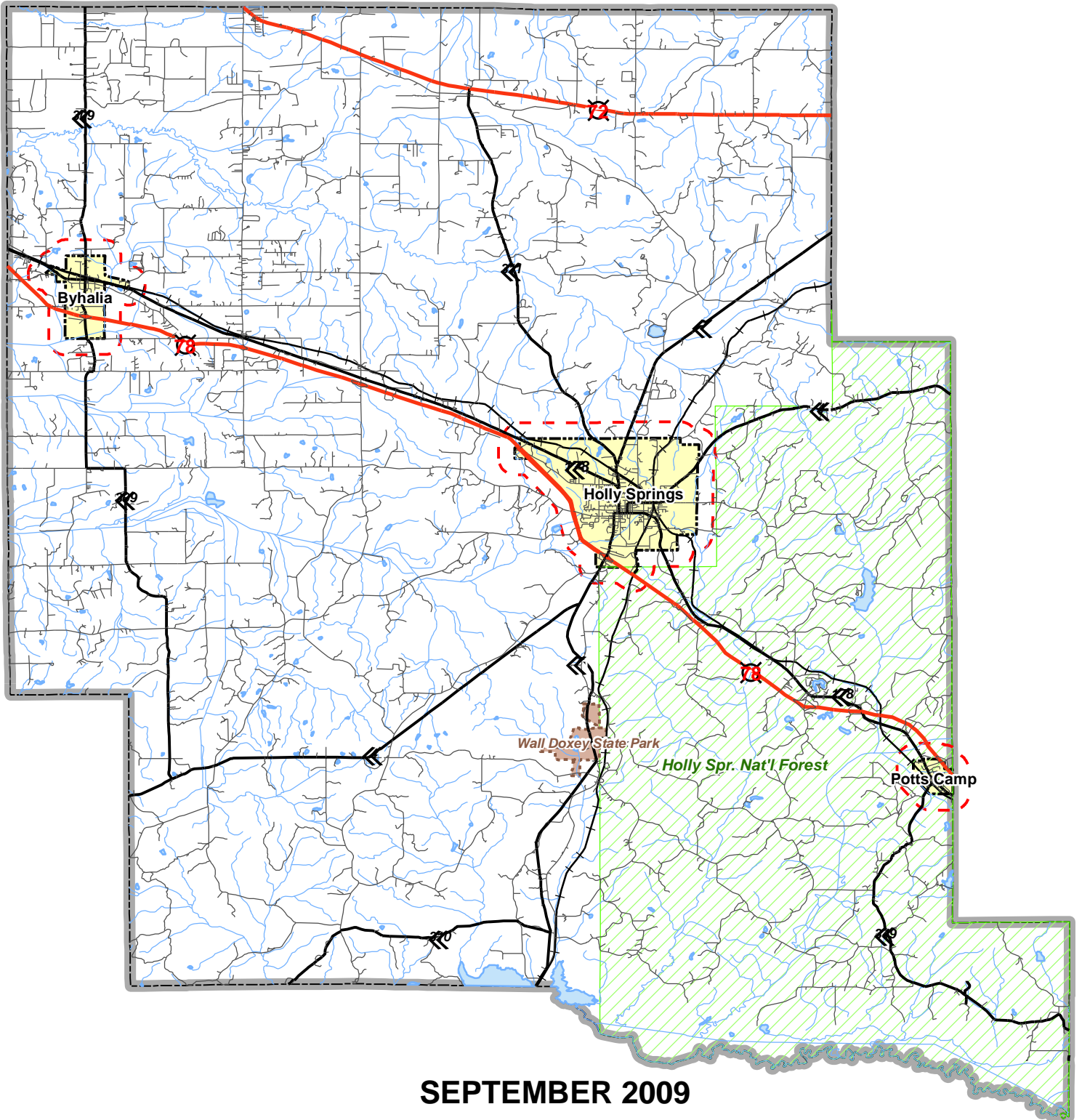


Marshall County, Mississippi

County Wildfire Protection Plan



SEPTEMBER 2009

PREPARED BY NORTHEAST MISSISSIPPI PLANNING AND DEVELOPMENT DISTRICT
WITH FUNDING PROVIDED BY THE MISSISSIPPI FORESTRY COMMISSION

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Introduction

In December of 2007, the Mississippi Forestry Commission and the Mississippi Association of Planning and Development Districts met to discuss the measures to be taken to complete a County Wildfire Protection Plan, beginning with twelve counties. The plan will address changes to the Wildland-Urban Interface (WUI) brought about by increased industrial and/or residential development in each County within the past several years.

The Wildland-Urban Interface (WUI) is described as the area where undeveloped wildland or vegetative fuels blend with structures or other human development. This area poses a tremendous risk to communities, and can create a deadly and complicated situation for firefighters. In a positive effort to focus on this hazardous situation, Marshall County has agreed to create a County Wildfire Protection Plan (CWPP). A CWPP can lessen the possibility for loss in the event of a wildfire by identifying the main concern for the protection of life, property, and critical infrastructure within the WUI.

In January 2008, NEMPDD staff began compiling census records, fire information, geographical data, etc. The next step was to meet with the Marshall County Fire Coordinator to obtain information about the Fire Departments throughout the County, and to gather input on the high and low points in their efforts to fight wildfires. Shortly after, a Steering Committee was formed with the cooperation of local, state, and federal agencies, and other interested parties. The Steering Committee included the Mississippi Forestry Commission, the Natural Resources Conservation Service, the Marshall County Emergency Management Agency, and the Marshall County Fire Coordinator with cooperation from all Fire Departments.

Public participation was encouraged by the Steering Committee to help produce a County Wildfire Protection Plan. The Plan includes several factors: Geographic Information System produced maps, a County Risk Assessment, a Mitigation Projects List, Structure Ignitability Recommendations, and an Action Plan and Assessment Strategy. It is the Committee's intent that this plan will educate landowners, and guide development for the community leaders and stakeholders. The Steering Committee's goal is that this Plan be utilized in the future development of Marshall County, whether industrial or residential; and that all at-risk wildfire areas in the County be focused upon and treated.

This Plan was developed with an effort toward consistency with Title I of the Healthy Forests Restoration Act (HFRA) of 2003, the Comprehensive Emergency Management Plan (CEMP), and Marshall County's Hazard Mitigation Plan.

Area Description

Marshall County is located in the northern part of Mississippi, bordering Shelby and Fayette Counties in Tennessee to the north, DeSoto and Tate Counties to the west, Lafayette County to the south, and Union and Benton Counties to the east. Holly Springs is the largest incorporated city in Marshall County, and serves as the County Seat. Other incorporated areas include Byhalia and Potts Camp. Bethlehem, Chulahoma, Hudsonville, Mount Pleasant, Red Banks, Slayden, Victoria, Waterford and Watson make up the list of Communities in the County.

Several areas of the County feature interesting places to visit for cultural, historical, and recreational pastimes. The City of Holly Springs boasts several antebellum homes that survived sixty raids during the Civil War. Each spring, these homes are displayed during the annual Pilgrimage, with some being open for tours year round.

Northwest of Holly Springs on State Highway 311 is the Strawberry Plains Audubon Center. This wildlife sanctuary on 2,500 acres offers 15 miles of walking trails for exploring forests, grasslands, native plant gardens, and wetlands. Also at the Center is the Davis House, which is restored to its 19th-century grandeur. One of the highlights of the Center's Educational and Outreach Programs is the Hummingbird Migration Celebration, held every September.

While there is presently no interstate route through Marshall County, U.S. Highways 72 and 78 are extremely high-traffic four-lane roadways and major arteries, linking Huntsville and Birmingham (respectively), Alabama, to Memphis, Tennessee. Other well-traveled highways are State Highways 4, 7, 309, 310, 311, and 349.

The new Interstate 269 that will travel from Canada to Mexico will go through Marshall County and the Chickasaw Trail Industrial Park. This Interstate will link to Interstate 55, U.S. Highways 72 and 78, and Mississippi Highway 304 – soon to become the I-22 Corridor.

The population of Marshall County in 2000 was 34,993, which was a 15.3% growth from 1990. The U.S. Census Bureau estimates that the population will show an increase of 4.9% for 2007. This percentage is above average for the other Counties in the State by 2.6%.

Marshall County contains approximately 706.33 square miles, or about 452,051 acres. Woodland makes up 47% of the County. The Holly Springs National Forest covers about 20,455 acres. The remainder of the County is used for pastureland and other purposes.

Marshall County gets an average rainfall of 54 inches per year. The average rainfall in the U.S. is 37 inches. Snowfall is 3 inches per year. The number of days with any measurable precipitation is 92. The July high is around 91 degrees, and the January low is 31. The comfort index, which is based on humidity during the hot months, is a 30

out of 100, where higher is more comfortable. The U.S. average on the comfort index is 44.

Emergency Preparedness and Firefighting Capability

Marshall County is divided into eleven fire response areas covering rural areas, as well as the incorporated areas. Each department's Primary Response Area is the municipality or community for which it is named.

Two of the incorporated areas, Byhalia and Potts Camp, have two fire stations each. The new stations were added primarily due to the railroad that creates problems when blocked by a train. This way, the towns have fire stations on either side of the tracks in their area. Also, the Potts Camp fire departments are located with one in town and one in a more rural area.

The community of Chulahoma is chiefly protected by the Wyatte/Chulahoma Volunteer Fire Department, which is located in neighboring Tate County.

The average size of the response areas for each Department is approximately 63 square miles, but the areas vary from as little as 20 square miles to 145 square miles. Fringe and unincorporated areas receive fire protection based on available manpower, resources, and mutual aid at the time of the fire.

Emergency preparedness for each of the county volunteer fire departments was reviewed as a part of this planning process. Based on information provided by the fire coordinator, this assessment involved factors such as equipment availability, public protection classification, and manpower.

Mutual aid agreements are in place with Benton, Union, Lafayette, Tate, and Desoto Counties in Mississippi.

Fire Districts and Municipalities in the State of Mississippi receive a public protection classification through the Mississippi State Rating Bureau (MSRB). This classification is the basis for determining the fire insurance rating for each district. The Fire Districts within Marshall County are listed below, with the corresponding MSRB classification.

Mississippi State Rating Bureau Public Protection Classification List

DISTRICT	CLASS
Barton	10C
Byhalia # 1	8
Byhalia # 2	8
Cayce	10C
* Holly Springs	6
Potts Camp # 1	8 City
Potts Camp # 2 (Bethlehem)	10 Rural
Red Banks	10C
Slayden / Mt. Pleasant	10C
Victoria	10C
Waterford	10
Watson	10C
Wyatte / Chulahoma	10

In general, the departments are well-equipped and able to respond to the needs of the areas they serve. However, Steering Committee members did identify improvements that could be made, especially with the increase of new subdivisions in rural areas.

The working relationship between the Mississippi Forestry Commission and the Marshall County Volunteer Fire departments is exceptional in mutual respect. The team effort is equally strong from both sides. However, currently, the VFDs do not have radio communication with the MFC. There was some discussion a few years ago about this situation, but at this time, nothing has been resolved. The Fire Coordinator has offered to let the MFC use the VFDs' frequency, but so far, that has not happened. It is suggested that biannual meetings be established to clarify the roles and responsibilities of each agency. These meetings would allow any other inter-agency concerns to be addressed, as well as provide training opportunities and project coordination.

One benefit to help reduce wildfires for the firefighters and the Forestry Service would be the MFC's ability to issue citations to those citizens who fail to obtain permits for prescribed burns. Having a permit to burn seems unnecessary without some type of penalty to those who break the law.

Another advantage to this highly wooded area of the State would be to have a full-time fire investigator for the Northern Region. Committee members felt that having someone on staff would greatly reduce the number of out of control fires and arson fires.

Along with the wooded areas of Marshall County that need the attention of firefighters are over 40,000 acres of kudzu that grow in the area. Homes, businesses, and other properties with close proximity to kudzu have an increased risk of wildfire danger. A fire prevention practice of kudzu control is badly needed in this County.

A program of recruitment and retention for volunteer firefighters is badly needed. Over the past ten years, there has been a decline in those who want to support their community by joining their local fire department. A community outreach and awareness program may help address some of the manpower issues. The Marshall County Fire Coordinator indicated at the current time, several of the fire departments have a youth program to interest school-age children in volunteering and/or firefighting when they reach the age to join.

Each Volunteer Fire Department has at least one piece of structural fire-fighting apparatus that is less than fifteen years old (with the exception of Byhalia # 2; which has a 23-year-old pumper truck as its newest vehicle) and is designed to suppress structure fires and remain on hard surfaces. NOTE: There is a need for more brush trucks in Marshall County. All but one (Byhalia # 1) also have at least one piece of smaller fire-fighting apparatus that can be used to respond to small debris or trash fires located on firm level ground. A current listing of equipment and the location is provided below.

Marshall County Fire District Equipment List

Department	Year	Make/ Model	Type	Water Capacity
Barton	1976	Chevy	Tanker	2500
	1983	Ford	Pumper/Tanker	3000
	2000	E-One	Pumper	1000
	2004	Ford	Brush Truck	250
	2005	Ford	Rescue	0
Byhalia # 1	2001	Pierce	Pumper	1000
	2006	Pierce	Pumper w/Rescue	1000
Byhalia # 2	1972	Howe (Ford)	Pumper	750
	1974	Ford	Tanker	2200
	1986	FMC	Pumper	1000
Cayce	1970	Peter Pirsch	Ladder Truck	0
	1981	GMC	Tanker	2800
	1983	Ford	Brush Truck	100
	1985	Ford	Pumper	1250
	2000	Smeal	Pumper	1000

Department	Year	Make/ Model	Type	Water Capacity
* Holly Springs	1971/91	Pierce/Snorkel	85' Platform/Pumper	300
	1980	FMC/Custom	Pumper	500
	1990	Pierce/Custom	Pumper	500
	1997	Freightliner	Pumper	1000
	1999	Ford	Rescue	0
	2004	Ford F-550	Brush Truck	250
	2004	Ford F-550	Brush Truck	250
	2006	KME	Pumper/Tanker	3000
Potts Camp # 1	1974	LaFrance	Pumper	750
	1996	Ford	Rescue	0
	2001	Pierce	Pumper	1000
Potts Camp # 2 (Bethlehem)	1974	Ford	Pumper	1000
	1996	Ford	Brush Truck	250
	2005	Pierce	Pumper	1000
Red Banks	1980	Ford	Pumper	1000
	1987	GMC	Brush Truck	200
	1994	Ford	Brush Truck	200
	2002	Pierce	Pumper	1000
Slayden / Mt. Pleasant	1956	Military	Tanker	1000
	1978	Ford	Brush Truck	400
	1981	Chevy	Engine	1200
	1982	International	Tanker	5000
	1991	Chevy	Brush Truck	250
	2002	Pierce	Pumper	1000
Victoria	1980	GMC	Engine	1250
	2002	Pierce	Pumper	1000
	2005	Dodge	Brush Truck	200
Waterford	1982	Ford	Pumper	900
	1982	Dodge	Brush Truck	200
	1986	GMC	Brush Truck	200
	2002	Pierce	Pumper	1000
Watson	1983	Ford	Engine	1100
	1984	Chevy	Brush Truck	200
	1984	Chevy	Brush Truck	300
	2001	Pierce	Pumper	1000
Wyatte / Chulahoma	1973	Jeep	Brush Truck	80
	1977	Ford	Tanker	2000
	1980	Chevy	Engine	1250
	2000	GMC	Brush Truck	200
	2001	International	Pumper	1000
	2005	Trailer Type	Rescue	0

This table indicates the number of firefighters on record for each station, but the average volunteer fire department has only about 18 active members. Also, the number of volunteers who respond fluctuates due to work schedules. The Fire Response Areas, including Station Location(s), and Number of Firefighters and Volunteer Firefighters, are listed below.

Fire Response Area	Fire Department	Station Location(s)	Total Number of Firefighters
Barton	Barton VFD	5135 Hwy. 302 Olive Branch	10
Byhalia	Byhalia FD # 1	24 Hwy. 309 North Byhalia	6
Byhalia	Byhalia FD # 2	114 Hwy. 309 North Byhalia	6
Cayce	Cayce VFD	10071 CR 200 Falkner	17
Holly Springs *	Holly Springs FD	127 W Falconer Ave Holly Springs	40
Potts Camp	Potts Camp FD # 1	14 Cardinal St Potts Camp	12
Potts Camp (Bethlehem)	Potts Camp FD # 2	2233 Brownlee Rd Potts Camp	11
Red Banks	Red Banks VFD	1348 S Red Banks Rd Red Banks	4
Slayden / Mt. Pleasant	Slayden / Mt. Pleasant VFD	194 Mt. Pleasant Rd Red Banks	21
Victoria	Victoria VFD	81 Victoria Rd Victoria	15
Waterford	Waterford VFD	45 Waterford Rd Waterford	11
Watson	Watson VFD	112 Watson Rd Byhalia	23
Wyatte / Chulahoma	Wyatte / Chulahoma VFD	30165 Hwy 4 E Senatobia	22

* County Seat, noted in all tables

Note: The incorporated city of Holly Springs (the County Seat) has paid and paid-per-call firefighters / volunteers. As of August, 2009, the incorporated city of Byhalia has a paid fire chief and volunteer firefighters. The incorporated city of Potts Camp has an all-volunteer fire department.

Mapping

The Marshall County Wildfire Protection Plan contains seven maps created by the Northeast Mississippi Planning & Development District (NEMPDD) Geographic Information System (GIS) Department. These maps were generated for planning purposes to aid in the assessment of county wildfire occurrence and emergency preparedness. The maps include the Marshall County Base Map, Fires by Fiscal Year 2002-2007, the County's High Occurrence Wildfire Areas, Debris Burning Cause by FY 2002-07, Incendiary Cause by FY 2002-07, Fires by Fire Response Areas, FY 2002-07, and Marshall County Risk Assessment Rating of Critical Facilities.

The Marshall County **Base Map** shows a detailed baseline of roadways, inhabited areas, infrastructure, areas of community importance, and a WUI designation of one-half mile. The Committee discussed specific risk factors and treatment projects to reduce the risk of wildfire in newly developed areas that have been constructed near woodland and pastureland.

In addition to the WUI, the Steering Committee identified several areas of critical facilities, including communication towers, elevated water towers, and electric substations. The Base Map is the focal point of county protection as identified for the CWPP.

The **Fires by Fiscal Years 2002 – 2007 Map** shows all fires from all causes over a six-year span. When these data were mapped, specific geographic areas revealing a high occurrence of wildfire became apparent.

The **High Occurrence Wildfire Areas Map** shows areas based on a computer calculation used to determine density and distribution by comparing each fire occurrence to its surrounding neighbors. Area One is geographically located in the northeast part of the County. Area Two is located in the central eastern part of the County and includes a portion of the Holly Springs National Forest. Area Three is located in the south southeastern part of the County and also includes a portion of the Holly Springs National Forest, as well as the Wall Doxey State Park. Area Four is located in the southwestern part of the County.

The **Debris Burning Cause by FY 2002-07 Map** represents the number of wildfires in Marshall County that were the results of persons disposing of dry leaves, tree clippings, or pine needles. The number of Debris Fires between 2002 and 2007 total 43.

The **Incendiary Cause by FY 2002-07 Map** for Marshall County exhibits the geographic distribution of these fires throughout the County. According to the Mississippi Forestry Commission wildfire data, there were a total of 207 arson fires between the years of 2002 – 2007. This would account for over 65 % of the 315 wildfires reported during that period.

The Marshall County **Fires by Fire Response Areas, FY 2002-07 Map** presents all the wildfires from 2002 – 2007, as well as the fire district boundaries and the location of the fire departments within those districts. This map will aid in the assessment of numbers of fires and their general location within each district. The boundaries are considered in the term of “shared”, indicating that any fire department within a reasonable distance of a fire will respond and assist the primary station. Note again that the community of Chulahoma is chiefly protected by the Wyatte/Chulahoma Volunteer Fire Department, which is located in neighboring Tate County.

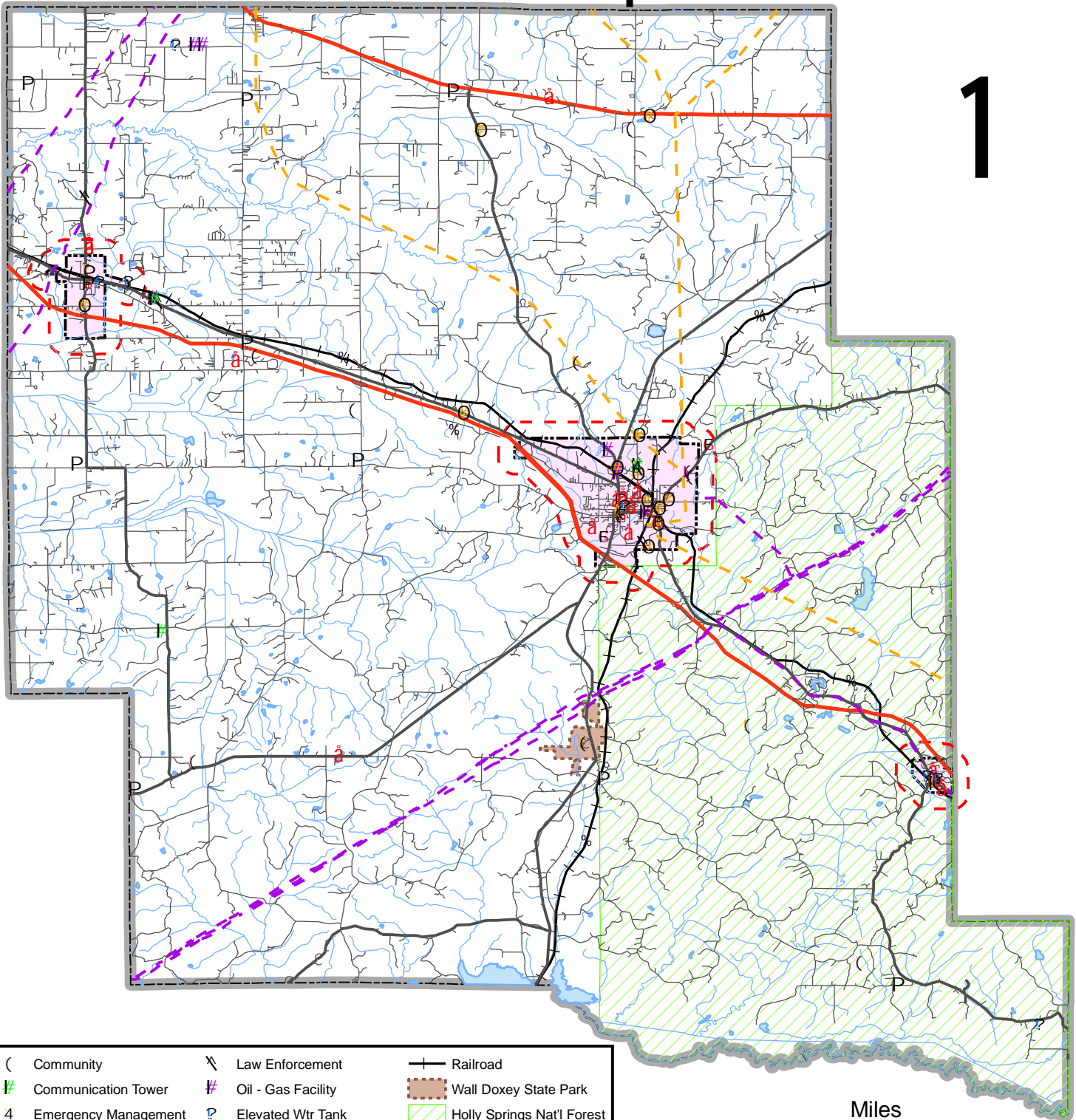
The **Risk Assessment Rating of Critical Facilities Map** shows the results of how specific areas of concern in Marshall County were rated by the Steering Committee. Included in those areas are roadways, municipalities, utilities, and locales of community importance found on the Base Map. The ratings for each of the attributes reflect whether they are at risk due to their purpose, the nearby fuel load, or the potential to cause a considerable impact in the event of their damage or loss due to a wildfire. These ratings were then displayed in map form to better enable review and assessment of the entire county.

County Wildfire Protection Plan Maps

1. Marshall County Base Map
2. Fires by Fiscal Year, FY 2002-07
3. High Occurrence Wildfire Areas
4. Debris Burning Cause by FY 2002-07
5. Incendiary Cause by FY 2002-07
6. Fires by Fire Response Areas, FY 2002-07
7. Risk Assessment Rating of Critical Facilities

Marshall County, Mississippi County Wildfire Protection Plan Base Map

1



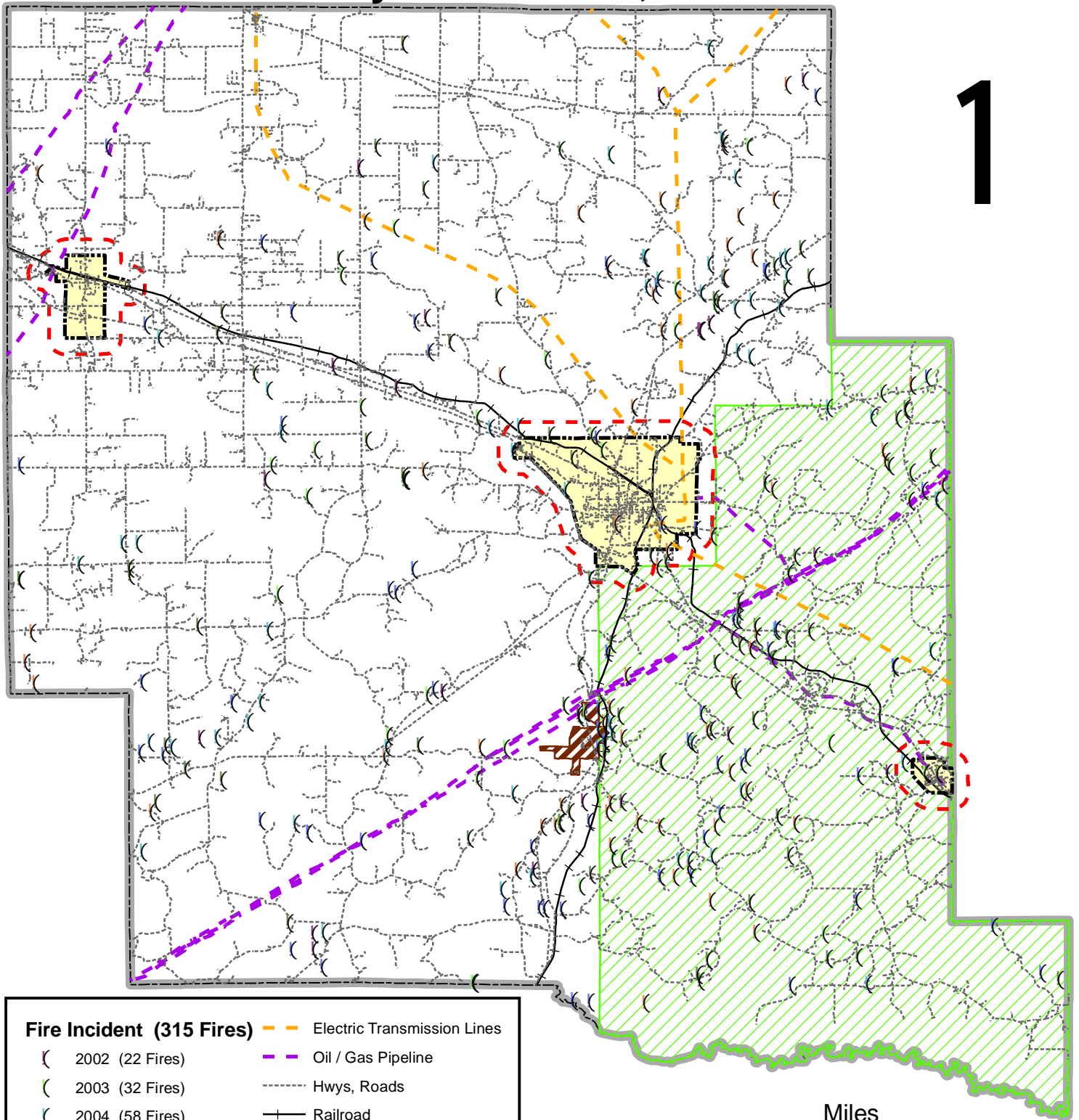
(Community	X	Law Enforcement	—	Railroad
#	Communication Tower	#	Oil - Gas Facility	■	Wall Doxey State Park
4	Emergency Management	?	Elevated Wtr Tank	▨	Holly Springs Nat'l Forest
⊙	Industrial or Utility	—	Electric Transmission Lines	■	WUI
⊞	Hospital - Medical	—	Oil / Gas Pipelines	■	Lakes
(Public Facility	—	Roads & Streets	■	City / Town
â	School	—	State Hwys	■	County
(Assist Liv / Nurs Home	—	U.S. Hwys		
%	Transportation				
P	FDs & VFDs				



Northeast Mississippi Planning and Development District
For planning use only.

Marshall County, Mississippi County Wildfire Protection Plan Fires by Fiscal Year, 2002-2007

1



Fire Incident (315 Fires)

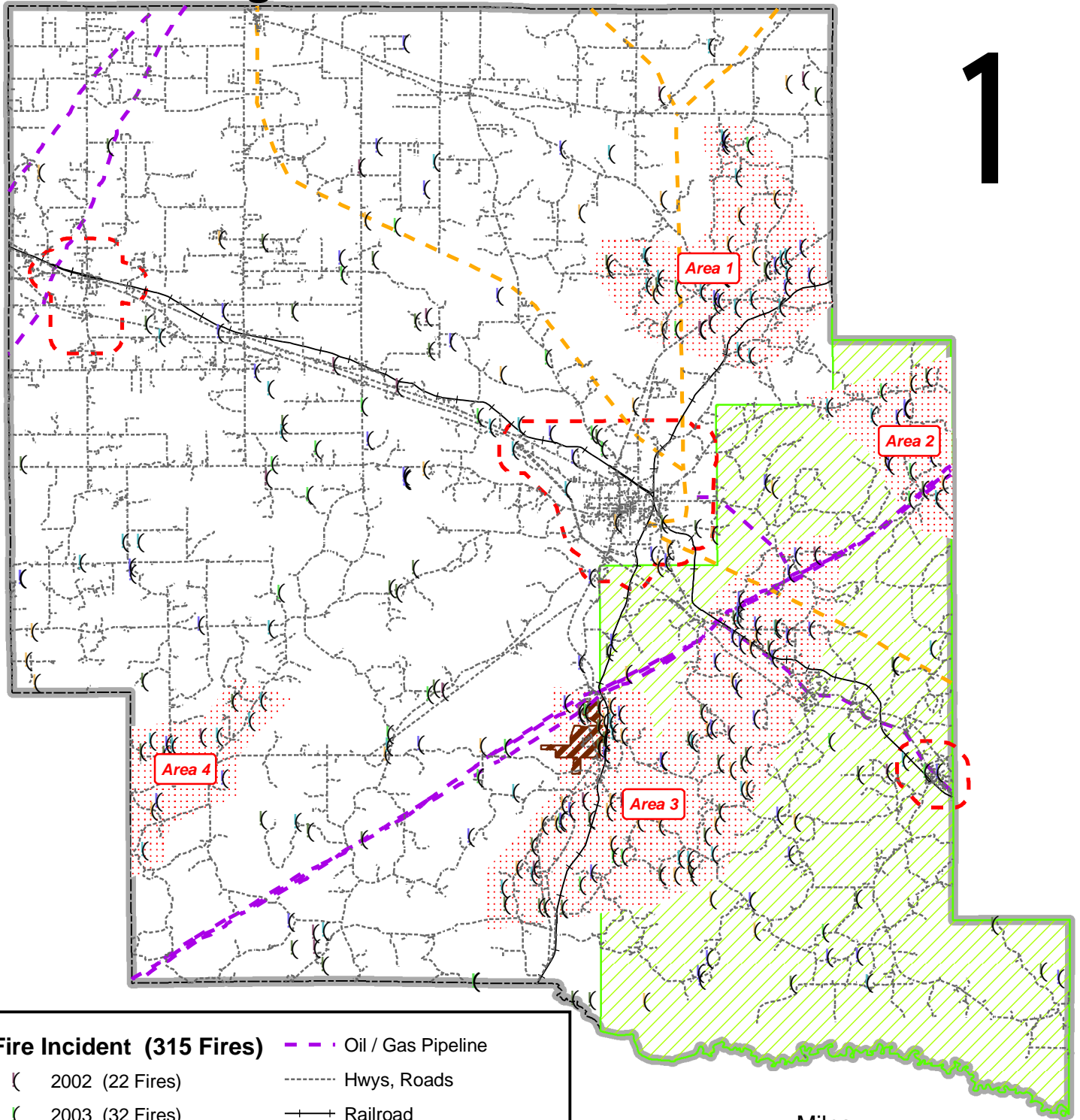
- (2002 (22 Fires)
- (2003 (32 Fires)
- (2004 (58 Fires)
- (2005 (58 Fires)
- (2006 (80 Fires)
- (2007 (65 Fires)

- Electric Transmission Lines
- Oil / Gas Pipeline
- Hwys, Roads
- +— Railroad
- ▨ Holly Springs Nat'l Forest
- ▨ Wall Doxey State Park
- - - WUI
- Municipalities
- ▭ County Boundary



Marshall County, Mississippi County Wildfire Protection Plan High Occurrence Wildfire Areas

1



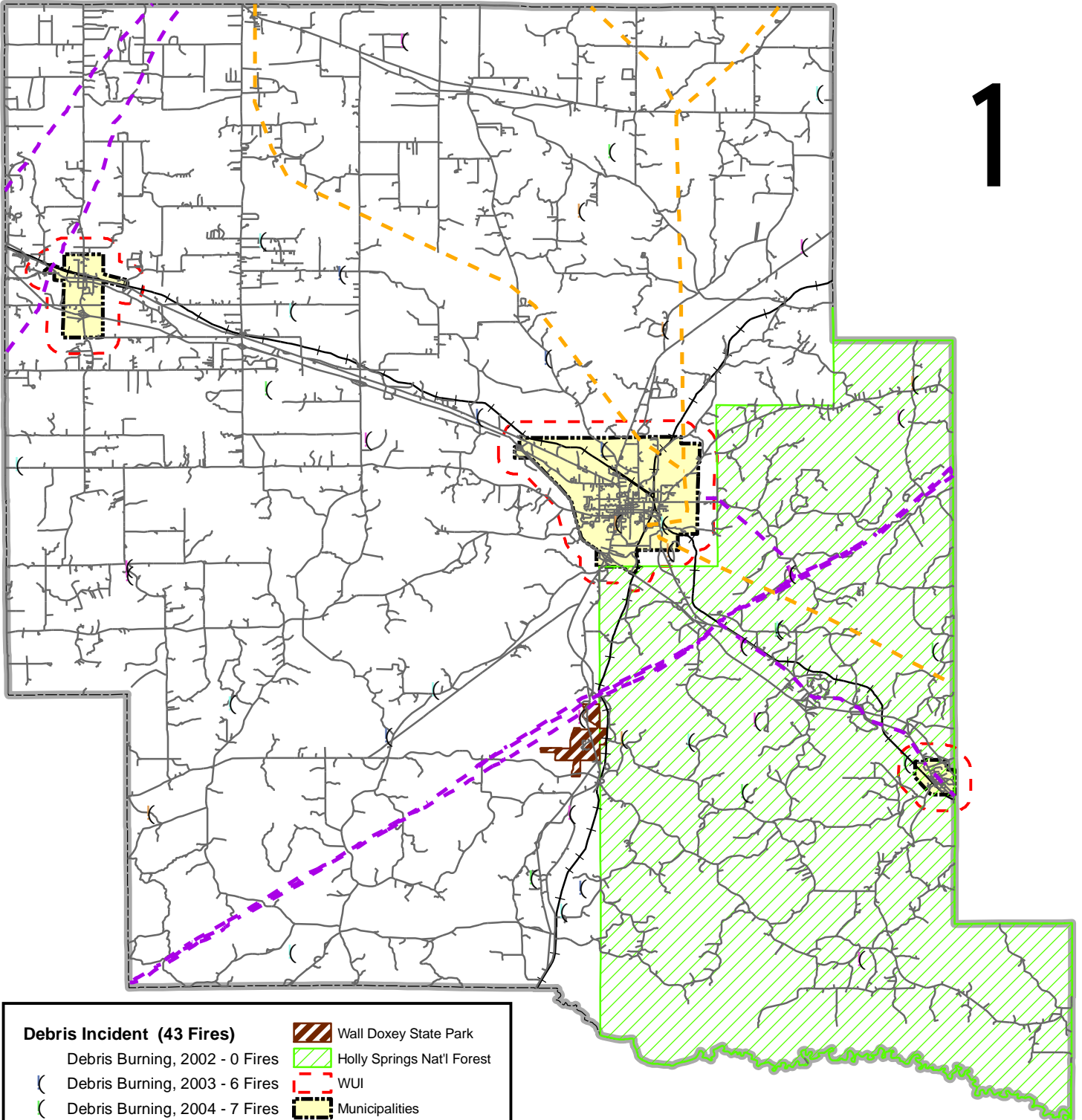
Fire Incident (315 Fires)

- | | |
|-----------------------------|------------------------------|
| (2002 (22 Fires) | - - - - - Oil / Gas Pipeline |
| (2003 (32 Fires) | - - - - - Hwys, Roads |
| (2004 (58 Fires) | - - - - - Railroad |
| (2005 (58 Fires) | Wall Doxey State Park |
| (2006 (80 Fires) | Holly Springs Natl Forest |
| (2007 (65 Fires) | WUI |
| | High Occurance Area |
| Electric Transmission Lines | County Boundary |

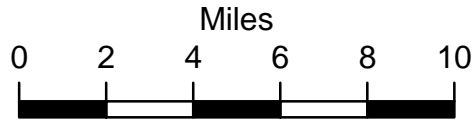


Marshall County, Mississippi County Wildfire Protection Plan Debris Burning Cause by FY 2002-2007

1

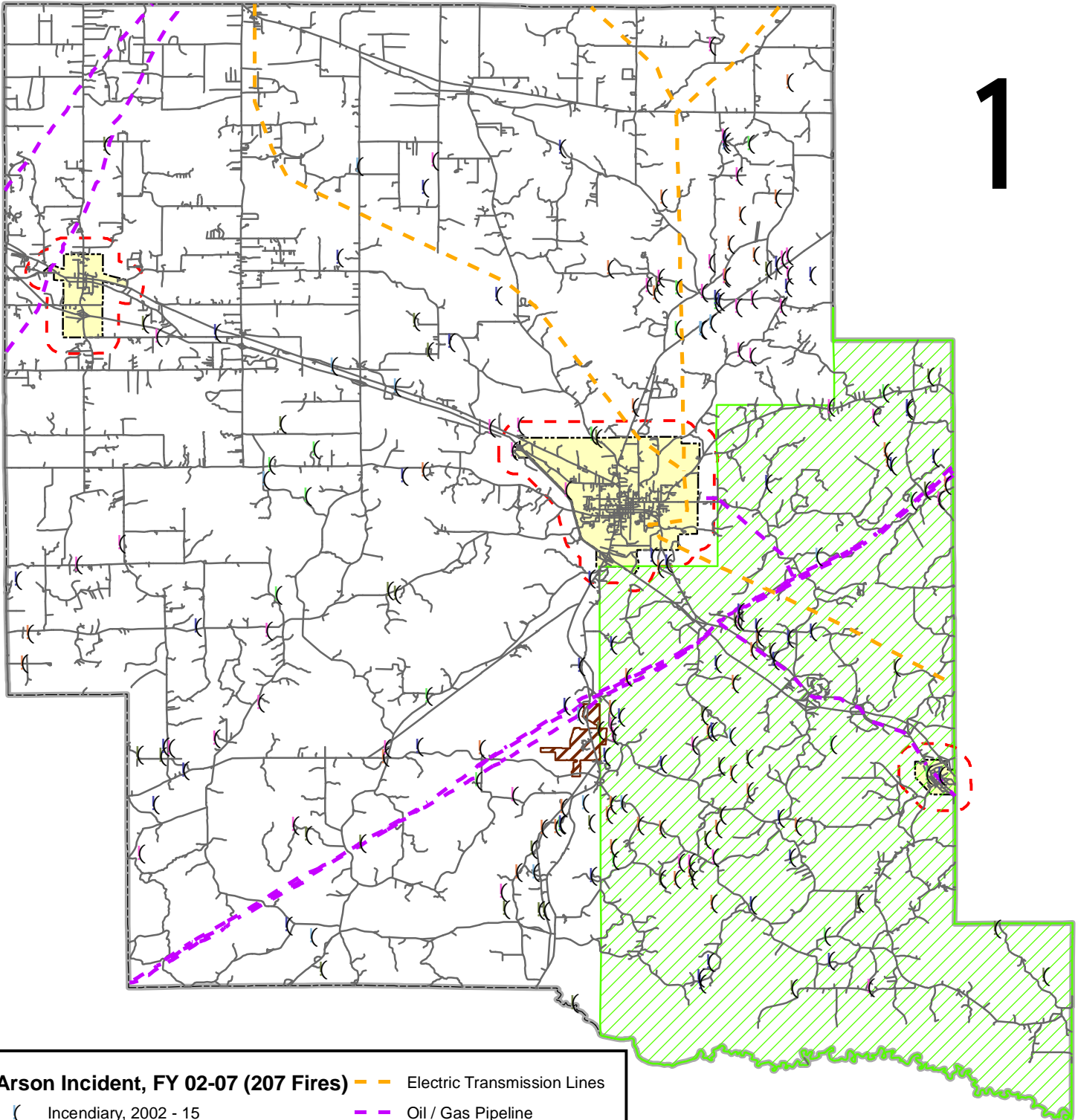


Debris Incident (43 Fires)	Wall Doxey State Park
Debris Burning, 2002 - 0 Fires	Holly Springs Nat'l Forest
(Debris Burning, 2003 - 6 Fires	WUI
(Debris Burning, 2004 - 7 Fires	Municipalities
(Debris Burning, 2005 - 7 Fires	
(Debris Burning, 2006 - 12 Fires	
(Debris Burning, 2007 - 11 Fires	
Electric Transmission Lines	
Oil / Gas Pipeline	
Hwys, Roads	
Railroad	



Marshall County, Mississippi County Wildfire Protection Plan Incendiary Cause by FY 2002 - 2007

1



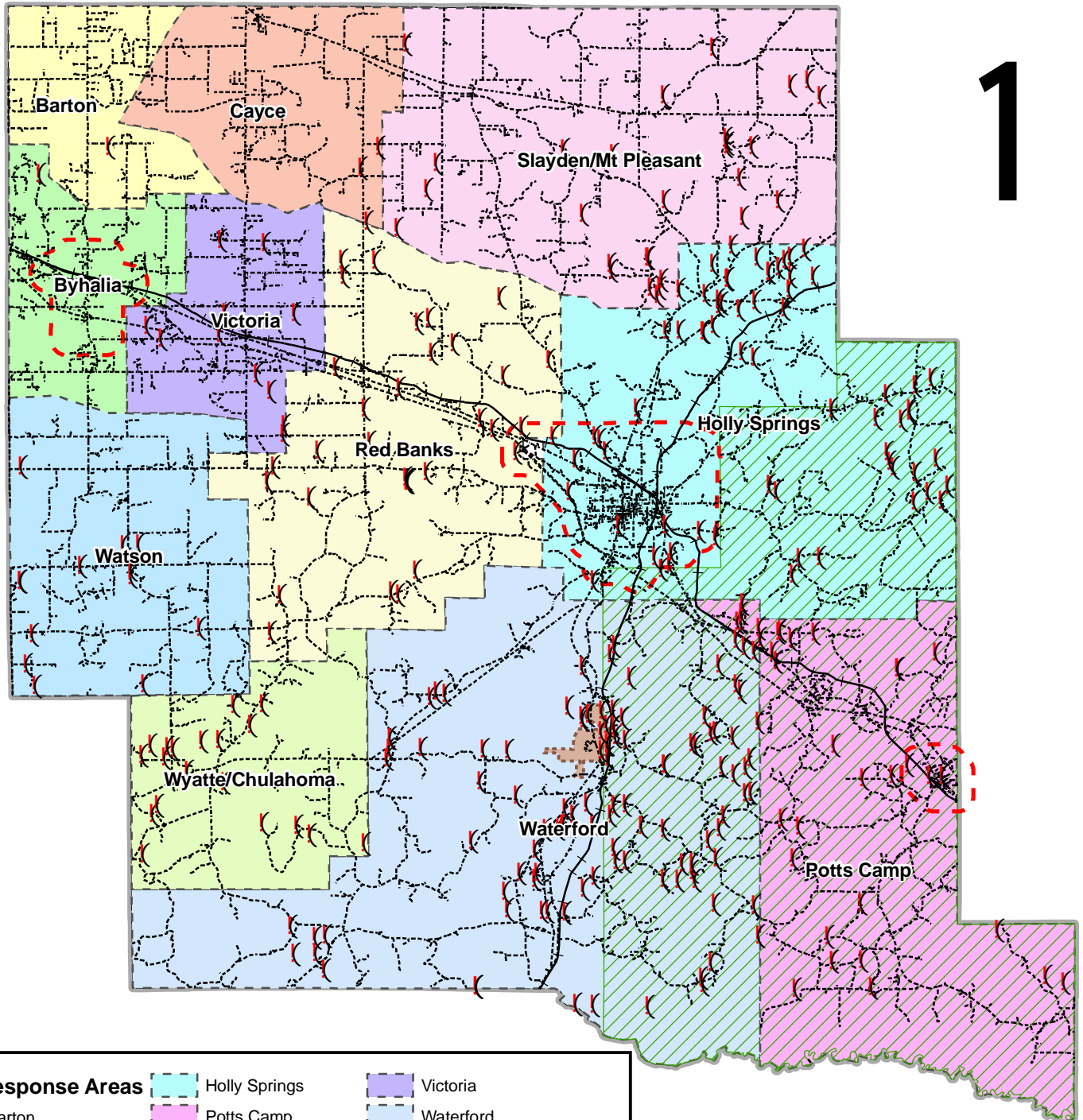
Arson Incident, FY 02-07 (207 Fires)

- | | |
|-------------------------|-------------------------------|
| (Incendiary, 2002 - 15 | — Electric Transmission Lines |
| (Incendiary, 2003 - 18 | — Oil / Gas Pipeline |
| (Incendiary, 2004 - 44 | — Hwys, Roads |
| (Incendiary, 2005 - 41 | ▨ Wall Doxey State Park |
| (Incendiary, 2006 - 51 | ▨ Holly Springs Nat'l Forest |
| (Incendiary, 2007 - 38 | - - - WUI |
| | ▨ Municipalities |

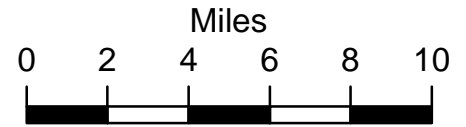


Marshall County County Wildfire Protection Plan Fires by Fire Response Areas, FY 2002 - 2007

1

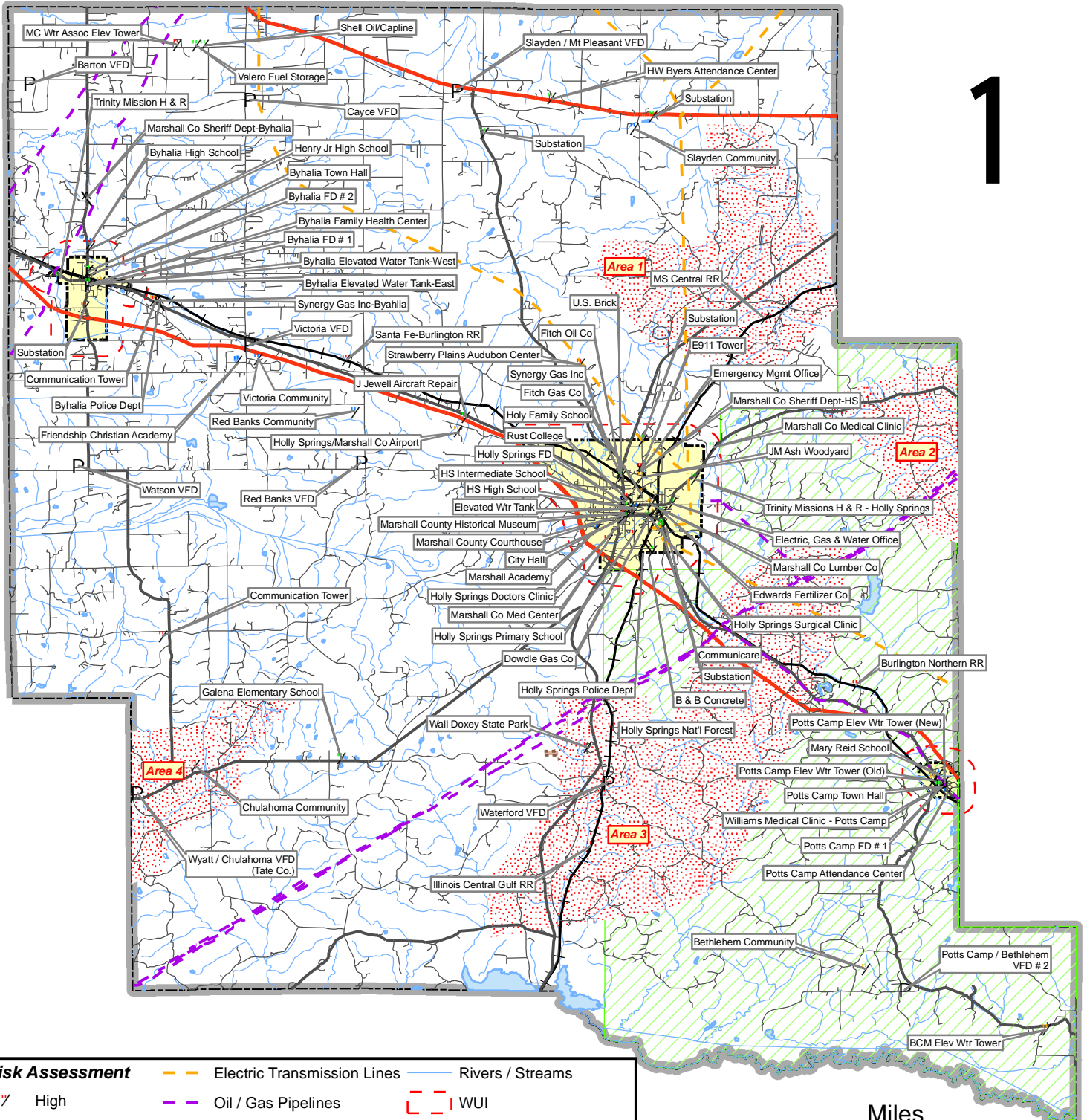


Fire Response Areas	
Barton	Victoria
Byhalia	Waterford
Cayce	Watson
Potts Camp	Wyatt/Chulahoma
Red Banks	All Fires 2002-2007
Slayden/Mt Pleasant	Highways & Roads
	Railroad
	Wall Doxey State Park
	Holly Springs Nat'l Forest

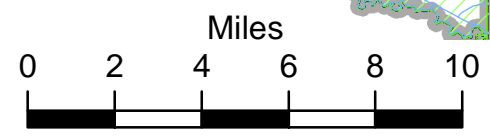


Marshall County, Mississippi County Wildfire Protection Plan Risk Assessment Rating of Critical Facilities

1



Risk Assessment		Electric Transmission Lines	Rivers / Streams
High	Oil / Gas Pipelines	Roads & Streets	WUI
Med-High	State Hwys	U.S. Hwys	High Occurrence Area
Medium	Railroad		Wall Doxey State Park
Low			Holly Springs Nat'l Forest
FDs & VFDs			City / Town
Law Enforcement			Lakes
			County



Fire Cause Analysis

The data collected by the Mississippi Forestry Commission from the Fiscal Years of 2002-2007 has been analyzed for this project and is represented in various types of charts.

Through the evaluation of these charts, it has been shown that Marshall County experienced 315 wildfires during the fiscal years of 2002 through 2007; with 2006 having the most fires recorded (80). Of the total number of fires, incendiary and debris burning were the major causes of fires. A breakdown shows there were 207 fires caused by incendiary, and 43 caused by debris burning.

The **Fires by Cause, FY 2002 – 2007 Chart** shows that Marshall County experienced 37 No Cause, 44 Debris Burning Cause, 207 Incendiary Cause, 3 Equipment Use Cause, 5 Railroad Cause, 8 Miscellaneous Cause, and 11 Re-ignition Cause Fires within this time period.

The **Debris Burning and Incendiary by Day of Week, FY 2002 – 2007 Chart** shows that Saturday had the most of each Cause, with 9 debris burning fires and 37 incendiary fires. Sunday through Friday fires are broken down as follows, listing debris burning, then incendiary: Sunday: 7, 30; Monday: 4, 30; Tuesday: 4, 31; Wednesday: 8, 28; Thursday: 5, 23; and Friday: 7, 28.

The **Debris Burning and Incendiary by Month, FY 2002 – 2007 Chart** indicates that most debris burning and incendiary fires occurred in March with a total of 14 debris burning fires and 91 incendiary fires in this time period. The other months are listed as follows, with debris burning fires, then incendiary fires: January: 1, 9; February: 2, 22; April: 9, 37; May: 1, 6; June: 2, 2; July: 2, 2; August: 3, 6; September: 1, 6; October: 5, 5; November: 2, 10; and December: 2, 11.

The **Fires by Day of Month, FY 2002 – 2007 Chart** conveyed as a pie chart, shows that 36% of all wildfires within this time period occurred during the first and tenth of each month, totaling 114 fires. 106 fires (34%) occurred between the 21st and 31st; and 95 fires (30%) occurred from the 11th through the 20th.

The **Fires by Month, FY 2002 – 2007 Chart** gives a report in quarterly terms with January through March leading the number of wildfires with 173 fires, or 54%. Following are April through June with 72 fires (23%); October through December with 43 fires ((14%); and July through September, 27 fires (9%).

The **Fires by Hour of Day, FY 2002 – 2007 Chart** shows wildfires that occurred within a three-hour time period. Twelve Noon through 2:59 p.m. leads the way with 123 fires. 3:00 p.m. through 5:59 p.m. experienced 109 fires. 6:00 p.m. through 8:59 p.m. had 47 fires; 9:00 a.m. through 11:59 a.m. had 24 fires. After these time periods, the number of fires dropped substantially, with only 6 fires occurring between 12:00 a.m. and 2:59

a.m.; 5 fires between 9:00 p.m. and 11:59 p.m.; 1 fire between 6:00 a.m. and 8:59 a.m.; and No fires between 3:00 a.m. and 5:59 a.m.

The **Fires by the Day of the Week, FY 2002 – 2007 Chart** indicates that Sunday leads by a narrow margin in the number of wildfires reported, with 48 fires within the time period. Closely following are Tuesday with 47 fires; Wednesday with 45 fires; Friday with 42 fires; Monday with 41 fires; and Thursday with 40 fires.

The **Fires by Fiscal Year, FY 2002 – 2007 Chart** reveals that 2006 had the most wildfires reported with a total of 80. Listed in descending order are 2007 with 65; 2004 and 2005 with 58 each; 2003 with 32; and 2002 with 22.

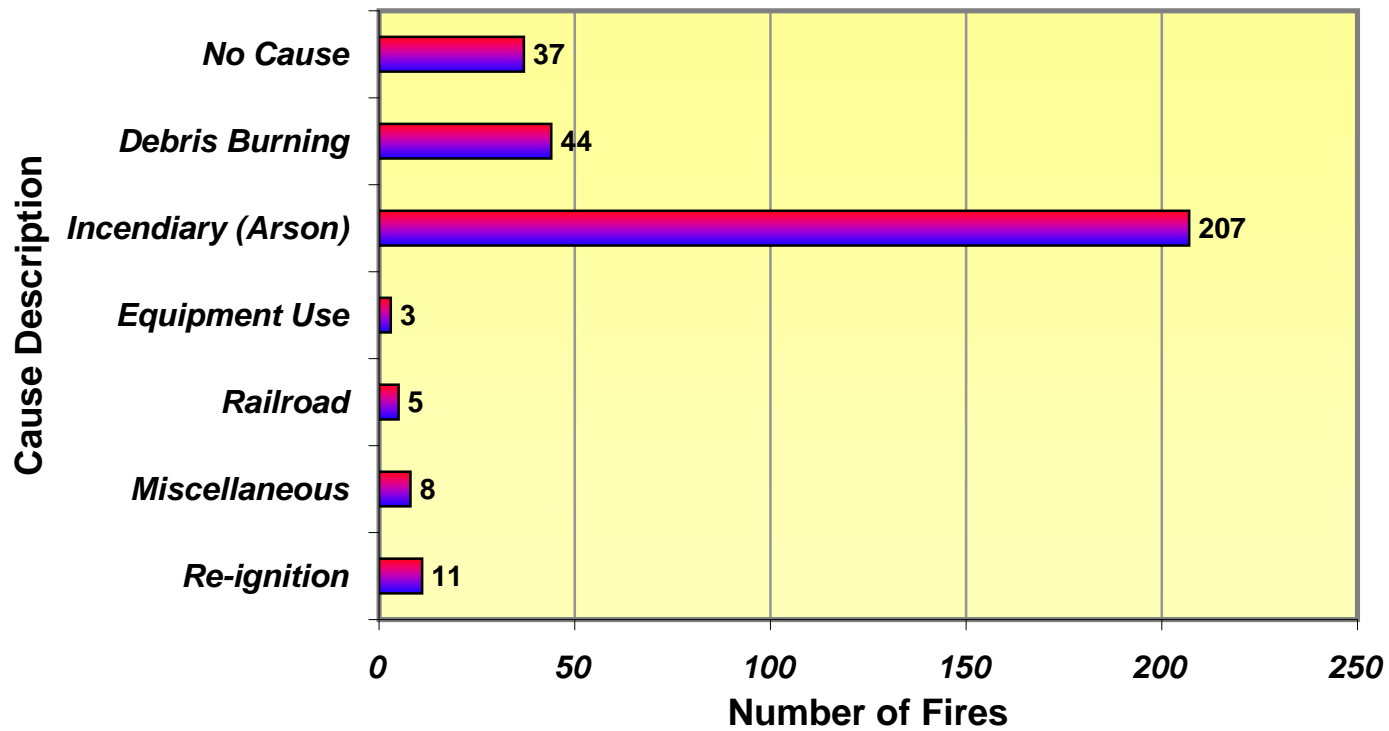
Conclusion

This Fire Cause Analysis Plan uses visual representation and analysis to turn the data that has been collected by the Mississippi Forestry Commission into comprehensive information for determining where wildfires are more likely to occur, as well as the most probable time of year, and day. The knowledge gained by this study will provide a means for the Mississippi Forestry Commission to use their resources to their greatest advantage.

Fire Cause Analysis Charts

1. Fires by Cause, FY 2002-07
2. Debris Burning and Incendiary by Day of Week, FY 2002-07
3. Debris Burning and Incendiary by Month, FY 2002-07
4. Fires by Day of the Month, FY 2002-07
5. Fires by Month, FY 2002-07
6. Fires by Hour of the Day, FY 2002-07
7. Fires by Day of the Week, FY 2002-07
8. Fires by Fiscal Year, FY 2002-07

MARSHALL COUNTY, MISSISSIPPI
County Wildfire Protection Plan
Fires by Cause, FY 2002 - 2007

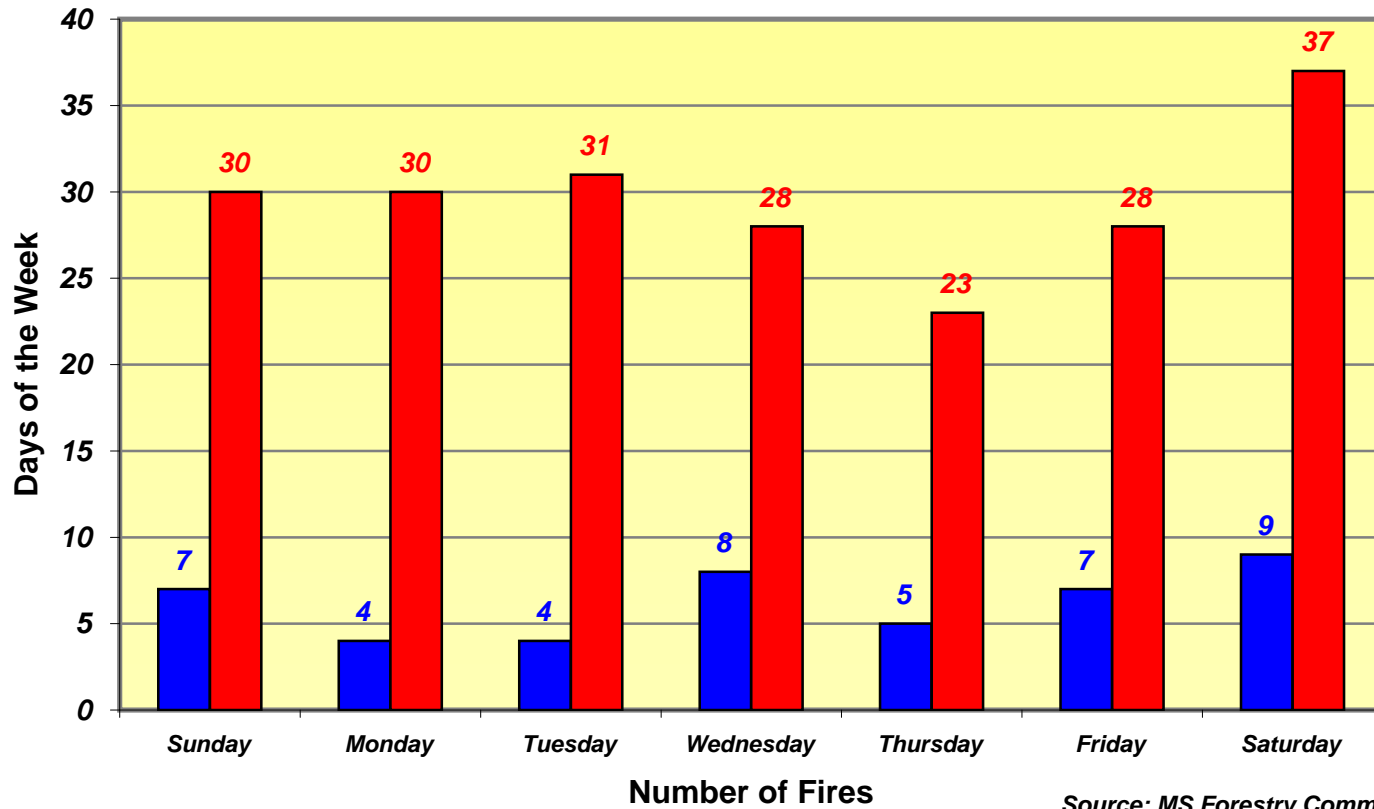


Source: MS Forestry Commission

MARSHALL COUNTY, MISSISSIPPI

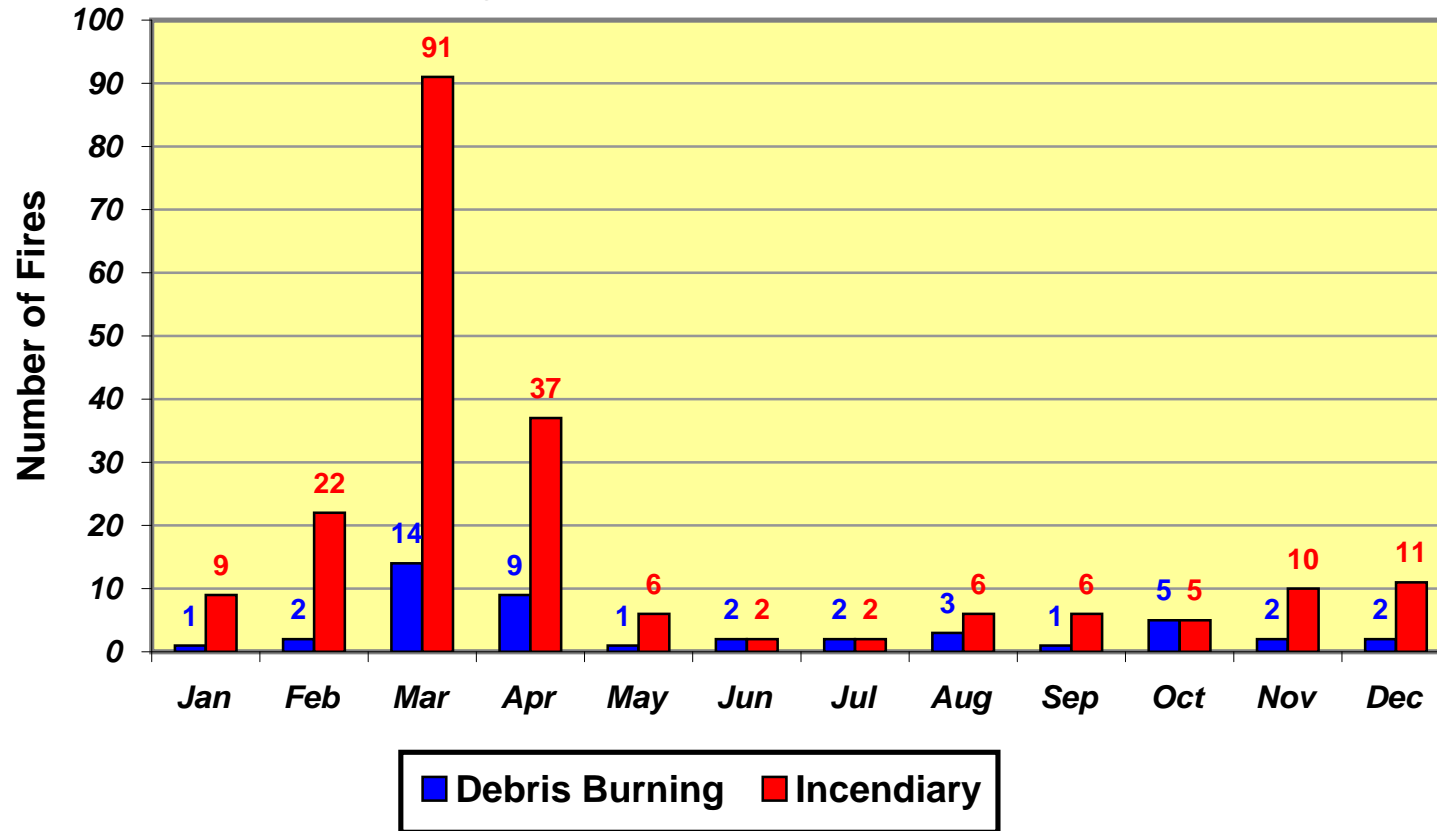
County Wildfire Protection Plan

Debris Burning and Incendiary by Day of Week, FY 2002 - 2007



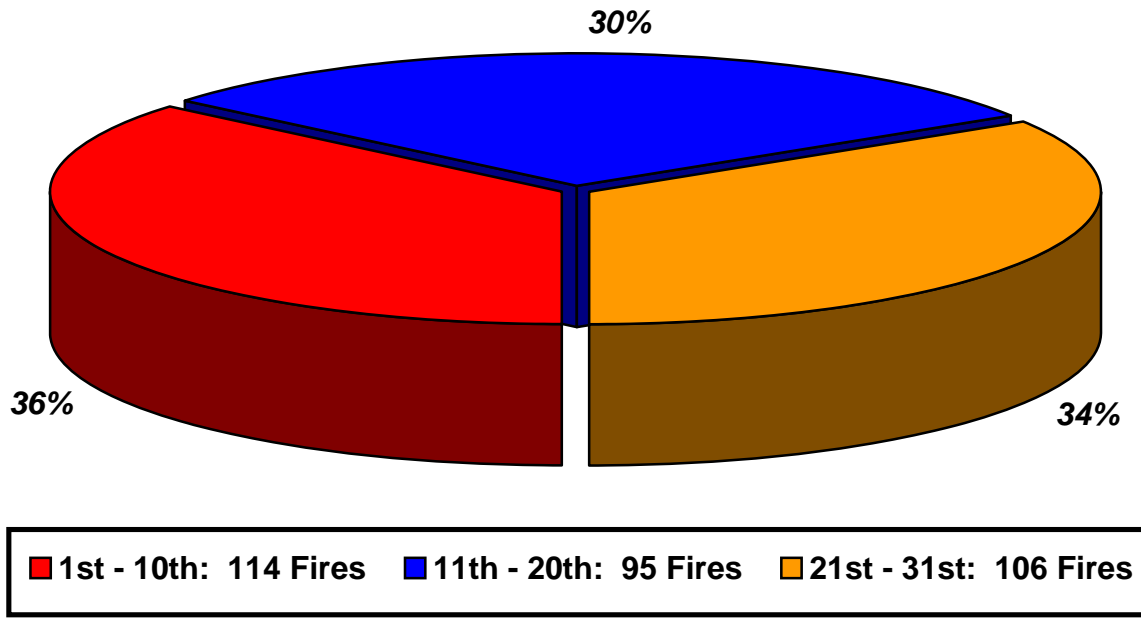
Source: MS Forestry Commission

MARSHALL COUNTY, MISSISSIPPI
County Wildfire Protection Plan
Debris Burning and Incendiary by Month, FY 2002 - 2007



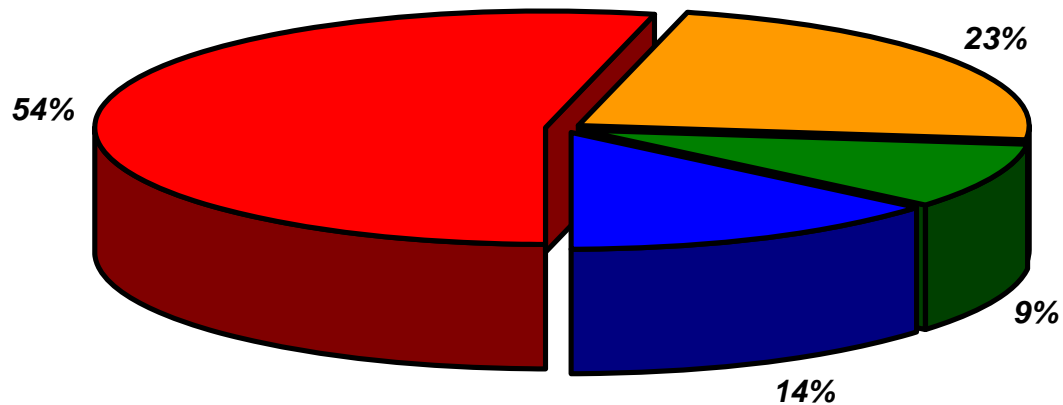
Source: MS Forestry Commission

MARSHALL COUNTY, MISSISSIPPI
County Wildfire Protection Plan
Fires by Day of Month, FY 2002 - 2007



Source: MS Forestry Commission

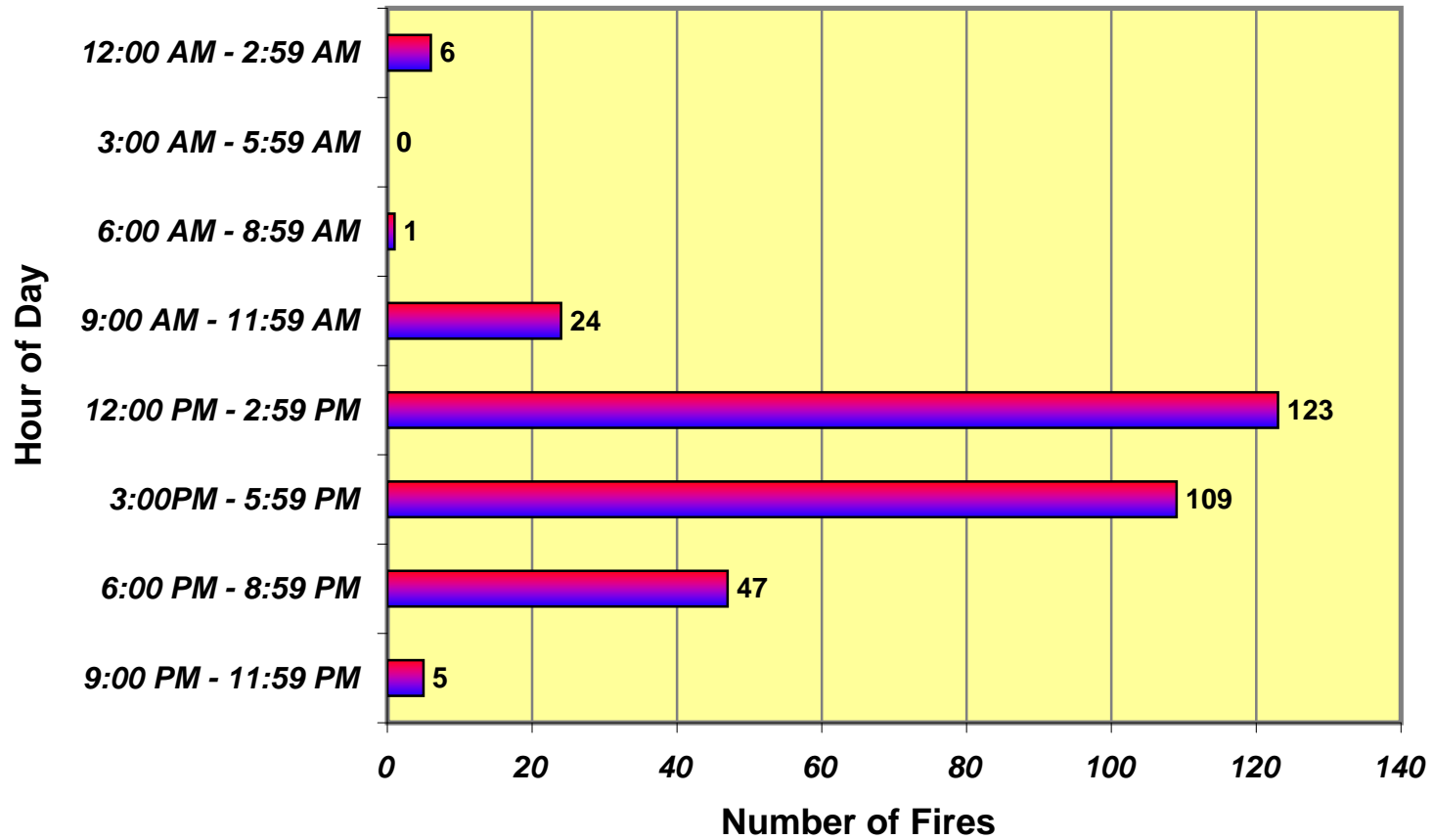
MARSHALL COUNTY, MISSISSIPPI
County Wildfire Protection Plan
Fires by Month (Quarterly), FY 2002 - 2007



■ Jan - Mar: 173 Fires	■ Apr - Jun: 72 Fires
■ Jul - Sep: 27 Fires	■ Oct - Dec: 43 Fires

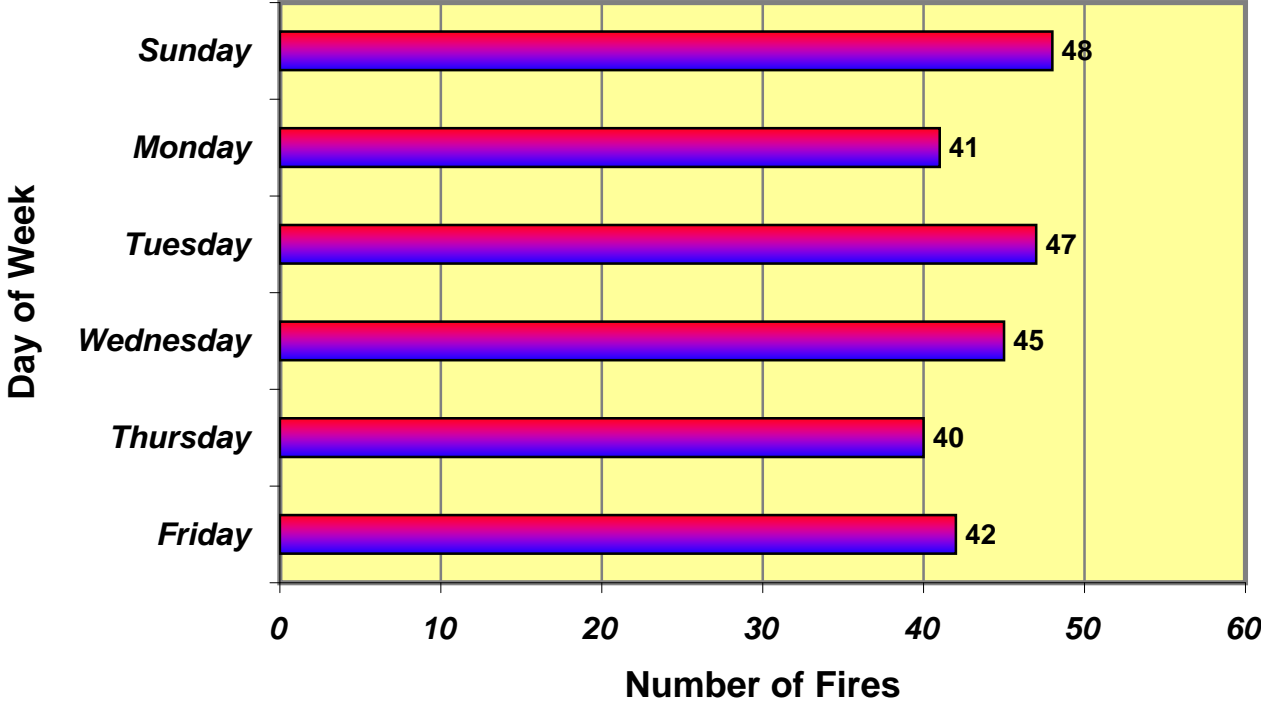
Source: MS Forestry Commission

MARSHALL COUNTY, MISSISSIPPI
County Wildfire Protection Plan
Fires by Hour of Day, FY 2002 - 2007



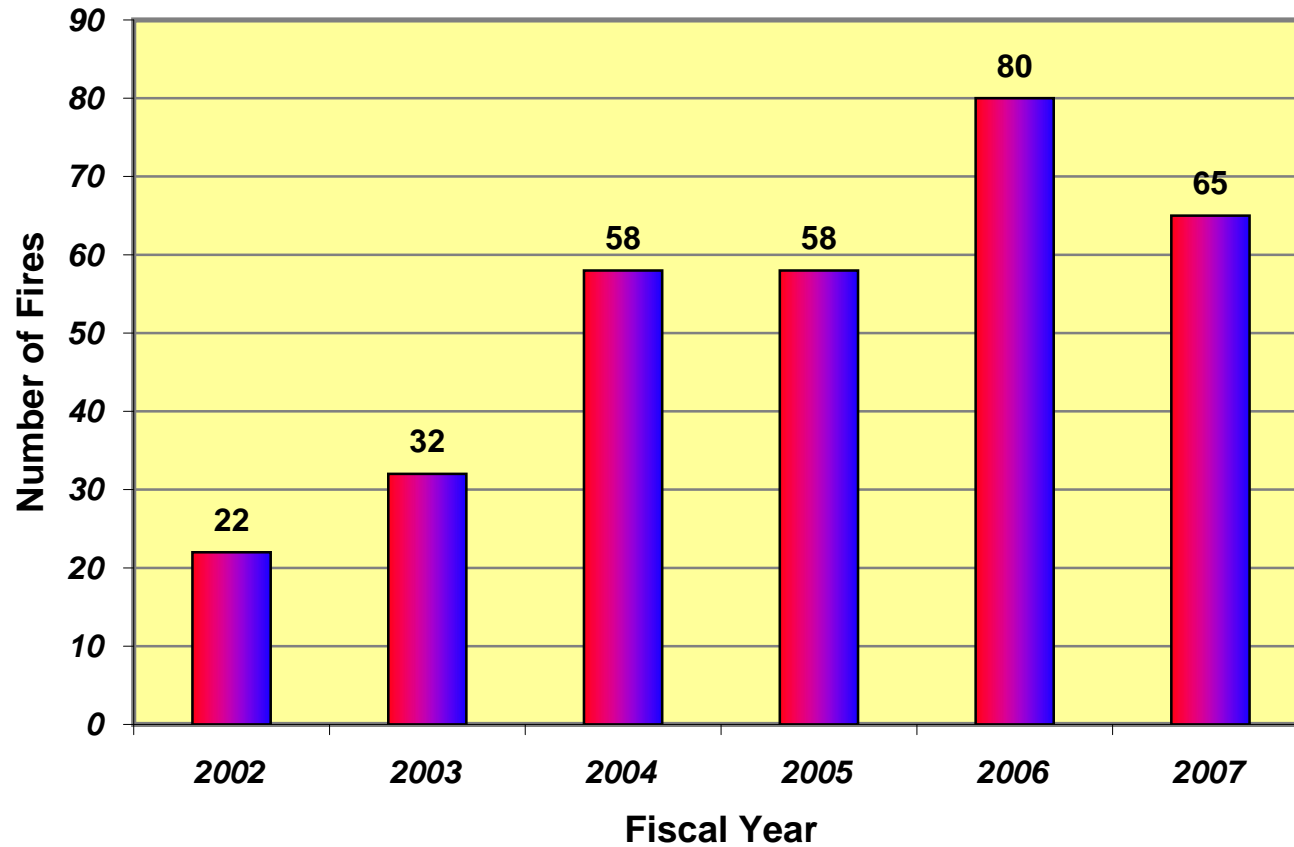
Source: MS Forestry Commission

MARSHALL COUNTY, MISSISSIPPI
County Wildfire Protection Plan
Fires by Day of Week, FY 2002 - 2007



Source: MS Forestry Commission

MARSHALL COUNTY, MISSISSIPPI
County Wildfire Protection Plan
Fires by Fiscal Year, FY 2002 - 2007



Source: MS Forestry Commission





County Risk Assessment

Through the County Risk Assessment, fuel hazards, frequency of wildfire occurrence, vulnerability of development and infrastructure, and emergency preparedness were all considered to compile the following list of county areas at risk from wildfire.

The Steering Committee endeavored to identify large facilities that may be at risk from wildfires due to their location, function, or potential impact to the community if damaged or lost to wildfire. Once identified, these at-risk areas were prioritized to enable available financial and human resources to be concentrated on specific mitigation projects in the future.

The objective of this task was to rate the areas from high to low. Areas receiving the highest rating pose an increased risk due to their purpose, amount of nearby fuel load, or the matter of causing significant community impact in the event of damage or loss due to a wildfire. Mitigation projects for the at-risk areas include a wide variety of activities. Removal or reduction in fuel load may be suggested for some areas, with a public awareness campaign suggested for others.


Rating Key

	High
	Medium-High
	Medium
	Low

Fuel Hazards:

-  *Gas / Oil Facility:* Synergy Gas, Inc. (Byhalia location)

This facility is well-maintained and offers a valuable benefit to the area. However, it is located in the vicinity of a railroad, which gives it an increased risk of damage or destruction. It is rated **Medium-High**.

-  *Gas / Oil Facility:* Dowdle Gas Company; Fitch LP Gas Company; Fitch Oil Company; Synergy Gas, Inc. (Holly Springs location); Shell Oil/Capline Pumping Station; Valero Fuel Storage

These facilities provide a much-needed service to the area. Though they are well-maintained, their products and functions require a **Medium** rating.

High Wildfire Occurrence Areas:

- *Public Facility:* Wall Doxey State Park

This public facility is well-maintained, but includes woodland and camping areas. It is located in a High Wildfire Occurrence Area. The rating for this facility is **High**.

- *Transportation:* Burlington Northern Railroad; Illinois Central Gulf Railroad; and Mississippi Central Railroad

These modes of transportation have the potential to cause wildfires and travel through High Wildfire Occurrence Areas in different parts of the County. Their function and area of rail lines rate these as **High**.

- *Community:* Chulahoma Community

According to statistics, this community is located in one of the High Wildfire Occurrence Areas. The volunteer fire department that serves this community is not far away, but is located in neighboring Tate County. The locality of the community gives a **High** rating.

Vulnerable Facilities:

- *Public Facility:* Holly Springs National Forest

This source of out-door activities serves an important part in the recreational capacity of the County. The Holly Springs National Forest was established in 1936 and has a total of 155,661 acres (243 square miles). Two portions of the National Forest are in a High Fire Occurrence Area where there were several arson fires in 2006. This area has a high risk of fire and smoke damage. It is rated **High**.


- *Public Facility:* Marshall County Historical Museum

Located in the downtown area of Holly Springs, the Museum features several artifacts and documents revealing the historical side of the County. This is an important local landmark. The loss would be significant if damaged or destroyed. The facility is rated **High**.

- *Public Facility:* Marshall County Courthouse

This facility is hub of the downtown Holly Springs area and houses numerous records and county offices. The original courthouse was burned during the Civil War, and the present building was erected in 1870, and remodeled in 1920. Though it is very well-maintained, due to its important function for the city and county, the rating is **High**.

Critical Infrastructure:

 *Medical:* Marshall County Medical Center

The chief medical center is rated **High**. There is a moderate risk for fire, but a high smoke risk. Damage to the facility or loss of use would be significant to the community.

 *Medical:* Med Stat Ambulance Service


This facility serves the County in all medical emergencies, thus supplying a critical function to the area. Damage or loss of use would be significant, giving this service a **High** rating.

 *Communication:* Three Communication Towers in the County

Two of these towers are located in or near the city limits of Holly Springs. One is located near the town of Byhalia. Even though they are well-maintained and have a low ignitability potential, the County would experience significant loss if they were damaged or destroyed. The towers are rated **High**.

 *Transportation:* Santa Fe – Burlington Railroad

This railway travels through Marshall County in a very rural setting. Having the potential to setting wildfires increases its risk. The rating is **High**.

 *Elevated Water Tower:* Marshall County Water Association Elevated Water Tower

The grounds of this water tower are well-kept, but its location near a fuel storage tank and a pumping station put it at increased risk of damage or destruction. The rating is **High**.

 *Electric Substation:* Electric Substation near Byhalia

The area surrounding the substation is well-maintained, but damage or loss of use would be significant. The rating is considered **Medium-High**.

 *Transportation:* Holly Springs – Marshall County Airport

The area surrounding this facility is extremely well-maintained, and has a low ignitability potential. However, the importance of this airport and its function rate it as **Medium-High**.

- *Elevated Water Towers:* Byhalia area Elevated Water Tower (East); Byhalia area Elevated Water Tower (West); Potts Camp Elevated Water Tower (Old)

The grounds are well-maintained, but there is an increased risk of smoke or fire damage due to their locations near a railroad. The rating is **Medium-High**.

- *Elevated Water Tower:* BCM Elevated Water Tower (Cornersville Area)

The rural area surrounding this facility is well-kept, but there is an increased risk of smoke or fire damage due to its location within the Holly Springs National Forest. The rating is **Medium-High**.

- *Elevated Water Towers and Treatment Plant:* Holly Springs Elevated Water Tower # 1 and # 2; Potts Camp Elevated Water Tower (New); Holly Springs Water Treatment Plant

- *Electric Substations:* Electric Substation - Hwy 72 @ Elder Road; Electric Substation - Hwy 311 @Melissa Drive; Electric Substation – West Street @ Holly Springs City Limits; Electric Substation – Hwy 178 @ Neely Avenue

- *Public Utility Office:* Holly Springs Electric, Gas & Water Office

These facilities are very well-kept, but their location and function merit a **Medium** rating.

Areas of Community Importance:

- *Education:* Holly Springs Primary School


The building and grounds are well-maintained, but the school is located in the vicinity of a gas facility, as well as a railroad. These factors increase the risk of smoke and fire damage. The rating is **High**.

- *Education:* Rust College

Founded in 1866, the institution is the second oldest private college in the State. Rust College is one of only ten historically black colleges founded before 1868 that is still in operation. Though the campus is well-maintained, there is a moderate risk of fire. However, the loss would be significant to the community if the college were damaged or destroyed by fire. The rating is **High**.

 *Public Facility:* Strawberry Plains Audubon Center

This 2,500 acre wildlife sanctuary donated to the National Audubon Society sits just north of Holly Springs. The grounds are made up of several acres of woods, native grass fields, and wetlands. It is located near an electric transmission line that runs through the County. Its location and expanse of diverse trees and plants increase its fire risk. Also, any damage or destruction to the property would be a considerable loss to the County. It is rated **High**.

 *Education:* Holy Family School

This school is located within the City Limits, but is near a railroad. Though the grounds and building are well-maintained, there is an increased risk of smoke damage. The rating for this facility is **Medium-High**.

 *Medical:* Holly Springs Surgical Clinic


This medical facility serves an important function for the City and the County. The building is well-maintained, but is located near a railroad. Smoke damage could be significant. The clinic is rated **Medium-High**.

 *Business / Industry:* JM Ash Woodyard, Inc.; MC Lumber Company, Inc.


Though the grounds are well-maintained at both sites, there is a moderate risk of fire and/ or smoke damage due to several wooded areas nearby. They are rated **Medium-High**.

 *Community:* Bethlehem Community

This community sits in the southern part of the County and is within the Holly Springs National Forest boundaries. Though a volunteer fire department is nearby, there is an increased risk of fire and smoke damage due to its location. It is rated as **Medium-High**.

 *Public Facilities:* Byhalia Town Hall; Holly Springs City Hall; Potts Camp Town Hall

Each of these facilities serves an important part of their respective communities in local government procedures. The grounds and buildings are kept well-maintained, but their vital function rates them as **Medium**.

 *Medical:* Byhalia Family Health Center; Communicare; Holly Springs Doctor's Office; Marshall County Medical Clinic; Williams Medical Clinic, Potts Camp

- *Assisted Living Centers and Nursing Homes:* Trinity Mission Health and Rehab Centers located in Holly Springs and Byhalia

These facilities and centers have more of a smoke risk than a fire risk. Each are located within their respective city limits. Rated **Medium** over-all.

- *Education:* Galena Elementary School; H.W. Byers Attendance Center

These schools are well-kept, but are in very rural areas of the County. Their location rates them as **Medium**.

- *Business / Industry:* B & B Concrete; Edwards Fertilizer Company; John Jewell Aircraft Repair; U.S. Brick

These businesses and industries provide important services to the County through workforce and taxable income. They are kept above-average in low fire risk, but their function rates them as **Medium**.

- *Education:* Holly Springs Intermediate School; Holly Springs High School; Byhalia High School; Friendship Christian Academy; Henry Junior High School; Marshall Academy; Mary Reid School; Potts Camp Attendance Center

While some risks exist at these educational facilities, the buildings and grounds are well-kept. Fire stations are located in their general areas. The rating is **Low**.

- *Communities:* Red Banks; Slayden; Victoria Communities

These communities are near major highways, but have a small risk of smoke or fire damage. They are rated as **Low**.

Strategic Goals of the County Wildfire Protection Plan

At the beginning of the planning process, the Marshall County Fire Coordinator agreed to several goals for the CWPP. These goals were set to provide a vision for the overall process, and to identify specific results to be obtained upon completion of the final document.

1. Define the Wild-land Urban Interface (WUI) for Marshall County
2. Identify and prioritize high-risk areas within the WUI
3. Identify treatment methods for prioritized high-risk areas
4. Make recommendations to reduce structure ignitability
5. Identify needs of volunteer fire departments
 - a. Equipment (with emphasis on wildfires)
 - b. Volunteer firefighter recruitment
 - c. Volunteer firefighter retention
 - d. Better radio frequencies with MFC
6. Request education and outreach programs on wildfire prevention for young people
7. Identify strategies to encourage collaboration between Marshall County and the Mississippi Forestry Commission

Mitigation Projects and Recommendations

Through the Community Risk Assessment several areas for improvement were identified. Mitigation projects for the at-risk areas may involve removal or reduction in fuel load for some, a public awareness campaign for others, or a combination approach.

One fuel treatment project that should be addressed is a fire prevention practice involving kudzu control. Kudzu is highly flammable and poses an increased risk of wildfire in some areas of the County. Some of the more vulnerable areas have taken steps in killing the vines, but there are still about 40,000 acres of kudzu within the County.

Among the sites discussed as being vulnerable facilities are those involving the use or transport of natural gas or other hazardous materials. There is an increased potential for structure ignitability at or near these sites due to the natural characterizations of these operations. Education of citizens residing or working near these facilities appears to be the best defense. Developers should be aware of these facilities and plan accordingly when building new subdivisions or industries.

Mitigation projects for High Occurrence Wildfire Areas were limited to a community outreach and education program involving the identification and prosecution of arsonists. In 2006, Marshall County experienced a 73% increase in the number of wildfires from the previous year. Most of these were arson fires.

Mitigation Projects

COUNTY

1. Develop a homeowner education program.
2. Encourage large developments to become Firewise USA Communities.
3. Utilize an apprentice firefighting program.

In addition to mitigation projects, structure ignitability recommendations can be formulated and then distributed to homeowners. These recommendations, as condensed from information given by the MFC, through handouts, brochures, and the Firewise video, are steps that property owners can take to improve the protection and survivability of a structure in the event of a wildfire.

1. Design road width, grade and curves to allow access for large emergency vehicles.
2. Make sure dead-end roads and long driveways have turnaround areas wide enough for emergency vehicles. Construct turnouts along one-way roads.

3. Post clear road signs to show traffic restrictions such as dead-end roads and weight and height limitations.

Recommendations

HOMEOWNERS

1. Leave a minimum of 30' around structure for firefighting equipment access.
2. Widely space and carefully situate the trees you plant.
3. Construct driveway at least 12 feet wide with 13 feet of vertical clearance.
4. If home is gated, display a clearly visible address; provide a gate that swings inward and is at least 30 feet from the main road.
5. Remove "ladder fuels" (vegetation that serves as a link between grass and tree tops).
6. Keep trees and shrubs properly pruned. Lowest tree limbs should be 6' to 10' from the ground.
7. Remove leaf clutter from roof and yard.
8. Mow regularly.
9. Remove dead and over-hanging branches.
10. Keep firewood stacked away from the house.
11. Store and use flammable liquids properly.
12. Follow manufacturers' instructions when using fertilizers and pesticides.
13. Prevent collection of leaves and other combustible materials beneath home by installing proper skirting.
14. Cover vents with wire mesh no larger than 1/8" to prevent sparks from entering house.
15. Use non-flammable materials to construct trellises.
16. Use fire resistant building materials and roofing materials.

Action Plan and Assessment Strategy

The action plan and assessment strategy portion of the County Wildfire Protection Plan serves to identify roles and responsibilities, address funding needs, set timetables for carrying out identified activities, and measure the plan's effectiveness.

1. Fuel reimbursement and insurance for VFD's that extinguish wildfires without the aid of the MFC.

Responsibility: *Marshall County Fire Coordinator, Mississippi Forestry Commission*

Funding: *Grant funds from Mississippi Forestry Commission*

Timetable for Completion: *Implement as soon as possible*

Expected Outcome: *Improve limited resources of the volunteer fire departments*

Assessment Timetable: *Review annually*

2. Maintain, update, and redistribute the CWPP maps to all county departments, volunteer fire departments, and other organizations utilizing the documents.

Responsibility: *Marshall County Fire Coordinator, Northeast Mississippi Planning and Development District*

Funding: *\$0*

Timetable for Completion: *Yearly*

Expected Outcome: *Increased awareness of fire activity leading to implementation of action plan in an effort toward reduction of fire incidents*

Assessment Timetable: *Make any additions or changes to maps on an annual basis. Interview other organizations to see if the maps make their role in wildfire prevention more effective.*

3. Encourage Mississippi Insurance Commissioner to consider rebate programs to allow for home assessments and homeowner mitigation projects.

Responsibility: *Mississippi Forestry Commission*

Funding: *\$0*

Timetable for Completion: *Every 4-6 Years*

Expected Outcome: *More homeowners participating in mitigation activities; lower insurance premiums for homeowners; additional funds for volunteer fire departments.*

Assessment Timetable: *Review after legislative sessions ends*

4. Establish an apprentice firefighter program to encourage young people to take an interest in their community by volunteering to aid their local fire departments.

Responsibility: *Marshall County Fire Coordinator, along with local Fire Departments; MFC County Forester; Natural Resources Conservation Service; State Fire Marshall*

Funding: *Seek grant funding; Mississippi Forestry Commission; NRCS; National Fire Association*

Timetable for Completion: *Biannually, preferably May and October*

Expected Outcome: *Increased awareness of fire safety and prevention by young adults, as well as interest in protecting their communities by serving as firefighters at a future time*

Assessment Timetable: *Annual review of recruitment efforts and numbers*

5. Maintain and update the grants/funding resource list included in CWPP document.

Responsibility: *Marshall County Fire Coordinator*

Funding: *\$0*

Timetable for Completion: *Yearly*

Expected Outcome: *Additional grant applications resulting in an increase of grant funds*

Assessment Timetable: *Review applications / funding annually*

6. Establish bi-annual meetings between the Mississippi Forestry Commission and the Marshall County Volunteer Fire Departments.

Responsibility: *Marshall County Fire Coordinator and the Mississippi Forestry Commission*

Funding: *\$0*

Timetable for Completion: *Implement immediately*

Expected Outcome: *Improved communications and coordination in the areas of firefighting, training, safety and project management*

Assessment Timetable: *2 – 5 years*

Potential Funding Sources

- 1. Assistance to Firefighters Grant (AFG) Program**
Website: www.firegrantsupport.com
Application Deadline: Spring, 2010
Program Description: Funding for training, equipment, vehicles, firefighter health and safety program, and operations
- 2. Fire Prevention and Safety (FP&S) Grant Program**
Website: www.firegrantsupport.com
Application Deadline: Fall, 2009
Program Description: Outreach to high risk target groups including children, senior citizens, and firefighters.
- 3. Staffing for Adequate Fire and Emergency Response (SAFER) Grant Program**
Website: www.firegrantsupport.com
Application Deadline: Summer, 2010
Program Description: Funding for the hiring of fire personnel and incentives for volunteer recruitment and retention
- 4. USDA – Rural Development Community Facilities Grant Program**
Website: www.rurdev.usda.gov
Application Deadline: Applications taken year round
Program Description: Funding for assistance in constructing, enlarging, or improving community facilities for public safety
- 5. Mississippi Forestry Commission**
Website: www.mfc.state.us.ms
Application Deadline: Approximate date – Mid to late October, 2008
Program Description: Wildland fire gear (Ready Kits), which consist of nomex coveralls, helmet, headlamp, neck shroud, gloves, and a bag for storage
- 6. First Responder Institute Website**
Website: www.firstresponder.org
Program Description: Provide support to local U.S. fire departments and emergency service personnel

- 7. Responder Knowledge Base Website**
Website: www.rkb.mipt.org
Program Description: Website contains information on currently available products, standards, training, and grants
- 8. Mississippi Volunteer Fire Assistance Program**
Website: www.mfc.state.ms.us
Application Deadline: TBA
Program Description: This program provides grants to eligible fire departments for the purchase of Wildland Firefighter Ready Kits. This grant is a 50/50 matching grant; however, match portion will be covered by the Mississippi Forestry Commission.
- 9. Rural Fire Truck Acquisition Assistance Program**
Website: www.doi.gov
Application Deadline: June, 2010 (estimate)
Program Description: Helps rural FDs meet accepted standards of wildland fire qualifications, training, and performance for initial and extended attack at the local level.
- 10. Grants Office**
Website: www.firegrants.info and www.grantsoffice.com
Program Description: Provides information, tools, and tips to help fire departments be more successful at obtaining funds from the Assistance to Firefighters Grants Program

References

Marshall County Industrial Development Authority
520 J.M. Ash Road
Holly Springs, MS 38635

Holly Springs Chamber of Commerce
140 College Avenue
Holly Springs, MS 38635

Byhalia Chamber of Commerce
P. O. Box 910
Byhalia, MS 38611

Audubon Mississippi
Strawberry Plains Audubon Center
285 Plains Road
Holly Springs, MS 38635

Wikipedia
Holly Springs; Rust College; Holly Springs National Forest
Marshall County, Mississippi

LocationOne Information System
Marshall County, Mississippi

MSGenWeb Project
"Preserving our Heritage"
Marshall County, MS

Marshall County
Hazard Mitigation Plan, 2004

U.S.D.A.
Soil Conservation Service and Forest Service
Soil Survey of Marshall County, MS
In cooperation with Mississippi Agricultural Experiment Station
Issued July 1972

Living with Wild Fire LLC
P. O. Box 217
Baldwyn, MS 38824-0217

FireGrantsHelp.com

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Fax: 662.728.2417
Website: *www.nempdd.com*