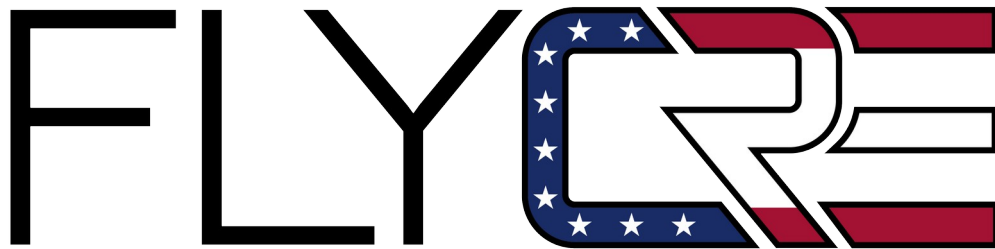


Documenting and Tracking Vegetation Management for Cities



A DIVISION OF BURGE CORPORATION

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Executive Summary

Cities carry a large share of California's wildfire work, and most of it is vegetation management. Open space, parks, slopes, medians, trail corridors, and the edges where neighborhoods meet wildland all need regular attention. Much of that work is done by contractors, on schedules set by budgets and seasons, across sites no single staff member sees in full.

The obligations keep growing. Cities must designate fire hazard severity zones by ordinance within 120 days of receiving the State Fire Marshal's recommendations [1], and the State Fire Marshal released new Local Responsibility Area maps in four phases beginning in early 2025 [2]. Safety elements must be reviewed and updated to address wildfire risk in the State Responsibility Area and very high fire hazard severity zones [3]. Defensible space law applies to occupied structures in locally designated very high fire hazard severity zones [4], and a statewide Zone 0 rule for the first 5 feet around homes was approved by the Board of Forestry in August 2026 but withdrawn from state review in September and is not in effect [5][6].

At the same time, the state now rewards cities that can show their work. Local agencies on the Board of Forestry's Fire Risk Reduction Community list receive priority for CAL FIRE Wildfire Prevention Grants, and insurers must reflect that designation in their rating plans [7]. Getting on that list, staying on it, winning grants, and reporting to council all depend on records.

This paper covers the rules that shape city vegetation management, the programs that reward documented work, the recordkeeping issues unique to public agencies, what published research says about defensible space, and how a dated aerial record can support a city program without replacing the fire authority's role.

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1. Introduction

A city's wildfire program rarely lives in one department. Public works maintains slopes and medians. Parks manages open space and trails. Code enforcement runs weed abatement. The fire authority, whether a city department or a contract agency, handles inspections and fire code. Contractors do most of the physical work, and associations maintain the fuel modification zones behind many neighborhoods.

1.1 What Cities Manage

- **Public open space and parks:** natural areas, trail corridors, and park edges next to wildland.
- **Slopes, medians, and rights of way:** landscaped and natural slopes along streets and drainage corridors.
- **City maintained fuel modification areas:** zones the city has taken on through development agreements, easements, or ownership.
- **Weed abatement:** state law lets a city require owners to remove weeds and rank growth and, after notice, have the city remove it at the owner's expense [8].
- **The interface edge:** the boundary where city land meets private communities and association maintained zones.

1.2 The Records Gap

Each of these programs produces paperwork: contracts, invoices, work orders, inspection notices, and the occasional photo. What is usually missing is a consistent, citywide record of what the ground actually looked like after each cycle of work. Without it, a city answering a council member, a grant reviewer, a resident complaint, or a claim has to piece together evidence from several departments and vendors.

1.3 Scope of This Paper

This paper is about documentation. It does not tell a city how to design its program, which standards to adopt, or how to comply with any law. Those decisions belong to city leadership, the city attorney, the fire authority having jurisdiction, and qualified professionals.

2. The City's Wildfire Obligations

2.1 Fire Hazard Severity Zone Maps

Under Government Code section 51179, a local agency must designate moderate, high, and very high fire hazard severity zones by ordinance within 120 days of receiving the State Fire Marshal's recommendations. The agency may add areas the State Fire Marshal did not identify (for very high zones, only on a finding supported by substantial evidence), may raise but not lower a recommended zone level, and must send a copy of the ordinance to the Board of Forestry within 30 days of adoption [1]. The State Fire Marshal released updated Local Responsibility Area maps in four phases, beginning with Northern California, with the rollout under way by February 2025 [2].

Map changes matter for vegetation management because they decide where defensible space law applies, where sale disclosures are required [26], and which agencies are eligible for state programs tied to very high fire hazard severity zones [4][12].

2.2 Defensible Space

In very high fire hazard severity zones designated by a local agency, Government Code section 51182 requires anyone who owns, leases, controls, operates, or maintains an occupied dwelling or structure to maintain 100 feet of defensible space, with more intense fuel reduction between 5 and 30 feet and an ember-resistant zone within 5 feet under Board of Forestry rules [4]. In the State Responsibility Area, Public Resources Code section 4291 sets the parallel requirement [9].

2.3 Zone 0

The Board of Forestry approved Zone 0 regulations on August 19, 2026, covering homes in the State Responsibility Area and in very high fire hazard severity zones in Local Responsibility Areas, with a phased schedule for existing homes [5]. The Office of Administrative Law lists the package as withdrawn on September 8, 2026 [6]. Under state law, the ember-resistant zone requirement takes effect for new structures only after the Board updates its regulations and its defensible space guidance document, and for existing structures three years after that [9]. As of October 21, 2026, it is not in effect.

2.4 The Safety Element

Government Code section 65302(g)(3) requires a city's safety element, upon the next housing element revision on or after January 1, 2014, to be reviewed and updated as needed to address fire risk in the State Responsibility Area and very high fire hazard severity zones. The update must include hazard maps and related information, goals and

policies to protect the community from unreasonable wildfire risk, and feasible implementation measures [3].

2.5 The Fire Authority

Who inspects defensible space depends on the city. In Orange County, the Orange County Fire Authority inspects properties within its jurisdiction, while cities with their own fire departments, including Fullerton, Brea, Anaheim, Newport Beach, Laguna Beach, and Orange, handle inspections themselves [10]. OCFA's real estate defensible space inspections, requested in connection with a home sale, cover the exterior of the property only [10]. Where OCFA is the fire authority, fuel modification for new construction follows its Guideline C-05, which requires maintenance at least twice a year in spring and fall [11].

3. Programs That Reward Documented Work

3.1 Fire Risk Reduction Community List

Public Resources Code section 4290.1 directs the Board of Forestry to maintain a list of local agencies in the State Responsibility Area or very high fire hazard severity zones that meet best practices for local fire planning [12]. The current list took effect July 1, 2026, and runs until the next list on July 1, 2028 [12]. Key points from the Board's guidance:

- **Grant priority:** Wildfire Prevention Grant applicants on the list receive priority, though agencies not on the list can still receive funds [7].
- **Insurance:** under the Department of Insurance's Safer from Wildfires regulation (10 CCR 2644.9(d)), insurer rating plans must reflect the reduced wildfire risk of community level mitigation designations, including listed Fire Risk Reduction Communities. The regulation sets no discount amount, and the Board refers residents to their insurers for details [7].
- **Criteria:** cities and counties must meet four mandatory criteria and two optional criteria, set out in the Board's regulations [7].
- **Cycle:** applications open July 1 and are due October 1 of every odd numbered year, outside windows are not accepted, and agencies must reapply each cycle [7].

A listed city has to reapply every two years and show its program is still in place. Records made along the way are easier to rely on than records assembled at the deadline.

3.2 CAL FIRE Wildfire Prevention Grants

CAL FIRE's Wildfire Prevention Grants for fiscal year 2025 to 2026, funded through Cap-and-Trade proceeds and Proposition 4, listed an estimated \$70 million for hazardous fuels reduction, wildfire prevention planning, and wildfire prevention education, with public agencies among eligible applicants and no matching funds required [13]. CAL FIRE's grant documents set out reporting requirements for funded projects, and dated records of treated areas can help a city prepare whatever reports its grant agreement requires.

3.3 Programs for Residents and Associations

The Department of Insurance's Safer from Wildfires framework describes mitigation at the structure, its immediate surroundings, and the community, and recognizes two community-wide programs: Firewise USA and Fire Risk Reduction Communities [14].

Firewise USA sites range from 8 to 2,500 dwelling units and must update a risk assessment every five years, keep a three year action plan, hold an outreach event each year, and invest at least one volunteer hour per dwelling unit each year or its equivalent value [15].

In October 2025, the Governor signed AB 888, the California Safe Homes Act, which creates a Department of Insurance grant program to help qualifying residents with fire-safe roofs and mitigation within 5 feet of their homes [16]. As of August 2026, the state had provided start-up funds but no money for grants, and applications had not opened [25]. Cities that track conditions along their interface edges are in a good position to help residents and associations take part in these programs, without the city making any promise about outcomes.

4. The Recordkeeping Challenge for Cities

4.1 Scale and Consistency

A city may have dozens of sites, several contractors, and staff turnover across fiscal years. Records produced by each contractor in its own format are hard to compare. A citywide record captured the same way every cycle gives staff one reference for every site.

4.2 Records and the Public Records Act

Under the California Public Records Act, a public record includes any writing relating to the conduct of the public's business that is prepared, owned, used, or retained by a state or local agency, regardless of physical form [17]. Imagery and maps a city commissions for its vegetation program may fall within that definition, subject to any exemptions that apply. Cities should plan, with their city attorney, for how such records will be requested, reviewed, and released.

4.3 Retention

Government Code section 34090 allows a city department head to destroy a record that is no longer required, without making a copy, with approval of the legislative body by resolution and the written consent of the city attorney. It does not apply to records less than two years old, records required to be kept by statute, and certain other categories [18]. A vegetation record is most useful when it covers several years, so cities should set retention periods with that in mind.

4.4 Reporting Up

Council reports, grant applications, Fire Risk Reduction Community applications, and safety element updates all ask the same underlying question: what has the city done, where, and when? A record organized by site and date lets the city answer it with images, not recollection.

5. What the Research Says About Defensible Space

A study of 1,000 destroyed and 1,000 surviving structures in San Diego County fires from 2001 to 2010, using pre-fire aerial photography, found defensible space most effective at 5 to 20 meters from the structure (about 16 to 66 feet; the published abstract lists 16 to 58 feet). Distances beyond about 30 meters, roughly 100 feet, did not add protection, even on steep slopes [19].

The authors also found that housing density and distance from major roads explained structure loss better than defensible space alone, and concluded that defensible space is one part of a broader approach that includes building design, education, and land use planning [19]. Land use planning is where cities have the most say. CAL FIRE describes the first five feet from a home as the most important [20].

Cities can take two things from this. Vegetation work near structures and along the interface deserves close, consistent documentation. And because many factors shape outcomes, records should describe conditions plainly and leave conclusions about risk to the fire authority and qualified professionals.

6. Aerial Documentation for City Programs

6.1 What Is Captured

Every FlyCRE flight captures four data layers, delivered in this order:

- **Orthomosaic:** a single overhead map of each site built from many overlapping images, so the whole area can be viewed and compared.
- **Thermal:** a record of surface temperature differences at the time of capture.
- **Asset Visibility:** close views of features such as v-ditches, access roads, fire roads, gates, and the transition between irrigated and natural areas.
- **Multispectral:** additional spectral bands that can be used to calculate vegetation indexes such as NDVI, which the U.S. Geological Survey describes as a way to quantify vegetation greenness, useful for understanding vegetation density and changes in plant health [21].

Each layer has limits. Greenness is not species, flammability, or compliance. Thermal readings depend on conditions at the time of capture. The layers give staff and the fire authority a consistent record to review. They do not decide anything.

6.2 Scheduling

Captures are most useful when they bracket the work: before a treatment to record the starting condition, and after to record the result. For areas under OCFA's guideline, that means planning around the spring and fall maintenance windows [11]. Recurring captures through the year build the timeline that grant reports, council updates, and list applications draw on.

6.3 Citywide Consistency

Saved flight plans let us fly each site the same way each cycle. Every image carries a GPS position and capture time, and every capture is stored so it can be compared with earlier and later flights. The result is one record format across every site and every contractor.

6.4 Measurements

Orthomosaic maps allow approximate measurements, such as the width of a treated band or the acreage of a slope. They are for tracking and reference. They are not survey grade,



are not certified by a licensed land surveyor, and should not be used to set property lines or legal boundaries.

6.5 Data Ownership and Privacy

All data from every flight is loaded into our encrypted platform and released only to the client who ordered it. It is never published or used as a sample. Flight plans are limited to the areas we are hired to document, and we do not target private residences or property outside that scope. Once delivered, the records are the city's, and the city's own records rules apply to them.

7. Flight Operations and Wildfire Safety

Every FlyCRE flight is flown under 14 CFR Part 107 by FAA certified remote pilots, within visual line of sight, and at or below 400 feet above ground level except as Part 107 allows near structures [22]. In controlled airspace near airports, we obtain FAA airspace authorization before takeoff, through LAANC where it is available and through FAADroneZone where it is not [23].

We schedule wildfire documentation outside active incidents, never during one. Temporary flight restrictions are typically put in place during wildfires, an unauthorized drone near a fire can ground firefighting aircraft, and interfering with firefighting can bring federal civil penalties of more than \$25,000 under current inflation adjustments, as well as criminal prosecution [24][27]. As the Know Before You Fly campaign puts it: if you fly, we can't [24].

8. What Aerial Documentation Does Not Do

FlyCRE provides aerial site documentation, and that is all we provide:

- **No compliance determinations:** we do not determine whether any site, lot, or program meets a fire code, ordinance, guideline, or regulation. The fire authority having jurisdiction makes that call.
- **No inspections:** our records do not replace inspections by the fire authority or a city's code enforcement staff.
- **No planning or advice:** we do not write fire plans, safety elements, or grant applications, or advise on program design.
- **No guaranteed outcomes:** grant awards, list decisions, and insurance treatment are made by the agencies and insurers responsible for them.
- **No surveying:** measurements are approximate and not survey grade.

Within those limits, a dated aerial record gives city staff, the fire authority, and council one consistent picture of the ground across every site the city manages.

9. Conclusion

Cities are being asked to do more on wildfire every year: adopt new maps, update safety elements, prepare for Zone 0, and keep vegetation managed across sites that never stop growing. The state has also tied benefits to documented local work: listed Fire Risk Reduction Communities receive priority for Wildfire Prevention Grants, and insurer rating plans must reflect that designation [7].

Showing the work takes records. A dated, consistent, citywide record of what the ground looked like after each cycle of work is the foundation for council reports, grant applications, list renewals, and answers to residents. It does not replace the fire authority or the professionals who make determinations. It gives everyone involved the same view of the ground.

Documented Today, Defensible Tomorrow.

Appendix

A. Regulatory References

- **Government Code section 51179:** local designation of fire hazard severity zones by ordinance [1].
- **Government Code section 51182:** defensible space in locally designated very high fire hazard severity zones [4].
- **Government Code section 51183.5:** seller disclosure of property located in a very high fire hazard severity zone [26].
- **Public Resources Code section 4291:** defensible space in the State Responsibility Area, including the ember-resistant zone and its timing [9].
- **Public Resources Code section 4290.1:** the Fire Risk Reduction Community list [12].
- **Government Code section 65302(g)(3):** wildfire content of the general plan safety element [3].
- **Government Code section 39501:** removal of weeds and rank growths [8].
- **Government Code section 7920.530:** definition of public records under the California Public Records Act [17].
- **Government Code section 34090:** destruction of city records [18].
- **OCFA Guideline C-05 (January 1, 2026):** fuel modification plans and maintenance where OCFA is the fire authority [11].
- **14 CFR Part 107:** operating rules for small unmanned aircraft [22].

B. Research and Agency Guidance

Syphard, Brennan, and Keeley, *International Journal of Wildland Fire*, 2014 [19]

- **What they did:** compared 1,000 destroyed and 1,000 surviving structures in San Diego County fires from 2001 to 2010 using pre-fire aerial photography.
- **What they found:** defensible space was most effective at 5 to 20 meters (about 16 to 66 feet; the abstract lists 16 to 58 feet) from the structure, distances beyond about 100 feet did not add protection, and housing density and road distance explained losses better than defensible space alone.
- **Why it matters:** cities shape the broader factors through land use and planning, and the researchers relied on aerial imagery to reconstruct conditions before each fire.

Board of Forestry Fire Risk Reduction Community Guidance [7]

- **What it says:** listed agencies receive Wildfire Prevention Grant priority, insurers must reflect the designation in rating plans, and agencies must reapply every two years.
- **Why it matters:** the list rewards ongoing, demonstrable work, which depends on records.

C. City Program Checklist

This checklist applies whether or not a city uses aerial documentation. It is a starting point, not legal advice.

- Confirm the city's current fire hazard severity zone ordinance reflects the latest State Fire Marshal maps.
- Inventory every city managed vegetation site, the responsible department, and the contractor.
- Confirm which fire authority has jurisdiction over each site and which standard applies.
- Set a documentation schedule that brackets each maintenance or treatment cycle.
- Use one record format across all sites and contractors.
- Store original files with capture dates and who captured them.
- Set retention periods with the city attorney that cover several years of comparison.
- Plan with the city attorney for Public Records Act requests involving vegetation records.
- Track Fire Risk Reduction Community application windows and keep supporting records current between cycles.
- Watch for the final Zone 0 regulation and its effective date.

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