is required by the State. Seven of the jurisdictions are within Los Angeles County (Los Angeles County, Burbank, Glendale, Pasadena, Santa Monica, Beverly Hills, Long Beach). One of the jurisdictions is within Orange County (Fullerton). The remaining jurisdictions are the City of San Diego and City of San Francisco.

Out of the ten jurisdictions surveyed, none of the jurisdictions have adopted Fire Districts. Although all of the jurisdictions have adopted local amendments to the California Building Code, they are relatively minor in impact (i.e. imposing more restrictive fire sprinkler requirements, requiring more stringent roofing material classifications, prohibiting wood shingles, etc.). None of the jurisdictions surveyed limit type of construction and maintain consistency with the minimum standards set forth in the California Building Code.

CONCLUSION

The Departments of Building and Safety, Fire Department, City Planning, and HCIDLA collaborated on this report and worked the past year researching, gathering data, and compiling information as instructed by the City Council. The following report is submitted for consideration.

Should you have any questions, please contact Charmie Huynh at 213-482-6875 or via email at charmie.huynh@lacity.org.

Respectfully,

Charmie Huynh for

Osama Younan
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