

WILDFIRE READY
DESIGN CHALLENGE

COMPETITON GUIDEBOOK

INTRODUCTION

Dear students, faculty and partners,

We have witnessed the devastating effects of wildfires on communities, from the Camp Fire and the fires in Maui to the Eaton and Palisades fires and, most recently, fires near Spokane. These events have taken lives, destroyed homes and forever changed entire communities.

Creating fire-adapted communities requires us to rethink not only how homes and neighborhoods are protected, but also how they are designed. People want their homes to be safe, but they also want them to be beautiful, welcoming and inviting. The same is true of their communities. Wildfire resilience should enhance that sense of home and belonging. It should not come at its expense.

The Wildfire Resilience Design Challenge brings together your creativity and expertise with the latest understanding of fire science, home hardening and community resilience. The goal is to develop practical designs that reduce wildfire risk while preserving the character, livability and sense of belonging that make a community feel like home.

We know that reducing wildfire risk requires more than technology, infrastructure and operations. It also requires shared responsibility and sustained coordination among utilities, public agencies, community organizations, homeowners, researchers and design professionals.

As the founding sponsor, Pacific Gas & Electric Corporation is proud to partner with the WUI Fire Institute, Climate and Wildfire Institute and the City of Grass Valley to launch this inaugural challenge. Through the competition, we hope you will work collaboratively to develop practical home-hardening solutions for a neighborhood in Grass Valley.

Students bring valuable new perspectives to one of California's most urgent issues. You will work across disciplines, test ambitious ideas against real-world constraints, and consider permitting and other practical requirements so your proposals are thoughtful, feasible and capable of being implemented.

The strongest concepts will help inform new approaches to neighborhood-scale wildfire preparedness and contribute to a broader conversation about how communities can reduce risk and adapt to a changing climate without sacrificing the qualities that make them feel like home.

Thank you for partnering on this important work. At PG&E, we work every day to reduce wildfire risk and protect the customers and hometowns we are privileged to serve. You are important partners in generating bold new ideas to help accomplish our shared goals. We appreciate the time, care and commitment you are bringing to the competition, and we look forward to seeing what you develop.



Sincerely,

Andy Abranches
Vice President, Wildfire Mitigation
Pacific Gas & Electric



SUMMARY

The Wildfire Ready Design Challenge ("the Challenge") is an interdisciplinary student competition focused on advancing neighborhood-scale wildfire resilience and home hardening through the lens of community adoption in high wildfire risk areas in California. We seek to bridge the gap between academic innovation and real-world implementation by generating ideas that California's residents and communities can realistically deploy.

This inaugural Challenge intends to establish a strong foundation for what is envisioned as a recurring annual competition. Lessons learned from the first year will help refine future competitions, strengthen the educational experience for participating students and faculty, and inform opportunities to expand the Challenge to additional California communities and partners over time.

By working in teams, participants will develop design concepts that strengthen wildfire resilience while preserving neighborhood character, supporting homeowner acceptance, and reflecting the realities of implementation. Teams will address questions of feasibility. This includes considerations such as phasing,



material availability, contractor capacity, homeowner preferences, conceptual cost, policy and code considerations, and potential barriers and opportunities associated with implementation. Interdisciplinary collaboration is therefore encouraged, but not required.

The Challenge is sited in Grass Valley, a city in Nevada County which encapsulates many of the wildfire resilience problems facing California at large: aging housing stock, varied neighborhood conditions, diverse socioeconomic conditions, expanding development into the wildland-urban interface (WUI), and growing wildfire risk. It presents a microcosm for the state's overall wildfire vulnerability challenges.

The project is intended to move beyond purely conceptual or speculative design, instead emphasizing realistic, scalable, and implementation-oriented approaches that communities and homeowners can realistically pursue.

Behind the academic competition, the issues facing California are real. Climate change is increasing the quantity and intensity of wildfires across North America. The challenge participants face is how to realistically inspire, advise, and aid Californians as the state navigates inevitable and growing threats. Addressing wildfires cannot be accomplished by individual homeowners or designers, engineers, or constructors. It is only through working collectively across scales and sectors that society can achieve meaningful wildfire risk reduction alongside community and ecosystem protection.



GUIDING PRINCIPLES

NEIGHBORHOOD-SCALE FOCUS:

The Challenge emphasizes neighborhood-scale resilience rather than individual structures and parcels alone. Participants should consider the relationships between homes, landscapes, infrastructure, and shared spaces even as they design interventions for selected individual structures.

DESIGN THROUGH THE LENS OF ADOPTION:

The Challenge seeks to generate ideas that communities can realistically envision adopting and implementing. Participants should consider general homeowner preferences, conceptual cost, material availability, contractor capacity, phasing, policy and code considerations, and other factors that influence adoption.

INNOVATION GROUNDED IN REALITY:

We encourage creativity, but proposals should remain grounded in current conditions and implementation realities. The Challenge intent is to produce practical and actionable concepts.



CLIMATE-APPROPRIATE AND MAINTAINABLE DESIGN:

Landscape proposals should emphasize use of fire-resistant species including native and other climate-appropriate use of fire-resistant species including native and other climate-appropriate plants, trees and shrubs whenever practical. Participants should also consider long-term vegetation management and maintenance requirements, water conservation, homeowner capacity, and the long-term effectiveness of proposed wildfire resilience measures.

HOMEOWNERS AND COMMUNITIES AS THE CLIENT:

The Challenge should remain attentive to the needs, preferences, and lived realities of the people who may ultimately adopt these ideas. Although participants will not conduct direct outreach to homeowners, proposals should be grounded in the character and context of Grass Valley, including its housing, neighborhood form, socioeconomic conditions, climate, landscape, and local patterns of development. Designs should be practical, appropriately scaled, financially realistic, and compatible with the community rather than relying on unusually expensive materials, highly specialized solutions, or



approaches that would feel out of place in the neighborhood.

SCOPE AND NON-GOALS:

The Challenge is intended to generate ideas and inform future action. It is not intended to produce construction-ready plans, detailed engineering-level cost estimates, or guaranteed implementation outcomes.



CHALLENGE DEVELOPMENT TEAM

Pacific Gas and Electric Company, a subsidiary of PG&E Corporation, is a combined natural gas and electric utility serving more than 16 million people across 70,000 square miles in Northern and Central California.

The Climate & Wildfire Institute accelerates climate and wildfire resilience — connecting science to policy to on-the-ground action to turn isolated efforts into durable solutions. As an independent organization, they can bridge boundaries and coordinate across disciplines in ways that traditional institutions can't. They work directly with communities to understand what actually works on the ground, apply solutions across real landscapes, and turn what they learn into shared approaches.

The Wildland-Urban Interface (WUI) Fire Institute is a mission driven organization that seeks solutions to the Wildland Urban Interface fire problem through innovative research, training, and education to create safer and more fire resilient communities in California and the West.

Home Hardening Solutions Inc. is a roofing and residential fire safety company providing home hardening solutions in Grass Valley, CA and surrounding areas. They specialize in land clearing and grinding, roofing, construction, and concrete and hardscape services.

Duane Strawser is the Community Risk Reduction Manager for the City of Grass Valley.

TEAMS AND FORMATION

Students may hail from any academic discipline, including (but not limited to) architecture, landscape architecture, urban planning, engineering, environmental science, public policy, sociology, communications, and community engagement. Participants must be affiliated with a participating institution.

The Challenge aims to include six to 10 teams, each consisting of three to five students. Individual submissions will not be accepted.

Interdisciplinary participation is strongly encouraged, but not required. Cross-institutional teams are similarly encouraged, but not required, and are one of the unique aspects of the Challenge. Students from different participating institutions—including community colleges and universities—may form teams together. Single-institution teams are also welcome. Graduate and undergraduate students may participate on the same team.

Students are responsible for organizing themselves into teams. While interdisciplinary teams are encouraged, there are no required majors or disciplines that every team must include.

By 11:59 p.m. (Pacific Time) on Friday, September 11, 2026, each team must submit a Team Registration Form including the names, institutions, email addresses, academic majors (if applicable), and academic standing of each team member (undergraduate or graduate student). The Team Registration Form can be found at: https://forms.monday.com/forms/ba1cf2fb14b67095b17c9d564eedddbb?r=use1.

After registration, each team will receive a confirmation email and be assigned a unique Challenge ID. All submissions will be reviewed anonymously using the assigned Challenge ID.



TIMELINE

Date	Time (PST)	Event
September 2, 2026	**12:00 - 1:30 PM**	**Kickoff and orientation (via Zoom)**
September 11, 2026	11:59 PM	Team formation and registration due
September 16, 2026	12:00 - 1:00 PM	Q&A 1: Designing for Neighborhood Resilience with Margot McDonald, WUI FIRE Institute (via Zoom)
September 30, 2026	12:00 - 1:00 PM	Q&A 2: Wildfire Resilience Fundamentals with Frank Frievalt, WUI FIRE Institute (via Zoom)
Week of October 12, 2026	---	Midpoint reviews conducted by Faculty Champions
October 14, 2026	12:00 - 1:00 PM	Q&A 3: A Homeowner's Wildfire Resilience Journey with Derrick Davis, PG&E (via Zoom)
October 28, 2026	12:00 - 1:00 PM	Q&A 4: From Great Idea to Real Implementation with Ashley Conrad-Saydah, PG&E (via Zoom)
November 9, 2026	**11:59 PM**	**Submission deadline**
November 9-19, 2026	---	Jury review
November 30, 2026	---	Award announcement
January 2027	---	PG&E recognition event

COMPETITION SITE

The competition site neighborhood is centered around the historic Swan/Levine House. The site is comprised of approximately 1.5 city blocks located in the historic residential hub of Grass Valley. It includes homes of varying real estate assessed values (high to low) and construction ages. All are located near/adjacent to critical/historic infrastructure, and only one block away from the historic downtown Mill St. preservation zones.

However, most if not all homes are within or in proximity to high to very high fire severity zones. All structures are directly under/near/adjacent to PG&E power-line infrastructure routes and/or telecommunication lines. The sidewalks are overgrown with hazardous vegetation, such as 150-foot pine trees (dead, diseased) in the middle of the neighborhood. The historic home on the northeast corner of the neighborhood (S. Church and Walsh) partially burned three months ago and threatened igniting the bulk of the historic downtown. There is ample opportunity for individual and neighborhood home hardening and wildfire resilience proposals.



The competition site consists of the neighborhood bounded by Walsh Street to the north, Dalton Street to the south, S. Church Street to the east, and S. School Street to the west, as shown in the aerial photograph below. For purposes of the Challenge, the site includes all properties fronting on these four boundary streets, including the homes, buildings, and parcels on both sides of Walsh Street, Dalton Street, S. Church Street, and S. School Street.

Although the historic Swan-Levine House is an important landmark within the competition site, the Challenge is intended to generate neighborhood-scale wildfire resilience solutions. Teams may incorporate the property where appropriate, but proposals should not focus primarily on the Swan-Levine House.



SUBMISSION REQUIREMENTS

OVERVIEW

- Context
  - Maps or diagrams that show the site in the larger context of the landscape it is a part of (city, county, region, state).
  - A description of the history of wildfire in the region and community vulnerability locally.
- Neighborhood Wildfire Resilience Concept
  - A neighborhood-scale concept illustrating opportunities to strengthen wildfire resilience while preserving community character.
- Representative Design Concepts:
  - Two to four design concepts explored and presented in greater detail, such as landscape treatments, Zone Zero treatments, home hardening measures, fencing approaches, shared boundary strategies, neighborhood spaces, or other design responses.
- Adoption and Implementation Strategy
  - A concise discussion of factors influencing implementation, including theoretical homeowner acceptance (see Resources section below for more information), conceptual implementation cost (including materials and labor, where appropriate), material availability, contractor capacity, phasing, relevant policy and code considerations, maintenance, barriers, opportunities, and potential partnerships.
  - Unless including a compelling justification to the contrary, teams should generally assume that the conceptual implementation cost for improvements to a representative residential property does not exceed **$100,000**.
  - Conceptual cost estimates should be based on reasonable assumptions, publicly available information, professional judgment, or other credible sources. Detailed contractor bids, engineering estimates, and quantity takeoffs are not required.

- Teams should clearly identify any important assumptions or limitations that influenced their proposal.
- The Challenge seeks designs that homeowners and communities can realistically adopt and implement.

CONTENTS/FINAL PRODUCTS/PRESENTATION

- Three presentation boards
  - How content is distributed on the boards is up to teams to decide.
  - Boards are to be high-resolution digital files sized for 24x36, printing at a minimum of 300 DPI. Either landscape or portrait orientation is permissible.
  - They must be formatted as PNG's, PDF's, or JPG's, no larger than 100 MB's in size total.
- A concise (2-4 page) written narrative of their submission, including a design statement of intent
  - All text documents must be in PDF form. Google Documents, Word Documents, etcetera will be discarded. The written narrative should begin with a statement of intent not to exceed 150 words. The entire document should be between two and four pages, single-spaced, with 12 pt font.
- A short (5-7 minute) recorded presentation suitable for jury review and future public communication
  - The video is intended for participants to describe the reasoning behind their decisions, what tradeoffs they considered, and what makes their proposal unique.
  - Do not include any identifying information that could disclose your institution, names, or faces. Please use voiceover only.
  - Presentations must be between five and seven minutes. Emphasis is not on production value (phone footage is perfectly acceptable), but on the clarity of communication.
  - Videos must be in .MOV or .MP4 format, and no larger than 5GB.
- Complete citations in MLA, including a disclosure of AI usage.

- AI is permitted, however teams are required to clearly disclose and specify in their citations if and how they used AI for tasks including, but not limited to: text generation, text editing, image generation, and image editing. Participants are strongly encouraged to emphasize original thought and creativity while remaining restrained and thoughtful in their use of AI.
- The Works Cited section and AI disclosure do not count toward the two- to four-page limit for the written narrative portion of the submission.

- All submissions must adhere to the following:
  - Student names and institutions are to be omitted from all submission elements to eliminate bias. The participant team's Challenge ID must be visible on every document.
  - The file naming convention should be as follows:
    - [Challenge ID] - Board A
    - [Challenge ID] - Board B
    - [Challenge ID] - Board C
    - [Challenge ID] - Written Narrative
    - [Challenge ID] - Video
  - All competition materials must be submitted using the unique Dropbox File Request link provided to each team by CWI. Each team will receive its own upload link associated with its assigned Challenge ID. Teams should follow all file naming requirements described in the Competition Guidebook.
  - Failure to adhere to these guidelines or submit contents prior to 11:59pm on the deadline will nullify the team's submission.

SUGGESTIONS

The boards should address the following, utilizing a combination of text and graphics as needed:

- Neighborhood Resilience Vision/Concept Overview
  - Overall neighborhood plan, perspective render, or other visualization
  - Design statement
  - Key organizing principles
  - Major interventions

- Representative Design Concepts: an individual home, other than the Swan-Levine property, must have:
    - Representative site plans or diagrams
    - At least one Zone Zero design
    - At least one street-level perspective or other human-scale visualization
    - At least one before-and-after visual comparison
    - Representative sections or detail drawings illustrating key wildfire resilience features
    - An overall neighborhood graphic identifying where the representative design concepts occur
    - To help preserve the anonymity and privacy of neighborhood residents, submissions should not include details that would readily identify a specific home or its occupants, such as a street address, visible license plate, house number, or other obvious identifying features.
- Implementation Strategy
    - This is what differentiates submissions from one another:
    - Adoption strategy
    - High level conceptual cost estimates
    - Phasing
    - Policy/code considerations
    - Contractor/material considerations
    - Transferability to other communities



EVALUATION AND AWARDS

Challenge jurists will evaluate submissions based on the submissions' ability to design according to the Challenge's guiding principles. Participants should advance neighborhood-scale wildfire resilience while remaining grounded in the realities of adoption and implementation.

- The Challenge will recognize three categories of excellence:
    - Best Overall Proposal
    - Excellence in Design
    - Excellence in Implementation

AWARDS

- The Challenge will award three categories of excellence with a cash prize:
    - Best Overall Proposal: **$6,000**
    - Excellence in Design: **$4,000**
    - Excellence in Implementation: **$4,000**
- Prize money will be distributed equally among the members of each winning team, subject to CWI's administrative requirements and applicable tax reporting obligations.
- In addition, CWI, the WUI FIRE Institute, and PG&E will seek opportunities to elevate outstanding student work through professional presentations, publications, and public recognition.
- These opportunities may include presentations at a PG&E-hosted showcase event, participation in relevant conferences and industry forums, and featured placement in future communications materials.
- A single team may receive only one award. If the jury determines that a team would otherwise receive multiple awards, it may award the additional category to the next highest-ranked eligible team at its discretion.

THE JURY

- One PG&E representative
- One landscape architecture or design faculty representative from a non-competing institution

- One local representative
- One wildfire resilience practitioner
- One design or industry professional

- Participants will be assessed on:
    - Adoption potential and implementation feasibility, including consideration of conceptual cost, phasing, and practical implementation factors (including existing local policies or codes)
    - Responsiveness to community context and neighborhood character
    - Transferability to other wildfire-prone communities in California
    - Creativity and innovation
    - Effectiveness of visual and written communication



SCORING RUBRIC

	1: Incomplete	2: Poor	3: Passable	4: Excellent	5: Outstanding
Adoption potential and feasibility (30%)	Proposal is unrealistic, technically infeasible, prohibitively expensive, or ignores practical implementation. Little evidence that homeowners or communities could adopt it.	Contains isolated practical ideas but major aspects are unrealistic, economically impractical, or difficult to implement without significant redesign. Important logistical barriers remain unresolved.	Proposal is generally feasible but requires refinement, additional research, or cost reduction before implementation. Some recommendations are practical while others remain speculative.	Proposal is practical, well-engineered, and economically reasonable. Implementation steps are clearly described and most homeowners or communities could realistically adopt significant portions of the design.	Proposal demonstrates exceptional practicality and scalability. Recommendations are affordable, actionable, clearly documented, and immediately implementable. The design could realistically become a model for wildfire-resilient residential landscapes and would likely see broad adoption.
Contextual awareness (20%)	Submission ignores the site's environmental conditions, architecture, climate, vegetation, topography, or community character. Recommendations conflict with local conditions.	Demonstrates limited understanding of the site. Some contextual factors are acknowledged but many important characteristics are overlooked or misunderstood.	Shows adequate understanding of site conditions. Design generally responds appropriately to context but lacks deeper integration or sensitivity.	Design thoughtfully responds to climate, topography, architecture, vegetation, neighborhood character, ecological processes, and homeowner needs. Balances integration with added functional performance.	Demonstrates exceptional understanding of the site and surrounding community. Every design decision reflects careful consideration of environmental, ecological, cultural, and aesthetic factors. The proposal enhances both wildfire resilience and the unique identity of the property.
Transferability to other wildfire-prone communities (15%)	Proposal depends entirely on highly site-specific conditions and would not be applicable elsewhere.	Only a few concepts could reasonably transfer to other communities. Most recommendations rely on unique local conditions.	Several design principles could be adapted elsewhere with moderate modification. Transferability is limited but evident.	Most recommendations are broadly applicable across wildfire-prone regions and could be adapted to a variety of climates, property types, and communities.	Design establishes broadly useful principles that could serve as a best-practice model for wildfire-resilient landscaping in diverse communities. Recommendations are flexible, scalable, and widely applicable.
Creativity and innovation (20%)	Submission demonstrates little to no original thinking. Relies heavily on copied ideas or undisclosed AI-generated content without meaningful adaptation or contribution.	There is a heavy reliance on reproducing precedents over new approaches.	Some new ideas are suggested.	The submission is creative and unique.	The submission pushes the envelope and suggests unconventional, new, and surprising paths forward for defensible space, home hardening and wildfire prevention.
Effectiveness of visual and written communication (15%)	Graphics are incomplete, difficult to interpret, poorly organized, or missing. Written descriptions are unclear, contain numerous errors, or fail to explain the proposal.	Typos and sloppy errors hinder the submission's impact.	Competent boards, written description, and narrative successfully convey the submission's design.	The designs are exceptionally communicative and compelling.	Graphics and written descriptions go above and beyond in their clarity and effectiveness.

LEGAL ADDENDUMS

All participants shall SOLELY contact the email address designcompetition@climateandwildfire.org with questions. Do not disrupt or contact Grass Valley municipal staff, Nevada County employees, residents, video presenters, or jury members unless explicitly permitted. Participants are guests in the site, and should act with courtesy and respect. This includes questions intended for Challenge partners or technical resources, including Home Hardening Solutions Inc. Participants should not contact these organizations directly unless specifically authorized by CWI.

Participants may not knock on doors, conduct surveys, interviews, focus groups, or other direct outreach to neighborhood residents as part of the Challenge. Teams should instead rely on publicly available information, competition resources, and other credible sources when developing their proposals.

Although not required, if they so desire, students can visit the competition neighborhood to observe existing conditions, take notes, and photograph publicly visible features from public rights-of-way. Participants must remain respectful of residents and recognize that this is an active residential neighborhood.

Students shall not enter private property, block driveways, peer into homes, disturb residents, or interfere with normal neighborhood activities.

If approached by a resident, students should politely explain that they are participating in the Wildfire Ready Design Challenge, an academic design competition organized by CWI in partnership with the City of Grass Valley and the WUI FIRE Institute. If a resident has questions or concerns, students should provide the official Competition Information Sheet included at the end of this Guidebook, which contains contact information for CWI and the City of Grass Valley.

If a resident requests that a student stop photographing or observing a particular location, students should respectfully comply, discontinue the activity, and move to another location.

All participants must include an additional sheet of MLA citations, clearly stating where their research (including images) is sourced. Plagiarism is not permitted.

AI is permitted, however teams are required to clearly disclose and specify in their citations if and how AI has been used for tasks including, but not limited to: text

generation, text editing, image generation, and image editing. While AI is permitted, participants are heavily encouraged to emphasize original thought and creativity while remaining selective in their use of AI.

Competition materials provided by CWI, including maps, photographs, GIS files, background information, and other supporting resources, are intended solely for use in connection with the Wildfire Ready Design Challenge. Participants must comply with any restrictions that accompany these materials. Unless otherwise authorized by CWI, competition resources may not be redistributed, published, or used for unrelated commercial purposes.

Students retain ownership of their original work. By participating in the Challenge, students grant CWI, PG&E, the WUI FIRE Institute, and other Challenge partners a non-exclusive, perpetual, royalty-free license to reproduce, publish, display, summarize, distribute, and otherwise use submitted materials for educational, promotional, outreach, and wildfire resilience purposes. Students may continue to use their work for personal, educational, academic, and professional portfolio purposes.



QUICK REFERENCE GUIDE

Is this competition free to enter?

Yes.

Is there academic credit available for participation?

Any inquiries related to academic credit should be directed towards the responsible faculty champion.

Are teams expected to redesign every property in the neighborhood?

No. Teams should begin by developing a neighborhood-scale resilience strategy and then create detailed design concepts for a limited number of representative homes, parcels, streets, shared spaces, or other locations. These representative examples should illustrate approaches that could be adapted more broadly throughout the community.

How realistic do proposals need to be?

Proposals should be creative, but stay grounded in real-world conditions. Teams should consider affordability, homeowner acceptance, material availability, contractor capacity, maintenance, relevant policies and codes, environmental considerations, and other factors that influence implementation.

May teams use Artificial Intelligence (AI)?

Yes. AI may be used as a tool to support the design process, provided teams clearly disclose how it was used. The Challenge emphasizes original thought, creativity, and independent judgment. Teams remain responsible for the accuracy, originality, and quality of all submitted work.

Will there be reimbursement for student expenses?

Generally, no. There might be exceptions made and any questions from faculty or students about costs should be directed to CWI at: designcompetition@climateandwildfire.org. The one exception to this general rule is software. If a team requires specific software to complete its project and does not currently have access to the required software, funding may be available (**$200** maximum per team). Any team that would like to request funding for specific software that is required to complete its submission may request it by sending an

email to: designcompetition@climateandwildfire.org.

The email should include the following:

- Challenge ID
- Name of software required
- Short explanation (1-2 paragraphs) of why the software is required to complete the project and why it cannot be currently accessed by the team
- Cost of the software
- Date by which the software is needed

Additional unanswered questions should be first directed toward the FAQ document for the Challenge. Next, unanswered questions should be directed toward the participant's faculty champion. Finally, any unanswered questions regarding the Challenge's requirements, submissions, deadlines, or site information should be sent to designcompetition@climateandwildfire.org. Students should disclose their name, institution, and a clear explanation of their question. For information, teams should rely on the final Challenge Guidebook, the Challenge FAQ, and then on written updates issued by CWI via email to the teams.



GRASS VALLEY CONTEXT

HISTORY

Grass Valley is located in Nevada County within the Greater Sacramento Region. Though the state of Nevada is more recognisable, Nevada County was the first site to use the Spanish word for "snow storm" in its name. It boomed in 1850 during the California Gold Rush, drawing in miners from around the world seeking their fortune. The region remained one of the most productive and profitable mining areas for decades, until wartime limitations on mining were put in place during WWII. The most famous city representative is pilot Chuck Yeager (1937-2020), who first broke the sound barrier and called Grass Valley home.

CLIMATE

The city enjoys a Mediterranean climate with high amounts of rainfall. Abundant precipitation leads to rapid vegetation growth in the winter, which can dry out in the summer and become a wildfire fuel load. Snow intensity varies. In July, the average high temperature is 87° F and the average low is 67° F. In December, the average high temperature is 52° F and the average low is 39° F.

ECOLOGY

Grass Valley is part of the highly biodiverse Sierra Nevada California Floristic Province. Common plants include incense cedar, wooly mule's ears, and greenleaf manzanita, all of which contribute to the unique ecology of the region. Invasive plants include the Scotch and French broom, Himalayan blackberry, and English ivy. Not only do invasive plants threaten local biodiversity, their aggressive and dense spread can contribute to fuel loads which can exacerbate the intensity of wildfires beyond conditions what would occur naturally. Historic land management practices like fire suppression have also resulted in dense forests which are prone to more dangerous wildfires.

DEMOGRAPHICS (CENSUS)

As of 2025, Grass Valley has a population of 14,000 residents: 54.9% female residents, 4.7% children under 5 years old, 18.3% below 18 years old, and 31.8% over 65. The city is primarily Caucasian, and 80.2% of residents are white while 8.6% are Hispanic or Latino, and 11.1% are two or more races. Additionally, there are 1.96 people living per household, 88.9% in the same house they were living in a year prior, and 10.8% speaking a language other than English at home. 92.8% of

households have a computer, and 90.9% have broadband Internet. 22.3% of Grass Valley residents are younger than 65 years old and have a disability, and 5.3% of that age range lack health insurance. 92.6% of residents have graduated high school, and 32.8% hold a bachelor's degree or higher. The median income is **$51,764**.

ECONOMY (CHAMBER OF COMMERCE, CHAMBER OF COMMERCE HISTORY, GRASS VALLEY GROUP)

Historic tourism of Gold Rush era sites remains a source of local business. Agriculture and viticulture also play an important role. The Grass Valley Group was founded in 1959 in the city, with a broad scope of media broadcast technology. The region bills itself as "The Silicon Valley of the Sierras" and is attempting to expand the technology sector. Currently, large numbers of residents commute to other cities in Northern California (such as Sacramento) for employment rather than participating directly in the local economy.

POLITICS (CITY COUNCIL, 2026 COUNTY VOTER REGISTRATION)

Grass Valley is governed by five council members who each serve a four year term. They are responsible for appointing the mayor and vice mayor. As of 2026, 24.83% of the county were registered Democrats, 47.16% were Republicans, with 5.21% Independents, and 0.28% Green party members.

HOUSING (CENSUS)

Between 2020-2024, Grass Valley had 6,769 households, with an average of 1.96 occupants per household. The owner-occupied housing unit rate for that period was 40.2%, lower than California's 2020 average ownership rate of 54.5%. The median home value of owner-occupied units was **$482,200**. Median gross rent was **$1,458**. Commute time from home to work averaged 16.9 minutes.

HISTORIC ARCHITECTURE (GRASS VALLEY HISTORIC DESIGN GUIDELINES)

The city of Grass Valley's 1872 Historic Townsite encompasses a number of styles that are protected under municipal guidelines. These buildings are responsible for defining the city's character. Early Gold Rush-era Grass Valley buildings ranged from masonry commercial buildings to Greek, Gothic, and Italian Revival homes. Later came cross-gabled, hipped homes, Queen Annes, and Late Victorian eclectic buildings. The last range of historically protected buildings encompasses prairie, craftsman, later revival, and art deco buildings.

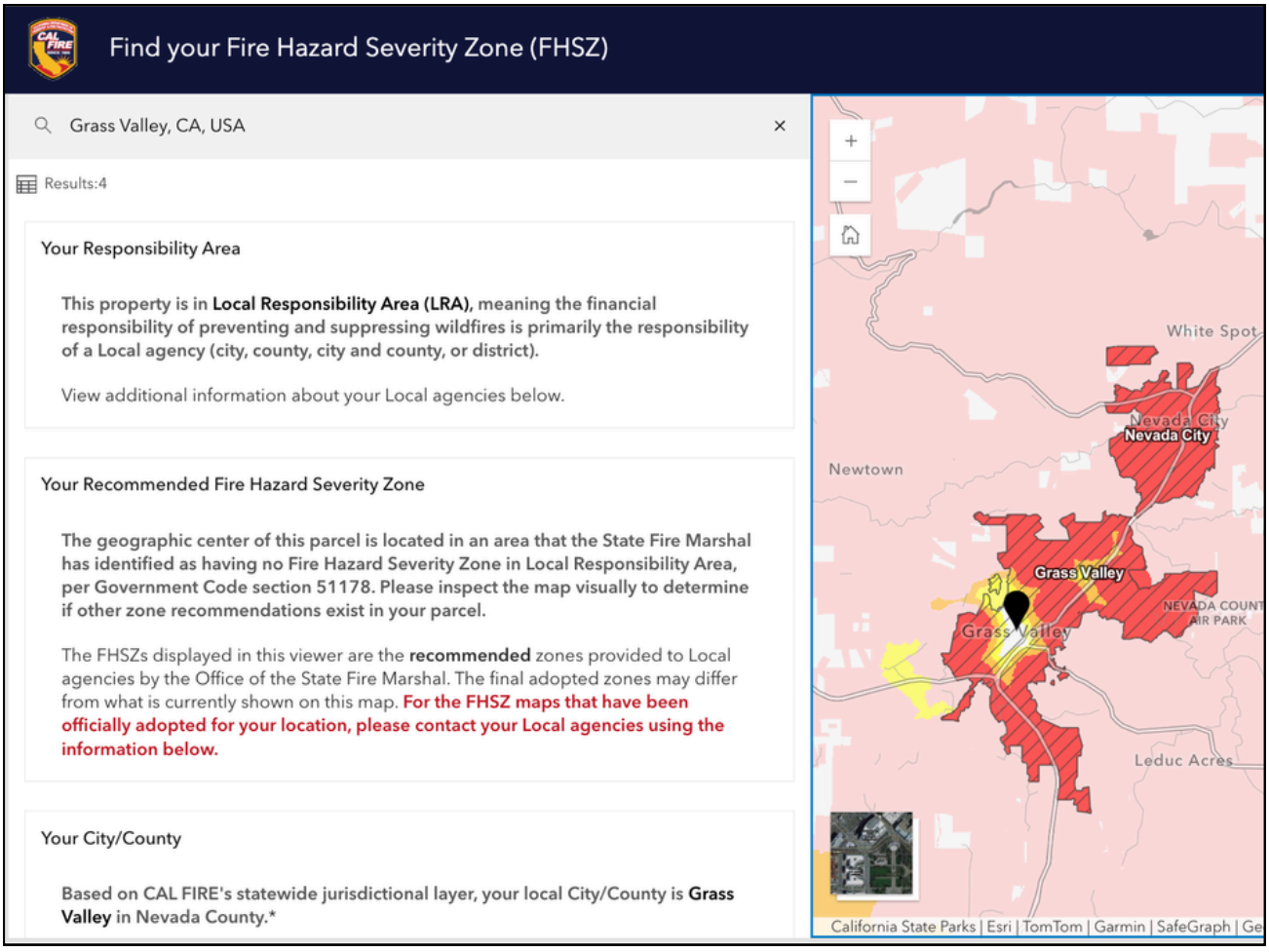
NEARBY WILDFIRE CONTEXT AND HISTORY

The majority of Grass Valley is categorized as "Very High" in the Fire Hazard Severity Zones (FHSZ).

In 1988, the 49er Fire in Nevada County burned 33,700 acres and destroyed between 4,000 and 4,500 homes. More than 80% of those destroyed lacked adequate defensible space. Though it was once ranked the third most destructive fire in California, the rate and scale of wildfires have recently increased so dramatically that it barely makes the list.

The 2020 Loyalton Fire was started by lightning and burned for 12 days. It produced multiple fire tornadoes, a rare phenomenon consisting of a whirlwind of ashes and/or flames.

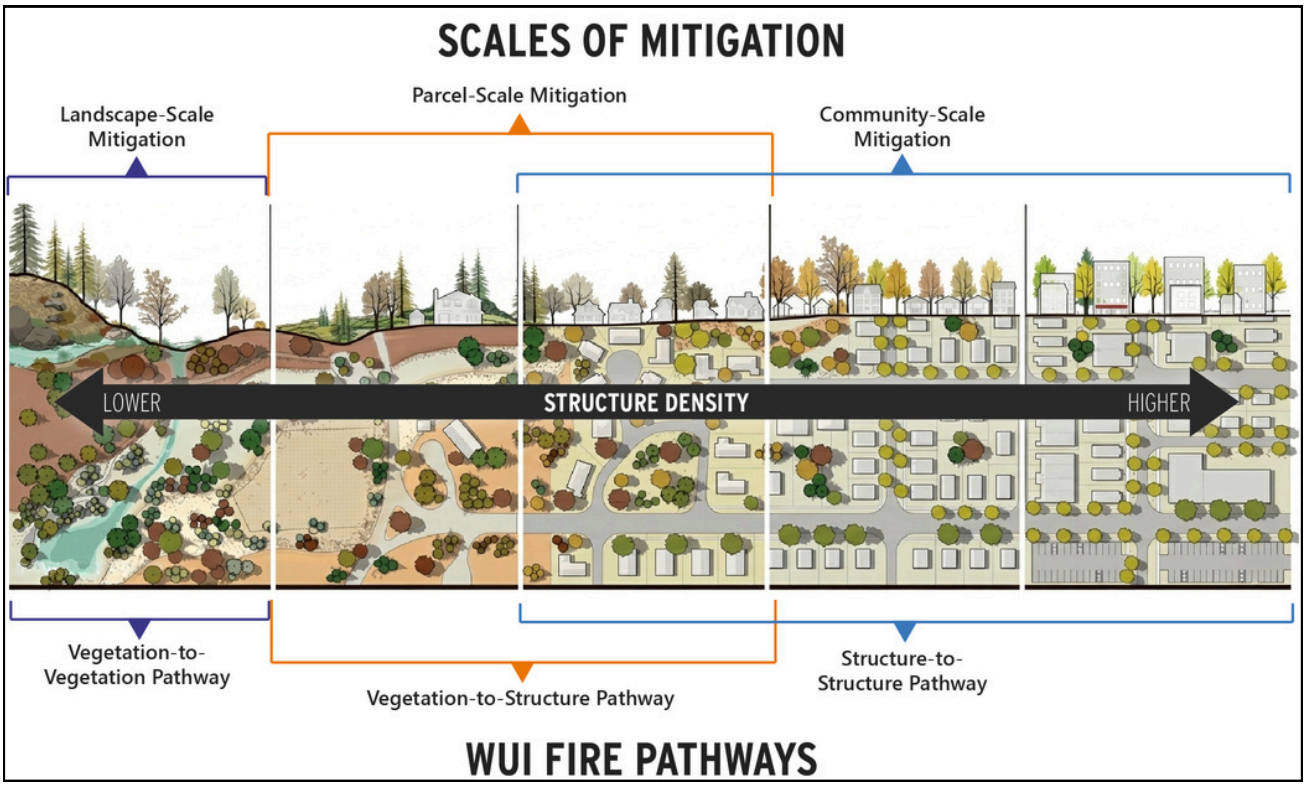
The 2026 Elephant Fire began on July 11, 2026 and consumed almost 14,000 acres. It included and extended past Sierra County, Plumas County, and Tahoe National Forest. It was deemed 100% contained on July 27th.



FIRE GLOSSARY

FIRE OVERVIEW

- **Crown fires:** fires that burn from the bottom to the top of trees and other tall vegetation, often 10 to 20 feet or more. Crown fires are considered high severity.
- **Wildfire:** any uncontrolled fire spreading through vegetative fuels, threatening to destroy life, property, or resources.
- **Wildfire exposure:** one or a combination of radiant heat, convective heat, direct flame contact, and/or burning embers projected by a wildfire to a structure and its environment.
- **WUI:** Wildland Urban Interface, a geographic area designated at significant risk from wildfires.
- **Fire hazard severity zones:** geographical areas classified according to the California Public Resources Codes Sections 4201-04 as Very High, High, or Moderate in state responsibility or local agency areas.

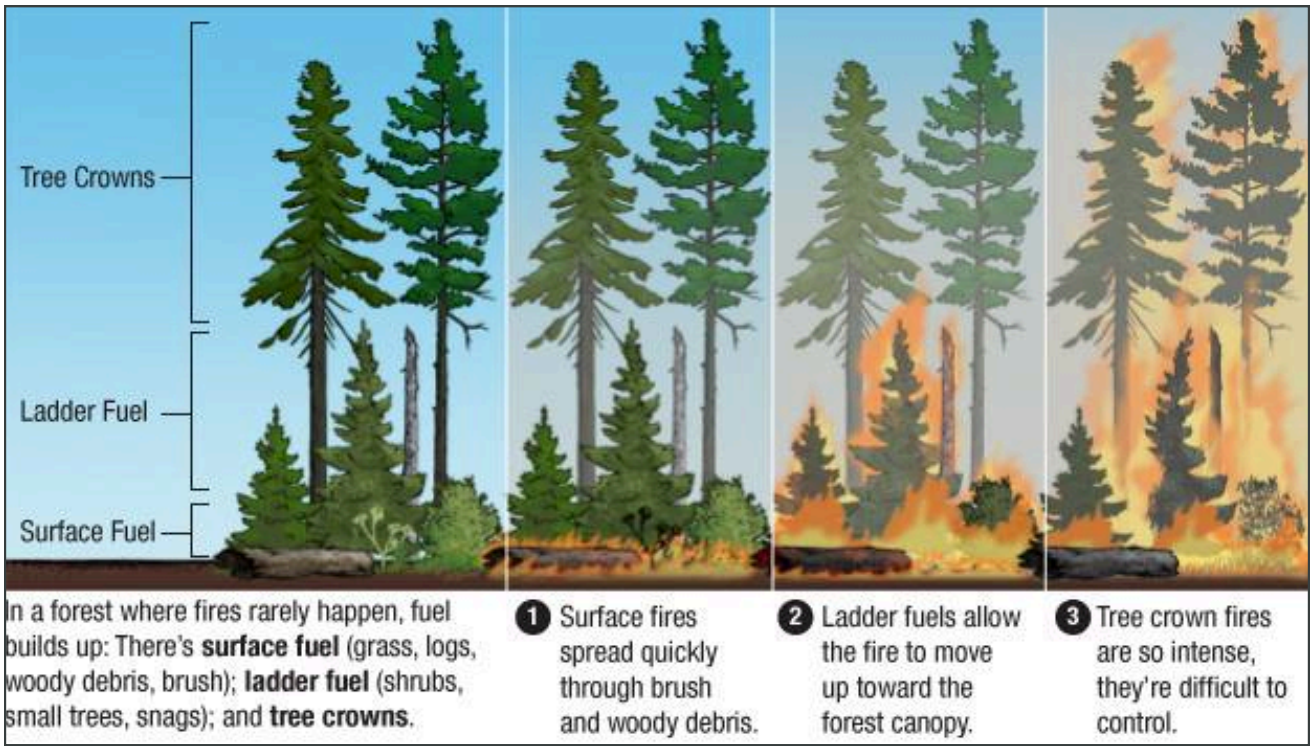


- **Understory fire**: a fire that burns the vegetation beneath the forest canopy, typically involving leaf litter, grasses, pine needles, and other lower brush.
- **Prescribed burn**: also known as a controlled burn, this is an intentional and managed fire meant to achieve specific objectives such as fuel reduction, species recovery, grounds maintenance, and more.

FUEL AND FLAMES

- **Combustible material**: heavy fuels, refuse piles, dead trees, and other materials which constitute a fire hazard and endanger people/property.
- **Combustion triangle**: the three ingredients for a fire constitute heat, fuel, and an oxidizing agent (most commonly air). The exothermic chain reaction of fire continues unless one of the three elements is blocked.
- **Direct flames**: active fire that directly touches the structure.
- **Embers**: small pieces of burning vegetation or other components which are moved by winds and deposited up to a mile ahead of the flame front. These are primarily responsible for home ignitions, not flame fronts.
- **Fuel load**: the amount of material available to burn in a specific area. Higher fuel loads lead to more intense, fast spreading, and severe fires.
- **Horizontal spread**: vertical spread (see ladder fuels) travels from the ground upwards, into the tree crown. Horizontal spread covers ground plain distance. It is best countered by thinning canopies and spacing vegetation.

- **Ladder fuels:** low-lying vegetation and branches which can transfer flames from the ground upwards into the canopy. These include tall grasses, shrubs, young trees, and low hanging branches.
- **Radiant heat:** infrared waves of heat which can cause smoldering and damage.
- **Vegetation:** considered over a 30 to 50 year time horizon, vegetation is "fuel" for wildfires and may vary over time.



CONSTRUCTION MATERIALS

- Fire-resistant materials: materials that are able to withstand heat, resist ignition, and maintain form due to their inherent properties. They are often utilized in exteriors where long-term fire exposure is possible.
- **Fire-retardant materials:** those that have been treated (often chemically) to slow flames and reduce risk. These are often utilized in areas where protection is necessary but fire proofing is impractical.
- **Non-flammable materials:** materials that will not ignite under most fire conditions.
- **One-hour wall construction:** a method of assembly with enhanced fire resistance

HOMES AND ZONES

- Defensible space: a buffer zone between a structure and its surroundings that can act as a barrier to slow or halt fires. It protects against open flames, embers, and radiant heat, stopping or slowing wildfire spread, and granting firefighters a safer area to perform their duties.
- **Home Ignition Zones (HIZ)**: the home and area surrounding it (100 feet minimum, more depending on slope) that determine ignitability.
- **Zone 0 ("Zone Zero", "Ember Resistant Zone")**: the area five feet away from a structure which requires the most ember resistance to maximize protection. Not only should Zone 0 be resistant to embers, it should also be hardened against the effects of radiant heat.
- **Zone 1 ("Lean, Clean, and Green Zone")**: the area within 30 feet of a structure. The removal of dead and dry vegetation and regular tree trimming is recommended. Landscape should be maintained to prevent the spread of fire from plants and yards to the home.
- **Zone 2 ("Reduced Fuel Zone")**: the area within 100 feet to 200 feet of a structure where potential fuel should be reduced. This zone is where fire can be interrupted and flames can be diminished and lowered.







RESOURCES

IBHS wildfire prepared home guidance
CA Chapter 7A
CAL FIRE Defensible Space, Home Hardening and Zone Zero
Wildfires and Insurance

UC ANR Fire Network
Tahoe Wildfire Home Retrofit Guide
Wildfire Embers, Flames, and Mitigation
WUI Products Handbook
Fire Safe Marin

Calscape Native Plants
CalIPC Invasive Plants
California Native Plant Society Native Plants

Nevada County Community Wildfire Protection Plan (CWPP)
Nevada County Community Wildfire Protection Plan Executive Summary: Grass Valley/Nevada City Forecast Zone
Grass Valley Building Codes/2025 CA Building Codes

Calkin, David E.; Barrett, Kimiko; Cohen, Jack D. Cohen; Finney, Mark A.; Pyne, Stephen J.; and Quarles, Stephen L. Wildland-urban fire disasters aren't actually a wildfire problem, Proceedings of the National Academy of Sciences, Vol. 120, No. 51, 2023.

Edwards, Adrienne and Rachel Schleiger. Firescaping your home: A manual for readiness in wildfire country, Timber Press, 2023.

FM3 Research on Homeowners Perceptions of Wildfire Risk (relevant content begins at 00:16:00): March 2026.

Ghasemi, Benjamin; Kyle, Gerard T.; Absher, James D. An examination of the social-psychological drivers of homeowner wildfire mitigation, Journal of Environmental Psychology, Volume 70, August 2020.

Gollner, Michael; et al. Fire risk to structures in California's Wildland-Urban Interface, Nature Communications, 2025.

Kent, Douglas. Firescaping: Creating fire-resistant landscapes. Gardens, and

properties in California's diverse environments, Wilderness Press, 2005.

Why the Built Environment Matters: Community Wildfire Risk is a Structure Ignition Problem. Jack Cohen, PhD Research Physical Scientist US Forest Service Research, retired.

FM3 Research on Homeowners Perceptions of Wildfire Risk (relevant content begins at 00:16:00): March 2026.

Wildfire-Prepared Homes, Homeowner Behavior, Insurance, Design, and Community Implementation Resource Compendium: This compendium contains publicly available technical standards, homeowner tools, implementation frameworks, insurance and cost resources, empirical research, design competitions, and community-planning guides.

California Homeowners on Wildfire Safety Renovations: Barriers, Costs, and Willingness to Act: In March 2026, Hart Research conducted a survey on behalf of Megafire Action to learn what homeowners in especially wildfire-prone areas of California know about "renovations" that can increase a home's chance of surviving a wildfire (i.e., zone zero and home hardening) and gauge their willingness to make such renovations to their own homes. The findings trace the journey a homeowner follows from initial awareness through completing renovations, identify where and why interest in renovations drops off, and find which interventions can make the biggest difference.

TECHNICAL RESOURCE: HOME HARDENING SOLUTIONS INC.

Home Hardening Solutions Inc. is a Grass Valley-based company specializing in residential home hardening and wildfire resilience improvements. Because the company works directly with homeowners in the Challenge community, it may serve as a technical resource for participants regarding topics such as:

- Home hardening techniques
- Typical construction methods
- Materials commonly used in Grass Valley
- Practical implementation considerations
- Conceptual costs
- Contractor perspectives

To ensure that all teams have equal access to information and to minimize disruption to the company, students must not contact Home Hardening Solutions directly. Instead, all questions for Home Hardening Solutions Inc. should be

submitted to designcompetition@climateandwildfire.org. CWI will review questions and, when appropriate, forward them to Home Hardening Solutions Inc. Responses that may benefit multiple teams may be shared with all participants.

PDF MAPS

2023 General Plan
2023 Zoning Map
Historic Inventory

GIS MAPS

Gallery
General Plan
Fire Hazard Severity
Local Fire Districts and Stations
Slope Map

SITE PHOTOGRAPHS, CAD

Site Photographs (Drive Link)
Site Photographs & Videos (DropBox Link)

INFORMATION FOR RESIDENTS

You may see students in your neighborhood during the coming months as part of the Wildfire Ready Design Challenge, an interdisciplinary academic design competition focused on improving neighborhood wildfire resilience.

WHAT IS THE CHALLENGE?

The Challenge brings together students from participating California colleges and universities to develop conceptual ideas for strengthening neighborhood wildfire resilience while preserving the character of Grass Valley's neighborhoods. The competition is intended to encourage learning, innovation, and practical thinking about wildfire resilience. It is not a construction project, and participation in the competition does not mean that any improvements will be constructed or funded.

WHY ARE STUDENTS IN THE NEIGHBORHOOD?

Students may visit the area to:

- Observe existing conditions
- Take notes
- Photograph publicly visible features from public streets and sidewalks
- Better understand the neighborhood's opportunities and challenges

Students have been instructed to:

- Remain on public rights-of-way
- Respect private property
- Avoid disturbing residents
- Not conduct surveys or interviews with homeowners
- Refer any questions to the contacts below

For any questions, concerns, or additional information, please contact:

Climate & Wildfire Institute
2443 Fillmore St #380-2477
San Francisco, CA 94115
(541) 207-4784
designcompetition@climateandwildfire.org

Duane Strawser, Community Risk Reduction Manager, City of Grass Valley
125 East Main Street
Grass Valley, CA 95945
(530) 274-4346
dstrawser@grassvalleyca.gov



WILDFIRE READY
DESIGN CHALLENGE

COMPETITON GUIDEBOOK

www.climateandwildfire.org/cwi-projects/designchallenge | designcompetition@climateandwildfire.org



WILDFIRE READY
DESIGN CHALLENGE