

Office of the City Manager

## **REVISED AGENDA MATERIAL for Supplemental Packet 1**

**Meeting Date:** September 19, 2023

**Item Number:** 17

**Item Description:** Amendments to Title 23 Relating to Accessory Dwelling Units (ADUs) and Repeal of Chapter 12.99 to Conform to State Law and Respond to Guidance from the California Department of Housing and Community Development (*Continued from July 25, 2023*)

**Submitted by:** Jordan Klein, Director, Planning and Development

Planning & Development staff are submitting revised materials for City Council's consideration:

1. A revised recommended draft ordinance (Attachment 1);
2. A revised policy alternatives attachment related to: New Construction ADUs within the front setback; Time limit for accessory structure conversions; and Neighbor Noticing Procedure (Attachment 2); and
3. A revised table outlining the sources of proposed ADU ordinance amendments (Attachment 3).
4. A report from the Berkeley Fire Department regarding the impact of Zoning on wildfire risk within the Hillside Overlay (Attachment 4).

### ***Revisions to the Recommended Draft Ordinance***

Staff propose revisions to the recommended ADU ordinance, and are providing additional reference materials, based on further discussions with City Councilmembers, Building and Safety staff, and Fire Department staff. The revisions since the July 25, 2023 version of the ordinance are highlighted in the supplemental recommended draft

ordinance in grey (Attachment 1). Additional revisions from the materials published on September 7, 2023 are as follows:

1. *Sections 1 and 2 – General and Specific Findings.* Staff added information to the general and specific findings sections.
2. *Section 6 - Building Separation Measurement.* Staff revised the definition of building separation measurement to remove the term “neighboring” to increase clarity.
3. *Section 8 - Table 23.306-2: Building Height, Maximum, Detached, New Construction, outside the Hillside Overlay.* Staff revised the measurement to clarify that the maximum height for all detached new construction ADUs outside of the Hillside Overlay will remain 20 feet.
4. *Section 8 – Table 23.306-2: Building Separation for Detached ADU.* Staff revised the minimum building separation distance for ADUs within the Hillside Overlay from 5 feet to 8 feet based on Fire Department recommendation, with an exception where an 8-foot separation would preclude an ADU of 800 square feet, in which case the minimum building separation is reduced to 5 feet.
5. *Section 8 – Table 23.306-3: ADU Building Height – Detached New Construction.* Staff revised the header of Table 23.306-3 to clarify that distance to public transit is measured as within or not within one-half mile *walking* distance of a major transit stop or high-quality transit corridor as defined by California Public Resources Code 21155.
6. *Section 8 – Attached ADU, New Construction Height.* Staff simplified the language for new construction attached ADUs to allow for a height up to 25 feet with a Zoning Certificate.
7. *Section 10 – Table 23.322-1: Required Off Street Parking in Residential Districts.* Staff revised the parking requirements for ADUs within the Hillside Overlay to clarify that distance to public transit is measured as within or not within one-half mile *walking* distance of a major transit stop or high-quality transit corridor.

### ***Policy Alternatives***

Staff revised the policy alternatives document (*Attachment 2*) since the materials published on September 7, 2023 to remove an alternative related to building separation, which was incorporated into the revised recommended draft ordinance.

ORDINANCE NO. -N.S.

REPEAL OF THE WILDFIRE HAZARD EVACUATION RISK MITIGATION ORDINANCE (BMC 12.99), AND AMENDMENTS TO THE RULES OF MEASUREMENT (BMC 23.106), ACCESSORY DWELLING UNIT (ADU) ORDINANCE (BMC 23.306), PARKING AND LOADING (BMC 23.322), EXEMPTIONS TO NONCONFORMING USES, STRUCTURES, AND BUILDINGS (BMC 23.324.060), AND DEFINED TERMS (BMC 23.502.020) RELATING TO ADUS

BE IT ORDAINED by the Council of the City of Berkeley as follows:

**Section 1. General Findings**

- A. California Government Code Sections 65852.1, 65852.2 and 65852.22 provide for the creation of accessory dwelling units in areas zoned to allow single-family or multifamily dwelling residential use.
  - 1. California Government Code Section 65852.2(d)(1)(A) and (j)(11) finds that a local agency shall not impose any parking standards for an accessory dwelling unit where the accessory dwelling unit is located within one half-mile walking distance of public transit.
  - 2. California Government Code Section 65852.2(c)(2)(D)(ii) uses the proximity of parcels to major transit stops and high quality transit corridors as defined in Section 21155 of the California Public Resources Code.
- B. Accessory dwelling units are statutorily exempt from the California Environmental Quality Act by Guidelines Section 15282(h).
- C. Policy H-18 of the City of Berkeley's 2023-2031 Housing Element encourages the addition of accessory dwelling units on properties with single-family and multi-unit homes.
- D. On October 17, 2022, the City received a letter from the State Department of Housing and Community Development (HCD) stating that the City's current ADU ordinances (BMC Sections 23.306 and 12.99, the "Ordinances") do not comply with Government Code Section 65852.2.
  - 1. HCD found a discrepancy between the definition of "Efficiency Kitchen" contained within Ordinance No. 7,797-N.S. (Chapter 23.306) and Government Code §65852.22(a)(6)(A) and requested that the City remove the sink requirement from its zoning definition, as well as the reference to a working refrigerator in the definition of a "Junior Accessory Dwelling Unit."
  - 2. Regarding Ordinance No. 7,799-N.S (Chapter 12.99), HCD found that the City did not make adequate findings with respect to ADU and Junior ADU

development impacts on traffic flow and public safety when the City adopted limitations on ADU and Junior ADU development in the Hillside Overlay zoning district.

- E. In light of the HCD's letter, Policy H-18 of the City of Berkeley's 2023-2031 Housing Element, and Government Code Sections 65852.1, 65852.2 and 65852.22, the Planning Commission held a public hearing on May 3, 2023, to consider proposed amendments to Title 23 relating to ADUs. The Commission unanimously recommended staff's proposal with three modifications, which were incorporated with modifications into the proposed amendments: (1) Regulating bay window and balcony projections using setback requirements; (2) Revising Neighbor Noticing requirements to subject property tenants; (3) Permitting ADUs to reach maximum allowable height without requiring an Administrative Use Permit.

## Section 2. Specific Findings

- A. The intent of Berkeley's Hillside Overlay zone, as set forth in BMC 23.210.020, is to protect the safety and health of residents in an area comprised of Berkeley's Very-High Fire Hazard Severity Zones and Wildland-Urban Interface (WUI) Fire Areas. The Hillside Overlay has unique conditions, including limited transit access, steep topography, proximity to forested wild land, and vegetation that create a high risk of wildfires, earthquakes, and landslides. These hazards put residents of the Hillside Overlay at greater risk than residents of other parts of the City.
1. On December 10, 2019, the City adopted a Hazard Mitigation Plan that identifies Earthquake and Wildland-Urban Interface Fire as "Likely" and "Catastrophic" events.
  2. The earthquake risk in the Hillside Overlay is exceptionally high because the Hayward Fault bisects the Hillside Overlay, traversing the full length of these zones, with violent (Level 9 of 10) shaking predicted in the US Geologic Services Hayward Fault earthquake scenario (HayWired).
  3. The 2014 Working Group on California Earthquake Probabilities calculated that there is a 33 percent likelihood of a large (magnitude 6.7 or greater) earthquake occurring on the Hayward Fault within three decades. On March 9, 2015, a report published by the U.S. Geological Survey found that the Bay Area has a 72 percent chance of having at least a magnitude 6.7 earthquake in the same time period.
  4. The risk of a wind-driven wildfire is also very high within the Hillside Overlay because of the City's unique topography, which is flat along the San Francisco Bay in the west but turns into steeper, sloped terrain approaching 1,000 feet in elevation along the City's eastern edge, as well as strong winds that develop in the late spring and early fall. Vegetation/wildland fires tend to burn more intensely and spread faster

when burning uphill and up-canyon, unless they are wind-driven, which can then cause intense and rapid burning downhill.

5. The high fire risk within the Hillside Overlay is demonstrated by Berkeley's history of catastrophic wildfires. Wildfires that occurred in Berkeley in 1905, 1923, 1946, 1970 and 1991 resulted in loss of injury, loss of life, extensive damage and destruction of property and enormous economic impacts. The two most notable are:
    - i. In 1923, a wildfire swept out of Tilden Park through Berkeley, ultimately destroying approximately 600 homes, as well as churches, schools, libraries, and student living quarters. At that time, the population of Berkeley was 52,000. One thousand residents were displaced or left homeless. The fire traveled across the then sparsely populated ridge line to what is now Tunnel Road and down to the intersection of Shattuck and Hearst in the downtown.
    - ii. In 1991, the Tunnel Fire burned over 1,500 acres, claiming 25 lives and destroying approximately 3,000 structures in southeast Berkeley and Oakland. Had the wind direction not shifted, many more people could have died, and more of Berkeley would have been destroyed.
  6. The number of large wind-driven wildfires will only continue to grow as the climate changes. According to CalFIRE, 14 of the 20 most destructive California wildfires ever recorded have occurred in the past 10 years. In the 67 years between 1932 and 1999, 572,000 acres burned in California. In the 20 years from 2000 to 2020, over 4,000,000 acres have burned.
- B. Structure Separation Distance (SSD) is related to the number of structures per acre. These are two measurements that play a key role in affecting the speed of a fire's spread. According to recognized industry models from the National Institute of Standards and Technology (NIST), California Department of Forestry and Fire Protection (CAL FIRE), and Insurance Institute for Business & Home Safety (IBHS), the closer together two structures are situated, and the higher the number of structures per acre, the higher the likelihood that a fire will rapidly spread between structures, creating a risk of a large-scale urban conflagration.
1. SSD is categorized into three risk profiles; Low Density with an SSD of greater than 50 feet, Moderate Density with an SSD of 25 feet to 50 feet, and High Density with an SSD of less than 25 feet.
  2. The majority of the Hillside Overlay is in the highest risk category with less than 25 feet SSD between structures. Over 3,000 structures in the Hillside Overlay have less than 11 feet of separation and over 1,700 structures have less than 5.5 feet SSD. High-density communities with closely spaced structures create a high risk of rapid, uncontrolled fire spread.

3. The structural density of a Wildland Urban Interface is categorized into one of seven risk profiles with the highest-density communities having 8 housing units per acre (HU/ac), and being 320 times denser than the lowest-density WUI areas, which have 0.02 HU/ac (1 HU on 40 acres). Almost the entire Hillside Overlay is in one of the two highest risk categories with between 4 and 6 structures per acre.
  4. As more open space on a parcel is filled with structures, fire can spread along features including primary structures, auxiliary structures, fences, wood piles, decks, and vehicles. This fuel agglomeration may have an impact on structure-to-structure fire spread during an urban, wind-driven conflagration.
  5. On June 10, 2021, a study published by UC Berkeley researchers concluded that continued development in the wildland-urban interface will make California's supply of housing more vulnerable, undermine state efforts to curb carbon emissions, further degrade the state's wildland habitats, and create fiscal challenges for state and local governments in the event of post-disaster recovery.
- C. Due to the risk of earthquakes, fires, and other hazards, it is essential that emergency responders have ready accessibility to injured persons and damaged property, and that residents be able to evacuate quickly and efficiently. Nonetheless, conditions within the Hillside Overlay combine to compromise emergency access egress and accessibility for emergency responders.
1. A majority of streets in the Hillside Overlay are less than 26 feet in width, and include conditions such as steep slopes, sharp curves and acute-angled corners. This increases the chance that, in the event that a large-scale evacuation is initiated, residents will become trapped in clogged exiting traffic and succumb to smoke, heat and fire, as seen in recent wildfires.
  2. The majority of transit within the Hillside Overlay does not meet the definition of major transit stops and high quality transit corridors as defined in Section 21155. Bus service (AC Transit Lines 7, 65 and 67) runs at headways of 30 minutes or longer, with limited or no service on evenings, weekends and holidays. The lack of available transit exacerbates the hazardous conditions that currently exist with respect to traffic flow and public safety in the likely event of a catastrophic wildfire or earthquake.
  3. Increased vehicle density will add to these risks, as the Hillside Overlay does not have the capacity to have additional vehicles parked on the street without jeopardizing access and ingress during emergencies. On August 10, 2021, a study published by UC Berkeley researchers concluded that in the best-case scenario, if each household evacuated from the Berkeley hills with one vehicle, estimated evacuation time would be two hours and 245 vehicles would be exposed to immediate fire danger. However, if each household evacuated with 1.7 vehicles,

evacuation time would increase to three hours and 782 vehicles would be exposed to immediate fire danger.

- D. All of these conditions necessitate reasonable limitations on development, including on ADUs, within the Hillside Overlay in order to reduce exposure to hazardous conditions.

Section 3. That Berkeley Municipal Code Chapter 12.99 is hereby repealed.

Section 4. That Berkeley Municipal Code 23.106.020(B) is amended to read:

B. *Exclusions.* The lot coverage calculation excludes:

1. Uncovered porches, landings and stairs;
2. Uncovered decks, except that a deck on the roof of a building or accessory structure or over an enclosed space or paved ground area is included in the lot coverage calculation; and
3. The area of the roof of a subterranean structure, when such a structure is not more than 3 feet above finished grade.

4. The area of any existing or proposed accessory dwelling unit or junior accessory dwelling unit, up to 800 square feet per lot. See 23.306 Accessory Dwelling Units.

Section 5. That Berkeley Municipal Code 23.106.030(D) is amended to read:

D. *Excluded Areas.* The following areas are excluded from gross floor area calculation:

1. Covered or uncovered areas used for off-street parking or loading spaces.
2. Driveways ramps between floors and maneuvering aisles of a multi-level parking garage.
3. Mechanical, electrical, and telephone equipment rooms below finished grade.
4. Areas which qualify as usable open space.
5. Arcades, porticoes, and similar open areas for non-residential uses which are:
  - (a) Located at or near street level;
  - (b) Accessible to the general public; and
  - (c) Are not designed or used as sales, display, storage, service, or production areas.

6. The floor area associated with any existing or proposed accessory dwelling unit or junior accessory dwelling unit, up to 800 square feet per lot. See 23.306 Accessory Dwelling Units.

Section 6. That Berkeley Municipal Code 23.106.080(A) is amended to read:

A. *Measurement.* Building separation is measured as the distance between the surface of a main building's or ADU's outer wall and the outer wall surface of the closest ~~neighboring main~~ building.

Section 7. That Berkeley Municipal Code 23.106.090(A)(1) through (3) is amended to read:

A. *Average Building Height.*

1. Average Building Height: The vertical distance from the average level of the highest and lowest point of that portion of the lot covered by the building (or, in the case of residential additions, that portion of the lot covered by the addition) to the roof features shown in Table 23.106-1: Average Building Height Measurement. See [Figure 23.106-4: Average Building Height.](#)

~~2. Figure 23.106-4: Average Building Height.~~

2. Dormers are not included in the average building height calculation.

3. Attached accessory dwelling units are not included in the average building height calculation.

Section 8. That Berkeley Municipal Code 23.306 is amended to read:

**Sections:**

23.306.010– Purposes

23.306.020– Applicability ~~and Definitions~~

23.306.030– ~~Development Standards~~ [Permit Procedures](#)

23.306.040– [Permit Procedures](#) ~~Development Standards~~

~~23.306.050– Deed Restrictions~~

~~23.306.060– Neighbor Noticing~~

~~23.306.070– Rooftop Decks and Balconies~~

**23.306.010 Purposes.**

~~The purposes of this Chapter are to~~ [This Chapter establishes accessory dwelling unit \(ADU\) and junior accessory dwelling unit \(Junior ADU\) standards that:](#)

- A. Implement California Government Code Section [65852.1](#), 65852.2 and 65852.22.
- B. Increase overall supply and range of housing options in Berkeley.
- C. Expedite small-scale infill development.



- D. Support Housing Element goals of facilitating construction of accessory dwelling units and increasing the number of housing units that are more affordable to Berkeley residents.
- E. Encourage development of accessory dwelling units in zoning districts with compatible land uses and infrastructure.

~~F. Reduce potential impacts of new development in Very High Fire Hazard Severity Zones and Wildland-Urban Interface Fire Areas as designated in the BMC Chapter 19.48 and as may be amended from time to time, and the Hillside Overlay District (HOD) due to unique conditions and hazards within these areas that require additional restrictions on ADUs and JADUs because of impacts of traffic flow and public safety consistent with Government Code 65852.2, subdivision (a)(1)(A), which allows local agencies to regulate ADUs based on "adequacy of water and sewer service, and the impacts of traffic flow and public safety."~~

**23.306.020 Applicability and Definitions.**

A. The provisions of this chapter apply to zoning districts where residential uses are permitted, on lots that have at least one existing or proposed Dwelling Unit or Group Living Accommodation that is not a Fraternity House, Sorority House or Dormitory.

~~B. For purposes of this Chapter the Hillside Overlay District (HOD) includes all lots within Berkeley's designated Very High Fire Hazard Severity Zones and Wildland-Urban Interface Fire Areas that are zoned R-1H (Single-Family Residential—Hillside Overlay), R-2H (Restricted Two-Family Residential—Hillside Overlay), R-2AH (Restricted Multiple-Family Residential—Hillside Overlay), or ES-R (Environmental Safety-Residential).~~

~~B. Number of ADUs and JADUs Permitted Per Lot. See Table 23.306-1—ADU and Junior ADU Maximum Number of Units per Lot. Except as expressly modified by Chapter 12.99, the following number of ADUs and JADUs shall be the maximum number of accessory units permitted on lots subject to this Chapter.~~

C. *Density Exemption.* ADUs and Junior ADUs are not included in the minimum or maximum density established by the underlying zoning district.

TABLE 23.306-1—ADU AND JUNIOR ADU MAXIMUM NUMBER OF UNITS PER LOT

<u>Use, Primary</u>	<u>ADU and Junior ADU, Maximum Per Lot</u>
<u>Single Family Dwelling, one unit on lot</u>	<u>1 ADU and 1 Junior ADU, both are permitted</u>
<u>Single Family Dwelling, more than one unit on lot</u>	<u>1 ADU</u>
<u>Duplex or Multi-Family Dwelling</u>	<u>2 detached ADUs and at least one interior ADU up to 25% of the total number of existing duplex or multi-family dwelling units on the lot</u>

Group Living Accommodation	1 ADU
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- ~~1. Lot with one Single Family Dwelling: One ADU and/or one JADU.~~
- ~~2. Lot with more than one Single Family Dwelling: One ADU.~~
- ~~3. Lot with a Duplex or Multiple-Family Dwelling, either:
 
  - ~~(a) Up to two detached ADUs; or~~
  - ~~(b) At least one ADU converted from non-habitable portions of the existing Main Building that are not within the living space of a Dwelling Unit (e.g. basement, attic, garages storage room). The maximum number of ADUs converted from portions of the existing Main Building that are not within the living space of a Dwelling Unit shall not exceed 25% of the total number of existing Dwelling Units on the lot.~~~~
- ~~4. Lot with a Group Living Accommodation that is not a Fraternity House, Sorority House or Dormitory: One ADU~~

**23.306.030 Permit Procedures.**

- ~~A. Zoning Certificate. An application for an ADU or JADU shall be allowed with a Zoning Certificate. Review must be completed within 60 days of submission of a completed application. A completed application must include evidence of compliance with this Chapter, including Development Standards, Deed Restrictions, and Neighborhood Noticing.~~
- ~~1. If an application to create an ADU or JADU is submitted as part of a project that requires discretionary review, a Zoning Certificate for a Building Permit shall not be issued for the ADU or JADU until the discretionary approval(s) has/have been granted and any applicable appeal periods have expired.~~
  - ~~2. Issuance of a Zoning Certificate shall not be denied for the construction or conversion of an ADU or JADU that complies with the requirements of Government Code Section 65852.2(e)(1).~~
  - ~~3. Issuance of a Zoning Certificate for the construction or conversion of an ADU or JADU shall not be denied based on the failure of an applicant to correct a nonconforming zoning condition.~~

**23.306.0340 Development Standards.**

A. *Basic Standards.* See Table 23.306-~~21~~: ADU ~~and JADU~~ Development Standards.

TABLE 23.306-~~21~~. ADU ~~AND JADU~~ DEVELOPMENT STANDARDS

<u>Basic Standards</u>		<u>Supplemental Standards</u>
Gross Floor Area, Maximum		<u>23.306.030(A)(1);</u>
Studio or 1 bedroom	850 sq. ft.	<u>23.306.030(A)(2);</u>

<u>2+ bedrooms</u>	<u>1,000 sq. ft.</u>	<u>23.306.030(A)(3)</u>
<u>Building Height, Maximum</u>		
<u>Conversion</u>	<u>Same as existing structure</u>	<u>23.306.030(A)(1);</u> <u>23.306.030(A)(3)</u>
<u>Detached New Construction, outside the Hillside Overlay</u>	<u>20 ft.</u>	
<u>Detached, New Construction, within the Hillside Overlay</u>	<u>See Table 23.306-3</u>	
<u>Attached, New Construction</u>	<u>25 ft.</u>	<u>23.306.030(A)(5);</u> <u>23.306.030(A)(8)</u>
<u>Lot Line Setbacks, Minimum</u>		
<u>Front of Interior Lot</u>	<u>Same as underlying district</u>	<u>23.306.030(A)(3);</u>
<u>Front of Through Lot</u>	<u>Same as underlying district or 10 ft. on the secondary frontage as determined by the Zoning Officer</u>	<u>23.306.030(A)(4);</u> <u>23.306.030(A)(6)</u>
<u>Rear</u>	<u>4 ft.</u>	
<u>Interior Side</u>	<u>4 ft.</u>	
<u>Street Side</u>	<u>4 ft.</u>	
<u>Building Separation for Detached ADU, Minimum</u>		
<u>Outside the Hillside Overlay</u>	<u>5 ft.</u>	
<u>Within the Hillside Overlay</u>	<u>8 ft.</u>	<u>23.306.030(A)(7)</u>
<u>Required Off-Street Parking Spaces</u>	<u>See 23.322.030– Required Parking Spaces</u>	

**TABLE 23.306-3. ADU BUILDING HEIGHT – DETACHED NEW CONSTRUCTION**

<u>Lot Consists of Existing Or Proposed:</u>	<u>Within 0.5 mile walking distance of a major transit stop or a high quality transit corridor [1]</u>	<u>Not within 0.5 mile walking distance of a major transit stop or a high quality transit corridor [1]</u>
<u>Single-Family Dwelling(s), one or more unit on a lot, one or more stories</u>	<u>18 ft., with additional 2 ft. if needed to align roof pitch of ADU with the existing roof pitch of the primary dwelling(s)</u>	<u>16 ft.</u>
<u>Duplex or Multi-Family Dwelling, single-story</u>		<u>16 ft.</u>
<u>Duplex or Multi-Family Dwelling, multistory</u>		<u>18 ft.</u>
<u>Note:</u>		
<u>[1] Major transit stop or a high-quality transit corridor as defined in Public Resources Code Section 21155.</u>		

1. Existing Building Conversion. An ADU created entirely through conversion with no modifications to the existing building envelope that exceeds the development

standards for maximum gross floor area in Table 23.306-2. ADU Development Standards is allowed a physical addition of no more than 150 square feet. The addition must comply with maximum height and setback requirements.

2. Duplex or Multi-Family Dwelling Conversion. Interior ADU(s) must be created entirely through non-habitable residential portions of the existing main building that are not within the living space of a dwelling unit (e.g. basement, attic, garages, storage room).
3. Accessory Building or Accessory Structure Conversion. An ADU converted from a legally established accessory building or accessory structure is allowed to maintain non-conformity to the same location and dimensions of the existing accessory building or accessory structure, provided that the ADU meets fire and safety standards set forth in the California Building Standards Code adopted in BMC Title 19. Any physical additions to the existing accessory building or accessory structure shall comply with the development standards in Table 23.306-2 ADU Development Standards.
4. Front Setback, New Construction. An ADU shall not occupy area within the front setback, unless the requirement would preclude an ADU of 800 square feet.
5. Attached ADU. An ADU shall be considered attached if sharing a common wall with a primary dwelling.
6. Detached ADU Setback Exceptions. If there is a lesser setback allowed in 23.304.060-Accessory Buildings and Enclosed Accessory Structures for a comparable accessory building or accessory structure in the underlying zoning district, that setback shall apply.
7. Building Separation for Detached ADU. A minimum 8-foot separation is required within the Hillside Overlay, except where such separation would preclude an ADU of 800 square feet, in which case the minimum building separation shall be reduced to 5 feet.
- 1-8. Attached ADU, New Construction Height. Attached ADUs with height up to 25 ft. allowed with a Zoning Certificate.

	<b>ADU<sup>1</sup></b>	<b>JADU</b>
<del>Maximum Size Outside of HOD<sup>2</sup></del>		<b>500-sf</b>
<del>Studio or 1 bedroom</del>	<b>850-sf</b>	<b>N/A</b>
<del>2+ bedrooms</del>	<b>1000-sf</b>	
<del>Maximum Size Within HOD</del>	<b>800-sf</b>	<b>500-sf</b>
<del>Maximum Height Outside of HOD</del>	<b>20 ft.</b>	<b>N/A</b>
<del>Maximum Height Within HOD</del>	<b>16 ft.</b>	

	ADU <sup>4</sup>	JADU
Front Yard Setback	Same as underlying district	
Rear Setback	4 ft <sup>3</sup>	
Side Setback	4 ft <sup>3</sup>	
Required Off-Street Parking Outside of HOD	None <sup>4</sup>	
Required Off-Street Parking Within HOD	The lesser of 1 space per bedroom or ADU <sup>5, 6</sup>	None <sup>6</sup>

~~[1] An ADU converted from an Accessory Building or Accessory Structure legally established at least three years prior to submission of an ADU application that does not comply with the Maximum Height, Size, and/or Rear and Side Setback requirements is allowed to maintain non-conformity to the same dimensions of the existing Accessory Building or Accessory Structure, provided that the existing side and rear setbacks are sufficient for fire and safety as set forth in California Building Standards Code adopted in BMC Title 19. Any physical additions to the existing Accessory Building or Accessory Structure shall comply with the development standards in this table.~~

~~[2] An ADU created entirely through conversion with no modifications to the existing building envelope that exceeds the development standards for Maximum Size in this table is allowed a physical addition of no more than 150 square feet. The addition must comply with Maximum Height and Setback requirements in this table.~~

~~[3] If there is a lesser setback allowed for a comparable Accessory Building or Accessory Structure in the underlying zoning district, that setback shall apply.~~

~~[4] Replacement parking is not required. Replacement of off-street parking for the Main Building is allowed and does not need to comply with Parking Maximums (BMC 23.322.070) nor Parking Layout and Design (BMC 23.322.080).~~

~~[5] No off-street parking shall be required for ADUs that satisfy the criteria defined in subdivision (d) of California Government Code section 65852.2 or any successor provision thereto.~~

~~[6] If an applicant provides off-street parking for an ADU or a JADU in the HOD, parking shall be allowed in any configuration on the lot, including within the front yard setback.~~

## B. Junior ADUs.

1. Basic Standards. A Junior ADU shall be contained entirely within an existing or proposed single family dwelling or its attached garage, and have no more than 500 square feet in floor area.
2. Shared Sanitation Facility. If a Junior ADU shares a sanitary facility with a single-family dwelling, an internal connection between the Junior ADU and the main living area of the single family dwelling is required.

3. Junior ADU Floor Area. The Junior ADU gross floor area calculation excludes any shared sanitation facility with the single family dwelling.

~~B. Projections.~~

C.

~~—Except as limited by Paragraph B.2 of this Section, architectural features (Outside of the Hillside Overlay.~~

1. ~~Attached ADU.~~ Chimneys, ~~w~~Water ~~h~~Heater ~~e~~Enclosures, ~~f~~Flues, ~~h~~Heating and ~~c~~Cooling ~~e~~Equipment, ~~e~~Eaves, ~~c~~Cornices, ~~c~~Canopies, ~~a~~Awnings, bay windows, and balconies) may project two feet into the required front and side setbacks, so long as there remains at least a two-foot setback from property lines. Bay windows and balconies may not project into a required rear ADU setback.

2. Within the Hillside Overlay. No projections shall be allowed within ~~a~~the required setback ~~on lots that are within the Hillside Overlay District.~~

~~C.D. Rooftop Decks within the Hillside Overlay.~~ Roofs on ADUs within the Hillside Overlay may not be designed, converted, or used as usable open space.

**23.306.0450 Permit Procedures ~~Deed Restrictions.~~**

A. Zoning Certificate. An application for an ADU or Junior ADU shall be allowed with a Zoning Certificate. Review must be completed within 60 days of submission of a completed application. A completed application must include evidence of compliance with this Chapter, including development standards, deed restrictions, and neighborhood noticing.

1. If an application to create an ADU or Junior ADU is submitted as part of a project that requires discretionary review, a Zoning Certificate for a building permit shall not be issued for the ADU or Junior ADU until the discretionary approval(s) has/have been granted and any applicable appeal periods have expired. See 23.404.060(A) Post-Decision Provisions (Effective Dates).

2. Issuance of a Zoning Certificate shall not be denied for the construction or conversion of an ADU or Junior ADU that complies with the requirements of Government Code Section 65852.2(e)(1).

3. Issuance of a Zoning Certificate for the construction or conversion of an ADU or Junior ADU shall not be denied based on the failure of an applicant to correct a nonconforming zoning condition.

B. Noticing.

1. Scope and Timing of Notice. Notice of an ADU application shall be mailed to all occupants of ~~owners and tenants of the subject, adjacent, confronting and abutting properties~~ the subject property, excepting the property owner(s), within

ten working days of submission of the building permit application to the ~~Planning Department~~City.

2. ~~Content of Notice.~~ Notice shall provide the address of the project and include allowable hours of construction, a link to the City's ADU webpage identifying permit and construction resources, and contact information for a Rent Board Housing Counselor.

~~4.3.~~ Mailing Fees. The applicant shall be responsible for the cost of materials, postage, and staff time necessary to process and mail the notices.

~~D.C.~~ Deed Restriction. The property owner shall file a deed restriction with the Alameda County Recorder which states:

1. The Junior ADU shall not be sold separately from the main building;
2. The ADU shall not be sold separately from the main building unless the conditions of BMC 23.306.0450(D) ADUs Developed by a Qualified Nonprofit Developer ~~B~~ are met;
3. The ADU and/or Junior ADU shall not be rented for a term that is shorter than 30 days; and
4. If the property includes a Junior ADU, the Junior ADU, or the Single Family Dwelling in which the Junior ADU is located, shall be owner-occupied.

~~E.D.~~ ADUs Developed by a Qualified Nonprofit Developer. An ADU built or developed by a "qualified nonprofit corporation" may be sold or conveyed separately from the ~~m~~Main ~~b~~Building to a "qualified buyer," as such terms are defined in subdivision (b) of Section 65852.26 of the California Government Code. The ADU must be held pursuant to a recorded tenancy in common agreement recorded on or after December 31, 2021 that includes the following elements:

1. Delineation of all areas of the property that are for the exclusive use of a cotenant;
2. Delineation of each cotenant's responsibility for the costs of taxes, insurance, utilities, general maintenance and repair, and improvements associated with the property;
3. Procedures for dispute resolution among cotenants before resorting to legal action;
4. Allocates to each qualified buyer an undivided, unequal interest in the property based on the size of the dwelling each qualified buyer occupies;
5. A repurchase option that requires the qualified buyer to first offer the qualified nonprofit corporation to buy the ADU or primary dwelling if the buyer desires to sell or convey the property;

6. A requirement that the qualified buyer occupy the ADU or primary dwelling as the buyer's principal residence; and
7. Affordability restrictions on the sale and conveyance of the ADU or primary dwelling that ensure the ADU and primary dwelling will be preserved for low-income housing for 45 years for owner-occupied housing units and will be sold or resold to a qualified buyer.
8. If requested by a utility providing service to the primary residence, the ADU shall have a separate water, sewer, or electrical connection to that utility.

~~23.306.060—Neighbor Noticing.~~

~~A. *Scope and Timing of Notice.* Notice of an ADU application shall be mailed to owners and tenants of the subject, adjacent, confronting and abutting properties within ten working days of submission to the Planning Department.~~

~~B. *Content of Notice.* Notice shall provide the address of the project, allowable hours of construction, a link to the City's ADU webpage, and information for tenants of the subject property on how to contact a Rent Board Housing Counselor by e-mail or phone and any other resource information deemed relevant.~~

~~C. *Mailing Fees.* The applicant shall be responsible for the cost of materials, postage and staff time necessary to process and mail notices.~~

~~23.306.070—Rooftop Decks and Balconies.~~

~~A. *Notwithstanding any provisions of this Title to the contrary, roofs on lots within the Hillside Overlay District may not be designed, converted or used as Usable Open Space.*~~

Section 9. That Berkeley Municipal Code 23.322.020(C) is amended to read:

*C. Changes of Use.*

1. *Commercial Districts.* In the Commercial Districts, off-street parking is required for a change in use only when the structure is expanded to include new floor area.
2. *Manufacturing and R-SMU Districts.*
  - (a) In the Manufacturing and R-SMU districts, off-street parking is required for a change in use only when:
    - i. The structure is expanded to include new floor area; and/or
    - ii. The use is changed to one with a numerical parking standard greater than the district minimum.



(b) If the new use is changed to one with a higher numerical parking standard than the district minimum, the new use must provide the incremental difference between the two numerical parking standards. A higher numerical parking standard may be reduced to the district minimum as provided in Section 23.322.050(~~A~~)(~~2~~) (Change of Use).

(c) As used in this section, the “district minimum” parking requirement is:

- iii. 2 spaces per 1,000 square feet of floor area in the Manufacturing Districts; and
- iv. 1 space per 1,000 square feet of floor area in the R-SMU district.

3. *All Other Residential Districts.* In all Residential Districts except for R-SMU, off-street parking spaces are required for all changes in use.

D. *Location Exemption.* Off-street parking spaces are not required for new uses or buildings, or an enlargement or intensification of an existing use or structure, that is located within 0.5 miles of a major transit stop, as defined by Section 21155 of the California Public Resources Code, unless otherwise authorized by Government Code Section 65863.2.

Section 10. That the section named; Residential Uses; in Berkeley Municipal Code Table 23.322-1, Required Off Street Parking in Residential Districts, within Berkeley Municipal Code 23.322.030, Required Parking Spaces, is amended to read:

TABLE 23.322-1: REQUIRED OFF-STREET PARKING IN RESIDENTIAL DISTRICTS

Land Use	Number of Required Off-street Parking Spaces
<b>Residential Uses</b>	
Accessory Dwelling Unit	<u>Junior ADU: None required</u> <u>ADU outside of Hillside Overlay: None required</u> <u>ADU within Hillside Overlay: 1 per ADU unless the parcel is located within 0.5 mile walking distance of a major transit stop or a high-quality transit corridor as defined in Public Resources Code Section 21155. See Chapter 23.306</u>
Dwellings, including Group Living Accommodations	<u>R-3, R-4, and R-5 Districts (1-9 units): If located on a roadway less than 26 feet in width in the Hillside Overlay: 1 per unit.</u> <u>R-3, R-4, and R-5 District (10 or more units): If located on a roadway less than 26 feet in width in the Hillside Overlay: 1 per 1,000 sq. ft. of gross floor area</u> <u>All Other Districts: If located on a roadway less than 26 feet in width in the Hillside Overlay: 1 per unit</u> <u>All Other Locations: None required</u>

Land Use	Number of Required Off-street Parking Spaces
Dormitories, Fraternity and Sorority Houses, Rooming & Boarding Houses, Senior Congregate Housing	<u>If located on a roadway less than 26 feet. in width in the Hillside Overlay:</u> 1 per each 5 residents, plus 1 for manager. <u>All Other Locations:</u> None required.
Rental of Rooms	<u>If located on a roadway less than 26 feet. in width in the Hillside Overlay:</u> 1 per each two roomers <u>All Other Locations:</u> None required

Section 11. That Berkeley Municipal Code Table 23.322-2 is amended to read:

TABLE 23.322-2: REQUIRED OFF-STREET PARKING REQUIREMENTS IN COMMERCIAL DISTRICTS (EXCLUDING C-T)

Land Use	Required Parking Spaces
<b>Residential Uses</b>	
Accessory Dwelling Unit	<del>See Chapter 23.306</del> None required
Dwellings, including Group Living Accommodations	<u>If located on a roadway less than 26 feet. in width in the Hillside Overlay:</u> 1 per unit <u>All Other Locations:</u> None required
Hotel, Residential	None required
Mixed-Use Residential (residential use only)	None required
Senior Congregate Housing	None required
<b>Non-Residential Uses</b>	
All non-residential uses except uses listed below	<u>C-DMU District:</u> 1.5 per 1,000 sq. ft. <u>All Other Commercial Districts:</u> 2 per 1,000 sq. ft.
Hospital	1 per each 4 beds plus 1 per each 3 employees
Library	<u>C-DMU District:</u> 1.5 per 1,000 sq. ft. <u>All Other Commercial Districts:</u> 1 per 500 sq. ft. of publicly accessible floor area
Nursing Home	1 per 3 employees
Medical Practitioners	<u>C-DMU District:</u> 1.5 per 1,000 sq. ft. <u>All Other Commercial Districts:</u> 1 per 300 sq. ft.

Land Use	Required Parking Spaces
Hotels, Tourist	<u>C-DMU District</u> : 1 per 3 guest/sleeping rooms or suites <u>C-C, C-U, C-W Districts</u> : 1 per 3 guest/sleeping rooms or suites plus 1 per 3 employees <u>All Other Commercial Districts</u> : 2 per 1,000 sq. ft.
Motels, Tourist	<u>C-DMU District</u> : 1 per 3 guest/sleeping rooms or suites <u>C-C, C-U, C-W Districts</u> : 1 per guest/sleeping room plus 1 for owner or manager [1] <u>All Other Commercial Districts</u> : 2 per 1,000 sq. ft.
Large Vehicle Sales and Rental	<u>C-DMU District</u> : 1.5 per 1,000 sq. ft. <u>C-SA District</u> : 1 per 1,000 sq. ft. <u>All Other Commercial Districts</u> : 2 per 1,000 sq. ft.
Small Vehicle Sales and Service	<u>C-DMU District</u> : 1.5 per 1,000 sq. ft. <u>C-SA District</u> : 1 per 1,000 sq. ft. <u>All Other Commercial Districts</u> : 2 per 1,000 sq. ft.
Manufacturing	<u>C-DMU District</u> : 1.5 per 1,000 sq. ft. <u>C-W District</u> : 1 per 1,000 sq. ft [1] <u>All Other Commercial Districts</u> : 2 per 1,000 sq. ft.
Wholesale Trade	<u>C-DMU District</u> : 1.5 per 1,000 sq. ft. <u>C-W District</u> : 1 per 1,000 sq. ft <u>All Other Commercial Districts</u> : 2 per 1,000 sq. ft.
Live/Work	If workers/clients are permitted in work area, 1 per first 1,000 sq. ft. of work area and 1 per each additional 750 sq. ft. of work area
<u>Notes:</u> [1] Spaces must be on the same lot as building it serves	

Section 12. That the section named; Residential Uses; in Table 23.322-4, Required Off Street Parking in Manufacturing Districts, within Berkeley Municipal Code 23.322.030, Required Parking Spaces, is amended to read:

TABLE 23.322-4: REQUIRED OFF-STREET PARKING IN MANUFACTURING DISTRICTS

Land Use	Required Parking Spaces
<b>Residential Uses</b>	
Accessory Dwelling Unit	<del>See Chapter 23.306</del> <u>None required</u>
Dwellings	None required
Group Living Accommodation	None required

Section 13. That Berkeley Municipal Code 23.322.080 is amended to read:

### **23.322.080– Parking Layout and Design**

#### *A. Traffic Engineering Requirements.*

1. All off-street parking spaces, access driveways, circulation patterns, and ingress and egress connections to the public right-of-way must conform to the City of Berkeley’s Traffic Engineering requirements.
2. The Traffic Engineer shall determine whether the size, arrangement, and design of off-street parking spaces, access driveways, circulation patterns, and ingress and egress connections to the public right-of-way are adequate to create usable, functional, accessible, and safe parking areas, and are adequately integrated with Berkeley’s overall street pattern and traffic flows.

#### *B. Dimensional Standards.* Dimensional requirements and standards for off-street parking spaces, driveways, and other access improvements, and maneuvering aisles shall be incorporated in administrative regulations, subject to the review and approval by the City Manager and ZAB.

#### *C. Access Orientation in Non-Residential Districts.* Access to new parking areas in a Non-Residential District that serve commercial uses shall be oriented in such a way as to minimize the use of streets serving primarily residential uses.

#### *D. Residential Parking Lots in Non-Residential Districts.* Parking lots in a non-residential district used exclusively for residential parking must comply with standards in Section 23.322.080 that apply in Residential Districts.

#### ~~D.E.~~ *Placement--Residential Districts.*

##### 1. *Side Setback Areas.*

- (a) One new off-street parking space in a required side setback area, where none exists, is allowed by right.
- (b) The space must be constructed of a permeable surface unless the Public Works Department or Office of Transportation determines it is infeasible.
- (c) The space must be screened as required by 23.322.080. ~~I~~ **G** (Screening).
- (d) The location of the space shall minimize impact on usable open space.

##### 2. *Other Setback Areas.* No portion of an off-street parking space may be located in a required front, street side, or rear setback area unless:

- (a) The parking space location is authorized by Chapter 23.306 (Accessory Dwelling Units); or

(b) The Zoning Officer approves an AUP, in consultation with the Traffic Engineer, and the space meets all applicable requirements in this section.

3. *Multifamily Buildings.*

(a) An off-street parking space may not be located closer than 10 feet in horizontal distance from a door or a window of a building with three or more dwelling units where the space is on the same or approximately the same level as the building.

(b) For the purposes of this section, a window whose bottom edge or point is more than 6 feet in vertical height from the level of the subject off-street parking space is not considered on the same or approximately the same level.

(c) The Zoning Officer may approve an AUP to grant an exception to this requirement.

E.F. *Placement--Non-Residential Districts.*

1. *Where Prohibited.* Except when otherwise allowed by this chapter, ground-level off-street parking spaces are not permitted within 20 feet of the lot's street frontage unless the parking is entirely within a building with walls.

2. *Corner Lots.* For a corner lot, the ZAB may approve a Use Permit to allow the parking within 20 feet of the street frontage facing the secondary street.

3. *C-W District.*

(a) Off-street automobile parking in the C-W district is not permitted between the front lot line and a main structure within a designated node.

(b) Outside of a designated node, off-street automobile parking may be allowed between the front lot line and a main structure with a Use Permit or AUP. If the project requires ZAB approval, a Use Permit is required. An AUP is required for all other projects.

(c) To approve the AUP or Use Permit, the review authority must find that one or more of the following is true:

i. Parking in the rear or on the side of the property is impractical because of the lot's depth and/or width.

ii. Parking in the rear of the property would result in adverse impacts on abutting residential or other uses.

iii. Parking in the rear or on the side of the property would result in the placement of a driveway in an unsafe location.

- iv. Continuation or re-establishment of parking in front of the building is necessary for the reuse of an existing structure which is substantially set back from the front lot line.

G. Placement--ADU.

- 1. On a lot with an existing or proposed ADU, replacement of required off-street parking for the main building or required off-street parking for an ADU is allowed in any configuration on the lot, including within the front setback; or
- 2. Within the Hillside Overlay on a lot with an existing or proposed ADU, where no legal off-street parking exists for the main building, required parking provided for the main building is allowed in any configuration on the lot, including within the front yard setback.

**F.H. Grade Change.** This subsection applies to off-street parking spaces in all districts, except for parking decks in Residential Districts.

- 1. The difference in elevation between a parking space and the finished grade on adjacent areas of the lot may not exceed 5 feet at any point.
- 2. Where there is a difference in elevation between a parking space and adjacent finished grade, the parking space shall be setback from a lot line as shown in Table 23.322-7.

TABLE 23.322-7. REQUIRED SETBACKS FOR PARKING SPACES WITH ADJACENT GRADE CHANGES

DIFFERENCE IN ELEVATION	MINIMUM SETBACK
Parking space lower than finished grade	
3 to 5 ft	4 ft.
Less than 3 ft	No min. setback
Parking space higher than finished grade	6 ft.

**G.I. Screening.**

- 1. Table 23.322-8 shows required parking space screening. Screening must effectively screen parked vehicles from view from buildings and uses on adjacent, abutting, and confronting lots. Screening may not interfere with pedestrian safety.

TABLE 23.322-8. REQUIRED PARKING SPACE SCREENING

DISTRICTS	WHEN REQUIRED	REQUIRED SCREENING FEATURE	SCREENING FEATURE HEIGHT
All Residential Districts	2 or more parking spaces, or any parking space partly	Continuous view-obscuring wood fence, masonry wall, or evergreen hedge which	4 ft. min and 6 ft. max.

	or entirely within a required rear setback area	may be broken only for access driveways and walkways	
All Commercial and Manufacturing Districts	2 or more parking spaces	Wall, fence, or evergreen shrubbery hedge in a landscape strip	Parking adjacent to public right-of-way or front lot line: 3 ft. min. and 4 ft. max. Parking adjacent to rear or side lot line: 4 ft. min and 6 ft. max.

2. In the C-W, M, MM, MU-LI districts, screening and landscape buffers are not required for any portion of a parking lot adjacent to Third Street (Southern Pacific Railroad).

**H.J. Landscape Buffers.**

1. All paved areas for off-street parking spaces, driveways, and any other vehicle-related paving must be separated from adjacent lot lines and the public right-of-way by a landscaped strip as shown in Table 23.322-9.

TABLE 23.322-9. REQUIRED LANDSCAPE BUFFERS

DISTRICT/NUMBER OF SPACES	MINIMUM WIDTH OF LANDSCAPE STRIP	
	AREAS ADJACENT TO SIDE OR REAR LOT LINES	AREAS ADJACENT TO PUBLIC RIGHT-OF-WAY OR FRONT LOT LINE
Residential Districts		
1-3 spaces	2 ft.	2 ft.
4 spaces or more	4 ft. [1]	4 ft. [1]
Commercial and Manufacturing Districts		
1 space	None required	None required
2-3 spaces	2 ft.	3 ft.
4 spaces or more	4 ft. [1]	4 ft. [1]

Note:

[1] Calculated as average width along the full length of landscape strip.

2. In all districts, this landscape buffer requirement does not apply to driveways that serve two adjacent lots when adjacent to a side lot line.
3. In the Residential Districts, this landscape buffer requirement also does not apply to pedestrian walkways that are separated from such areas by a landscaped strip at least two feet wide.

~~H.K.~~ K. *Paved Setback Areas.* In Residential Districts, the total area of pavement devoted to off-street parking spaces, driveways, and other vehicle-related paving may not exceed 50 percent of any required setback area that runs parallel to and abuts a street.

~~J.L.~~ L. *Driveway Width.*

1. A driveway may not exceed 20 feet in width at any lot line abutting a street or one-half of the width of the street frontage of the lot, whichever is less.
2. In a Non-Residential district, the Zoning Officer may modify this requirement with an AUP.

~~K.M.~~ M. *Driveway Separation.* On a single lot in a Residential District, driveways must be spaced at least 75 feet from one another, as measured along any continuous lot line abutting a street.

~~L.N.~~ N. *Tandem Parking.* Tandem spaces that provide required off-street parking require an AUP, except when allowed by right by Chapter 23.306 (Accessory Dwelling Units).

~~M.~~ *~~Residential Parking Lots in Non-Residential Districts. Parking lots in a non-residential district used exclusively for residential parking must comply with standards in this section that apply in Residential Districts.~~*

~~N.O.~~ O. *Carports.* A carport shall meet the minimum horizontal and vertical dimensions specified by the City's Traffic Engineer to be used for one or more legal parking spaces required under this chapter.

Section 14. That Berkeley Municipal Code is amended to add a new Section 23.324.060(C) to read:

C. Accessory Dwelling Units. The following alterations of a lawful nonconforming existing structure or building that is an existing ADU or proposed to be converted to an ADU are permitted with a Zoning Certificate:

1. New windows, doors, or other openings to a portion of a building or structure within a minimum required setback.
2. New windows, doors, or other openings to a portion of a building or structure exceeding the height limit.

Section 15. That Berkeley Municipal Code 23.502.020(A)(4) is amended to read:

4. Accessory Dwelling Unit (ADU). An attached or detached secondary dwelling unit that is located on ~~the same~~ a lot as a proposed or existing single family dwelling, duplex, multi-family dwelling use, or group living accommodation ~~in a zoning district where residential uses are permitted~~ and provides independent living



facilities for one or more persons. An ADU must comply with local building, housing, safety and other code requirements, except as expressly modified in Chapter 23.306, and provide the following features independent of other dwelling units on the lot: Exterior or independent access to the ADU, living and sleeping quarters, a full kitchen, and a full bathroom. An ADU also includes the following: (a) An efficiency unit, as defined in Section 17958.1 of the Health and Safety Code, or (b) A manufactured home, as defined in Section 18007 of the Health and Safety Code.

—*Junior Accessory Dwelling Unit (Junior ADU).* A unit that is contained entirely within the walls of an existing or proposed single family dwelling, or a single family dwelling unit's attached garage. A Junior ADU must include a separate exterior entrance and, at minimum, an efficiency kitchen ~~with a working refrigerator~~. A Junior ADU may include separate sanitation facilities or may share sanitary facilities with a single family dwelling. ~~The property owner must reside in either the Single Family Dwelling or the JADU.~~

~~(a) with a proposed or existing Single Family Dwelling, Duplex, Multi-Family Dwelling Use or Group Living Accommodation. An Accessory Dwelling Unit must comply with local building, housing, safety and other code requirements, except as expressly modified in Chapter 23.306, and provide the following features independent of other dwelling units on the lot: 1) exterior or independent access to the Accessory Dwelling Unit; 2) living and sleeping quarters; 3) a full kitchen; and 4) a full bathroom. An Accessory Dwelling Unit also includes the following:~~

~~(b)(a) An efficiency unit, as defined in Section 17958.1 of the Health and Safety Code.~~

Section 16. That Berkeley Municipal Code 23.502.020(A)(8) is amended to read:

8. *Addition, Residential.* The creation of any new portion of a main building which results in a vertical or horizontal extension of the building, or results in additional residential gross floor area to an existing main building, as long as such new gross floor area does not exceed 15 percent of the lot area or 600 square feet, whichever is less. For purposes of this definition gross floor area does not include:

- (a) Additions of gross floor area devoted to required off-street parking spaces, creation of mezzanines or lofts within the building's shell;
- (b) Making previously unusable attics into habitable floor area (except where new areas with vertical clearance of 6 feet or greater are created through expansions of the building shell);
- (c) Excavations of earth within the existing building footprint (i.e. expansion of existing basements or new basements), or

(d) Replacement of existing floor area that was lawfully constructed and is located entirely within the addition's shell.

~~(d)~~(e) The floor area associated with any existing or proposed accessory dwelling unit or junior accessory dwelling unit, up to 800 square feet per lot.

Section 17. That Berkeley Municipal Code 23.502.020(A)(9) is amended to read:

9. *Addition, Major Residential.*

(a) A residential addition greater than 15 percent of the lot area or 600 square feet. Floor area from all residential additions since October 31, 1991, with the exception of:

i. Additions that are entirely subsumed within previously existing floor area; and

ii. The floor area associated with any existing or proposed accessory dwelling unit or junior accessory dwelling unit, up to 800 square feet per lot.

(b) The floor area of subsequent stories where the addition does not exceed the district residential addition height limit, shall count towards the calculation of gross floor area for the purposes of this definition.

(c) Any new floor area, except as exempted under (9)(a), shall be treated as a new major residential addition for the purpose of permit processing, when the cumulative square footage exceeds 15 percent of the lot area or 600 square feet, whichever is less.

Section 18. That Berkeley Municipal Code 23.502.020(E)(1) is amended to read:

1. Efficiency Kitchen. A ~~kitchen that includes a sink, a~~ cooking facility with appliances (e.g. microwave, toaster, oven, hot plate), and food preparation counter space and cabinets.

Section 19. That Berkeley Municipal Code 23.502.020(J) is amended to read:

J. *"J" Terms.*

~~*Junior Accessory Dwelling Unit (JADU).* A unit that is contained entirely within the walls of a Single Family Dwelling. A JADU must include a separate exterior entrance and an Efficiency Kitchen with a working refrigerator. A JADU may include separate sanitation facilities or may share sanitary facilities with a Single~~

~~Family Dwelling. The property owner must reside in either the Single Family Dwelling or the JADU.~~

Section 20. That Berkeley Municipal Code 23.502.020(N)(1) is amended to read:

N. "N" Terms.

1. *New Construction.* Construction of a new main building or accessory dwelling unit.

Section 18. Severability.

If any provision or clause of this Ordinance or any application thereof to any person or circumstance is held to be unconstitutional or otherwise invalid by a court of competent jurisdiction, such invalidity shall not affect other provisions or clauses or applications of this Ordinance. To this end the provisions and applications of this Ordinance are severable, and the Council of the City of Berkeley hereby declares that it would have passed this Ordinance and each provision or clause without regard to whether any other portion of this Ordinance or application thereof would be subsequently declared invalid or unconstitutional.

Section 19.

Copies of this Ordinance shall be posted for two days prior to adoption in the display case located near the walkway in front of the Maudelle Shirek Building, 2134 Martin Luther King Jr. Way. Within 15 days of adoption, copies of this Ordinance shall be filed at each branch of the Berkeley Public Library and the title shall be published in a newspaper of general circulation.

## **ADU POLICY ALTERNATIVES**

### **Policy Alternative 1. Additional prescriptive standards for New Construction ADUs within the front setback (*Section 8 of the Recommended Draft Ordinance*)**

4. *Front Setback, New Construction.* An ADU shall ~~not occupy area within the front setback, unless the requirement would preclude an ADU of 800 square feet.~~ comply with the same front setback that is required for the underlying district, unless the requirement would preclude an ADU of no more than 800 square feet on the parcel. Should an ADU require area—either partially or fully—within the front setback, then the ADU shall maintain a minimum 10-foot setback from the front lot line, unless such reduced setback would preclude an ADU of no more than 800 square feet on the parcel. If a 10-foot setback would preclude an ADU of 800 square feet, the ADU shall maintain a 5-foot setback from the front lot line. If a 5-foot setback from the front lot line would preclude an ADU of 800 square feet on the parcel, the ADU may be sited up to the front lot line.

### **Policy Alternative 2. Converted ADUs: Maintain time limit based on when the accessory building or structure was created (*Section 8 of Recommended Draft Ordinance*)**

#### **23.306.030 Development Standards.**

3. *Accessory Building or Accessory Structure Conversion.* An ADU converted from an ~~an legally established~~ accessory building or accessory structure legally established at least three years prior to submission of an ADU application that does not comply with the maximum height, size, and/or rear and side setback requirements is allowed to maintain non-conformity to the same location and dimensions of the existing accessory building or accessory structure, provided that the ADU meets fire and safety standards set forth in the California Building Standards Code adopted in BMC Title 19. Any physical additions to the existing accessory building or accessory structure shall comply with the development standards in Table 23.306-2 ADU Development Standards.

### **Policy Alternative 3. Keep Neighbor Noticing Procedures as-is except removing noticing to owner(s) of subject property (*Section 8 of Recommended Draft Ordinance*)**

#### **23.306.040 Permit Procedures**

- B. Neighbor Noticing.

1. *Scope and Timing of Notice.* Notice of an ADU application shall be mailed to tenants of the subject property, and all occupants owners and tenants of the subject adjacent, confronting and abutting properties, y, ~~excepting the property owner(s),~~ within ten working days of submission of the building permit to the Planning Department ~~City.~~
2. *Content of Notice.* Notice shall provide the address of the project, ~~and include~~ allowable hours of construction, a link to the City's ADU webpage, and information for tenants of the subject property on how to contact ~~identifying permit and construction resources, and contact information for~~ a Rent Board Housing Counselor by e-mail or phone and any other resource information deemed relevant.
3. *Mailing Fees.* The applicant shall be responsible for the cost of materials, postage, and staff time necessary to process and mail ~~the~~ notices.

**Key**

Black Text: Recommended Draft Ordinance dated September 19, 2023

Red Text: Policy Alternative

Table 1. Current and Proposed ADU Ordinances and Source Comparison

Section/ Standard	Current ordinance (BMC Ch. 23.306)	July 2023 Recommended Ordinance	September 2023 Recommended Ordinance (Ordinance Section(s))	Source(s) for September 2023 Recommendation
Ch. 12.99 Wildfire Hazard Evacuation Risk Mitigation Ordinance	No more than one ADU or JADU shall be permitted per lot in the HOD.	Repeal and remove references	No change from July 2023. (Sections 3, 8)	HCD Letter dated October 17, 2022 (pg. 2)
Lot coverage and gross floor area calculations	Not specified.	Exempt up to 800 sf from lot coverage and gross floor area calculations associated with ADU	No change from July 2023. (Sections 4, 5, 16, 17)	State law. GOV 65852.2(c)(2)(C)
Building separation measurement definition	A. <i>Measurement.</i> Building separation is measured as the distance between the surface of a main building's outer wall and the outer wall surface of the closest neighboring main building.	Not included	Revised to include ADUs and changed "neighboring main building" to "building." (Section 6)	Staff recommendation based on Fire, Building and Safety.
ADU building height calculations	Not specified.	Specify that attached ADUs are not included in <u>average</u> building height calculations.	No change from July 2023. (Section 7)	Staff recommendation
Density exemption	Not specified.	Exclude ADUs and Junior ADUs from density established by the underlying zoning district	No change from July 2023. (Section 8)	State law. GOV 65852.2(a)(10)
Quantity of ADU–Single Family Dwellings	1 ADU <u>or</u> 1 Junior ADU	1 ADU <u>and</u> 1 Junior ADU citywide	No change from July 2023. (Section 8)	HCD Letter dated October 17, 2022 (pg. 3)
Quantity of ADU–Duplex or Multi-Family Dwellings	a. Up to two detached ADUs; <u>or</u> b. At least one ADU converted from non-habitable portions of the existing Main Building that are not within the living space of a Dwelling Unit (e.g. basement, attic, garages storage room). The maximum number of ADUs converted from portions of the existing Main Building that are not within the living space of a Dwelling Unit shall not exceed 25% of the total number of existing Dwelling Units on the lot.	2 detached ADUs <u>and</u> at least 1 interior ADU up to 25% of the total number of existing duplex or multi-family dwelling units on the lot.	No change from July 2023. (Section 8)	HCD ADU Handbook dated July 2022 (pg. 20)

Section/ Standard	Current ordinance (BMC Ch. 23.306)	July 2023 Recommended Ordinance	September 2023 Recommended Ordinance (Ordinance Section(s))	Source(s) for September 2023 Recommendation
Gross floor area, maximum	Outside of HOD: <ul style="list-style-type: none"> <li>- Studio or 1-bed: 850 sf</li> <li>- 2+ bed: 1000 sf</li> <li>- Junior ADU: 500 sf</li> </ul> Within HOD: <ul style="list-style-type: none"> <li>- ADU: 800 sf</li> <li>- Junior ADU: 500 sf</li> </ul>	Citywide: <ul style="list-style-type: none"> <li>- Studio or 1-bed: 850 sf</li> <li>- 2+ bed: 1000 sf</li> <li>- Junior ADU: 500 sf</li> </ul>	No change from July 2023. (Section 8)	HCD Letter dated October 17, 2022 (pg. 2) in combination with state law. GOV 65852.2(c)(2)(B); GOV 65852.22(i)(1)
Building height, maximum	Outside of HOD: 20 ft. Within HOD: 16 ft.	Citywide: Attached: 25 ft. Detached: 20 ft.	Maintain maximum building height outside of the Hillside Overlay: 20 ft.  Revised requirements within the Hillside Overlay to match state law and reflect that the distance to public transit is measured as 0.5 mile walking distance of a major transit stop or high-quality transit corridor. <i>See Tables 23.306-2 and 230.306-3. (Section 8)</i>	State law. GOV 65852.2(c)(2)(D)
Building separation for detached ADU, minimum	Not specified.	3-foot	Outside the Hillside Overlay: 5-foot  Within the Hillside Overlay: 8-foot (Section 8)	Staff recommendation based on Fire, Building and Safety
Accessory Building or Accessory Structure Conversion	<ul style="list-style-type: none"> <li>- Must be legally established at least three years prior to submission of an ADU</li> <li>- Allowed to maintain nonconforming Maximum Height, Size, and/or Rear and Side Setback to the same dimensions of the existing Accessory Building or Accessory Structure</li> <li>- Existing side and rear setbacks meet fire and safety as set forth in California Building Standards Code adopted in BMC Title 19.</li> </ul>	No change from current ordinance	Allowed to maintain non-conformity to the same location and dimensions of the existing legal nonconforming accessory building or accessory structure, without minimum time limits based on when the structure was created. (Section 8)  <i>See Policy Alternative 2</i>	Location and dimensions - State law GOV 65852.2(a)(D)(vii)  No limits based on when the structure was created - HCD ADU Handbook dated July 2022 (pg. 21)
Lot line setbacks, minimum	<i>Front:</i> Same as underlying zoning district <i>Rear:</i> 4 ft. <i>Side:</i> 4 ft.	<i>Front (no change):</i> Same as underlying zoning district	Added supplemental standard: (Section 8)	Staff recommendation based on state law. GOV 65852.2(c)(2)(C)

Section/ Standard	Current ordinance (BMC Ch. 23.306)	July 2023 Recommended Ordinance	September 2023 Recommended Ordinance (Ordinance Section(s))	Source(s) for September 2023 Recommendation
	Exception: If there is a lesser setback allowed for a comparable Accessory Building or Accessory Structure in the underlying zoning district, that setback shall apply.	<i>Front of Through Lot:</i> Same as underlying district or 10 ft. on the secondary frontage as determined by the Zoning Officer  <i>Rear (no change):</i> 4 ft. <i>Interior side (no change):</i> 4 ft. <i>Street side:</i> 4 ft.	Clarified (4) <i>Front Setback, New Construction.</i> An ADU shall not occupy area within the front setback, unless the requirement would preclude an ADU of 800 square feet.  <i>See Policy Alternative 1</i>	
Attached ADU, standard	Not specified.	Less than 3-foot building separation	Sharing common wall (Section 8)	Staff recommendation based on state law GOV 65852.2(c)(2)(D)(iv)
Attached ADU, New Construction Height	An ADU proposed as an addition with a maximum height exceeding 14 ft. requires an AUP.	Attached ADUs with height greater than 14 ft. and up to 25 ft. allowed with a Zoning Certificate.	Simplified to remove “with height greater than 14 ft. and” (Section 8)	State law GOV 65852.2(c)(2)(D)
Junior ADUs Shared Sanitation Facilities	Not specified.	If a Junior ADU shares a sanitary facility with a single-family dwelling, an internal connection between the Junior ADU and the main living area of the single family dwelling is required.	No change from July 2023. (Section 8)	Staff recommendation based on state law GOV 65852.22(i)(1)
Projections	Architectural features may project two feet into the required setbacks, so long as there remains at least a two-foot setback from property lines. Bay windows may not project into a setback. Bay windows and balconies shall not project into a setback.  No projections shall be allowed within the required setbacks on lots that are within the Hillside Overlay District.	Added bay windows and balconies may not project into a required rear ADU setback.	No change from July 2023. (Section 8)	Planning Commission recommendation, May 2023
Noticing, Scope	Mail to owners and tenants of the subject, adjacent, confronting and abutting properties within ten working days of submission to the Planning Department.	Mail to all tenants of subject property, excluding property owner(s).	Revised Header to read “Noticing” instead of “Neighbor Noticing” and “tenant” to read “occupant” (Section 8)  <i>See Policy Alternative 3</i>	Staff recommendation based on Planning Commission recommendation, May 2023, while addressing implementation concerns



Section/ Standard	Current ordinance (BMC Ch. 23.306)	July 2023 Recommended Ordinance	September 2023 Recommended Ordinance (Ordinance Section(s))	Source(s) for September 2023 Recommendation
Off-Street Parking requirement, minimum	<p>JADU: None. Outside of HOD: None. Within HOD: The lesser of 1 space per bedroom or ADU.</p> <p>No off-street parking shall be required for ADUs that satisfy the criteria defined in subdivision (d) of California Government Code section 65852.2 or any successor provision thereto.</p>	<p>JADU: None Outside of HOD: None Within HOD: 1 per ADU unless satisfies the criteria in subdivision (d) of Government Code Section 65852.2.</p>	<p>JADU: None Outside of HOD: None Within HOD: 1 per ADU unless the parcel is located with 0.5 mile <u>walking distance</u> of a major transit stop or a high-quality transit corridor as defined in Public Resource Code Section 21155. (Section 10)</p>	<p>State law GOV 65852.2(c)(2)(D)(ii); GOV 65852.2(d)(1), PUB. RES. 21155</p>
Replacement Parking requirement	<p>Replacement parking is not required. Replacement of off-street parking for the Main Building is allowed and does not need to comply with Parking Maximums (BMC 23.322.070) nor Parking Layout and Design (BMC 23.322.080).</p>	<p>No change from current ordinance.</p>	<p>No change from July 2023. (Section 13)</p>	<p>State law GOV 65852.2(a)(1)(D)(xi)</p>
Parking Placement for ADUs	<p>If an applicant provides off-street parking for an ADU or a JADU in the HOD, parking shall be allowed in any configuration on the lot, including within the front yard setback.</p>	<ol style="list-style-type: none"> <li>1. On a lot with an existing or proposed ADU, replacement of required off-street parking for the main building or required off-street parking for an ADU is allowed in any configuration on the lot, including within the front setback; or</li> <li>2. Within the Hillside Overlay on a lot with an existing or proposed ADU, where no legal off-street parking exists for the main building, required parking provided for the main building is allowed in any configuration on the lot, including within the front yard setback.</li> </ol>	<p>No change from July 2023. (Section 13)</p>	<p>Staff recommendation based on state law GOV 65852.2(a)(1)(D)(xi)</p>
Alterations of lawful nonconforming existing structures	<p>Not specified.</p>	<p>The following alterations are permitted with a Zoning Certificate:</p>	<p>No change from July 2023. (Section 14)</p>	<p>Staff recommendation</p>

Section/ Standard	Current ordinance (BMC Ch. 23.306)	July 2023 Recommended Ordinance	September 2023 Recommended Ordinance (Ordinance Section(s))	Source(s) for September 2023 Recommendation
or buildings to ADUs		<ol style="list-style-type: none"> <li>1. New windows, doors, or other openings to a portion of a building or structure within a minimum required setback.</li> <li>2. New windows, doors, or other openings to a portion of a building or structure exceeding the height limit.</li> </ol>		
"Junior ADU", definition	Requires a working refrigerator	Removes this requirement	No change from July 2023. (Section 15)	HCD Letter dated October 17, 2022 (pg. 1)
"Efficiency Kitchen", definition	Requires a sink	Removes this requirement	No change from July 2023. (Section 18)	HCD Letter dated October 17, 2022 (pg. 1)



**September 13, 2023**

**Re: Wildfire Risk Associated with Additional Density in the Very High Fire Danger Severity Zone**

**I. Introduction**

The Berkeley Fire Department is extremely concerned about any intensification of structures, population and vehicles in Berkeley's Very High Fire Hazard Severity Fire Zones 2 and 3 ("Fire Zones"). Berkeley has a history of catastrophic wildfires, and has all of the conditions for future wildfires that could devastate not just the burned area, but the rest of the city. In addition, because the Fire Zones have been transformed by humans from an open grassland/oak woodland to an urban forest, the transportation network in the Fire Zones is undersized and will constrain both a large-scale evacuation of residents and emergency response. The Department lacks sufficient staffing and facilities to meet this risk, as documented in the recent Standards of Coverage and Community Risk Assessment.

At the same time, the Berkeley Fire Department understands that certain increases in density within the City, including within the Fire Zones, may be mandated by the State. The Fire Department is deeply concerned about the potential impacts increasing density could have to life and property within the Fire Zones, and strongly recommends that the City mitigate the impacts of intensification of structures, people, or vehicles to the greatest extent possible.

The Fire Department is particularly concerned about the structure density per acre and separation between structures within the Fire Zones. While many factors contribute to potential loss of life and property in a wildfire, these two factors are key factors contributing to fire spread. As a general matter, the higher the number of structures per acre and the shorter the distance between structures, the greater the risk of rapid structure-to-structure ignition. Distances of less than 25 feet between structures pose an extreme risk of structure-to-structure ignition, which could lead to a catastrophic loss of life and property.

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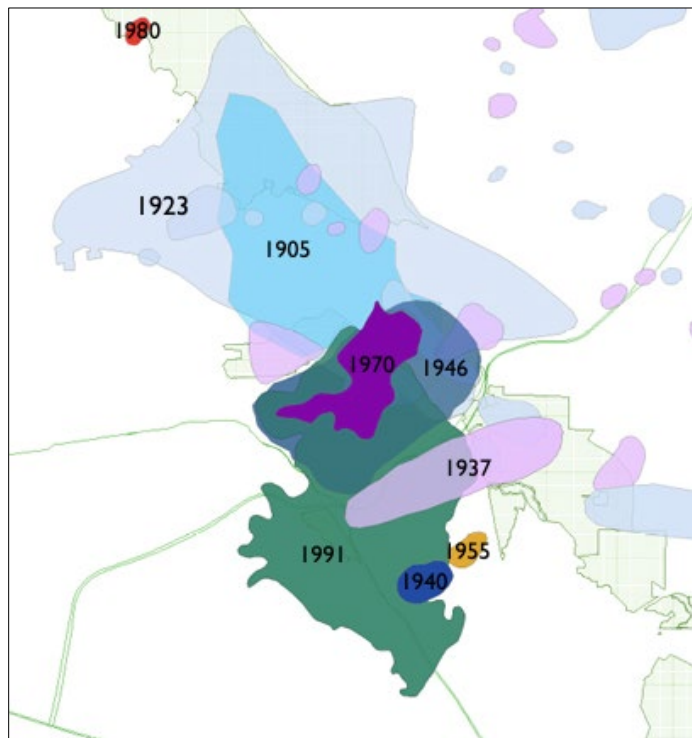
For these reasons, the Fire Department recommends that, in Berkeley’s Hillside Overlay areas, which correspond with Berkeley’s [Very High Fire Hazard Severity Zones 2 and 3](#), separation between structures on and across parcels should be increased to at least 25 feet. The Fire Department understands, however, that a 25-foot separation is not practicable at this time, given that the current zoning within the Hillside Overlay provides for a separation of approximately 8 feet (i.e., 4-foot side setbacks on each parcel, resulting in 8 feet separations between structures). In light of this constraint, the Fire Department recommends that the City Council, in considering proposals to amend the Zoning Ordinance with respect to Accessory Dwelling Units (“ADUs”), adopt a bare minimum 8-foot separation between main buildings and ADUs in the Hillside Overlay areas. While other changes to the Zoning Ordinance are not under consideration at this time, the Fire Department intends to work with the Planning Department in the future to potentially impose larger setbacks both across and within parcels in the Hillside Overlay based on new research conducted by the National Institute of Standards and Technology (NIST), California Department of Forestry and Fire Protection (CAL FIRE), and Insurance Institute for Business & Home Safety (IBHS), showing that maintaining a robust separation between structures is key to mitigating the risk of rapid structure-to-structure ignition during a wildfire.

## II. Background

### A. Berkeley’s Wildfire History

Berkeley has long faced an elevated risk of wildfires, having faced significant wildfires in [1905](#), [1923](#), [1946](#), [1970](#), and [1991](#)<sup>i</sup>. The below chart shows the locations of these fires within the City, which generally correspond with the City’s Very High Fire Danger Severity Zones.

Far from receding with time, the risk of catastrophic wildfire is growing due to changing conditions driven by climate change and development within the Bay Area. These growing risks demand new approaches in risk management and careful consideration of any policy changes that impact density, especially in the Fire Zones.





**B. Berkeley’s Unique Geographical Landscape and Its Impact on Fire Risk**

Berkeley’s unique geography contains both urban areas as well as an area known as the wildland-urban interface.

Several sections of Berkeley are very urban to a degree typical of the largest metropolitan cities for population densities and traffic. The following table<sup>ii</sup> displays population density per square mile. Of the top 51 largest cities in California, Berkeley is the second most densely populated city per square mile.

**California Cities: Population Density per Square Mile**

Rank by Population	Rank by Density	City	Population	Size (Square Miles)	Population per Square Mile
4	1	San Francisco	873,965	46.91	18,630.68
<b>51</b>	<b>2</b>	<b>Berkeley</b>	<b>124,321</b>	<b>10.43</b>	<b>11,919.56</b>
13	3	Santa Ana	310,227	27.34	11,347.00
31	4	Garden Grove	171,949	17.96	9,574.00
7	5	Long Beach	466,742	50.71	9,204.14
1	6	Los Angeles	3,898,747	469.49	8,304.22
8	7	Oakland	440,646	55.93	7,878.53
22	8	Oxnard	202,063	26.53	7,616.40
23	9	Huntington Beach	198,711	27	7,359.67
46	10	Santa Clara	127,151	18.28	6,955.74
33	11	Salinas	163,542	23.52	6,953.32
36	12	Sunnyvale	155,805	22.08	7,056.39
40	13	Torrance	147,067	20.52	7,167.01
10	14	Anaheim	346,824	50.27	6,899.22



Rank by Population	Rank by Density	City	Population	Size (Square Miles)	Population per Square Mile
37	15	Pomona	151,713	22.99	6,599.09
41	16	Fullerton	143,617	22.42	6,405.75
24	17	Glendale	196,543	30.48	6,448.26
44	18	Pasadena	138,699	22.96	6,040.90
19	19	Modesto	218,464	43.05	5,074.66
3	20	San Jose	1,013,240	178.26	5,684.06
43	21	Orange	139,911	25.67	5,450.37
15	22	Chula Vista	275,487	49.64	5,549.70
6	23	Sacramento	524,943	98.61	5,323.43
11	24	Stockton	320,804	62.21	5,156.79
21	25	Fontana	208,393	43.07	4,838.47
5	26	Fresno	542,107	115.18	4,706.61
14	27	Irvine	307,670	65.61	4,689.38
25	28	Santa Rosa	178,127	42.53	4,188.27
28	29	Rancho Cucamonga	174,453	40.11	4,349.36
17	30	Santa Clarita	228,673	70.75	3,232.13
2	31	San Diego	1,386,932	325.88	4,255.96
29	32	Oceanside	174,068	41.27	4,217.79
26	33	Elk Grove	176,124	41.99	4,194.43
38	34	Escondido	151,038	37.35	4,043.86



Rank by Population	Rank by Density	City	Population	Size (Square Miles)	Population per Square Mile
20	35	Moreno Valley	208,634	51.33	4,064.56
50	36	Concord	125,410	30.55	4,105.07
35	37	Corona	157,136	39.94	3,934.30
39	38	Roseville	147,773	44.08	3,352.38
49	39	Vallejo	126,090	30.42	4,144.97
42	40	Visalia	141,384	37.94	3,726.52
12	41	Riverside	314,998	81.23	3,877.85
18	42	San Bernardino	222,101	62.13	3,574.78
34	43	Hayward	162,954	45.82	3,556.39
27	44	Ontario	175,265	49.97	3,507.40
48	45	Simi Valley	126,356	41.55	3,041.06
16	46	Fremont	230,504	78.31	2,943.48
9	47	Bakersfield	403,455	149.78	2,693.65
47	48	Thousand Oaks	126,966	55.26	2,297.61
30	49	Lancaster	173,516	94.27	1,840.63
45	50	Victorville	134,810	73.71	1,828.92
32	51	Palmdale	169,450	106.06	1,597.68

**C. Defining the Wildland Urban Interface (“WUI”) Within the City of Berkeley**

Even though the flatlands of Berkeley are very urbanized, the City also contains an area known as the wildland-urban interface, or the “WUI.” The standard conceptual definition of the WUI, which has been adopted by federal and state-level authorities, describes it as the geographical area where human development, including structures and infrastructure, meets or blends with undeveloped wildlands. WUI communities are further categorized as interface, intermix, or occluded based on factors like housing density, wildland coverage, and population density.



Establishing a consistent operational definition has proven challenging. Typically, WUI areas are defined based on three main factors: human presence (measured by housing or population density), wildland vegetation coverage, and proximity to wildlands (often determined by buffer distances). In 2001, an official Federal WUI definition was introduced, mainly focusing on human presence, but lacking quantitative descriptions of wildland vegetation and proximity. The Healthy Forests Restoration Act (HFRA) of 2003 expanded this definition to include "at-risk communities" and specified the extension of WUI boundaries. Risk factors, such as fire behavior potential, values at risk, and infrastructure, are considered, but risk quantification remains unspecified.

Not all WUI communities share the same fire risk level, and risk assessment is left to local jurisdictions. While historical WUI fire losses have occurred within defined boundaries, examples like the Coffey Park neighborhood in Santa Rosa, CA, which was destroyed in the 2017 Tubbs Fire, demonstrate that hazardous conditions can extend beyond the designated WUI, emphasizing the need for broader wildfire risk management. Similar losses from structure-to-structure fire spread have been observed in various large-loss WUI fire events, whether or not the locations were officially designated as WUI.

While the WUI in Berkeley cannot be precisely defined, it roughly correlates with the area to the north and east of the University of California at Berkeley, including the Berkeley Hills and La Loma Park neighborhoods and other areas that border Tilden Regional Park and the Claremont Canyon Regional Preserve. These areas are in close proximity to wildlands, have a high number of structures per acre, narrow structure separation distances, steep topography, significant vegetation coverage, and narrow, winding roads. For these reasons, these areas are designated as Very High Fire Hazard Severity Zones. The City Council has also recognized that these areas pose an especially high degree of fire risk by creating the [Hillside Overlay Zone](#), which sets forth special Zoning rules for areas of the City with the highest fire hazards.

#### **D. Weather Conditions, Topography, and Vegetation Pose Extreme Risks to People and Property in the Berkeley WUI**

It is well-known that weather elements, including temperature, relative humidity, wind, and lightning, affect vegetation/wildland fire potential and behavior. Wind can be the most significant weather factor influencing vegetation/wildland fire behavior, with higher wind speeds increasing fire spread and intensity. High temperatures and low relative humidity also influence fire potential and behavior by drying out vegetative fuels, allowing such fuels to burn more readily and intensely. In Berkeley, weather conditions conducive to vegetation/wildland fires primarily occur during the summer and fall months, as strong winds develop, producing higher temperatures and lower humidity.





The City's topography also contributes to the fire risk in Berkeley's WUI.<sup>iii</sup> The City's topography transitions from being flat / sea level along the San Francisco Bay in the west, to steeper, sloped terrain approaching 1,000 feet in elevation in the Berkeley Hills along the City's eastern edge. The steeper, sloped terrain in the Hills can contribute to fire spread, because vegetation/wildland fires tend to burn more intensely and spread faster when burning uphill and up-canyon. However, the hot, dry "Foehn" or "Diablo" winds from the northeast that occur especially during the spring and fall, and come from the northeast, can cause rapid downhill and down-canyon fire spread and were responsible for the fires in 1923 and 1991.

The vegetation within the WUI further contributes to fire risk. In addition to decorative landscape species, vegetative fuels within the Fire Zones consist of a mix of annual grasses and weeds, manzanita/knob cone, chaparral, deciduous, eucalyptus, cyprus, and mixed conifer tree species. These types of vegetation can burn intensely and contribute to rapid fire spread under the right fuel, weather, and topographic conditions. Development has intensified these natural hazards over time. At the time of the 1923 Berkeley Fire, the Berkeley Hills were largely undeveloped, looking more like the Hills in the South Bay: open grassland, oak woodland, savanna, etc. However, many trees were planted over the course of the 20<sup>th</sup> Century as the Hills became more developed. Some of these trees are invasive and/or more flammable during a wildfire, such as the Italian Cyprus, Eucalyptus, and Acacia. Over time, these trees have altered Berkeley's natural landscape and dramatically increased the Hills' fire fuels.

#### **E. Challenges with Large Scale Evacuation of Berkeley**

Because of the above-mentioned challenges, it is especially crucial that residents within Berkeley's Fire Zones be able to evacuate as quickly and efficiently as possible. A wind-driven wildfire can spread at extraordinary speeds and [ember storms](#) can ignite spot fires far ahead of the main flame front<sup>iv</sup>. During this type of weather, some normally-available firefighting tools can be ineffective or even unusable; for instance, planes and helicopters, which are ordinarily useful for firefighting, need to be grounded during high winds. When a fire builds to this magnitude and travels with extreme speed and force, firefighters' primary focus often shifts from firefighting to supporting evacuations.

We know from many of the recent wildfires that have impacted residential communities, from Paradise to Santa Rosa to Lahaina, that many people have died fleeing in their vehicles or on foot on limited evacuation routes. The narrow, winding roadways in the Berkeley Hills pose evacuation challenges in this respect. [Video](#) from the 1991 Oakland-Berkeley Hills Fire demonstrates how evacuating vehicles get backed up, forcing their occupants to choose between waiting in a line of cars or abandoning their vehicles and running for safety. Given the aging of Berkeley's population, the topography, the large number of people living in the City's Fire Zones, and the extremely limited opportunities for egress, a rapidly moving wildfire that



causes a wind-driven, structure-to-structure urban conflagration in the Berkeley Hills has the potential to result in fatalities on the same magnitude, and potentially greater, than what has been seen in recent fires in Maui and Sonoma County.

We also know from recent fires that evacuation must occur *before* a fire starts. The fires that occurred in Lahaina, Maui in 2023 are the most recent example demonstrating that under fire conditions, waiting to evacuate until after the fire starts may not provide enough time to escape, especially when roadways are under-sized for the evacuating population. The Fire Department is already aware that residents in Berkeley's WUI may not be able to evacuate as fast as a fire could spread, given both the extraordinarily fast spread of a wind-driven wildfire, as well as area's density and narrow, winding roads. Further density within this region would likely exacerbate the risk that some residents would not be able to evacuate quickly enough, leading to devastating loss of life.

### **III. Hazard Mitigation Requires Increasing Defensible Space**

#### **F. Methodology for Hazard Mitigation in the WUI**

Over the past two decades, wildfires in wildland-urban interface (WUI) areas have become more severe, causing significant damage to communities and the economy. The National Institute of Standards and Technology (NIST), California Department of Forestry and Fire Protection (CAL FIRE), and Insurance Institute for Business & Home Safety (IBHS) collaborated to create a Hazard Mitigation Methodology (HMM) to address this issue. Published as *NIST Technical Note 2205: WUI Structure / Parcel / Community Fire Hazard Mitigation Methodology*<sup>v</sup>, the HMM focuses on assessing and mitigating fire and ember hazards by considering the spatial relationships between fuels, exposures, and hardening at structure and parcel levels. It highlights the importance of parcel-level hardening, community hardening, and community design, and is designed for both retrofitting existing structures and new construction. The methodology is science-based, drawing from extensive field data and research, and assesses mitigation effectiveness at the parcel and community levels.

As the HMM itself notes:

*"The proposed methodology is designed to augment defensible space. The strategy relies on defensible space principles specifically related to the removal and maintenance of vegetative fuel and other combustible materials. The strategy was developed over a period of 16 months through a collaborative effort between NIST, CAL FIRE, and IBHS and leverages the most current science and data together with more than ten thousand hours of pre- and post-WUI fire field data collection conducted by the collaborating agencies. Discussions with the*

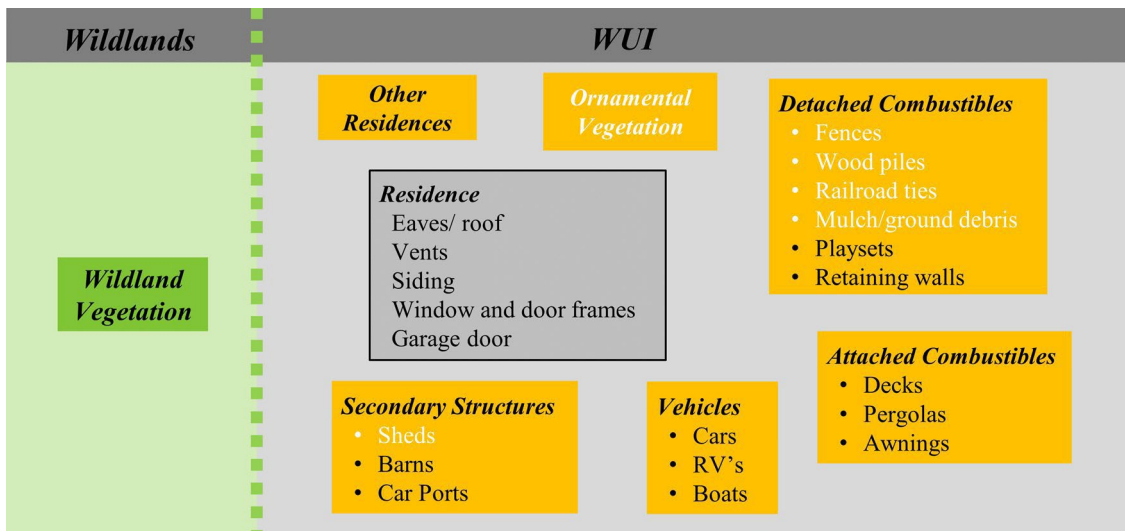


*building industry were necessary to clarify and improve different implementations for retrofit solutions.” (Maranghides, et al., 2022)*

### **G. Parcel Boundaries, Linear Features and Fuel Agglomeration Impact Defensible Space in the WUI**

In the context of wildfire mitigation policy for the wildland-urban interface (WUI), there are various pathways by which structures can ignite due to ember and fire exposures. There are a multitude of combustible features that contribute to fire spread within and across parcels, including materials used, assembly, design, configuration on the parcel, and size of structures. While some features can be made noncombustible, this can be challenging with existing housing stock or vehicles, which reinforces the need for a comprehensive understanding and analysis of ignition pathways when creating or modifying zoning policy in Very High Fire Danger Severity Zones.

The figure below shows the parcel-level combustible features that can contribute to various structure ignition pathways<sup>vi</sup>.



According to NIST Technical Note 2205 *“There are three technically important considerations when assessing fire spread within and across parcels. These are that:*

- 1. parcel boundaries typically limit the continuity of protection between parcels,*
- 2. linear features can carry fire very efficiently within and between parcels, and*
- 3. fuel agglomeration has significant impact on energy release and fire spread.”*

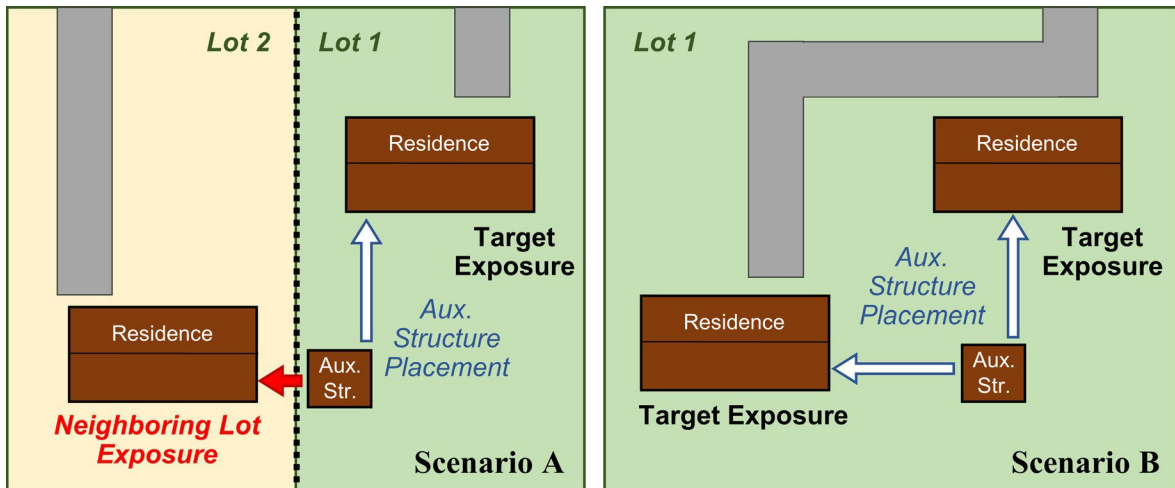
These three considerations are discussed below.



## H. Parcel Boundaries

In the context of policy development for wildfire risk mitigation in the wildland-urban interface (WUI), the historical approach of building codes has focused on safeguarding residential structures from hazards within the same parcel. However, it is critical that city policy consider hazards extending beyond property lines to enhance the overall safety of communities in WUI areas.

In the figure below, courtesy of NIST Technical Note 2205, “both structures are protected by the necessary SSD when the two residences are located on the same lot, as in Scenario B. When property lines are considered as a limit of code application, the hazard imposed from the auxiliary structure to the neighboring residence in Scenario A is unmitigated.



Existing codes are parcel centric. Residential structures are similarly located in Scenario A and B; however, the parcel division in Scenario A allows placement of an auxiliary structure too close to the neighboring primary structure when the parcels are considered independently.” (Maranghides, et al., 2022)

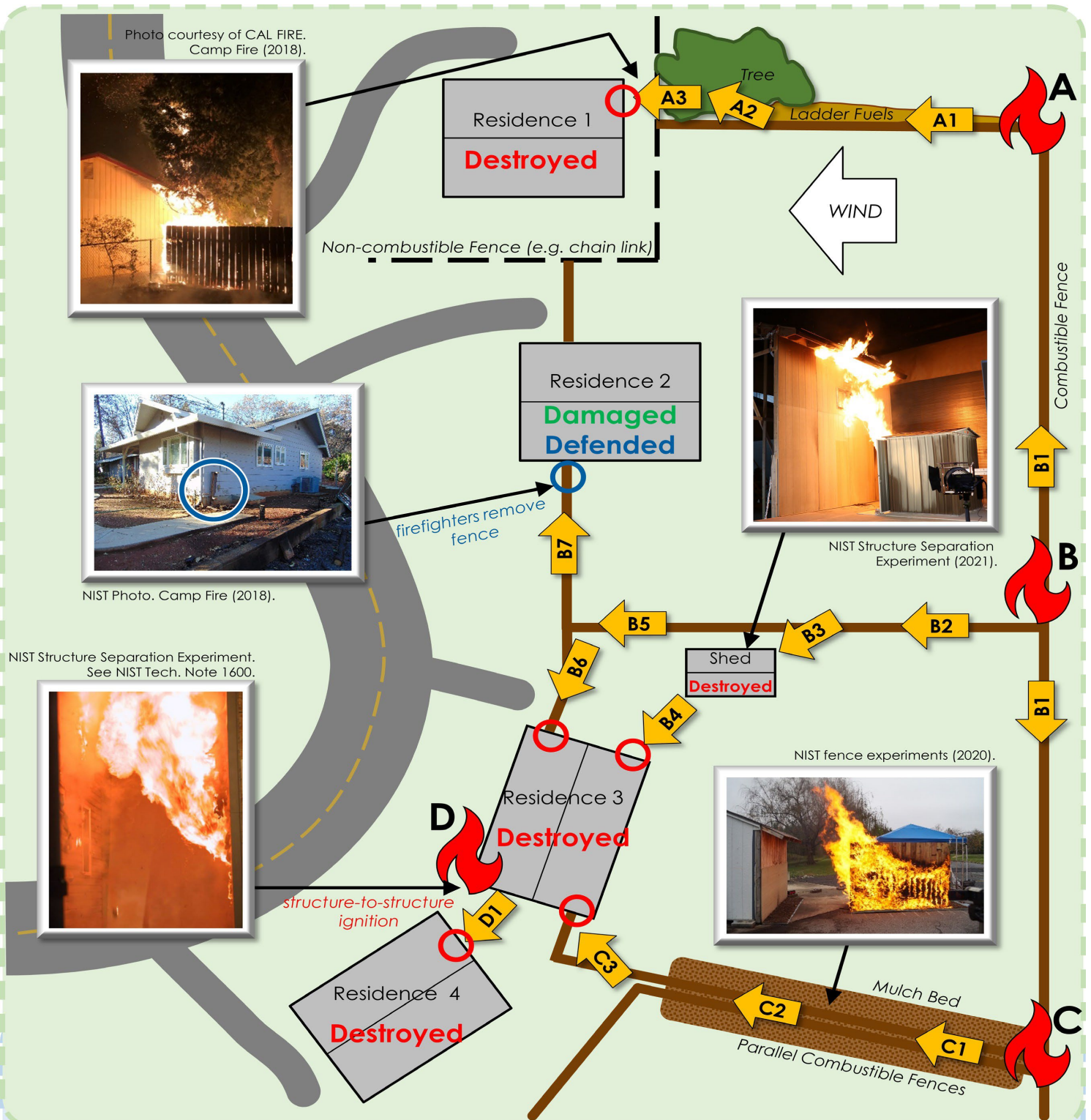
Best practices therefore dictate that Zoning ideally should consider separation distances across parcels in addition to separation distances within a parcel in order to minimize fire risk.



## I. Linear Features

Fire can spread along features including primary structures, auxiliary structures, fences, wood piles, decks and vehicles. **This spread can occur both inter and intra parcel, easily transmitting fire through a neighborhood. As more open space on a parcel is filled with structures, this fuel agglomeration may have an impact on structure to structure fire spread during an urban, wind-driven conflagration.**

The figure below, courtesy of NIST 2205, “illustrates how fire can burn along linear features to spread from a single ignition point to multiple lots and impact multiple residences. For example, following ignition and fire spread pathway B shows that a single ignition on a fence line can carry fire to 6 lots and destroy (directly or indirectly) 3 residences depicted within the extent of the figure. It is also important to note that even with a partial improvement, such as removing the fence’s direct connection to Residence 3, the result is still 2 destroyed residences within the figure: Ignition B → shed → Structure 3 → Structure 4.”



Embers can bring fire into communities. Once fire has started, fire spreads along multiple pathways:

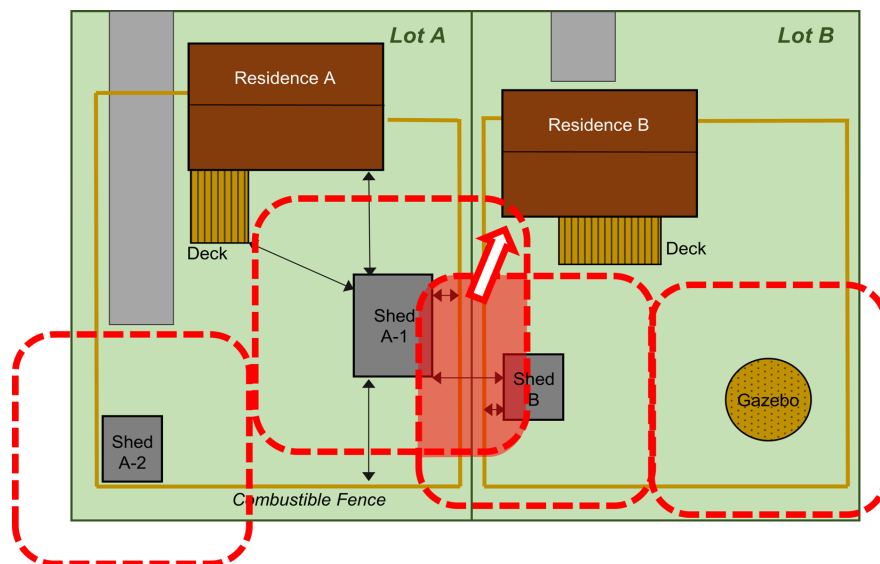
- A:** Spot fire ignites fence, burning along ladder fuels (A1) to larger vegetation (A2), and ignites Residence 1 on adjacent parcel (A3).
- B:** Fence ignition propagates fire on multiple parcels (B1, B2). Fence ignites shed (B3). Exposures from shed and fence ignite Residence 3 (B4, B6).  
Fence ignites Residence 2 (B7). Defensive actions save Residence 2.
- C:** Parallel fences on adjacent parcels exponentially intensify fire exposure (C1, C2) which ignites Residence 3 (C3).
- D:** The exposure from burning Residence 3 ignites Residence 4 (D1).

## J. Fuel Agglomeration

*“NIST experiments have confirmed field fire observations about the role of fuel agglomeration on fire and ember exposures generated from combustibles in close proximity to one another. The figure below illustrates the intense burning and significant energy release from two fences placed 8 in (20 cm) apart. The observed increase in intensity compared to the burning of a single fence remained even when fences were spaced by 36 in (92 cm).” (Maranghides, et al., 2022)*



As NIST 2205 explains, this *“illustrates how the issue of fuel agglomeration and increased exposures is particularly important in high- and moderate-density construction. The two red dashed outlines represent areas of high fire exposure potential from the sheds and illustrate the challenge from the fire exposures of high fuel loading on small parcels. The area represented by the overlapping dashed outlines represents an area of potential high energy release, and the red/white arrow illustrates the direct impact from this high energy release to the primary residence.”*



The spatial relationship between fuels can impact fire spread. In the image above, *“sheds are spaced appropriately from the residences and other fuels, except fences, on their respective lots. However, Shed A-1 is too close to Residence B, and both sheds act as an agglomerated fuel*

*package along the property border. The sheds and fences will substantially increase the exposures from the red highlighted area, igniting the structures.” (Maranghides, et al., 2022)*

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#### IV. Structure Separation Distance is Critical to Limiting Fire Spread in Berkeley

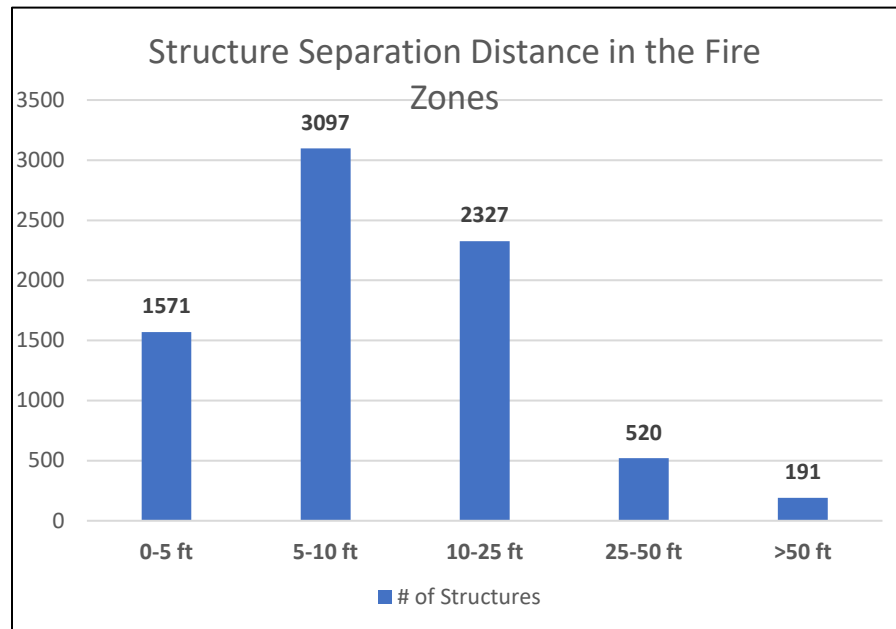
According to recognized industry practice, structure separation distance, or “SSD”, is a key metric in mitigating fire risk in WUI areas, such as those in Berkeley. There are two reasons for this. *“First, structures represent a significant density of fuels that impact fire spread and, in many cases, directly contribute to the ignition of additional structures, propagating fire throughout the community. Secondly, existing structures pose a unique challenge in hazard management—they are immobile. While they can be hardened, they cannot be readily removed or displaced like many other WUI fuels.”* (Maranghides, et al., 2022)

According to NIST 2205 there are three categories of SSD, summarized in the table below.

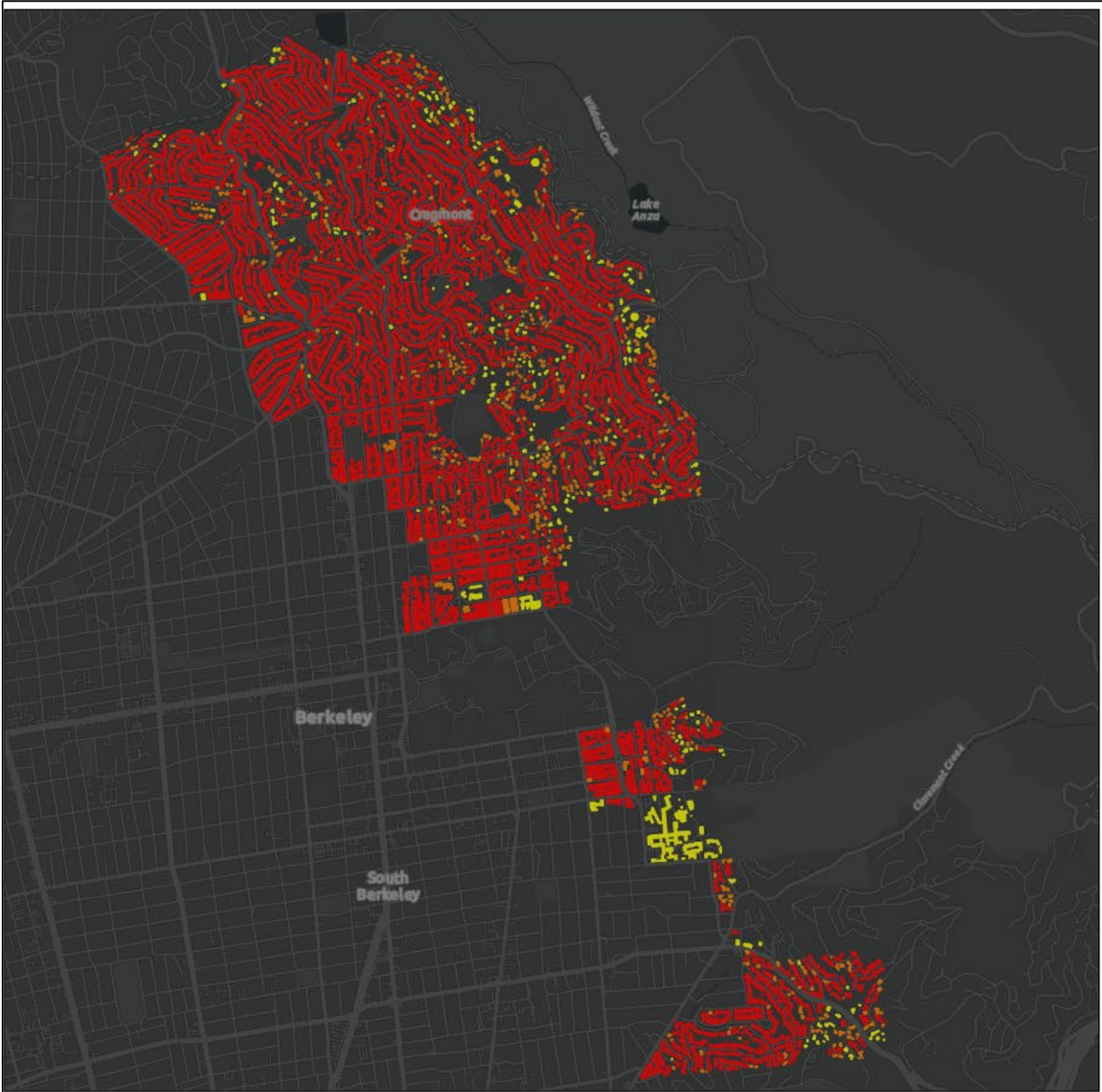
Category	SSD	Notes
Low Density	>50 ft	lower potential losses from individual structure ignitions, low potential for urban conflagration
Moderate Density	25 ft to 50 ft	greatest impact on structure ignition resistance by hardening for fire exposures from neighboring structures
High Density	< 25 ft	must not have any structures ignite, as risk of entire community loss is very high due to structure-to-structure fire spread

Many of the structures in the Fire Zones have an SSD of < 25 feet (see table this page and map<sup>1</sup>, next page), which places the community in the highest risk category according to research. However, the Berkeley Fire Department recommends preserving every additional foot of SSD

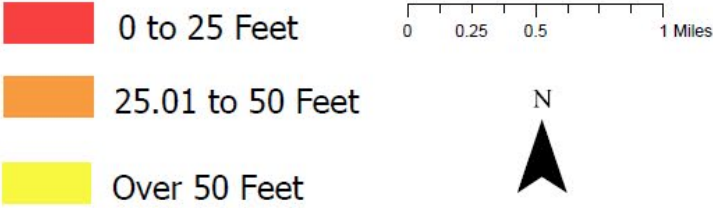
possible, as the more space between structures, the less likely structure-to-structure ignition will occur. Additional space also provides more access for firefighters to perform offensive or defensive firefighting activities such as deploying hoselines or cooling vertical and horizontal structural surfaces with water and foam/retardant.



<sup>1</sup> <https://berkeley.maps.arcgis.com/home/item.html?id=28897f6849bf4514bd1d7cf93ee4ea53>



# Structure density in Fire Zones 2 and 3



California State Parks, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/ NASA, USGS, Bureau of Land Management, EPA, NPS, US Census Bureau, USDA



### K. Housing Units per Acre Impact Structure-to-Structure Fire Spread in Berkeley

The structural density of a Wildland Urban Interface is categorized in to one of seven risk profiles with the highest-density communities having 8 housing units per acre (HU/ac), and being 320 times denser than the lowest-density WUI areas, which have 0.02 HU/ac (1 HU on 40 acres).

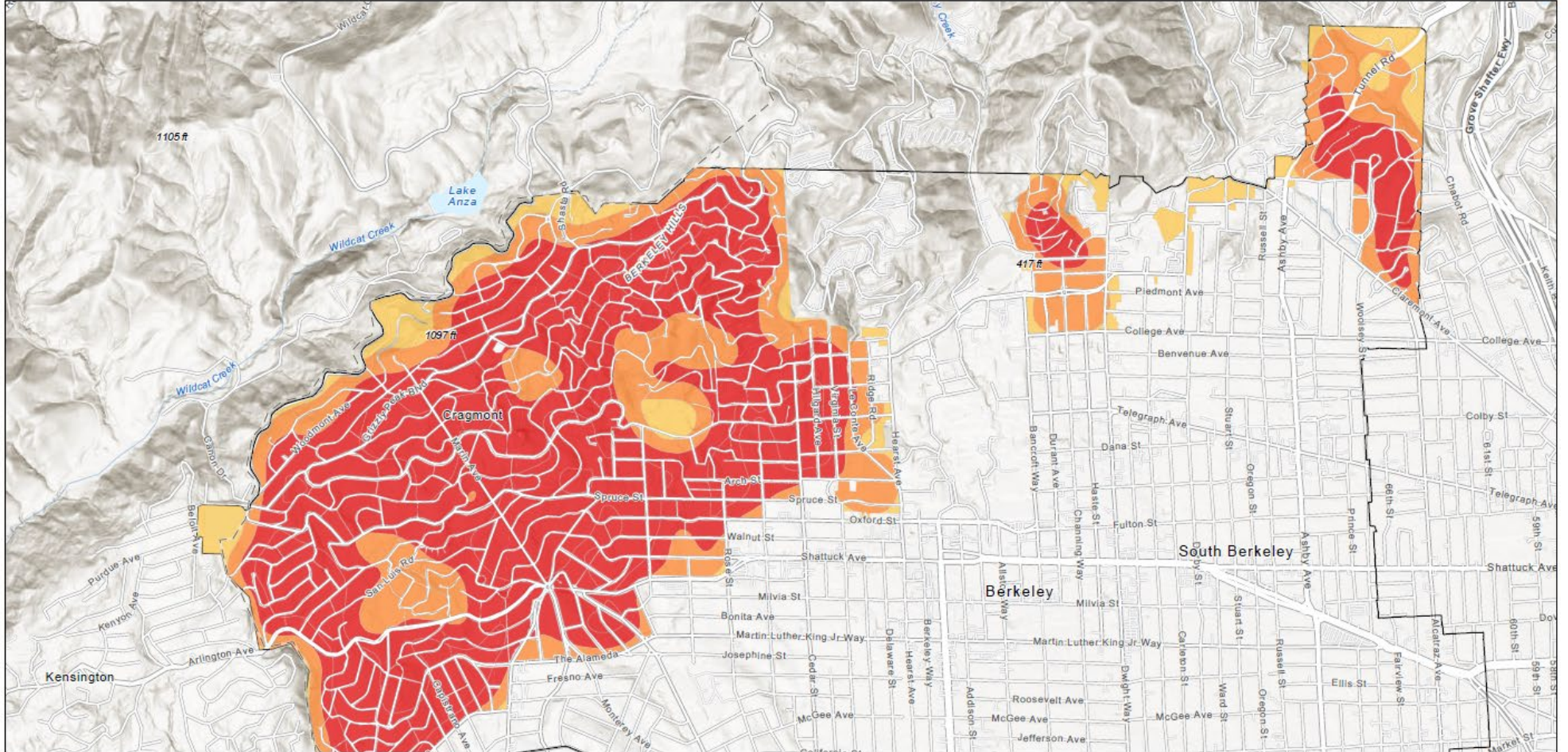
Type	WUI Type Name	Typical Housing Density (Hu/ac)
1	High Density Interface – Perimeter	2 to 8+
2	High Density Interface – Interior	2 to 8+
3	Medium Density Interface – Perimeter	<2
4	Medium Density Interface – Interior	<2
5	Medium Density Intermix	<2
6	Low Density Interface	<1
7	Medium Density Intermix	<1

Almost the entire Fire Zone area is in one of the two highest risk categories with between 4 and 6 structures per acre (See the map<sup>2</sup> on next page).

One factor exacerbating this problem further is that almost all homes were constructed prior to modern home hardening (fire resistive) codes were put in place, leaving homes vulnerable to ignition from embers, direct flame impingement, or radiated or convected heat.

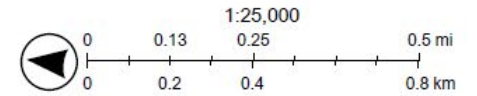
<sup>2</sup> <https://berkeley.maps.arcgis.com/apps/mapviewer/index.html?layers=50439fabd95045fba6d7319173698609>

# COB Fire Zone Structure Density



9/12/2023, DensityAnalysis\_Buildings\_in\_Fire\_Zone\_2\_and\_3\_Ver 3

- LEGEND**
- > 4 - >6 per acre
  - > 2 - 4 per acre
  - > 1 - 2 per acre
  - COB Municipal Boundary



California State Parks, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, US Census Bureau, USDA, Esri, NASA, NGA, USGS, FEMA

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To illustrate the prior scientific findings and GIS information, we are including two images of Berkeley's Fire Zone which demonstrate existing conditions which can propagate rapid structure to structure fire spread.

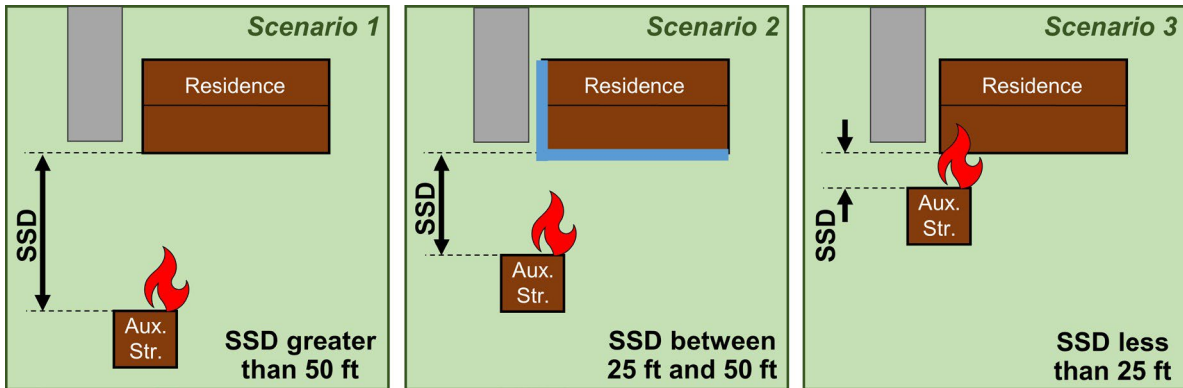


Structures in the Fire Zones have an SSD that is often less than 25 ft, an abundance of vegetation that creates an urban forest, with houses arranged along winding, narrow roadways.





In the Fire Department’s view, the City must consider the role of SSD and HU/ac on structure-to-structure ignition in crafting policy that allows the intensification of the built environment in the community. As structures are moved farther apart from one another, there is a rapid decrease in heat transfer through radiation and convection. The figure below shows varying SSD and the impact it has on both fire spread and the requirements for partial home hardening against direct flame impingement, and heat transfer through radiation and convection.



“Scenario 1

*This scenario represents exposure/distance combinations where the fire exposures do not reach the structure to be protected. A distance of 50 ft or greater is used in this example of auxiliary structures with floor area greater than 120 ft<sup>2</sup>. Based on field observations, the residence will not experience significant fire exposures at this distance (radiation and convection) and no hardening for fire is required.*

Scenario 2

*This scenario represents exposure/distance combinations where the fire exposures can ignite a structure. Hardening the residence can significantly mitigate the likelihood of structure ignition. Another way to say this is that there is a “sweet spot” in the spacing between the source and the target (residential structure or other asset to be protected) where hardening will add value. To follow the example of the auxiliary structure in Scenario 1, this range in spacing is when the auxiliary structure is between 25 ft and 50 ft from the target. This distance range is a function of the source’s energy content and spatial configuration. In this case, hardening the auxiliary structure (the source) would also reduce its ignition potential, and consequently, exposure to the primary structure.*

Scenario 3

*In many ways this is the most challenging scenario. This spacing range represents exposure/distance combinations where the very high fire exposures (e.g., direct flame contact from a fully involved residence) will ignite a structure and mitigation in the form of hardening*



*will have limited or no effect in reducing the ignition potential of the structure.*

*This represents scenarios with very high fuel densities. In the case of the auxiliary structure greater than 120 ft<sup>2</sup>, this occurs when the auxiliary structure to target (residence or other asset to be protected) separation is less than 25 ft.*

*In this scenario, the path forward to increase the survivability (i.e., ignition resistance) of the target is to prevent the ignition of the source. For auxiliary structures this can be achieved by also applying the hazard mitigation methodology to the auxiliary structure. The best practice is to displace or remove the shed. Relying on ignition prevention of auxiliary structures enhances primary structure survivability under certain conditions, however, does not provide the same protection provided by displacement or removal.” (Maranghides, et al., 2022)*

#### **V. Berkeley Fire Department Resources Are Also Constrained, Demonstrating the Importance of Mitigating Fire Risk Through Planning Where Possible.<sup>vii</sup>**

The Berkeley Fire Department does not currently have staffing adequate to provide the initial response necessary for a severe wildland urban interface fire that enters the City. In the past, the Department was run with 12+ fire companies staffed with 4 firefighters each, which equaled over 180 firefighters. Today, there are 9 fire companies, staffed with 3 firefighters each, or 120 firefighters total. This reduction in force has occurred even as Berkeley’s population has grown, a fact which requires the City to have an urban firefighting force for the 21<sup>st</sup> century. The 4-person urban staffing model is standard in other communities faced with a similar density and/or significant wildfire threat, including many of Departments shown in the density comparison table (above), including but not limited to San Francisco, Santa Ana & Torrance (Orange County Fire Authority), Anaheim, Long Beach, Los Angeles, Oakland, and San Jose. In a rapidly moving wildfire scenario, every firefighter makes a difference in moving residents to safety and protecting property.

The City’s recent Standards of Coverage and Community Risk Assessment documents the need for additional firefighters to staff engines and trucks most likely to be called to wildland and high-rise building fires:

*“Citygate finds the Department’s response apparatus types to be appropriate to protect against the hazards likely to impact the City. However, fire crew staffing of three per unit is insufficient to provide the necessary “weight” of response to serious fires—especially so in mid- and high-rise buildings **and for severe wildland fires that start in the hills.***

*At a minimum, four-firefighter staffing should be provided:*

- *On four engines: 1, 2, 5, and 6 and on trucks 2 and 5*
- *Occasionally (on high-fire danger wildland fire days) on engines 3, 4, and 7.”*



**L. Fire Services are already strained<sup>viii</sup>**

*“The Department serves a diversity of populations, from residents to business employees and students. These populations, across a varied zoning pattern combined with topography and road design constraints, place significant restrictions on best practice-based fire and EMS response times.”*

The below study, conducted by CityGate, summarizes current response times for the Fire Department. The results demonstrate that the Department is under strain.

**Response Performance Summary – RY 20/21**

Response Component	Best Practice		90 <sup>th</sup> Percentile Performance	Performance Versus Best Practice and Current Goal
	Time	Reference		
Call Processing / Dispatch	1:30	NFPA	2:29	+ 0:59
Crew Turnout	2:00	Citygate	2:05	+ 0:05
First-Unit Travel	5:00	CityGate	5:53	+ 0:53
First-Unit Call to Arrival	7:30	Citygate	9:32	+ 2:02
ERF Call to Arrival	11:30	Citygate	18:50	+ 7:20

First-unit travel performance is 0:53 seconds slower than the 5:00-minute best practice goal for urban communities due to several factors: station location, terrain, and traffic congestion. As CityGate explained *“Overall, first-unit call-to-arrival and ERF call-to-arrival performance, which is a fire agency’s true customer service measure, are both significantly slower than their respective 7:30-minute and 11:30-minute best practice goals.”*

The Citygate study further explained that *“...dispatch, turnout, and travel times all need to be reduced. Dispatch time must decrease by 0:59 seconds to meet a 1:30-minutes call-processing goal, turnout time by :05 seconds to meet a 2:00-minute goal, and travel time by 0:53 seconds to meet a proposed goal of no more than 5:00 minutes for first-due units in congested urban areas. Collectively, Citygate’s recommended first-unit total response time goal is 8:30 minutes (1:30 + 2:00 + 5:00).”*

These resource issues will only be intensified by further development. As the Citygate study put it, *“the ongoing intensification of land uses, building heights, and population density will*





*make several sections of the City very urban—typical of the largest metropolitan cities for building fire and rescue/EMS challenges. The cumulative effect of these projects around the City necessitates a shift in staffing and response models as well as an increase in the flexibility of emergency medical resources.”*

The Fire Department is therefore already short-staffed and under-resourced, and any increase in density within high-fire risk areas could impose serious consequences for the City.

## **VI. Conclusion**

In conclusion, Berkeley’s unique geography, the density that already exists within its Fire Zones, possible future density increases, and changing conditions resulting from climate change all result in a heightened fire risk environment. This risk is exacerbated by the Fire Department’s resource challenges, which will only make it more difficult to serve residents in the event of an emergency. As such, the Department believes there is an important role for Zoning to play in mitigating fire risk—most importantly, by ensuring as large as possible separation between structures. **This scientific data, coupled with the region’s cyclic relationship with significant fire events, are the reason that the Berkeley Fire Department strongly believes that a moratorium on any development within the Fire Zones that increases HU/ac, reduces existing non-conforming SSD, increases population, or increases the number of vehicles that will use the roadway during a wildfire should be strongly considered.**

While all of the proposals for the ADU ordinance of which the Department is aware would involve separations of less than 25 feet—creating a very high risk of structure-to-structure spread—it is still true that the shorter the separation, the higher the risk. Accordingly, with respect to the ADU ordinance, the Department recommends structure separation standards in the Hillside that are at least as large as those already authorized under the Zoning Code for other structures in the area—that is, 8 feet between structures. The City should also consider amending the general provisions of the Zoning Code at a future date to reduce the risk of structure-to-structure ignition by increasing separation requirements between all structures, both within a parcel and between adjoining parcels.

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<sup>i</sup> Fire History in the East Bay Map, East Bay Regional Park District;  
[https://www.ebparks.org/sites/default/files/history\\_all\\_fires.pdf](https://www.ebparks.org/sites/default/files/history_all_fires.pdf)

<sup>ii</sup> City of Berkeley, Standards of Coverage and Community Risk Assessment, 2023, CityGate, LLC.

<sup>iii</sup> City of Berkeley, Standards of Coverage and Community Risk Assessment, 2023, CityGate, LLC.

<sup>iv</sup> NIST Technical Note 2205: WUI Structure/Parcel/Community Fire Hazard Mitigation Methodology;  
<https://doi.org/10.6028/NIST.TN.2205>

<sup>v</sup> NIST Technical Note 2205: <https://doi.org/10.6028/NIST.TN.2205>

<sup>vi</sup> Fig. 8; NIST Technical Note 2205: WUI Structure/Parcel/Community Fire Hazard Mitigation Methodology;  
<https://doi.org/10.6028/NIST.TN.2205>

<sup>vii</sup> City of Berkeley, Standards of Coverage and Community Risk Assessment, 2023, CityGate, LLC.

<sup>viii</sup> City of Berkeley, Standards of Coverage and Community Risk Assessment, 2023, CityGate, LLC.