

chapter

4

REGULATORY APPROACHES TO WILDFIRE RISK REDUCTION



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The 1985 fire that burned our Palm Coast home really blindsided us. We didn't know this kind of thing could happen in Florida....I don't want anyone to go through what we went through. In 1999, I participated in writing our first wildfire mitigation ordinance, which required owners of vacant property to mow hazardous underbrush within 30 feet of homes. We have written Comprehensive Plan provisions and are revising our Land Development Code.... You can make your property as Firewise as possible, but if your neighbor isn't doing the same thing and their property is close to your house, that isn't really going to help you.

– Bill Butler, Landscape Architect, City of Palm Coast

THE OPPORTUNITY FOR REGULATORY APPROACHES

In addition to the planning approaches and strategies discussed in Chapter 2, communities may want to pursue regulatory approaches to wildfire risk reduction. Regulatory approaches are especially helpful in high risk areas and where there is public or cultural reluctance to address the wildfire hazard. Regulations may naturally follow from the Comprehensive Plan, Local Mitigation Strategy (LMS), or Community Wildfire Protection Plan (CWPP) process or they may be undertaken as a stand-alone approach in communities vulnerable to wildfire damage.

This chapter identifies processes and regulatory language that can be adopted by local governments to address the wildfire hazard, following upon the planning information in Chapter 3. This chapter discusses a number of regulatory approaches and reviews the balance that must be sought between wildfire risk reduction activities and other local ordinances and regulations. Included here are some exam-

ples of local Florida wildfire risk reduction regulations as well as examples from the western U.S.

Local governments and homeowners associations (HOA) have many wildfire risk reduction options to choose from for the building blocks of local ordinances or covenants. For example, communities might consider including recommendations on development design and review (Chapter 5), landscaping (Chapter 7), and building construction (Chapter 6). This

Regulations Protect Health and Safety, Raise Awareness

Regulations are useful to carry out the goals of a major planning effort (e.g., a Comprehensive Plan) or to compel favorable behaviors where there is significant risk to citizen health, safety, and welfare. The process of developing regulations raises community awareness of the need for wildfire risk reduction.

chapter discusses a number of durable local government regulatory mechanisms for accomplishing wildfire risk reduction. In addition, model neighborhood covenants, a model vegetation management ordinance, a model wildfire mitigation ordinance, and the text from an actual draft wildfire mitigation ordinance are appended at the end of this manual. These models may be modified and adopted by local jurisdictions to provide standards for existing and new neighborhoods and developments in wildfire-prone areas.

Benefits and Costs of a Regulatory Approach

There are many advantages to regulatory approaches to wildfire risk reduction. Regulations can carry out the goals of and be consistent with major local planning efforts such as the Comprehensive Plan or a CWPP. Regulations can potentially reduce wildfire risk in new developments in wildfire-prone areas by providing methods to protect houses from neighboring high risk areas. The benefits of wildfire risk reduction to public health, safety, and welfare are potentially large in high risk areas.

Wildfire risk reduction regulations can be very flexible and responsive to local needs. For example, local regulations can be sensitive to seasons and conditions (e.g., going into effect during local drought or heat conditions). Regulations, codes, and zoning districts that are locally designed will be more fair and responsive to local needs and conditions. Local regulations can be easily justified based on factual information derived from community risk assessments, GIS maps of wildfire risk data (such as the Florida Wildfire Risk

Assessment discussed in Chapter 1), and other information sources. Costs for regulatory approaches can be minimized if the ordinance or code being adopted is fit into an existing governmental structure.

The major costs involved in new regulation are for government oversight, review, or enforcement activities. Regulations may also be viewed as unnecessarily restrictive by homeowners or developers. New wildfire risk reduction regulations may incur additional costs to developers, builders, and landscapers, but those costs often can be passed on to consumers. While these costs may not be acceptable to consumers in some cases, there may be a marketing advantage for Firewise homes in high risk areas.

A challenge with any wildfire risk reduction regulation is maintenance and enforcement over time. There is no guarantee that newer residents will maintain the risk reduction standards unless these provisions are included in deed restrictions or required in an HOA plan for management of common areas. Community greenspace sometimes is not managed or maintained after final development approval as residents tend to view greenspace as untouchable or self-maintaining. The type of maintenance needed in community greenspace should be spelled out in the development order or in the covenants and restrictions of the subdivision. See Chapter 4 for information on Firewise greenspace management.

Finally, most regulatory approaches are not retroactive. Alternative approaches, such as incentives for Firewise retrofits or fuel management approaches, may be more realistic for developments and single-family houses that already exist in high-wildfire-risk areas.



When regulations are in place, assessment teams can make sure that property owners participate in reducing wildfire risk. Photo: Cotton Randall, University of Florida

Designing Local Wildfire Risk Reduction Regulations

A wildfire risk reduction ordinance is a regulatory measure that can develop from the framework of a planning process such as the Comprehensive Plan required in Florida's local jurisdictions. Statutory authority guides the planning process, which then leads to creation of necessary regulations at the local level. Local regulations are usually developed by city or county staff or by consultants and then pass through a series of public hearings for citizen comment and input.

As a local regulation is being designed and considered, local governments should be asking themselves typical questions that are asked before any new regulation is promulgated.

- Is this regulation realistic?
- How can the desired behavior be encouraged with incentives?
- Are the punitive measures enforceable?
- How can this measure be administered in a cost-effective manner?

Homeowners Should Be Prepared to Follow Rules

In one recent wildfire study, 69% of respondents agreed that people choosing to live near rangelands and forests should be prepared to accept the inherent risk. In fact, only 11% of respondents disagreed with this statement. By a nearly 7 to 1 ratio, this suggests a buyer-beware attitude on the part of the general public.

Respondents also agreed by a 4 to 1 margin that, where wildfire is common, homeowners should follow government guidelines to manage for wildfire risk (Bowker et al. 2005).

- How can the public best be engaged in the process of developing helpful regulations?

The intent of most wildfire risk reduction regulations is to set criteria to be met in high-risk areas. Identifying and delineating areas that are at risk from wildfire is often the first step in any regulatory action. Ensuring that Florida Division of Forestry (DOF) and local fire protection services are involved in ordinance creation and are included on development review boards is another important feature of successful regulations. These wildfire professionals bring an expert perspective to the wildfire implications of land development in a given area.

Timing of regulation is also important. Regulations can be adopted all at once or through a phased approach to wildfire risk reduction. The main goal is for high-risk communities to begin taking concrete steps toward wildfire risk reduction and to develop local

Some Features of Wildfire Mitigation Regulations

- Public involvement in designing helpful and practical regulations
- Treatment measures that are carefully selected to be specific to the local area covered by the regulation
- Clear standards for delineating high risk wildfire zones
- Clear criteria to be met in high risk zones, especially in guidelines for landscaping, building construction, vegetation management, infrastructure design, and firefighting water supply
- A plan and procedures for long-term maintenance
- Involvement of local fire protection services and DOF representatives on wildfire mitigation review boards
- Initiation of fees to fund fuel management programs, if necessary

ordinances or covenants that are meaningful and useful in promoting public safety and wildfire risk reduction objectives.

A number of local Florida governments have integrated wildfire risk reduction requirements into existing Land Development Regulations (LDRs) or in additional regulations. These communities have carefully chosen which requirements are necessary for their regulations. Florida wildfire risk reduction ordinances typically focus on fuel management (reduction of fuels), wildfire-resistant building materials, and development standards as well as requiring a minimum of two access routes into proposed developments in high risk areas. Wildfire risk reduction regulations typically reference standards set by the National Fire Protection Association (NFPA), particularly NFPA 1144 *Standard for Reducing Structure Ignition Hazards from Wildland Fire*, NFPA 1141 *Standard for Fire Protection Infrastructure for Land Development in Suburban and Rural Areas*, and others. Case studies of these regulations are

placed throughout this chapter and a set of model regulations is appended at the end of this manual.

REGULATORY STRATEGIES FOR WILDFIRE RISK REDUCTION

Types of Wildfire Risk Reduction Regulations

The development of local wildfire risk reduction regulations is a process of selecting from a variety of options. There are a number of regulatory strategies and methods that can be employed, and an assortment of behaviors or materials that can be regulated. While all regulations attempt to be responsive to local conditions and needs and provide for protection of public health and safety, different communities will have reasons for choosing the type of regulations that they employ. Each county or

municipality should choose the things that are most important in their given situation. For example, one county might choose to incorporate wildfire risk reduction guidelines in their existing Land Development Regulations (LDRs), while another community might use zoning regulations or an overlay district to carry out a wildfire risk reduction policy. The table provides a summary of the features of common regulatory and voluntary wildfire risk reduction mechanisms, which are further described in the text that follows.

Land Development Regulations and Development Review

Land Development Regulations (LDRs)

Land Development Regulations (LDRs, sometimes called Uniform Land Development Codes or ULDCs) are local regulations that implement the objectives and policies laid out in the local Comprehensive Plan as discussed in Chapter 3. LDRs give the force of law to the vision set forth in the Comprehensive Plan and provide for orderly development and the protection of the health, safety, and general welfare of citizens. LDRs typically include provisions for subdivision and development review processes and may also include zoning and other local development regulations.

LDRs must be consistent with and function to implement the Comprehensive Plan. If a Comprehensive Plan includes provisions for wildfire risk reduction, then the LDRs for that area should include wildfire risk reduction rules to implement the Comprehensive Plan. In addition to this information, a model wildfire mitigation development regulation is appended at the end of this manual.

Comparison of Regulatory Approaches to Wildfire Risk Reduction

Type of Regulatory Approach	LDRs and Development Review	Zoning or Special Overlay District (may be part of LDRs)	Vegetation Management Ordinances	Neighborhood Covenants or Deed Restrictions	Community Protection Zone (may be part of a mitigation plan)	Building Codes or Standards
Typical Requirements						
Limited development in high-wildfire-risk areas.	✓	✓				
Development design criteria	✓					✓
Local fire department or DOF review process	✓		✓		✓	
Landscaping standards (Defensible Space, maintenance)	✓		✓	✓		✓
Building construction standards						✓
Fuel management zones around developments	✓				✓	
Education, collaboration, and other social approaches	✓	✓	✓	✓		
Advantages						
Can be built into or work with existing regulations	✓	✓	✓	✓	✓	✓
Can reference NFPA standards	✓		✓	✓		✓
High-risk areas are scientifically determined and mapped	✓	✓	✓		✓	
Additional development requirements can be identified and required	✓	✓				✓
Voluntary and cooperative				✓	✓	
May prevent wildfire from ever reaching neighborhood	✓	✓	✓		✓	
Disadvantages						
May incur additional government review and/or action	✓	✓	✓			✓
May incur additional government costs for review, enforcement	✓	✓	✓			✓
May incur additional government costs for fuel management			✓		✓	
Regulations may be viewed as onerous by developers	✓	✓		✓		✓
Regulations may be viewed as onerous by homeowners, businesses		✓		✓		✓
Enforcement may be difficult				✓		

Typical Wildfire Mitigation Provisions for Inclusion in LDRs

- Restrictions on development in wildfire-prone areas
- Requirements that development in wildfire-prone areas entail a wildfire risk assessment and Wildfire Mitigation Plan
- Requirements that development in wildfire-prone areas meet certain design criteria, such as clustering
- Requirements for Community Protection Zones around developments in high risk areas
- Requirements that development in wildfire-prone areas meet landscaping and/or building construction standards
- Requirements for additional wildfire protection measures that correspond to the level of risk as identified by the wildfire risk assessment
- Requirements that a fire services representative (local fire department and/or DOF) participate in the risk assessment and development review
- Requirements for long-term maintenance, monitoring, and inspection of vegetation management and infrastructure maintenance activities

Case Study: Alachua County LDRs, Article 19: Wildfire Mitigation

The Alachua County LDRs, which are appended at the end of this manual, demonstrate one approach to the risks to life and property from wildland fire. The goal of the regulations is to form an alliance between property owners and fire services that will minimize the necessity for structural protection from wildfire. The Alachua County LDRs have a number of requirements to protect property owners from wildfire risk.

- All new development in wildland-urban interface and intermix areas of the county must prepare and have approved a Wildfire Mitigation Plan.
- Zoning is modified according to wildfire risk. Development in “high risk” areas would be required to meet more stringent site, structural, landscaping, access, water supply, and lifetime maintenance requirements. High risk areas are technologically defined (see Chapter 1 for a discussion of wildfire risk assessment techniques).
- A fuel management program is implemented for all properties owned and/or managed by the county. Fuel management services would also be extended to private properties by contract.
- A countywide public education and information program is implemented to promote the benefits of prescribed fire as a land management tool; to promote the concepts of Firewise site, structure, and landscape design; to introduce wildfire and prescribed fire programs in the schools; to promote “prescribed fire awareness week” and “wildfire awareness week” each year; and to organize Firewise Communities workshops in the county.

The process to develop the LDRs began with the introduction of new language into the Alachua County Comprehensive Plan: Conservation and Open Space Element: Policy 5.6 Wildfire Mitigation (see Chapter 3). After the Comprehensive Plan element was adopted in 2005, fire staff began development of the LDRs, which were completed in February 2009, and have begun the public hearing process. Meanwhile, the wildfire mitigation review process for new developments in Alachua County is being enforced as a provision of the Comprehensive Plan. Firewise Communities workshops and educational programs have been sponsored in the county to raise awareness of the importance of wildfire risk reduction. (Complete LDR language appears in Appendix 2, page 140.)

Development Review

Development review is a step in the local development or subdivision process where local planning authorities review the landowner's or developer's site plan proposal, which shows the location of buildings, septic systems, roads, lots, public areas, easements, utilities, etc. Through the development review process, local planners ensure regulatory compliance. Development review usually involves a local development review board made up of development and building experts, planners, and fire protection professionals. Citizens are involved through the public hearing process.

During development review, the board and planners may potentially negotiate for infrastructure improvements, dedications for schools and parks, use restrictions, and performance guarantees. There are statutory and constitutional limitations on what or how much a local government may require, but it is not uncommon for local governments to require

Wildfire Review Opportunity

Development review is an opportune time for local authorities to require wildfire risk reduction plans and actions for developments in high or extreme risk areas.

special actions at the time of development review. Required risk reduction and management planning actions may include wildfire risk reduction, storm and flood planning, visual aesthetics, protection of wildlife habitat and groundwater, surface water storage areas, and measures to address other hazards and environmental concerns.

Development review is the opportune time for local authorities to require wildfire risk reduction plans and actions for developments in high or extreme risk areas. It is also the point where Comprehensive Plan policies in the form of LDRs directed at wildfire risk

reduction are applied. For example, a developer may be required to write and implement a Wildfire Mitigation Plan that reduces wildfire risk prior to development (see Chapter 5). As a part of the plan, the local authority or review board may also require a long-term vegetation management, monitoring, and inspection plan for greenspace in and around a development as is sometimes done with storm water management systems.

Zoning Regulations and Special Overlay Districts

Zoning

Zoning is the way in which governments regulate the physical development of land and the specific uses to which property may be put. A zoning map adds specificity to the more generalized FLUE and FLUM of the Comprehensive Plan. The FLUE and FLUM show the general areas in which residential, industrial, recreational, or commercial activities may take place. Based on the FLUE/FLUM, zoning regulations specify the character and types of uses allowed within each land use category. There may be one or several specific zoning districts within each land use category. In some local jurisdictions, zoning is now becoming included as a part of unified LDRs.

Zoning is a locally controlled activity. Though the existence of zoning is fairly universal, the classifications used to describe zoning are not necessarily the same from one jurisdiction to the next. The zoning classification on a particular piece of land is changed or updated through an application process for rezoning or through exceptions granted as variances.

Case Study:

Collier County Rural Fringe, Wildfire Mitigation and Prevention Planning

In 2004, Collier County adopted language into its Comprehensive Plan and Land Development Code to require a Wildfire Prevention and Mitigation Plan (WPMP) for all new developments in lands zoned as Rural Fringe, which is equivalent to wildland-urban interface. Each WPMP must, at a minimum, address project structural design, use of materials and location of structures to reduce wildfire risk, firebreaks and buffers, water features, and the impacts of prescribed burning on adjacent or nearby lands. The WPMP must be developed cooperatively with the DOF, Collier County Emergency Management, and managers of nearby or adjacent conservation lands.

The code is tied in with the County's Transfer of Development Rights provision, which encourages the conservation of important environmental lands by transferring development rights to "Receiving Lands" that are in low-risk areas or that comply with the WPMP requirements.

Typical Zoning Regulations

- Describe uses that can be made of land and buildings
- Control density and intensity of development
- Set dimensional requirements for lots and buildings
- Limit activities, such as types of businesses or other uses
- Guide extraction of natural resources from land within zoned areas
- Designate areas for hospitals, parks, schools, and open space
- Recognize places of historical significance
- Provide for variances and uses by special exception

Wildfire concerns may be addressed through the zoning process with mapping and zoning of high-wildfire-risk areas. Local governments may then require wildfire risk reduction activities in order for a development or subdivision to be approved in the high risk areas. In some cases, zoning regulations are varied through a “planned development” process, which offers greater flexibility and creativity in land use and may also include wildfire risk reduction requirements.

Special Overlay Districts

Special Overlay Districts, also called “floating zones,” are mapped areas with additional requirements beyond those of the underlying zoning district. An overlay district is typically applied when there is a special public interest

The [Palm Coast] ordinance was the most controversial aspect of the new approach to wildfire preparedness... If the lot owner does not cooperate, the city will clear the underbrush and charge the owner the cost plus a fine. If no payment is made, the city will place a lien on the property that must be paid before the lot can be sold or improved. This ordinance was the result of many years of discussion and debate. As observed by one Palm Coast resident, “There was a concern about property rights. No one was against it, but there was resistance as they thought that their traditional civil rights were threatened.”

–Pamela J. Jakes, *Improving Wildfire Preparedness*, 2007

in an area that is not served by existing zoning. It is most useful if the overlay district is limited to one or several large areas rather than small areas scattered throughout a community.

Because the special feature – such as wildfire risk – mapped by the overlay district may physically overlap several different zoning categories, it is sometimes easier to set up an overlay district than to rewrite multiple zoning categories. Generally, the underlying zoning determines the specific land use, while the overlay district makes additional requirements for building design, setbacks, or other features or activities such as wildfire risk reduction actions.

Overlay districts are enacted through a purposeful ordinance and are best used to focus on a special land use topic or issue, which makes them suited to the wildfire hazard in many communities. Overlay districts are not arbitrary; they are designed to be based on factual evidence, such as a wildfire risk assessment as discussed in Chapter 1. The model ordinance appended to this manual includes an example of

implementation of a special overlay district strategy.

Vegetation Management Ordinances

Vegetation management ordinances may be enacted as part of a local government’s LDRs or as stand-alone ordinances in the local code. Some Florida communities encourage the management of vegetative fuels in home landscaping. For example, some local Florida communities have regulatory provisions aimed at the removal of weeds, brush, and debris for health, safety, and aesthetic reasons. Pasco County requires the removal of “grass, weeds, brush, or undergrowth exceeding 12 inches in height, debris or any noxious material of any kind that...tends to create a fire hazard endangering the lives and property of the citizens of the county” [Pasco County Code 42-1(a)]. The City of Palm Coast now requires vegetation management on undeveloped lots scattered among houses in the extreme risk subdivision. A model vegetation management ordinance is appended to this manual for reference of local governments.

Case Study:**Flagler County Ordinance 98-14 and City of Palm Coast Wildfire Hazard Reduction Ordinance 2001-11**

In 1998, Flagler County passed Ordinance 98-14, which was designed to mitigate the effects of wildfire within the unincorporated community of Palm Coast. The ordinance calls for clearing flammable vegetation on vacant lots adjacent to those that are developed in order to create a 30-foot Defensible Space around structures. The ordinance was developed as a direct response to the spring and summer wildfires of 1998 that ravaged Palm Coast.

After the community became incorporated, a nearly identical ordinance was adopted as the City of Palm Coast Wildfire Hazard Reduction Ordinance 2001-11. If property owners do not comply, the City of Palm Coast can put a lien on the property to enforce the ordinance. To date there have been no major wildfire threats to test the effectiveness of this measure.

The ordinance has created new opportunities for landscape maintenance companies, several of which have added bush-hog type equipment to take advantage of the work of clearing thick vegetation on undeveloped lots. In addition, two Firewise Communities – Cypress Knoll and Grand Haven – have been created in Flagler County in response to the growing awareness of the high level of wildfire risk in the area.



A house lost in the 1998 Florida wildfires.

Photo: FDOF

Neighborhood Covenants or Deed Restrictions

Neighborhood covenants or deed restrictions are a legal attachment to each deed in a group of houses or lots that are part of a specific development or subdivision. Deed restrictions are not a government regulation per se, but they are a regulatory mechanism, being recorded in the public record and with provisions for noncompliance. Covenants usually are put in place by the original developer. The developer or seller of a house is required to provide the covenants to the buyer before a contract is made.

Covenants give a development a more standard appearance, control some of the

activities that take place within its boundaries, and generally protect property values. Covenants nearly always specify the minimum size residence allowed, how many houses may be built on one lot, and what type of construction the houses must follow. Covenants also may address other topics, such as setbacks from streets and lot lines, utility and access easements, fees for road maintenance or community amenities, rules about pets and other animals, rules about in-home businesses and rentals, rules limiting tree cutting, rules about fencing, rules to reduce clutter and vehicles on lots, and rules governing the changing or voiding of the covenants. Covenants that address wildfire risk may include requirements for creation of Defensible Space, notification of pre-

scribed burns, homeowner education, and other wildfire risk reduction activities.

Over time, the covenants typically are managed, monitored, and amended by the HOA. The major drawbacks are that covenants sometimes are not enforced by the HOA and that penalties for noncompliance usually are minor. The enforcement issue can be overcome by including third party oversight and enforcement by design. With enforcement mechanisms, covenants offer an excellent vehicle for protecting neighborhoods and encouraging residents of a high risk subdivision or development to create and maintain Defensible Space. Model neighborhood covenants are appended at the end of this manual for adaptation by developers or HOAs.

REGULATORY APPROACHES TO WILDFIRE RISK REDUCTION

Building Codes and Building Permit Requirements

Building Codes

The purpose of building codes is to regulate new construction and renovation by establishing minimum requirements for building systems to safeguard public health, safety, and general welfare. Building codes address all aspects of building construction from fire protection and structural strength to plumbing, electrical, and other systems. Building code standards for wildfire risk reduction (such as NFPA standards) may be adopted into local

building code requirements. Building codes and building construction for wildfire risk reduction are discussed in Chapter 6. Building requirements are also addressed in the Model Wildfire Mitigation Ordinance appended to this manual.

Building Permits

Prior to the issuance of a building permit, local governments verify that the parcel is zoned for the proposed use. If there were a regulation that required wildfire risk reduction prior to construction in certain high risk areas, it should be noticed at this time. Language in

the final development plan or plat would remind code officials and the developer, builder, or landscaper to assess whether the development is in a high risk zone and to comply with wildfire risk reduction requirements set forth in the local government's LDRs or other ordinances.

COMPATIBILITY WITH OTHER STANDARDS

Local governments, developers, or neighborhood groups should do legal research to ensure

Case Study:

Typical Language for Neighborhood Covenants and Restrictions, Alachua County, Florida

These sections fall under the General Provisions of the Articles of Incorporation or Declaration document of the Homeowners Association, which also includes measures for enforcement of provisions. This covenant language was developed pursuant to wildfire mitigation provisions in Alachua County's Comprehensive Plan.

Wildfire Prevention. In accordance with the Alachua County Comprehensive Plan, Conservation and Open Space Element, Policy 5.6, the subdivision will incorporate defensible project perimeters and interior fuel breaks as part of its wildfire management plan. In areas where the perimeter of

the site abuts significant amounts of natural vegetation, the following techniques will be used.

- Selective thinning of fire-prone plant species to reduce fuel loads. A list of fire-prone species, as issued by the Environmental Protection Department, will be kept on record with the homeowners association.
- Removal of excessive forest litter (manual, mechanical, or prescribed burning).
- Interior areas of the site will use driveways, sidewalks, and defensible space to provide firebreaks between large areas of dense vegetation.

Firewise Landscaping. Landscape or planting plans within wildfire hazard areas shall incorporate Firewise landscaping techniques to help reduce the risk of wildfire. Such techniques shall include the following.

- Creating a defensible space zone around buildings. Such zones shall provide space for fire suppression equipment in the event of an emergen-

cy and progressively limit plantings near structures to carefully spaced, fire-resistant species.

- Placing low-growing species and groundcovers beneath canopy trees and rooflines to avoid creating a continuous fuel source from ground to tree or roof.
- Using driveways, lawn areas, and walkways to provide firebreaks between large areas of dense vegetation.
- Selective thinning of fire-prone plant species in existing vegetation areas to reduce fuel loads. A list of fire-prone species shall be available from the Environmental Protection Department.

Defensible Space. All structures subsequently built on this site that will have exposure to wildland fuel – such as structures built adjacent to vegetated open spaces areas, stormwater basins, and habitat conservation areas – shall have at least thirty feet of defensible space surrounding them so as to minimize the vulnerability of these

that proposed ordinances or covenants do not conflict with existing tree protection, burning, or dumping regulations. Many potential hazards are already covered under existing Florida law, while others may be unenforceable and unduly restrictive items to include in regulations designed to encourage wildfire risk reduction. The goal is to develop local ordinances or covenants that are meaningful to local citizens and useful in promoting public safety and wildfire risk reduction.

Burning and Dumping Regulations

Some local jurisdictions have regulated sources of ignition in order to prevent wildfires. For example, some jurisdictions have restricted outdoor burning and dumping of waste materials, ashes, and coals. Some jurisdictions choose to restrict smoking and the use of fireworks as potential ignition sources.

In addition, Florida has regulations governing open burning. A DOF authorization (permit) is required for all agricultural, silvicultural, land clearing, pile, and acreage burning in Florida. No authorization is required to



Homeowners should check for local bans before burning yard waste. A better method of disposal is to compost yard waste. Photo: Kentucky DOF

structures to wildfire. Defensible space is defined as a “clean” zone where fuels have been cleared, reduced, or changed so as to act as a barrier between wildfire and the structure. These areas can be landscaped with trees and shrubs as long as the appropriate less-fire-prone plant material is used, placed, and maintained so as to not provide a means that would carry fire to a structure (discontinuous horizontal and vertical fuel arrangement). Defensible space shall be created so as to provide a measure of passive fire protection for these structures. This area of passive protection created around a structure should limit the movement of fire to a structure or reduce the intensity of any fire that did move to a structure so that the likelihood of exterior structural ignition is minimized or eliminated.

Use of Prescribed Fire. Periodic prescribed burning is a recognized land management tool and a recommended method of fuel management in this area for minimizing wildfire hazards. Prescribed

burning may result in the periodic occurrence of temporary smoke and ash. All prescribed burning management plans shall be in compliance with the Common Open Space Management Plan as well as Alachua County Comprehensive Plan Policy 5.6. Additionally, all prescribed burning management plans shall be in compliance with Florida Statutes Chapter 590 Forest Protection and Florida Administrative Code Chapter 51-2 Open Burning.

Emergency Access. Emergency access will be provided to the site and will meet all of the provisions of Section 407.75 of the LDR and specifically the following criteria.

- It shall be available prior to the issuance of the first certificate of occupancy in the subdivision.
- It shall have a clear zone of 20 horizontal feet (area) and 14 vertical feet (area).
- It shall be stabilized to a limerock bearing ratio of 35.

Maintenance of Fire Protection Facilities. The homeowners’ association will be responsible for the maintenance of the onsite fire protection assistance infrastructure improvements and constructed as part of the subdivision infrastructure. The facilities include a well to withdraw groundwater to fill a water storage facility, a water storage facility, and a fire department apparatus connection (FDC) structure. The well and associated pumps/pressure system must be maintained in full operational condition. The water storage facility should be inspected annually for operation and function. The FDC should be maintained fully operational and clear of obstructions.

Compliance Inspections. The site will be inspected for compliance with the wildfire mitigation strategy once per year during the construction of the subdivision, and once every three years thereafter. The homeowners association will be responsible for ensuring that inspections occur on schedule.

Summary of Florida Outdoor Burning Regulations

- It is illegal to burn household garbage including paper products, treated lumber, plastics, rubber materials, tires, pesticide containers, paint containers, or aerosol containers.
- A DOF authorization (permit) is required for all agricultural, silvicultural, land clearing, pile, and acreage burning in Florida.
- Yard waste or silvicultural debris piles greater than 8 feet in diameter will require a DOF authorization, suppression equipment on hand, and additional setback requirements.
- Yard waste is vegetative debris such as grass clippings, brush, leaves, tree limbs, palm fronds, etc., that are a result of yard maintenance. Yard waste may be burned in Florida under the following conditions.
 - There currently are no local restrictions on burning
 - The waste was generated on the property
 - The waste fits in an 8-foot diameter pile or noncombustible container
 - The waste meets setbacks of 25 feet from forests, 25 feet from the house on the property, 50 feet from paved public roads, and 150 feet from other occupied buildings
 - The fire is ignited after 9am Eastern Time (8am Central Time) and extinguished one hour before sunset
 - The smoke is not a hazard or nuisance
 - For piles, an area around the pile is cleared down to bare soil to prevent fire spread
 - For containers, a wire mesh screen is installed over the container to prevent sparks from flying out and starting new fires

burn yard wastes as long as the burner meets the required setbacks and there are no local, city, or county ordinances in place that prohibit burning. Burning of garbage is strictly prohibited in Florida.

Any person hoping to burn anything in Florida should check with local (city and county) officials to find out if there are any restrictions, and should seek an authorization from their DOF Field Unit for a large-pile, agricultural, or silvicultural burn. See Chapter 8 for a map of the local DOF Field Units.

Tree and Vegetation Protection Ordinances

With an eye toward protection of the state's lush tree canopy, tree protection ordinances are an almost universal component of modern local land use regulation in Florida. Tree protection ordinances are generally aimed at preserving larger canopy trees, while wildfire risk reduction activities typically focus on the reduction of surface vegetation and shrubs. Nevertheless, it is important to ensure that landscaping

Tree Protection Pays

Tree protection is particularly important in light of the direct benefits that trees provide in wildland-urban interface areas. For example, recent research demonstrates that shade trees reduce utility bills in Florida (Jensen 2002). Another study finds that trees provide benefits at least twice their management costs in reduced energy use, cooler summer temperatures, reduced air pollution, improved water quality, reduced storm water runoff, enhanced wildlife habitat, and greatly enhanced human health and quality of life.

(Georgia Forestry Magazine 2001)

modifications for wildfire risk reduction do not conflict with existing tree protection ordinances.

There are several potential points of contradiction between tree protection and wildfire risk reduction activities.

- Mechanical fuel management approaches may damage tree roots
- Thinning of trees to reduce wildfire risk will result in loss of tree canopy
- Wildfire risk reduction may affect values in protected natural communities (although the

use of prescribed fire to manage fuels will generally enhance ecological values)

- Tree ordinances may protect a tree canopy that is too thick in a high risk wildfire area
- Some community ordinances that protect natural vegetation or “natural forest communities” (e.g., Broward County Ordinance 27-411) may inadvertently prevent wildfire risk reduction activities (although the use of prescribed fire to manage fuels will generally enhance ecological values)

In some cases, thinning of trees may be necessary to accomplish wildfire risk reduction objectives – especially in the case of thickly planted pine trees. Tree thinning on development sites may require a permission or exception if there is an applicable tree protection ordinance.

Tree removal and vegetation management for wildfire risk reduction should always be coordinated by local government staff during the development review process so that conflicts with tree removal ordinances are avoided. When establishing wildfire risk reduction standards in high or extreme risk areas, local officials should evaluate any potential conflicts and discuss proposed risk reduction practices with wildfire and forestry experts. The local officials responsible for implementing tree protection ordinances should recognize the value of fuel management in protecting both houses and forests from extreme wildfire events. See Chapter 8 for further discussion of prescribed burning and other fuel management options.

What’s Happening in Other States: Approaches from the Western United States

Local communities considering regulatory options may be able to learn lessons from other communities that have implemented wildfire risk reduction regulations. Here are several examples of regulatory approaches to wildfire risk reduction from high-risk areas of the western U.S.

Santa Fe County, New Mexico – Urban Wildland Interface Code, Ordinance 2001-11

This ordinance deals with onsite fuel reduction/modification and fire-resistant building practices and materials in defined risk zones. The ordinance supplements the building and fire codes of Santa Fe County to mitigate the threat to life and property from the intrusion of wildland fire exposures, fire exposures from adjacent structures, and prevention of structure fires from spreading to wildland fuels. Vegetation management and Defensible Space regulations are voluntary, and the county works with individual communities toward education and compliance. It addresses structural renovations and additions with threshold square footage that triggers compliance with the new code.

Central Yavapai Fire District, Arizona – Fuel Management Requirements for New Developments

Central Yavapai’s 2001 amendment to the Fire District Standards is designed to assist in control-

ling the accumulation of hazardous fuels around structures and along roadways in new developments. The rule addresses the clearance of brush and vegetative growth from structures and roads and requires developers to carry out fuel management and to establish subdivision covenants requiring the creation and maintenance of Defensible Space by property owners. The Fire Chief is responsible for enforcement and may issue citations for violations.

Eagle County, Colorado – Requirements for Vegetation Management and Defensible Space

Eagle County adopted wildfire regulations in 2003. New homes or remodels, and new subdivisions and Planned Unit Developments (PUDs) in an area rated as moderate, high, or extreme wildfire risk in unincorporated Eagle County must have a Vegetation Management Plan. Vegetation Management Plans must be prepared by a natural resource professional with expertise in the field. The plan must include a site-specific wildfire analysis, a vegetation inventory, map of vegetation, and wildfire mitigation activities. All applications and plans are referred to the Colorado State Forest Service (CSFS) for review. The amended Building Code regulations establish minimum design and construction standards within the wildland-urban interface area. Defensible Space is required when a site is determined to be at moderate, high, or extreme wildfire risk.

Case Study:**Santa Barbara's
Wildland Fire
Suppression Benefit
Assessment District**

The Santa Barbara, California, Wildland Fire Suppression Benefit Assessment District (WFSBAD) is funded by self-imposed fees on 4,000 residents of the high wildfire risk foothills zone above the city. The taxing district was originally approved in 2006 and was unanimously renewed in 2010 by the city council. Half of the program's money (about \$200,000) comes from the general fund and another \$221,000 comes from district fees.

- Families in the lower foothills pay about \$70 annually, while homeowners higher in the hills – what is called the “extreme foothill zone” – pay closer to \$90 per year. For the fee, the City of Santa Barbara Fire Department provides a range of fire protection, prevention, and educational services. The services that are provided for the benefit of properties within the district are vegetation road clearance, defensible space chipping, vegetation management, and defensible space inspection and assistance. Results of the effort were summarized as of March 2010.
- The vegetation road clearance effort has improved over 50 miles of response and evacuation routes in the high fire hazard areas with the removal of 1070 cubic yards (300 tons) of flammable vegetation, 97% of which was chipped and distributed back onto public and private lands.
- The defensible space chipping service removed an additional 3128 cubic yards (800

tons) of flammable vegetation, with 100% of material being chipped and distributed back to the homeowners.

- The vegetation management effort was aimed at creating community protection areas in the extreme foothill zone, treating over 70 acres of land with a combination of fire hand crews, browsing goats, and privately contracted brush crews. Vegetation has been managed in open areas affected by wildfires in the past, such as the land near Westmont College that was burned by the 2008 Tea and Jesusita Fires. The nearby St. Mary's Seminary survived both fires when brush clearance around the seminary had been done just a few weeks prior.
- The voluntary defensible space inspection and assistance effort has provided valuable information and assistance directly to over 250 homeowners, with fire crews performing inspections on a weekly basis.

More information: www.santabarbaraca.gov/Resident/Safety/WFSBAD

Program weblog: <http://wfsbad.blogspot.com>



Photos: City of Santa Barbara