

# Landscape Manual

## City of Carlsbad

### OVERVIEW

#### REGION

*Southern California*

#### POPULATION

*114,253*

#### TOOL TYPES

*Landscape Manual  
(as adopted by local ordinance)*

#### LEAD AGENCIES

*Community Development  
Department (including  
the Planning and Code  
Enforcement Divisions),  
Fire Department*

#### CLIMATE IMPACT AREA

*Wildfire Resilience*

# SUMMARY

In 2005, the City of Carlsbad adopted a landscape manual that has since been incorporated into their municipal code as Chapter 18.50 Water Efficient Landscape Ordinance. The manual has been updated several times in subsequent years to include detailed fire protection requirements for properties located in, or abutting, established fire management zones across the City and additional requirements related to conservation and the efficient use of water.

Fire protection requirements in the manual are designed to address the design, installation, and modification of new and existing vegetation to mitigate fire risk to the built environment. Requirements are crafted in such a way that achieves wildfire risk reduction outcomes while addressing other environmental constraints or restrictions consistent with meeting the overall objectives of the manual.

*This case study was selected as a Wildland-Urban Interface (WUI) Planning Best Practice because it shows a well-established approach by a local planning agency administering a landscaping ordinance that achieves multiple objectives, including the incorporation of a wildfire risk reduction strategies. The case study also highlights a collaborative approach with the fire department and the incorporation of specialized expertise from a landscape architect. Finally, this example includes helpful illustrations of landscaping and fuel modification requirements that accommodate a flexible application in different terrain and vegetation types.*

*A Landscape Guide establishes local design standards for landscape development projects, such as aesthetic and environmental issues. They can also include restrictions on plant selection, defensible space and brush or hazardous/flammable vegetation management (e.g., fuel modification zones), and other features (e.g., fences, walls, gates) that are deemed a fire hazard.*

*Front Image: Carlsbad Fire Department (Instagram)*

## TOOL DESIGN

The City's Landscape Manual applies to all public and private developments that require the submittal of landscape plans for new development or public improvement projects with a landscaped area of 500 square feet or more, any model home with a landscaped area, or rehabilitated landscapes that require a building permit or discretionary permit and the applicant is installing or modifying 2,500 square feet or more of landscaping.

The Landscape Manual is a broad document that provides applicants with all landscape-related policies and requirements related to sustainability, water conservation, planting, irrigation, the streetscape program, fire protection, and erosion control/slope revegetation. The manual also outlines any submittal requirements and documentation needed to comply with City regulations.

As included in the Landscape Manual, applicants

for proposed projects that contain or are bounded by hazardous vegetation or in areas located within the City's Very High Fire Hazard Severity Zone (VHFHSZ) must also develop and submit a Fire Protection Plan. Property owners can determine if they are in this zone by typing in their address within the map viewer on the City's website.

Fire Protection Plan requirements are provided in Section 5 of the City of Carlsbad Landscape Manual and include compliance with Chapter 49 of the California Fire Code and/or Chapter 7A of the California Building Code (as adopted by the City of Carlsbad), mitigation of offsite wildfire hazards, including hazards located on an adjacent property, and identification of maintenance access to all fire protection areas.

To address variations in terrain and vegetation,

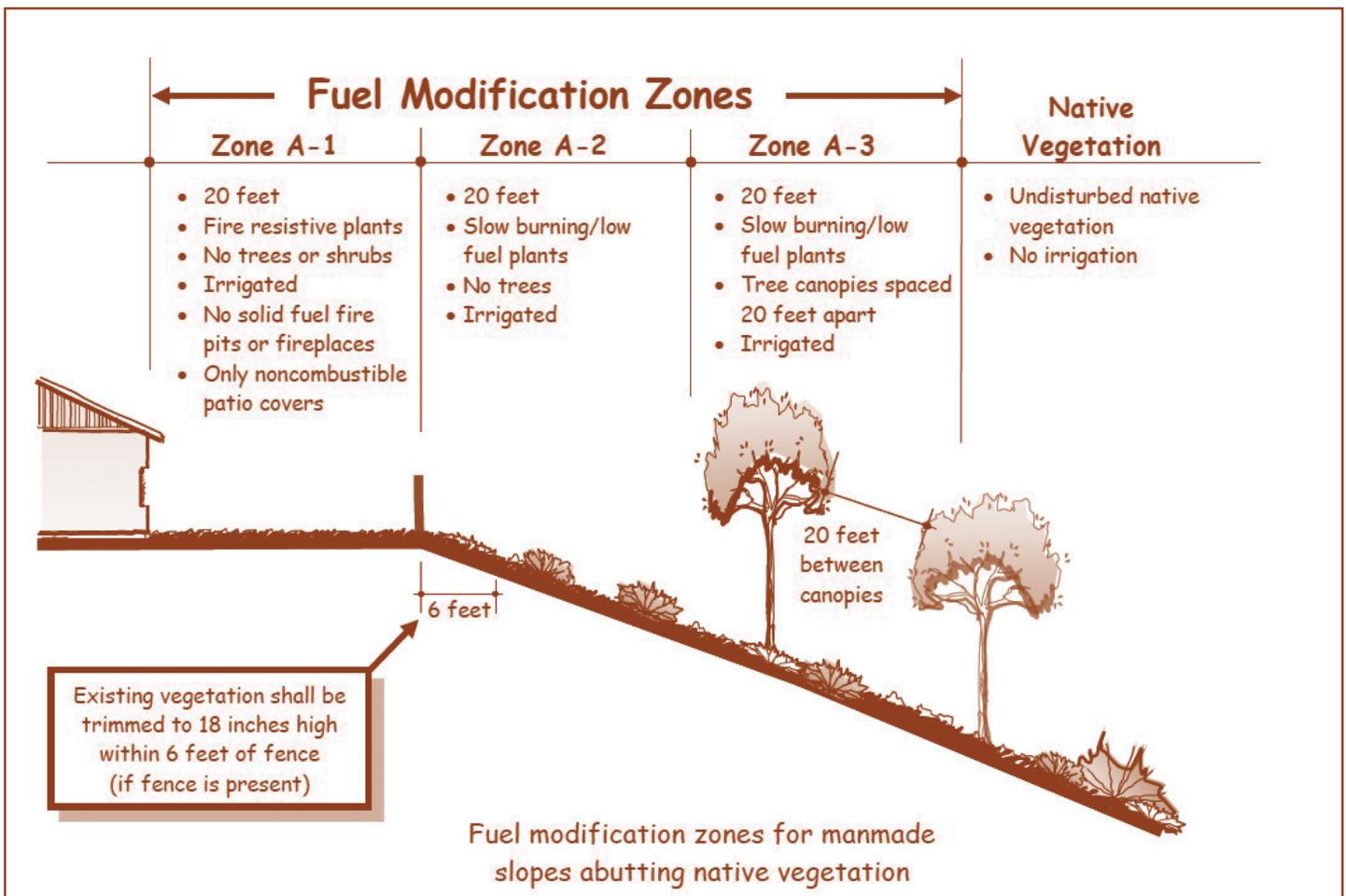
the City has created different fuel modification zones based on three distinct categories:

*Condition A – Manufactured slopes abutting hazardous native vegetation*

*Condition B – Natural slopes with native vegetation where removal of native vegetation is restricted*

*Condition C – Manufactured or natural slopes which occur outside the fence line or property*

Each Condition has three 20-foot zones with specific requirements for the type of landscaping allowed any restrictions on other features (e.g., fire pits, patio covers), irrigation, horizontal and vertical spacing requirements for trees and other vegetation, and more.



Excerpt from the Fire Protected Requirements section of the City of Carlsbad's Landscape Manual showing requirements for manufactured slopes. Image adapted from the City of Carlsbad's Landscape Manual

# IMPLEMENTATION

Landscape plan applications are submitted to the Carlsbad Community Development Department (Planning Division), where they are reviewed and approved by a registered landscape architect who is on contract with the City to perform these duties. For any project that includes fire protection requirements, the City of Carlsbad Fire Department will also review and approve the final Fire Protection Plan. For any applications that require offsite mitigation of wildland fire hazards, it is the applicant's responsibility to secure agreements with owners of adjacent property(ies).

Landscape plans must be approved before a project receives its building permit or before a grading permit is approved. After a landscape plan is approved and implemented, the City's Code Enforcement Division and Fire Department

ensure that landscape implementation aligns with the approved plan.

The Fire Department also ensures that properties sold (or listed for sale) within mapped Fire Hazard Severity Zones comply with Assembly Bill (AB) 38 (Fire safety: low-cost retrofits: regional capacity review: wildfire mitigation, 2019) and Section 4291 of the Public Resources Code for defensible space. As part of these inspections, the Fire Department also mandates compliance with specific requirements of the Landscape Manual, including for horizontal and vertical separation between trees and shrubs.

To aid in ongoing hazard reduction, the Carlsbad City Council has expressed interest in considering how to retroactively apply fire protection requirements to existing properties, though the Manual is not a nuisance ordinance. The City is also considering incorporating a zero to five-foot ember-resistant zone into their fire protection standards, consistent with the recently passed AB 38 legislation.



*Fire crews work to maintain a fuel break outside a residential community in San Diego County. Image: Cal Fire, San Diego*

# COLLABORATION & ENGAGEMENT

The City's Community Development and Fire Departments work closely to ensure that fire protection requirements are effectively administered, and fuel modification zone requirements are maintained over time. The long-term contract position of a registered landscape architect allows the City to maintain consistency in landscape plan reviews.

While the fire department has traditionally supported WUI risk reduction and maintenance by reviewing plans and answering questions, within the last five years, the City Council has approved a full full-time WUI position in the department to conduct annual inspections for fuel modification in large tract developments that are located in, or abut, wildfire hazard zones. This ensures that any maintenance, as requested by the Fire Code Official, is performed.

# INNOVATIONS

The design of the Landscape Manual, including detailed diagrams of required fuel modification zones, is incredibly helpful for applicants to understand what their landscaping may look like. The guide works as both a book of regulations, as well as an educational tool for what fuel modification looks like under differing topographic conditions. Further, the close relationships between the various City Departments that implement the Landscape Manual contribute to success. The Manual is housed within the Planning Division, but Fire Department staff work in tandem with planning staff to ensure all projects comply with the Manual.

The flexibility of the Manual's implementation has also provided opportunity for alternative standards based on site-specific conditions. For example, in areas that abut environmentally sensitive habitats, where large fuel modification projects would adversely impact protected species, or where there may be natural features (e.g., large boulders) that compensate for a reduced buffer, the size of fuel modification zones has been reduced in close consultation with the fire department. In some cases, there may be specific alternative development features required to achieve similar wildfire risk reduction outcomes as the standards set in the manual.

Recent fires in 2014 (Poinsettia Fire) and in 2020 (Park Fire) have tested the effectiveness of fire protection requirements. Though several structures were lost, some of the area burned by the Poinsettia Fire had buffer zones between buildings and wildland areas, limiting the damage. Further, according to fire department Staff, during the 2020 Park Fire, strict fuel modification and fuels treatments in the coastal management zone worked to slow fire spread.

The Planning Division has also been working closely with large tract housing developments to ensure compliance with perimeter fuel modification and focusing on setbacks for urban interface-type projects that align with the manual. There has also been a recent trend

of new multi-family housing projects that abut a fire management zone, and the fire department is beginning to think more about how to better utilize the manual to protect infill development from wildfire hazards.

# FUNDING SOURCE

The City of Carlsbad implements their landscape ordinance using a cost recovery system, in which the permit review process and inspection is paid for by the applicant. Long-term maintenance of the manual including any future updates, or additional complaint-driven inspections are covered through funding provided by the City's general fund.

# ADDITIONAL CONSIDERATIONS

## REPLICABILITY

For communities considering adopting a landscape ordinance that includes fire protection requirements, the City of Carlsbad case study helps illustrate:

1. *Expanding existing local ordinances for water conservation to include fire protection requirements can help align multiple landscaping objectives, such as water conservation and management of hazardous vegetation for fire risk reduction.*
2. *Engaging the expertise of a registered landscape architect, in collaboration with the fire department, can address complexities encountered in California landscapes.*
3. *Creating distinct categories for fuel modification zones provides flexibility for mitigation to be applied based on-site specific conditions across a jurisdiction's designated fire hazard severity zone (FHSZ).*

## RESPONDING TO DATA, STATE REGULATIONS, & CLIMATE CHANGE IMPACTS

According to the [San Diego Regional Report of the 4th California Climate Assessment](#), seasonal Santa Ana Winds will continue to contribute to wildfires in the region, including in the City of Carlsbad. Other climate impacts, alongside high wind events, including drought, may also add additional risk of wildfire during the late fall and into the early winter (Dec./Jan.). Some models show that with no reduction in greenhouse gas (GHG) emissions, the area burned by wildfires each year in the San Diego region may increase by as much as 50% by 2070. The report also notes that additional development and activity in hazardous areas may contribute to increased wildfire impacts to the natural and built environment.

The City of Carlsbad's Landscape Manual has been working to make existing and new development within the city more resilient to a future in which wildfires may become more frequent. Requiring fuel modification zones and fire-resistant landscaping protects the built environment and may prevent the spread of wildfire from structure to structure or from wildlands to structures.

## FURTHER INFORMATION

*For more information, please visit the City of Carlsbad's Planning [Department Landscape Plans webpage](#).*

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*This case study is part of a series of Wildland-Urban Interface (WUI) Planning Best Practices. Each case study focuses on a specific planning tool (or set of tools) that a community is utilizing to reduce risk and build resilience to wildfire across the state of California. This project is part of [California Climate Investments](#), a statewide initiative that puts billions of Cap-and-Trade dollars to work reducing greenhouse gas emissions, strengthening the economy, and improving public health and the environment – particularly in disadvantaged communities.*

