Hillsborough County
Community Wildfire Protection Plan

June 2016

HILLSBOROUGH COUNTY
601 E. KENNEDY BLVD., COUNTY CENTER
TAMPA, FL 33601

FLORIDA FOREST SERVICE
LAKELAND DISTRICT OFFICE
5745 SOUTH FLORIDA AVENUE
LAKELAND, FL 33813

In Memoriam

Bill R. Delph

This volume of the Hillsborough County Community Wildfire Protection Plan is dedicated to the memory of Mr. Bill R. Delph. Originally from Kentucky, Mr. Delph moved to Bartow, Florida where he resided for 61 years. There he worked for several years with the public school system and also as President and Manager of Imperial Lumber Company in Bartow, serving over 32 years with the company. He subsequently served as the Florida Forest Service Mitigation Specialist for the Lakeland, Florida District. During this time, Mr. Delph was instrumental in initiating the Hillsborough County Community Wildfire Protection Plan and his efforts endure to serve as measures of protection for the residents of the west central Florida areas.

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Acknowledgements

Chad Allison, Florida Fish & Wildlife Conservation Commission

Bill Carlisle, County Conservation and Environmental Lands Department

Joel Deangelis, Southwest Florida Water Management District

Ross Dickerson, County Conservation and Environmental Lands Department

Mike Facente, Florida Forest Service

Eugene Henry, Hillsborough County Public Works – Hazard Mitigation

Matthew Hodge, Department of Environmental Protection

Michael Hudkins, Hillsborough County Fire Rescue

Vince Kelley, Hillsborough County Fire Rescue

Patrick Keogh, Florida Forest Service

Michael Rimoldi, Hillsborough County Development Services– Building Official

William VanGelder, Southwest Florida Water Management District

Gary Zipperer, Florida Forest Service

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Executive Summary

The Community Wildfire Protection Plan (CWPP) is a unique opportunity to address the challenges of fire protection in the wildland urban interface through locally-supported solutions. CWPPs are authorized by the Healthy Forests Restoration Act of 2003 and provide communities with a tremendous opportunity to influence: (1) where and how wildland fuel management projects are implemented on federally managed lands, and (2) how federal funds are distributed for fuel reduction projects on nonfederal lands. Having a CWPP gives the county priority status when applying for federal funding for wildfire mitigation projects.

The CWPP includes an assessment of the community's wildfire vulnerability, local organizations and resources available to assist with wildfire mitigation and response, and an action plan for reducing wildfire vulnerability in the county. Recommended actions to reduce wildfire vulnerability have been collaboratively developed for the following mitigation categories: 1) wildland fuel management, 2) community outreach and education, 3) Firewise building retrofit and landscaping, 4) policy and regulation recommendations, and 5) wildland fire response improvements. Details for implementing the actions, such as responsible agencies and funding considerations are included in the Plan.

The CWPP meets the minimum requirements of the Healthy Forests Restoration Act. The Plan was developed in a collaborative process with input from state and federal partners and other relevant stakeholders; it identifies and prioritizes areas for wildland fuel management, and includes actions that will inform residents of measures to reduce the ignitability of their homes and community. The CWPP also furthers the goals and mitigation strategies of the Local Mitigation Strategy (LMS) and is consistent with recommendations of the LMS Working Group and Comprehensive Plan.

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Plan Approval

This Community Wildfire Protection Plan (CWPP) is a cooperative effort to improve wildfire protection and response. The individuals listed below comprise the core decision-making team responsibilities for the development of this plan and mutually agree on the plan contents.

Local Government Representative

Hillsborough County Board of County Commissioners
601 E. Kennedy Blvd.
Tampa, Florida 33602

Signature: _____ Date: _____

Local Fire Services Representative

Ron Rogers, Fire Chief
Hillsborough County Fire Rescue
2709 E. Hanna Avenue, Tampa, FL 33610
(813) 272-6600

Signature: _____ Date: _____

Local Florida Forest Service Representative

Patrick Keogh, Forest Area Supervisor
Florida Forest Service, Lakeland District
118 North Dover Road, Dover, FL 33527
(813) 744-8983
Patrick.Keogh@FreshfromFlorida.com

Signature: _____ Date: _____

Hillsborough County Local Mitigation Strategy Representative

Eugene Henry, Manager
Hillsborough County Hazard Mitigation Program
601 E. Kennedy Blvd.
Tampa, Florida 33601
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Signature: _____ Date: _____

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1. Community Background and Existing Situation

Description of Community

Hillsborough County is located midway along the west coast of Florida. There are three incorporated municipalities within Hillsborough County: Plant City, Tampa, and Temple Terrace. The county has an estimated population of 1.27 million with 68% of the residents living in the unincorporated area (Hillsborough County City-County Planning Commission, 2014). Hillsborough County has experienced significant population growth in recent years, a trend that is expected to continue. Between 2000 and 2010, Hillsborough County had a growth rate of 23%. According to a 2006 study by the GeoPlan Center at the University of Florida, all current vacant developable land in Hillsborough County within the Urban Service Area is expected to be absorbed by some level of development between 2020 and 2040 to meet population increases. The University of Florida, Bureau of Economic and Business Research estimated that the Hillsborough County population will be an estimated 1,668,800 by 2035.

Community Statistics

Total Land Area

Hillsborough County has 1,048 square miles of land. The unincorporated area encompasses 909 square miles, or more than 84 percent of the total county area. Municipalities account for 163 square miles.

County Jurisdictions' Population

Jurisdiction	2014 estimates Census Population
Plant City	35,050
Tampa	347,230
Temple Terrace	24,680
Unincorporated Area	872,600
Total Hillsborough County	**1,279,560**

Source: Census Bureau

Hillsborough County Demographics

Census People Quickfacts	Hillsborough County	Florida
Persons 65 years old and over, percent, 2013	12.8%	18.7%
Living in same house in 2009 and 2013, pct 1yr old & over	81.7%	83.7%
Language other than English spoken at home, pct age 5+, 2013	26.4%	27.4%
Persons with a disability, under 65, 2013	8.4%	8.4%
Housing units, 2013	546,730	9,047,612
Homeownership rate, 2013	60.0%	67.1%
Median household income, 2013	$49,596	$46.956
Persons below poverty level, percent, 2013	19.1%	17%

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Source: U.S. Census Bureau QuickFacts, 2013.

Wildfire Problem Statement

Florida's natural environment is adapted to fire and many forest ecosystems need regular cycles of fire to remain healthy. Efforts to eliminate wildfires from the natural environment have served to make these events much more severe when they do occur due to accumulated vegetative fuels. This severely impacts the health of the ecosystem and puts neighboring developments in danger. Today, development is interspersed in wildland areas, referred to as the wildland/urban interface, and this presents challenges to managing the wildland fuel loads through prescribed burning. This is particularly the case when the wildland fuels exist on vacant parcels with multiple ownerships. Residents in Florida vary in their understanding and acceptance of the use of prescribed fire and mechanical fuel management methods. The role of wildfires in the natural environment needs to be integrated into public education programs and planning for development within the Wildland Urban Interface (WUI).

Hillsborough County was selected as one of 10 counties to receive assistance in developing a CWPP because of its high wildfire vulnerability relative to other counties within Florida. The Hillsborough County Local Mitigation Strategy (LMS) rates the County's probability and impact of wildfire as high (Hillsborough County, 2015). The County has also suffered from prolonged droughts in past years which had increased the risk of wildfire in the wildland/urban interface during certain times of the year. A majority of the areas with the highest level of concern for wildfire are in unincorporated communities, such as Boyette, Fish Hawk, Progress Village, Valrico, and Wimauma.

2. Definitions

Definitions for vocabulary used throughout this plan can be found in the definitions and\or glossary sections of the following documents.

Florida Building Code
Florida Fire Prevention Code
Hillsborough County Construction Code Ordinance
Hillsborough County Land Development Code
Southern Wildfire Risk Assessment Portal

3. Planning Process

The CWPP planning process is a collaborative effort among local, regional, state, and federal government agencies that have a role in protecting the community from wildfire and residents. This plan was produced through a project led by the Florida Forest Service (FFS) with funding from the American Recovery and Reinvestment Act of 2009. A kickoff meeting was held via web conference on September 13, 2010 for all counties participating in the FFS project. Additional meetings were held on November 3, 2010, February 9, 2011, September 30, 2014, November 5, 2014, and January 14, 2015.

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Summaries of meetings to develop this plan are included in **Appendix A**. The following individuals participated in the planning process and provided input in the preparation of this CWPP.

During the period of 2010-2016, resource constraints affected the ability for staff to address modifications initially illustrated by the Development Services Department, which were associated with action items. Subsequently, the Fire Rescue Agency modified action items and had respective items moved into the Fire Rescue Agency's control for implementation. During 2015 and 2016 the Hazard Mitigation (HM) Section performed outreach through the Local Mitigation Strategy Working Group (LMS WG). With updates approved by the LMS WG, the HM Section provided needed resources to reconvene the Community Wildfire Protection Plan (CWPP) Committee, and finalize the document to be forwarded for Board approval during June 2016.

CWPP Working Group Members

Representative	Name	Title/Department	Address	Phone	Email Address
FFE Local Representative	Patrick Keogh	Forest Area Supervisor, Florida Forest Service, Lakeland District	118 N. Dover Rd. Dover, FL 33527	813-744-8983	Patrick.Keogh@FreshfromFlorida.com
LMS Coordinator	Eugene Henry	Hazard Mitigation Program Manager, Engineering and Construction Services, Public Works Department	601 E Kennedy, Tampa, FL 33601	813-307-4541	henrye@hillsboroughcounty.org
Fire Services Representative	Vince Kelley	Wildland Coordinator Battalion Chief Hillsborough County Fire Rescue,	2709 E. Hanna Avenue, Tampa, FL 33610	813-928-6189	kelleyv@hillsboroughcounty.org
Fire Services Representative	Shane Samon	Operations Chief, Temple Terrace Fire	124 Bullard Parkway Temple Terrace, FL 33617	813-506-6705	dsamon@templeterrace.com
Fire Services Representative	David Burnett	Deputy Chief/Fire Marshal Plant City Fire Rescue	604 E Alexander St Plant City, FL 33563	813-757-9131	dburnett@plantcitygov.com
Fire Services Representative	Scott Ehlers	Operations Chief, City of Tampa Fire	808 Zack Street Tampa, FL 33602	813-274-7011	scott.ehlers@tampagov.net
Planning Commission Representative	Shawn College	Team Leader, Environmental Planning, Research & Infrastructure Hillsborough County City-County Planning Commission	PO Box 1110, Tampa, FL 33601	813-273-3774 x367	colleges@plancom.org

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Representative	Name	Title/Department	Address	Phone	Email Address
Hazard Mitigation	Amy Beams	Senior Planner, Hazard Mitigation, Technical Services Division, Public Works Department	601 E Kennedy, Tampa, FL 33601	813-307-1800	BeamsA@HillsboroughCounty.org
Fire Rescue	Michael Hudkins	Fire Plans Examiner/Fire Inspector II Hillsborough County Fire Rescue	601 E Kennedy, Tampa, FL 33601	813-272-1145	hudkinsm@hillsboroughcounty.org
Conservation Lands Representative	Ross Dickerson	Manager, Environment Lands Section, Hillsborough County Conservation and Environmental Lands	10940 McMullen Road, Riverview, FL 33569	813-672-7876 EXT: 211	DickersonR@HillsboroughCounty.ORG
Conservation Lands Representative	Joel DeAngelis Sr.	Sr. Land Management Specialist, Southwest Florida Water Management District	7601 U.S. Hwy 301, Tampa FL 33537	813-985-7481 x4468	Joel.deangelis@watermatters.org
Conservation Lands Representative	Chris Koster	Florida Department of Environmental Protection	SW District 13051 N Telecom Prkwy Temple Terrace, FL 33637	941-483-5957	Christopher.Koster@dep.state.fl.us
Conservation Lands Representative	Chad Allison	Florida Fish and Wildlife Conservation Commission	SW Region 3900 Drane Field Road Lakeland, FL 33811	863-648-3200	chad.allison@myfwc.com
Additional Participant	Andrea Roshaven	Public Relations Strategist Communications and Digital Media Hillsborough County BOCC	601 E Kennedy, Tampa, FL 33601	813-307-8380	roshavena@HillsboroughCounty.ORG
Additional Participant	Daniel Azzariti	Fire Chief, City of Plant City	604 E Alexander St Plant City, FL 33563601	813-757-9131	dazzariti@plantcitygov.com
Additional Participant	Matt Lewis	Development Services Hillsborough County BOCC	601 E Kennedy, Tampa, FL 33601	813-272-5314	LewisM@hillsboroughcounty.org

Representative	Name	Title/Department	Address	Phone	Email Address
Additional Participant	John Newton	Manager, Plans, Readiness, and Analysis Group Hillsborough County Public Utilities Department		813-272-5977	newtonj@hillsboroughcounty.org
Emergency Management	Mike Ryan	Manager of Emergency Planning, Office of Emergency Management	2711 E. Hanna Avenue, Tampa, FL 33610		RyanMi@hillsboroughcounty.org
Additional Participant	Michael Andreu	Associate Professor, University of Florida-IFAS School of Forest Resources and Conservation	351 Newins-Ziegler Hall PO Box 110410 Gainesville, FL 32611	352-846-0355	mandreu@ufl.edu

4. Vulnerability Assessment

Wildfire Vulnerability Overview

The wildfire vulnerability risk assessment methods for the State of Florida has developed significantly over the past few years. Two methods of analyzing this risk have been conducted. These include the Florida Fire Risk Assessment System (FL FRAS) and the Southern Group of State Foresters Wildfire Risk Assessment Portal (SouthWRAP). The FL FRAS was originally used as the primary means of analysis for the Hillsborough County area in this wildfire protection plan as it was the most recent data available for the risk determination when initially evaluated in 2011. Subsequently, the SouthWRAP, was developed and enhanced with Florida data around 2010. Realizing the value of each method as they build upon data of one another, both analyses have been included in this plan to provide the most up-to-date and comprehensive wildfire risk analysis available for the Hillsborough County area. The descriptive analysis of the FL FRAS follows and the SouthWRAP analysis is included in its entirety as Appendix D.

One important aspect to consider when utilizing the data from both methodologies is the difference in fundamental risk classification terminology. The FL FRAS, utilizes the Level of Concern (LOC) while SouthWRAP presents the risk analysis in the Wildland Urban Interface (WUI) Risk Index layer. While both methods are accurate and depict similar information, the LOC is a legacy data measure that is being replaced by the WUI.

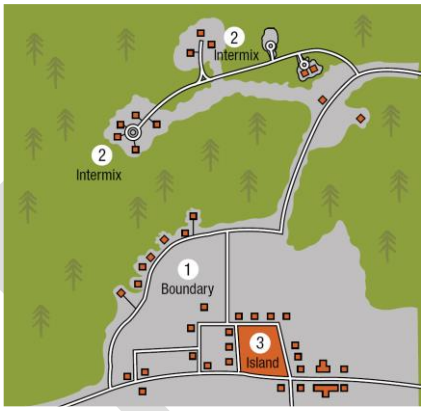
Florida Fire Risk Assessment System (FL FRAS)

The Florida Fire Risk Assessment System (FL FRAS), updated in 2011, provides a spatial analysis of wildfire vulnerability across the state. The primary output of the risk assessment is the Level of Concern (LOC) map discussed in the next section. The LOC rates areas based on their susceptibility to wildfire

occurrence and estimated impact. **Appendix B** contains FL FRAS methodology, maps, and charts of wildfire vulnerability.

Estimated Wildland Urban Interface (WUI) Area

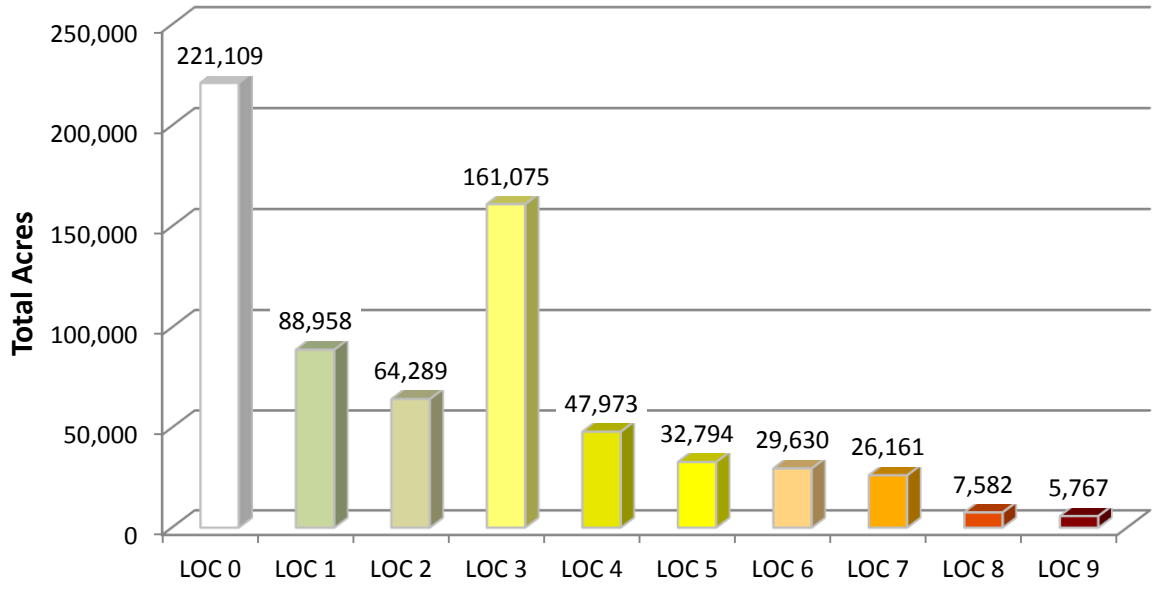
The Wildland Urban Interface (WUI) is defined in the National Fire Plan as the area where houses and wildland vegetation coincide. There are three types of WUI:



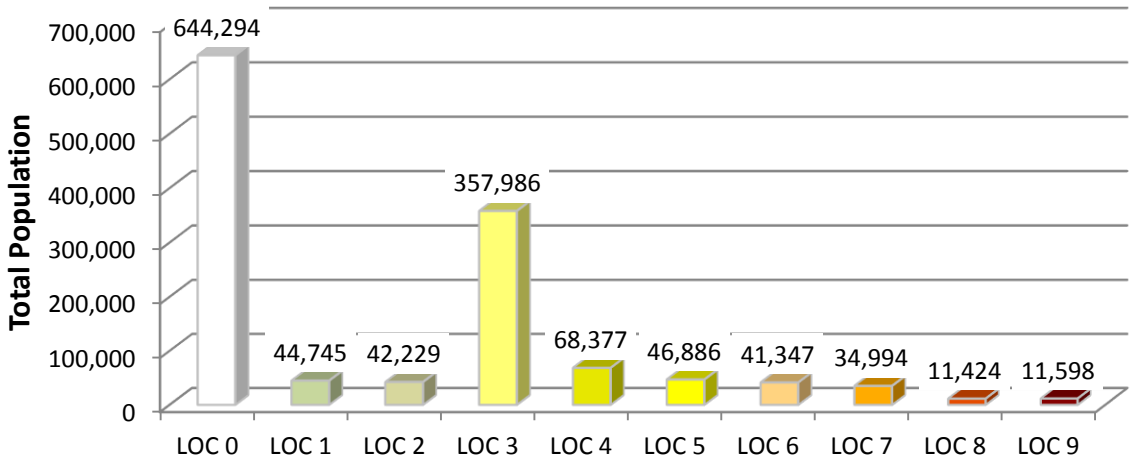
1) Boundary – areas where development is adjacent to public or private wildlands
2) Intermix – structures are scattered and interspersed among wildland areas
3) Island or occluded – area of wildland surrounded by development, i.e. a subdivision preserve

Appendix B includes a map of wildfire risk in Hillsborough County presented as nine LOCs. Levels 4 through 9 are considered medium to very high risk and can be used to approximate the WUI area of the county. Twenty-two percent of the land within the county is within LOC 4 -9 and approximately 16.4% of the population resides in these medium to high risk areas. Approximately 15.6% of the total value of structures within the county lies within LOC -9.

Countywide Total Acres by Wildfire Risk

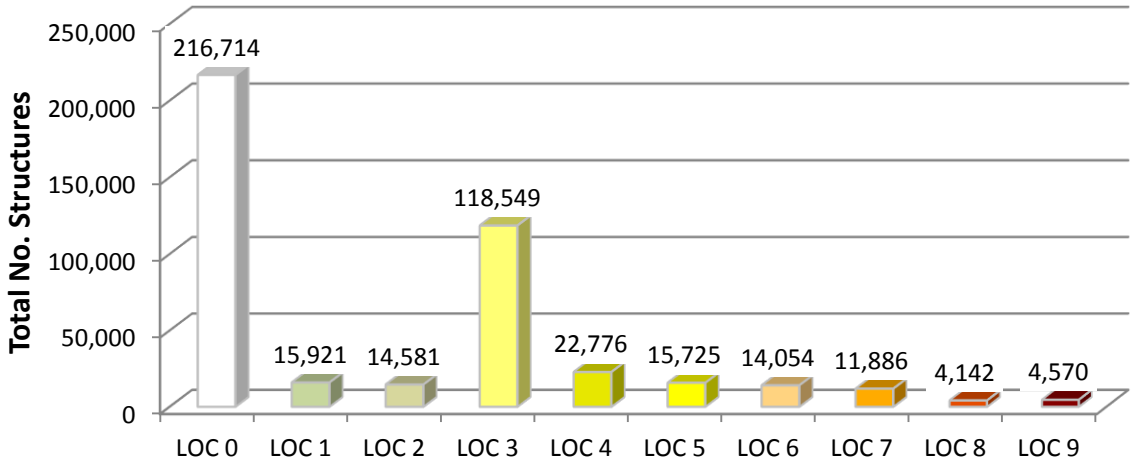


Countywide Total Population by Wildfire Risk



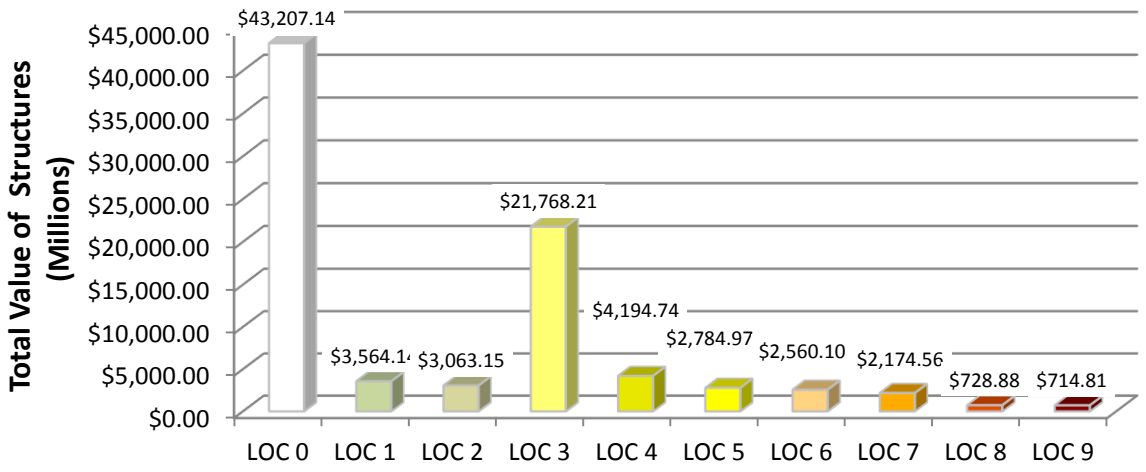
Source Data: 2010 Florida Assessor Data, 2000 Census Persons per Household Statistics, 2010 Florida Dept of Revenue Parcel Data

Countywide Total Structures by Wildfire Risk



Source Data: 2010 Florida Assessor Data, 2010 Florida Dept of Revenue Parcel Data

Countywide Value of Structures (millions) by Wildfire Risk



Source Data: 2010 Florida Assessor Data, 2010 Florida Dept of Revenue Parcel Data

Wildfire Vulnerability by Land Use

The 2011 Wildfire Mitigation Annex to the State of Florida Hazard Mitigation Plan includes an analysis of wildfire vulnerability by land use for each county. The LOC map was used in conjunction with 2010 Florida Assessor and Florida Department of Revenue Parcel data to develop the following estimates of vulnerable population, structures, and structure value. More details on the methodology can be found in **Appendix B**.

Approximately 65% of the population within LOCs 4-9 lives in single family residences. 69% of all structures countywide within Levels 4 - 9 are single family residences. Of the 20,589 structures within Level 9, or very high risk areas, 67% are single family residences.

Single family residential structures account for 51% of all structures' value within LOC 4 -9. Institutional, government and commercial structures account for $1.4 million, or about 11%, of the total structure value at medium to high risk from wildfire. In addition to structure value at risk, other economic assets in the county, such as agriculture, are also at risk from wildfire damage.

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Countywide Population by Wildfire Risk and Land Use

	Risk	Total Pop	%	Single Family Residential	Multi-Family Residential	Mobile Homes	Agricultural	Other
Low	LOC 0	644,294	49.4%	381,405	212,455	12,143	4,303	33,988
	LOC 1	44,745	3.4%	35,213	6,566	1,169	488	1,309
	LOC 2	42,229	3.2%	30,451	8,020	2,133	385	1,240
	LOC 3	357,986	27.5%	235,536	95,646	10,203	2,845	13,756
	Subtotal	**1,089,254**	**83.5%**	**682,605**	**322,687**	**25,648**	**8,021**	**50,293**
Medium	LOC 4	68,377	5.2%	44,294	16,426	4,086	1,334	2,237
	LOC 5	46,886	3.6%	29,839	11,374	3,400	1,054	1,219
	LOC 6	41,347	3.2%	26,472	9,279	3,484	1,027	1,085
	Subtotal	**156,610**	**12.0%**	**100,605**	**37,079**	**10,970**	**3,415**	**4,541**
High	LOC 7	34,994	2.7%	23,161	5,987	3,915	949	982
	LOC 8	11,424	0.9%	8,094	1,419	1,433	241	237
	LOC 9	11,598	0.9%	6,892	3,880	531	110	185
	Subtotal	**58,016**	**4.4%**	**38,147**	**11,286**	**5,879**	**1,300**	**1,404**
	TOTAL	**1,303,880**	**100.0%**	**821,357**	**371,052**	**42,497**	**12,736**	**56,238**

Source Data: 2010 Florida Assessor Data, 2000 Census Persons per Household Statistics, 2010 Florida Dept of Revenue Parcel Data

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Countywide Structures by Wildfire Risk and Land Use

	Risk	No. Structures	%	Single Family Residential	Multi-Family Residential	Mobile Homes	Vacant Residential
Low	LOC 0	216,714	49.4%	147,858	38,375	4,255	1,121
	LOC 1	15,921	3.6%	13,563	1,332	406	30
	LOC 2	14,581	3.3%	11,669	1,562	714	120
	LOC 3	118,549	27.0%	91,179	13,798	3,582	883
	Subtotal	365,765	83.3%	264,269	55,067	8,957	2,154
Medium	LOC 4	22,776	5.2%	16,251	2,749	1,409	436
	LOC 5	15,725	3.6%	10,927	1,810	1,176	490
	LOC 6	14,054	3.2%	9,717	1,167	1,172	704
	Subtotal	52,555	12.0%	36,895	5,726	3,757	1,630
High	LOC 7	11,886	2.7%	8,406	332	1,273	851
	LOC 8	4,142	0.9%	2,894	86	430	416
	LOC 9	4,570	1.0%	2,468	878	155	821
	Subtotal	20,598	4.7%	13,768	1,296	1,858	2,088
	TOTAL	438,918	100.0%	314,932	62,089	14,572	5,872

	Risk	Agricultural	Commercial	Institutional/ Government	Industrial	Vacant Commercial/ Industrial/ Institutional	Misc/ Undefined
Low	LOC 0	1,603	13,200	5,740	3,936	146	480
	LOC 1	174	98	241	57	0	20
	LOC 2	141	129	181	49	0	16
	LOC 3	1,039	3,935	3,178	872	13	70
	Subtotal	2,957	17,362	9,340	4,914	159	586
Medium	LOC 4	489	738	430	244	5	25
	LOC 5	384	476	277	161	10	14
	LOC 6	373	488	253	163	3	14
	Subtotal	1,246	1,702	960	568	18	53
High	LOC 7	342	403	194	82	2	1
	LOC 8	83	129	68	36	0	0
	LOC 9	39	94	65	46	3	1
	Subtotal	464	626	327	164	5	2
	TOTAL	4,667	19,690	10,627	5,646	182	641

Source Data: 2010 Florida Assessor Data, 2010 Florida Dept of Revenue Parcel Data

Countywide Structure Value (millions) by Wildfire Risk and Land Use

	Risk	Millions	%	Single Family Residential	Multi-Family Residential	Mobile Homes	Vacant Residential
Low	LOC 0	$43,207.14	51.0%	$19,426.20	$4,853.38	$225.24	$275.92
	LOC 1	$3,564.14	4.2%	$2,557.00	$151.76	$25.31	$58.62
	LOC 2	$3,063.15	3.6%	$1,954.82	$223.57	$40.30	$76.29
	LOC 3	$21,768.21	25.7%	$13,117.70	$1,817.02	$216.40	$243.09
	Subtotal	**$71,602.64**	**84.5%**	**$37,055.72**	**$7,045.73**	**$507.25**	**$653.92**
Medium	LOC 4	$4,194.74	4.9%	$2,194.61	$309.42	$96.64	$70.61
	LOC 5	$2,784.97	3.3%	$1,468.34	$213.92	$83.48	$54.73
	LOC 6	$2,560.10	3.0%	$1,293.02	$218.05	$83.27	$63.84
	Subtotal	**$9,539.81**	**11.3%**	**$4,955.97**	**$741.39**	**$263.39**	**$189.18**
High	LOC 7	$2,174.56	2.6%	$1,114.26	$117.48	$84.57	$68.34
	LOC 8	$728.88	0.9%	$346.44	$23.02	$26.20	$18.96
	LOC 9	$714.81	0.8%	$299.63	$73.52	$11.29	$21.02
	Subtotal	**$3,618.25**	**4.3%**	**$1,760.33**	**$214.02**	**$122.06**	**$108.32**
	TOTAL	**$84,760.70**	**100.0%**	**$43,772.02**	**$8,001.14**	**$892.70**	**$951.42**

	Risk	Agricultural	Commercial	Institutional/ Government	Industrial	Vacant Commercial/ Industrial/ Institutional	Misc/ Undefined
Low	LOC 0	$923.77	$8,258.59	$4,865.11	$2,391.44	$294.31	$1,693.18
	LOC 1	$172.99	$61.29	$410.37	$49.07	$8.74	$68.99
	LOC 2	$155.59	$132.94	$340.90	$51.86	$8.22	$78.66
	LOC 3	$517.45	$2,447.97	$2,165.22	$655.51	$180.83	$407.02
	Subtotal	**$1,769.80**	**$10,900.79**	**$7,781.60**	**$3,147.88**	**$492.10**	**$2,247.85**
Medium	LOC 4	$246.31	$444.64	$521.86	$187.05	$65.04	$58.56
	LOC 5	$186.02	$272.86	$313.62	$114.74	$45.50	$31.76
	LOC 6	$187.72	$277.43	$229.26	$136.86	$42.15	$28.50
	Subtotal	**$620.05**	**$994.93**	**$1,064.74**	**$438.65**	**$152.69**	**$118.82**
High	LOC 7	$172.90	$265.60	$197.19	$89.52	$38.57	$26.13
	LOC 8	$55.52	$97.39	$85.70	$51.37	$17.44	$6.84
	LOC 9	$36.94	$88.59	$87.92	$70.21	$18.54	$7.15
	Subtotal	**$265.36**	**$451.58**	**$370.81**	**$211.10**	**$74.55**	**$40.12**
	TOTAL	**$2,655.21**	**$12,347.30**	**$9,217.15**	**$3,797.63**	**$719.34**	**$2,406.79**

Source Data: 2010 Florida Assessor Data, 2010 Florida Dept of Revenue Parcel Data

Communities at Risk

The Healthy Forests Restoration Act of 2003 defined at-risk communities as interface communities within the vicinity of Federal lands that are at high risk from wildfire. These communities were intended to prepare CWPPs and would then receive priority for Federal funding to implement hazardous fuel reduction projects as described in the Act. The concept of at-risk communities has been expanded since the passage of the Act to include vulnerable communities that are not adjacent to Federal lands and the responsibility to identify at-risk communities has been given to the States. The FFS maintains a list of Communities at Risk (CAR) that is based on vulnerability information from the FL FRAS. CAR communities located within Hillsborough County are provided in the table below.

Hillsborough County Communities at Risk, 2015

Communities at Risk	Rank	Communities at Risk	Rank
Boyette	High	Valroy	Medium
Wimauma	High	Welcome	Medium
Apollo Beach	Medium	Aldermans Ford	Low
Bealsville	Medium	Balm	Low
Branchton	Medium	Bloomingdale	Low
Coronet	Medium	Brandon	Low
Cross Creek\New Tampa	Medium	New Tampa	Low
Edison	Medium	Chapman	Low
Foxs Corner	Medium	Del Rio	Low
Gibsonton	Medium	Dover	Low
Greater Northdale	Medium	Gulf City	Low
Keysville	Medium	Hopewell	Low
Lake Fern	Medium	Mango	Low
Lutz	Medium	North Ruskin	Low
Progress Village	Medium	Palm River-Clair Mel	Low
Riverview	Medium	Plant City*	Low
Ruskin	Medium	Port Tampa	Low
Sun City	Medium	Seffner	Low
Sun City Center	Medium	Trapnell	Low
Town n Country	Medium	University West	Low

*Incorporated City

Source: FFS

Critical Facilities Vulnerability

Hillsborough County Fire Rescue, Office of Emergency Management maintains a protected asset inventory, which reflects facilities and infrastructure of significant value to the community. To ensure the security of critical facilities and infrastructure, the data is protected under Florida Statute and is exempt from Florida Statute 119.07(1) and s. 24(a), Art. I of the State Constitution and will not be included in detail in the CWPP. Emergency Management staff should determine which of the critical facilities are within high-risk wildfire areas according to the latest Wildfire Risk (LOC) Map included in this plan. Prior to being the basis of a wildfire mitigation project, any critical facilities targeted should be cross checked against the recently updated FL FRAS or assessed in the field by a fire official.

Predominant Wildland Fuel Types

FFS maintains a Fire Activity Report database that includes information on all wildfires that FFS responded to dating back to 1980. It does not include brush fires that were suppressed by local firefighters without FFS assistance. According to these records, 48% of the total acres that have burned in Hillsborough County have been associated with palmetto-gallberry fuels which are typical of Florida Scrub ecosystems. The second largest number of fires has been in grass wildlands which accounts for 42% of the total acres burned. **Appendix B** includes a map of surface fuels from the FL FRAS.

Fires by Fuel Type, 1980 - 2010

Fuel Type	Fires	Acres
Palmetto-Galberry	1,078	27,741.9
Dense Pine	98	2,495.3
Swamp	83	1,417.4
Blowy Leaf	104	669.9
Grass	1,043	24,202.2
Muck	95	427.8
Other	136	962.5
Unspecified	7	122.0
Total	**2,644**	**58,039.0**

Source: FDOF

Wildfire History

In the past 30 years there have been 58,039 acres burned from wildfires in Hillsborough County. A majority of the fires have been relatively small in size, under 10 acres. This amount does not include brush fires that were suppressed by local firefighters without FFS assistance, however, FFS typically joins the response to any wildfire that is not contained immediately.

Fires Classified by Fire Size, 1980 - 2010

Fire size	# of fires	# of acres
0.1- 1.2 acres	343	37.2
0.3- 9 acres	1,323	4,154.1
10-99 acres	852	24,912.7
100-299 acres	101	15,144.0
300-999 acres	23	9,852.0
1000-4999 acres	2	3,939.0
5000 and greater acres	0	0.0
Total	**2,644**	**58,039.0**

Source: FFS

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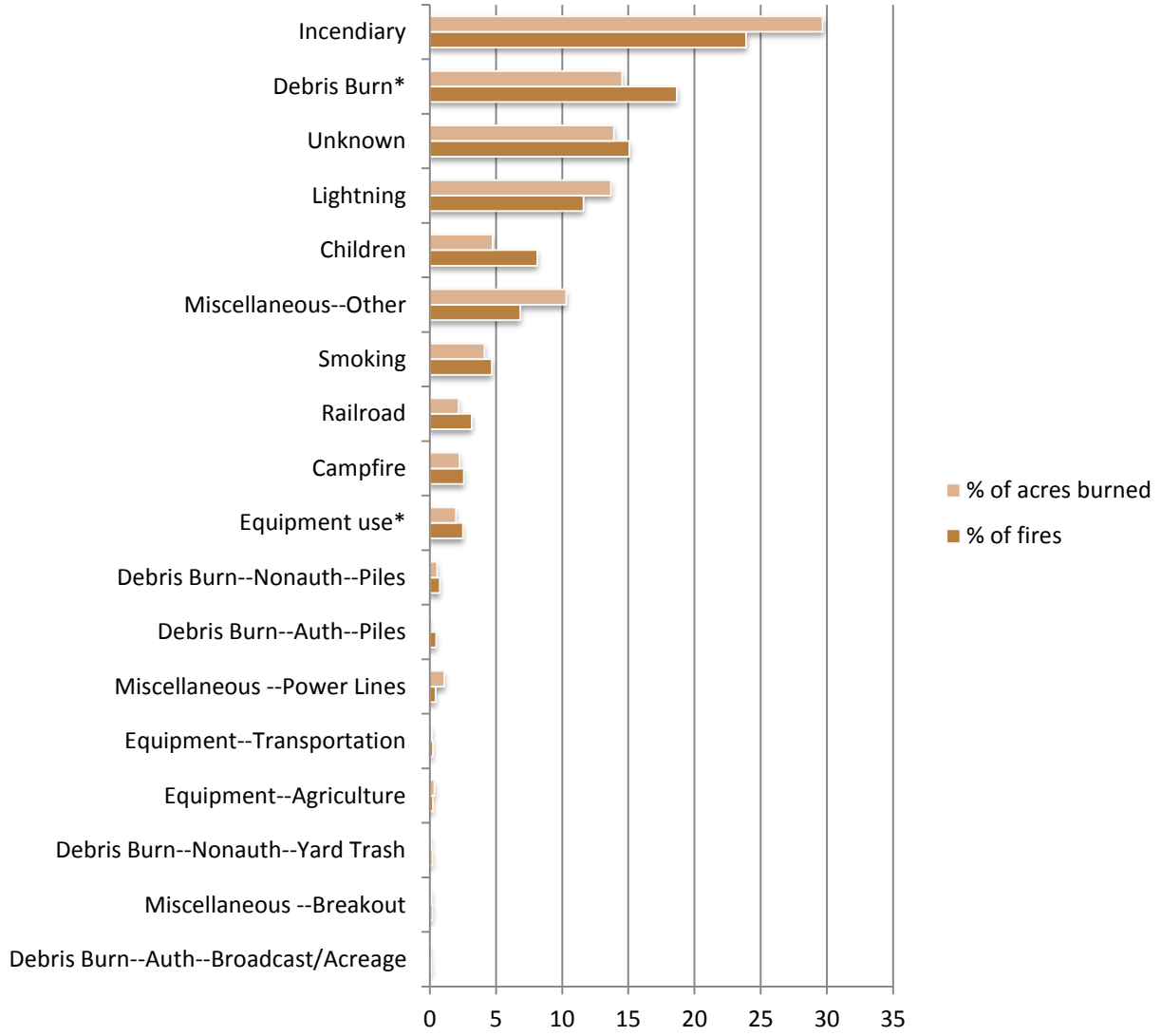
The leading causes of wildfire in Hillsborough County have been incendiary and debris burning. Both of these are preventable, to a degree, through public awareness and education programs. Another leading cause is lightning.

Fires by Causes, 1980-2010



* Fire cause no longer used
Source: FFS

Each year, Hillsborough County experiences wildfires, although most are suppressed before they impact any developments. When particular weather and fuel factors align, a wildfire can pose a challenge for fire fighters to suppress as quickly and can endanger nearby developments. In May 2006, Interstate 75 was closed for six hours between Gibsonton Drive and Big Bend Road as 130 emergency workers fought the blaze with plows, helicopters, brush trucks and water tankers. Thousands of people were evacuated in developments east of the Interstate as a precaution when the fire jumped Interstate 75 (Hillsborough

County, 2009). Fuel management recently conducted by the County in Golden Astor Scrub Preserve helped mitigate the potential severity of the wildfire. The wildfire followed a 30 acre section of the property that had not yet had fuel reduction conducted. It was more easily suppressed after running out of sufficient fuel.

5. Local Capacity and Current Wildfire Protection Activities

Organizations and Resources

Local Emergency Management

The Hillsborough County Fire Rescue, Office of Emergency Management is the local emergency management office for all of Hillsborough County, including the cities of Tampa, Plant City and Temple Terrace. However, each jurisdiction maintains and implements processes to address wildfire with the City of Tampa having a fully operational Office of Emergency Management (OEM). The City of Tampa's OEM Program must comply with all standards and requirements applicable to the County Emergency Management Program (CH. 252.35(8)(b). Further, Municipal emergency management programs shall coordinate their activities with those of the county emergency management agency…. [and]….each municipal emergency management plan must be consistent with and subject to the applicable county emergency management plan (CH. 252.38(2).

Emergency Management is responsible for planning and coordinating the evacuation and sheltering of county residents in the event of a natural or manmade disaster. This agency is also responsible for planning, orchestrating and coordinating response actions and continuity of government in the aftermath of a major disaster.

Hillsborough County Emergency Operations Center (EOC)
2711 E. Hanna
Tampa, FL 33610
Telephone: (813) 236-3800*

**Note: The Hillsborough County Emergency Operations Center will relocate once the new facility is complete, which is expected to occur in 2016. The new EOC will be located at:*

9460 East Columbus Drive
Tampa, FL 33619

The Hillsborough County Comprehensive Emergency Management Plan (CEMP) describes the responsibilities and concept of operations for fire suppression, including wildland fires, in Annex D, Firefighting (Emergency Support Function #4).

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Local Disaster Support Agencies

Agency	Address	Phone
American Red Cross, Tampa Bay Chapter	3310 W. Main Street Tampa, FL 33607	813-348-4820
Crisis Center of Tampa Bay	One Crisis Center Plaza Tampa, FL 33613	813-964-1964
Salvation Army	1603 N. Florida Avenue Tampa, FL 33602	813-962-6611
United Way of Tampa Bay	5201 West Kennedy Blvd., Suite 600 Tampa, Florida 33609	813-274-0990

Local disaster support agencies may be needed in the event of a major wildfire that impacts developed areas of the county. These agencies would conduct services as designated in the Hillsborough County CEMP, such as sheltering, providing volunteers for mass care operations, and distributing donations to wildfire victims.

In addition, there are greater than 13 Community Emergency Response Teams (CERTs) operating in the county with 200 trained members. The CERTs could be a resource for assisting residents during response and recovery from a wildfire incident that threatens or impacts a developed area. Information about local CERT programs is available at http://www.hillsboroughcounty.org/index.aspx?NID=1790

Local Fire Services

Local fire services are the responsibility of the Hillsborough County Fire Rescue, City of Plant City Fire Rescue, City of Tampa Fire Rescue, and City of Temple Terrace Fire Department. A map of fire station locations is included in **Appendix B**. More information on fire suppression is included in the **Wildland Fire Response Capabilities** Section.

Hillsborough County Career-Staffed Fire Stations

Fire Station	Address	Brush Truck Location
Station 1	3308 S 78th St	
Station 2	6726 Lithia Pinecrest R	
Station 3	11101 Big Bend Rd	
Station 4	11826 E US Highway 92	
Station 6	10110 Henderson Rd	
Station 7	122 W Bloomingdale Ave	
Station 8	602 Lightfoot Rd	✓
Station 9	3225 N Falkenburg Rd	
Station 10	8430 N Grady Ave	
Station 11	117 Ridgewood Ave	

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Station 12	8612 Gibsonton Dr	
Station 13	7502 Gunn Hwy	✓
Station 14	1113 E. 139th Avenue	
Station 15	715 S 58th St	
Station 16	9205 Kevin St	✓
Station 17	410 E. College Avenue	
Station 18	105 Cactus Rd	✓
Station 19	13201 N Dale Mabry Hwy	
Station 20	7020 W Hillsborough Ave	
Station 21	11641 Flint Ave	✓
Station 22	1120 7th St	✓
Station 23	3138 Sydney Dover Rd	✓
Station 24	129 W Lutz Lake Fern Rd	✓
Station 25	4503 Coronet Rd	✓
Station 26	5302 W Thonotosassa Rd	✓
Station 27	4705 E Bloomingdale Ave	✓
Station 28	4551 Sun City Center Blvd	✓
Station 29	626 Golf And Sea Blvd	
Station 30	2426 Charlie Taylor Rd	✓
Station 31	8901 Memorial Hwy	
Station 32	5808 Harney Rd	
Station 33	850 S Falkenburg Rd	
Station 34	6415 Van Dyke Rd	✓
Station 35	10401 Countryway Blvd	✓
Station 36	116 N Dover Rd	
Station 37	5602 Providence Rd	
Station 38	9805 Sheldon Rd	
Station 39	7371 Montague St	
Station 40	16304 N Nebraska Ave	
Station 41	15905 Mapledale Blvd	
Station 42	5209 Ehrlich Rd	

Source: Hillsborough County Fire Rescue (2014)

Plant City Fire Stations

Fire Station	Address	Brush Truck Location
Station 1	604 E Alexander St	
Station 2	809 N Alexander St	✓

Source: Plant City Fire Rescue (2014)

Tampa Fire Stations

Fire Station	Address	Brush Truck Location
Station 1	808 Zack St	
Station 3	103 S Newport Ave	
Station 4	2100 E 11th Ave	
Station 5	3900 N Central Ave	
Station 6	311 S 22nd St	
Station 7	6129 N Nebraska Ave	
Station 8	2015 N Manhattan Ave	
Station 9	2525 W Chestnut St	
Station 10	3108 N 34th St	
Station 11	710 E Fairbanks St	
Station 12	3073 W Hillsborough Ave	
Station 13	2713 E Annie St	
Station 14	1325 S Church Ave	
Station 15	4919 S Himes Ave	
Station 16	5126 E 10th Ave	
Station 17	601 E Davis Blvd	✓
Station 18	5706 N 30th St	
Station 19	4916 W Ingraham St	✓
Station 20	16200 Bruce B Downs Blvd	✓
Station 21	18902 Green Pine Ln	✓

Source: Tampa Fire Rescue (2014)

Temple Terrace Fire Stations

Fire Station	Address	Brush Truck Location
Station 1	124 Bullard Pkwy	
Station 2	2 Telecom Pkwy	✓

Source: Temple Terrace Fire Rescue (2014)

Florida Forest Service (FFS)

FFS provides wildfire prevention/mitigation and response services in collaboration with local fire services. The Wildfire Mitigation Specialist for the Lakeland District is a resource for Firewise education and planning assistance as well as coordinating and implementing fuel management needs. See **Wildland Fuel Management Capabilities** section for more details on FFS fuel reduction projects.

The Hillsborough County Forest Area Supervisor, located at the Valrico Forestry Station, directs FFS fire suppression activities. More details on FFS and local wildfire suppression are discussed in the **Wildland Fire Response Capabilities** section.

Florida Forest Service Work Stations

Work Station	Address	Phone
Lakeland District Office and Forestry Station	5745 S. Florida Avenue Lakeland, FL 33813	863-940-6701
Valrico Forestry Station	118 N Dover Road Dover, FL 33527	813-744-8983
Brooker Creek Forestry Site	4070 Keystone Road Tarpon Springs, FL 34689	727-943-4059
Brown Tower Forestry Site	14503 U.S. Hwy. 301, South Wimauma, FL 33598	813-672-5368

Source: Florida Forest Service (2014)

Community Development

Each jurisdiction within Hillsborough County has a comprehensive plan detailing future land uses and land development codes that are enforced for new development. These tools can also be used to mitigate wildfire impacts for future development. Currently, none of the jurisdictions' comprehensive plans have policies that directly address wildfire mitigation.

Planning Agencies in Hillsborough County

Planning Agency	Role
Hillsborough County Development Services Department	Conducts planning, zoning, development review, permitting and inspections services
Hillsborough County Public Works	Hazard Mitigation, road closures, extra equipment
City of Plant City Planning and Zoning Division	Manages planning and zoning decisions for City of Plant City
City of Tampa Growth Management and Development Services	Includes Historic Preservation and Urban Design, Construction Services, Housing & Community Development, Land Development Coordination (LDC), and Real Estate Divisions. The LDC conducts planning and zoning
City of Temple Terrace Planning and Development Division	Implements the City's land development regulation and review process including the comprehensive plan, rezoning, and business district redevelopment planning
Hillsborough County City-County Planning Commission	Develops and coordinates long-range comprehensive planning, growth-management, transportation, and environmental protection through recommendations to local jurisdictions

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Hillsborough County has an Urban Service Area (USA) that creates a distinct border between urban, suburban and rural lands. The prevention of sprawl development intermingled with wildlands has kept the County's unincorporated areas from being as vulnerable to wildfire as they might have been without the Urban Service Area. There are exceptions to the Urban Service Area's ability to mitigate wildfire, some developments were "grandfathered" into the rural areas before the regulations or include Wildland Urban Interface (WUI) islands consisting of conservation easements within the development that present challenges for managing fuel loads.

Hillsborough County's Land Development Code (Sections 4.01.07 through 4.01.13) references provisions for the protection of Upland Significant Wildlife Habitat (USWH) within Hillsborough County. This preservation occurs on site as long as sufficient management can occur to maintain or restore the habitat to a "high quality natural plant community" (defined by LDC) and therefore results in the construction of homes and other structures in close proximity to native habitat. In conjunction with this preservation requirement is the creation of an USWH management plan in which both the County and applicable property owner agree to management terms that will best suit the habitat while taking into consideration compatibility with adjacent land uses including the presence of new homes and other buildings. Proper management techniques often include methods to reduce fuel loads. Whenever a conservation easement is placed over USWH, the management plan is always incorporated as an exhibit and is referenced in the easement language.

The Countywide Local Mitigation Strategy (LMS), which speaks to the Community Wildfire Protection Plan (CWPP), provides the ability for planning agencies to use hazard vulnerability assessments and disaster lessons learned. For instance, after the May 2006 wildfire, the County amended the land development code to require two separate ingress/egress locations for each subdivision. This requirement was in addition to the compliance requirements set forth in the State Fire Code when a subdivision is isolated.

Conservation Land Agencies

The Hillsborough County Environmental Lands Section of the Conservation and Environmental Lands Department manages environmentally sensitive wildlife habitat and corridors acquired through the Environmental Lands Acquisition and Protection Program (ELAPP). Since 1988, Hillsborough County has purchased private acreage that is now in public ownership. Management responsibilities include prescribed burning, invasive species control, wildlife inventory, and habitat improvements for endangered and threatened species of plants and animals. The Section's staff includes 16 certified prescribed burners.

In addition to the County Environmental Lands Section, the Southwest Florida Water Management District (SWFWMD), Florida Department of Environmental Protection, and Florida Fish and Wildlife Conservation Commission are also active land-management agencies within Hillsborough County. Each agency has management plans for their conservation properties, performs fuel management, and some have fire suppression capabilities (see **Wildland Fire Response Capabilities**). See **Appendix B** for a map of conservation lands with pineland types.

Local Mitigation Strategy Working Group (LMSWG)

The Hillsborough County Local Mitigation Strategy (LMS) is a multi-jurisdictional plan that assesses the vulnerability of the county and its jurisdictions to hazards and evaluates local mitigation efforts that should be taken. Through adoption of the LMS, the county and its jurisdictions are eligible for Federal funds to carry out their mitigation actions, such as through the Hazard Mitigation Grant Program (HMGP) and Pre-disaster Mitigation Grant Program. The staff of the Hazard Mitigation Section of the Hillsborough County Public Works Department is responsible for maintaining the LMS. The LMSWG oversees the ongoing operations related to the plan and includes several of the agencies represented on the CWPP Working Group. The LMSWG consists of the County Hazard Mitigation Program, Office of Emergency Management, and emergency management/hazard mitigation representatives from Tampa, Plant City and Temple Terrace (Hillsborough County, 2015).

The LMS rates the probability of wildland fires as high with a potential impact of complete loss of structures and crops. Average occurrence is listed as several each year and distribution is indicated to be localized on the urban fringe (Hillsborough County, 2015).

The LMS has one goal to minimize effects of hazards on the community and four objectives dealing with public education, coordination, development management, and critical facilities, with which the CWPP is consistent (Hillsborough County, 2015). The CWPP is integrated with the LMS to enhance the treatment of wildfire in the plan and increase opportunities for implementation of wildfire mitigation projects.

Firewise Communities

There are no Firewise Communities designated in Hillsborough County. The nearest Firewise Communities are in Pasco and Polk Counties. The CWPP addresses actions for introducing at-risk communities to the Firewise Communities program in **Section 7**.

Wildland Fire Response Capabilities

Wildland firefighting responsibilities and procedures for Hillsborough County are described in Annex D (Emergency Support Function #4) of the Comprehensive Emergency Management Plan (CEMP) and in the Hillsborough County Fire Rescue Policies and Procedures Manual (Policy # 220.07). Each jurisdiction's fire services will first respond to wildfires within their jurisdiction. The Hillsborough County Environmental Lands Section and other land management agencies also have limited resources for responding to wildfires on their conservation properties. The FFS, however, has the primary authority and responsibility for the control of wildfires (F.S. 590.01). In the event of wildland fires, the County Fire Rescue Administrative Chief or his designee will notify the Lakeland District, FFS indicating whether state resources will be needed. Assistance from FFS should be requested when a Brush Company cannot access the fire, when three or more units are needed, when the fuel load is beyond the

capabilities of a single Brush Company, or when water alone is not an effective means of putting out the fire. During a major disaster, the Office of Emergency Management activates the Emergency Operations Center (EOC). Mutual aid will be coordinated through the Emergency Operations Center consistent with the Florida Fire Chief's Association (FFCA) plan.

The Southwest Florida Water Management District (District) has a mutual aid agreement with the FFS to assist in wildfire suppression efforts on District or FFS lands any may also provide assistance on wildfires within its sixteen county jurisdictional area through the Incident Command System (ICS) in the event that the Governor of the State of Florida by proclamation declares the existence of an extraordinary fire hazard.

Hillsborough County Fire Rescue has two types of brush trucks (14 of the Type IV model and 3 of the Type VI apparatus). Type IV is larger and is capable of holding three firefighters. It has a 750 gallon water tank and a pump rating of 50 gallons per minute (gpm). The Type VI truck holds two firefighters, carries 150 gallons of water, and has a pump rating of 30 gpm. Tampa Fire Rescue has four fire stations with brush trucks. Plant City Fire Rescue operates one wildland unit for wildfire response (located at Plant City Fire Station 2). Fire stations with brush trucks are listed in the **Local Fire Services** Section of this plan. The County Conservation Services Section has four brush trucks for use in responding to wildfires on County-owned conservation properties and Regional Parks has one brush truck. FFS equipment includes brush trucks as well as dozers and fire line plows for suppression of wildfires in areas of heavy vegetation.

There are firefighters within Hillsborough County trained to respond to wildland fires. Plant City firefighters have been trained to the National Wildfire Coordinating Group (NWCG) and Florida Standard, including S-130 and S-190 courses. Hillsborough County Fire Rescue does not require S-130 or S-190 for incumbent firefighters, unless warranted by a risk location. All new hires receive the training as part of their minimum standards course. The County Fire Rescue would like to increase the training within incumbent firefighters and this is addressed as an Action Item in **Section 7**.

The Hillsborough County CEMP contains procedures on evacuation. The Office of Emergency Management communication system - Everbridge, local media, and law enforcement are typically utilized in wildfire evacuations. The Hillsborough County Fire Rescue - Office of Emergency Management also maintains a list of shelters that may be used if residents are asked to evacuate their homes. The American Red Cross operates respective shelters.

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Wildland Fuel Management Capabilities

FFS conducts fuel management on state forests and can also implement projects on other public and private lands as requested if funding is available. In recent years, FFS conducted fuel management on approximately 10,449 acres within the Lakeland District, which includes Hillsborough, Pinellas, and Polk Counties.

The Hillsborough County Conservation Services Section has staff trained to conduct fuel management, as well. Twenty staff are certified to conduct prescribed burns. In addition, the County hires contractors to do mechanical fuel management where prescribed burning cannot be implemented. The Conservation Services Section has brush trucks that are used during controlled burns and FFS provides dozer and plow units, but they do not have mowing equipment, i.e. GryoTrac.

Other land management agencies with conservation properties within Hillsborough County also conduct fuel management on their lands. The SWFWMD and FWC regularly conducts fuel management activities on their lands, which include roller-chopping to facilitate prescribed burning and to increase the effective width of firelines.

The County uses several methods of informing residents of prescribed fires in the area. They use the Everbridge notification system, as well as, online resources including Facebook, the County website, homeowners association email contacts, provide an annual schedule of burns that are posted in various newsletters, and the placement of road signs during burns. The SWFWMD, at a minimum, uses annual press releases through its Public Communications Bureau to inform residents of upcoming prescribed burns. More frequent releases are made when necessary in areas with a higher population or where special circumstances warrant. In some cases, direct contact with residents is requested and prescribed, burn managers coordinate with those individuals to advise them of upcoming burns. In areas with a significant wildland-urban interface (WUI), SWFWMD, through its Public Communications Bureau, will utilize email and social media to inform as many residents as possible about prescribed burns and other activities taking place near the WUI boundary.

Experience Implementing Wildfire Protection Programs

Hillsborough County is very active in hazard mitigation and emergency management. The County and municipalities have highly capable fire suppression resources. Conservation land-management agencies are proactive in managing wildland fuels within the County. Growth management in Hillsborough County has kept much of the potential for WUI development in check within the urban service area. The County's goal is to reduce wildfire vulnerability by implementing the wildfire-specific strategies included in the CWPP.

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6. Goals and Objectives

Goal 1: Increase opportunities for collaboration and coordination to implement wildfire projects.

Objective 1.1: Incorporate the Community Wildfire Protection Plan as an appendix to the Local Mitigation Strategy and coordinate implementation and maintenance of the CWPP with the LMS.

Objective 1.2: Develop partnerships and feasible funding opportunities to execute wildfire mitigation projects.

Objective 1.3: Prioritize the allocation of resources to mitigate wildfire risks identified in areas of concern.

Objective 1.4: Develop collaboration with community organizations to foster an approach to perform fire protection and programs to increase awareness and identify mitigation needs.

Goal 2: Improve the defensibility of residential, commercial, and institutional properties from wildfire.

Objective 2.1: Expand the knowledge and practice of Firewise principles by the County's residents through appropriate education programs.

Objective 2.2: Pursue grant funding to assist high-risk neighborhoods in making Firewise retrofits.

Objective 2.3: Prioritize fuel management projects for fuel breaks for high-risk neighborhoods.

Objective 2.4: Recommend processes to guide future development in the Wildland/Urban Interface and pursue public input on these recommendations.

Objective 2.5: Reduce the vulnerability of critical infrastructure to wildfire impacts through fuel management and retrofits where feasible.

Goal 3: Increase focus on cost-effective pre-event wildfire mitigation and prevention

Objective 3.1: Increase opportunities for fuel management by seeking additional funding, equipment, and public acceptance

Objective 3.2: Research and identify communities at risk from wildfire to target for public outreach programs

Objective 3.3: Reduce the County's arson and careless burning fire statistics using public education and intervention programs.

Objective 3.4: Support the health of fire-dependent ecosystems through regular prescribed burning and ensure that residents understand the role of fire in Florida's environment

Goal 4: Assess and identify deficiencies in equipment, resources, procedures, and training available for wildland fire fighting for all fire departments.

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7. Implementation and Plan Maintenance

The CWPP is to be implemented as resources become available to incrementally mitigate community wildfire vulnerability. The CWPP Committee will oversee implementation of the CWPP in concert with the Hazard Mitigation Program staff of the Hillsborough Public Works Department who will coordinate the CWPP Committee as part of their LMS responsibilities. A recommended action plan has been collaboratively developed by the CWPP Committee and LMSWG to guide implementation efforts over the next five years. An action as listed in this Plan is a strategy, project, or program that seeks to reduce wildfire vulnerability in the community. Each action will be assigned a lead agency or organization that will be responsible for taking a lead. Interagency and public-private partnerships in CWPP implementation are encouraged.

Potential Funding Sources

Project funding and/or local and state agency staff time should be continually sought in order to implement the CWPP Action Plan. The CWPP Committee should meet annually to discuss budget requests among the partner agencies and determine potential grant opportunities that can be applied for during the year. Descriptions of major federal and state funding sources applicable to wildfire mitigation and response improvements are available in the Florida State Hazard Mitigation Plan in the Wildfire Mitigation Annex.

Plan Maintenance and Evaluation

The CWPP should be maintained on an annual basis to ensure information is current, monitor progress of the Plan, and alter Plan content as necessary. Coordinated with the LMS five year cycle, the plan should receive a revision in which the vulnerability assessment is updated and the action plan is evaluated for its effectiveness over the past 5 years and its suitability for the next 5 years. Results of the respective update shall be included within the LMS. A resource for evaluating the plan is the *Community Wildfire Protection Plan Evaluation Guide* prepared by the University of Oregon Resource Innovations Institute for a Sustainable Environment in 2008. The FFS has adapted evaluation questions from this resource to guide Florida communities in assessing the CWPP during a major plan update. The organizational representation from the Working Group should be reconvened, at a minimum, to conduct the major update. The five year update should ideally occur prior to or simultaneously with the five year update to the LMS.

8. Action Plan

This section describes implementation strategies or actions that will advance the goals and objectives of this CWPP. The actions are organized by mitigation category: 1) wildland fuel management, 2) community outreach and education, 3) Firewise building retrofit and landscaping, 4) policy and

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regulation recommendations, and 5) wildland fire response improvements. The following action recommendations are listed in priority order within each mitigation category based upon ability to decrease wildfire vulnerability in the community. Detailed information for high priority actions, including participating agencies and evaluation criteria, can be found in **Appendix C**.

Wildland Fuel Management

Fuel management projects help reduce the size and intensity of wildland fires and may also decrease the likelihood that a wildfire will start in an area. These actions can increase the safety of people and property while reducing response and suppression costs. Fuel management methods, which can be used alone or in combination with other methods to achieve site-specific benefits, include:

- Prescribed burning;
- Mechanical treatment (e.g., mowing, mulching, disking, fire line plowing, and chopping);
- Chemical treatment (herbicide application);
- Biomass removal (e.g., pine straw harvesting, vegetation or tree thinning, and timber harvesting); and
- Biomass conversion (grazing).

Fuel management treatments designed to reduce wildfire risk are temporary and in most cases reduce the hazard in the treated area for three to five years. Periodic management is required on a regular basis to maintain fuels at a level to reduce wildfire risk.

Wildland Fuel Management Actions

Action	Lead Agency	Timeframe	Potential Funding
Continue implementing land management plans for County-owned properties and coordinating with other land management agencies	Hillsborough County Regional Parks & Environmental Lands	Ongoing	Budget allocations; seek grant funding to augment # of acres that can be managed
Review areas mapped as high risk in the Southwrap analysis to determine if the area is targeted for upcoming fuel management or has been treated since the map was created	CWPP Committee; FFS	Annually	None needed
Determine whether a grant to purchase a GyroTrac and budget allocations for annual maintenance is possible	Hillsborough County Regional Parks & Environmental Lands	2016 Forward	See if eligible under Assistance to Firefighters Grant. GyroTrac cost approx. $310,000; maintenance/parts approx. $16,000 annually

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Determine if Everbridge will assist in notifying residents of prescribed fire activities	Hillsborough County Office of Emergency Management ; Hillsborough County Regional Parks & Environmental Lands; other land management agencies if interested	2016 Forward	Agreement will be required for transferring costs over for land management
Identify large private landowners with wildland fuels near developments at-risk to coordinate fuel management or provide technical assistance	FFS	2016-2018	None needed for identification and outreach

Community Outreach and Education

Outreach and education initiatives are designed to raise awareness and improve community knowledge of wildfire risk and mitigation strategies. A good example of an education program is the Florida Firewise Communities Program. Education and outreach programs can influence attitudes and opinions and lead to behavioral changes, such as homeowners' participation in fuel management strategies.

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Community Outreach and Education Actions

Action	Lead Agency	Timeframe	Potential Funding
Identify existing agencies/organizations that may be able to assist with wildfire mitigation education campaigns and invite them to participate in the CWPP Committee. Assign public education tasks for the year. Identify the respective agency point of contact for coordinating these activities	CWPP Committee	Annually	None needed
Identify areas in county to target for wildfire/Firewise outreach for the year. Ask FFS to use the County's subdivision GIS layer to overlay with Southwrap information	CWPP Committee	Annually	None needed
Continue education campaign to reach out to WUI residents on the benefits of prescribed fires	FFS Hillsborough County Regional Parks & Environmental Lands	Ongoing	Budget allocations
Approach communities within the identified target areas for Firewise Communities education	FFS	Ongoing	None needed
Identify and document existing outlets, events, and resources that could be used for wildfire mitigation awareness and education (e.g. Citizen Corps Council, homeowners associations contact lists, community newsletters, Neighborhood Conference, Hurricane Exposition	Hillsborough County Fire Rescue Communications Department liaison	2016 Forward	None needed
Create a webpage for wildfire education on the County website that links to FFS and the Local Mitigation Strategy (LMS)/Firewise resources and add wildfire education messages to other online resources as appropriate, (e.g. the Hillsborough County YouTube website)	Hillsborough County Fire Rescue Communications Department liaison	2016 Forward	None needed

Action	Lead Agency	Timeframe	Potential Funding
Meet with the Hillsborough County School Board to see if a wildfire school program can be introduced	FFS & CWPP	2017 Forward	None needed
Develop or obtain a Public Service Announcement (PSA) that can be used on HTV or other networks during fire season	County Fire Rescue and respective Communications Departments	2018 Forward	Budget allocation
Determine if electronic road signs can be borrowed from Public Works or Sheriff's Office when not in use to display wildfire awareness messages in high-risk areas during fire season	County Fire Rescue	2017 Forward	None needed
Research developing a program for training landscaping companies on Firewise landscaping methods. Seek organizations that may be able to assist, such as the Florida Nurseries Association	FFS	2017 Forward	Not needed for research; seek grant for development of the training program

Firewise Building Retrofit and Landscaping

Projects that reduce the ignitability of community facilities and private structures decrease community wildfire vulnerability and provide Firewise models that can assist in community awareness. Grant funding, such as the FEMA HMGP, can be sought to retrofit public or private buildings in high-risk wildfire zones with Firewise building materials. Other project examples could include public-private partnerships that supply Firewise landscaping materials, while volunteer programs could assist in making Firewise improvements to the structure ignitability zone.

Firewise Building Retrofit and Landscaping Actions

Action	Lead Agency	Timeframe	Potential Funding
Identify wildfire mitigation projects for high-risk neighborhoods (an example of mitigation projects are; fuel breaks, assistance with fire-resistant roof or siding retrofits, etc.) and list these on the LMS Project List in case grant funding becomes available	CWPP Committee; Hazard Mitigation Program, County Public Works Department	During LMS annual update and update on an ongoing basis	Not needed for adding to list; a HMGP may be available after a disaster

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Action	Lead Agency	Timeframe	Potential Funding
Identify public facilities at risk from wildfire and solicit the entities to submit wildfire mitigation projects for the LMS Project List	County Fire Rescue, Office of Emergency Management; Hazard Mitigation Program, County Public Works Department	2016 (when FFS can provide FL FRAS shapefiles for overlaying with facilities layer)	Not needed for adding to list; HMGP may be available after a disaster
Determine if there are any older subdivisions with inadequate ingress/egress or access for fire protection that could benefit from adding a new outlet/emergency access or other enhanced access for fire protection	County Fire Rescue; Hazard Mitigation Program, County Public Works Department	2017 Forward	Potential HMGP; determine other grants that may become available
Determine if any volunteer organizations could assist with Firewise landscaping improvements for homeowners in need of help	FFS	2017 Forward	Not needed

Policy and Regulation Recommendations

Updating local government plans, policies, and regulations is an effective way to advance wildfire mitigation goals. By modifying requirements, high-risk wildfire zones can be avoided or new development can be proactively designed to reduce wildfire risk and therefore make living and working in these areas safer.

Policy and Regulation Actions

Action	Lead Agency	Timeframe	Potential Funding
Evaluate opportunities for including wildfire mitigation in the comprehensive plan; Consider incentive-based approaches to encourage industry and the community to incorporate Firewise methods; Seek public input (perhaps in combination with wildfire awareness activities)	City-County Planning Commission/ Fire Rescue	2017 Forward	Not needed

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Action	Lead Agency	Timeframe	Potential Funding
Recommend consideration be given to include fuel management techniques used in the design and approval of developments that are within the designated WUI	Fire Marshall	2017 Forward	Not needed
Update and maintain the LMS to point to the CWPP and include new wildfire risk assessment data and projects	Hazard Mitigation Program, County Public Works Department	2018 LMS update & each annual LMS update	Not needed
Evaluate the use of Firewise and NFPA guidelines with new development or developments that are regulated within or adjacent to the WUI	Fire Marshall	2016-2018	Not needed

Wildland Fire Response Improvements

Opportunities to improve wildland fire response capabilities are also critical to reducing the risk of wildfire damage to people and property. Improvements in response capabilities can include advanced training, increasing staff or volunteer fire fighting resources, and developing new procedures or protocols.

Wildland Fire Response Improvement Actions

Action	Lead Agency	Timeframe	Potential Funding
Improve interoperability communications between agencies	County Fire Rescue; FFS	2017 Forward	Budget Research and allocation
Seek funding sources for wildland fire training (S-130/S-190) for incumbent fire fighters	County Fire Rescue	2016-2018	Funding to be determined; approx. 600 firefighters need training at $75 pp/course

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Appendix A: Planning Process Meetings

Meeting summaries from the CWPP planning process are included in this appendix.

Working Group Meeting #1, November 3, 2010

Attendees: Ed Murphy, Hillsborough County Emergency Management; Eugene Henry, Hillsborough County PGM/Hazard Mitigation; Linda Mandell, Hillsborough County PGM/Hazard Mitigation; Scott Ehlers, Tampa Fire; Shawn College, Planning Commission; Ross Dickerson, Hillsborough County Parks, Recreation and Conservation; Craig Lynn, Hillsborough County Fire Rescue; Phil Armiger, Temple Terrace Fire; David Burnett, Plant City Fire; Bill Delph, Division of Forestry (DOF); Gary Zipper, DOF; Allison Boyd, CSA International

Meeting Summary:

The Hillsborough County Community Wildfire Protection Plan (CWPP) Working Group met to begin providing input on a draft CWPP. The purpose of this first Working Group meeting was to review background information, preliminary risk information, and draft capacity assessment portions of the CWPP. The meeting began with introductions and Allison Boyd provided a brief description of the project and expected benefits. The discussion then focused around the 8 step planning process that was provided as a handout. A copy of the draft CWPP and responses to the information request were also provided as handouts at the meeting.

The discussion began with who should be involved in the planning process and how public participation would be sought. The Firewise Workshop that Pandion is setting up for the county was discussed as an opportunity for public awareness of the CWPP planning process as well. The CWPP is scheduled to be completed and signed by the three core parties (local government, fire department, and FFS) in April 2011. Eugene Henry was not sure that the schedule would allow enough time for public input on the draft CWPP. He emphasized that stakeholders need buy-in to the planning process to support future regulation changes which could be a recommendation of the plan. Allison Boyd said she would discuss the concerns with Gerry Lacavera, FFS Project Manager. Ideally the draft plan would be quickly pulled together after the next meeting so that as much time as possible was available for a public comment period before April.

The institutional capacity portions of the CWPP were discussed in terms of whether there is more data that is not already included in the responses to the information request or draft CWPP handouts. The group also discussed if there are any other integral stakeholders that should be included in the planning process and invited to the next meeting. Potential invitees suggested due to their land management

role included: Southwest Florida Water Management District, State Parks, Florida Fish and Wildlife, MacDill Air Force Base, and Mosaic (a private fertilizer company).

Goals and objectives were next on the agenda. During the general discussion, Chief Lynn pointed out that a big issue for the CWPP was in decreasing resources spent on wildfire response through pre-event mitigation. Fuel management was agreed to be the key to wildfire mitigation. Ross Dickerson said that they could use more equipment and funding to be able to do more fuel management. Ensuring that buffers between homes and conservation areas are required in developments would also make fuel management easier to accomplish. Allison Boyd will draft some goals and objectives based on the conversation for the group to edit.

Upcoming Meetings and Assignments:

The Firewise Workshop that will be provided by the Pandion consulting group is being rescheduled for January 2011 and an email will be sent out with the details. The workshop will be an opportunity for public/stakeholder wildfire mitigation education and to make others aware of the CWPP planning process underway. CWPP Working Group members will assist Linda in providing lists of people to invite to the workshop.

The next CWPP Working Group Meeting is scheduled for early February 2011. The purpose of the meeting is to provide input and come to agreement on the CWPP's action plan. An email will be sent out asking for your availability for potential dates. A detailed agenda will be provided at a later date and the meeting is expected to last at least 3 hours.

An updated draft CWPP will be distributed to the group prior to the 2nd meeting for feedback. All drafts and background material for this project will be uploaded to the project website www.wildfiremitigation.org.

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Working Group Meeting #2, February 9, 2011

Attendees: Ed Murphy, Hillsborough County Emergency Management; Linda Mandell, Hillsborough County PGM/Hazard Mitigation; Shawn College, Planning Commission; Ross Dickerson, Hillsborough County Parks, Recreation and Conservation; Craig Lynn, Hillsborough County Fire Rescue; Vince Kelley, Hillsborough County Fire Rescue; David Burnett, Plant City Fire; Greg Cagle, DEP; Stacy Williams, Hillsborough County Communications, Cyndi Gates, SWFWMD; Bill Delph, Division of Forestry (DOF); Allison Boyd, CSA International

Meeting Summary:

The Hillsborough County Community Wildfire Protection Plan (CWPP) Working Group met to discuss goals and actions for the draft CWPP. Implementation of the CWPP and integration into the LMS was also discussed. A handout of draft Goals and Objectives was discussed and edited. A handout of example actions was also used as launching point for discussing what items should be included in the action plan. The following are items that were discussed during the meeting:

- Funding issues. How have other communities implemented their CWPPs? Handout for funding sources discussed.
    - HC has been successful with the AFG grant
    - FFS prioritize projects based on if you have a CWPP
- Fuel management comes out of regular budget in HC, pay contractor to do urban areas and weather limits burns, more funding could open up mechanical methods if able to hire contractor with equipment or buy own equipment.
    - FFS typically does the fuel management on private property; Bill says as funding becomes available he has projects ready to go
    - Bill tried to work with a community south of Wimauma, has been doing subdivision community CWPPs to qualify for funding
    - Identify communities and prioritize those most in need
    - Fish Hawk is surrounded by HC preserve- county should try for funding to reduce fuels there; have a grant from SWFWMD now to remove small timber and brush for habitat improvement
- Fish Hawk should be a priority for Firewise Community outreach
    - Research and identify communities to be targeted for Firewise as a goal for CWPP
    - Looked at maps to see neighborhoods at risk
    - April 2nd Firewise education program at Neighborhood Conference for how to become a Firewise Community
- 2.d. objective will be political, depends on extent
    - Don't mention wildfire in comp plan right now
    - Do some policy rec's that aren't controversial
    - Need to educate public before policy/code changes
    - Most changes would be targeted at new developments not changing existing

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    - Ingress/egress has been changed in codes to have 2, May 8, 2006 fire Golden Astor Preserve
        - Had to shut down interstate, didn't have enough communications in place for successful evacuation, lessons learned and have made improvements now, no lives or homes lost
- Prescribed burn outreach process- Facebook, county website, HOA contacts emailed, provide schedule every year posted in some newsletters, road signs put up
    - SWFMWD also puts up signs and talks to local homeowners
    - People starting to understand prescribed fire to protect them
    - Also could use reverse 911 but would need to have agreement on who would pay for it, can call all landlines within an area
- Arson question, 24% for past 20 years from FFS statistics, largest cause of fires in stats
    - Need to research more, look at other sources
    - Arson investigation usually looks at trends in time and conditions
    - Add goal careless burning?, change language
- Fuel management capacity
    - Would like a GyroTrac
    - Teeth expensive, maintenance the issue
    - $25k/ month to lease
    - Could mow every day and not be done
    - Change wording of objective
- Communications between FFS and local fire, need more coordination for radio communications
    - FIN lines work but then have to switch back and forth to talk to FFS dispatch
    - Continue to improve interoperability communications between agencies
    - Communications exercise coming up may assist with this issue
    - Goal 4 expand to also address communications or procedures
- Community outreach and education actions
    - Add wildfire education to existing events
        - Hurricane Expo and Neighborhood Conference are upcoming opportunities
    - 1 full-time person in fire department does public education (had 4 before layoffs)
        - City fire department also down to 1 staff for public education
        - Overtime for firefighters is expensive if they need to be involved in a booth, etc.
        - Mostly structure fire public education
    - Bill- wildfire school program in Polk (30 min. with FFS), FFS does something at the HC County Fair, also Ag in the classroom
        - Connect science classes to wildfire as natural part of environment
    - Any website that lists opportunities? Maybe make a one-stop location to get info, link to FFS, Add CWPP to website
    - Need to know what we're already doing
    - Maybe target education to areas at risk

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- Identify organizations: Florida Friendly, coop extension offices, gardening and landscaping
- Michael Andreu Gulf Coast Research Center- Cindy will contact
- Electronic road signs in targeted areas for awareness; public works and sheriff's office have them; could probably borrow but logistics might be significant
- PSAs- FFS and Fire Department together
- Need a person that coordinate these actions
- FFS billboards
- Community newsletters, HOA email list, quarterly newsletter- could add something new each time- someone would need to provide an article each quarter
- Plant City has a master list of HOAs too- planners have it
- First step- identify areas in county to target
- Target fire season if limited resources
- Use all of the online resources, i.e. You Tube, etc.
- Countywide email, cities probably have it too
- Identify agencies and community organizations that could assist
    - Can't put a person on this for long
    - Assign some tasks to FFS
- Firewise Communities- need to identify ones to reach out for
    - Work with FFS on this
- Some neighborhoods want to keep vegetation around homes for privacy
- Video of Alachua home demonstration project could be an online resource
- Grant money to do an individual demonstration project hard to get
- Volunteers to help homeowners? Maybe extension service
- Need education about benefits; hard to motivate without a recent fire experience
- Some people will resist change
- Keep trying communities on a priority list
- Overlay new FRAS layer on subdivisions or HC can send their sub layer to FFS
- Work with nurseries who do landscaping- maybe FFS could teach them how to do Firewise landscaping
    - Florida Nurseries Association; wonder if UF already some of this

- Policy and Reg Actions
    - EAR process just starting; evaluating com plan this year; cities' schedule will follow
    - Wildfire guidebook
    - Look at NFPA standards for land development codes; maybe only in certain overlay zones based on new FRAS map
    - Homeowner covenants and deeds are not always consistent with Firewise- might be an education issue as well
    - Already need to outreach to HOAs regarding post-disaster temporary allowances
    - Also could work with developers directly who voluntarily want to include Firewise design
    - Educate developers when building permits

    - Integrate wildfire projects onto LMS Project List
    - Compatibility plan, adjacent prescribed fire- County adopted policy 7 years ago- try adding it to the compatibility plan
- Wildland Fuel Management
    - Prioritize annually which properties need fuel management, county and state lands already have schedule, but what about private land?
    - Vacant property owners- have to get permission; fear of lawsuits
        - Have to plan it in advance
        - May take over a year even to cut a fireline
    - Conservation easements a big problem since no responsibility to maintain
        - Management plan for conservation easements for future
    - So much to do may never get caught up
    - GyroTrac
    - Fuel issue is immense- touch on public, private difficult means we need to focus on education because the fuel management is not realistic to achieve- target extreme risk areas
    - Large private owners near developments- identify them as well
        - Cattlemen's association
- Response improvements
    - Evacuation- would probably open a red cross shelter (different than hurricane shelters)- just need to be more coordinated between agencies- unified command
        - Too many unknown factors to determine ahead of time, i.e. wind
    - Mitigation success story for Golden Astor- had done prescribed fire except for 30 acres- where the wildfire took over, stopped once ran out of that fuel load
    - Need to educate on benefits on prescribed fire
    - $50k got a little over 100 acres mowed (if owned a GyroTrac could do 10 acres a day)
    - CERTs? Maybe use for outreach
    - Citizen Corp Council
    - Rural areas have identified sites with containerized water- required for development of certain structures if no water supply for fire fighting
        - Suburban and urban areas are ok
        - Urban service area means water supply can't be supplied to rural areas
    - 1 prescribed burner in fire department
    - 16 prescribed burners in County Conservation Services Section
    - Funding is an issue for wildland training ($75/pp/course) – add as an action
        - Want all firefighters to have the standard
    - Plant City has Fire in Field done, Temple Terrace is doing it next
    - New employees and volunteers get the courses when they come on
        - 900 incumbents, about 600 or so need the training
    - 17 Type VI and Type IV brush trucks, only used about 3 months out of year
        - Probably realistic amount for now

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- Maybe could use more equipment for County Conservation Services Section, sometimes respond to fires but would like mitigation
- County Conservation Services Section has 3 brush trucks

Next Steps:

The input from today's meeting will be integrated into the CWPP draft and distributed for comments.

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Working Group Meeting #3, September 30, 2014

Attendees: Eugene Henry, Hillsborough County Public Works – Hazard Mitigation; Vince Kelley, Hillsborough County Fire Rescue; Jeff Patterson, Hillsborough County Fire Rescue; Michael Rimoldi, Hillsborough County Public Works – Hazard Mitigation.

Meeting Summary:

This meeting was held as a measure to reorganize and re-initiate activity on the Hillsborough County Wildfire Protection Plan. The previous activity had been in 2011 and a measure was necessary to begin working on the plan and to update the information contained within the plan. At this meeting, individuals within agencies were identified for participation in updating the plan and a schedule for upcoming meetings was established.

Next Steps:

From this meeting, the next meeting to be held on November 5, 2014 was determined.

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Working Group Meeting #4, November 5, 2014

Attendees: Joel Deangelis, Southwest Florida Water Management District; Michael Rimoldi, Hillsborough County Public Works – Hazard Mitigation; Chad Allison, Florida Fish & Wildlife Conservation Commission; Michael Hudkins, Hillsborough County Fire Rescue; Matthew Hodge, Department of Environmental Protection; Vince Kelley, Hillsborough County Fire Rescue, Ross Dickerson, Hillsborough County Parks, Recreation & Conservation; Bill Carlisle, Hillsborough County Parks, Recreation & Conservation; Gary Zipperer, Florida Forest Service; Patrick Keogh, Florida Forest Service; Mike Facente, Florida Forest Service; Eugene Henry, Hillsborough County Public Works – Hazard Mitigation.

Call-ins: William VanGelder, Southwest Florida Water Management District

Meeting Summary:

- The working group was re-established after the break in activity and related agencies were in attendance to discuss what was necessary to move forward.
- The group will be provided a Word doc in order for each to be able to provide edits respective to each individual agency.
- The passing of Mr. Bill Delph was recognized. Mr. Delph was instrumental in the previous work done on the Wildfire Protection Plan. It was suggested and decided upon that a Memoriam page would be added to the update to recognize Mr. Delph and his efforts.
- The name change of the Division of Forestry to Florida Forest Service was mentioned as the document would require the name change to be recognized throughout.
- Specific discussion was held to the identification of the number, type/class of fire-fighting apparatus; specifically brush trucks were discussed.
- The elimination of the identification of volunteer fire stations in the plan was mentioned as these stations were now part of the list of regular staff fire stations.
- The addition of some communities were discussed for the Communities at Risk table in the plan.
- Further discussion was had on the progress of the plan and the long-term goals to have the update complete.
- The next meeting was set for the second week of January, 2015. Staff will work to determine an exact date suitable for all.

Next Steps:

January, 2015 meeting. Exact date, time and location to be determined.

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Working Group Meeting #5, January 14, 2015

Attendees: Michael Rimoldi, Hillsborough County Public Works – Hazard Mitigation; Patrick Keogh, Florida Forest Service; Gary Zipperer, Florida Forest Service; Mike Facente, Florida Forest Service; Bill Carlisle, Hillsborough County Parks, Recreation & Conservation; William Twaite, Hillsborough County Public Works – Hazard Mitigation; Vince Kelley, Hillsborough County Fire Rescue.

Call-ins: David Burnett, City of Plant City Fire Rescue; Joel Deangelis, Southwest Florida Water Management District.

Meeting Summary:

The Hillsborough County Community Wildfire Protection Plan (CWPP) Working Group met to discuss goals and actions for the draft CWPP. Implementation of the CWPP and integration into the LMS was also discussed. The following are items that were discussed during the meeting:

- Discussion of the difference between Level of Concern (LOC) depicted in previous analysis and the Wildland Urban Index (WUI) depicted in the SouthWRAP portal.
- Funding issues. David Burnett provided some verbiage as to funding sources for inclusion in the plan.
- Schedule for update completion by spring of 2015 was discussed.
- Smoke management response verbiage was discussed.

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Appendix B: Wildfire Vulnerability Assessment Maps

This Appendix includes the following:

MAPS

- Hillsborough County Wildfire Risk (LOC)
- Hillsborough County Surface Fuels
- Hillsborough County Wildfire Susceptibility Index
- Hillsborough County Conservation Lands
- Hillsborough County Emergency Operations Center and Fire Stations

METHODOLOGY SUMMARIES

- Florida Fire Risk Assessment System (FL FRAS)
- Methods for determining population and structures at risk

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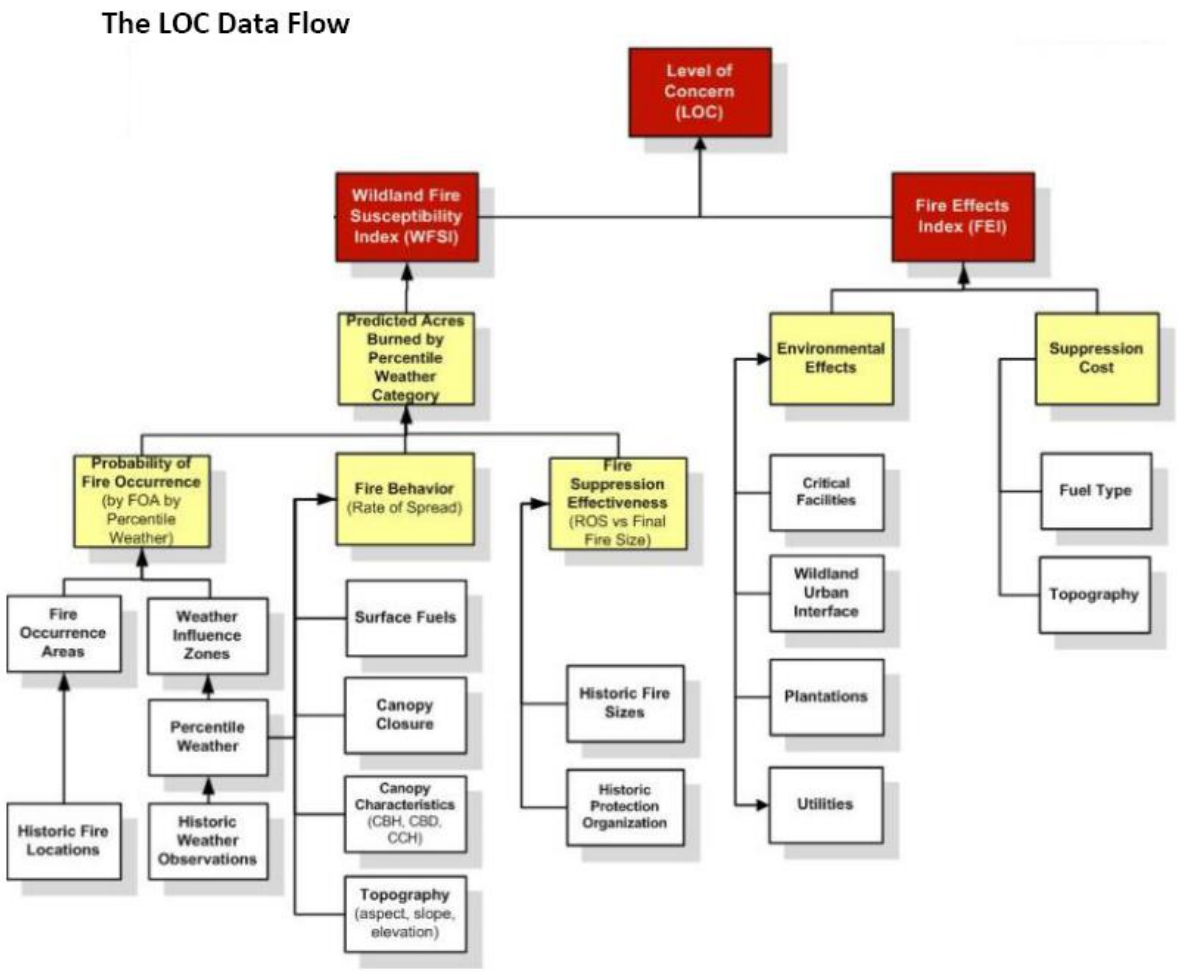
Florida Fire Risk Assessment System

The Florida Fire Risk Assessment System (FL FRAS) provides up to date wildfire occurrence, hazard, and risk data. This data is available as a 30 meter resolution dataset in GIS format. For this project, maps of surface fuels, Wildland Fire Susceptibility Index (WFSI), and Level of Concern (LOC) were generated for the County. Tabulations of acres within each LOC were also generated.



The LOC model integrates the WFSI output with the Fire Effects Index (FEI) to derive an overall Level of Concern. LOC is calculated by simply multiplying WFSI x FEI. The output values were assigned to nine LOC categories ranging from Level 1 to Level 9. The LOC output can be used to prioritize areas for further analysis. The LOC results can be used to complete a more detailed analysis at the local level and communicate wildland fire management concerns.

Source: Florida Fire Risk Assessment System, FLFRAS v9.3 User Guide, 2011, Sanborn.

Methods for determining population and structures at risk

The population and structure risk assessment was conducted for all Florida counties as part of a project to develop a Wildfire Mitigation Annex for the State of Florida Hazard Mitigation Plan. The following is a summary of the methodology used. A full methodology can be found in the State Wildfire Mitigation Annex.

The assessment combined FL FRAS LOC outputs with parcel and assessor data obtained from the Florida Division of Revenue (DOR). Data was combined to generate summaries consistent with FEMA Hazard Mitigation Planning methodologies that defined:

- total population by wildfire risk zone in each county
- total number of structures by wildfire risk zone in each county
- total value ($) of structures by wildfire risk zone in each county

The primary sources of data for this assessment were as follows:

- FL FRAS, 2011 update
- Parcel Data – Florida Department of Revenue, 2010
- Assessor data – Florida Department of Revenue, 2010
- Census data – Census Bureau, Summary File 1(SF1) table, 2000 (2010 was not available at the time analysis was conducted)

The population was determined on a parcel basis by generalized land use code. The assessor data was utilized to assign a generalized land use code to each parcel based on the detailed DOR code for the parcel. The population was calculated as follows:

Population of Parcel = PPH x Res_Units

where:

PPH = persons per household in the census tract containing the parcel (derived from 2000 census figures)

Res_Units = the number of residential units in the parcel as identified in the assessor data (derived from 2010 assessor data)

Certain caveats and assumptions exist with respect to the estimation of population. These include:

- *Parcels* - Each county provides their parcel data to the Florida Department of Revenue - each county's property appraiser is different and has different work flows and different base data. The information provided by one county may be different than the information provided by another. We can only work with the data that was provided and if the property appraiser did

not populate the number of units for a property we cannot determine the population of that parcel.

- *PPH Factors* - The people per household factors were calculated based on 2000 Census Tract data. The 2000 Census data was all that was available at the time of this project. In addition, due to the volume of data for the entire state the Census Tracts were used instead of Block Groups. The differences between using the Block Group level data and Tract level data would probably not be that great, but this was not tested. The PPH values are calculated based on data from the 2000 census so some tracts resulted in zero PPH values since they didn't have information in the 2000 census to determine the PPH values. In this case these tracts were given the average PPH of the state.
- *Population Control Totals* - The population is being compared to Florida Bureau of Economic and Business Research (BEBR) quality control totals that those control totals are estimates based off of 2000 census data and that not every county accepts the BEBR control totals.
- Population values are created as Integer so there are no partial people calculated - of course this means there is rounding in the population.
- The Commercial/Industrial generalized land use class includes the "Mixed Use" DOR Code which by definition includes "store and office or store and residential or residential combination". It is therefore reasonable for this class to have a population count.

A summary of the number of structures and the dollar value of structures for each parcel was also calculated using methods similar to the population summary described above. The assessed dollar value for each parcel and the number of structures on each parcel were available in the Assessor data[1].

Source: Florida Division of Forestry, State Hazard Mitigation Plan Annex Project Documentation, Sanborn, 2011.

[1] As with population, the quality of the assessor data varies from county to county.

Appendix C: CWPP Projects

Projects included in this appendix are priorities as described in the Action Plan of the CWPP. These Project Detail Sheets can be used in adding projects to the Local Mitigation Strategy Project List and applying for grant funding. The following information will be provided for each project, as available.

Project Name

Project Type

[i.e. fuel mitigation, education, policy/regulations, or response improvement]

Timeframe for Implementation

Agency Responsible for Implementation

Project Description

Estimated Cost

Potential Funding Source

Target Population Benefited

Estimated Size:

Method for determining

Partnerships for Implementation

Project Evaluation Criteria

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Appendix D: Southern Wildfire Risk Assessment Summary Report – Hillsborough County

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Southern Wildfire Risk Assessment Summary Report

Hillsborough County

SouthWRAP Summary Report

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Report was generated using
www.southernwildfirerisk.com

Report version: 3.0

Report generated: 3/19/2015

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Users should also note that property boundaries included in any product do not represent an on- the-ground survey suitable for legal, engineering, or surveying purposes. They represent only the approximate relative locations.

2. Introduction

Welcome to the Southern Wildfire Risk Assessment Summary Report.

This tool allows users of the Professional Viewer application of the Southern Wildfire Risk Assessment (SWRA) web Portal (SouthWRAP) to define a specific project area and summarize wildfire related information for this area. A detailed risk summary report is generated using a set of predefined map products developed by the Southern Wildfire Risk Assessment project which have been summarized explicitly for the user defined project area. The report is generated in MS WORD format.

The report has been designed so that information from the report can easily be copied and pasted into other specific plans, reports, or documents depending on user needs. Examples include, but are not limited to, Community Wildfire Protection Plans, Local Fire Plans, Fuels Mitigation Plans, Hazard Mitigation Plans, Homeowner Association Risk Assessments, and Forest Management or Stewardship Plans. Formats and standards for these types of reports vary from state to state across the South, and accordingly SouthWRAP provides the SWRA information in a generic risk report format to facilitate use in any type of external document. The SouthWRAP Risk Summary Report also stands alone as a viable depiction of current wildfire risk conditions for the user defined project area.

SouthWRAP provides a consistent, comparable set of scientific results to be used as a foundation for wildfire mitigation and prevention planning in the South.

Results of the assessment can be used to help prioritize areas in the state where mitigation treatments, community interaction and education, or tactical analyses might be necessary to reduce risk from wildfires.

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The SouthWRAP products included in this report are designed to provide the information needed to support the following key priorities:

- Identify areas that are most prone to wildfire
- Identify areas that may require additional tactical planning, specifically related to mitigation projects and Community Wildfire Protection Planning
- Provide the information necessary to justify resource, budget and funding requests
- Allow agencies to work together to better define priorities and improve emergency response, particularly across jurisdictional boundaries
- Define wildland communities and identify the risk to those communities
- Increase communication and outreach with local residents and the public to create awareness and address community priorities and needs
- Plan for response and suppression resource needs
- Plan and prioritize hazardous fuel treatment programs

To learn more about the SWRA project or to create a custom summary report, go to www.SouthWildfireRisk.com.

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Products

Each product in this report is accompanied by a general description, table, chart and/or map. A list of available SouthWRAP products in this report is provided in the following table.

SouthWRAP Product	Description
Wildland Urban Interface (WUI)	Depicts where humans and their structures meet or intermix with wildland fuel
WUI Risk Index	Represents a rating of the potential impact of a wildfire on people and their homes
Community Protection Zones	Represents those areas designated as primary and secondary priorities for community protection planning
Burn Probability	Probability of an area burning given current landscape conditions, percentile weather, historical ignition patterns and historical fire prevention and suppression efforts
Wildfire Ignition Density	Likelihood of a wildfire starting based on historical ignition patterns
Characteristic Rate of Spread	Represents the speed with which a fire moves in a horizontal direction across the landscape
Characteristic Flame Length	Represents the distance between the tip and base of the flame
Fire intensity Scale	Quantifies the potential fire intensity for an area by orders of magnitude
Fire Type – Extreme	Represents the potential fire type (surface or canopy) under extreme percentile weather conditions
Surface Fuels	Contains the parameters needed to compute surface fire behavior characteristics
Dozer Operability Rating	Level of difficulty to operate a dozer in an area based on limitations associated with slope and vegetation type

3. Wildland Urban Interface

Description

The South is one of the fastest growing regions in the nation, with an estimated population growth of 1.5 million people per year. The South also consistently has the highest number of wildfires per year. Population growth is pushing housing developments further into natural and forested areas where most of these wildfires occur. This situation puts many lives and communities at risk each year.

In particular, the expansion of residential development from urban centers out into rural landscapes, increases the potential for wildland fire threat to public safety and the potential for damage to forest resources and dependent industries. This increase in population across the region will impact counties and communities that are located within the Wildland Urban Interface (WUI). The WUI is described as the area where structures and other human improvements meet and intermingle with undeveloped wildland or vegetative fuels. Population growth within the WUI substantially increases the risk from wildfire.

For the **Hillsborough County** project area, it is estimated that **1,114,194** people or **91 percent** of the total project area population (1,229,061) live within the WUI.

The Wildland Urban Interface (WUI) layer reflects housing density depicting where humans and their structures meet or intermix with wildland fuels.

WUI housing density is categorized based on the standard Federal Register and U.S. Forest Service SILVIS data set categories, long

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considered a de facto standard for depicting WUI. However, in the SWRA WUI data the number of housing density categories is extended to provide a better gradation of housing distribution to meet specific requirements for fire protection planning activities. While units of the actual data set are in *houses per sq. km*., the data is presented as the *number of houses per acre* to aid with interpretation and use by fire planners in the South.

In the past, conventional wildland urban interface data sets, such as USFS SILVIS, have been used to reflect these concerns. However, USFS SILVIS and other existing data sources do not provide the level of detail for defining population living in the wildland as needed by Southern state WUI specialists and local fire protection agencies.

The new SWRA WUI 2012 dataset is derived using advanced modeling techniques based on the SWRA Where People Live (housing density) dataset and 2012 LandScan population count data available from the Department of Homeland Security, HSIP Freedom Data Set. WUI is simply a subset of the Where People Live dataset. The primary difference between the WPL and WUI is that populated areas surrounded by sufficient non-burnable areas (i.e. interior urban areas) are removed from the Where People Live data set, as these areas are not expected to be directly impacted by a wildfire. Simply put, the SWRA WUI is the SWRA WPL data with the urban core areas removed.

Data is modeled at a 30-meter cell resolution, which is consistent with other SWRA layers. The following table shows the total population for each WUI area within the project area.

Housing Density	WUI Population	Percent of WUI Population	WUI Acres	Percent of WUI Acres
LT 1hs/40ac	756	0.1%	39,481	9.4%
1hs/40ac to 1hs/20ac	1,075	0.1%	21,544	5.1%
1hs/20ac to 1hs/10ac	3,557	0.3%	32,828	7.8%
1hs/10ac to 1hs/5ac	9,877	0.9%	41,130	9.8%
1hs/5ac to 1hs/2ac	44,328	4.0%	73,191	17.4%
1hs/2ac to 3hs/1ac	515,058	46.2%	164,002	38.9%
GT 3hs/1ac	539,543	48.4%	48,988	11.6%
Total	**1,114,194**	**100.0%**	**421,165**	**100.0%**

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WUI – Population and Acres

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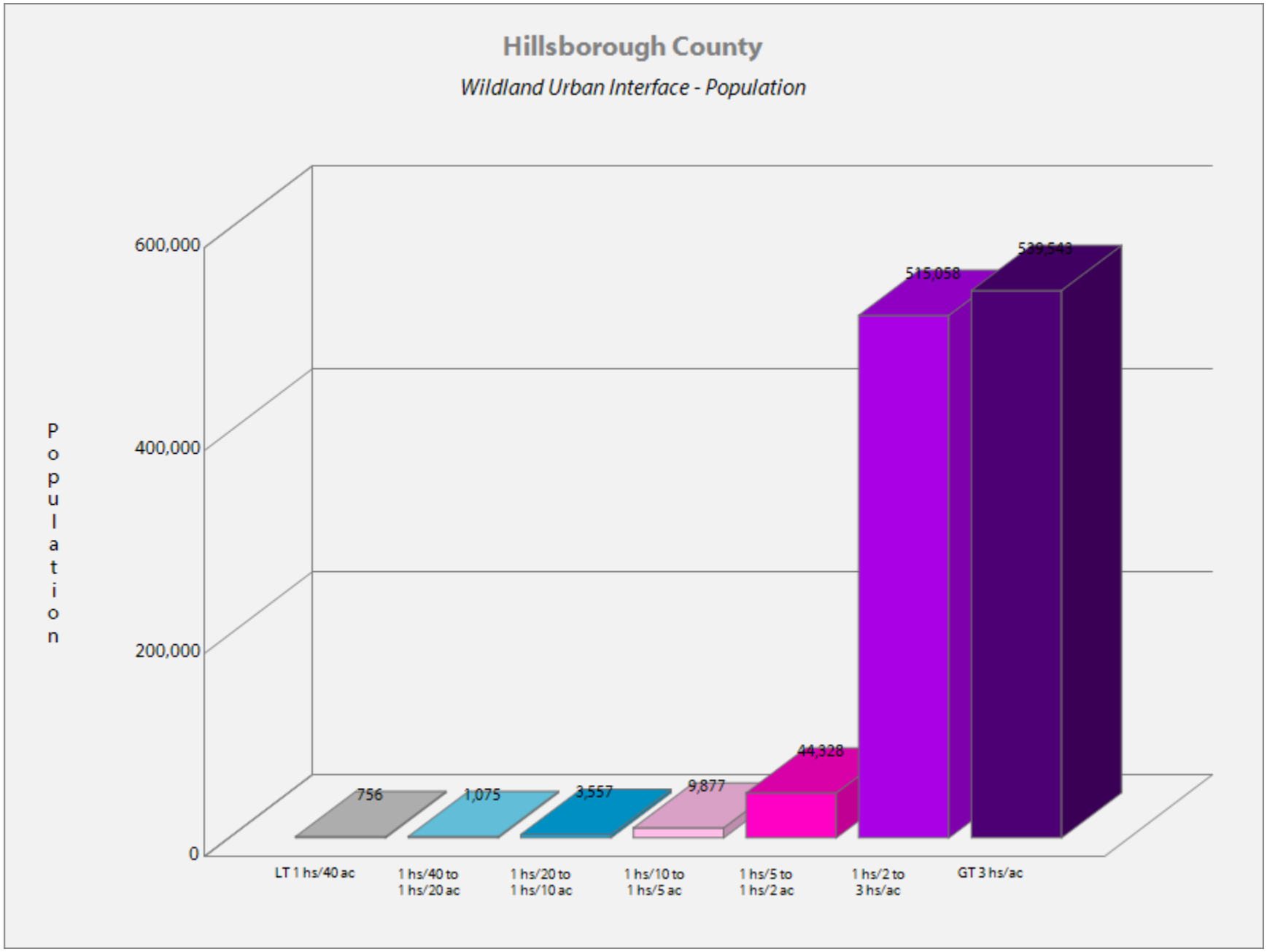
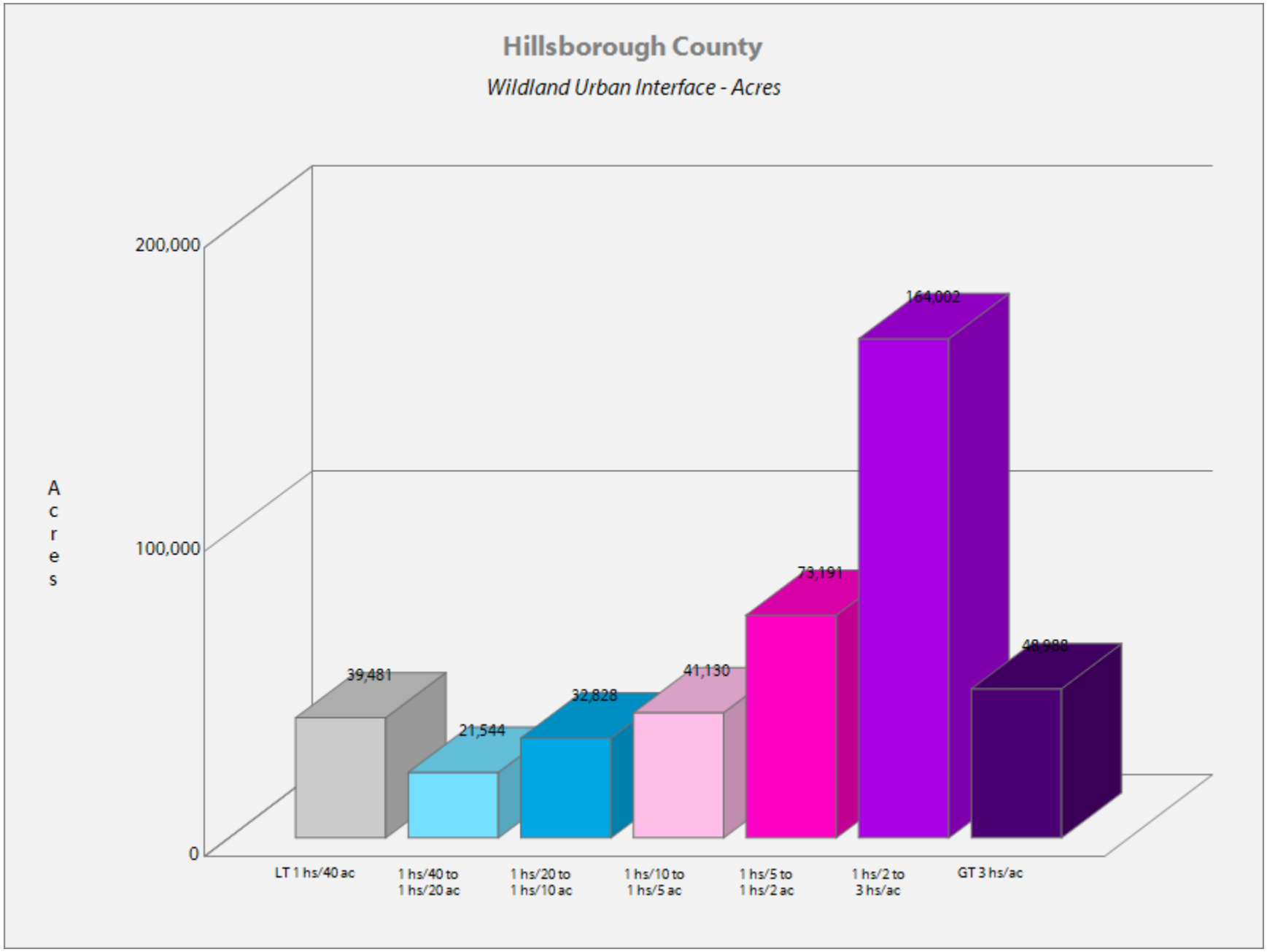
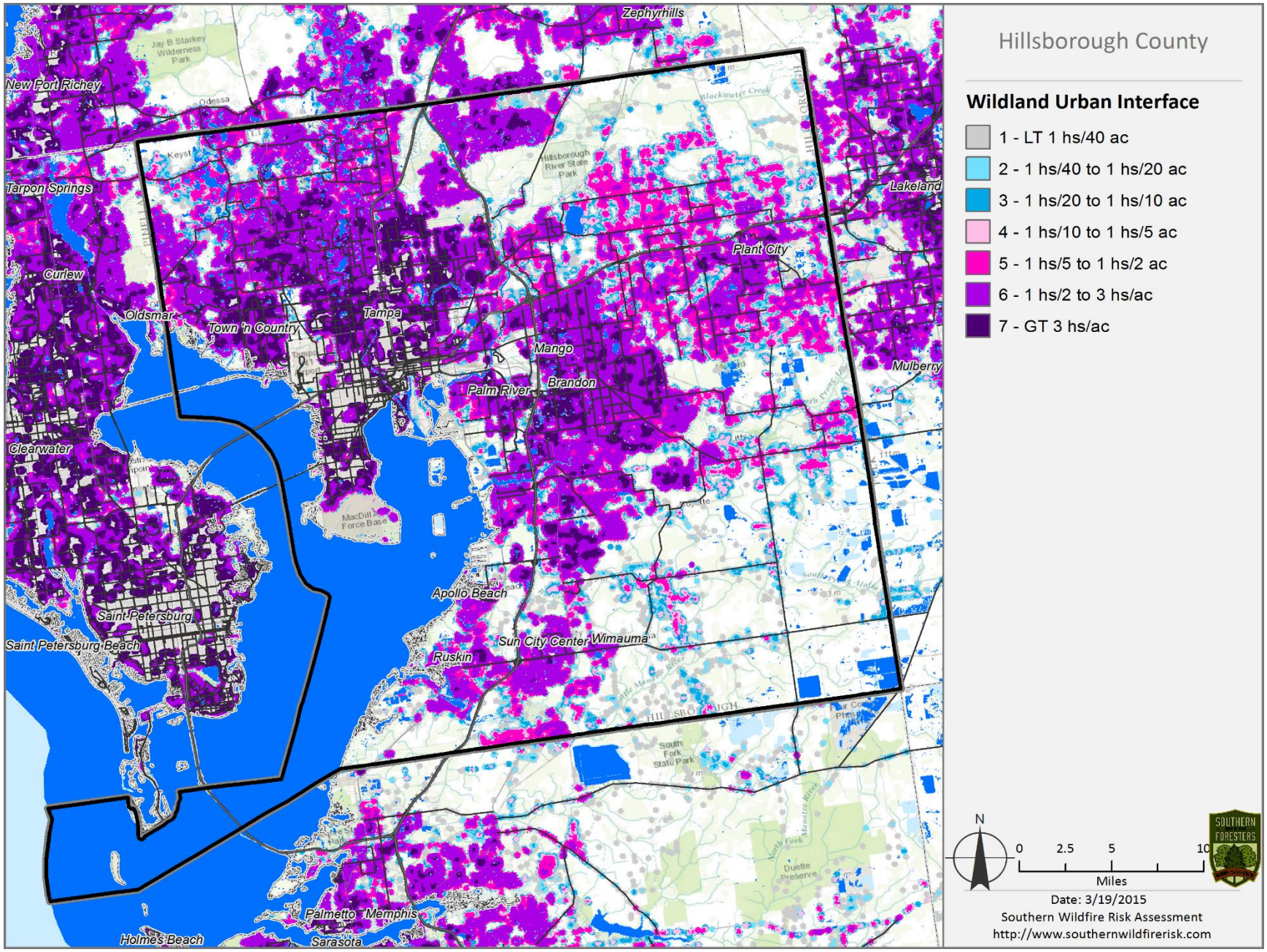

Hillsborough County
Wildland Urban Interface - Population
Population
600,000
400,000
200,000
0
756
1,075
3,557
9,877
44,328
515,058
539,543
LT 1 hs/40 ac
1 hs/40 to 1 hs/20 ac
1 hs/20 to 1 hs/10 ac
1 hs/10 to 1 hs/5 ac
1 hs/5 to 1 hs/2 ac
1 hs/2 to 3 hs/ac
GT 3 hs/ac


Hillsborough County
Wildland Urban Interface - Acres
Acres
200,000
100,000
0
39,481
21,544
32,828
41,130
73,191
164,002
48,988
LT 1 hs/40 ac
1 hs/40 to 1 hs/20 ac
1 hs/20 to 1 hs/10 ac
1 hs/10 to 1 hs/5 ac
1 hs/5 to 1 hs/2 ac
1 hs/2 to 3 hs/ac
GT 3 hs/ac


Hillsborough County
Wildland Urban Interface
1 - LT 1 hs/40 ac
2 - 1 hs/40 to 1 hs/20 ac
3 - 1 hs/20 to 1 hs/10 ac
4 - 1 hs/10 to 1 hs/5 ac
5 - 1 hs/5 to 1 hs/2 ac
6 - 1 hs/2 to 3 hs/ac
7 - GT 3 hs/ac
N
0
2.5
5
10
Miles
Date: 3/19/2015
Southern Wildfire Risk Assessment
http://www.southernwildfirerisk.com
Zephyrhills
New Port Richey
Tarpon Springs
Curlew
Oldsmar
Town 'n Country
Tampa
Plant City
Lakeland
Mulberry
Mango
Brandon
Palm River
Clearwater
Apollo Beach
Saint Petersburg
Saint Petersburg Beach
Sun City Center
Wimauma
Ruskin
Palmetto
Memphis
Holmes Beach
Sarasota

4. WUI Risk Index

Description

The Wildland Urban Interface (WUI) Risk Index layer is a rating of the potential impact of a wildfire on people and their homes. The key input, WUI, reflects housing density (houses per acre) consistent with Federal Register National standards. The location of people living in the Wildland Urban Interface and rural areas is key information for defining potential wildfire impacts to people and homes.

The WUI Risk Rating is derived using a Response Function modeling approach. Response functions are a method of assigning a net change in the value to a *resource* or *asset* based on susceptibility to fire at different intensity levels, such as flame length. The range of values is from -1 to -9, with -1 representing the least negative impact and -9 representing the most negative impact. For example, areas with high housing density and high flame lengths are rated -9 while areas with low housing density and low flame lengths are rated -1.

To calculate the WUI Risk Rating, the WUI housing density data was combined with Flame Length data and response functions were defined to represent potential impacts. The response functions were defined by a team of experts based on values defined by the SWRA Update Project technical team. By combining flame length with the WUI housing density data, you can determine where the greatest potential impact to homes and people is likely to occur.

Fire intensity data is modeled to incorporate penetration into urban fringe areas so that outputs better reflect real world conditions for fire spread and impact in fringe urban interface areas. With this enhancement, houses in urban areas adjacent to wildland fuels are incorporated into the WUI risk modeling. All areas in the South have the WUI Risk Index calculated consistently, which allows for comparison and ordination of areas across the entire region. Data is modeled at a 30-meter cell resolution, which is consistent with other SWRA layers.

Class	Acres	Percent
-9 Major Impacts	38,865	10.2%
-8	109,298	28.8%
-7	106,237	27.9%
-6	26,480	7.0%
-5 Moderate	53,396	14.0%
-4	20,144	5.3%
-3	12,658	3.3%
-2	10,620	2.8%
-1 Minor Impacts	2,403	0.6%
Total	**380,099**	**100.0%**

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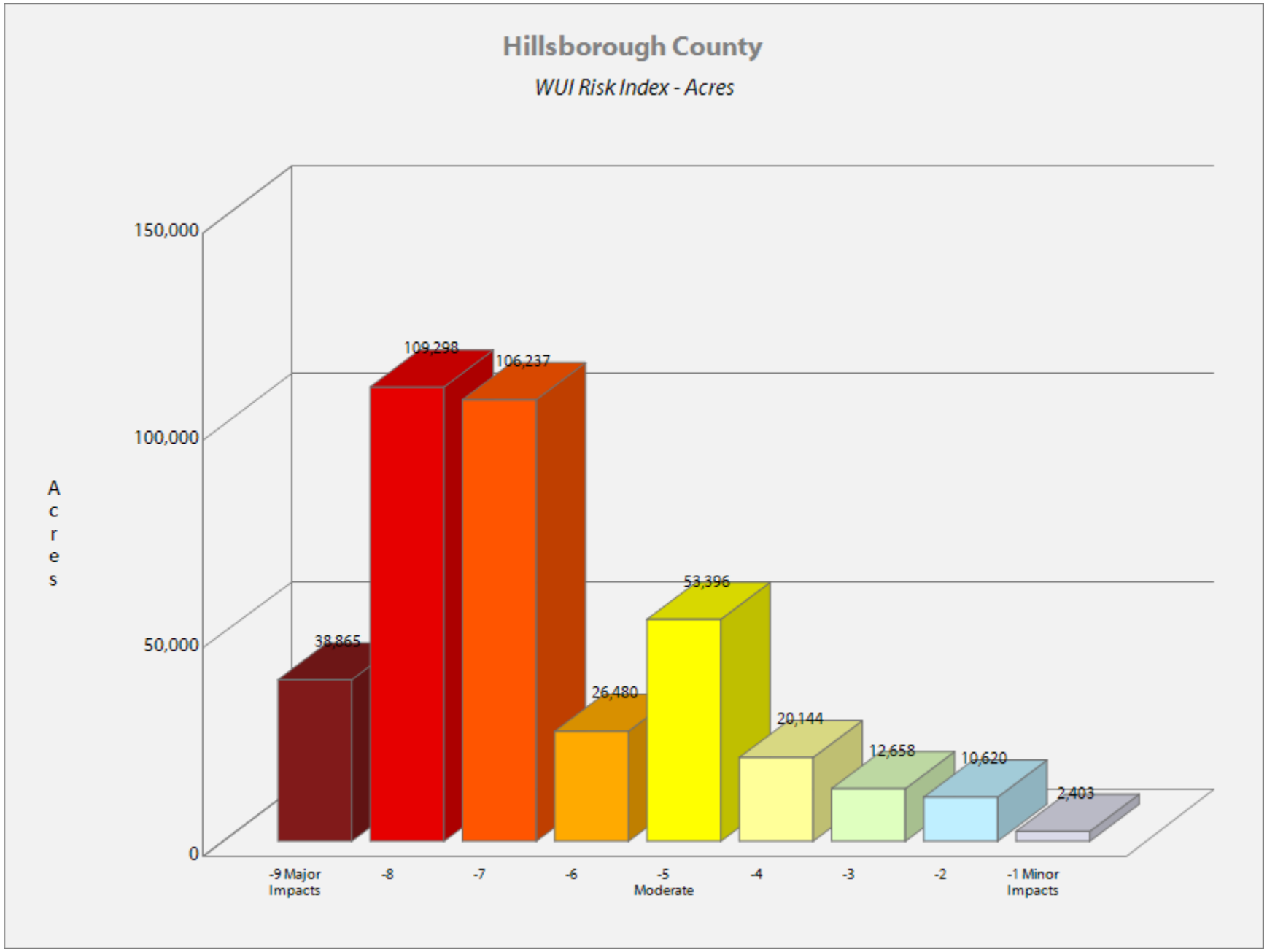
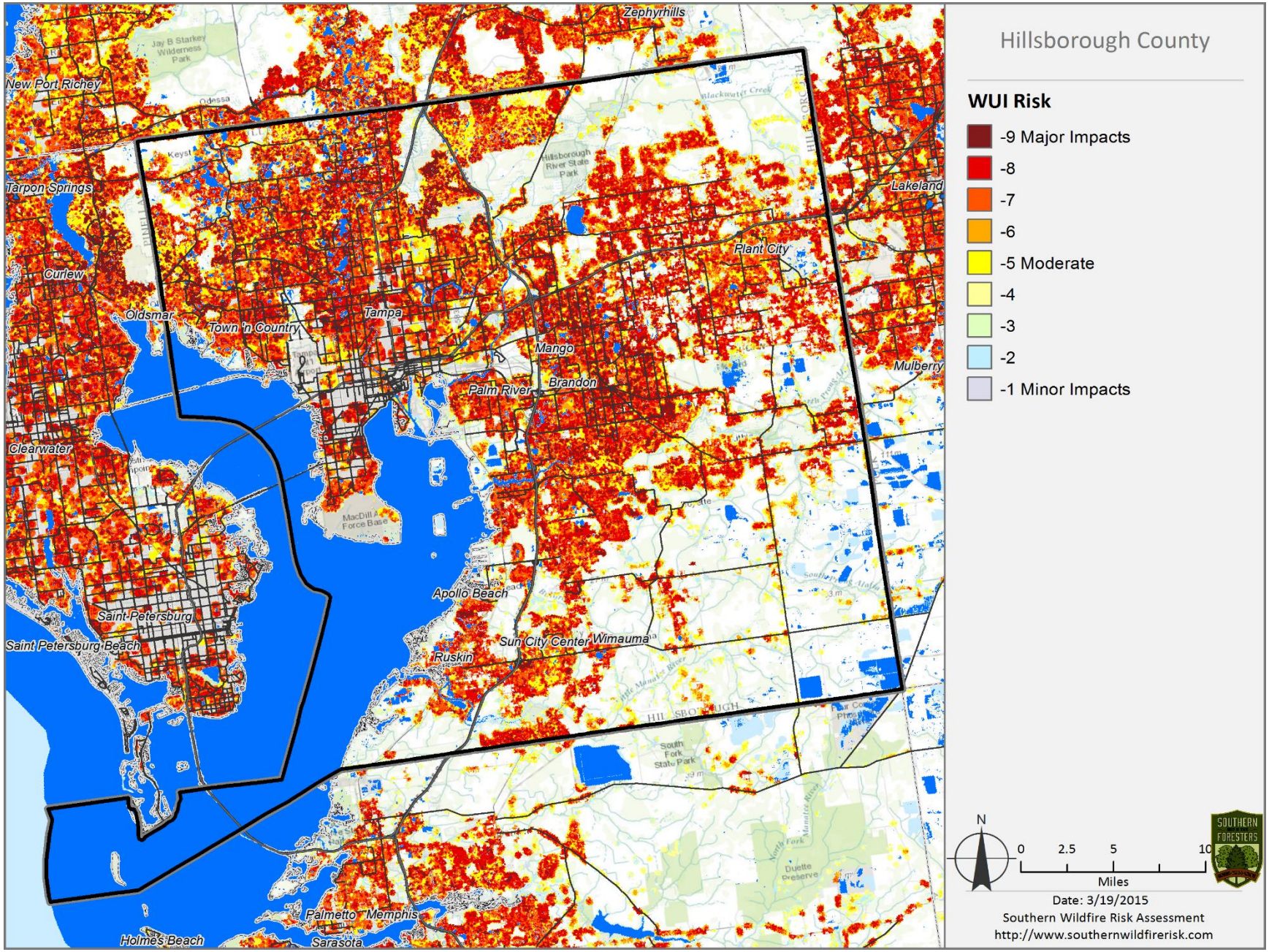

Hillsborough County
WUI Risk Index - Acres
Acres
150,000
100,000
50,000
0
38,865
109,298
106,237
26,480
53,396
20,144
12,658
10,620
2,403
-9 Major Impacts
-8
-7
-6
-5 Moderate
-4
-3
-2
-1 Minor Impacts


Hillsborough County
WUI Risk
-9 Major Impacts
-8
-7
-6
-5 Moderate
-4
-3
-2
-1 Minor Impacts
N
0
2.5
5
10
Miles
Date: 3/19/2015
Southern Wildfire Risk Assessment
http://www.southernwildfirerisk.com
Zephyrhills
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Tarpon Springs
Curlew
Oldsmar
Town 'n Country
Tampa
Mango
Palm River
Brandon
Plant City
Lakeland
Mulberry
Clearwater
Saint Petersburg
Saint Petersburg Beach
Apollo Beach
Ruskin
Sun City Center
Wimauma
Palmetto
Memphis
Holmes Beach
Sarasota

5. Community Protection Zones

Description

Community Protection Zones (CPZ) represent those areas considered highest priority for mitigation planning activities. CPZs are based on an analysis of the Where People Live housing density data and surrounding fire behavior potential. Rate of Spread data is used to determine the areas of concern around populated areas that are within a 2-hour fire spread distance. This is referred to as the Secondary CPZ.

General consensus among fire planners is that for fuel mitigation treatments to be effective in reducing wildfire hazard, they must be conducted within a close distance of a community. In the South, the WUI housing density has been used to reflect populated areas in place of community boundaries (Primary CPZ). This ensures that CPZs reflect where people are living in the wildland, not jurisdictional boundaries.

Secondary CPZs represent a variable width buffer around populated areas that are within a 2-hour fire spread distance. Accordingly, CPZs will extend farther in areas where rates of spread are greater and less in areas where minimal rate of spread potential exists. Secondary CPZ boundaries inherently incorporate fire behavior conditions.

Primary CPZs reflect areas with a predefined housing density, such as greater than 1 house per 20 acres. Secondary CPZs are the areas around Primary CPZs within a 2 hour fire spread distance.

All areas in the South have the CPZs calculated consistently, which allows for comparison and ordination of areas across the entire region. Data is modeled at a 30-meter cell resolution, which is consistent with other SWRA layers.

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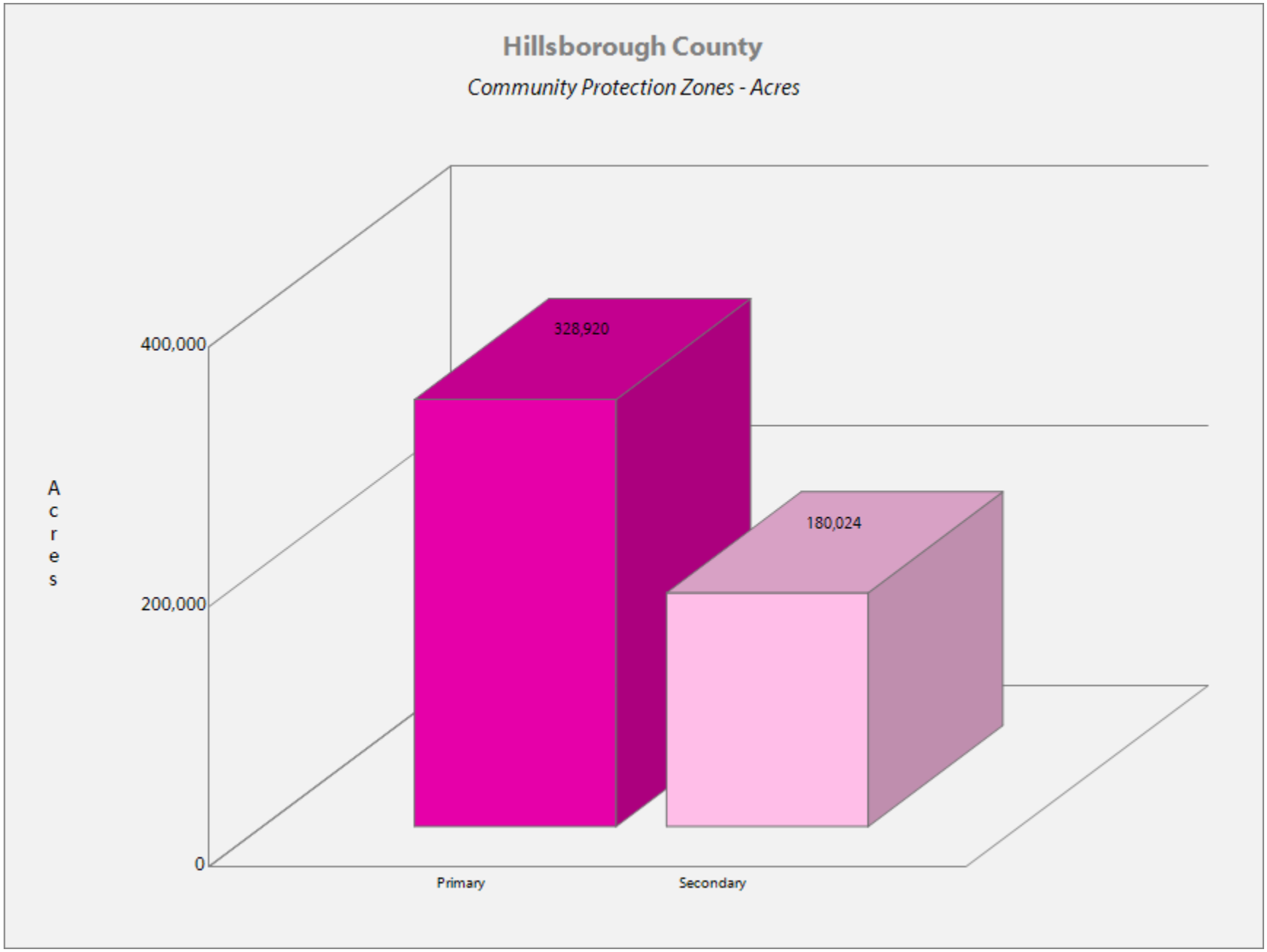
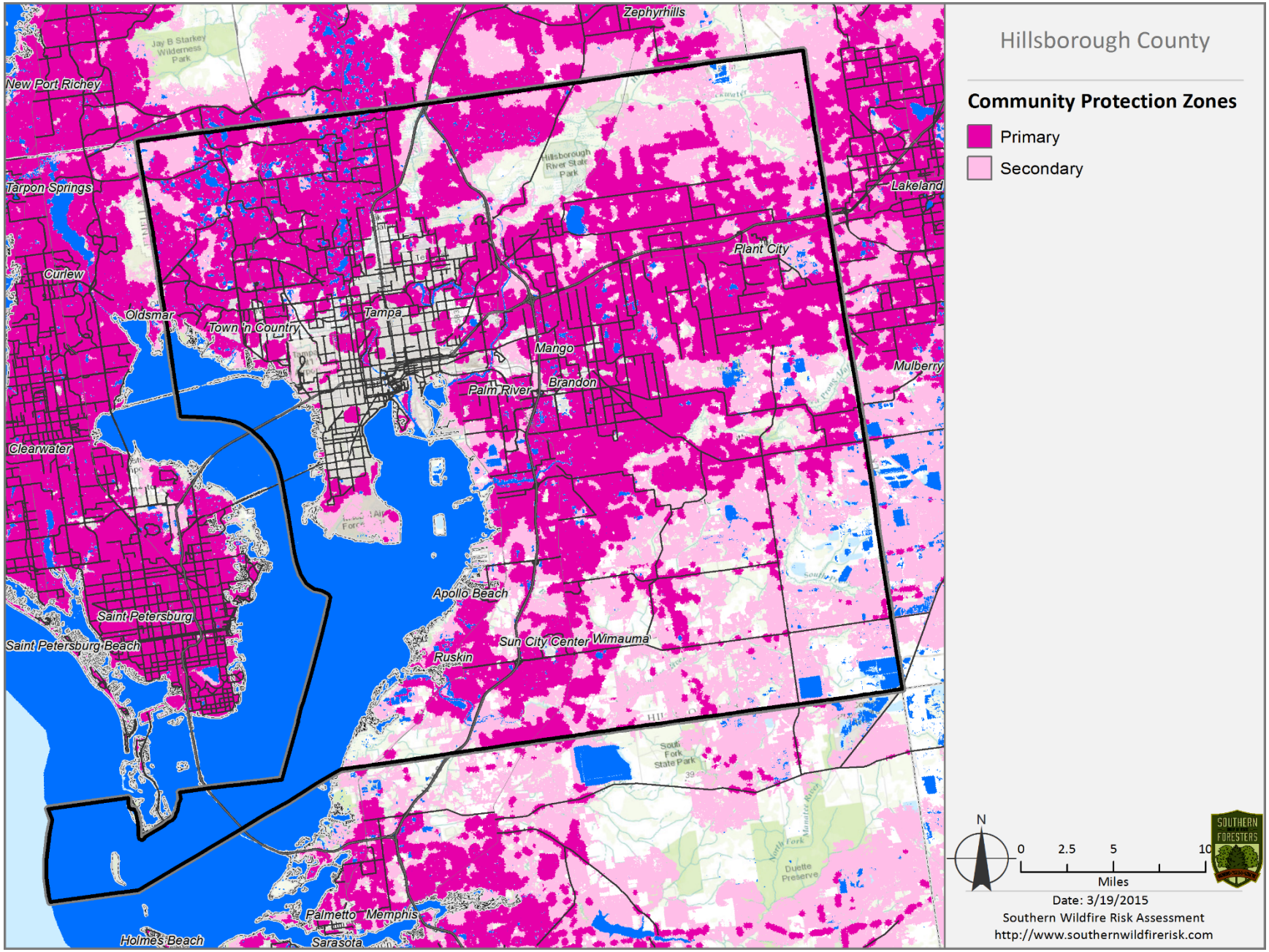
Community Protection Zones - Acres

Class	Acres	Percent
Primary	328,920	64.6%
Secondary	180,024	35.4%
Total	**508,944**	**100.0%**


Hillsborough County
Community Protection Zones - Acres
Acres
400,000
200,000
0
328,920
180,024
Primary
Secondary


Hillsborough County
Community Protection Zones
Primary
Secondary
Zephyrhills
New Port Richey
Tarpon Springs
Lakeland
Plant City
Curlew
Oldsmar
Town 'n Country
Tampa
Mango
Mulberry
Palm River
Brandon
Clearwater
Apollo Beach
Saint Petersburg
Saint Petersburg Beach
Sun City Center
Wimauma
Ruskin
Palmetto
Memphis
Holmes Beach
Sarasota
N
0
2.5
5
10
Miles
Date: 3/19/2015
Southern Wildfire Risk Assessment
http://www.southernwildfirerisk.com

6. Burn Probability

Description

The Burn Probability (BP) layer depicts the probability of an area burning given current landscape conditions, percentile weather, historical ignition patterns and historical fire prevention and suppression efforts.

Describe in more detail, it is the tendency of any given pixel to burn, given the static landscape conditions depicted by the LANDFIRE Refresh 2008 dataset (as resampled by FPA), contemporary weather and ignition patterns, as well as contemporary fire management policies (entailing considerable fire prevention and suppression efforts).

The BP data does not, and is not intended to, depict fire-return intervals of any vintage, nor do they indicate likely fire footprints or routes of travel. Nothing about the expected shape or size of any actual fire incident can be interpreted from the burn probabilities. Instead, the BP data, in conjunction with the Fire Program Analysts FIL layers, are intended to support an actuarial approach to quantitative wildfire risk analysis (e.g., see Thompson et al. 2011).

Values in the Burn Probability (BP) data layer indicate, for each pixel, the number of times that cell was burned by an FSim-modeled fire, divided by the total number of annual weather scenarios simulated. Burn probability raster data was generated using the large fire simulator - FSim - developed for use in the Fire Program Analysis (FPA) project. FSim uses historical weather data and current landcover data for discrete geographical areas (Fire Planning Units - FPUs) and simulates fires in these FPUs. Using these simulated fires, an overall burn probability and marginal burn probabilities at four fire intensities (flame lengths) are returned by FSim for each 270m pixel in the FPU.

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The fire growth simulations, when run repeatedly with different ignition locations and weather streams, generate burn probabilities and fire behavior distributions at each landscape location (i.e., cell or pixel). Results are objectively evaluated through comparison with historical fire patterns and statistics, including the mean annual burn probability and fire size distribution, for each FPU. This evaluation is part of the FSim calibration process for each FPU, whereby simulation inputs are adjusted until the slopes of the historical and modeled fire size distributions are similar and the modeled average burn probability falls within an acceptable range of the historical reference value (i.e., the 95% confidence interval for the mean).

Please refer to the metadata available for this dataset for a detailed description of the data processing methods, assumptions and references that pertain to the development of this data. This information is available from the USFS Missoula Fire Sciences Laboratory.

Please refer to the web site link in the report References to obtain more detailed descriptions of FPA and the related data products such as Burn Probability.

Burn Probability replaces the Wildland Fire Susceptibility Index (WFSI) layer developed in the original SWRA project completed in 2005.

Burn Probability - Acres

Class	Acres	Percent
1	22,642	4.6%
2	29,837	6.1%
3	33,746	6.9%
4	27,449	5.6%
5	119,101	24.4%
6	114,112	23.4%
7	103,265	21.2%
8	37,819	7.8%
9	0	0.0%
10	0	0.0%
Total	**487,972**	**100.0%**

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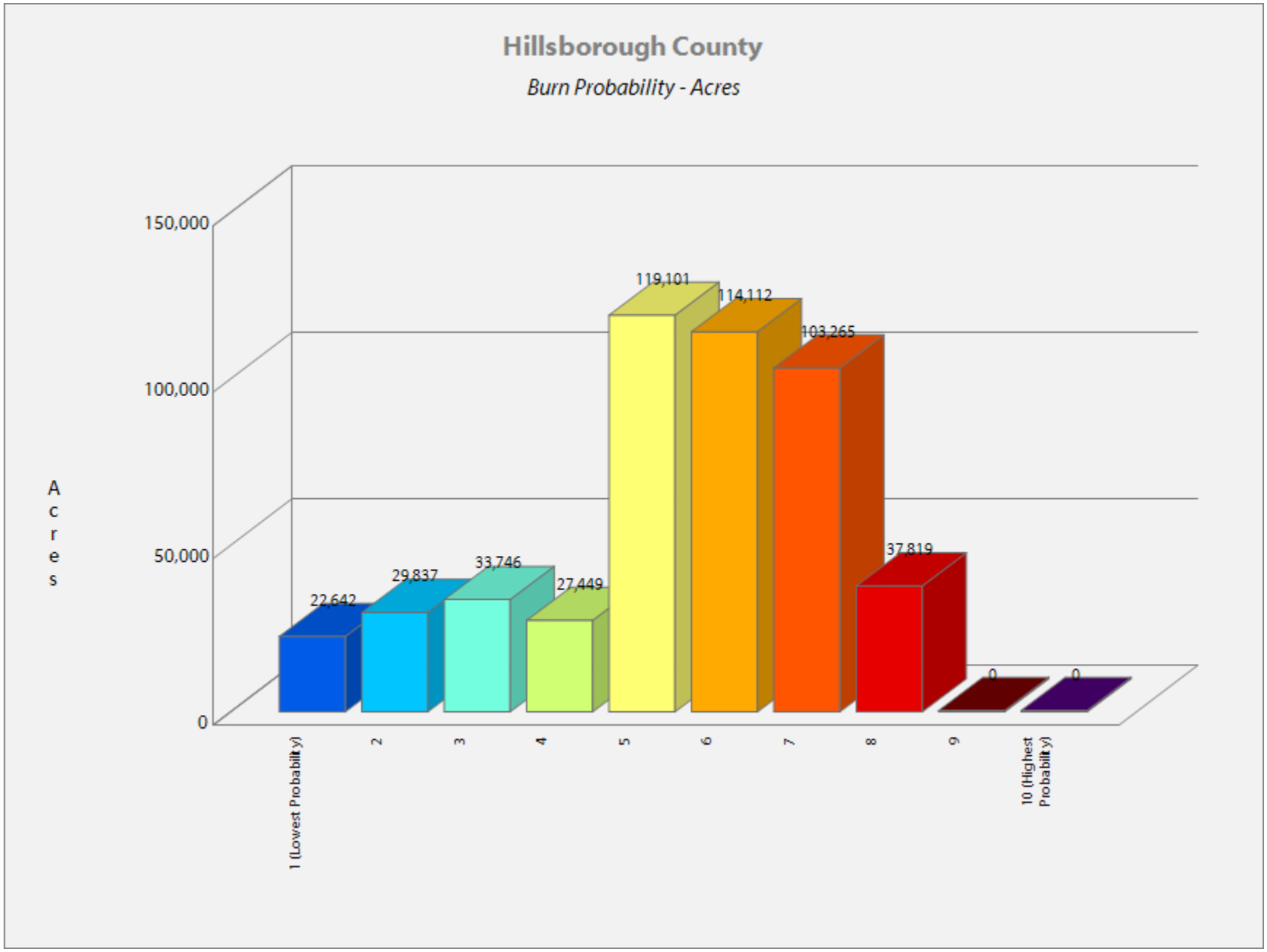
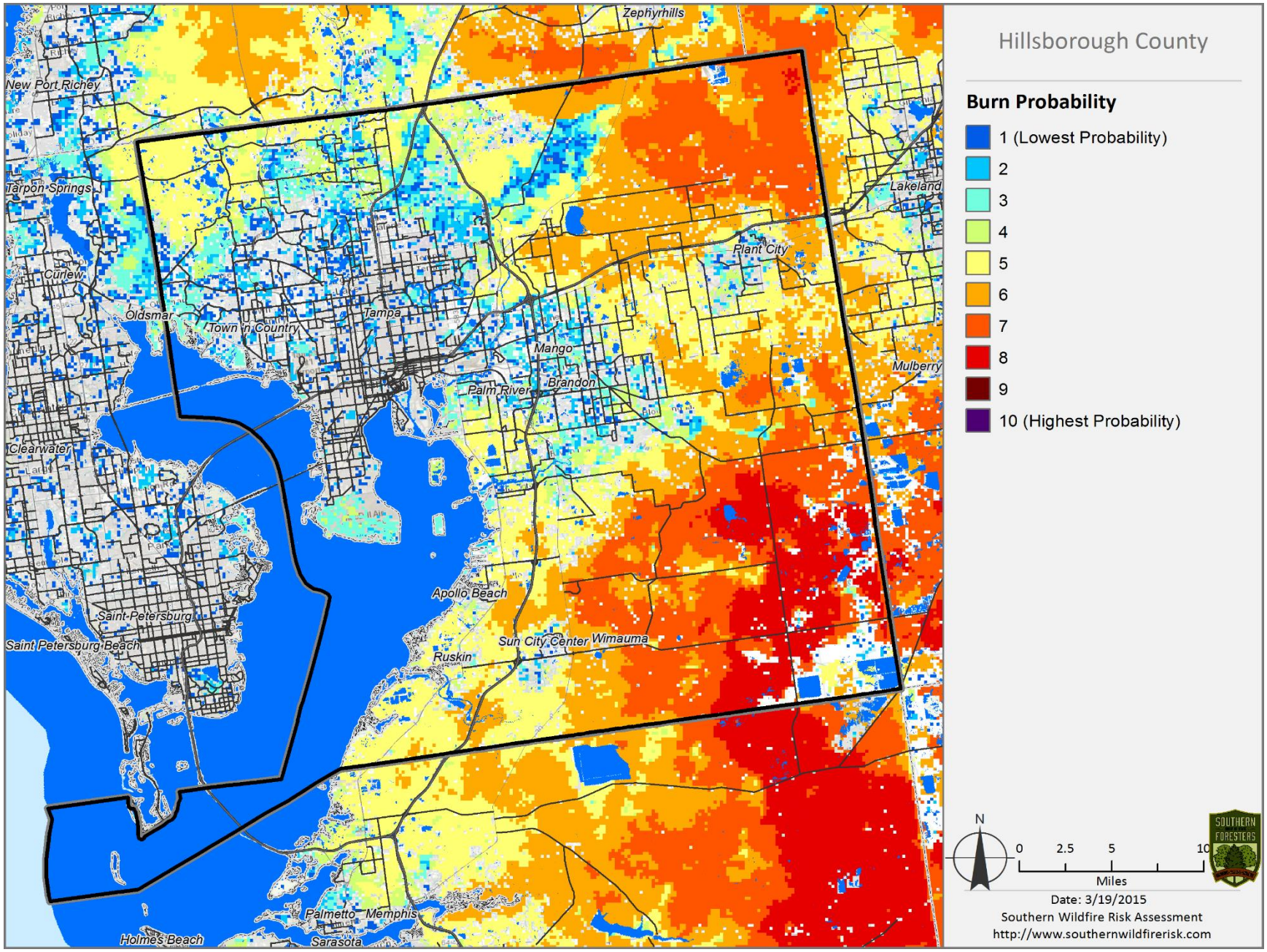

Hillsborough County
Burn Probability - Acres
Acres
150,000
100,000
50,000
0
22,642
29,837
33,746
27,449
119,101
114,112
103,265
37,819
0
0
1 (Lowest Probability)
2
3
4
5
6
7
8
9
10 (Highest Probability)


Hillsborough County
Burn Probability
1 (Lowest Probability)
2
3
4
5
6
7
8
9
10 (Highest Probability)
N
0
2.5
5
10
Miles
Date: 3/19/2015
Southern Wildfire Risk Assessment
http://www.southernwildfirerisk.com
Zephyrhills
New Port Richey
Tarpon Springs
Lakeland
Plant City
Curlew
Oldsmar
Town 'n Country
Tampa
Mango
Mulberry
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Brandon
Clearwater
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Saint Petersburg
Saint Petersburg Beach
Sun City Center
Wimauma
Ruskin
Palmetto
Memphis
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Sarasota

7. Wildfire Behavior Outputs

Description

Fire behavior is the manner in which a fire reacts to the following environmental influences:

1. **Fuels**
2. **Weather**
3. **Topography**

Fire behavior characteristics are attributes of wildland fire that pertain to its spread, intensity, and growth. Fire behavior characteristics utilized in the Southern Wildfire Risk Assessment (SWRA) include fire type, rate of spread, flame length and fire intensity scale. These metrics are used to determine the potential fire behavior under different weather scenarios. Areas that exhibit moderate to high fire behavior potential can be identified for mitigation treatments, especially if these areas are in close proximity to homes, business, or other assets.

Fuels

The SWRA includes composition and characteristics for both surface fuels and canopy fuels. Significant increases in fire behavior will be captured if the fire has the potential to transition from a surface fire to a canopy fire.

Fuel datasets required to compute both surface and canopy fire potential include:

- **Surface Fuels**, generally referred to as fire behavior fuel models, provide the input parameters needed to compute surface fire behavior.
- **Canopy Cover** is the horizontal percentage of the ground surface that is covered by tree crowns. It is used to compute wind reduction factors and shading.
- **Canopy Ceiling Height/Stand Height** is the height above the ground of the highest canopy layer where the density of the crown mass within the layer is high enough to support vertical movement of a fire. A good estimate of canopy ceiling height would be the average height of the dominant and co-dominant trees in a stand. It is used for computing wind reduction to midflame height and spotting distances from torching trees (Fire Program Solutions, L.L.C, 2005).
- **Canopy Base Height** is the lowest height above the ground above which there is sufficient canopy fuel to propagate fire vertically (Scott & Reinhardt, 2001). Canopy base height is a property of a plot, stand, or group of trees, not of an individual tree. For fire modeling, canopy base height is an effective value that incorporates ladder fuel, such as tall shrubs and small trees. Canopy base height is used to determine if a surface fire will transition to a canopy fire.
- **Canopy Bulk Density** is the mass of available canopy fuel per unit canopy volume (Scott & Reinhardt, 2001). Canopy bulk density is a bulk property of a stand, plot, or group of trees, not of an individual tree. Canopy bulk density is used to predict whether an active crown fire is possible.

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Weather

Environmental weather parameters needed to compute fire behavior characteristics include 1-hour, 10-hour, and 100-hour timelag fuel moistures, herbaceous fuel moisture, woody fuel moisture, and the 20-foot 10 minute average wind speed. To collect this information, weather influence zones were established across the region. A weather influence zone is an area where for analysis purposes the weather on any given day is considered uniform. Within each weather influence zone, historical daily weather is gathered to compile a weather dataset from which four percentile weather categories are created. The percentile weather categories are intended to represent low, moderate, high, and extreme fire weather days. Fire behavior outputs are computed for each percentile weather category to determine fire potential under different weather scenarios.

The four percentile weather categories include:

- Low Weather Percentile (0 – 15%)
- Moderate Weather Percentile (16 – 90%)
- High Weather Percentile (91 – 97%)
- Extreme Weather Percentile (98 – 100%)

Topography

Topography datasets required to compute fire behavior characteristics are elevation, slope and aspect.

FIRE BEHAVIOR CHARACTERISTICS

Fire behavior characteristics provided in this report include:

- **Characteristic Rate of Spread**
- **Characteristic Flame Length**
- **Characteristic Fire Intensity Scale**
- **Fire Type - Extreme**

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Characteristic Rate of Spread

Characteristic Rate of Spread is the typical or representative rate of spread of a potential fire based on a weighted average of four percentile weather categories. Rate of spread is the speed with which a fire moves in a horizontal direction across the landscape, usually expressed in chains per hour (ch/hr) or feet per minute (ft/min). For purposes of the Southern Wildfire Risk Assessment, this measurement represents the maximum rate of spread of the fire front. Rate of Spread is the metric used to derive the Community Protection Zones.

Rate of spread is a fire behavior output, which is influenced by three environmental factors - fuels, weather, and topography. Weather is by far the most dynamic variable as it changes frequently. To account for this variability, four percentile weather categories were created from historical weather observations to represent low, moderate, high, and extreme weather days for each weather influence zone in the South. A weather influence zone is an area where, for analysis purposes, the weather on any given day is considered uniform.

For all Southern states, except Florida and Texas, this dataset was derived from updated fuels and canopy data as part of the 2010 SWRA Update Project recently completed in May 2014. For Texas, the 2010 Texas risk update data is portrayed. For Florida, the 2010 Florida risk assessment update data is shown.

Characteristic Rate of Spread – Acres

Rate of Spread	Acres	Percent
Non-Burnable	389,532	48.1%
0 - 5 (ch/hr)	37,138	4.6%
5 - 10 (ch/hr)	26,751	3.3%
10 – 15 (ch/hr)	25,403	3.1%
15 - 20 (ch/hr)	23,553	2.9%
20 - 30 (ch/hr)	41,352	5.1%
30 - 50 (ch/hr)	66,865	8.3%
50 - 150 (ch/hr)	196,081	24.2%
150 + (ch/hr)	3,712	0.5%
Total	**810,387**	**100.0%**

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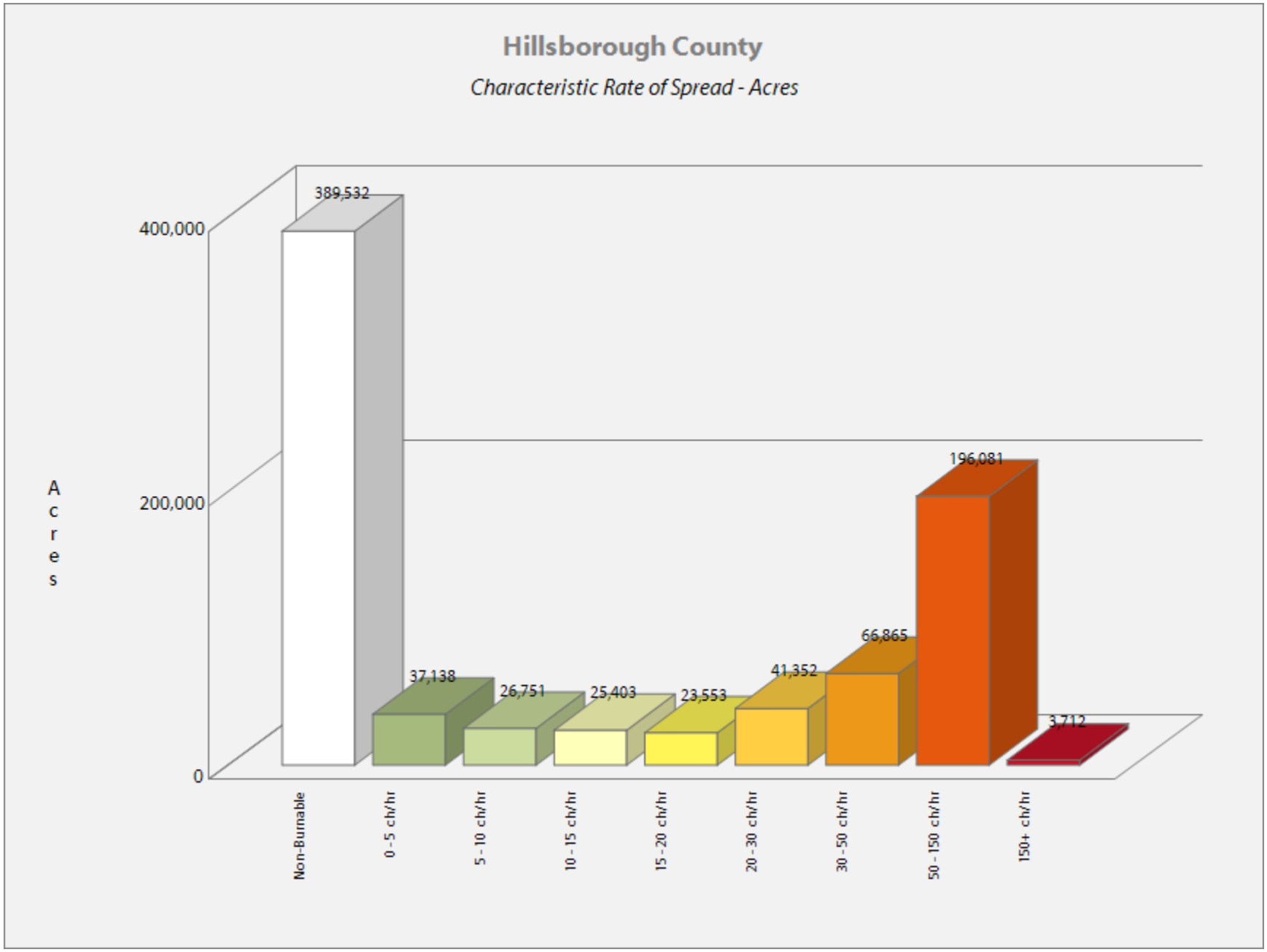
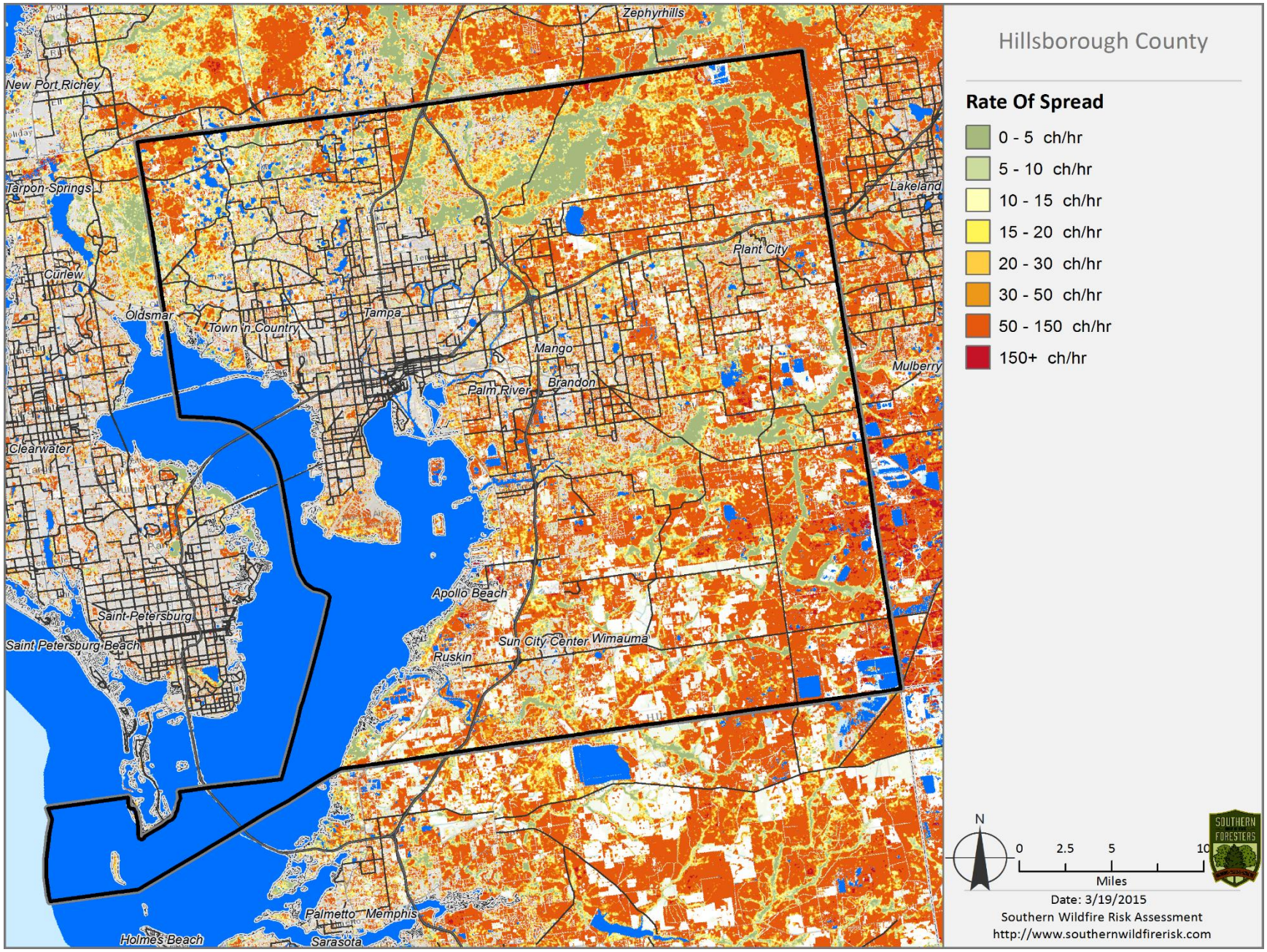

Hillsborough County
Characteristic Rate of Spread - Acres
Acres
400,000
200,000
0
389,532
37,138
26,751
25,403
23,553
41,352
66,865
196,081
3,712
Non-Burnable
0 - 5 ch/hr
5 - 10 ch/hr
10 - 15 ch/hr
15 - 20 ch/hr
20 - 30 ch/hr
30 - 50 ch/hr
50 - 150 ch/hr
150+ ch/hr


Hillsborough County
Rate Of Spread
0 - 5 ch/hr
5 - 10 ch/hr
10 - 15 ch/hr
15 - 20 ch/hr
20 - 30 ch/hr
30 - 50 ch/hr
50 - 150 ch/hr
150+ ch/hr
Zephyrhills
New Port Richey
Tarpon Springs
Lakeland
Plant City
Curlew
Oldsmar
Town n Country
Tampa
Mango
Mulberry
Palm River
Brandon
Clearwater
Apollo Beach
Saint Petersburg
Saint Petersburg Beach
Sun City Center
Wimauma
Ruskin
Palmetto
Memphis
Holmes Beach
Sarasota
N
0
2.5
5
10
Miles
Date: 3/19/2015
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SOUTHERN FORESTERS

Characteristic Flame Length

Characteristic Flame Length is the typical or representative flame length of a potential fire based on a weighted average of four percentile weather categories. Flame Length is defined as the distance between the flame tip and the midpoint of the flame depth at the base of the flame, which is generally the ground surface. It is an indicator of fire intensity and is often used to estimate how much heat the fire is generating. Flame length is typically measured in feet (ft). Flame length is the measure of fire intensity used to generate the response index outputs for the SWRA.

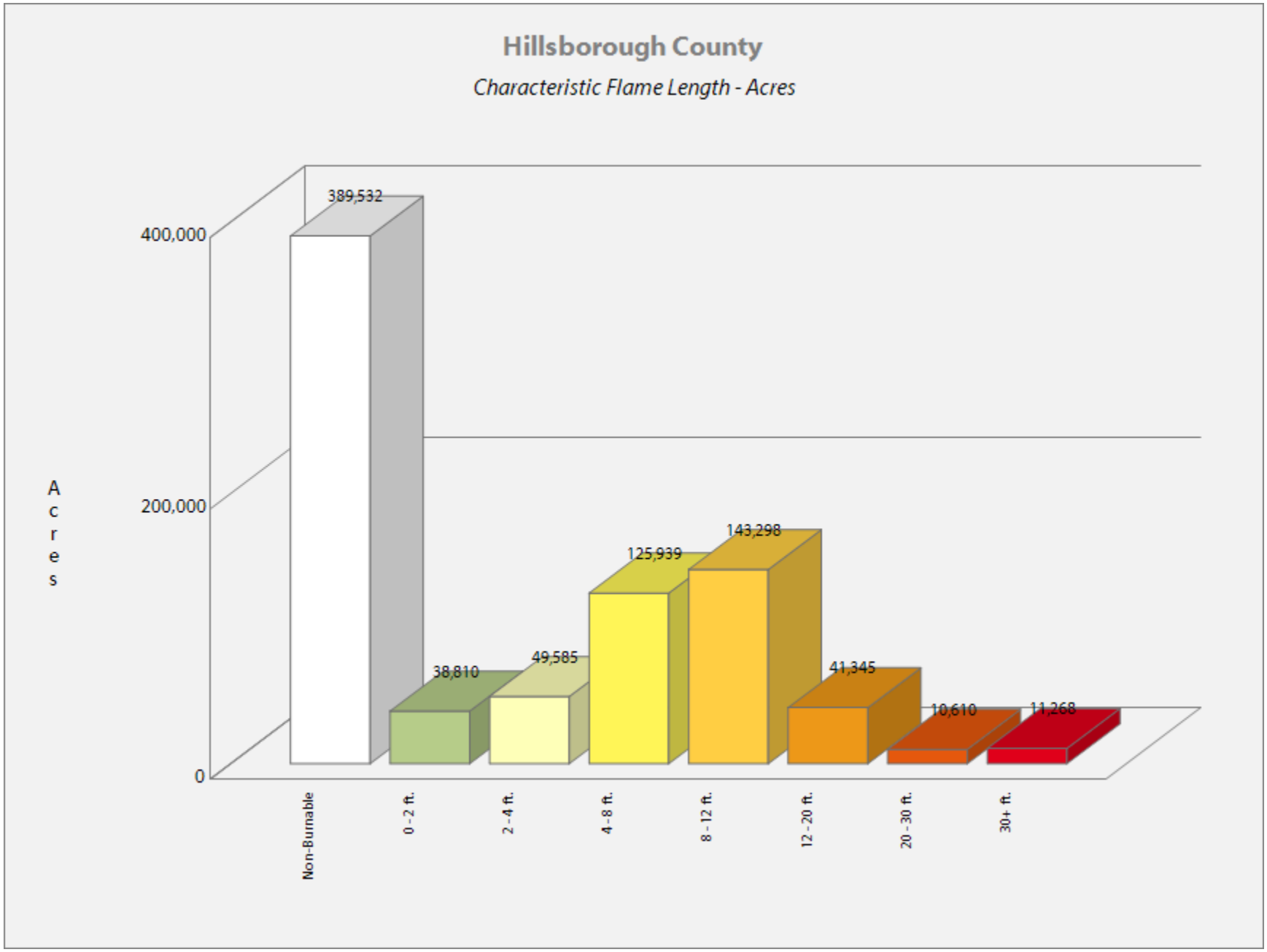
Flame length is a fire behavior output, which is influenced by three environmental factors - fuels, weather, and topography. Weather is by far the most dynamic variable as it changes frequently. To account for this variability, four percentile weather categories were created from historical weather observations to represent low, moderate, high, and extreme weather days for each weather influence zone in the South. A weather influence zone is an area where, for analysis purposes, the weather on any given day is considered uniform.

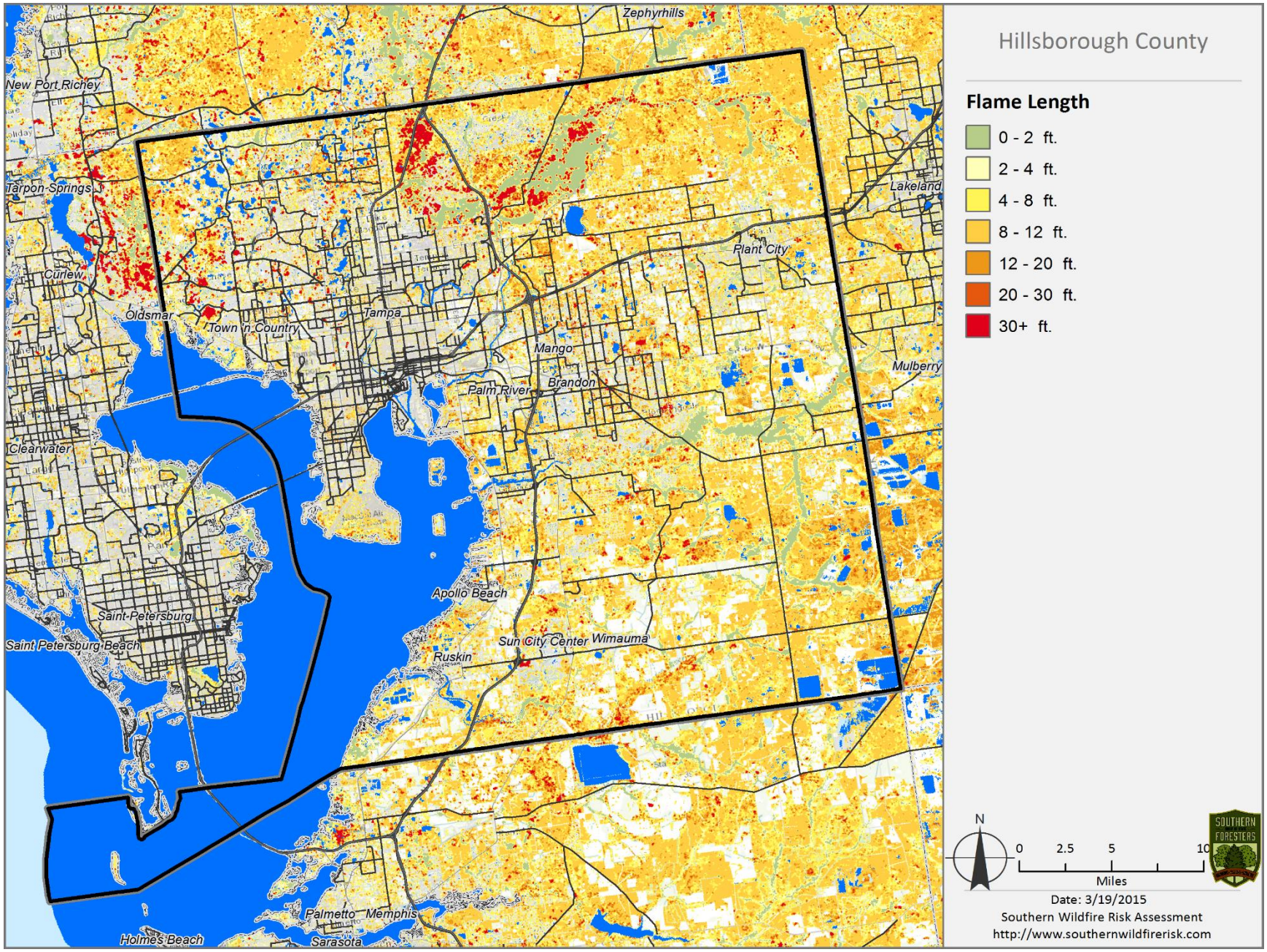
For all Southern states, except Florida and Texas, this dataset was derived from updated fuels and canopy data as part of the 2010 SWRA Update Project recently completed in May 2014. For Texas, the 2010 Texas risk update data is portrayed. For Florida, the 2010 Florida risk assessment update data is shown.

DRAFT

Characteristic Flame Length – Acres

Flame Length	Acres	Percent
Non-Burnable	389,532	48.1%
0 - 2 ft	38,810	4.8%
2 - 4 ft	49,585	6.1%
4 - 8 ft	125,939	15.5%
8 - 12 ft	143,298	17.7%
12 - 20 ft	41,345	5.1%
20 - 30 ft	10,610	1.3%
30 + ft	11,268	1.4%
Total	**810,387**	**100.0%**


Hillsborough County
Characteristic Flame Length - Acres
Acres
400,000
200,000
0
389,532
38,810
49,585
125,939
143,298
41,345
10,610
11,268
Non-Burnable
0 - 2 ft.
2 - 4 ft.
4 - 8 ft.
8 - 12 ft.
12 - 20 ft.
20 - 30 ft.
30+ ft.


Hillsborough County
Flame Length
0 - 2 ft.
2 - 4 ft.
4 - 8 ft.
8 - 12 ft.
12 - 20 ft.
20 - 30 ft.
30+ ft.
N
0
2.5
5
10
Miles
Date: 3/19/2015
Southern Wildfire Risk Assessment
http://www.southernwildfirerisk.com
Zephyrhills
New Port Richey
Tarpon Springs
Lakeland
Plant City
Curlew
Oldsmar
Town n Country
Tampa
Mango
Mulberry
Palm River
Brandon
Clearwater
Apollo Beach
Saint Petersburg
Saint Petersburg Beach
Sun City Center
Wimauma
Ruskin
Palmetto
Memphis
Holmes Beach
Sarasota

Characteristic Fire Intensity Scale

Description

Characteristic Fire Intensity Scale (FIS) specifically identifies areas where significant fuel hazards and associated dangerous fire behavior potential exist based on a weighted average of four percentile weather categories. Similar to the Richter scale for earthquakes, FIS provides a standard scale to measure potential wildfire intensity. FIS consist of 5 classes where the order of magnitude between classes is ten-fold. The minimum class, Class 1, represents very low wildfire intensities and the maximum class, Class 5, represents very high wildfire intensities. Refer to descriptions below.

1. **Class 1, Very Low:**
   Very small, discontinuous flames, usually less than 1 foot in length; very low rate of spread; no spotting. Fires are typically easy to suppress by firefighters with basic training and non-specialized equipment.
2. **Class 2, Low:**
   Small flames, usually less than two feet long; small amount of very short range spotting possible. Fires are easy to suppress by trained firefighters with protective equipment and specialized tools.
3. **Class 3, Moderate:**
   Flames up to 8 feet in length; short-range spotting is possible. Trained firefighters will find these fires difficult to suppress without support from aircraft or engines, but dozer and plows are generally effective. Increasing potential for harm or damage to life and property.
4. **Class 4, High:**
   Large Flames, up to 30 feet in length; short-range spotting common; medium range spotting possible. Direct attack by trained firefighters, engines, and dozers is generally ineffective, indirect attack may be effective. Significant potential for harm or damage to life and property.
5. **Class 5, Very High:**
   Very large flames up to 150 feet in length; profuse short-range spotting, frequent long-range spotting; strong fire-induced winds. Indirect attack marginally effective at the head of the fire. Great potential for harm or damage to life and property.

For all Southern states, except Texas, this dataset was derived from updated fuels and canopy data as part of the 2010 SWRA Update Project recently completed in May 2014. For Texas, the 2010 Texas risk update data is portrayed.

To aid in viewing on the map, FIS is presented in 1/2 class increments. Please consult the SouthWRAP User Manual for a more detailed description of the FIS class descriptions.

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Since all areas in the South have fire intensity scale calculated consistently, it allows for comparison and ordination of areas across the entire region.

Fire intensity scale is a fire behavior output, which is influenced by three environmental factors - fuels, weather, and topography. Weather is by far the most dynamic variable as it changes frequently. To account for this variability, four percentile weather categories were created from historical weather observations to represent low, moderate, high, and extreme weather days for each weather influence zone in the South. A weather influence zone is an area where, for analysis purposes, the weather on any given day is considered uniform.

The fire intensity scale map is derived at a 30-meter resolution. This scale of data was chosen to be consistent with the accuracy of the primary surface fuels dataset used in the assessment. While not appropriate for site specific analysis, it is appropriate for regional, county or local planning efforts.

Class	Acres	Percent
Non-Burnable	343,214	42.4%
1 Lowest Intensity	66,129	8.2%
1.5	49,540	6.1%
2 Low	22,037	2.7%
2.5	20,687	2.6%
3 Moderate	57,960	7.2%
3.5	126,542	15.6%
4 High	78,936	9.7%
4.5	32,302	4.0%

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	5 Highest Intensity	13,058	1.6%
	Total	**810,406**	**100.0%**

Characteristic Fire Intensity Scale - Acres

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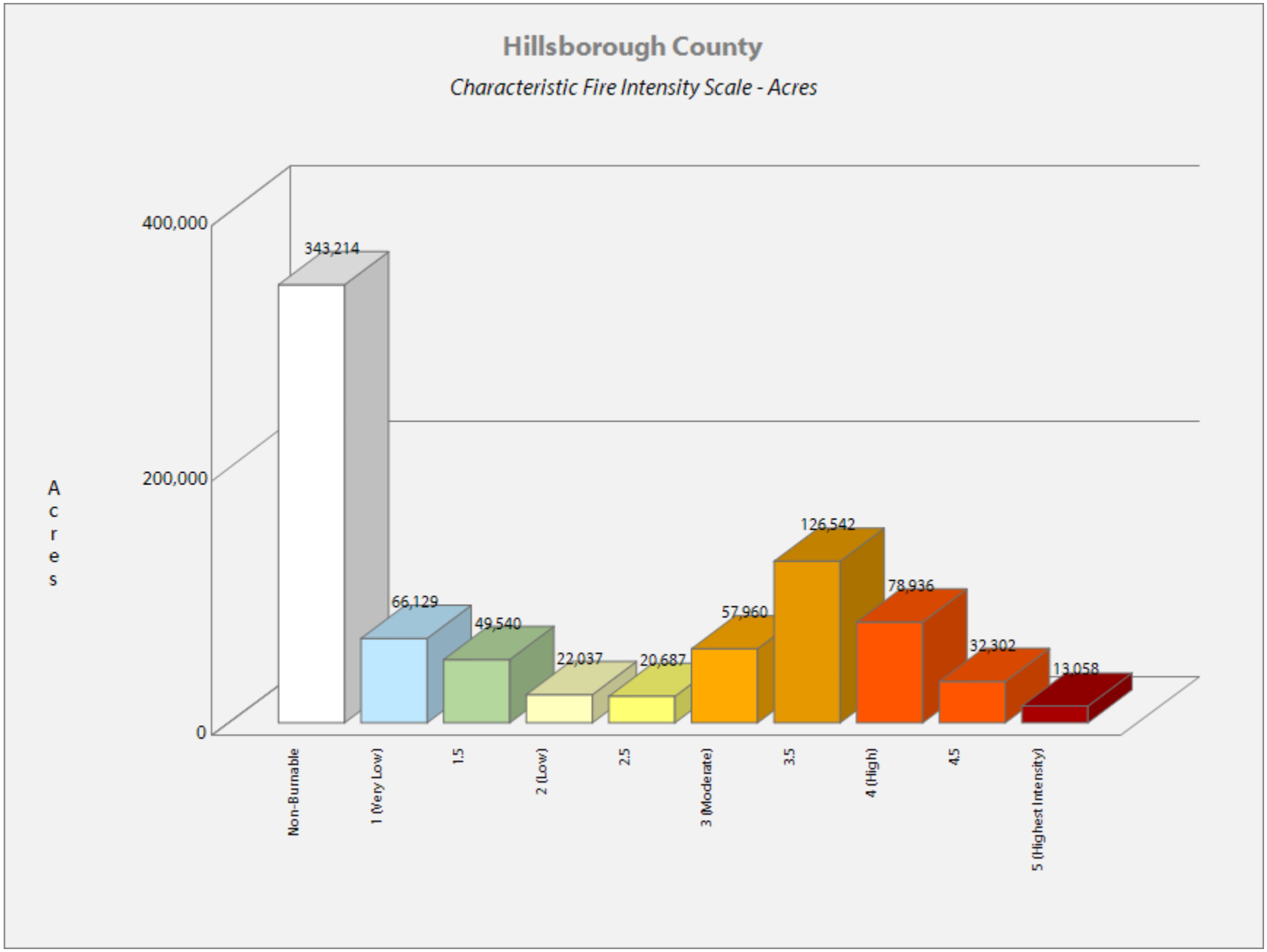
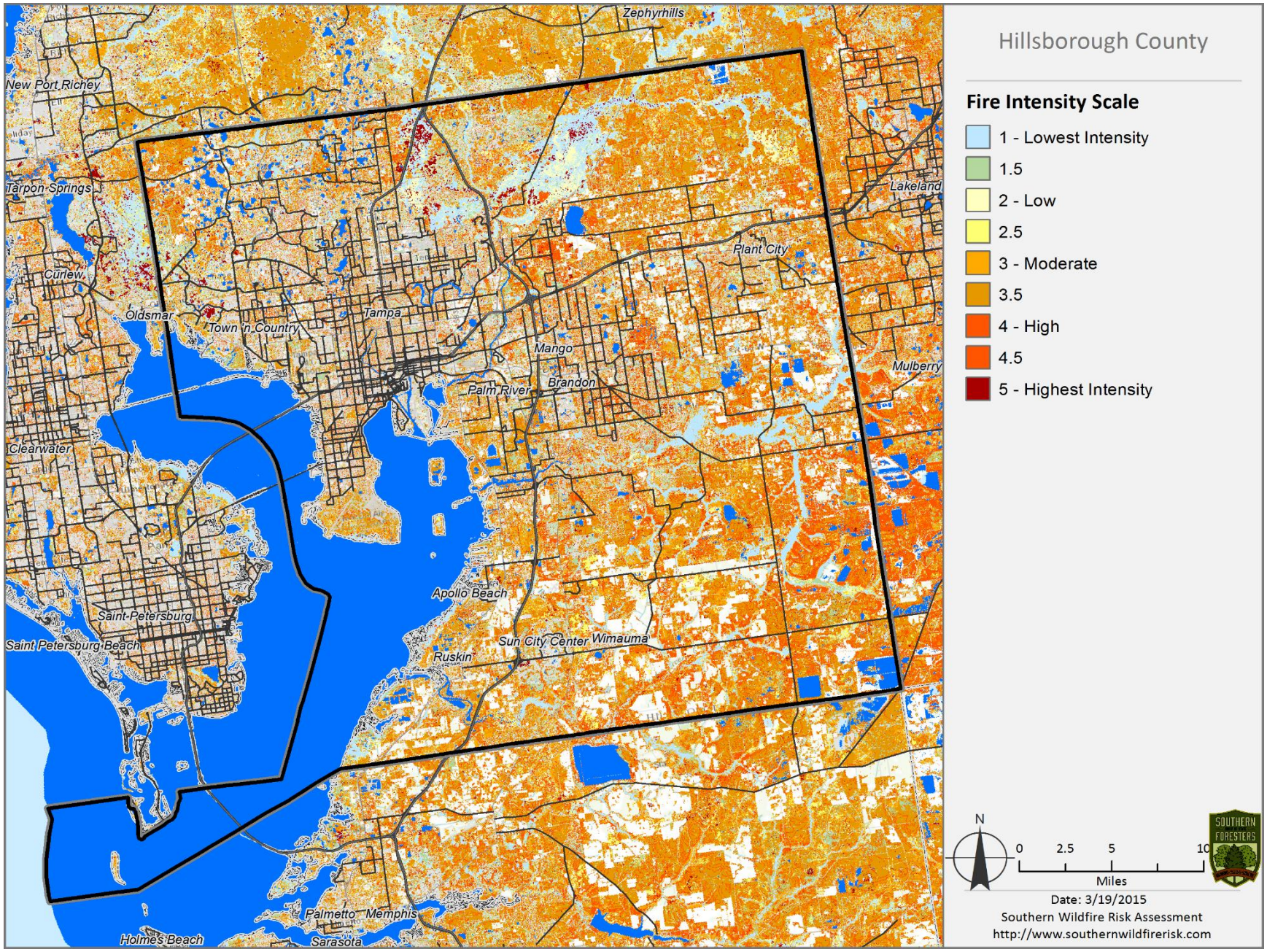

Hillsborough County
Characteristic Fire Intensity Scale - Acres
Acres
400,000
200,000
0
343,214
66,129
49,540
22,037
20,687
57,960
126,542
78,936
32,302
13,058
Non-Burnable
1 (Very Low)
1.5
2 (Low)
2.5
3 (Moderate)
3.5
4 (High)
4.5
5 (Highest Intensity)


Hillsborough County
Fire Intensity Scale
1 - Lowest Intensity
1.5
2 - Low
2.5
3 - Moderate
3.5
4 - High
4.5
5 - Highest Intensity
N
0
2.5
5
10
Miles
Date: 3/19/2015
Southern Wildfire Risk Assessment
http://www.southernwildfirerisk.com
Zephyrhills
New Port Richey
Tarpon Springs
Lakeland
Plant City
Curlew
Oldsmar
Town 'n Country
Tampa
Mango
Mulberry
Palm River
Brandon
Clearwater
Apollo Beach
Saint Petersburg
Saint Petersburg Beach
Sun City Center
Wimauma
Ruskin
Palmetto
Memphis
Holmes Beach
Sarasota

Fire Type - Extreme

There are two primary fire types – surface fire and canopy fire. Canopy fire can be further subdivided into passive canopy fire and active canopy fire. A short description of each of these is provided below.

Surface Fire
A fire that spreads through surface fuel without consuming any overlying canopy fuel. Surface fuels include grass, timber litter, shrub/brush, slash and other dead or live vegetation within about 6 feet of the ground.

Passive Canopy Fire
A type of crown fire in which the crowns of individual trees or small groups of trees burn, but solid flaming in the canopy cannot be maintained except for short periods (Scott & Reinhardt, 2001).

Active Canopy Fire
A crown fire in which the entire fuel complex (canopy) is involved in flame, but the crowning phase remains dependent on heat released from surface fuel for continued spread (Scott & Reinhardt, 2001).

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Fire Type – Extreme represents the potential fire type under the extreme percentile weather category. The extreme percentile weather category represents the average weather based on the top three percent fire weather days in the analysis period. It is not intended to represent a worst case scenario weather event. Accordingly, the potential fire type is based on fuel conditions, extreme percentile weather, and topography.

Canopy fires are very dangerous, destructive and difficult to control due to their increased fire intensity. From a planning perspective, it is important to identify where these conditions are likely to occur on the landscape so that special preparedness measure can be taken if necessary. The Fire Type – Extreme layer shows the footprint of where these areas are most likely to occur. However, it is important to note that canopy fires are not restricted to these areas. Under the right conditions, it can occur in other canopied areas.

For all Southern states, except Florida and Texas, this dataset was derived from updated fuels and canopy data as part of the 2010 SWRA Update Project recently completed in May 2014. For Texas, the 2010 Texas risk update data is portrayed. For Florida, the 2010 Florida risk assessment update data is shown.

The fire type - extreme map is derived at a 30-meter resolution. This scale of data was chosen to be consistent with the accuracy of the primary surface fuels dataset used in the assessment. While not appropriate for site specific analysis, it is appropriate for regional, county or local planning efforts.

	Fire Type	Acres	Percent
	Non-Burnable	343,214	42.4%
	Surface Fire	434,946	53.7%
	Passive Canopy	10,989	1.4%
	Active Canopy	21,257	2.6%
	Total	**810,406**	**100.0%**

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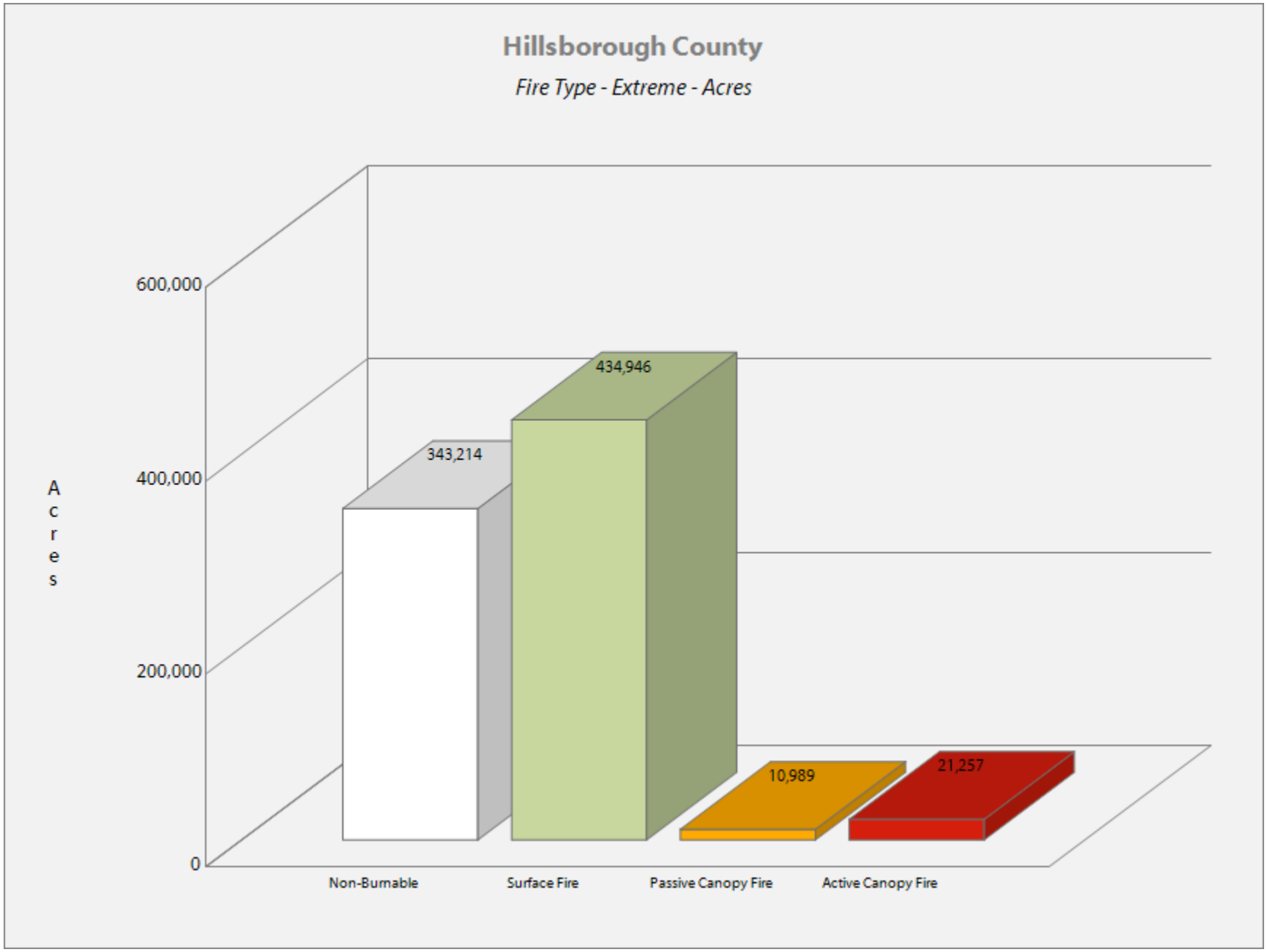
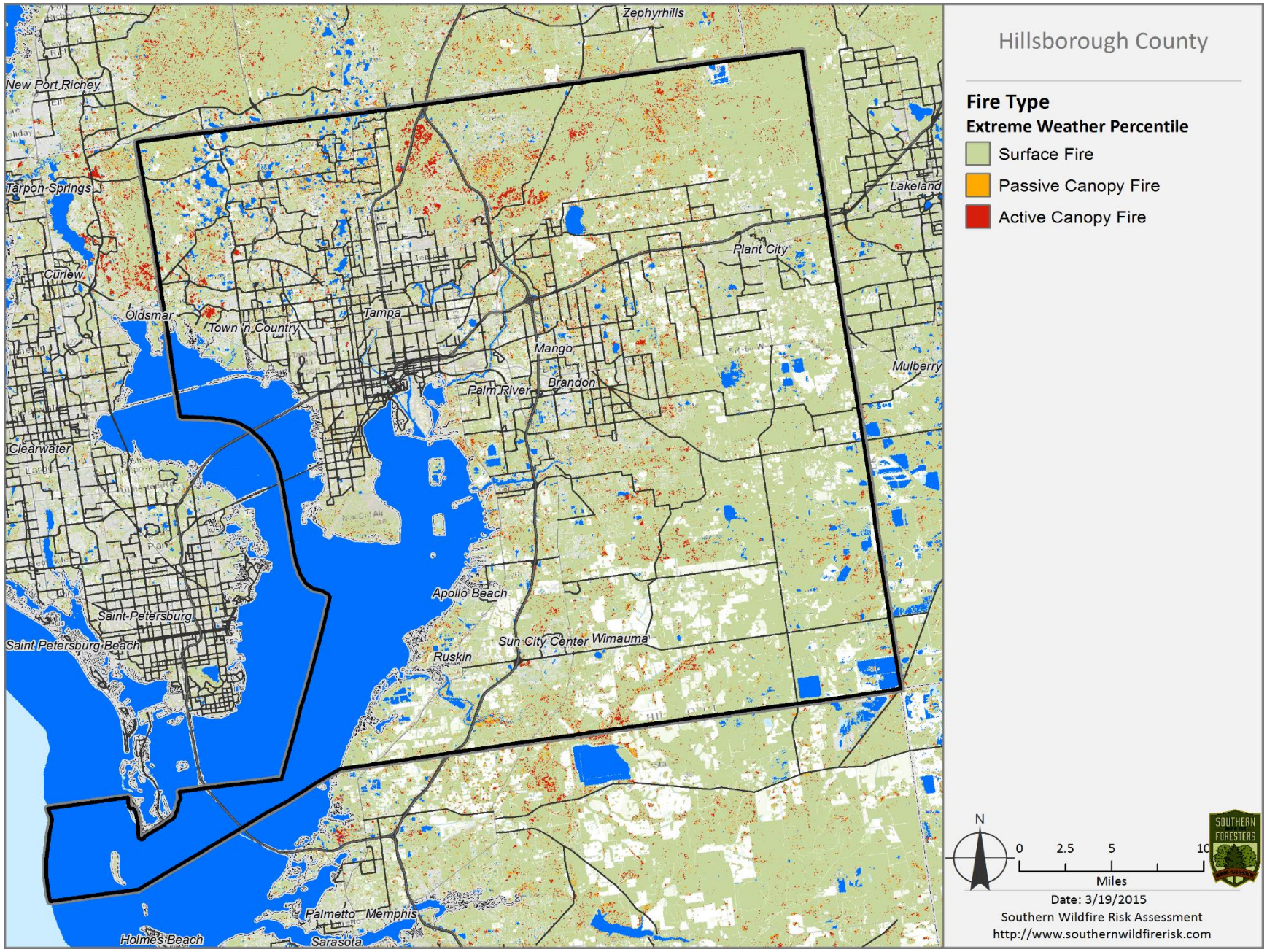

Hillsborough County
Fire Type - Extreme - Acres
Acres
600,000
400,000
200,000
0
343,214
434,946
10,989
21,257
Non-Burnable
Surface Fire
Passive Canopy Fire
Active Canopy Fire


Hillsborough County
Fire Type
Extreme Weather Percentile
Surface Fire
Passive Canopy Fire
Active Canopy Fire
Zephyrhills
New Port Richey
Tarpon Springs
Curlew
Oldsmar
Town n Country
Tampa
Lakeland
Plant City
Mango
Brandon
Palm River
Mulberry
Clearwater
Apollo Beach
Saint Petersburg
Saint Petersburg Beach
Ruskin
Sun City Center
Wimauma
Palmetto
Memphis
Holmes Beach
Sarasota
N
0
2.5
5
10
Miles
Date: 3/19/2015
Southern Wildfire Risk Assessment
http://www.southernwildfirerisk.com

8. Surface Fuels

Description

Surface fuels, or fire behavior fuel models as they are technically referred to, contain the parameters needed by the Rothermel (1972) surface fire spread model to compute surface fire behavior characteristics, such as rate of spread, flame length, fireline intensity, and other fire behavior metrics. As the name might suggest, surface fuels only account for the surface fire potential. Canopy fire potential is computed through a separate but linked process. The Southern Wildfire Risk Assessment accounts for both surface and canopy fire potential in the fire behavior outputs.

Surface fuels are typically categorized into one of four primary fuel types based on the primary carrier of the surface fire: 1) grass, 2) shrub/brush, 3) timber litter and 4) slash. There are two standard fire behavior fuel model sets published for use. The Fire Behavior Prediction System 1982 Fuel Model Set (Anderson, 1982) contains 13 fuel models and the Fire Behavior Prediction System 2005 Fuel Model Set (Scott & Burgan, 2005) contains 40 fuel models.

The SWRA Surface Fuels have been updated to use the FBPS 2005 40 fuel model set from the LANDFIRE 2010 products, supplemented with additional enhancements obtained through calibration workshops with the Southern states. Florida uses FBPS 1982 fuel models derived based on spectral classification of Landsat Thematic Mapper (TM) satellite imagery derived as part of the Florida Forest Service fuels mapping and risk assessment projects. Texas fuels represent 2010 updates conducted as part of a statewide fuels and canopy mapping effort.

For the remaining 11 Southern states, the recently completed SWRA Update project produced a new surface fuels dataset based on 2010 LANDFIRE products. A detailed fuels calibration process was undertaken that involved collaboration with Southern state fuels and fire behavior specialists supported by federal partner involvement. Workshops were held to review the LANDFIRE fuels product and calibrate the data by modifying specific fuels classes to better reflect local knowledge and input. A key component of this calibration task involved using image processing techniques to better delineate conifer areas, and in particular pine areas (plantations and natural stands). The fuels layer represents 2010 conditions.

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	Surface Fuel	FBPS Fuel Model Set	Description	Acres	Percent
Grass Fuels Type Models (nearly pure grass and/or forb type)					
	GR01	2005	Grass is short, patchy, and possibly heavily grazed. Spread rate moderate; flame length low.	0	0.0%
	GR02	2005	Moderately coarse continuous grass, average depth about 1 foot. Spread rate high; flame length moderate.	0	0.0%
	GR03	2005	Very coarse grass, average depth about 2 feet. Spread rate high; flame length moderate.	0	0.0%
	GR04	2005	Moderately coarse continuous grass, average depth about 2 feet. Spread rate very high; flame length high.	0	0.0%
	GR05	2005	Dense, coarse grass, average depth about 1 to 2 feet. Spread rate very high; flame length high.	0	0.0%
	GR06	2005	Dryland grass about 1 to 2 feet tall. Spread rate very high; flame length very high.	0	0.0%
	GR08	2005	Heavy, coarse, continuous grass 3 to 5 feet tall. Spread rate very high; flame length very high.	0	0.0%
	GR09	2005	Very heavy, coarse, continuous grass 5 to 8 feet tall. Spread rate extreme; flame length extreme.	0	0.0%
Grass-Shrub Fuel Type Models (mixture of grass and shrub, up to 50 percent shrub coverage)					
	GS01	2005	Shrubs are about 1 foot high, low grass load. Spread rate moderate; flame length low.	0	0.0%
	GS02	2005	Shrubs are 1 to 3 feet high, moderate grass load. Spread rate high; flame length moderate.	0	0.0%
	GS03	2005	Moderate grass/shrub load, average grass/shrub depth less than 2 feet. Spread rate high; flame length moderate.	0	0.0%
	GS04	2005	Heavy grass/shrub load, depth greater than 2 feet. Spread rate high; flame length very high.	0	0.0%
Shrub Fuel Type Models (Shrubs cover at least 50 percent of the site, grass sparse to nonexistent)					
	SH01	2005	Low shrub fuel load, fuelbed depth about 1 foot; some grass may be present. Spread rate very low; flame length very low.	0	0.0%
	SH02	2005	Moderate fuel load (higher than SH01), depth about 1 foot, no grass fuel present. Spread rate low; flame length low.	0	0.0%
	SH03	2005	Moderate shrub load, possibly with pine overstory or herbaceous fuel, fuel bed depth 2 to 3 feet. Spread rate low; flame length low.	0	0.0%
	SH04	2005	Low to moderate shrub and litter load, possibly with pine overstory, fuel bed depth about 3 feet. Spread rate high; flame length moderate.	0	0.0%

	Surface Fuel	FBPS Fuel Model Set	Description	Acres	Percent
	SH05	2005	Heavy shrub load, depth 4 to 6 feet. Spread rate very high; flame length very high.	0	0.0%
	SH06	2005	Dense shrubs, little or no herb fuel, depth about 2 feet. Spread rate high; flame length high.	0	0.0%
	SH07	2005	Very heavy shrub load, depth 4 to 6 feet. Spread rate lower than SH05, but flame length similar. Spread rate high; flame length very high.	0	0.0%
	SH08	2005	Dense shrubs, little or no herb fuel, depth about 3 feet. Spread rates high; flame length high.	0	0.0%
	SH09	2005	Dense, finely branched shrubs with significant fine dead fuel, about 4 to 6 feet tall; some herbaceous fuel may be present. Spread rate high, flame length very high.	0	0.0%
Timber-Understory Fuel Type Models (Grass or shrubs mixed with litter from forest canopy)					
	TU01	2005	Fuelbed is low load of grass and/or shrub with litter. Spread rate low; flame length low.	0	0.0%
	TU02	2005	Fuelbed is moderate litter load with shrub component. Spread rate moderate; flame length low.	0	0.0%
	TU03	2005	Fuelbed is moderate litter load with grass and shrub components. Spread rate high; flame length moderate.	0	0.0%
	TU05	2005	Fuelbed is high load conifer litter with shrub understory. Spread rate moderate; flame length moderate.	0	0.0%
Timber Litter Fuel Type Models (dead and down woody fuel litter beneath a forest canopy)					
	TL01	2005	Light to moderate load, fuels 1 to 2 inches deep. Spread rate very low; flame length very low.	0	0.0%
	TL02	2005	Low load, compact. Spread rate very low; flame length very low.	0	0.0%
	TL03	2005	Moderate load conifer litter. Spread rate very low; flame length low.	0	0.0%
	TL04	2005	Moderate load, includes small diameter downed logs. Spread rate low; flame length low.	0	0.0%
	TL05	2005	High load conifer litter; light slash or mortality fuel. Spread rate low; flame length low.	0	0.0%
	TL06	2005	Moderate load, less compact. Spread rate moderate; flame length low.	0	0.0%
	TL08	2005	Moderate load and compactness may include small amount of herbaceous load. Spread rate moderate; flame length low.	0	0.0%

	Surface Fuel	FBPS Fuel Model Set	Description	Acres	Percent
	TL09	2005	Very high load broadleaf litter; heavy needle-drape in otherwise sparse shrub layer. Spread rate moderate; flame length moderate.	0	0.0%
Slash-Blowdown Fuel Type Models (activity fuel/slash or debris from wind damage)					
	SB01	2005	Low load activity fuel. Spread rate moderate; flame length low.	0	0.0%
	SB02	2005	Moderate load activity or low load blowdown. Spread rate moderate; flame length moderate.	0	0.0%
	SB03	2005	High load activity fuel or moderate load blowdown. Spread rate high; flame length high.	0	0.0%
Custom Fuel Type Models (all states except Florida)					
	9PPL	Custom	Long-needle (pine litter, plantations) with a high load	0	0.0%
	GR01h	Custom	Pasture and hayland	0	0.0%
Non-burnable Fuel Type Models (insufficient wildland fuel to carry a wildland fire under any condition)					
	NB01	2005	Urban or suburban development; insufficient wildland fuel to carry wildland fire. Includes roads.	133,187	16.4%
	NB03	2005	Agricultural field, maintained in nonburnable condition.	55,764	6.9%
	NB08	2005	Open water	141,581	17.5%
	NB09	2005	Bare ground	12,729	1.6%
1982 Fire Behavior Prediction System – ONLY USED FOR FLORIDA ASSESSMENT					
	FM 1	1982	Short grass	0	0.0%
	FM 2	1982	Timber grass and understory	202,605	25.0%
	FM 3	1982	Tall grass	30,938	3.8%
	FM 4	1982	Chaparral	14,746	1.8%

	Surface Fuel	FBPS Fuel Model Set	Description	Acres	Percent
	FM 5	1982	Brush	8,535	1.1%
	FM 6	1982	Dormant brush	0	0.0%
	FM 7	1982	Southern rough	52,914	6.5%
	FM 8	1982	Compact timber litter	122,720	15.1%
	FM 9	1982	Hardwood litter	34,644	4.3%
	FM 10	1982	Timber (understory)	23	0.0%
	FM 11	1982	Light logging slash	0	0.0%
	FM 12	1982	Medium logging slash	0	0.0%
				810,387	**100.0%**

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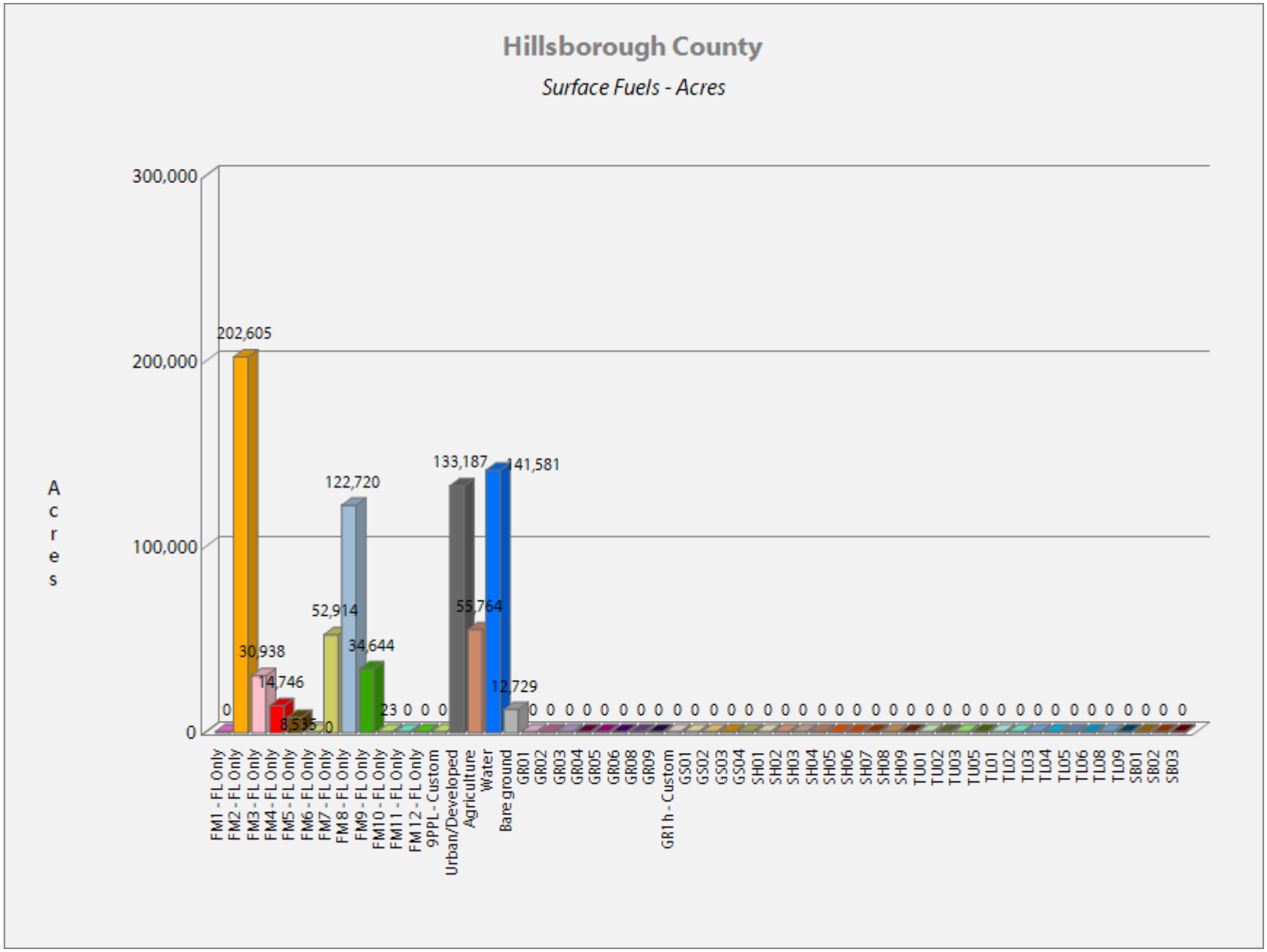
Hillsborough County
Surface Fuels - Acres
Acres
300,000
200,000
100,000
0
202,605
30,938
14,746
8,535
52,914
122,720
34,644
133,187
55,764
141,581
12,729
FM1 - FL Only
FM2 - FL Only
FM3 - FL Only
FM4 - FL Only
FM5 - FL Only
FM6 - FL Only
FM7 - FL Only
FM8 - FL Only
FM9 - FL Only
FM10 - FL Only
FM11 - FL Only
FM12 - FL Only
9PPL - Custom
Urban/Developed
Agriculture
Water
Bare ground
GR01
GR02
GR03
GR04
GR05
GR06
GR08
GR09
GR1h - Custom
GS01
GS02
GS03
GS04
SH01
SH02
SH03
SH04
SH05
SH06
SH07
SH08
SH09
TU01
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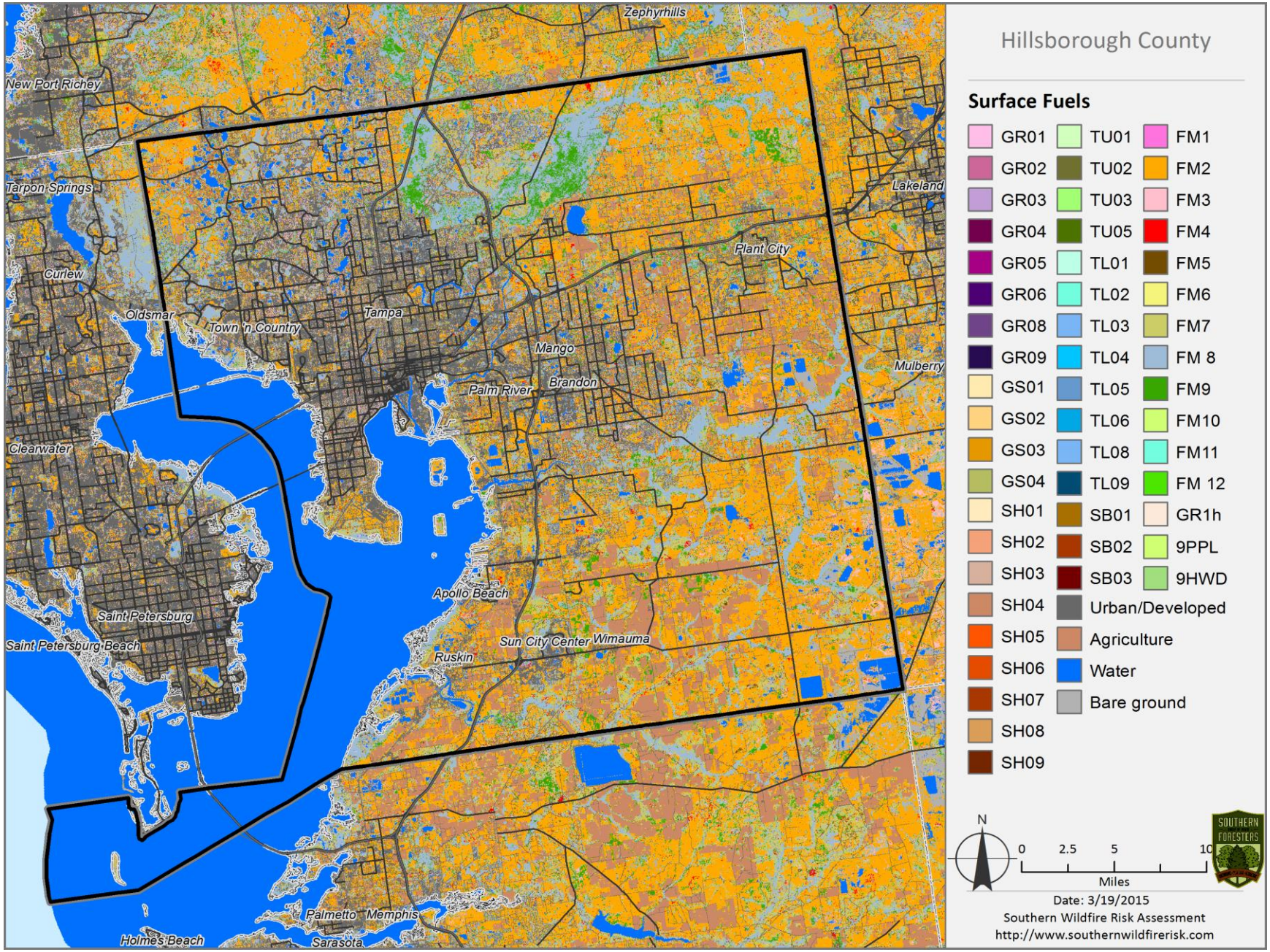
TL08
TL09
SB01
SB02
SB03


Hillsborough County
Surface Fuels
GR01
GR02
GR03
GR04
GR05
GR06
GR08
GR09
GS01
GS02
GS03
GS04
SH01
SH02
SH03
SH04
SH05
SH06
SH07
SH08
SH09
TU01
TU02
TU03
TU05
TL01
TL02
TL03
TL04
TL05
TL06
TL08
TL09
SB01
SB02
SB03
Urban/Developed
Agriculture
Water
Bare ground
FM1
FM2
FM3
FM4
FM5
FM6
FM7
FM 8
FM9
FM10
FM11
FM 12
GR1h
9PPL
9HWD
N
0
2.5
5
10
Miles
Date: 3/19/2015
Southern Wildfire Risk Assessment
http://www.southernwildfirerisk.com
Zephyrhills
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Saint Petersburg
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Sun City Center
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Palmetto
Memphis
Holmes Beach
Sarasota

9. Dozer Operability Rating

Description

The Dozer Operability Rating (DOR) expresses how difficult it is to operate a dozer in an area based on limitations associated with slope and vegetation/fuel type. Using the fireline production rates published in the NWCG Fireline Handbook 3 (PMS 410-1) as a guide, operability values were assigned to a matrix based on 6 slope classes and 10 vegetation/fuels classes. The possible values range from 1 to 9, with 1 representing no limitations and 9 being inoperable.

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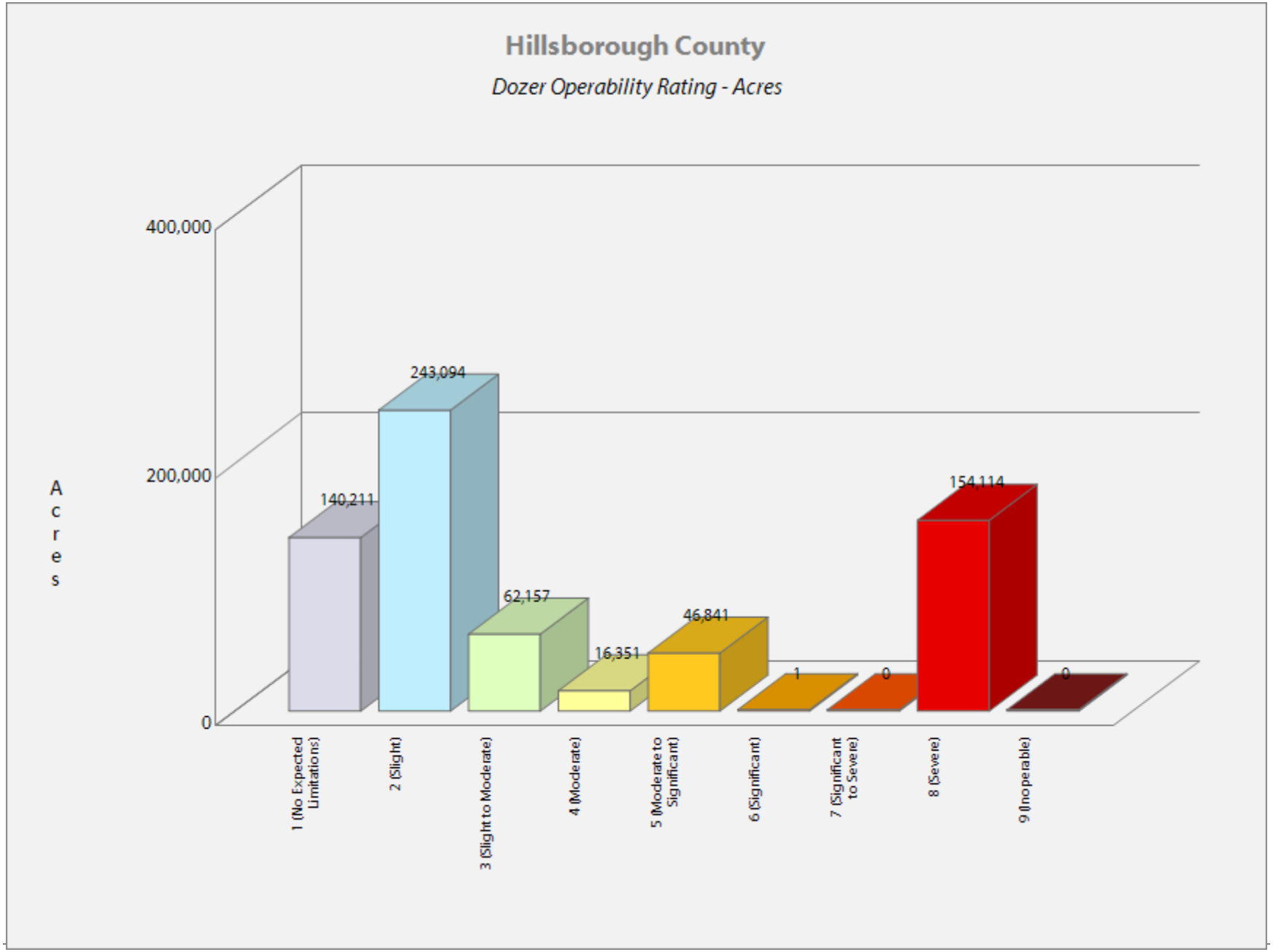
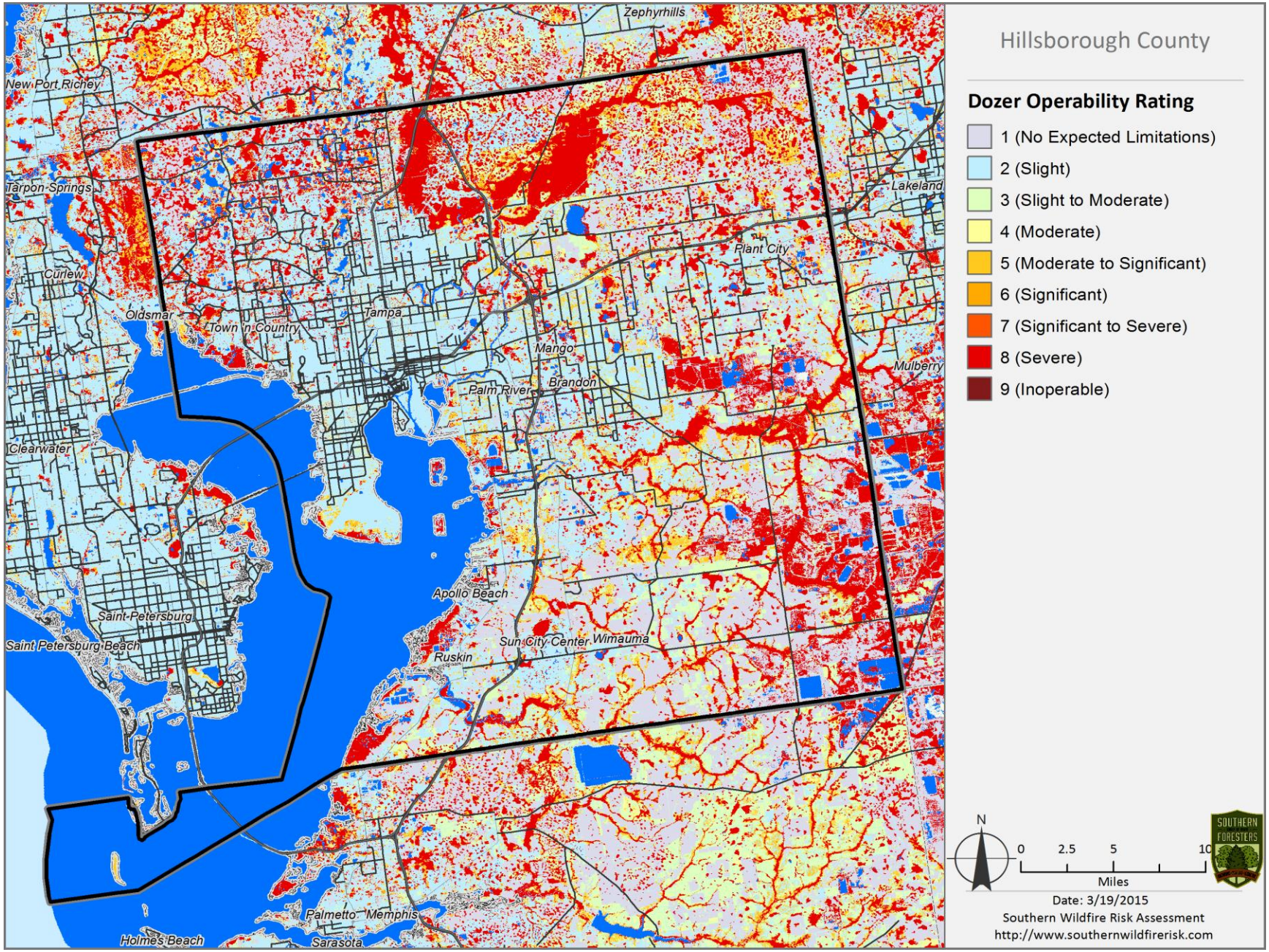
Dozer Operability Rating - Acres

Class	Acres	Percent
1 (No Expected Limitations)	140,211	21.2%
2 (Slight)	243,094	36.7%
3 (Slight to Moderate)	62,157	9.4%
4 (Moderate)	16,351	2.5%
5 (Moderate to Significant)	46,841	7.1%
6 (Significant)	1	0.0%
7 (Significant to Severe)	0	0.0%
8 (Severe)	154,114	23.3%
9 (Inoperable)	0	0.0%
Total	**662,770**	**100.0%**


Hillsborough County
Dozer Operability Rating - Acres
Acres
400,000
200,000
0
140,211
243,094
62,157
16,351
46,841
1
0
154,114
0
1 (No Expected Limitations)
2 (Slight)
3 (Slight to Moderate)
4 (Moderate)
5 (Moderate to Significant)
6 (Significant)
7 (Significant to Severe)
8 (Severe)
9 (Inoperable)


Hillsborough County
Dozer Operability Rating
1 (No Expected Limitations)
2 (Slight)
3 (Slight to Moderate)
4 (Moderate)
5 (Moderate to Significant)
6 (Significant)
7 (Significant to Severe)
8 (Severe)
9 (Inoperable)
N
0 2.5 5 10
Miles
Date: 3/19/2015
Southern Wildfire Risk Assessment
http://www.southernwildfirerisk.com
Zephyrhills
New Port Richey
Tarpon Springs
Lakeland
Plant City
Curlew
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Town n Country
Tampa
Mango
Mulberry
Palm River
Brandon
Clearwater
Apollo Beach
Saint Petersburg
Saint Petersburg Beach
Sun City Center
Wimauma
Ruskin
Palmetto
Memphis
Holmes Beach
Sarasota

10. References

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More information about the Fire Program Analysis project is available from
http://www.forestsandrangelands.gov/WFIT/applications/FPA/index.shtml

More information about the Oak Ridge National Laboratory LandScan data is available from
http://web.ornl.gov/sci/landscan/landscan_documentation.shtml

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More information about the U.S. Forest Service SILVIS data is available from http://silvis.forest.wisc.edu/maps/wui_main

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SOUTHERN GROUP OF STATE FORESTERS
WILDFIRE RISK ASSESSMENT PORTAL

Appendix E: Preventative Measures to reduce the Impact of Wildfires

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Find Out What Your Fire Risk Is

Learn about the history of wildfire in your area. Be aware of recent weather. A long period without rain increases the risk of wildfire. Consider having a professional inspect your property and offer recommendations for reducing the wildfire risk. Determine your community's ability to respond to wildfire. Are roads leading to your property clearly marked? Are the roads wide enough to allow firefighting equipment to get through? Is your house number visible from the roadside?

Learn and Teach Safe Fire Practices

- Build fires away from nearby trees or bushes.
- Always have a way to extinguish the fire quickly and completely.
- Install smoke detectors on every level of your home and near sleeping areas.
- Never leave a fire--even a cigarette--burning unattended.
- Avoid open burning completely, and especially during dry season.

Always be ready for an emergency evacuation. Evacuation may be the only way to protect your family in a wildfire. Know where to go and what to bring with you. You should plan several escape routes in case roads are blocked by a wildfire.

Create Safety Zones Around Your Home

All vegetation is fuel for a wildfire, though some trees and shrubs are more flammable than others. To reduce the risk, you will need to modify or eliminate brush, trees and other vegetation near your home. The greater the distance is between your home and the vegetation, the greater the protection.

Create a 30-foot safety zone around the house. Keep the volume of vegetation in this zone to a minimum. Swimming pools and patios can be a safety zone and stone walls can act as heat shields and deflect flames. In this zone, you should also do the following:

- Remove vines from the walls of the house.
- Move shrubs and other landscaping away from the sides of the house.
- Prune branches and shrubs within 15 feet of chimneys and stove pipes.
- Remove tree limbs within 15 feet of the ground.
- Thin a 15-foot space between tree crowns.
- Replace highly flammable vegetation such as pine, eucalyptus, junipers and fir trees with lower growing, less flammable species. Check with the Florida Forest Service or garden store for suggestions.
- Replace vegetation that has living or dead branches from the ground-level up (these act as ladder fuels for the approaching fire).
- Cut the lawn often keeping the grass at a maximum of 2 inches. Watch grass and other vegetation near the driveway, a source of ignition from automobile exhaust systems.
- Clear the area of leaves, brush, evergreen cones, dead limbs and fallen trees.

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Clear all Combustibles within 30 Feet of any Structure.

- Install electrical lines underground, if possible.
- Ask the power company to clear branches from power lines.
- Avoid using bark and wood chip mulch. Consider synthetics that have been treated for fire resistance.
- Stack firewood 100 feet away and uphill from any structure.
- Store combustible or flammable materials in approved safety containers and keep them away from the house.
- Keep the gas grill and propane tank at least 15 feet from any structure. Clear an area 15 feet around the grill. Place a ¼ inch mesh screen over the grill. Always use the grill cautiously but refrain from using it all during high risk times.

Protect Your Home

Remove debris from under sun decks and porches. Any porch, balcony or overhang with exposed space underneath is fuel for an approaching fire. Overhangs ignite easily by flying embers and by the heat and fire that get trapped underneath. If vegetation is allowed to grow underneath or if the space is used for storage, the hazard is increased significantly. Clear leaves, trash and other combustible materials away from underneath sun decks and porches. Extend 1/2-inch mesh screen from all overhangs down to the ground. Enclose wooden stilts with non-combustible material such as concrete, brick, rock, stucco or metal. Use non-combustible patio furniture and covers. If you're planning a porch or sun deck, use non-combustible or fire-resistant materials. If possible, build the structure to the ground so that there is no space underneath.

Enclose eaves and overhangs. Like porches and balconies, eaves trap the heat rising along the exterior siding. Enclose all eaves to reduce the hazard.

Cover house vents with wire mesh. Any attic vent, soffit vent, louver or other opening can allow embers and flaming debris to enter a home and ignite it. Cover all openings with 1/4 inch or smaller corrosion-resistant wire mesh. If you're designing louvers, place them in the vertical wall rather than the soffit of the overhang.

Install spark arrestors in chimneys and stovepipes. Chimneys create a hazard when embers escape through the top. To prevent this, install spark arrestors on all chimneys, stovepipes and vents for fuel-burning heaters. Use spark arrestors made of 12-gauge welded or woven wire mesh screen with openings 1/2 inch across. Ask your fire department for exact specifications. If you're building a chimney,

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use non-combustible materials and make sure the top of the chimney is at least two feet higher than any obstruction within 10 feet of the chimney. Keep the chimney clean.

Use fire resistant siding. Use fire resistant materials in the siding of your home, such as stucco, metal, brick, cement shingles, concrete and rock. You can treat wood siding with UL-approved fire retardant chemicals, but the treatment and protection are not permanent.

Choose safety glass for windows and sliding glass doors. Windows allow radiated heat to pass through and ignite combustible materials inside. The larger the pane of glass, the more vulnerable it is to fire. Dual- or triple-pane thermal glass, and fire resistant shutters or drapes, help reduce the wildfire risk. You can also install non-combustible awnings to shield windows and use shatter-resistant glazing such as tempered or wireglass.

Prepare for water storage; develop an external water supply such as a small pond, well or pool.

Other safety measures to consider at the time of construction or remodeling.

- Choose locations wisely; hillside and slope locations increase the risk of exposure to wildland fires.
- Use fire-resistant materials when building, renovating, or retrofitting structures.
- Avoid designs that include wooden decks and patios.
- Use non-combustible materials for the roof.
- The roof is especially vulnerable in a wildfire. Embers and flaming debris can travel great distances, land on your roof and start a new fire. Avoid flammable roofing materials such as wood, shake and shingle. Materials that are more fire resistant include single ply membranes, fiberglass shingles, slate, metal, clay and concrete tile. Clear gutters of leaves and debris.

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