

**A MARKETING STRATEGY FOR WILDLAND FUEL REDUCTION
IN PALM COAST, FLORIDA**

EXECUTIVE DEVELOPMENT

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ABSTRACT

Palm Coast, Florida, is a 42,000-acre planned residential community on the east coast of Florida characterized by large areas of intermix wildland/urban interface. A need for wildland fuel hazard mitigation has been identified; however a marketing strategy does not exist for implementation of wildland fuel reduction measures. The purpose of this research was to develop a marketing strategy that identifies acceptable fuel reduction methods and funding options for mitigating the wildfire hazard. Action research methods were used to answer the following questions:

1. Are Palm Coast residents aware of the wildfire hazard in their development?
2. What fuel reduction methods are available for use in Palm Coast?
3. What fuel reduction measures are acceptable to homeowners and lot owners in Palm Coast?
4. Are homeowners and lot owners willing to pay for acceptable fuel reduction measures?
5. If they are willing to pay for fuel reduction measures, what methods for funding a fuel reduction program are preferred?

Surveys of lot owners and homeowners in selected portions of Palm Coast were performed to solicit their responses to questions designed to answer research questions one, three, four, and five. Research question two was answered by a review of the literature.

The findings of the research indicated that both homeowners and lot owners rated the wildfire threat in Palm Coast serious. Both lot owners and homeowners were willing to allow the use of prescribed burning, mechanical brush clearing, and overstory thinning of trees to mitigate the wildfire hazard. Both homeowners and lot owners were willing to pay for prescribed burning, but only homeowners were willing to pay for mechanical brush reduction. Concerning funding methods, direct billing for the service was the preferred method for homeowners, while for lot owners it was through ad valorem taxes. Lot owners preferred to keep any revenue from thinning trees from their property, but using the revenue to fund additional hazard reduction also was acceptable.

The following marketing strategy was proposed: 1) implement a prescribed burning program in areas where it can be done safely and efficiently; 2) use mechanical brush reduction in areas that cannot be prescribed burned; 3) use thinning in dense pine areas and use the timber sale revenue to fund other hazard reduction work (i.e., prescribed burning and mechanical fuel reduction).

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INTRODUCTION

Over three fourths of the Palm, Coast, Florida, community is categorized as an intermix wildland/urban interface. Heavy accumulations of brush and dense pine plantations require extensive treatment to reduce fuel loads to nonhazardous levels. Presently, a marketing strategy does not exist for implementation of wildland fuel reduction measures.

The purpose of this research is to develop a marketing strategy that identifies acceptable fuel reduction methods and funding options for mitigating the wildfire hazard in Palm Coast.

Action research methodology was used to answer the following questions:

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2. What fuel reduction measures are available for use in Palm Coast?
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BACKGROUND AND SIGNIFICANCE

Palm Coast is a 42,000-acre planned residential community situated in Flagler County, Florida. Formerly a managed pine forest, development started in 1969 and all roads, water, and sewer lines were substantially complete by 1982. The primary target of lot sales was out-of-state residents who planned to move to Florida when they retired (Massey, 1995). As these lots were developed, a mixed interface was created where isolated structures were built in the forested area.

In May 1985, two devastating wildfires burned through portions of the community. In terms of structural damage they were the worst wildfires in Florida's history. One hundred thirty-one homes burned and more than 600 structures sustained damage. A study to determine what environmental and structural characteristics contributed to this destruction revealed that fire intensity and inadequate brush clearance were two of the most significant factors (Abt *et al.*, 1987).

Today, with almost twice as many people living in Palm Coast (approx. 26,000) as there were in 1985, over 75 percent of the development is still considered a mixed interface. Heavy accumulations of brush and dense pine stands dominate the undeveloped lots. Most homes in the interface area have less than 30 feet of brush clearance. Thousands of lots have unthinned 20-to-30-year-old pine plantations or dense natural pine stands.

In January 1995, the Palm Coast Wildfire Mitigation Committee was formed to explore and implement wildfire mitigation measures. Reduction of hazardous wildland fuels became a top priority of the committee. It is hoped that the results of this study will provide a sound basis for a cost-effective, community-supported fuel reduction program in Palm Coast.

This report fulfills the requirements for an applied research project for the *Executive Development* course of the National Fire Academy's Executive Fire Officer Program. This project is an application of Unit 8: Marketing in the Public Sector.

LITERATURE REVIEW

Public Awareness

Much has been written on the lack of public awareness of the wildfire hazard, and in particular, the apathy shown by residents in actually performing mitigation on their property.

Davis (1986) pointed out that many property owners are unaware of the wildfire threat, and fire safety ordinances and building codes are frequently disregarded. In another article, Davis (1990) stated that intermix homeowners may try to retain a forested quality on the site because that is why they moved to the area. They either ignore or fail to realize that the area is subject to fire.

Bradshaw (1987) pointed out that homeowners do not have the personal experience with wildfire and knowledge of fire behavior that fire protection people have and are probably not too cognizant of the wildfire risk. He stated that it would be a mistake to think that homeowners are willing buyers for interface fire safety issues.

Dr. Robert Dupont, in his research dealing with risk perception, explained that adults perceive a lower risk if they think that they control the risk, when the hazard occurs as frequent small events, and when the risk is familiar to them. These perceptions can lead to improper attitudes about risk (NFPA, 1991).

In 1989, a survey designed to gather information about Palm Coast residents and their perceptions about wildfire was conducted. This survey revealed that Palm Coast residents felt wildfire was the most serious threat facing the community. Additionally, they felt that there was a 57 percent chance of another serious wildfire affecting their community during the next ten years (Abt *et al.*, 1990).

Fuel Reduction Standards, Statutes, and Ordinances

Many standards, both local and national in scope, have been recently developed to deal with wildland fuel reduction. Most standards affect fuel reduction by requiring brush clearance a specific distance from building perimeters.

The National Fire Protection Association (NFPA) has established NFPA 299, *Standard for Protection of Life and Property from Wildfire*. Section 3-3.2 of this standard requires tree and brush clearance for a distance that will prevent ignition of either the structure or vegetation, should the other burn. Vegetation within 30 feet of the structure must be mowed to four inches or less and ground litter removed annually (NFPA, 1991).

The International Fire Code Institute has drafted a uniform urban-wildland interface code. Section 402 of this code speaks to defensible space. Combustible vegetation must be cleared in accordance with the fire hazard severity zone. These zones are based on fuel loading, slope, and number of critical fire weather days predicted per year. Clearance distances range from 30 feet for moderate hazard areas to 200 feet from extreme hazard areas. Section 602.3 of the code speaks to vegetation control. It requires owners of property to maintain 30 feet of defensible space around structures, which can increase to 100 feet if required by the code official because of extrahazardous conditions (International Fire Code Institute, 1995).

The Florida Department of Agriculture and Consumer Services, Division of Forestry, uses State Statute 590.025 as a vehicle to conduct prescribed burning in high fire hazard areas. The law states that, at the request of the governing body of a county, the division is authorized to control burn these areas provided the owner of the property does not object. Notices of intent to burn are sent out through the annual property tax notice (Florida Dept. of Agriculture, 1994).

The Los Angeles City Fire Department passed an ordinance for their Mountain Fire District in 1980 that gives the fire department authority to hire private contractors to clear brush from private property if the owner doesn't do it on his/her own. This ordinance also gives the city authority to charge property owners for the costs of clearing the brush plus a \$250 administrative fee. This charge is assessed through the tax bill (Hayworth, 1989).

As a result of a catastrophic fire in 1985, the City of Los Angeles passed an ordinance that requires removal of hazardous vegetation within 100 feet of structures throughout the city. The brush clearing program used in the Mountain Fire District was expanded in 1989 to be used in all areas of the city (Hayworth, 1989).

Fuel Reduction by Prescribed Burning

Most operational uses of prescribed burning for wildland fuel reduction in interface areas are taking place in California and Florida. California uses prescribed burning extensively in chaparral fuels while Florida uses burning in palmetto-gallberry fuels. Both Koehler (1992) and Martin (1988) published studies that have shown that the use of prescribed burning in palmetto-gallberry fuels reduces number of acres burned by wildfire. Koehler's study also indicated that the number and average size of wildfires is also reduced.

The first operational use of Florida Statute 590.025 occurred in 1977 in Collier County near Naples. Portions of a large, sparsely developed subdivision called Golden Gate were prescribed burned by the Florida Division of Forestry. Burning in this area has continued and expanded north into Lee County in 1990. Over 60,000 acres have been burned using this statute in the Collier/Lee County area since 1984. Approximately half of this acreage was burned using a helicopter equipped with a Premo Mark III aerial ignition system (Graham, 1995).

Extensive prescribed burning was used on private lots in Palm Coast, Florida, by the Florida Division of Forestry from 1987 to 1990. During this period, approximately 6,000 quarter-acre lots were burned using hand firing and a truck-mounted terra torch (Marquis, 1995).

In the town of North Port, Florida, the North Port Fire Department and the Division of Forestry cooperatively started a prescribed burning program in 1992. Since the Florida prevention burning statute requires county approval to designate high hazard areas, the city entered into a permanent agreement with the county to annually make these designations. Approximately 1,200 acres per year are being burned under this program (Voltolina, 1995).

Los Angeles County developed a technique that used a combination of crushing and burning. A bulldozer walked over the chaparral, crushing it down to about a foot in depth. The brush was burned four to eight weeks later. When burned, flame lengths were reduced from 60 feet in standing chaparral to 2 to 3 feet in the crushed brush. This technique also produced lower emissions than standing chaparral or pile burns (Franklin, 1994).

The City of Los Angeles used prescribed burning to reduce hazardous fuels in Stone Canyon. In cooperation with Los Angeles County and the U.S. Forest Service, prescribed burning of heavy brush located on hillsides directly below homes was successfully completed (Hayworth, 1989).

Mechanical Fuel Reduction

Mechanical methods of brush reduction by mowing, disking, mulching, and hand cutting are common methods of reducing wildfire hazards in areas where prescribed burning is not practical.

Newport Beach, LaCanada, Flintridge, and Santa Clara used a method called multicutting to reduce the standing chaparral to pieces no longer than six inches and reduce the fuel bed depth to four to eight inches. This "mulch" layer prevented unwanted herbaceous from regenerating and prevented soil erosion (Franklin, 1994).

Franklin (1994) also reported on the use of a brush crusher called "gravity roller." Developed in New Zealand, this device crushes and flattens fuels on steep terrain with minimal soil impact.

The United States Forest Service (USFS) experimented with a piece of equipment called a Spyder™. Designed to work on steep slopes, the Spyder was equipped with a shredding attachment that shredded all fuels less than three inches in diameter. Results of the shredding showed that fine fuels increased by 62 percent, but fuel bed depth was reduced by 75 percent. When burned, flame lengths were reduced from five feet in untreated plots to two feet in treated plots (Johnson 1992).

Because of concerns over the visual appearance of a blackened forest if prescribed burning were used, the USFS used thinning to reduce fuel loads on the Lolo National Forest in Montana. Horses were used instead of tractors to skid the trees (Manning, 1990).

San Mateo County, California, developed a very successful hazard mitigation program in 1988 that uses a Sheriff's Men's Correctional Center Work Program to perform mechanical fuel modification in interface areas. Field projects were performed on public property to demonstrate to the public how to provide defensible space in an aesthetically pleasing manner (Soho, 1992).

PROCEDURES

Two surveys (Appendix) were developed, one for homeowners (Homeowner Survey) and one for owners of undeveloped lots (Lot Owner Survey). Based on a review of the literature, prescribed burning, mechanical brush reduction, and thinning were the wildland fuel reduction options included in the surveys. A cover letter explaining the purpose of the survey and postage-paid return envelope were included with each survey. A brochure on prescribed burning in the wildland/urban interface was included in the packet given to the homeowners.

Both surveys asked specific questions dealing with the property owner's awareness of the wildfire hazard and his/her willingness to allow certain mitigation methods on his/her property. The surveys also requested preferences for funding methods for the mitigation methods listed. The survey questions in both surveys were identical except for an additional question added to the lot owner survey dealing with the use of revenue generated from the thinning of trees on undeveloped lots.

Two hundred homeowner surveys were distributed door-to-door by Division of Forestry personnel in the sections of Palm Coast considered to have the most hazardous fuel buildup (Figure 1). It was felt that respondents in these sections would be most directly affected by any programs initiated as a result of this survey, therefore, their opinions would be most important. Every other occupied home in these sections was given a survey by either personal contact or hanging the survey on the front door. Ninety-four of these surveys were returned.

Two hundred seventy nine vacant lots located within the same sections as the surveyed homeowner residences were selected at random from the Flagler County Property Appraiser's records. During the random search of lot owners, ITT Community Development Corporation (ITTCDC), the developer of Palm Coast, was selected 99 times. One survey was delivered to this selection. The remaining 180 lot owner surveys were sent by mail. Ninety surveys were returned, including the ITT survey.

The returned surveys were tabulated by the Division of Forestry and the results listed in table form. The results of ITTCDC's survey were listed and discussed separately from the other returned surveys.

Limitations

Surveys were not sent to international addresses due to the complex postage requirements. The twenty-six international addresses that were randomly selected were discarded and other selections made. Seven lot owner surveys were returned due to lack of correct addresses. It was impossible to differentiate vacant and rental homes

from owner-occupied homes during the distribution of homeowner surveys. This may have had an influence on the homeowner survey rate of return.

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RESULTS

Wildfire Awareness (Table 1)

Homeowner respondents rated the wildfire hazard a much more serious threat than other natural disasters listed; however, only 40 percent of respondents were aware of any wildfires in Palm Coast in the past five years. Lot owner respondents rated the wildfire hazard a more serious threat than other natural disasters; however the difference was not as great as with the homeowner responses. Only 21 percent of lot owners were aware of any wildfires in Palm Coast in the past five years. The ITTCDC survey indicated a low hazard rating for all natural disasters listed. The wildfire hazard was listed above tornado and flood but equal with hurricane. ITTCDC was aware of wildfire occurrences during the past five years.

**Table 1
Wildfire Awareness**

Perception of Hazard (mean score) Aware of wildfire in last
 1 = No problem 6 = Very serious 5 years (%)

	Hurricane	Tornado	Flood	Wildfire	Yes	No	No Resp.
Homeowners	3.79	3.70	2.93	5.28	40%	59%	1%
Lot Owners	3.59	2.89	3.17	4.26	21%	79%	--
ITTCDC	2	1	1	2	100%	--	--

Fuel Reduction Willingness (Table 2)

Concerning their willingness to allow the use of selected mitigation options, 70 percent of homeowner respondents were willing to allow the use of prescribed burning, 78 percent the use of mechanical brush reduction, and 80 percent the thinning of pines. Seventy-two percent of lot owner respondents were willing to allow the use of prescribed burning, 64 percent the use of mechanical brush reduction, and 70 percent the thinning of pines. ITTCDC was willing to allow the use of all three listed methods of fuel reduction on company-owned lots.

**Table 2
Fuel Reduction Willingness**

	Prescribed Burning			Mechanical Brush Reduction			Thinning Overstory		
	Yes	No	No Resp.	Yes	No	No Resp.	Yes	No	No Resp.
Homeowner	70%	29%	1%	78%	19%	3%	80%	19%	1%
Lot Owner	72%	21%	7%	64%	31%	5%	70%	24%	6%
ITTCDC	100%	--	--	100%	--	--	100%	--	--

Willingness to Pay (Table 3)

Concerning willingness to pay for performing the mitigation options listed in the previous question, 60 percent of homeowners were willing to pay for prescribed burning, 55 percent were willing to pay for mowing, and 62 percent were willing to pay for disking (see Table 3). Of those lot owners responding, 60 percent were willing to pay for prescribed burning, 27 percent were willing to pay for mowing, and 27 percent were willing to pay for disking. ITTCDC was willing to pay for prescribed burning, but not for mowing and disking.

**Table 3
Willingness to Pay**

	Prescribed Burning			Mowing			Disking		
	Yes	No	No Resp.	Yes	No	No Resp.	Yes	No	No Resp.
Homeowner	60%	29%	11%	55%	33%	12%	62%	28%	10%
Lot Owner	60%	28%	12%	27%	55%	18%	27%	55%	18%
ITTCDC	100%	--	--	--	100%	--	--	100%	--

Funding Method (Table 4)

The final question dealt with funding methods if the respondent was willing to pay for a selected mitigation method. Because this question only solicited responses from those willing to pay, many questionnaires did not have responses to the question. Homeowners who responded preferred a special assessment where each homeowner who needs the treatment would be billed for the treatment. Paying through ad valorem taxation was the least desirable method of funding.

Lot owners who responded preferred the use of ad valorem taxation followed closely by a special assessment where only lot owners whose lots needed treatment would be billed for the treatment. For ITTCDC, both ad valorem taxes and a special tax assessment, where every property owner pays the same amount regardless of value of the property, were acceptable. The special assessment, where the lot owner whose lots needed a treatment would be billed, was not acceptable.

**Table 4
Funding Methods**

	Ad Valorem Taxes			Special Tax Assessment (all) Flat Rate			Special Assessment Bill Lot/Homeowner Needing Treatment		
	Pref	OK	Not OK	Pref	OK	Not OK	Pref	OK	Not OK
Homeowner	19	19	30	21	24	28	25	27	25
Lot Owner	19	24	29	12	18	40	19	21	32
ITTCDC	--	1	--	--	1	--	--	--	1

Revenue From Thinning (Table 5)

The extra question added to the lot owner survey asked about the use of revenue generated from thinning trees, if this option was adopted. Returning the revenue to the lot owner was the most acceptable option, followed closely by using the revenue to fund fuel reduction programs. Reducing property taxes was the least preferred. ITTCDC preferred to use the revenue to fund fuel reduction. Return of revenue and reducing property taxes were not acceptable options.

Table 5
Revenue From Thinning

	Return to Lot Owner			Fund Hazard Reduction			Reduce Property Tax		
	Pref	OK	Not OK	Pref	OK	Not OK	Pref	OK	Not OK
Lot Owner	26	24	15	24	21	27	11	29	28
ITTCDC	--	--	1	1	--	--	--	--	1

DISCUSSION

It is important to note that, even though only 40 percent of homeowners were aware of any wildfires in Palm Coast in the past five years, they rated the wildfire hazard very high. The mean score of 5.28 is actually higher than the 5.09 score for a similar question in Abt's (1990) survey of Palm Coast homeowners in 1989. It is also important to note that lot owners who live primarily out of state regarded wildfire as the most important natural hazard even though they do not live in the area. This may be attributed to a combination of the lingering effects of the 1985 Palm Coast Fire and a continuing educational effort by the Division of Forestry and local fire services. These findings are contrary to the findings by Davis (1986) and should help provide a good foundation for public acceptance of any recommended fuel reduction programs.

It was surprising to see the overwhelming acceptance of prescribed burning by both homeowners and lot owners alike (70 percent and 72 percent respectively). A great many of the lot owners surveyed were from areas in the Northeastern United States where prescribed burning is rare. No effort was made to educate them on the effects of prescribed burning other than what was stated in the survey. Voltolina (1995) had similar experiences in North Port. When notices of intent to burn were sent to lot owners, very few (less than 1 percent) responded that they did not want their lots burned.

The acceptance of mechanical brush reduction was not unexpected. This method is not as foreign to the general citizenry and doesn't have the risk associated with prescribed burning. The lesser degree of acceptance by lot owners may be related to the higher costs of this treatment.

The willingness to allow thinning was surprising. The Palm Coast Wildfire Mitigation Committee felt that this would be very controversial due to the "taking" of private property (trees) for a public good. The 70 percent willingness response by the lot owners was especially surprising. These are the property owners who would be most affected by the thinning, if it is adopted. Bailey (1991) found a similar acceptance of the use of thinning in Pattee Canyon; however, this thinning was to be accomplished on public lands.

A divergence of opinion between lot owners and homeowners began to occur in the funding questions. Willingness to pay for prescribed burning was identical for both lot and homeowners at 60 percent. This was probably due to the low cost involved in using this method. Homeowners were twice as willing to pay for mowing or disking than lot owners. A possible explanation for this is that as the cost of mitigation goes up, those who have a larger stake in the outcome, i.e., the homeowners whose houses are in danger of burning, are willing to pay more for hazard reduction. Lot owners whose only risk is losing a few dozen trees if a fire burns their property are not willing to pay a larger amount to protect someone else's home.

A divergence of opinion on funding methods was also evident. The most acceptable method for lot owners was through ad valorem taxation. This method would spread the cost of fuel reduction throughout the entire community with the higher valued properties, i.e., those with structures built on them, paying a higher proportion of the cost. From a lot owner's point of view, this would be a good deal for them. Although all listed funding methods were acceptable, the most acceptable funding option for homeowners was by special assessment whereby the homeowner who needs a treatment next to his/her home would be billed directly for the service. This follows along with the hypothesis stated previously that those with the most to lose are the most willing to pay. A special assessment was also the second choice of lot owners, but in this case, a lot owners whose lot needs the treatment would pay. This is the method used by the City of Los Angeles with good results (Hayworth, 1989).

A significant area of Palm Coast was planted to pine before and during the construction phase of the development. Many of these plantations are now 20 to 30 years old and have not been thinned. If thinning was a fuel reduction option selected for implementation, a significant amount of money could be generated from the thinning operation. The Palm Coast Wildfire Mitigation Committee estimated that possibly as much as two million dollars could be generated. Since thinning would take place only on vacant lots, the lot owners were the only group surveyed. Their responses indicated all three selected options were acceptable but the most preferred was to return the proceeds to the lot owner. This was not surprising in that they own

the trees. It's important to note that using the revenue for funding hazard reduction was a close second. Finding a good source of funding is always a challenge to fire services, especially funding mitigation and prevention programs. Most vacant lots in Palm Coast do not have readily identifiable boundary lines. Because of this, if thinning is adopted as part of a mitigation plan, it will need to be done on a community-wide basis.

The responses of the developer ITTCDC, paralleled closely those of the other lot owners. Where there was a divergence was in funding methods. Billing of the lot owners for needed fuel reduction was not acceptable to them. As owner of many thousand undeveloped lots in the study area, this option would be the most costly to the developer. The only acceptable use of the revenue from thinning was to use it to fund hazard reduction. ITTCDC has in the past thinned larger tracts of land within the development, called reserve parcels, at the suggestion of the Division of Forestry to reduce the fire hazard. They fully realize the revenue that can be generated from thinning, and their willingness to allow the use of this revenue for hazard reduction is a gesture that shouldn't be overlooked.

RECOMMENDATIONS

It is apparent from the survey responses that the homeowners and lot owners surveyed want a fuel reduction program in Palm Coast and are willing to pay for it. The experience of the May 1985 fire still lingers and through an effective public information campaign, awareness has remained heightened.

The following marketing strategy is proposed to implement a fuel reduction program in Palm Coast.

General

The Palm Coast Wildfire Hazard Mitigation Committee should widely publicize the results of the survey in the media and with homeowner associations in Palm Coast. The committee should present the results and recommendations to the Flagler County Commission and the Palm Coast Service District Advisory Committee with the following recommendations:

Prescribed Burning

Implement a prescribed burning program in those areas where significant quantities of contiguous vacant lots still exist. Use State Statute 590.025 to conduct the burning through the Florida Division of Forestry and fund the program through proceeds from a thinning program or Palm Coast Service District ad valorem taxes. Prior to burning, plan and carry out a public awareness program using the media and door-to-door contacts.

Mechanical Fuel Reduction

Implement a mechanical brush clearing program in those areas where there are too many homes in a block to effectively and safely carry out prescribed burning. Pass an ordinance to allow access to private land by contractors for the purposes of mechanical wildland fuel reduction. Develop a proposal to select a private contractor willing to perform this service at a predetermined cost per home. Design a program whereby homeowners who desire this service could pay the predetermined cost, or fund with proceeds from a tree thinning program. Set up the vehicle for administration of this program through the Palm Coast Service District.

Thinning

Although the most controversial, this promises to be the most beneficial part of the strategy. Not only does this reduce the fire hazard, it provides revenue for additional hazard mitigation work. Pass an ordinance allowing thinning of pines on private undeveloped lots for hazardous fuel reduction purposes with the revenue to be used explicitly for future hazard mitigation in Palm Coast. Use the Florida Division of Forestry to develop a Timber Sale Prospectus, solicit bids, and administer the sale of timber. Set up a vehicle with the Palm Coast Service District to collect timber sale revenue and provide accountability.

It is expected to take another 30 to 40 years for Palm Coast to build out (Massey, 1995). Adoption of these recommendations will dramatically reduce wildfire hazard due to intermixed fuels until such time as there is too little vacant land to sustain a damaging wildfire.

The situation in Palm Coast is not unique, especially in Florida where many large developments have built out slowly leaving a large intermix interface. The recommendations offered here will have applicability in similar communities that have the strong commitment of local government to mitigate the hazard and the ability to implement unique state/local partnerships to carry out these recommendations.

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APPENDIX

HOMEOWNER SURVEY

PALM COAST WILDFIRE MITIGATION STUDY

Using a scale from 1 to 6 how would you rate the following hazards in your neighborhood? Please circle your choice.

1 = no problem, 6 = very serious

Hurricane	1	2	3	4	5	6
Tornado	1	2	3	4	5	6
Flood	1	2	3	4	5	6
Wildfire	1	2	3	4	5	6

Are you aware of any wildfires in Palm Coast in the past 5 years? Please circle your answer.

YES NO

A study done after the 1985 Palm Coast Fires determined that a buildup of brush close to homes caused them to burn. One method of reducing this buildup of brush is by burning it under controlled conditions so that the overstory trees are minimally affected. This type of burning is called prescribed burning. The advantage of this method is that it reduces the hazardous brush over large areas for relatively little cost. The disadvantage is that it produces smoke and ash for a 1 to 2 day period in the vicinity of the burn area. It is not feasible to do immediately adjacent to homes but lends itself well to large areas of undeveloped lots.

Are you willing to allow the use of prescribed burning in your neighborhood for the purpose of reducing the wildfire hazard? Please circle your answer.

YES NO

Another brush reduction method being considered is mechanical brush reduction. Using this method, the underbrush is mowed with a brush cutter or disked with a harrow. The advantages of this method is that it doesn't produce smoke and ash and can be done immediately adjacent to homes. The disadvantage is that it is more costly to perform.

Are you in favor of the use of mechanical brush reduction on undeveloped lots in your neighborhood for the purpose of reducing the wildfire hazard? Please circle your answer.

YES NO

Another factor that caused much of the damage to homes in the 1985 fire was that the fire crowned through the dense pine tree canopy, causing burning branches and pine needles to drop on roofs.

Thinning the overstory pine trees in those areas where a dense canopy exists would prevent crowning. Thinning is the process of reducing the number of trees on each lot so that the crowns of the remaining trees are at least 10 feet from one another.

Are you in favor of the use of thinning of pines on undeveloped lots for the purpose of reducing the wildfire hazard? Please circle your answer.

YES NO

Funding Options

The brush reduction methods discussed above have associated costs.

Prescribed burning	\$2 to 4 per lot
Mowing a 20' wide strip on undeveloped lots adjacent to home	\$20 to 30 per home
Disking a 20' wide strip on undeveloped lots adjacent to home	\$15 to 25 per home

As a homeowner would you be willing to pay for one or more of these methods to be employed to reduce the wildfire hazard in your neighborhood? Please circle your answers.

Prescribed Burning	YES	NO
Mowing	YES	NO
Disking	YES	NO

If you would be willing to pay, what method would be acceptable? Please assign a letter to each option.

P = preferred

A = acceptable

N = not acceptable

_____ Palm Coast Service District ad valorem taxes (every property owner pays based on value of property)

_____ Palm Coast Service District special tax assessment (every property owner pays the same amount, regardless of value of property)

_____ Special assessment (e.g. Each homeowner that requires mowing adjacent to his home would be billed \$25 for the service)

Thank you for your participation. All answers will remain strictly confidential. A summary of the results will be available from the Division of Forestry, Route 1, Box 20F, Bunnell, FL 32110. You may obtain a copy by including a stamped, addressed envelope with this questionnaire.

LOT OWNER SURVEY

PALM COAST WILDFIRE MITIGATION STUDY

Using a scale from 1 to 6 how would you rate the following hazards in Palm Coast?
Please circle your choice.

1 = no problem, 6 = very serious

Hurricane	1	2	3	4	5	6
Tornado	1	2	3	4	5	6
Flood	1	2	3	4	5	6
Wildfire	1	2	3	4	5	6

Are you aware of any wildfires in Palm Coast in the past 5 years? Please circle your answer.

YES NO

A study done after the 1985 Palm Coast Fires determined that a buildup of brush close to homes caused them to burn. One method of reducing this buildup of brush is by burning it under controlled conditions so that the overstory trees are minimally affected. This type of burning is called prescribed burning. The advantage of this method is that it reduces the hazardous brush over large areas for relatively little cost. The disadvantage is that it produces smoke and ash for a 1 to 2 day period in the vicinity of the burn area. It is not feasible to do immediately adjacent to homes but lends itself well to large areas of undeveloped lots.

Brush reduction by burning does not reduce the value of the lot and may in fact lower the cost of clearing the lot when a home is built.

Are you willing to allow the use of prescribed burning on your lot for the purpose of reducing the wildfire hazard? Please circle your answer.

YES NO

Another brush reduction method being considered is mechanical brush reduction. Using this method, the underbrush is mowed with a brush cutter or disked with a harrow. The advantages of this method is that it doesn't produce smoke and ash and can be done immediately adjacent to homes. The disadvantage is that it is more costly to perform.

As with burning, mechanical brush reduction will not reduce the value of the lot.

Are you willing to allow the use of mechanical brush reduction on your lot for the purpose of reducing the wildfire hazard? Please circle your answer.

YES NO

Another factor that caused much of the damage to homes in the 1985 fire was that the fire crowned through the dense pine tree canopy, causing burning branches and pine needles to drop on roofs.

Thinning the overstory pine trees in those areas where a dense canopy exists would prevent crowning. Thinning is the process of reducing the number of trees on each lot so that the crowns of the remaining trees are at least 10 feet from one another.

Thinning the trees on your lot will not reduce the value of the lot.

Are you willing to allow thinning of pines on your lot for the purpose of reducing the wildfire hazard? Please circle your answer.

YES NO

Funding Options

The brush reduction methods discussed above have associated costs.

Prescribed burning \$2 to 4 per lot

Mowing a 20' wide strip on undeveloped lots next to existing home \$20 to 30 per home

Disking a 20' wide strip on undeveloped lots next to existing home \$15 to 25 per home

As a lot owner would you be willing to pay for one or more of these methods to be employed to reduce the wildfire hazard? Please circle your answers.

Prescribed Burning	YES	NO
Mowing	YES	NO
Disking	YES	NO

If you would be willing to pay, what method would be acceptable? Please assign a letter to each option.

P = preferred

A = acceptable

N = not acceptable

_____ Palm Coast Service District ad valorem taxes (every property owner pays based on value of property)

_____ Palm Coast Service District special tax assessment (every property owner pays the same amount, regardless of value of property)

_____ Special assessment (e.g. Each lot owner whose lot needs a treatment would be billed for the treatment)

Thinning of trees has the potential to generate revenue due to the marketability of the pines. This revenue can range from \$0 to \$60 per lot. If thinning is conducted, which options are acceptable to you for handling this revenue? Please assign a letter to each option.

P = preferred

A = acceptable

N = not acceptable

_____ Return revenue to lot owner

_____ Use revenue to fund hazard reduction

_____ Use revenue to reduce property taxes in Service District

Thank you for your participation. All answers will remain strictly confidential. A summary of the results will be available by the Division of Forestry, Route 1, Box 20F, Bunnell, FL 32110. You may obtain a copy by including a stamped, addressed envelope with this questionnaire.

