



County of Lassen
Department of Planning and Building Services

• Planning • Building • Environmental Health • Code Enforcement • Surveyor • Surface Mining

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January 11, 2023

TO: Board of Supervisors
 Agenda Date: January 17, 2023

FROM: Maurice L. Anderson, Director

Zoning & Building
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SUBJECT: The Board shall consider commenting on the proposed revisions to CAL FIRE's Fire Hazard Severity Zone (FHSZ) map, which ranks the State Responsibility Area (SRA) of California based on the likelihood different areas will experience wildfire.

ACTION REQUESTED:

- 1) Receive Report
- 2) Provide Direction to Staff

DISCUSSION:

The State Fire Marshall is mandated to classify lands within State Responsibility Areas (SRA's) into Fire Hazard Severity Zones (FHSZ). Fire Hazard Severity Zones fall into the following classifications:

- Moderate
- High
- Very High

A Statewide update to the FHSZ map and zones is currently being circulated for public review. According to the Office of the State Fire Marshall, the updated FHSZ maps are developed using a science-based and field-tested model that assigns a hazard score based on the factors that influence fire likelihood and fire behavior. Many factors are considered such as fire history, existing and potential fuel (natural vegetation), predicted flame length, blowing embers, terrain, and typical fire weather for the area.

The FHSZ maps evaluate "hazard," not "risk". They are like flood zone maps, where lands are described in terms of the probability level of a particular area being inundated by floodwaters, and not specifically prescriptive of impacts. "Hazard" is based on the physical conditions that create a likelihood and expected fire behavior over a 30 to 50-year period without considering mitigation measures such as home hardening, recent wildfire, or fuel reduction efforts. "Risk" is the potential damage a fire can do to the area under existing conditions, accounting for any modifications such as fuel reduction projects, defensible space, and ignition resistant building construction.

According to CAL Fire, and the California State Association of Counties, the same State requirements will apply to property owners regardless of whether a particular SRA is reclassified or not. Further, senior staff of this Department have determined that under Lassen County Code Chapter 9.16 (Fire Hazards), direct impacts to property owners resulting from the proposed changes to the FHSZ map will be minimal. In fact, the only provision tied to FHSZ rating is found in section 9.16.370 of the Lassen County Code, and relates to the maximum length of dead-end roads in Recreational Vehicle/mobile home parks. That said, there is no way of knowing how FHSZ maps or ratings will be used in future state legislation, or by any other rule making body.

Inclusions H-1a-g: Stakeholder letter, text of regulations, Statement of Reasons, FAQ (CAL Fire), Q&A (Insurance Commissioner), CAL fire model for FHSZ development, FHSZ Map



DEPARTMENT OF FORESTRY AND FIRE PROTECTION
OFFICE OF THE STATE FIRE MARSHAL
P.O. Box 944246
SACRAMENTO, CA 94244-2460
(916) 568-3800
Website: www.fire.ca.gov



December 13, 2022

Dear Stakeholder,

CAL FIRE - Office of the State Fire Marshal will begin a public comment period for the regulatory adoption process of the Fire Hazard Severity Zone (FHSZ) map, which is a comprehensive map that ranks the State Responsibility Area (SRA) of California based on the likelihood different areas will experience wildfire.

As part of the adoption process of the map, CAL FIRE invites public comment on the proposed map between December 16, 2022, and February 3, 2023. The public may submit written comment at the address below or through email at FHSZcomments@fire.ca.gov. In addition, CAL FIRE will host a public comment hearing in all 56 counties that have SRA to receive public comment. Information on the hearings can be found on CAL FIRE's website at osfm.fire.ca.gov/FHSZ.

Written comments may be submitted by U.S. mail to the following address:

Office of the State Fire Marshal
C/O: FHSZ Comments
California Department of Forestry and Fire Protection
P.O. Box 944246
Sacramento, CA 94244-2460

CAL FIRE's fire scientists, and wildfire mitigation experts, developed the map using a science-based and field-tested model that assigns a hazard score based on the factors that influence fire likelihood and fire behavior. Many factors are considered, such as fire history, existing and potential fuel (natural vegetation), predicted flame length, blowing embers, terrain, and typical fire weather for an area. These zones fall into the following classifications – moderate, high, and very high.

Overall, the map shows increased fire hazard, reflecting California's increase in wildfire severity as a result of many factors including a changing climate. The map has been updated to more accurately reflect the zones in California that are susceptible to wildfire, to help provide transparency for planning and preparedness efforts, and to provide communities a forecasting tool so that the public can take steps to prevent and prepare for wildfire. The hazard mapping process incorporates local climate data and changes in burn probability based on recent trends in fire occurrence. The model was reviewed and validated by members of the science community, as well as with outreach with various stakeholders including insurance, building, fire, and local agencies.

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In order to help California residents better understand the FHSZ map and answer questions, CAL FIRE has created a public toolkit on its website to include new and easy to follow sections, including maps, frequently asked questions, and an automated "hotline" to contact for specific information. The new website also includes dates, times, and locations of FHSZ public hearings that will be held in the 56 Counties that have FHSZs within the SRA. For information about FHSZs, visit the program's website at osfm.fire.ca.gov/FHSZ. The public can also call an automated hotline at (916) 633-7655.

Following the adoption of the SRA FHSZ Map, CAL FIRE - Office of the State Fire Marshal will begin providing local agencies updated FHSZ maps for Local Responsibility Areas. Under California Government Code 51178, the State Fire Marshal is required to provide local agencies with the areas within their jurisdiction that meet FHSZ criteria for their local adoption and implementation.

Enclosed you will find the following documents:

- FHSZ Draft Regulation
- Your County's Specific Map

For information about FHSZs, visit the program's website at osfm.fire.ca.gov/FHSZ. If you have additional questions, please feel free to contact our Team at FHSZinformation@fire.ca.gov.

Sincerely,



Daniel Berlant
Deputy Director
Community Wildfire Preparedness & Mitigation
CAL FIRE – Office of the State Fire Marshal

TEXT OF PROPOSED REGULATIONS

Title 14 and Title 19

Title 14. Natural Resources

Division 1.5. Department of Forestry and Fire Protection* (Refs & Annos)

Chapter 7. Fire Protection* (Refs & Annos)

Subchapter 3. Fire Hazard

Article 1. Fire Hazard Severity

Section 1280.01

Added text is shown in underline and deleted text is shown in ~~strikethrough~~.

~~1280.01. Fire Hazard Severity Zones in the SRA.~~

~~The fire hazard severity zones and the rating reflecting the degree of severity of fire hazard that is expected to prevail in those zones, shall be designated by the Director and delineated on a series of maps on file in the Sacramento Office of the Department of Forestry and Fire Protection, Fire and Resources Assessment Program, 1300 U St. The official maps are also filed electronically on the Department's web site, <https://osfm.fire.ca.gov/divisions/community-wildfire-preparedness-and-mitigation/wildland-hazards-building-codes/fire-hazard-severity-zones-maps/>. The maps are entitled "Fire Hazard Severity Zones in [State Responsibility Area] SRA," dated November 7, 2007, and are incorporated by reference.~~

Credits

~~NOTE: Authority cited: Sections 4202, 4203 and 4204, Public Resources Code.~~

~~Reference: Sections 4201, 4202, 4203 and 4204, Public Resources Code; and Section 51179, Government Code.~~

Regulations previously found in this section are now adopted as Title 19, Division 1, State Fire Marshal, Chapter 17. Fire Hazard Severity Zone, Article 1. Fire Hazard Severity Zone Classification Section 1280.01.

Credits NOTE: Authority cited: Sections 4202, 4203 and 4204, Public Resources Code. Reference: Sections 4125, 4201, 4202, 4203 and 4204, Public Resources Code; and Section 51179, Government Code.

Title 19 Public Safety
Division 1. State Fire Marshal
Chapter 17. Fire Hazard Severity Zone
Article 1. Fire Hazard Severity Zone Classification

Section 1280. Definitions
Section 1280.01. Fire Hazard Severity Zones in the SRA

1280.00. Definitions.

The following definitions apply to Title 19 of the California Code of Regulations (19 CCR), Division 1, Chapter 17, Article 1.

State Fire Marshal: The State Fire Marshal or their designee.

Local responsibility area (LRA): Those areas of land classified by the Board of Forestry and Fire Protection (Board) where the financial responsibility of preventing and suppressing wildfires is not that of the state or federal government, pursuant to Public Resources Code (PRC) section 4125.

Portable document format (PDF): file format used to present and exchange documents reliably, independent of software, hardware, or operating system. PDF is an open standard maintained by the International Organization for Standardization (ISO).

State Responsibility Area (SRA): As defined in Public Resources Code section 4102.

Very high fire hazard severity zone (VHFHSZ): as defined in Government Code section 51177(i).

Credits

NOTE: Authority cited: Sections 4202, 4203 and 4204, Public Resources Code.
Reference: Sections 4125, 4201, 4202, 4203 and 4204, Public Resources Code; and
Section 51179, Government Code.

1280.01. Fire Hazard Severity Zones in the SRA.

The fire hazard severity zones and the rating reflecting the degree of severity of fire hazard that is expected to prevail in those zones, shall be designated by the State Fire Marshal and delineated on a map on file in the Sacramento Office of the Department of Forestry and Fire Protection, Office of the State Fire Marshal, Fire and Resources Assessment Program, 715 P Street.

The map, approved by the Office of the State Fire Marshal, is hereby incorporated by reference and entitled "State Responsibility Area Fire Hazard Severity Zones" dated November 21, 2022.

The official map is also filed electronically on the following website:

<https://osfm.fire.ca.gov/fire-hazard-severity-zones>

Credits

NOTE: Authority cited: Sections 4202, 4203 and 4204, Public Resources Code.

Reference: Sections 4201, 4202, 4203 and 4204, Public Resources Code; and Section 51179, Government Code.

INITIAL STATEMENT OF REASONS (ISOR)

California Code of Regulations
Title 14. Natural Resources
Division 1.5. Department of Forestry and Fire Protection* (Refs & Annos)
Chapter 7. Fire Protection* (Refs & Annos)
Subchapter 3. Fire Hazard
Article 1. Fire Hazard Severity
Section 1280.01

Fire Hazard Severity Zone Designations and Ratings in the State Responsibility Area:

Introduction:

Public Resources Code (PRC) Section 4204 requires the State Fire Marshal (SFM) to periodically review and revise the Fire Hazard Severity Zone (FHSZ) designations and ratings in the State Responsibility Area (SRA). If the review results in revisions to the designations or ratings, the Office of the State Fire Marshal (OSFM) is required to transmit the proposed regulations to each impacted county and hold a public hearing, compliant with PRC Section 4203.

There are three FHSZ designations, based on increasing fire hazard. Hazard is based on the physical conditions that create a likelihood and potential fire behavior over a 30 to 50-year period. Classification of a zone as Moderate, High, or Very High fire hazard is based on a combination of how a fire will behave and the probability of flames and embers threatening buildings. Each area of the map gets a score for flame length, embers, and the likelihood of the area burning.

The SRA is made up of areas of the state in which the financial responsibility of preventing and suppressing fires has been determined to be primarily the responsibility of the state.

The boundaries of the SRA are identified by the Board of Forestry and Fire Protection, as directed by PRC Section 4125, using the criteria provided in PRC Sections 4126-4135.

Problem Statement:

PRC Section 4201 requires that FHSZ classifications are used to identify the most effective measures for fire prevention, intensity, and spread; in order to reduce the threat to resources, life, or property. PRC Section 4202 outlines the technical requirements for the classification development.

Improved fire science, data, and mapping techniques are now available to identify the most effective measures for fire prevention, intensity, and spread. The technical requirements for the classifications, located in PRC Section 4202, have also been amended. The new FHSZ map is intended to map fire hazard based on fuel loading, slope, fire weather, and other relevant factors present, including areas where winds have been identified by the department as a

major cause of wildfire spread. These factors are combined into the term “hazard” to refer to the physical conditions that create fire behavior that can lead to damage.

Based on these factors, there is substantial evidence that the current FHSZ classifications must be updated to effectuate the purpose of PRC Sections 4201 and 4202. The current FHSZ classifications are incorporated by reference into CCR14 Section 1280.01, “Fire Hazard Severity Zones in [State Responsibility Area] SRA,” dated November 7, 2007.

A Statement of the Specific Purpose of Each Adoption, Amendment, or Repeal:

The adoption of an updated version of the FHSZ SRA map and the repeal of the current map as documents incorporated by reference will provide directly affected persons with improved resources to identify the most effective measures for fire prevention, intensity, and spread; based on their local conditions. These updates are necessary to effectuate the public safety purposes of PRC Sections 4202, 4203, and 4204.

The revisions will also be compliant with legislative mandates found in both Assembly Bill (AB) 9 (Wood, Chapter 255, Statutes of 2021) and AB 1595 (Kehoe, Chapter 366, Statutes of 2008). These statutes amended PRC Sections 4202, 4203, and 4204. New requirements include shifting approval responsibilities from the Director to the SFM and including “areas where winds have been identified by the department as a major cause of wildfire spread” in map development.

The requirements for legal compliance within the OSFM’s regulatory scope are not changed by the FHSZ classifications. In the SRA, fire prevention requirements within the OSFM’s regulatory authority are enforced uniformly. All locations in the SRA are subject to the same requirements, rights, responsibilities, conditions, prescriptions, or other regulatory elements within the OSFM’s jurisdiction.

However, separate statutory mandates outside of the OSFM’s regulatory scope require that all property in High or Very High FHSZs comply with Civil Code 1102.6f, real estate disclosures Assembly Bill 38 (Wood, Chapter 391, Statutes of 2019). These disclosures are known as “AB 38 Defensible Space Inspections,” and are not required for property in Moderate FHSZs. As a result of the proposed regulations, the boundaries of Moderate, High, or Very High FHSZs may shift, altering which properties are required to comply. However, every FHSZ in the SRA is already required to comply with the underlying defensible space requirements of AB 38 located in PRC Section 4291.

Evidence Supporting Finding of No Significant Adverse Economic Impact on Any Business.

The OSFM has initially determined that the proposed regulations will not have a significant adverse economic impact on business or incur a cost beyond what a reasonable person could expect. This determination is based on uniform enforcement of fire prevention requirements within the SRA.

Because standards and procedures used to judge compliance with fire prevention requirements are not changed by the FHSZ classifications, a change in the classifications does not create or incur a direct cost to businesses beyond what a reasonable person could expect.

The creation or elimination of jobs within the state.

The proposed regulations are not expected to have a significant impact on the creation or elimination of jobs within the State of California.

The creation of new businesses or the elimination of existing businesses within the state.

It is anticipated that the proposed regulations will not significantly impact the creation or elimination of businesses in California.

The expansion of businesses currently doing business within the state.

It is unlikely that the proposed regulation will encourage or discourage businesses from expanding their business in California.

The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

The OSFM has determined that this regulatory proposal will benefit public safety by providing directly affected persons with improved resources to identify the most effective measures for fire prevention, intensity, and spread; based on their local conditions. Measures include elements such as wildland-urban interface building standards for new construction, natural hazard real estate disclosure at time of sale, 100-foot defensible space clearance requirements around buildings, and State Minimum Fire Safe Regulations such as road widths, water supply and signage.

Documents Incorporated by Reference.

The maps incorporated by reference in this action are formal publications reasonably available from the OSFM at any time upon request and during the rulemaking action. The map will not be printed in the California Code of Regulations because to do so would be cumbersome, unduly expensive, or otherwise impractical. The map, including the Geographic Information System (GIS) data, are available on the OSFM website located at <https://osfm.fire.ca.gov/fire-hazard-severity-zones>. The link is also provided in the express terms of the proposed amendments to the regulation.

The map, approved by the OSFM, are documents incorporated by reference and entitled "State Responsibility Area Fire Hazard Severity Zones" dated November 21, 2022.

Technical, Theoretical or Empirical Study, Report, or Similar document relied upon.

As part of the development process, a Technical Advisory Committee (TAC) reviewed the model that created the maps. TAC members included members from public agencies, academic institutions, and representatives from the Insurance Institute for Business and Home Safety. These were conversations only, and there were no documents relied upon in connection with these consultations.

The TAC was composed of external subject matter experts in wildland hazard and risk assessment, geospatial modeling, urban-interface fire mechanics, and mechanical engineering. Each TAC member was instructed to work independently, to maintain the perspective of each discipline. The TAC was provided a detailed methods and draft dataset for review for a subset of California and comments received were incorporated where possible into the model revision and development of the statewide SRA map.

A two-kilometer grid of climate data covering the years 2003-2018 was used as the foundation for the model. The previous model used stock weather inputs across the state to calculate wildland fire intensity scores. The updated model will adjust fire intensity scores based on the most extreme fire weather at a given location, considering temperature, humidity, and wind speed. In addition, ember transport is being modeled based on local distributions of observed wind speed and direction values instead of using a generic buffer distance for urban areas adjacent to wildlands. A FHSZ class is assigned based on the average hazard across the area included in the zone.

The fire hazard was modeled and the FHSZ map is built focusing only on fire hazard, which is best understood in terms of the nature of fire. Hazard is based on the physical conditions that create a likelihood and potential fire behavior over a 30 to 50-year period without considering mitigation measures such as home hardening, recent wildfires, or fuel reduction efforts.

Zones in this context are defined as areas that have similar potential fire behavior characteristics. Data used to determine hazard, including both fire behavior and burn probability, are averaged over a minimum zone size of 20 acres in urbanized areas and 200 acres in non-urbanized wildland areas.

The product of the FHSZ model is a GIS data set that can be used to assess hazard. Areas are mapped in Moderate, High, and Very High classifications.

The OSFM maintains an ongoing public outreach campaign to educate the directly affected public about the nature and impacts of FHSZs. This includes materials such as Frequently Asked Questions, an interactive viewer, and a link to the AB 38 Defensible Space Inspection Form/Real Estate Disclosure.

Pursuant to PRC Section 4203, before adopting the new map, the OSFM is required to transmit a copy of the proposed map to the Board of Supervisors of each county where a zone assignment of a rating is designated in the SRA. The transmittal must be at least 45 days

before the adoption of the regulation and a public hearing must be held during the 45-day period in each county.

Background about fire prevention can also be found at the following websites:

<https://www.readyforwildfire.org/>

<https://osfm.fire.ca.gov/fire-hazard-severity-zones>

<https://frap.fire.ca.gov/>

Documents Relied Upon:

Vegetation. CAL FIRE FRAP. 2015. <https://map.dfg.ca.gov/metadata/ds1327.html>

Fire history (firep20_1). CAL FIRE FRAP. 2020. <https://frap.fire.ca.gov/frap-projects/fire-perimeters/>

Climate data. Desert Research Institute, California and Nevada Smoke and Air Committee. 2018. <https://cansac.dri.edu/cofframe.php?page=reanalysis.php>

Climatic regions. CAL FIRE FRAP. 2017. [In] California's Forests and Rangelands 2017 Assessment. <https://frap.fire.ca.gov/media/4babn5pw/assessment2017.pdf>

Urbanized Areas. US Census. 2010. <https://www.census.gov/programs-surveys/geography/guidance/geo-areas/urban-rural/2010-urban-rural.html>

Canopy Cover (source 1). Earth Define LLC. 2020. Tree Map. <https://www.earthdefine.com/treemap/>

Canopy Cover (source 2). Salo Sciences. 2020. California Forest Observatory Canopy Cover. <https://salo.ai/blog/2020/04/observatory-documents>

State Responsibility Area. CAL FIRE. 2020. <https://bof.fire.ca.gov/projects-and-programs/state-responsibility-area-viewer/>

Slope. US Geologic Survey. 2019. 1 arc-second (30 m) DEM. <https://apps.nationalmap.gov/downloader/>

Watershed boundaries. California Interagency Watershed Mapping Committee. 2018. Calwater 2.2.1. <https://gispublic.waterboards.ca.gov/portal/home/item.html?id=be2edf6d62f54e7a82594ad7f5464209>

Anticipated benefits from this regulatory action:

While this regulatory action has very limited direct impacts, broad compliance with fire prevention measures by directly affected persons results in improved outcomes for the protection of life and property against wildfire.

Measures include more effective use of statutory requirements such as wildland-urban interface building standards for new construction, use of natural hazard real estate disclosure at time of sale, 100-foot defensible space clearance requirements around buildings, and State Minimum Fire Safe Regulations such as road widths, water supply, and signage.

Benefits of the Regulations to the Health and Welfare of California Residents, Worker Safety, and the State's Environment.

These regulations will provide a direct benefit to the public safety of the people of California. The OSFM has determined that this regulatory proposal will benefit public safety by providing directly affected persons with improved resources to identify the most effective measures for fire prevention and mitigation.

Small Business Determination:

Businesses may self-identify as part of their public participation in the regulatory process. However, the public safety requirements of this program do not require disclosure of business details which would identify a "small business," as it is defined by Government Code 11342.610.

The OSFM has made the initial determination that these proposed regulations will have no "substantial" effect to small businesses as identified.

Alternatives:

The OSFM has determined that no alternatives would be more effective in carrying out the purpose for which the action is proposed, would be as effective and less burdensome to affected private persons than the proposed action; or would be more cost-effective to affected private persons and equally effective in implementing the statutory policy or other provision of law.

The requirements for legal compliance are not changed by the FHSZ classifications, therefore alternatives to the proposed regulations would not provide an option that would provide a benefit to directly affected persons.

In the SRA, fire prevention requirements are enforced uniformly. All individuals who are legally required to comply with these regulations are located in the SRA. Within the OSFM's regulatory authority, all locations in the SRA are subject to the same requirements, rights, responsibilities, conditions, prescriptions, and other regulatory elements.

Use of Required Standards:

The OSFM has not identified a performance standard which would replace the model used to determine hazard classifications in the SRA and prevent any unnecessary regulatory burden on private individuals. The model used for this development, and the future compliance with development requirements in PRC Section 4202 required a multiyear effort, participation and coordination across multiple governmental agencies, participation by a variety of science and technical professionals. There is no performance standard that can be reasonably expected to be as effective and less burdensome, than the standard included in the proposed regulations.

Facts, evidence, documents, testimony, or other evidence relied upon to support an initial determination that the regulation will not have a significant adverse economic impact on business:

The OSFM has initially determined that the proposed regulations will not have a significant adverse economic impact on business. In the SRA, fire prevention requirements are enforced uniformly. All individuals who are legally required to comply with these regulations are located in the SRA. Within the OSFM's regulatory authority, all locations in the SRA are subject to the same requirements, rights, responsibilities, conditions, prescriptions, and other regulatory elements. As noted above, because the requirements for legal compliance are not changed by the FHSZ classifications, the proposed regulations are not anticipated to have a significant economic impact on businesses.

Coordination with Federal Law:

The SFM has determined that this proposed regulatory action neither conflicts with nor duplicates any federal regulation contained in the Code of Federal Regulations.



FREQUENTLY ASKED QUESTIONS ABOUT: *2022 Fire Hazard Severity Zones*

Fire Hazard Severity Zones Explained

- What is a “Fire Hazard Severity Zone,” or FHSZ?
 - **Answer:** Public Resource Code 4202; The State Fire Marshal shall classify lands within state responsibility areas into fire hazard severity zones. Each zone shall embrace relatively homogeneous lands and shall be based on fuel loading, slope, fire weather, and other relevant factors present, including areas where winds have been identified by the department as a major cause of wildfire spread. Government Code 51178; The State Fire Marshal shall identify areas in the state as moderate, high, and very high fire hazard severity zones based on consistent statewide criteria and based on the severity of fire hazard that is expected to prevail in those areas. Moderate, high, and very high fire hazard severity zones shall be based on fuel loading, slope, fire weather, and other relevant factors including areas where winds have been identified by the Office of the State Fire Marshal as a major cause of wildfire spread.

When were the maps last updated?

- **Answer:** In 2007, CAL FIRE updated the FHSZs for the entire State Responsibility Area (SRA). Between 2008-2011 the department worked with local governments to make recommendations of the Very High Fire Hazard Severity Zones within Local Responsibility Areas (LRA).

• **When will the maps be updated?**

- **Answer:** Over the past few years, CAL FIRE has been building the new model for a 2022 update. The latest technologies will be used in the mapping and will include new factors now available including land use changes, recent fire history, new significant wind event data, as well as a model that is more spatially detailed.

• **Why are fire hazard severity maps being updated?**

- **Answer:** The hazard maps are being updated to more accurately reflect the zones in California that are susceptible to wildfire. The hazard mapping process will incorporate new science in local climate data and improved fire assessment modeling in determining hazard ratings.

• **What do Fire Hazard Severity Zones measure?**

- **Answer:** The Fire Hazard Severity Zone map evaluates “hazard,” not “risk”. The map is like flood zone maps, where lands are described in terms of the probability level of a particular area being inundated by floodwaters, and not specifically prescriptive of impacts. “Hazard” is based on the physical conditions that create a likelihood and expected fire behavior over a 30 to 50-year period without considering mitigation measures such as home hardening, recent wildfire, or fuel reduction efforts. “Risk” is the potential damage a fire can do to the area under existing conditions, accounting for any modifications such as fuel reduction projects, defensible space, and ignition resistant building construction.

• **Where do Fire Hazard Severity Zones apply?**

- **Answer:** Fire Hazard Severity Zones are found in areas where the state has financial responsibility for wildfire protection and prevention, called the State Responsibility Area. More than 31 million acres are in this area. Under Senate Bill 63 (Stern, 2021) Government

Code 51178 was amended to add the Moderate and High Fire Hazard Severity Zones with the Very High in local jurisdictions.

- **What are the uses of Fire Hazard Severity Zones?**
 - **Answer:** The zones are used for several purposes including to designate areas where California's defensible space standards and wildland urban interface building codes are required. They can be a factor in real estate disclosure, and local governments may consider them in their general plan.
- **Is there an easy way to determine the Fire Hazard Severity Zone of my property?**
 - **Answer:** You can search by address to find your current designation on the web at: osfm.fire.ca.gov/FHSZ
- **What are the key elements of the Fire Hazard Severity Zone model?**
 - **Answer:** The fire hazard severity model for wildland fire has two key elements: probability of an area burning and expected fire behavior under extreme fuel and weather conditions. The zones reflect areas that have similar burn probabilities and fire behavior characteristics. The factors considered in determining fire hazard within wildland areas are fire history, flame length, terrain, local weather, and potential fuel over a 50-year period. Outside of wildlands, the model considers factors that might lead to buildings being threatened, including terrain, weather, urban vegetation cover, blowing embers, proximity to wildland, fire history, and fire hazard in nearby wildlands. FHSZs are not a structure loss model, as key information regarding structure ignition (such as roof type, etc.) is not included.
- **How do the Fire Hazard Severity Zone Maps differ from California Public Utilities Commission (CPUC) High Fire Threat District Maps?**
 - **Answer:** The California Public Utilities Commission (CPUC) sponsored map, known as "CPUC High Fire Threat District Map" (HFTD), includes similar factors as those in the FHSZ maps, however the CPUC HFTD Map is designed specifically for identifying areas where there is an increased risk for utility associated wildfires. As such, the CPUC map includes fire hazards associated with historical powerline-caused wildfires, current fuel conditions, and scores areas based on where fires start, as opposed to where potential fires may cause impacts.

Data Related Questions

- **How are Fire Hazard Severity Zones determined?**
 - **Answer:** CAL FIRE used the best available science and data to develop, and field test a model that served as the basis of zone assignments. The model evaluated the probability of the area burning and potential fire behavior in the area. Many factors were included such as fire history, vegetation, flame length, blowing embers, proximity to wildland, terrain, and weather.
- **What new data will be included in the new model, and how does this differ from the previous model?**
 - **Answer:** A 2 km grid of climate data covering the years 2003-2018 is being used in the update. The previous model used stock weather inputs across the state to calculate wildland fire intensity scores. The updated model will adjust fire intensity scores based on the most extreme fire weather at a given location, considering temperature, humidity, and wind speed. In addition, ember transport is being modeled based on local distributions of observed wind speed and direction values instead of using a generic buffer distance for urban areas adjacent to wildlands.

- What is the difference between the various Fire Hazard Severity Zones?
 - **Answer:** Classification of a wildland zone as Moderate, High or Very High fire hazard is based on the average hazard across the area included in the zone, which have a minimum size of 200 acres. In wildlands, hazard is a function of modeled flame length under the worst conditions and annual burn probability. Both these factors generally increase with increasing hazard level, but there may be instances where one value is Very High and the other is low, pushing the overall hazard into a more intermediate ranking. On average, both modeled flame length and burn probability increase by roughly 40-60% between hazard classes. Classification outside of wildland areas is based on the fire hazard of the adjacent wildland and the probability of flames and embers threatening buildings.
- Why does the model place an emphasis on the spread of embers?
 - **Answer:** Embers spread wildfire because they can travel long distances in the wind and ignite vegetation, roofs, attics (by getting into vents), and decks.
- Is the GIS data for Fire Hazard Severity Zones available for download?
 - **Answer:** FHSZ geospatial data files are currently not available during the adoption process. The regulation incorporates the map by reference, and it is presented as an accurate and tractable representation of the data; release of the data could compromise the integrity of the data causing misrepresentation of the map and regulation. Upon completion of this process, the FHSZ maps will become formally adopted; at that time geospatial data files will become available. We have provided a web map service for you to view the zone classifications at osfm.fire.ca.gov/FHSZ.
- Why do waterbodies have a Fire Hazard Severity Zone Classification?
 - **Answer:** All areas in State Responsibility Area, including water bodies, require a fire hazard severity zone designation. The 2007 FHSZ maps zoned all water as moderate by default. In the 2022 FHSZ model we added a buffer of FHSZ from the surrounding wildland into water bodies to account for potential threat of embers to buildings on docks and house boats, as well as variation in reservoir height that occurs with drought.

State Regulated Area Questions

- What is "State Responsibility Area," or SRA?
 - **Answer:** SRA is a legal term defining the area where the state has financial responsibility for wildland fire protection and prevention. Incorporated cities and federal ownership are not included. Within the SRA, CAL FIRE is responsible for fire prevention and suppression. There are more than 31 million acres in SRA, with an estimated 1.7 million people and 800,000 existing homes.
- How is state responsibility area determined?
 - **Answer:** The Board of Forestry and Fire Protection (Board) classifies land as State Responsibility Area. The legal definition of SRA is found in the Public Resources Code Section 4125. The Board has developed detailed procedures to classify lands as State Responsibility Area. Lands are removed from SRA when they become incorporated by a city, change in ownership to the federal government, become more densely populated, or are converted to intensive agriculture that minimizes the risk of wildfire. While some lands are removed from SRA automatically, the Board typically reviews changes every five years.
- What Fire Hazard Severity Zones are in State Responsibility Area?
 - **Answer:** All of the State Responsibility Area is in a Fire Hazard Severity Zone. Lands are either ranked as Moderate, High or Very High Fire Hazard Severity Zones.

- What are the wildland urban interface (WUI) building codes in State Responsibility Area?
 - Answer: The WUI building codes (California Building Code (CBC) Chapter 7A) reduce the risk of embers fanned by wind-blown wildfires from igniting buildings. The codes for roofing, siding, decking, windows, and vents apply throughout all state responsibility area regardless of the fire hazard severity ranking. Ember-resistant building materials can be found at: <https://osfm.fire.ca.gov/divisions/fire-engineering-and-investigations/building-materials-listing/>

Local Regulated Area Questions

- What is “Local Responsibility Area”, or LRA?
 - Answer: Local Responsibility Areas (LRA) are incorporated cities, urban regions, agriculture lands, and portions of the desert where the local government is responsible for wildfire protection. This is typically provided by city fire departments, fire protection districts, counties, and by CAL FIRE under contract.
- What is the “Bates Bill”?
 - Answer: The “Bates Bill” (AB 337), Government Code Section 51175, was prompted by the devastating Oakland Hills Fire of 1991. This mid-1990s legislation calls for CAL FIRE to evaluate fire hazard severity in local responsibility area and to make a recommendation to the local jurisdiction where very high FHSZs exist. The Government Code then provides direction for the local jurisdiction to take appropriate action.
- How are Fire Hazard Severity Zones determined in local responsibility areas?
 - Answer: CAL FIRE uses an extension of the state responsibility area Fire Hazard Severity Zone model as the basis for evaluating fire hazard in Local Responsibility Area. The Local Responsibility Area hazard rating reflects flame and ember intrusion from adjacent wildlands and from flammable vegetation in the urban area.
- What are the requirements for landowners in FHSZs in local responsibility areas? GC51189
 - Answer: California’s WUI building codes (CBC Chapter 7A) apply to the design and construction of new buildings located in High and Very High FHSZs in Local Responsibility Areas. Local ordinances may require ignition resistant construction for remodel projects. Check with your local building department to determine which ignition resistant building codes apply to your project. In addition, Government Code Section 51182 calls for defensible space clearance and other wildland fire safety practices for buildings. Owners are also required to make a natural hazard disclosure as part of a real estate transfer. For information regarding “home hardening” and defensible space clearance, visit www.ReadyForWildfire.org.
- Does the designation of Very High Fire Hazard Severity Zones in the Local Responsibility Area trigger the 100-foot clearance requirement?
 - Answer: Yes, per Government Code 51182 unless a local government has passed a more stringent requirement, the 100-foot defensible space clearance applies. For information regarding “home hardening” and defensible space clearance, visit www.ReadyForWildfire.org.
- How does CAL FIRE assist Local Governments in Fire Hazard Severity Zones?
 - Answer: CAL FIRE’s Land Use Planning Program is a specialized unit that provides support to local governments by providing fire safety expertise on the State’s wildland urban interface building codes, wildfire safety codes, as well as helping in the development of

the safety elements in general plans. Currently there are 189 cities and 56 counties with FHSZ.

- What is the process for developing Fire Hazard Severity Zones in the Local Responsibility Area?
 - Answer: CAL FIRE uses the same modeling data that is used to map the State Responsibility Area. The department works with local jurisdictions for validation of the mapping. The map, along with a model ordinance, are then sent to the governing body for adoption.
- How are the new Fire Hazard Severity Zones impacting development?
 - Answer: Many of the changes expanding fire hazard severity zones in local responsibility areas (LRA) have been supported by the building industry. CAL FIRE works closely with the building industry when setting various building codes and defensible space requirements, so we are working together to not affect development itself but to make sure development matches the hazards of that area.
- When will the Local Responsibility Area Map be released?
 - Answer: The Local Responsibility Area Map Process will happen after the State Regulated Area process has been completed, which is estimated to occur in Spring or Summer of 2023.

Insurance Related Questions

- Will the new fire hazard severity zones affect my ability to get or maintain insurance?
 - Answer: Insurance companies use risk models, which differ from hazard models, because they consider the susceptibility of a structure to damage from fire and other short-term factors that are not included in hazard modeling. It is unlikely that insurance risk models specifically call out CAL FIRE Fire Hazard Severity Zones as a factor, but much of the same data that is used in the fire hazard severity zone model are likely included in the insurance companies' risk models. However, insurance risk models incorporate many additional factors and factors that change more frequently than those that CAL FIRE includes in its hazard mapping, which is built to remain steady for the next 10+ years.

Resources, Additional Information, and Contact Information

- To find the current FHSZ designation for a property, visit FHSZ Map Viewer (ca.gov).
- Helpful links:
 - FHSZ Website:
 - osfm.fire.ca.gov/FHSZ
 - FHSZ Map Viewer:
 - [FHSZ Map Viewer \(ca.gov\)](https://ca.gov)
- Contacts for FHSZ for Public Questions:

(916) 633-7655

FHSZinformation@fire.ca.gov

RICARDO LARA

INSURANCE COMMISSIONER

California Department of Insurance

Q&A – Insurance and CAL FIRE Fire Hazard Severity Zone Maps

1. How will the updated CAL FIRE maps affect insurance availability and affordability?

CAL FIRE's maps are intended to drive local planning decisions, not insurance decisions. Under Commissioner Lara's new regulation finalized in October 2022, insurance companies must provide discounts for wildfire safety actions such as community mitigation and home-hardening, which CAL FIRE's maps do not assess. In addition, insurance companies are already using risk analysis tools and models that go beyond CAL FIRE's proposed maps in determining what properties they will underwrite.

Commissioner Lara's new wildfire safety regulation will help increase access to insurance by promoting wildfire safety across the state. Reducing wildfire risks throughout the state is the primary way we can make insurance more available and affordable, and our regulation is a major step towards that goal. CAL FIRE's maps support that goal through improving public education about hazard and the need for safety preparation.

2. How will these maps benefit the public?

Public education about where current wildfire hazards exist is essential to reducing the threat to local communities and maintaining access to available and affordable insurance. When communities know and understand their risks, they can plan and prepare.

In addition, the Department's first-ever report on climate insurance recommended updated wildfire hazard mapping to improve public safety.

3. If you are a homeowner and your zone changed from High Hazard to Very High Hazard, will this impact your insurance premiums or renewal ability?

For many years, insurance companies have been using alternate wildfire risk tools for determining where they will write and renew policies, and how much premium to charge a policyholder, not the Fire Hazard Severity Zone maps. Therefore, a change in designation on the maps for a single homeowner is unlikely to affect their insurance. The reality is that more accurate risk information enables homeowners and communities to reduce their wildfire risks, and Commissioner Lara's new wildfire mitigation regulation clarifies what actions you should take to reduce wildfire risks. Once that regulation is fully implemented, if a homeowner or business owner takes those risk mitigation actions, they will be able to see a discount in their insurance premium.

4. How is the state addressing wildfire mitigation?

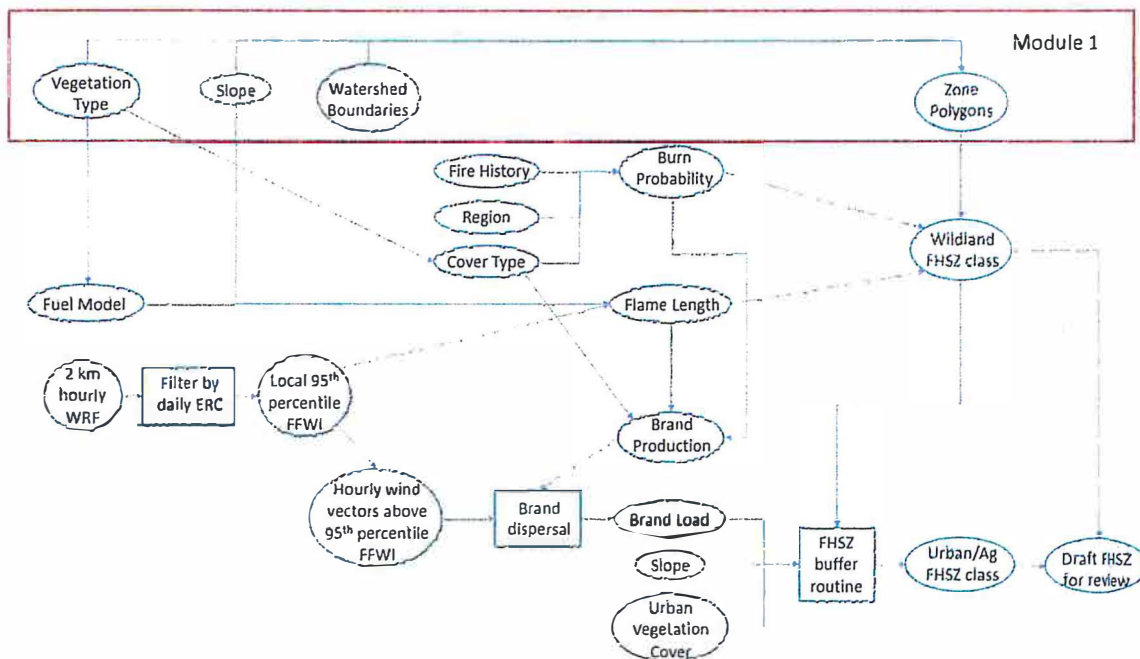
By design, CAL FIRE's maps are focused on long-range wildfire hazard, which includes only certain variables, like wind, vegetation, ember production and movement, climate, topography, and fire history. CAL FIRE's maps will give up to date information to communities about the level of wildfire hazard they face, which could help target resources at the state and local level. Expanded state grant programs and Commissioner Lara's new wildfire safety regulation are aimed at reducing wildfire risks to communities through programs such as Firewise USA and the new Fire Risk Reduction Community designation from the California Board of Forestry and Fire Protection.

Overview

Fire Hazard Severity Zone (FHSZ) maps are developed from a geospatial model that is designed to describe relative wildland and urban-interface fire hazard potential over the long-term for all areas of the state. Different steps were taken for modeling FHSZ in wildland areas, defined as those where a fuel model can be applied, and non-wildland areas. Non-wildland includes urban, agricultural and barren lands, and water or wetlands. Wildland areas were scored directly based on data inputs within the wildland, and non-wildland areas were scored using a buffering routine that builds zones based on proximity to wildland as well as factors that reflect how conducive the non-wildland area is to fire spread. In addition, slightly different rules apply for zoning in State Responsibility Area (SRA) vs Local Responsibility Area (LRA) and Federal Responsibility Area (FRA). The modeling methods for building FHSZ are easiest to explain when divided into five modules.

Module 1 – Delineate wildland zones

Zones aim to capture patches of contiguous “fire environments” within which similar fire behavior potential could be expected. By definition, FHSZ classes are ultimately applied across an entire zone. The zones were built using a simplified vegetation classification that groups vegetation types into 3 classes of relative fire potential and 2 slope classes (< or > 20%). This method aims to reflect similar slope and vegetation fire potential within the zone, although fine grained variability is present. We further divided zones using watershed boundaries, to help break up very large zones. There is no maximum zone size, but there is a minimum size of 200 acres in wildland and 20 acres for isolated islands embedded in non-wildland.



Module 2 – Wildland FHSZ classification

In Module 2 all wildland polygons get assigned to an FHSZ class. Each zone was given a hazard score based on two factors: flame length expected under the worst conditions and burn probability.

Flame length

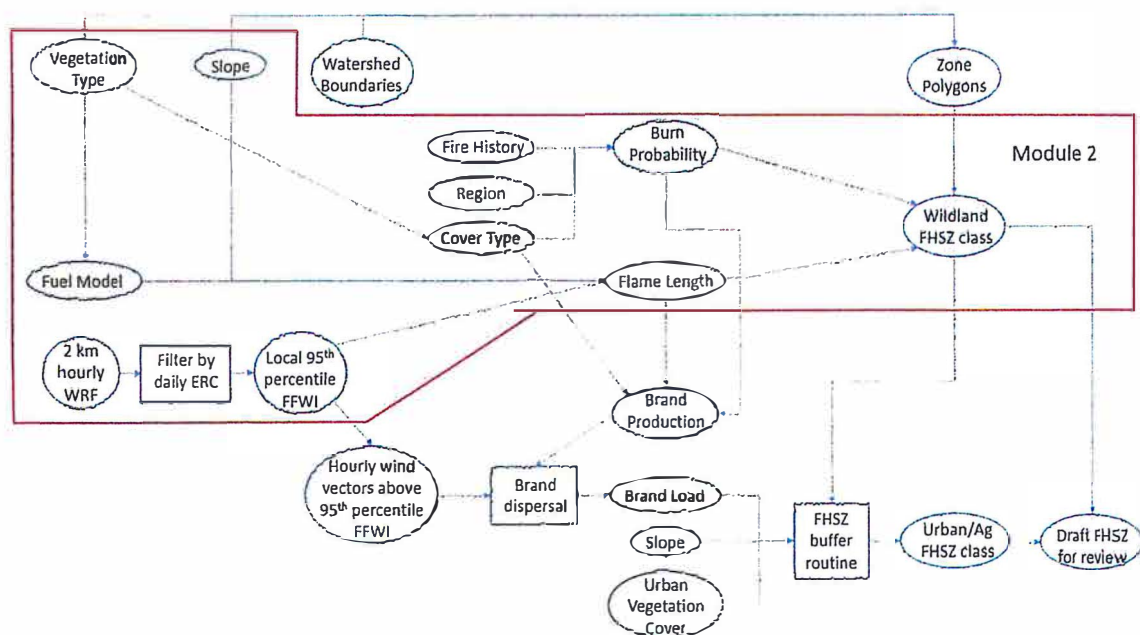
First, a fuel model was assigned to all wildland pixels (30 m scale) using vegetation type (e.g., Coastal Scrub) cross-walked to a surface fuel model from [Scott and Burgan 2005](#) (e.g., Moderate Load, Dry Climate Grass-Shrub; GS2). Forested types also were assigned canopy fuel characteristics to include crown fire estimation. Flame length was then modeled in [NEXUS](#), using fuel model, slope, and the “High” setting for fuel moisture and weather inputs. We then adjusted the output using local climate data, including observations that occurred when the daily ERC was above the 80th percentile and the Fosberg Fire Weather Index (FFWI) was above the 95th percentile.

Burn probability

We calculated fire rotation using fire history data from [FRAP's fire perimeter database](#) for the years 1991–2020. Fire rotation was calculated within strata defined by vegetation life form (e.g., shrub), climatic region, and urbanized areas from the US census bureau. We then calculated annual burn probability (the inverse of fire rotation). Note that this method gives the same burn probability to all pixels within a given strata (e.g., Southern California Coast shrub outside of urbanized areas) and does not give a higher probability to the actual locations where fires have occurred compared to other areas within the same stratum.

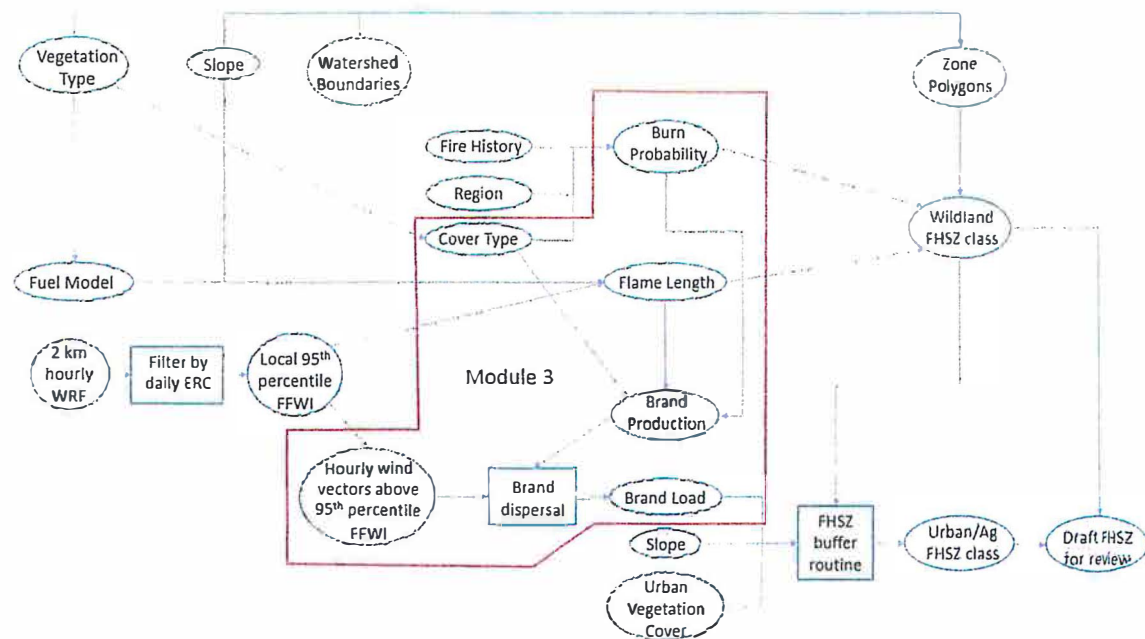
FHSZ designation

Flame length was then multiplied by annual burn probability, giving a pixel level score of fire hazard. All pixels within a zone were averaged to give a hazard score for each FHSZ polygon. The hazard scores were then divided into 3 classes of relative hazard (Moderate, High, and Very High). All wildlands were given one of these three FHSZ designations (i.e., there is no unzoned wildland area and Moderate is the lowest designation).



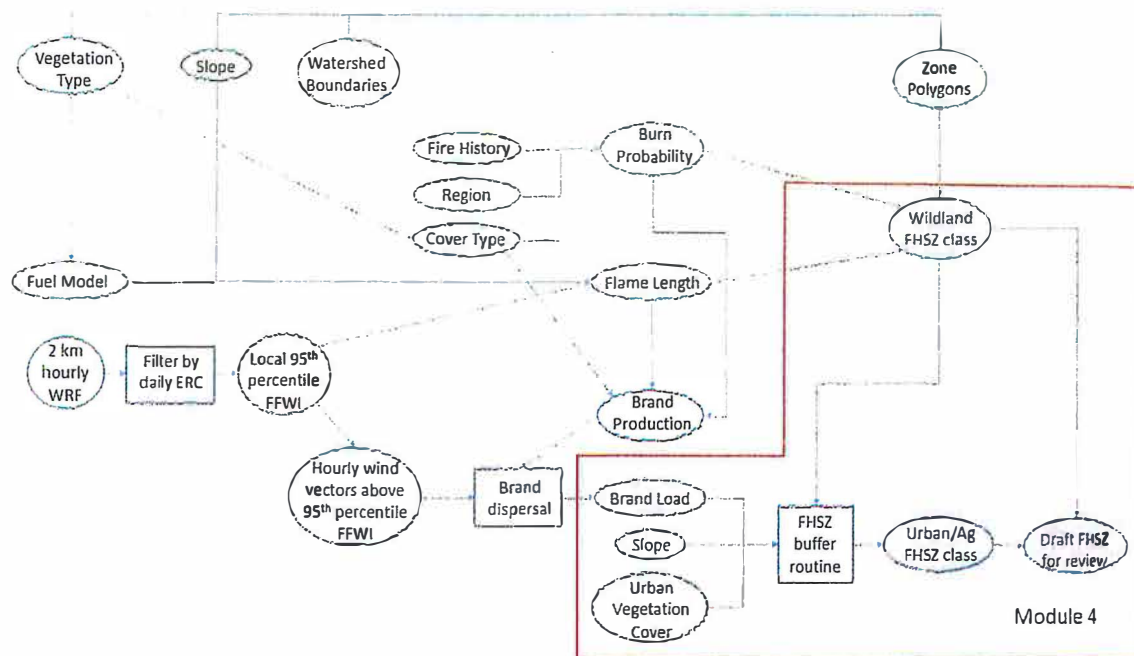
Module 3 – Brand production and dispersal

This module is focused on modeling potential fire brand dispersal from wildlands into non-wildland areas (e.g., urban areas). First, we modeled the amount of fire brands produced by each wildland pixel that is within transport distance of a non-wildland boundary. Brand production is a function of cover type, modeled flame length, and burn probability. Next, we modeled the dispersal of fire brands under the worst local fire weather conditions, using the same selection criteria as the weather inputs for flame length. For example, if the worst fire weather at a given location tended to have winds predominantly out of the NE at 40 mph, modeled brands go predominantly to the SW and go a greater maximum distance than they would at a site with predominantly 20 mph winds. The dispersed brands coming from all wildland pixels are then summed to generate an estimate of brand load within non-wildland areas.



Module 4 – Non-wildland FHSZ classification

In Module 4 we assign an FHSZ class to non-wildland areas, which are areas that lack a fuel model and include urban, agriculture, barren areas, and water bodies/wetlands. This is done by generating buffers into non-wildland areas that are adjacent to wildlands. The initial zone classification is the same as the adjacent wildland, with buffers of lower FHSZ classes modeled at further distances from the wildland boundary. The width of the FHSZ buffer is a function of brand load, slope, and the amount of tree cover within the non-wildland area. The FHSZ buffer into non-wildland is wider in areas that have higher brand load, steeper slope, and greater tree cover. Note that non-wildland areas that are sufficiently far from wildland remain unzoned, in contrast to wildland, which always receives a zone designation.



Module 5 – Jurisdictional overlay and cleanup

Module 5 consists of final zone processing and overlay with SRA. First, we removed FHSZ buffers that were generated into open water. Next, FHSZs were intersected with SRA and all unzoned areas within SRA, including water bodies, were reclassified as Moderate. This is to account for statute that requires all SRA to be assigned an FHSZ designation. Finally, we removed any small fragments (<20 acres) created by the SRA overlay and the non-wildland buffering routine (e.g., small unzoned areas internal to an urban area that is otherwise zoned). Note that an oddity that arises due to interpretation of statutory requirements is that water is zoned as Moderate FHSZ in SRA but remains unzoned in LRA and FRA, sometimes leading to water bodies with varying designation within their extent.

Summary of data inputs

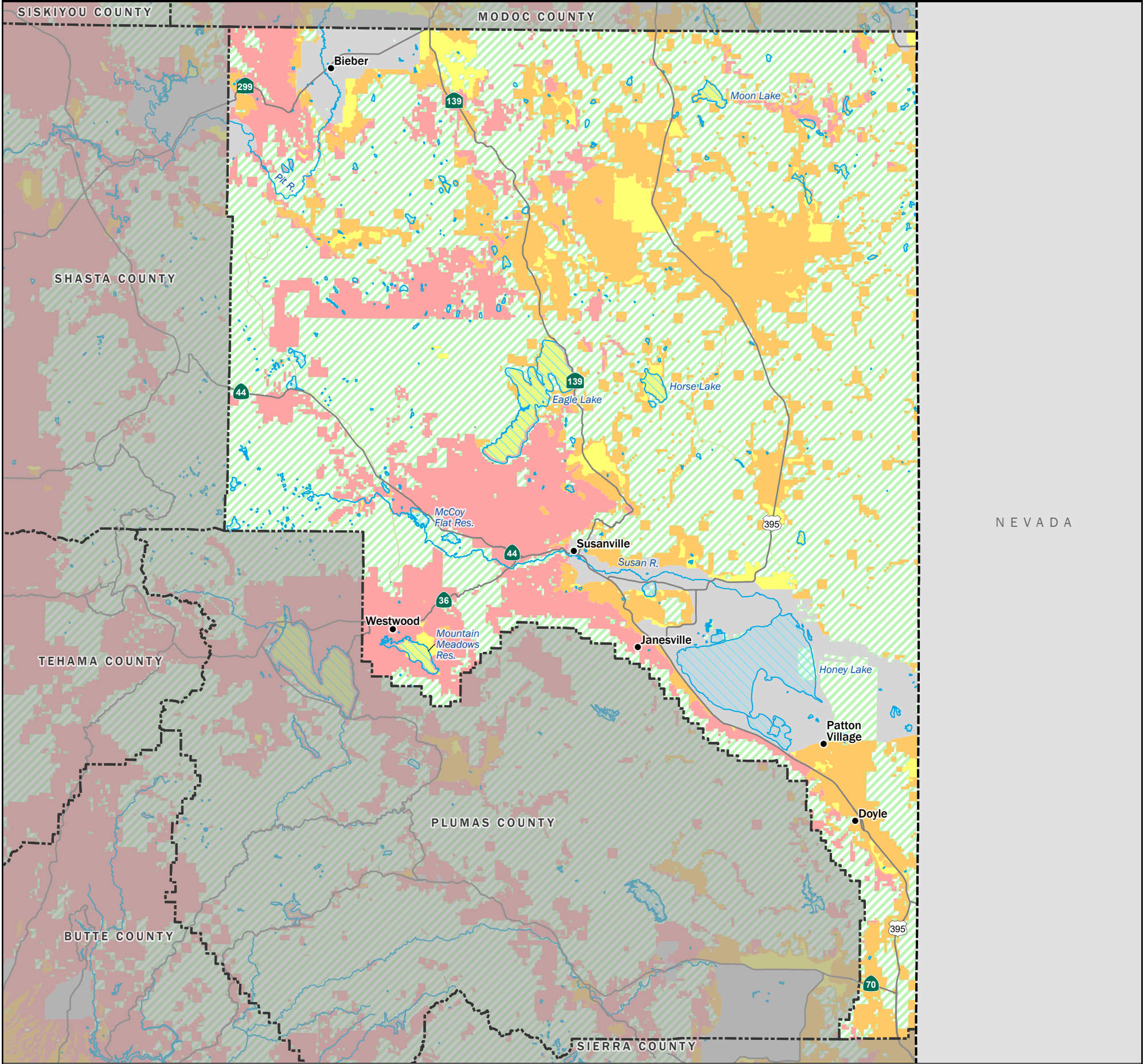
Text in italics indicates the dataset is used as an indirect input in a given module.

Input dataset (source)	Module 1	Module 2	Module 3	Module 4	Module 5
Vegetation type (FRAP's fire layer)	Grouped into 3 classes based on expected fire behavior potential and used to delineate zone boundaries	Assign a fuel model that is used to derive expected flame length in wildlands 4 cover types used to define burn probability strata	<i>Cover type and expected flame length used to model brand production</i>	<i>Brand production used as an input to the cost surface used in determining the buffer width of FHSZ in non-wildland</i>	
Slope	Classified as < or >20% and used to delineate zone boundaries	Used to derive expected flame length in wildlands (6 classes)		Input for determining the buffer width of FHSZ in non-wildland	
Watershed boundaries (HUC 12)	Used in conjunction with vegetation and slope to define zone boundaries				
Hourly climate data on a 2 km grid for the years 2003–2018, filtered to select just days where ERC exceeds the local daily 80 th percentile		The local 95 th percentile Fosberg Fire Weather Index (FFWI) is used to adjust expected fireline intensity and flame length	The distribution of wind speed and direction for the hours exceeding the 95 th percentile FFWI are used to model transport of fire brands into non-wildland areas		
Fire history from 1991–2020 (FRAP's fire perimeter database)		Used to calculate annual burn probability	<i>Burn probability used to model brand production</i>	<i>Brand production is an input for determining the buffer width of FHSZ in non-wildland</i>	
Climatic regions (from the 2017 FRAP Assessment)		Used to define burn probability strata	<i>Burn probability used to model brand production</i>	<i>Brand production is an input for determining the buffer width of FHSZ in non-wildland</i>	

Urbanized areas (from the US 2010 census)		Used to define burn probability strata	<i>Burn probability used to model brand production</i>	<i>Brand production is an input for determining the buffer width of FHSZ in non- wildland</i>	
Percent vegetation cover (from Earth Define within Urbanized census areas; from Salo Sciences to cover other non- wildland areas)				Input for determining the buffer width of FHSZ in non- wildland	
SRA boundaries					Overlay with FHSZ; all SRA must be zoned (minimum class of Moderate, including water)

State Responsibility Area Fire Hazard Severity Zones

November 21, 2022

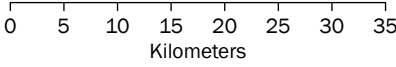
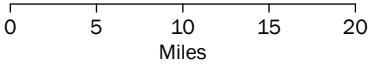


**Fire Hazard Severity Zones in
State Responsibility Area (SRA)**

	Very High	424,204 Acres
	High	528,007 Acres
	Moderate	98,439 Acres

**Fire Protection Responsibility
Areas (non-SRA)**

	Federal Responsibility Area (FRA)
	Local Responsibility Area (LRA)



Projection: NAD 83 California Teale Albers
Scale: 1:705,000 at 11" x 17"

Public Resources Code 4201-4204 directs the California Department of Forestry and Fire Protection (CAL FIRE) to map fire hazard within State Responsibility Areas (SRA) based on fuel loading, slope, fire weather, and other relevant factors present, including areas where winds have been identified by the department as a major cause of wildfire spread. These zones, referred to as Fire Hazard Severity Zones (FHSZ), classify a wildland zone as Moderate, High, or Very High fire hazard based on the average hazard across the area included in the zone.

Access PDF versions of the maps at <https://osfm.fire.ca.gov/fhsz-maps>. For more information, please visit the Frequently Asked Questions document for the 2023 Fire Hazard Severity Zones at <https://osfm.fire.ca.gov/fhsz> or scan the QR code at right. If you have further questions, please call 916-633-7655 or email FHSZcomments@fire.ca.gov.



Scan or click the
QR code for more
information and to
visit the interactive
FHSZ viewer.

The State of California and the Department of Forestry and Fire Protection make no representations or warranties regarding the accuracy of data or maps. Neither the State nor the Department shall be liable under any circumstances for any direct, special, incidental, or consequential damages with respect to any claim by any user or third party on account of, or arising from, the use of data or maps. Obtain FRAP maps, data, metadata, and publications at <https://frap.fire.ca.gov>. For more information, please call 916-633-7655 or email FHSZcomments@fire.ca.gov.

Gavin Newsom, Governor, State of California
Wade Crowfoot, Secretary for Natural Resources,
California Natural Resources Agency
Mike Richwine, State Fire Marshal,
California Department of Forestry and Fire Protection

Data Sources:
CAL FIRE Fire Hazard Severity Zones
(FHSZSRA_DRAFT_23_1)
CAL FIRE State Responsibility Areas (SRA22_2)