APPENDIX C

OTHER PLANNING DOCUMENTS

Taliaferro County Emergency Management Agency

Emergency Operations Plan

Plan Approved:
25-JUL-16

Revised:
02-JAN-19

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Agency	Number of Copies
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Gema	0
Georgia Bureau of Investigation (Thomson)	0
Georgia Department of Agriculture (North District)	0
Georgia Power	0
Georgia State Patrol	0
Rayle Electric	0
Taliaferro County Fire Department	1
Taliaferro County Board of Education	1
Taliaferro County Commission	1
Taliaferro County Coroner	1
Taliaferro County DFCS	0
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Taliaferro County First Responders	0
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Taliaferro County Public Works	0
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Taliaferro County
EMERGENCY OPERATIONS PLAN

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PREFACE

This Emergency Operations Plan (EOP) describes the management and coordination of resources and personnel during periods of major emergency. This comprehensive local emergency operations plan is developed to ensure mitigation and preparedness, appropriate response and timely recovery from natural and man made hazards which may affect residents of Taliaferro County.

This plan supersedes the Emergency Operations Plan dated from old eLEOP. It incorporates guidance from the Georgia Emergency Management Agency (GEMA) as well as lessons learned from disasters and emergencies that have threatened Taliaferro County. The Plan will be updated at the latest, every four years. The plan:

- Defines emergency response in compliance with the State-mandated Emergency Operations Plan process.
- Establishes emergency response policies that provide Departments and Agencies with guidance for the coordination and direction of municipal plans and procedures.
- Provides a basis for unified training and response exercises.

The plan consists of the following components:

- The Basic Plan describes the structure and processes comprising a county approach to incident management designed to integrate the efforts of municipal governments, the private sector, and non-governmental organizations. The Basic Plan includes the: purpose, situation, assumptions, concept of operations, organization, assignment of responsibilities, administration, logistics, planning and operational activities.
- Appendices provide other relevant supporting information, including terms, definitions, and authorities.
- Emergency Support Function Annexes detail the missions, policies, structures, and responsibilities of County agencies for coordinating resource and programmatic support to municipalities during Incidents of Critical Significance.
- Support Annexes prescribe guidance and describe functional processes and administrative requirements necessary to ensure efficient and effective implementation of incident management objectives.
- Incident Annexes address contingency or hazard situations requiring specialized application of the EOP. The Incident Annexes describe the missions, policies, responsibilities, and coordination processes that govern the interaction of public and private entities engaged in incident management and emergency response operations across a spectrum of potential hazards. Due to security precautions and changing nature of their operational procedures, these Annexes, their supporting plans, and operational supplements are published separately.

The following is a summary of the 15 Emergency Support Functions:

1. *Transportation*: Support and assist municipal, county, private sector, and voluntary organizations requiring transportation for an actual or potential Incident of Critical Significance.

2. *Communications*: Ensures the provision of communications support to municipal, county, and private-sector response efforts during an Incident of Critical Significance.

3. *Public Works and Engineering*: Coordinates and organizes the capabilities and resources of the municipal and county governments to facilitate the delivery of services, technical assistance, engineering expertise, construction management, and other support to prevent, prepare for, respond to, and/or recover from an Incident of Critical Significance.

4. *Firefighting*: Enable the detection and suppression of wild-land, rural, and urban fires resulting from, or occurring coincidentally with an Incident of Critical Significance.

5. *Emergency Management Services*: Responsible for supporting overall activities of the County Government for County incident management.

6. *Mass Care, Housing and Human Services*: Supports County-wide, municipal, and non-governmental organization efforts to address non-medical mass care, housing, and human services needs of individuals and/or families impacted by Incidents of Critical Significance.

7. *Resource Support*: Supports volunteer services, County agencies, and municipal governments tracking, providing, and/or requiring resource support before, during, and/or after Incidents of Critical Significance.

8. *Public Health and Medical Services*: Provide the mechanism for coordinated County assistance to supplement municipal resources in response to public health and medical care needs (to include veterinary and/or animal health issues when appropriate) for potential or actual Incidents of Critical Significance and/or during a developing potential health and medical situation.

9. *Search and Rescue*: Rapidly deploy components of the National US Response System to provide specialized life-saving assistance to municipal authorities during an Incident of Critical Significance.

10. *Hazardous Materials*: Coordinate County support in response to an actual or potential discharge and/or uncontrolled release of oil or hazardous materials during Incidents of Critical Significance.

11. *Agriculture and Natural Resources*: supports County and authorities and other agency efforts to address: Provision of nutrition assistance; control and eradication of an outbreak of a highly contagious or economically devastating animal/zoonotic

disease; assurance of food safety and food security and; protection of natural and cultural resources and historic properties.

12. *Energy*: Restore damaged energy systems and components during a potential of actual Incident of Critical Significance.

13. *Public Safety and Security Services*: Integrates County public safety and security capabilities and resources to support the full range of incident management activities associated with potential or actual Incidents of Critical Significance.

14. *Long Term Recovery and Mitigation*: Provides a framework for County Government support to municipal governments, nongovernmental organizations, and the private sector designed to enable community recovery from the long-term consequences of an Incident of Critical Significance.

15. *External Affairs*: Ensures that sufficient County assets are deployed to the field during a potential or actual Incident of Critical Significance to provide accurate, coordinated, and timely information to affected audiences, including governments, media, the private sector, and the populace.

Georgia Emergency Operation Plan

2017

Approval and Implementation

The Georgia Emergency Management and Homeland Security Agency maintains the Georgia Emergency Operations Plan and presents the plan to the Governor for adoption once every four years, at a minimum.

The Georgia Emergency Operations Plan was developed by the Georgia Emergency Management and Homeland Security Agency, in coordination with other state agencies, non-governmental organizations and private sector partners and is aligned with the National Incident Management System as well as the National Response Framework and the National Disaster Recovery Framework. In addition, Georgia Emergency Management and Homeland Security Agency modified the Georgia Emergency Operations Plan, its appendices, Emergency Support Function Annexes and Support and Hazard Specific Annexes incorporate lessons learned from exercises, training, incidents and events.

This plan supersedes the Georgia Emergency Operation Plan dated January 2013.

11/13/17

Homer Bryson

Director

Georgia Emergency Management and

Homeland Security Agency

Date

Executive Summary

Georgia is vulnerable to a variety of hazards as identified in the State's Hazard Mitigation Strategy Plan. Thus the Georgia Emergency Operations Plan is written for the entire State Disaster Response Team, to include, but not limited to: all executives, state emergency management personnel, Private-Sector Partners, Non-Governmental Organization partners, local emergency managers, faith-based organizations and any other individuals or organizations expected to support disaster response efforts through emergency management functions.

This Plan is intended to clarify expectations for an effective response by state and local officials in support of responders in the field which can save lives, protect property, and more quickly restore essential services.

This document represents decades of planning and coordination between local, state, federal and non-governmental partners operating within or supporting the State of Georgia and is intended to ensure seamless integration of federal and state resources when necessary.

This Plan is consistent with the National Response Framework and supports the local emergency operations plans for all 159 counties within the State.

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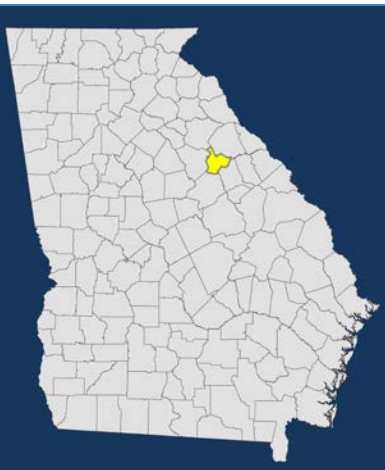

Hazard Risk Analyses
Supplement to the Taliaferro County Joint Hazard Mitigation Plan

Carl Vinson
Institute of Government
UNIVERSITY OF GEORGIA

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Introduction

The Federal Disaster Mitigation Act of 2000 (DMA2K) requires state, local, and tribal governments to develop and maintain a mitigation plan to be eligible for certain federal disaster assistance and hazard mitigation funding programs.

Mitigation seeks to reduce a hazard's impacts, which may include loss of life, property damage, disruption to local and regional economies, and the expenditure of public and private funds for recovery. Sound mitigation must be based on a sound risk assessment that quantifies the potential losses of a disaster by assessing the vulnerability of buildings, infrastructure, and people.

In recognition of the importance of planning in mitigation activities, FEMA Hazus-MH, a powerful disaster risk assessment tool based on geographic information systems (GIS). This tool enables communities of all sizes to predict estimated losses from floods, hurricanes, earthquakes, and other related phenomena and to measure the impact of various mitigation practices that might help reduce those losses.

In 2019, the Georgia Department of Emergency Management partnered with the Carl Vinson Institute of Government at the University of Georgia to develop a detailed risk assessment focused on defining hurricane, riverine flood, and tornado risks in Taliaferro County, Georgia. This assessment identifies the characteristics and potential consequences of the disaster, how much of the community could be affected by the disaster, and the impact on community assets.

Risk Assessment Process Overview

Hazus-MH Version 2.2 SP1 was used to perform the analyses for Taliaferro County. The Hazus-MH application includes default data for every county in the US. This Hazus-MH data was derived from a variety of national sources and in some cases the data are also several years old. Whenever possible, using local provided data is preferred. Taliaferro County provided building inventory information from the county's property tax assessment system. This section describes the changes made to the default Hazus-MH inventory and the modeling parameters used for each scenario.

County Inventory Changes

The default Hazus-MH site-specific point inventory was updated using data compiled from the Georgia Emergency Management Agency (GEMA). The default Hazus-MH aggregate inventory (General Building Stock) was also updated prior to running the scenarios. Reported losses reflect the updated data sets.

General Building Stock Updates

General Building Stock (GBS) is an inventory category that consists of aggregated data (grouped by census geography — tract or block). Hazus-MH generates a combination of site-specific and aggregated loss estimates based on the given analysis and user input.

The GBS records for Taliaferro County were replaced with data derived from parcel and property assessment data obtained from Taliaferro County. The county provided property assessment data was current as of December 2018 and the parcel data current as of December 2018. Records without improvements were deleted. The parcel boundaries were converted to parcel points located in the centroids of each parcel boundary; then, each parcel point was linked to an assessor record based upon matching parcel numbers. The parcel assessor match-rate for Taliaferro County is 99.6%. The generated building inventory represents the approximate locations (within a parcel) of structures. The building inventory was aggregated by census block. Both the tract and block tables were updated. Table 1 shows the results of the changes to the GBS tables by occupancy class.

Table 1: GBS Building Exposure Updates by Occupancy Class*

General Occupancy	Default Hazus-MH Count	Updated Count	Default Hazus-MH Exposure	Updated Exposure
Agricultural	9	0	$1,942,000	$0
Commercial	42	57	$12,967,000	$2,548,000
Education	1	6	$351,000	$4,420,000
Government	4	6	$1,014,000	$1,009,000
Industrial	10	14	$2,700,000	$715,000
Religious	13	5	$5,963,000	$505,000
Residential	984	1,245	$110,978,000	$113,484,000
Total	1,063	1,333	$135,915,000	$122,681,000

*The exposure values represent the total number and replacement cost for all Taliaferro County Buildings

For Taliaferro County, the updated GBS was used to calculate hurricane wind losses. The flood losses and tornado losses were calculated from building inventory modeled in Hazus-MH as User-Defined

Facility (UDF)[1], or site-specific points. Figure 1 shows the distribution of buildings as points based on the county provided data.

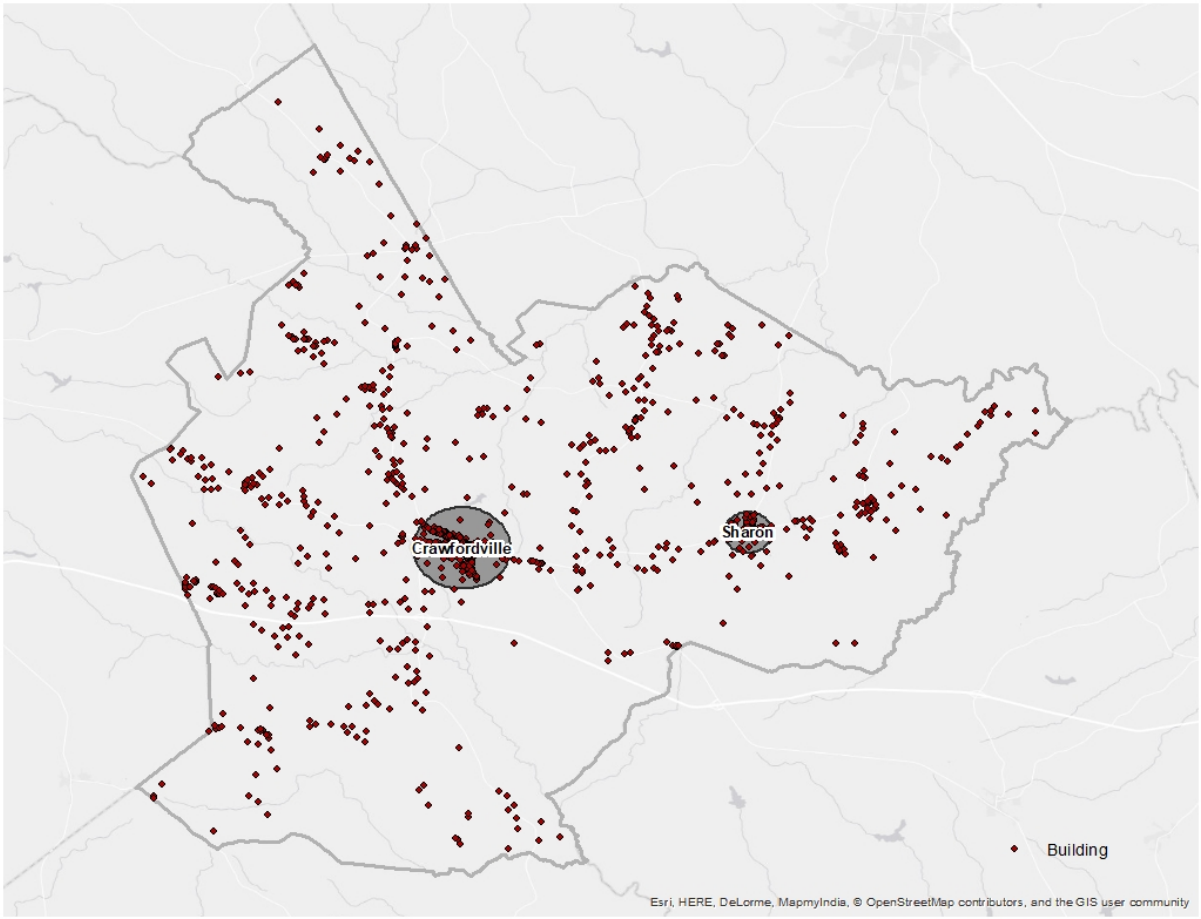

Figure 1: Taliaferro County Overview

Essential Facility Updates

Essential facilities include:

- Care facilities
- EOCs
- Fire stations
- Police stations
- Schools

The default Hazus-MH essential facility data was updated to reflect improved information available in the Georgia Mitigation Information System (GMIS) as of October 2018. For these risk analyses, only GMIS data for buildings that Hazus-MH classified as Essential Facilities was integrated into Hazus-MH because the application provides specialized reports for these five facilities. Essential Facility inventory was updated for the analysis conducted for this report. The following table summarizes the counts and exposures, where available, by Essential Facility classification of the updated data.

[1] The UDF inventory category in Hazus-MH allows the user to enter site-specific data in place of GBS data.

Table 2: Updated Essential Facilities

Classification	Updated Count	Updated Exposure
Crawfordville		
EOC	0	$0
Care	2	$540,000
Fire	1	$182,000
Police	1	$400,000
School	2	$15,750,000
Total	6	$16,872,000
Sharon		
EOC	0	$0
Care	0	$0
Fire	0	$0
Police	0	$0
School	0	$0
Total	0	$0
Unincorporated Areas of Taliaferro County		
EOC	1	$880,000
Care	0	$0
Fire	2	$190,000
Police	0	$0
School	0	$0
Total	3	$1,070,000

Assumptions and Exceptions

Hazus-MH loss estimates may be impacted by certain assumptions and process variances made in this risk assessment.

- The Taliaferro County analysis used Hazus-MH Version 2.2 SP1, which was released by FEMA in May 2015.
- County provided parcel and property assessment data may not fully reflect all buildings in the county. For example, some counties do not report not-for-profit buildings such as government

buildings, schools and churches in their property assessment data. This data was used to update the General Building Stock as well as the User Defined Facilities applied in this risk assessment.

- Georgia statute requires that the Assessor's Office assign a code to all of the buildings on a parcel based on the buildings primary use. If there is a residential or a commercial structure on a parcel and there are also agricultural buildings on the same parcel Hazus-MH looks at the residential and commercial "primary" structures first and then combines the value of all secondary structures on that parcel with the value of the primary structure. The values and building counts are still accurate but secondary structures are accounted for under the same classification as the primary structure. Because of this workflow, the only time that a parcel would show a value for an agricultural building is when there are no residential or commercial structures on the parcel thus making the agricultural building the primary structure. This is the reason that agricultural building counts and total values seem low or are nonexistent.
- GBS updates from assessor data will skew loss calculations. The following attributes were defaulted or calculated:
  - Foundation Type was set from Occupancy Class
  - First Floor Height was set from Foundation Type
  - Content Cost was calculated from Replacement Cost
- It is assumed that the buildings are located at the centroid of the parcel.
- The essential facilities extracted from the GMIS were only used in the portion of the analysis designated as essential facility damage. They were not used in the update of the General Building Stock or the User Defined Facility inventory.

The hazard models included in this risk assessment included:

- Hurricane assessment which was comprised of a wind only damage assessment.
- Flood assessment based on the 1% annual chance event that includes riverine assessments.
- Tornado assessment based on GIS modeling.

Hurricane Risk Assessment

Hazard Definition

The National Hurricane Center describes a hurricane as a tropical cyclone in which the maximum sustained wind is, at minimum, 74 miles per hour (mph)[2]. The term hurricane is used for Northern Hemisphere tropical cyclones east of the International Dateline to the Greenwich Meridian. The term typhoon is used for Pacific tropical cyclones north of the Equator west of the International Dateline. Hurricanes in the Atlantic Ocean, Gulf of Mexico, and Caribbean form between June and November with the peak of hurricane season occurring in the middle of September. Hurricane intensities are measured using the Saffir-Simpson Hurricane Wind Scale (Table 3). This scale is a 1 to 5 categorization based on the hurricane's intensity at the indicated time.

Hurricanes bring a complex set of impacts. The winds from a hurricane produce a rise in the water level at landfall called storm surge. Storm surges produce coastal flooding effects that can be as damaging as the hurricane's winds. Hurricanes bring very intense inland riverine flooding. Hurricanes can also produce tornadoes that can add to the wind damages inland. In this risk assessment, only hurricane winds, and coastal storm surge are considered.

Table 3: Saffir-Simpson Hurricane Wind Scale

Category	Wind Speed (mph)	Damage
1	74 - 95	Very dangerous winds will produce some damage
2	96 - 110	Extremely dangerous winds will cause extensive damage
3	111 - 130	Devastating damage will occur
4	131 -155	Catastrophic damage will occur
5	> 155	Catastrophic damage will occur

The National Oceanic and Atmospheric Administration's National Hurricane Center created the HURDAT database, which contains all of the tracks of tropical systems since the mid-1800s. This database was used to document the number of tropical systems that have affected Taliaferro County by creating a 20-mile buffer around the county to include storms that didn't make direct landfall in Taliaferro County but impacted the county. Note that the storms listed contain the peak sustained winds, maximum pressure and maximum attained storm strength for the entire storm duration. Since 1852, Taliaferro County has had 17 tropical systems within 20 miles of its county borders (Table 4).

Table 4: Tropical Systems affecting Taliaferro County[3]

YEAR	DATE RANGE	NAME	MAX WIND(Knots)	MAX PRESSURE	MAX CAT
1852	August 19-30	UNNAMED	100	961	H2

[2] National Hurricane Center (2011). "Glossary of NHC Terms." National Oceanic and Atmospheric Administration. http://www.nhc.noaa.gov/aboutgloss.shtml#h. Retrieved 2012-23-02.

[3] Atlantic Oceanic and Meteorological Laboratory (2012). "Data Center." National Oceanic and Atmospheric Administration. http://www.aoml.noaa.gov/hrd/data_sub/re_anal.html. Retrieved 7-20-2015.

YEAR	DATE RANGE	NAME	MAX WIND(Knots)	MAX PRESSURE	MAX CAT
1859	September 15-18	UNNAMED	70	0	TD
1882	September 02-13	UNNAMED	110	1000	H2
1886	June 17-24	UNNAMED	85	0	H1
1889	September 12-26	UNNAMED	95	0	H1
1893	September 27 - October 05	UNNAMED	115	948	H3
1896	July 04-12	UNNAMED	85	0	H1
1903	September 09-16	UNNAMED	80	988	H1
1912	June 07-17	UNNAMED	60	0	TD
1928	August 03-13	UNNAMED	90	977	H1
1933	August 31 - September 07	UNNAMED	120	948	H3
1947	October 05-09	UNNAMED	50	0	TD
1949	August 23 - September 01	UNNAMED	115	1002	H3
1959	May 28 - June 02	ARLENE	55	1002	TD
1995	August 22-28	JERRY	35	1010	TD
2000	September 15-25	HELENE	60	1012	TD
2004	September 13-29	JEANNE	105	1010	H2

Category Definitions:

TS – Tropical storm

TD – Tropical depression

H1 – Category 1 (same format for H2, H3, and H4)

E – Extra-tropical cyclone

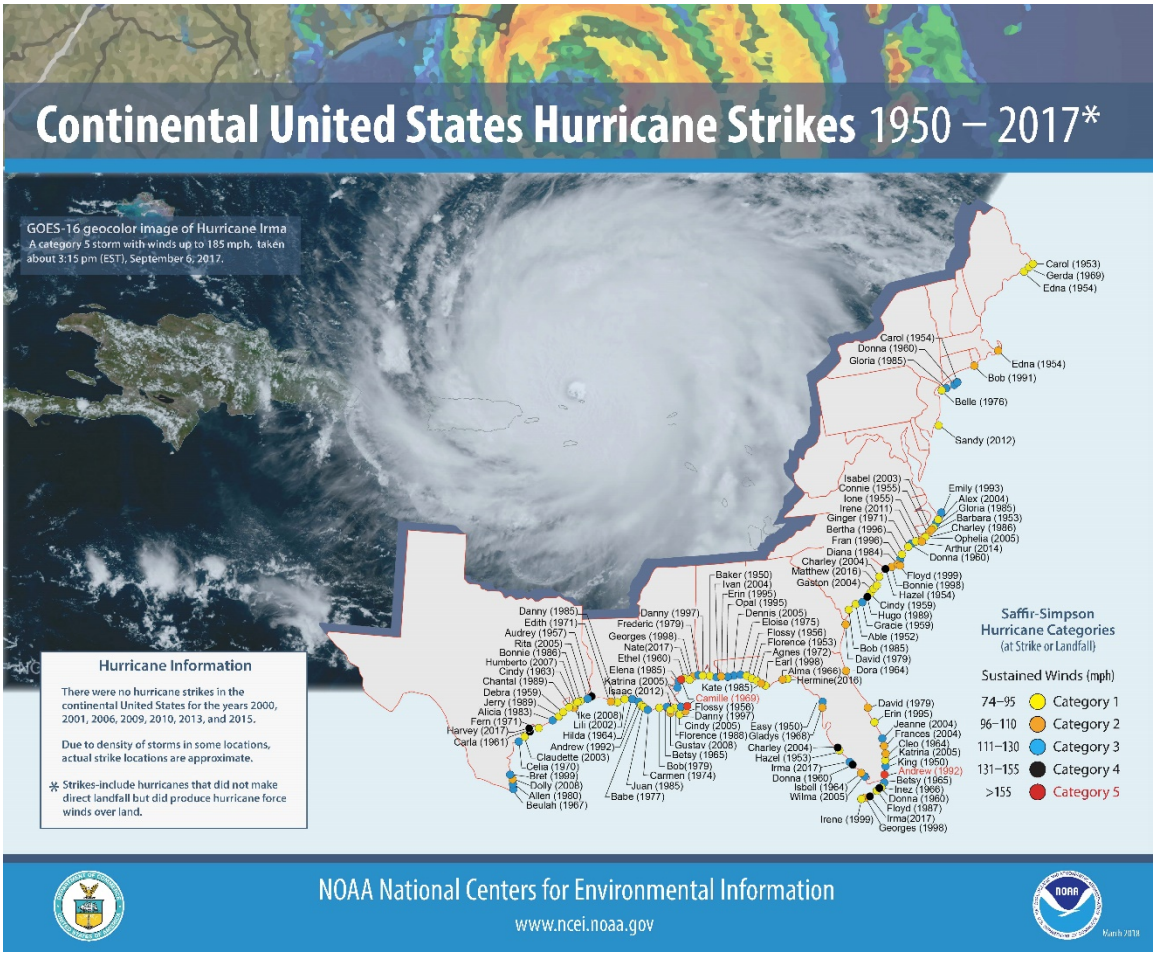

Figure 2: Continental United States Hurricane Strikes: 1950 to 2017[4]

Probabilistic Hurricane Scenario

The following probabilistic wind damage risk assessment modeled a Tropical Storm with maximum winds of 69 mph.

Wind Damage Assessment

Separate analyses were performed to determine wind and hurricane storm surge related flood losses. This section describes the wind-based losses to Taliaferro County. Wind losses were determined from probabilistic models run for the Tropical Storm which equates to the 1% chance storm event. Figure 3 shows wind speeds for the modeled Tropical Storm.

[4] Source: NOAA National Centers for Environmental Information

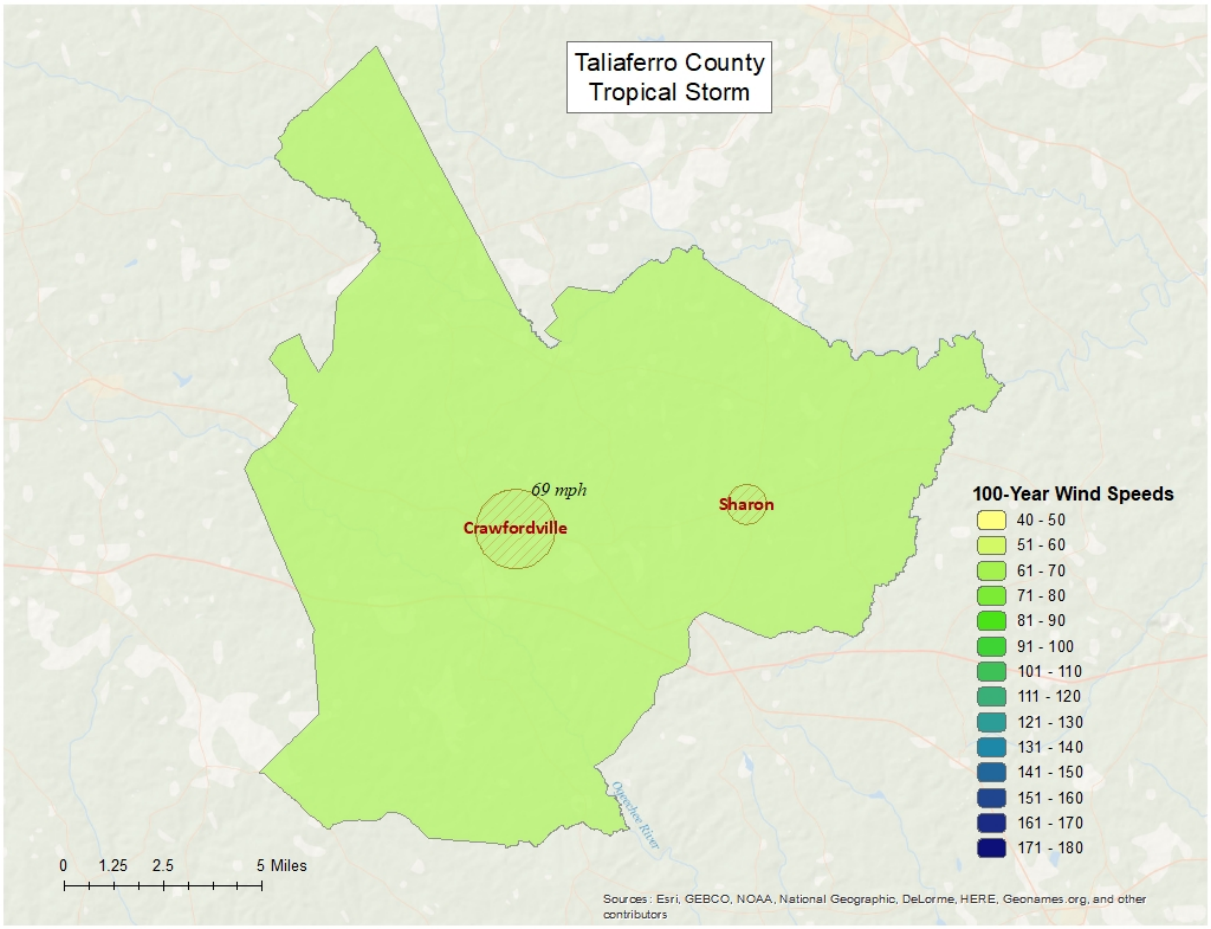

Figure 3: Wind Speeds by Storm Category

Wind-Related Building Damages

Buildings in Taliaferro County are vulnerable to storm events, and the cost to rebuild may have significant consequences to the community. The following table shows a summary of the results of wind-related building damage in Taliaferro County for the Tropical Storm (100 Year Event). The loss ratio expresses building losses as a percentage of total building replacement cost in the county. Figure 4 illustrates the building loss ratios of the modeled Tropical Storm.

Table 5: Hurricane Wind Building Damage

Classification	Number of Buildings Damaged	Total Building Damage	Total Economic Loss[5]	Loss Ratio
Tropical Storm	1	$126,040	$172,700	0.10%

[5] Includes property damage (infrastructure, contents, and inventory) as well as business interruption losses.

Note that wind damaged buildings are not reported by jurisdiction. This is due to the fact that census tract boundaries – upon which hurricane building losses are based – do not closely coincide with jurisdiction boundaries.

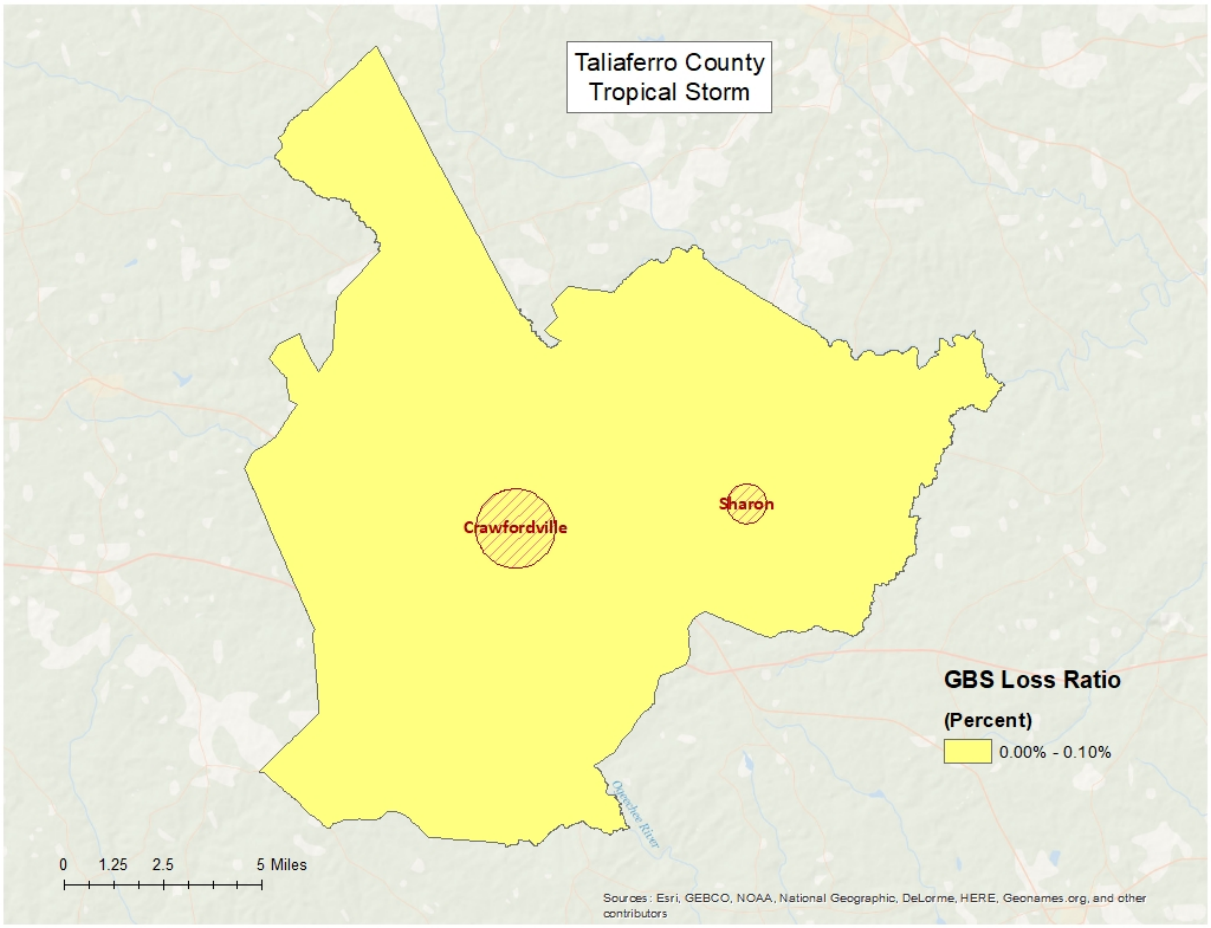

Figure 4: Hurricane Wind Building Loss Ratios

Essential Facility Losses

Essential facilities are also vulnerable to storm events, and the potential loss of functionality may have significant consequences to the community. Hazus-MH identified the essential facilities that may be moderately or severely damaged by winds. The results are compiled in Table 6.

There are 9 essential facilities in Jenkins County.

Classification	Number
EOCs	1
Fire Stations	3
Care Facilities	2
Police Stations	1
Schools	2

Table 6: Wind-Damaged Essential Facility Losses

Classification	Facilities At Least Moderately Damaged > 50%	Facilities Completely Damaged > 50%	Facilities with Expected Loss of Use (< 1 day)
Tropical Storm	0	0	9

Shelter Requirements

Hazus-MH estimates the number of households evacuated from buildings with severe damage from high velocity winds as well as the number of people who will require short-term sheltering. Since the 1% chance storm event for Taliaferro County is a Tropical Storm, the resulting damage is not enough to displace Households or require temporary shelters as shown in the results listed in Table 7.

Table 7: Displaced Households and People

Classification	# of Displaced Households	# of People Needing Short-Term Shelter
Tropical Storm	0	0

Debris Generated from Hurricane Wind

Hazus-MH estimates the amount of debris that will be generated by high velocity hurricane winds and quantifies it into three broad categories to determine the material handling equipment needed:

- Reinforced Concrete and Steel Debris
- Brick and Wood and Other Building Debris
- Tree Debris

Different material handling equipment is required for each category of debris. The estimates of debris for this scenario are listed in Table 8. The amount of hurricane wind related tree debris that is estimated to require pick up at the public's expense is listed in the eligible tree debris column.

Table 8: Wind-Related Debris Weight (Tons)

Classification	Brick, Wood, and Other	Reinforced Concrete and Steel	Eligible Tree Debris	Other Tree Debris	Total
Tropical Storm	4	0	234	6,014	6,252

Figure 5 shows the distribution of all wind related debris resulting from a Tropical Storm. Each dot represents 20 tons of debris within the census tract in which it is located. The dots are randomly distributed within each census tract and therefore do not represent the specific location of debris sites.

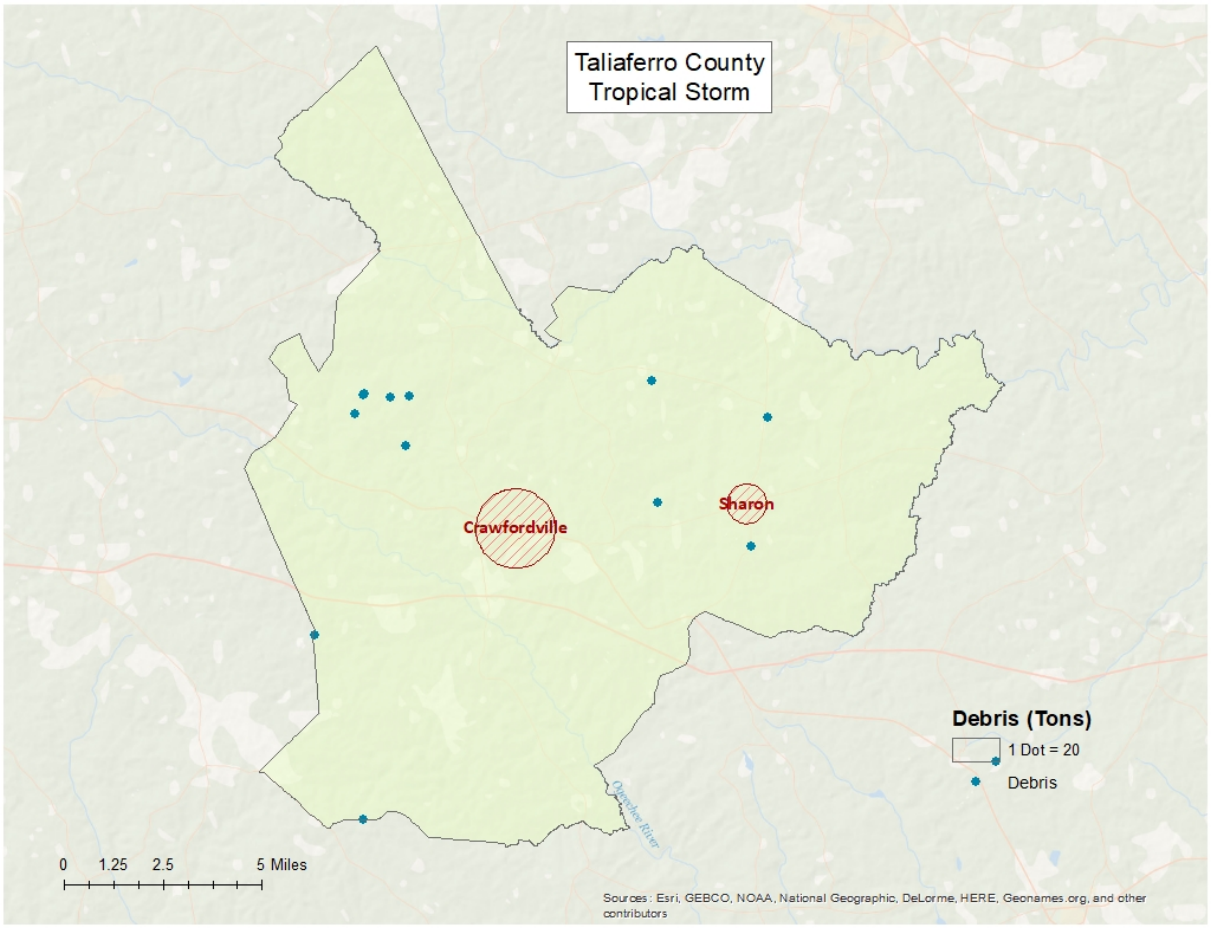

Figure 5: Wind-Related Debris Weight (Tons)

Flood Risk Assessment

Hazard Definition

Flooding is a significant natural hazard throughout the United States. The type, magnitude, and severity of flooding are functions of the amount and distribution of precipitation over a given area, the rate at which precipitation infiltrates the ground, the geometry and hydrology of the catchment, and flow dynamics and conditions in and along the river channel. Floods can be classified as one of three types: upstream floods, downstream floods, or coastal floods.

Upstream floods, also called flash floods, occur in the upper parts of drainage basins and are generally characterized by periods of intense rainfall over a short duration. These floods arise with very little warning and often result in locally intense damage, and sometimes loss of life, due to the high energy of the flowing water. Flood waters can snap trees, topple buildings, and easily move large boulders or other structures. Six inches of rushing water can upend a person; another 18 inches might carry off a car. Generally, upstream floods cause damage over relatively localized areas, but they can be quite severe in the local areas in which they occur. Urban flooding is a type of upstream flood. Urban flooding involves the overflow of storm drain systems and can be the result of inadequate drainage combined with heavy rainfall or rapid snowmelt. Upstream or flash floods can occur at any time of the year in Georgia, but they are most common in the spring and summer months.

Downstream floods, also called riverine floods, refer to floods on large rivers at locations with large upstream catchments. Downstream floods are typically associated with precipitation events that are of relatively long duration and occur over large areas. Flooding on small tributary streams may be limited, but the contribution of increased runoff may result in a large flood downstream. The lag time between precipitation and time of the flood peak is much longer for downstream floods than for upstream floods, generally providing ample warning for people to move to safe locations and, to some extent, secure some property against damage.

Coastal floods occurring on the Atlantic and Gulf coasts may be related to hurricanes or other combined offshore, nearshore, and shoreline processes. The effects of these complex interrelationships vary significantly across coastal settings, leading to challenges in the determination of the base (1-percent-annual-chance) flood for hazard mapping purposes. Land area covered by floodwaters of the base flood is identified as a Special Flood Hazard Area (SFHA). The Taliaferro County flood risk assessment analyzed at risk structures in the SFHA.

> The SFHA is the area where the National Flood Insurance Program's (NFIP) floodplain management regulations must be enforced and the area where the mandatory purchase of flood insurance applies. The owner of a structure in a high-risk area must carry flood insurance, if the owner carries a mortgage from a federally regulated or insured lender or servicer.

The following probabilistic risk assessment involves an analysis of a 1% annual chance riverine flood event (100-Year Flood) and a 1% annual chance coastal flood.

Riverine 1% Flood Scenario

Riverine losses were determined from the 1% flood boundaries downloaded from the FEMA Flood Map Service Center in December 2018. The flood boundaries were overlaid with the USGS 10 meter DEM

using the Hazus-MH Enhanced Quick Look tool to generate riverine depth grids. The riverine flood depth grid was then imported into Hazus-MH to calculate the riverine flood loss estimates. Figure 6 illustrates the riverine inundation boundary associated with the 1% annual chance.

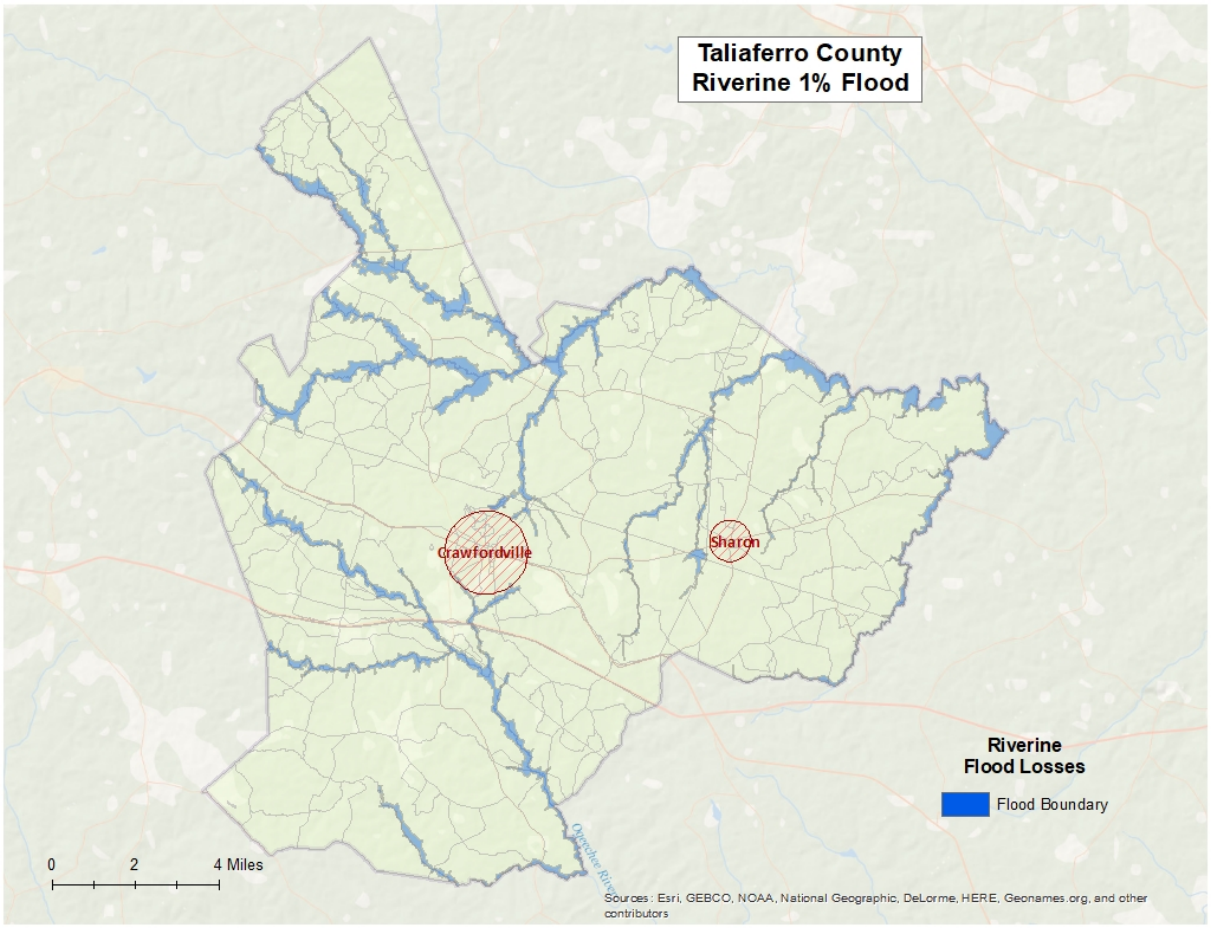

Figure 6: Riverine 1% Flood Inundation

Riverine 1% Flood Building Damages

Buildings in Taliaferro County are vulnerable to flooding from events equivalent to the 1% riverine flood. The economic and social impacts from a flood of this magnitude can be significant. Table 9 provides a summary of the potential flood-related building damage in Taliaferro County by jurisdiction that might be experienced from the 1% flood. Figure 7 maps the potential loss ratios of total building exposure to losses sustained to buildings from the 1% flood by 2010 census block and Figure 8 illustrates the relationship of building locations to the 1% flood inundation boundary.

Table 9: Taliaferro County Riverine 1% Building Losses

Occupancy	Total Buildings in the Jurisdiction	Total Buildings Damaged in the Jurisdiction	Total Building Exposure in the Jurisdiction	Total Losses to Buildings in the Jurisdiction	Loss Ratio of Exposed Buildings to Damaged Buildings in the Jurisdiction
Unincorporated					
Residential	857	7	$73,718,197	$223,344	0.30%
Industrial	4	1	$152,418	$590	0.39%
County Total					
	861	**8**	**$73,870,615**	**$223,934**	

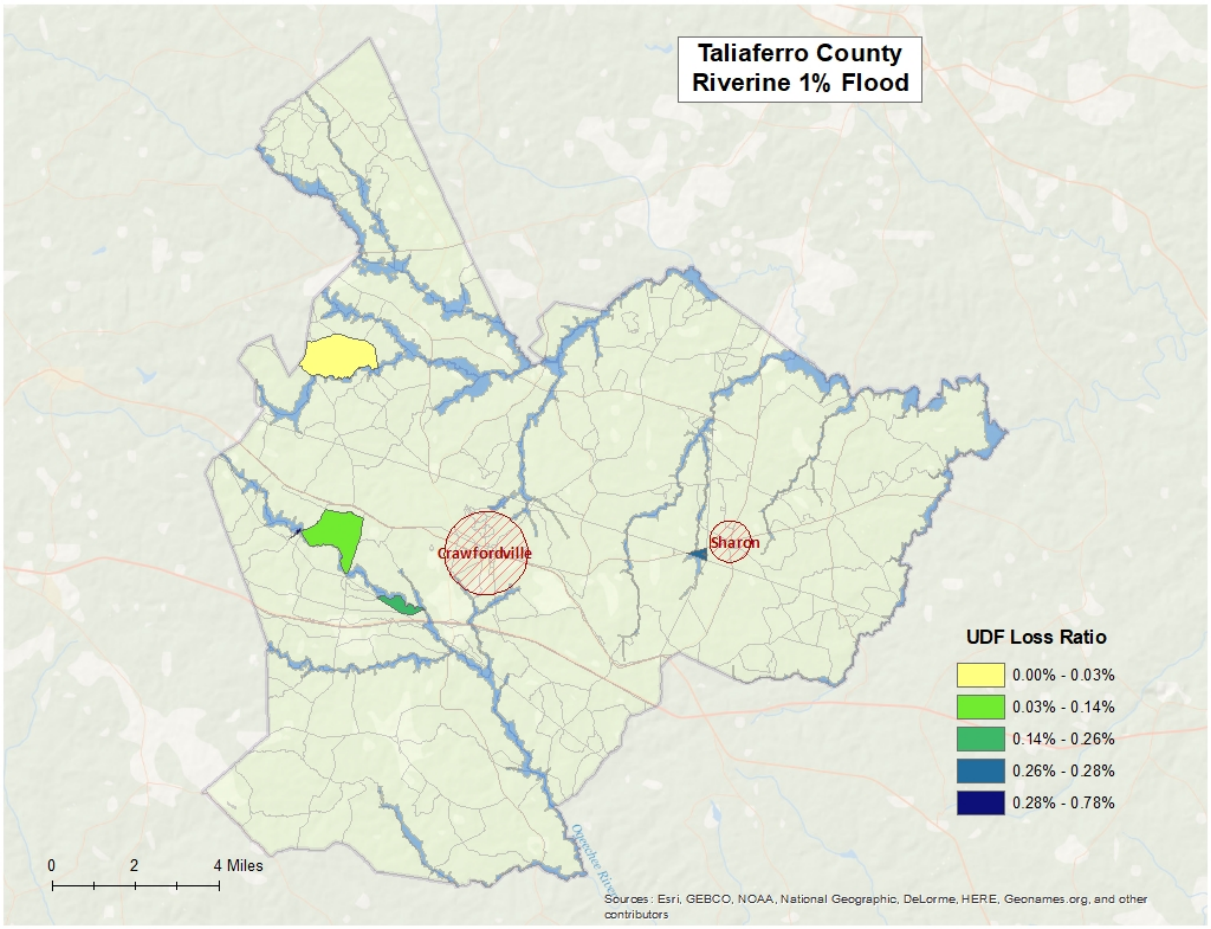

Figure 7: Taliaferro County Potential Loss Ratios of Total Building Exposure to Losses Sustained to Buildings from the 1% Riverine Flood by 2010 Census Block

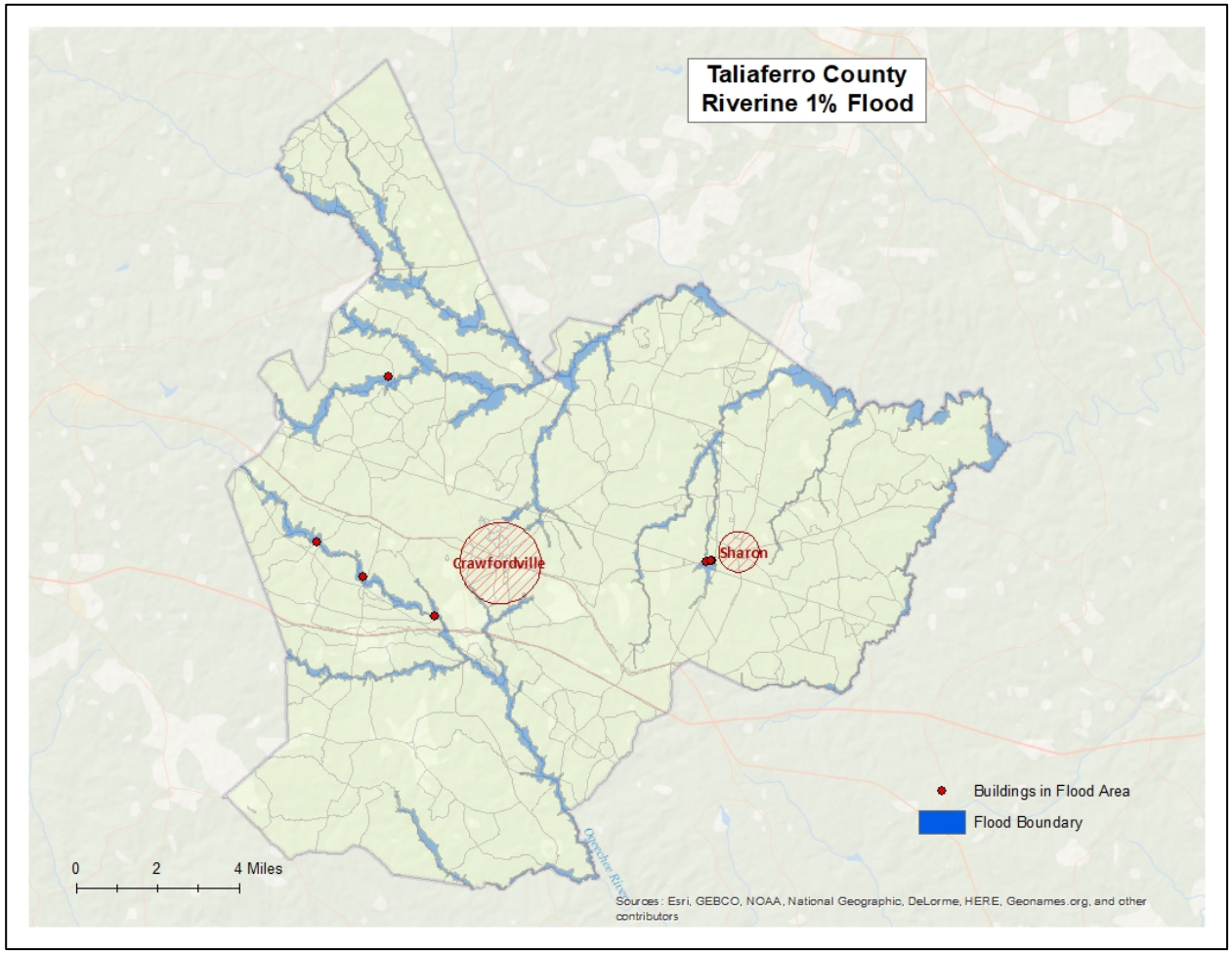

Figure 8: Taliaferro County Damaged Buildings in Riverine Floodplain (1% Flood)

Riverine 1% Flood Essential Facility Losses

An essential facility may encounter many of the same impacts as other buildings within the flood boundary. These impacts can include structural failure, extensive water damage to the facility and loss of facility functionality (e.g. a damaged police station will no longer be able to serve the community). The analysis identified no essential facility that were subject to damage in the Taliaferro County riverine 1% probability floodplain.

Riverine 1% Flood Shelter Requirements

Hazus-MH estimates that the number of households that are expected to be displaced from their homes due to riverine flooding and the associated potential evacuation. The model estimates 17 households might be displaced due to the flood. Displacement includes households evacuated within or very near to the inundated area. Displaced households represent 51 individuals, of which 1 may require short term publicly provided shelter. The results are mapped in Figure 9.

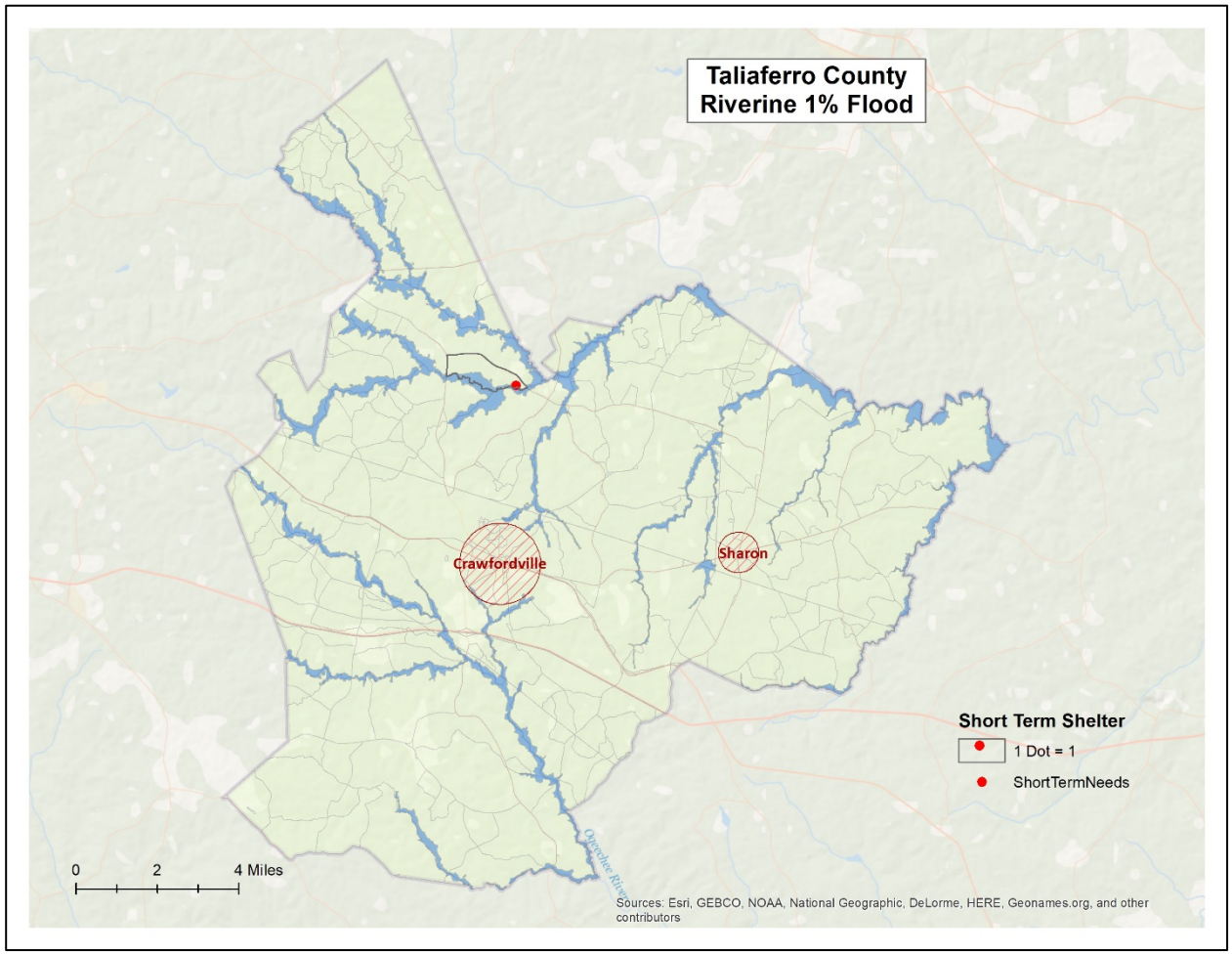

Figure 9: Taliaferro County Damaged Buildings in Riverine Floodplain (1% Flood)

Riverine 1% Flood Debris

Hazus-MH estimates the amount of debris that will be generated by the flood. The model breaks debris into three general categories:

- Finishes (dry wall, insulation, etc.)
- Structural (wood, brick, etc.)
- Foundations (concrete slab, concrete block, rebar, etc.)

Different types of material handling equipment will be required for each category. Debris definitions applied in Hazus-MH are unique to the Hazus-MH model and so do not necessarily conform to other definitions that may be employed in other models or guidelines.

The analysis estimates that an approximate total of 723 tons of debris might be generated: 1) Finishes- 236 tons; 2) Structural – 199 tons; and 3) Foundations- 289 tons. The results are mapped in Figure 10.

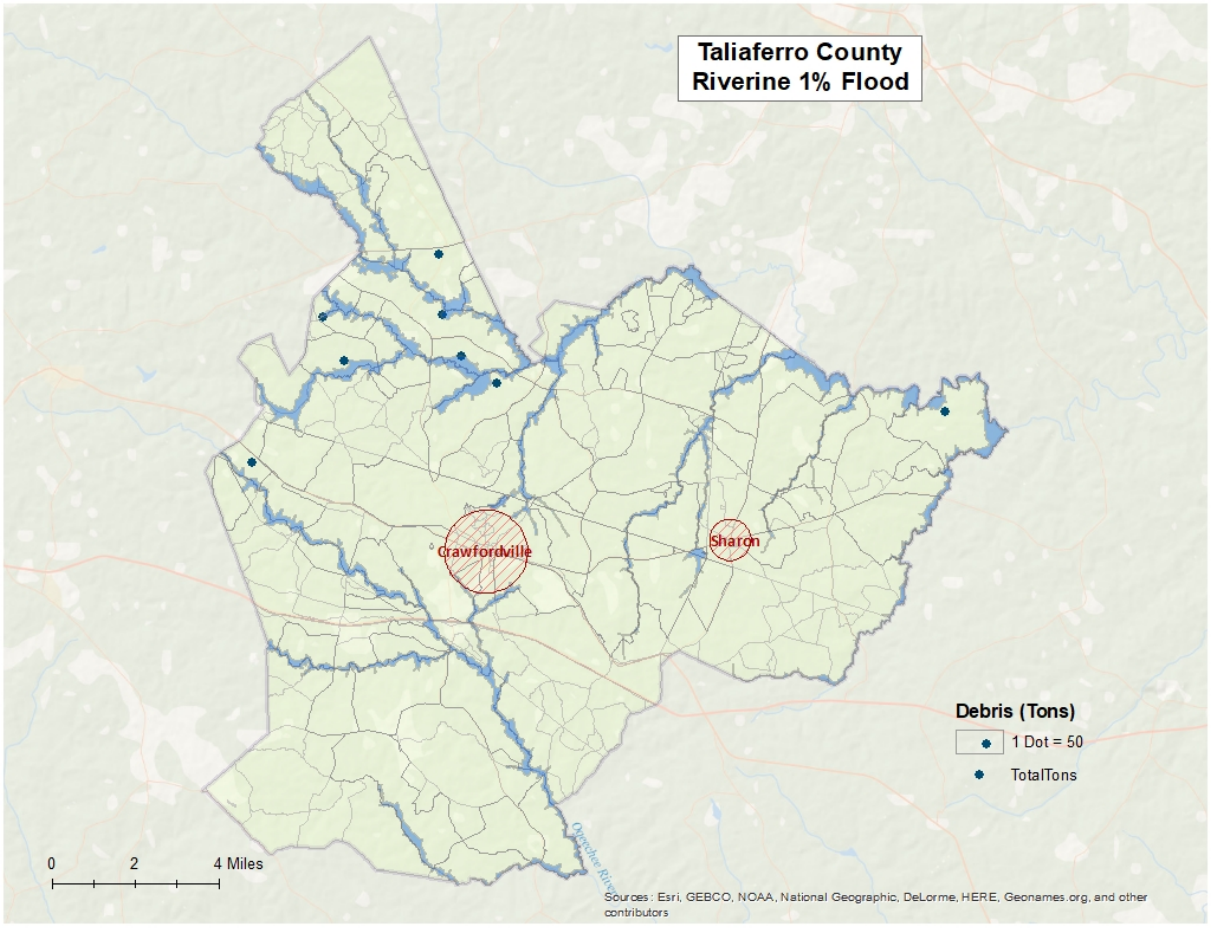

Figure 10: Riverine 1% Flood Debris Weight (Tons)

Tornado Risk Assessment

Hazard Definition

Tornadoes pose a great risk to the state of Georgia and its citizens. Tornadoes can occur at any time during the day or night. They can also happen during any month of the year. The unpredictability of tornadoes makes them one of Georgia's most dangerous hazards. Their extreme winds are violently destructive when they touch down in the region's developed and populated areas. Current estimates place the maximum velocity at about 300 miles per hour, but higher and lower values can occur. A wind velocity of 200 miles per hour will result in a wind pressure of 102.4 pounds per square foot of surface area—a load that exceeds the tolerance limits of most buildings. Considering these factors, it is easy to understand why tornadoes can be so devastating for the communities they hit.

Tornadoes are defined as violently-rotating columns of air extending from thunderstorms and cyclonic events. Funnel clouds are rotating columns of air not in contact with the ground; however, the violently-rotating column of air can reach the ground very quickly and become a tornado. If the funnel cloud picks up and blows debris, it has reached the ground and is a tornado.

Tornadoes are classified according to the Fujita tornado intensity scale. Originally introduced in 1971, the scale was modified in 2006 to better define the damage and estimated wind scale. The Enhanced Fujita Scale ranges from low intensity EF0 with effective wind speeds of 65 to 85 miles per hour, to EF5 tornadoes with effective wind speeds of over 200 miles per hour. The Enhanced Fujita intensity scale is included in Table 10.

Table 10: Enhanced Fujita Tornado Rating

Fujita Number	Estimated Wind Speed	Path Width	Path Length	Description of Destruction
EF0 *Gale*	65-85 mph	6-17 yards	0.3-0.9 miles	Light damage, some damage to chimneys, branches broken, sign boards damaged, shallow-rooted trees blown over.
EF1 Moderate	86-110 mph	18-55 yards	1.0-3.1 miles	Moderate damage, roof surfaces peeled off, mobile homes pushed off foundations, attached garages damaged.
EF2 Significant	111-135 mph	56-175 yards	3.2-9.9 miles	Considerable damage, entire roofs torn from frame houses, mobile homes demolished, boxcars pushed over, large trees snapped or uprooted.
EF3 Severe	136-165 mph	176-566 yards	10-31 miles	Severe damage, walls torn from well-constructed houses, trains overturned, most trees in forests uprooted, heavy cars thrown about.
EF4 Devastating	166-200 mph	0.3-0.9 miles	32-99 miles	Complete damage, well-constructed houses leveled, structures with weak foundations blown off for some distance, large missiles generated.
EF5 Incredible	> 200 mph	1.0-3.1 miles	100-315 miles	Foundations swept clean, automobiles become missiles and thrown for 100 yards or more, steel-reinforced concrete structures badly damaged.

Source: http://www.srh.noaa.gov

Hypothetical Tornado Scenario

For this report, an EF3 tornado was modeled to illustrate the potential impacts of tornadoes of this magnitude in the county. The analysis used a hypothetical path based upon an EF3 tornado event running along the predominant direction of historical tornados (southeast to northwest). The tornado path was placed to travel through Crawfordville. The selected widths were modeled after a re-creation of the Fujita-Scale guidelines based on conceptual wind speeds, path widths, and path lengths. There is no guarantee that every tornado will fit exactly into one of these categories. Table 11 depicts tornado path widths and expected damage.

Table 11: Tornado Path Widths and Damage Curves

Fujita Scale	Path Width (feet)	Maximum Expected Damage
EF-5	2,400	100%
EF-4	1,800	100%
EF-3	1,200	80%
EF-2	600	50%
EF-1	300	10%
EF-0	300	0%

Within any given tornado path there are degrees of damage. The most intense damage occurs within the center of the damage path, with decreasing amounts of damage away from the center. After the hypothetical path is digitized on a map, the process is modeled in GIS by adding buffers (damage zones) around the tornado path. Figure 11 describes the zone analysis.

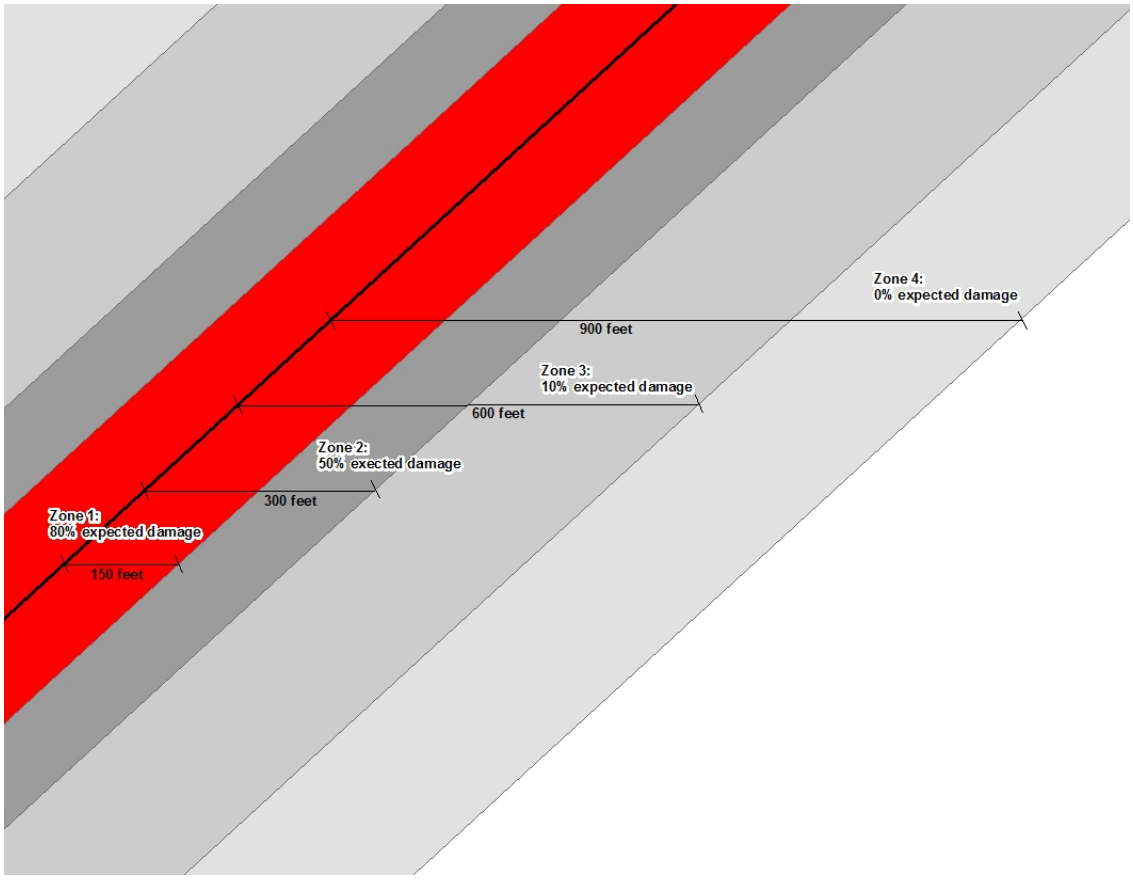

Figure 11: EF Scale Tornado Zones

An EF3 tornado has four damage zones, depicted in Table 12. Major damage is estimated within 150 feet of the tornado path. The outer buffer is 900 feet from the tornado path, within which buildings will not experience any damage. The selected hypothetical tornado path is depicted in Figure 12 and the damage curve buffer zones are shown in Figure 13.

Table 12: EF3 Tornado Zones and Damage Curves

Zone	Buffer (feet)	Damage Curve
1	0-150	80%
2	150-300	50%
3	300-600	10%
4	600-900	0%

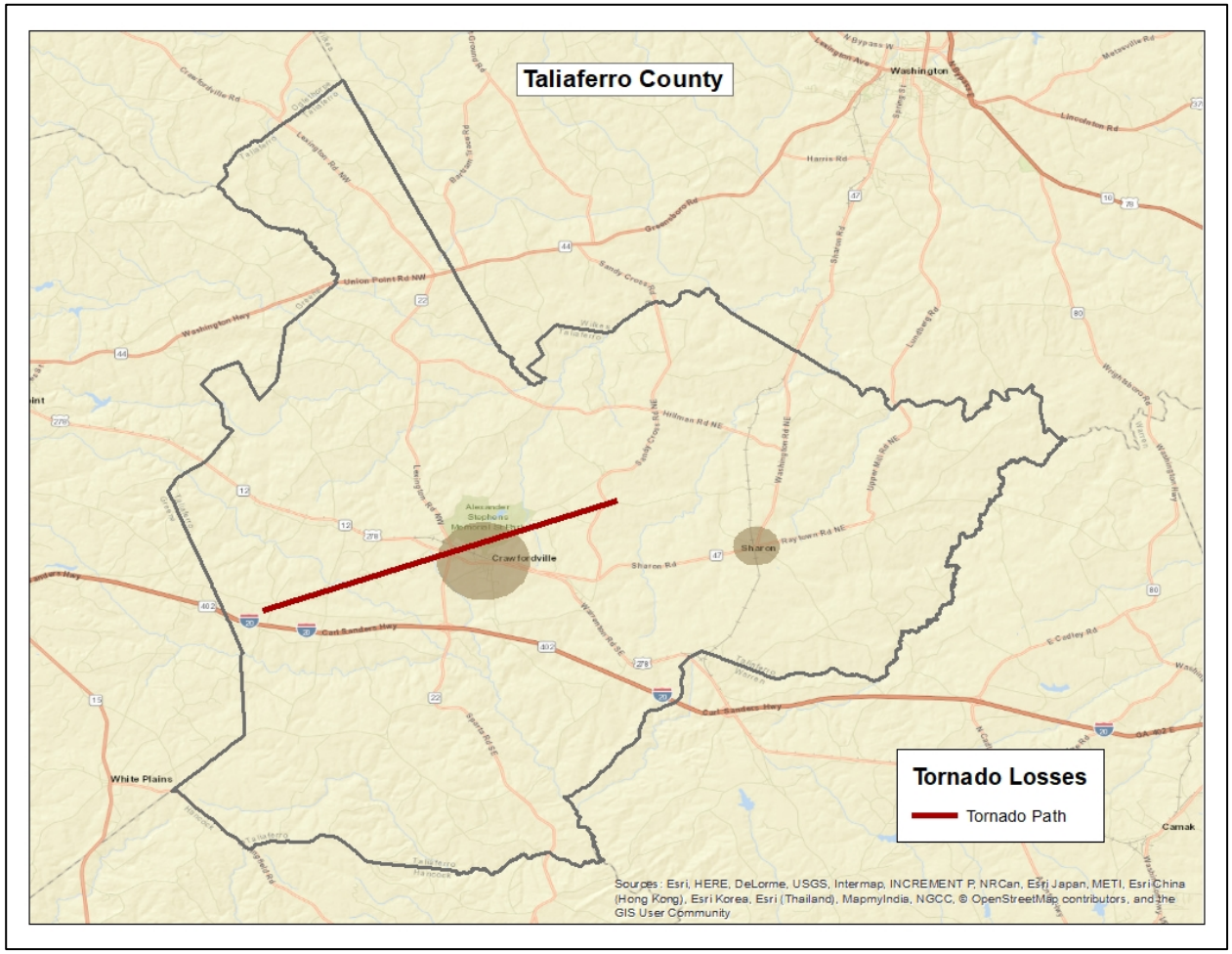

Figure 12: Hypothetical EF3 Tornado Path in Taliaferro County

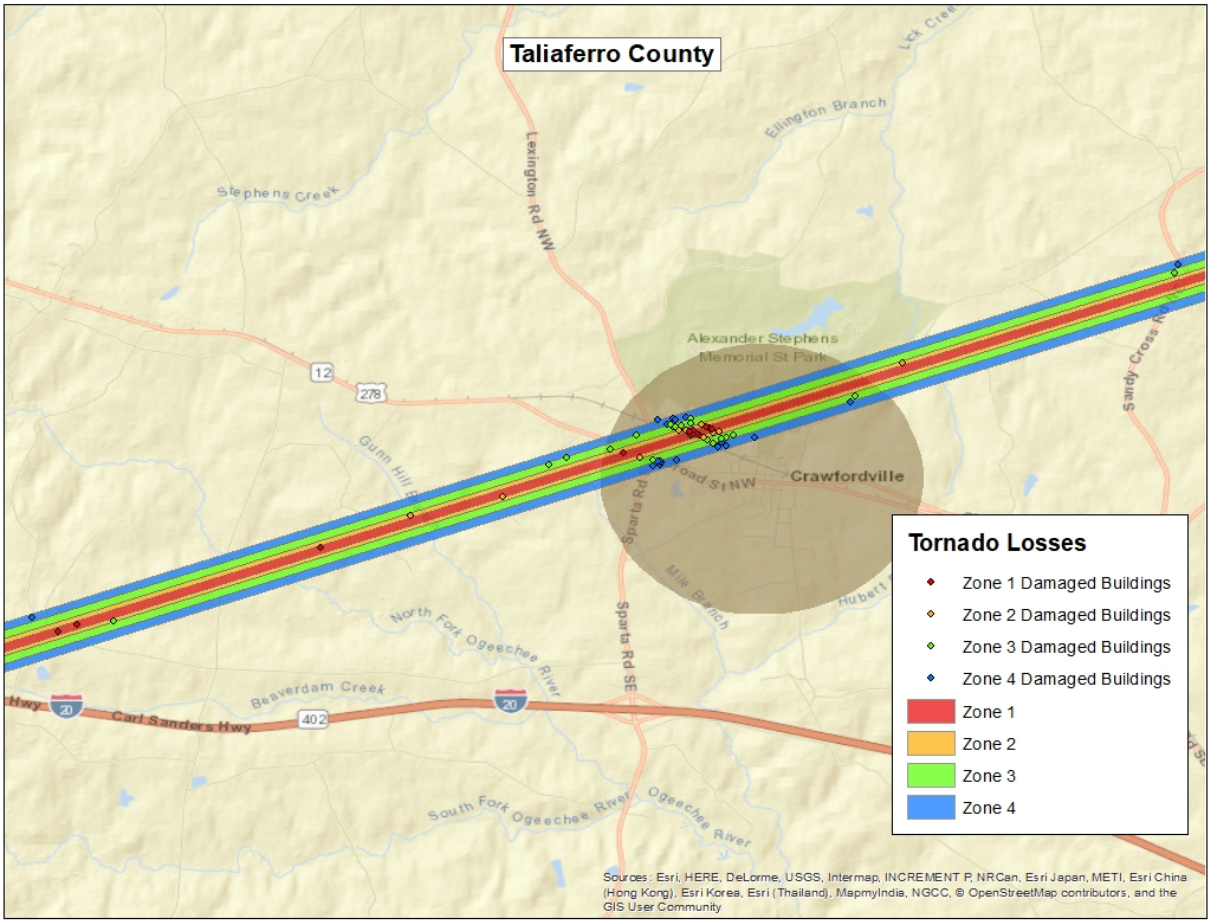

Figure 13: Modeled EF3 Tornado Damage Buffers in Taliaferro County

EF3 Tornado Building Damages

The analysis estimated that approximately 87 buildings could be damaged, with estimated building losses of $2 million. The building losses are an estimate of building replacement costs multiplied by the percentages of damage. The overlay was performed against parcels provided by Taliaferro County that were joined with Assessor records showing estimated property replacement costs. The Assessor records often do not distinguish parcels by occupancy class if the parcels are not taxable and thus the number of buildings and replacement costs may be underestimated. The results of the analysis are depicted in Table 13.

Table 13: Estimated Building Losses by Occupancy Type

Occupancy	Buildings Damaged	Building Losses
Residential	80	$1,598,734
Commercial	2	$26,845
Religious	1	$25,279
Education	4	$408,101
Total	87	$2,058,960

EF3 Tornado Essential Facility Damage

There was one essential facility located in the tornado path – one school. Table 14 outlines the specific facility and the amount of damage under the scenario.

Table 14: Estimated Essential Facilities Damaged

Facility	Amount of Damage
Taliaferro County School	Major Damage

According to the Georgia Department of Education, Taliaferro County School's enrollment was approximately 173 students as of October 2018. Depending on the time of day, a tornado strike as depicted in this scenario could result in significant injury and loss of life. In addition, arrangements would have to be made for the continued education of the students in another location.

The location of the damaged Essential Facility is mapped in Figure 14.

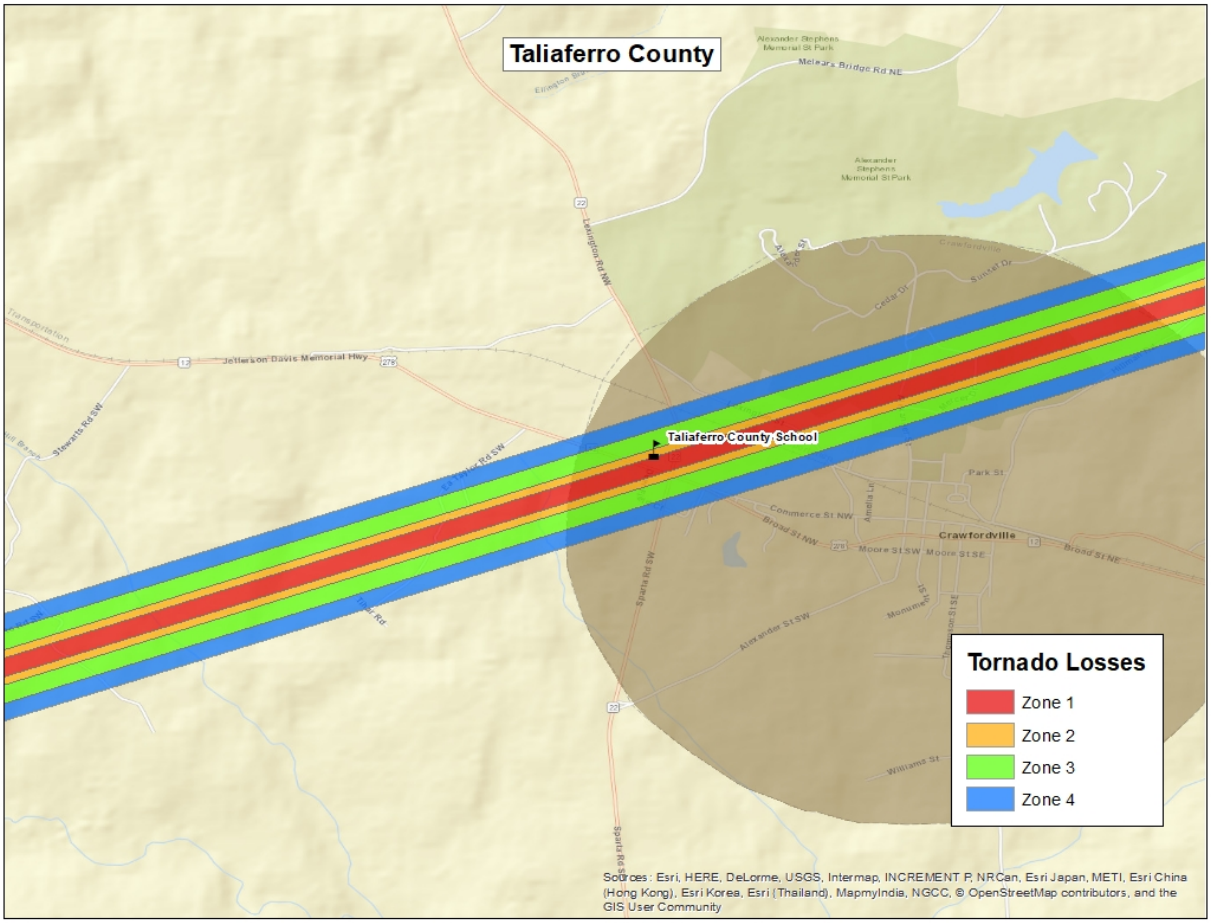

Figure 14: Modeled Essential Facility Damage in Taliaferro County

Exceptions Report

Hazus Version 2.2 SP1 was used to perform the loss estimates for Taliaferro County, Georgia. Changes made to the default Hazus-MH inventory and the modeling parameters used to setup the hazard scenarios are described within this document.

Reported losses reflect the updated data sets. Steps, algorithms and assumptions used during the data update process are documented in the project workflow named PDM_GA_Workflow.doc.

Statewide Inventory Changes

The default Hazus-MH Essential Facility inventory was updated for the entire state prior to running the hazard scenarios for Taliaferro County.

Updates to the Critical Facility data used in GMIS were provided by Taliaferro County in October 2018. These updates were applied by The Carl Vinson Institute of Government at the University of Georgia. Table 15 summarizes the difference between the original Hazus-MH default data and the updated data for Taliaferro County.

Table 15: Essential Facility Updates

Site Class	Feature Class	Default Replacement Cost	Default Count	Updated Replacement Cost	Updated Count
EF	Care	$76,000	1	$540,000	2
EF	EOC	$880,000	1	$880,000	1
EF	Fire	$145,000	2	$372,000	3
EF	Police	$374,000	1	$400,000	1
EF	School	$3,000,000	1	$15,750,000	2

County Inventory Changes

The GBS records for Taliaferro County were replaced with data derived from parcel and property assessment data obtained from Taliaferro County. The county provided property assessment data was current as of December 2018 and the parcel data current as of December 2018.

General Building Stock Updates

The parcel boundaries and assessor records were obtained from Taliaferro County. Records without improvements were deleted. The parcel boundaries were converted to parcel points located in the centroids of each parcel boundary. Each parcel point was linked to an assessor record based upon matching parcel numbers. The generated Building Inventory represents the approximate locations (within a parcel) of building exposure. The Building Inventory was aggregated by Census Block and imported into Hazus-MH using the Hazus-MH Comprehensive Data Management System (CDMS). Both the 2010 Census Tract and Census Block tables were updated.

The match between parcel records and assessor records was based upon a common Parcel ID. For this type of project, unless the hit rate is better than 85%, the records are not used to update the default aggregate inventory in Hazus-MH. The Parcel-Assessor hit rate for Taliaferro County was 99.6%.

Adjustments were made to records when primary fields did not have a value. In these cases, default values were applied to the fields. Table 16 outlines the adjustments made to Taliaferro County records.

Table 16: Building Inventory Default Adjustment Rates

Type of Adjustment	Building Count	Percentage
Area Unknown	80	6%
Construction Unknown	122	9%
Condition Unknown	93	7%
Foundation Unknown	119	9%
Year Built Unknown	79	6%
Total Buildings	1,335	7%

Approximately 7% of the CAMA values were either missing (<Null> or '0'), did not match CAMA domains or were unusable ('Unknown', 'Other', 'Pending'). These were replaced with 'best available' values. Missing YearBuilt values were populated from average values per Census Block. Missing Condition, Construction and Foundation values were populated with the highest-frequency CAMA values per Occupancy Class. Missing Area values were populated with the average CAMA values per Occupancy Class.

The resulting Building Inventory was used to populate the Hazus-MH General Building Stock and User Defined Facility tables. The updated General Building Stock was used to calculate flood and tornado losses. Changes to the building counts and exposure that were modeled in Taliaferro County are sorted by General Occupancy in Table 1 at the beginning of this report. If replacements cost or building value were not present for a given record in the Assessor data, replacement costs were calculated from the Building Area (sqft) multiplied by the Hazus-MH RS Means ($/sqft) values for each Occupancy Class.

Differences between the default and updated data are due to various factors. The Assessor records often do not distinguish parcels by occupancy class when the parcels are not taxable; therefore, the total number of buildings and the building replacement costs for government, religious/non-profit, and education may be underestimated.

User Defined Facilities

Building Inventory was used to create Hazus-MH User Defined Facility (UDF) inventory for flood modeling. Hazus-MH flood loss estimates are based upon the UDF point data. Buildings within the flood boundary were imported into Hazus-MH as User Defined Facilities and modeled as points.

Table 17: User Defined Facility Exposure

Class	Hazus-MH Feature	Counts	Exposure
BI	Building Exposure	1,333	$122,687,899
Riverine UDF	Structures Inside 1% Annual Chance Riverine Flood Area	8	$576,826

Assumptions

- Flood analysis was performed on Building Inventory. Building Inventory within the flood boundary was imported as User Defined Facilities. The point locations are parcel centroid accuracy.
- The analysis is restricted to the county boundary. Events that occur near the county boundary do not contain loss estimates from adjacent counties.
- The following attributes were defaulted or calculated:
  First Floor Height was set from Foundation Type
  Content Cost was calculated from Building Cost

GEORGIA FORESTRY COMMISSION

Community Wildfire Protection Plan

An Action Plan for Wildfire Mitigation and Conservation of Natural Resources

Taliaferro County, Georgia

A Program of the Georgia Forestry Commission
with support from the U.S. Forest Service

JUNE 2019

Prepared by;
Beth Richards, Chief Ranger, Taliaferro Wilkes Forestry Unit
Will Fell, CWPP Specialist (Initial plan 2012)
Beryl Budd, Wildfire Prevention Specialist (Revised plan 2019)

Georgia Forestry Commission
1495 Tignall Rd.
Washington, GA 30673

The following report is a collaborative effort among various entities; the representatives listed below comprise the core decision-making team responsible for this report and mutually agree on the plan's contents:

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PLAN CONTENTS

Preface

The extreme weather conditions that are conducive to wildfire disasters (usually a combination of extended drought, low relative humidity and high winds) can occur in this area of Georgia as infrequently as every 10-15 years. This is not a regular event, but as the number of homes that have been built in or adjacent to forested or wildland areas increases, it can turn a wildfire under these weather conditions into a major disaster. Wildfires move fast and can quickly overwhelm the resources of even the best equipped fire department. Advance planning can save lives, homes and businesses.

This Community Wildfire Protection Plan (CWPP) includes a locally assessed evaluation of the wildland urban interface areas of the county, looking at the critical issues regarding access to these areas, risk to properties from general issues such as building characteristics and "fire wise" practices and response from local fire fighting resources. It further incorporates a locally devised action plan to mitigate these risks and hazards though planning, education and other avenues that may become available to address the increasing threat of wildland fire. The CWPP does not obligate the county financially in any way, but instead lays a foundation for improved emergency response if and when grant funding is available to the county.

The Plan is provided at no cost to the county and can be very important for county applications for hazard mitigation grant funds through the National Fire Plan, FEMA mitigation grants and Homeland Security. Under the Healthy Forest Restoration Act (HFRA) of 2003, communities (counties) that seek grants from the federal government for hazardous fuels reduction work are required to prepare a Community Wildfire Protection Plan.

This plan will:

- Enhance public safety
- Raise public awareness of wildfire hazards and risks
- Educate homeowners on how to reduce home ignitability
- Build and improve collaboration at multiple levels

The public does not have to fall victim to this type of disaster. Homes (and communities) can be designed, built and maintained to withstand a wildfire even in the absence of fire equipment and firefighters on the scene. It takes planning and commitment at the local level before the wildfire disaster occurs and that is what the Community Wildfire Protection Plan is all about.

I. OBJECTIVES

The mission of the following report is to set clear priorities for the implementation of wildfire mitigation in Taliaferro County. The plan includes prioritized recommendations for the appropriate types and methods of fuel reduction and structure ignitability reduction that will protect this community and its essential infrastructure. It also includes a plan for wildfire suppression. Specifically, the plan includes community-centered actions that will:

- Educate citizens on wildfire, its risks, and ways to protect lives and properties,
- Support fire rescue and suppression entities,
- Focus on collaborative decision-making and citizen participation,
- Develop and implement effective mitigation strategies, and
- Develop and implement effective community ordinances and codes.

II. COMMUNITY COLLABORATION

The core team convened on March 9th, 2011 to assess risks and develop the Community Wildfire Protection Plan. The group is comprised of representatives from local government, local fire authorities, and the state agency responsible for forest management. Below are the groups included in the task force:

Taliaferro County EMA
Taliaferro County Fire Department
Georgia Dept of Nat. Resources-State Parks
Georgia Forestry Commission

It was decided to conduct an assessment of the county as a whole as many of the risks were countywide. The chief of the county fire department in Taliaferro County assessed the risks in the county and we reconvened on January 19th, 2012 for the purpose of completing the following:

Risk Assessment	Assessed wildfire hazard risks and prioritized mitigation actions.
Fuels Reduction	Identified strategies for coordinating fuels treatment projects.
Structure Ignitability	Identified strategies for reducing the ignitability of structures within the Wildland interface.
Emergency Management	Forged relationships among local government and fire districts and developed/refined a pre-suppression plan.
Education and Outreach	Developed strategies for increasing citizen awareness and action and to conduct homeowner and community leader workshops.

III. COMMUNITY & WILDFIRE HISTORY

Community History

Taliaferro County (pronounced "Tolliver"), in east central Georgia, is the state's sixty-ninth county, created in 1825 from Greene, Hancock, Oglethorpe, Warren, and Wilkes counties. It was named for Benjamin Taliaferro, who was a colonel during the American Revolution (1775-83), as well as a Georgia legislator and a judge. The land was originally held by Indians, who ceded it to the colonial government of Georgia in 1763.

The seat of the 195-square-mile county is Crawfordville, named for William Harris Crawford, an early presidential cabinet member and candidate for U.S. president in 1824. Hermon Mercer, brother of the founder of Mercer University in Macon, produced a city plan for Crawfordville. Known thereafter as the "Crawfordville Plat," it was later used by a number of Georgia towns. The historic commercial district features buildings dating back to the antebellum period.

Other towns in Taliaferro County are Sharon, incorporated in 1884, and the unincorporated communities of Raytown and Robinson. In the 1880s and 1890s thousands of visitors came to the county for the reputed healing powers of the Electric Health Resort near Sharon, where it was said that exposure to bedrock in a subterranean chamber provided electrical healing powers. The resort, which included a hotel, lake, and post office, burned down, but the rubble left behind is still visible.

Raytown, the oldest community in Taliaferro County, developed around a plantation granted in 1784 to Marmaduke Mendenhall and his sister Hannah, both Quakers. The Mendenhalls named the property Colonsay Plantation, after an island near Scotland. Colonsay Plantation passed through several owners and is still privately owned. It was placed on the National Register of Historic Places in 1974.

During the Civil War (1861-65) two regiments from Taliaferro County were sent to fight for the Confederacy: the Fifteenth Regiment, Georgia Infantry, Company D, Stephens Home Guards, and the Forty-ninth Regiment, Georgia Infantry, Company D, Taliaferro Volunteers.

Notable persons from Taliaferro County include John Loyd Atkinson Sr., a Tuskegee Airman during World War II (1941-45) and the first black superintendent in the Georgia state parks system; writer Richard Malcolm Johnston; Robert Grier, founder of *Grier's Almanac*; and Georgia governor Alexander Stephens.

The Taliaferro County Historical Society maintains a museum next to its offices in the antebellum post office building in Crawfordville. Additionally the A. H. Stephens Historic Park, founded in 1933, was constructed by the Civilian Conservation Corps. It encompasses Liberty Hall and the adjoining lands, birthplace, and home of Alexander Stephens.

Once a symbol of southern hospitality, the mansion included rooms for permanent residents, well-to-do visitors, and poor transients. Stephens spent his old age there and is buried on the property. Restored with help from both public and private sources, Liberty Hall was placed on the National Register of Historic Places in 1970 and is open for tours. The whole park was added to the register in 1995. Visitors to the park may also tour the park's Confederate museum, which displays Civil War artifacts, uniforms, and documents. Recreational land within the 1,177-acre park features a camp for large overnight groups and many attractions for nature lovers.

According to the 2010 U.S. census, the county's population was 1,717, a decrease from the 2000 population of 2,077.

Elizabeth B. Cooksey, Savannah, Courtesy New Georgia Encyclopedia

Wildfire History

Taliaferro County located in east central Georgia despite being almost 90% forested has homes and small settlements throughout the county. The risks and hazards from the wildland urban interface are fairly general and substantial throughout the county even on the edges of the two small incorporated cities. Taliaferro County currently has one recognized firewise community in the Deerlick Astronomy Village in the area east of Sharon.

Taliaferro County is protected by the Taliaferro County Volunteer Fire Department with stations in Crawfordville, Sharon and Margaret Grove. The Georgia Forestry Commission maintains a county protection unit located on Hwy 17 two miles north of Washington about 20 miles northeast of the county to respond to wildfires throughout the county. The incorporated towns of Crawfordville and Sharon are serviced by pressurized water systems with hydrants available.

Over the past 45 years, Taliaferro County has averaged 19 reported wildland fires per year, burning an average of 84 acres per year. Using more recent figures over the past 10 years, FY2008-FY2017, this number has decreased to an average of 8 fires per year burning on average 43 acres annually. The occurrences of these fires during this later period are fairly well distributed throughout the year.

Over the past 10 years, the leading cause of these fires was debris burning causing 36% of the fires and about 51% of the acres burned. The 2nd leading cause during this period was machine use accounting for about 20% of the fires and 10% of the acres burned. During these years records show that about 29% of the debris fire acreage burned originated from careless residential burning.

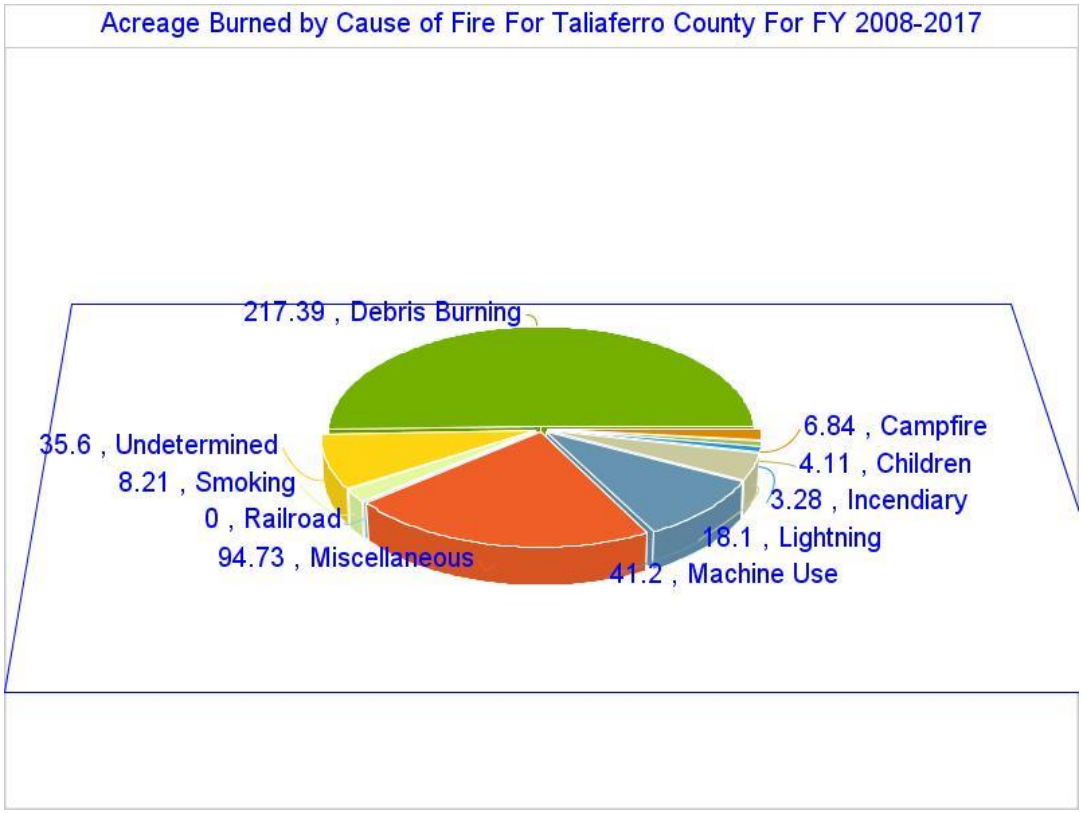
Georgia Forestry Commission Wildfire Records show that in the past seven years, one home and one outbuilding have been damaged by wildfire in Taliaferro County resulting in losses of $5,500. Additionally three vehicles valued at $17,000 were lost to wildfire. While not as severe as many counties, this is still a significant loss and threat to non-timbered property in Taliaferro County.

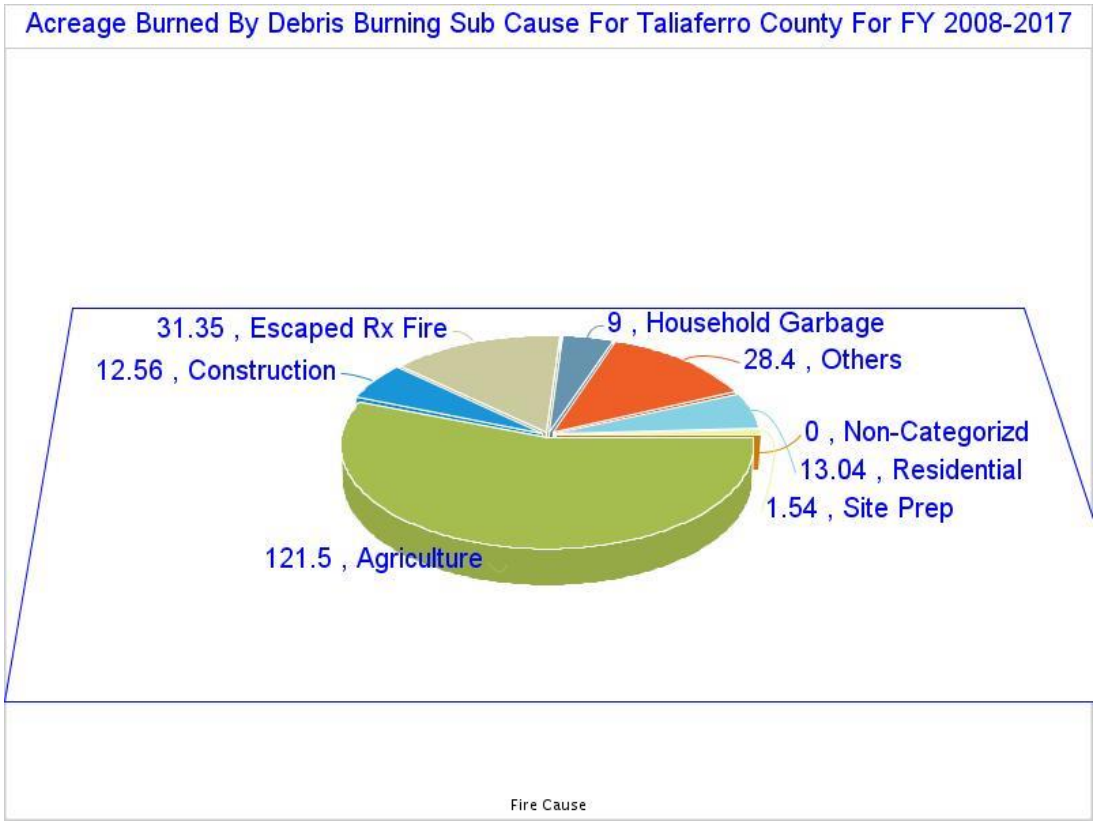
Wildfire activity during the last complete fiscal year 2018, July 1, 2017 thru June 30, 2018.

County = Taliaferro	Cause	Fires		Acres	Fires 5 Yr Avg	Acres 5 Yr Avg
Campfire	Campfire	0		0.00	0.20	1.36
Children	Children	0		0.00	0.40	0.50
Debris: Ag Fields, Pastures, Orchards, Etc	Debris: Ag Fields, Pastures, Orchards, Etc	0		0.00	0.80	22.30
Debris: Construction Land Clearing	Debris: Construction Land Clearing	0		0.00	0.40	0.34
Debris: Escaped Prescribed Burn	Debris: Escaped Prescribed Burn	1		1.10	0.40	0.62
Debris: Other	Debris: Other	0		0.00	0.20	0.52
Debris: Residential, Leafpiles, Yard, Etc	Debris: Residential, Leafpiles, Yard, Etc	0		0.00	0.20	0.28
Debris: Site Prep - Forestry Related	Debris: Site Prep - Forestry Related	0		0.00	0.20	0.30
Incendiary	Incendiary	0		0.00	0.40	0.05
Lightning	Lightning	0		0.00	0.20	2.80
Machine Use	Machine Use	0		0.00	1.40	0.96
Miscellaneous: Firearms/Ammunition	Miscellaneous: Firearms/Ammunition	0		0.00	0.20	0.00
Miscellaneous: Other	Miscellaneous: Other	0		0.00	0.20	0.16
Miscellaneous: Power lines/Electric fences	Miscellaneous: Power lines/Electric fences	0		0.00	0.60	2.62
Miscellaneous: Spontaneous Heating/Combustion	Miscellaneous: Spontaneous Heating/Combustion	0		0.00	0.20	0.90
Miscellaneous: Structure/Vehicle Fires	Miscellaneous: Structure/Vehicle Fires	1		0.73	0.40	0.16
Miscellaneous: Woodstove Ashes	Miscellaneous: Woodstove Ashes	0		0.00	0.20	0.09
Railroad	Railroad	0		0.00	0.20	0.07
Smoking	Smoking	1		0.14	0.40	1.21
Undetermined	Undetermined	0		0.00	0.20	7.12
Totals for County: Taliaferro Year: 2018		3		1.97	7.40	42.37

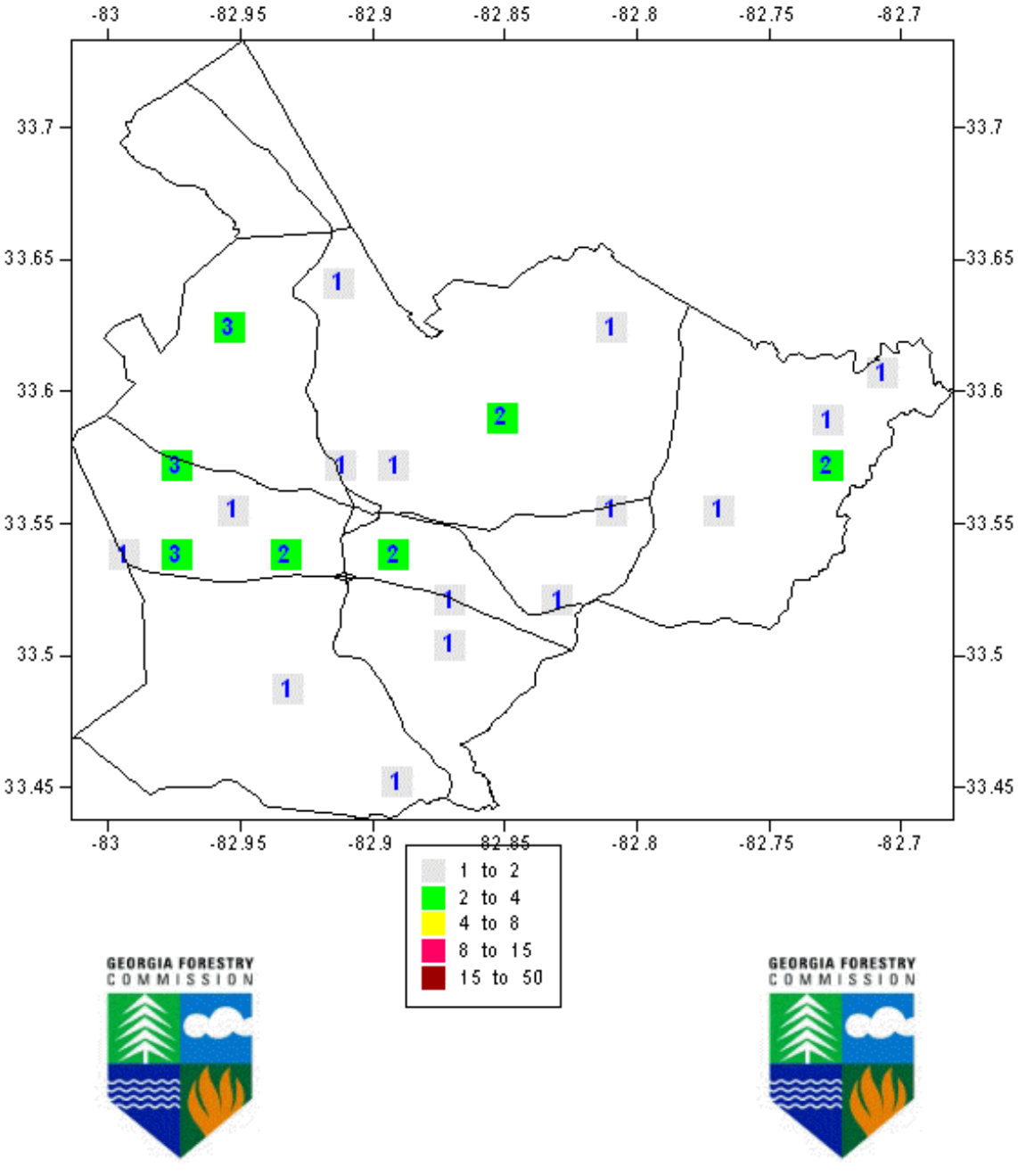
Acreage Burned /Number of Fires For Taliaferro County For FY 2008-2017				
Year	**Acreage Burned**	**Number of Fires**	**Average Size**	**Statewide Average Size**
2008	127.43	17	3.89	4.56
2009	7.96	5	4.18	3.90
2010	1.20	1	1.04	3.93
2011	50.09	10	3.86	17.56
2012	10.03	8	12.36	5.08
2013	23.21	6	.86	4.53
2014	72.25	10	10.74	5.02
2015	81.41	9	2.37	4.42
2016	18.51	3	2.59	6.29
2017	37.72	12	3.51	11.60

Acreage Burned /Number of Fires by Fire Cause For Taliaferro County For FY 2008-2017		
Fire Cause	**Acreage Burned**	**Number of Fires**
Campfire	6.84	2
Children	4.11	3
Debris Burning	217.39	29
Incendiary	3.28	6
Lightning	18.10	3
MachineUse	41.20	16
Miscellaneous	94.73	17
Railroad	0.00	0
Smoking	8.21	3
Undetermined	35.60	1
Total	**429.46**	**80**

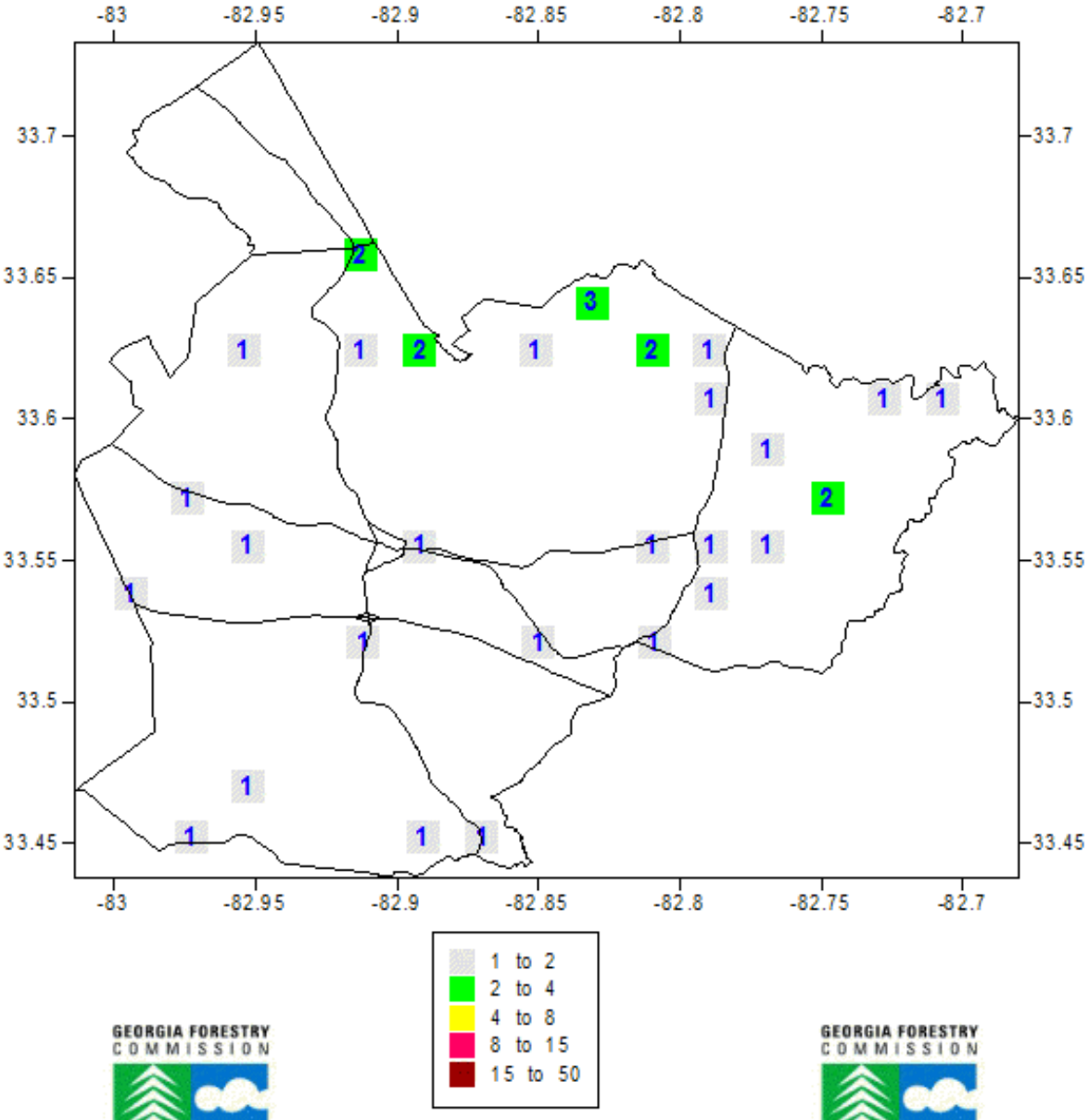

Acreage Burned by Cause of Fire For Taliaferro County For FY 2008-2017
217.39 , Debris Burning
6.84 , Campfire
4.11 , Children
3.28 , Incendiary
18.1 , Lightning
41.2 , Machine Use
94.73 , Miscellaneous
0 , Railroad
8.21 , Smoking
35.6 , Undetermined


Acreage Burned By Debris Burning Sub Cause For Taliaferro County For FY 2008-2017
31.35 , Escaped Rx Fire
9 , Household Garbage
28.4 , Others
12.56 , Construction
0 , Non-Categorizd
13.04 , Residential
1.54 , Site Prep
121.5 , Agriculture
Fire Cause

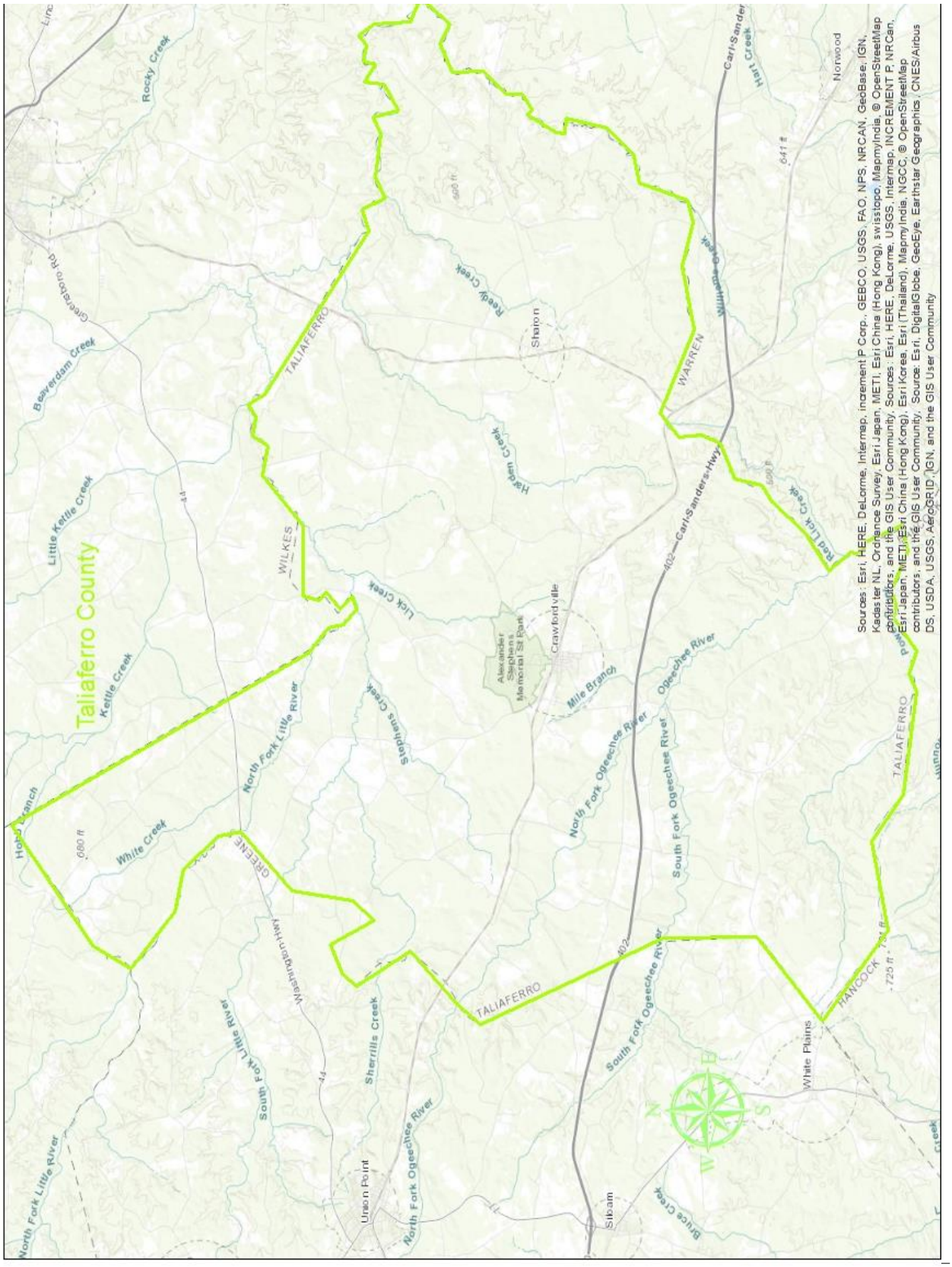
Fire Occurrence Map for Taliaferro County for Fiscal Year 2007-2011

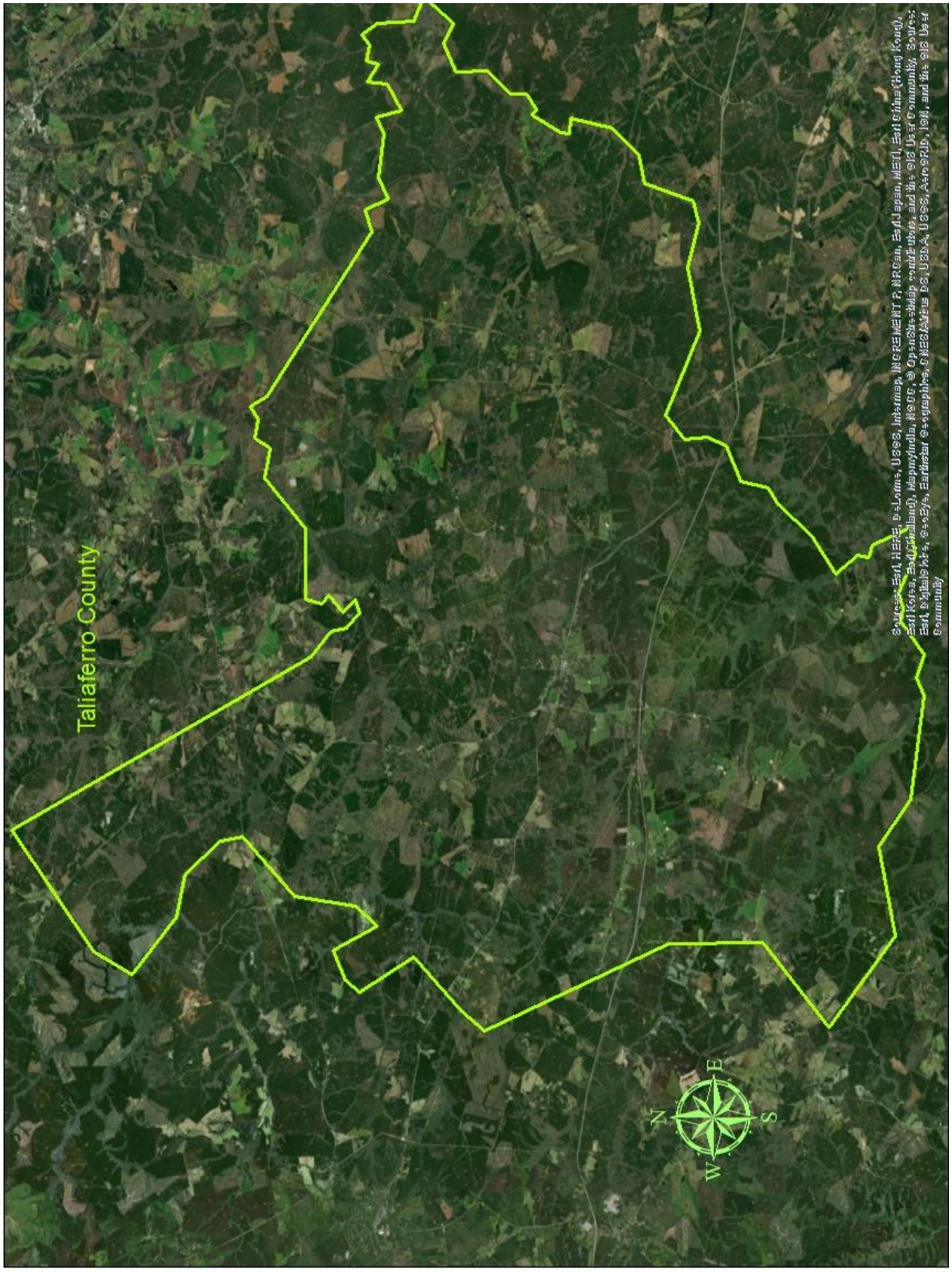


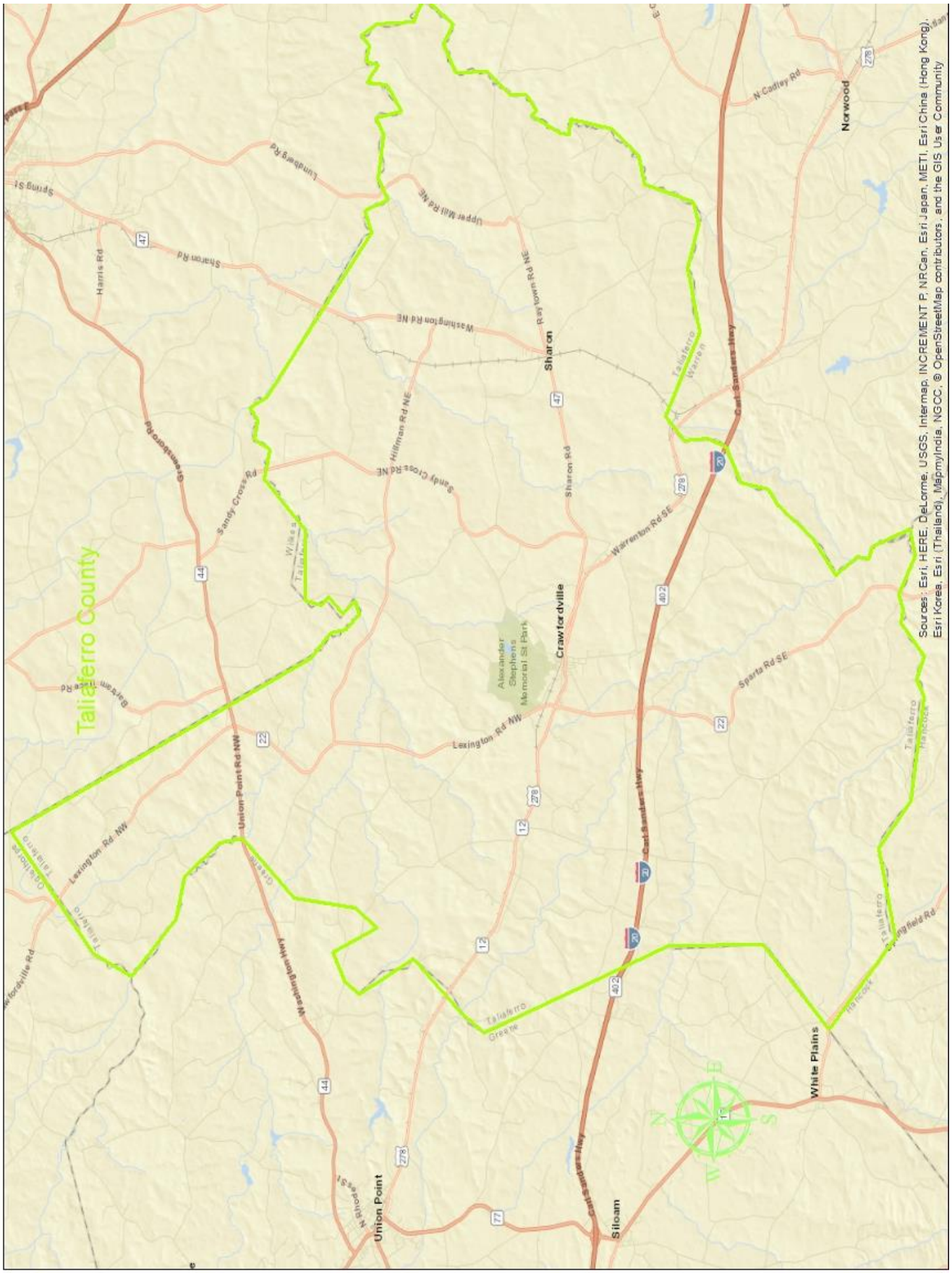
Fire Occurrence Map for Taliaferro County for Fiscal Year 2012-2016



IV. COMMUNITY BASE MAPS




Taliaferro County
N
E
S
W
Sources: Esri, HERE, DeLorme, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), MapmyIndia, NGCC, © OpenStreetMap contributors, and the GIS User Community, Sources: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community


Taliaferro County
Crawfordville
Sharon
Union Point
Siloam
White Plains
Norwood
Lexington Rd NW
Sparta Rd SE
Warrenton Rd SE
Sharon Rd
Sandy Cross Rd
Hillman Rd NE
Upper Mill Rd NE
Washington Rd NE
Raytown Rd NE
Lundsberg Rd
Harris Rd
Spring St
N Cadley Rd
Greensboro Rd
Union Point Rd NW
Lexington Rd NW
Barham Ferry Rd
Alexander Stephens Memorial St Park
Taliaferro Warren
Taliaferro Hancock
Taliaferro Greene
Taliaferro Oglethorpe
Carl Sanders Hwy
Springfield Rd
N Rhodes St
Sources: Esri, HERE, DeLorme, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), MapmyIndia, NGCC, © OpenStreetMap contributors, and the GIS User Community

V. COMMUNITY WILDFIRE RISK ASSESSMENT

The Wildland-Urban Interface

There are many definitions of the Wildland-Urban Interface (WUI), however from a fire management perspective it is commonly defined as an area where structures and other human development meet or intermingles with undeveloped wildland or vegetative fuels. As fire is dependent on a certain set of conditions, the National Wildfire Coordinating Group has defined the wildland-urban interface as a set of conditions that exists in or near areas of wildland fuels, regardless of ownership. This set of conditions includes type of vegetation, building construction, accessibility, lot size, topography and other factors such as weather and humidity. When these conditions are present in certain combinations, they make some communities more vulnerable to wildfire damage than others. This "set of conditions" method is perhaps the best way to define wildland-urban interface areas when planning for wildfire prevention, mitigation, and protection activities.

There are three major categories of wildland-urban interface. Depending on the set of conditions present, any of these areas may be at risk from wildfire. A wildfire risk assessment can determine the level of risk.

1. "Boundary" wildland-urban interface is characterized by areas of development where homes, especially new subdivisions, press against public and private wildlands, such as private or commercial forest land or public forests or parks. This is the classic type of wildland-urban interface, with a clearly defined boundary between the suburban fringe and the rural countryside.

2. "Intermix" wildland-urban interface areas are places where improved property and/or structures are scattered and interspersed in wildland areas. These may be isolated rural homes or an area that is just beginning to go through the transition from rural to urban land use.

3. "Island" wildland-urban interface, also called occluded interface, are areas of wildland within predominately urban or suburban areas. As cities or subdivisions grow, islands of undeveloped land may remain, creating remnant forests. Sometimes these remnants exist as parks, or as land that cannot be developed due to site limitations, such as wetlands.

Wildland Urban Interface Hazards

Firefighters in the wildland urban interface may encounter hazards other than the fire itself, such as hazardous materials, utility lines and poor access.

Hazardous Materials

- Common chemicals used around the home may be a direct hazard to firefighters from a flammability, explosion potential and/or vapors or off gassing. Such chemicals include paint, varnish and other flammable liquids, fertilizer, pesticides, cleansers, aerosol cans, fireworks, batteries and ammunition. In addition, some common household products such as plastics may give off very toxic fumes when they burn. Stay out of smoke form burning structures and any unknown sources such as trash piles.

Illicit Activities

- Marijuana plantations or drug production labs may be found in the wildland urban interface areas. Extremely hazardous materials such as propane tanks and flammable/toxic chemicals may be encountered.

Propane Tanks

- Both large (household size) and small (gas grill size) liquefied propane gas (LPG) tanks can present hazards to firefighters, including explosion.

Utility Lines

- Utility Lines may be located above and below ground and may be cut or damaged by tools or equipment. Don't spray water on utility lines or boxes.

Septic Tanks and Fields

- Below ground structures may not be readily apparent and may not support the weight of engines or other equipment.

New Construction Materials

- Many new construction materials have comparatively low melting points and may "off-gas" extremely hazardous vapors. Plastic decking materials that resemble wood are becoming more common and may begin softening and losing structural strength at 180 degrees F, though they normally do not sustain combustion once direct flame is removed. However if the continue to burn they exhibit the characteristics of flammable liquids.

Pets and Livestock

- Pets and livestock may be left when residents evacuate and will likely be highly stressed making them more inclined to bite and kick. Firefighters should not put themselves at risk to rescue pets or livestock.

Evacuation Occurring

- Firefighters may be taking structural protect actions while evacuations of residents are occurring. Be very cautious of people driving erratically. Distraught residents may refuse to leave their property and firefighters may need to disengage from fighting fire to contact law enforcement officers for assistance. In most jurisdictions firefighters do not have the authority to force evacuations. Firefighters should not put themselves at risk trying to protect someone who will not evacuate!

Limited Access

- Narrow one-lane roads with no turn around room, inadequate or poorly maintained bridges and culverts are frequently found in wildland urban interface areas. Access should be sized up and an evacuation plan for all emergency personnel should be developed.

Wildland Urban Interface (WUI) is described as the area where structures and other human improvements meet and intermingle with undeveloped wildland or vegetative fuels.

The wildland fire risk assessment conducted in 2011 by the Taliaferro County Fire Departments identified a number of hazards and risks to communities in the wildland urban interface. The risk assessment instrument used to evaluate wildfire hazards to Taliaferro County's WUI was the Woodland Community Wildfire Hazard Assessment Checklist. The instrument takes into consideration accessibility, site hazard, roofing and building construction, and additional factors such availability of water, placement of gas and electric utilities, and the surrounding environment. The following factors contributed to the wildfire hazard's identified for Taliaferro County:

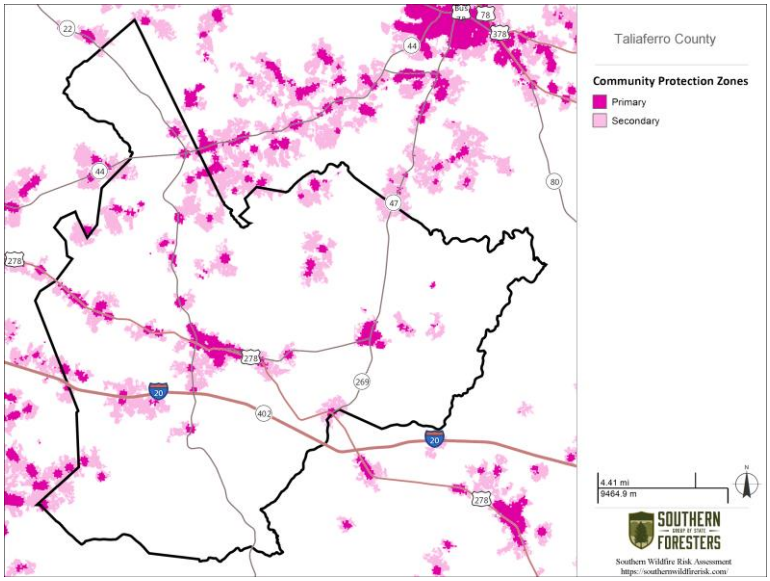
- Unpaved roads and private driveways
- Narrow roads without drivable shoulders and with overhanging trees
- Bridges with inadequate load limits
- Short or inadequate culverts leading to private drives
- Minimal defensible space around structures
- Homes with wooden siding
- Unmarked septic tanks in yards
- Lack of pressurized or non-pressurized water systems available
- Large, adjacent areas of forest or wildlands
- Lack of enforcement of addressing ordinance

Fire District	Community Design	Site Hazard	Bldg Construction	Additional Factors	Score	Hazard Rating
Average	**19**	**40**	**15**	**30**	**104**	**Moderate**

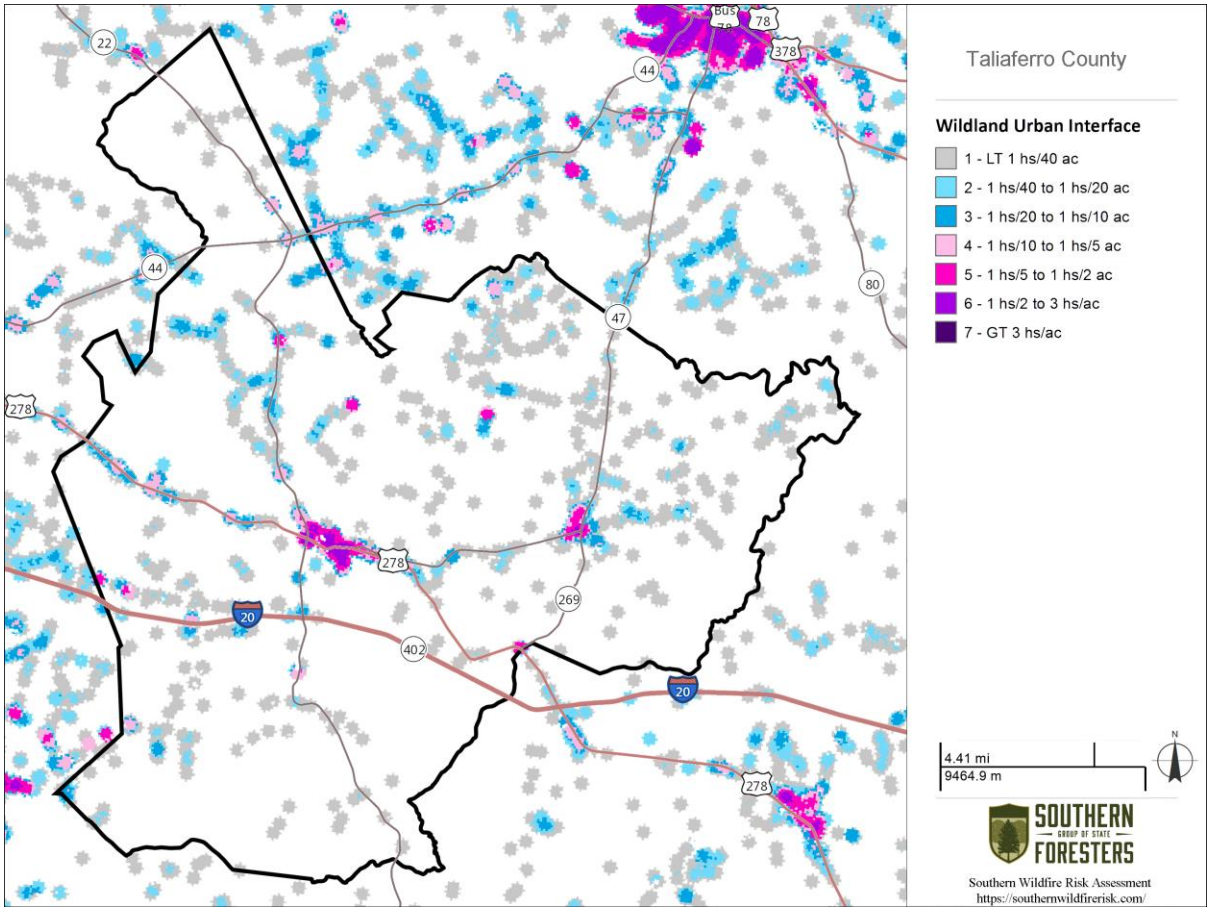
VI. SOUTHERN WILDFIRE RISK ASSESSMENT & RISK HAZARD MAPS

The Southern Wildfire Risk Assessment tool, developed by the Southern Group of State Foresters, was released to the public in July 2014. 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. A risk assessment summary was generated for Taliaferro County. The SouthWRAP (SWRA) products included in this report are designed to provide the information needed to support the following key priorities:

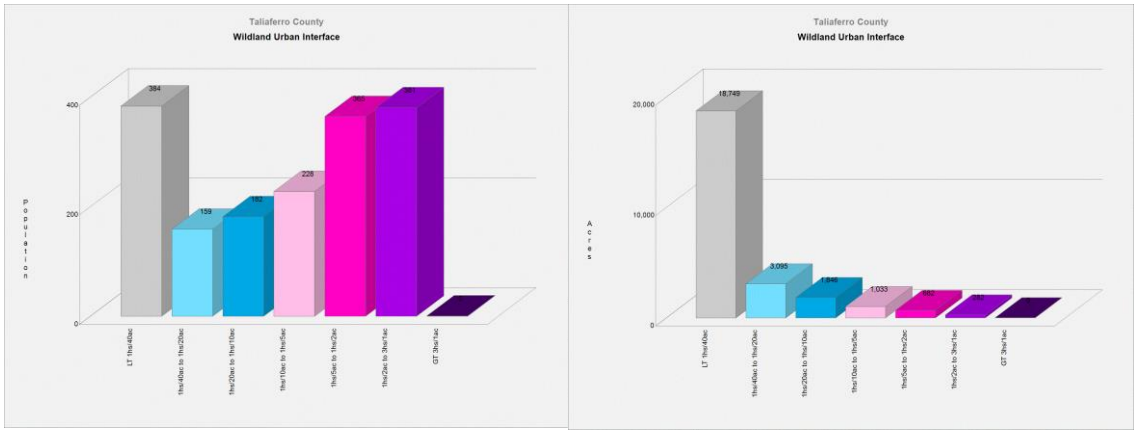
- Identify areas that are most prone to wildfire.
- Identify areas that may require additional tactical planning, specifically related to mitigation projects and Community Wildfire Protection Planning.
- Provide the information necessary to justify resource, budget and funding requests.
- Allow agencies 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.

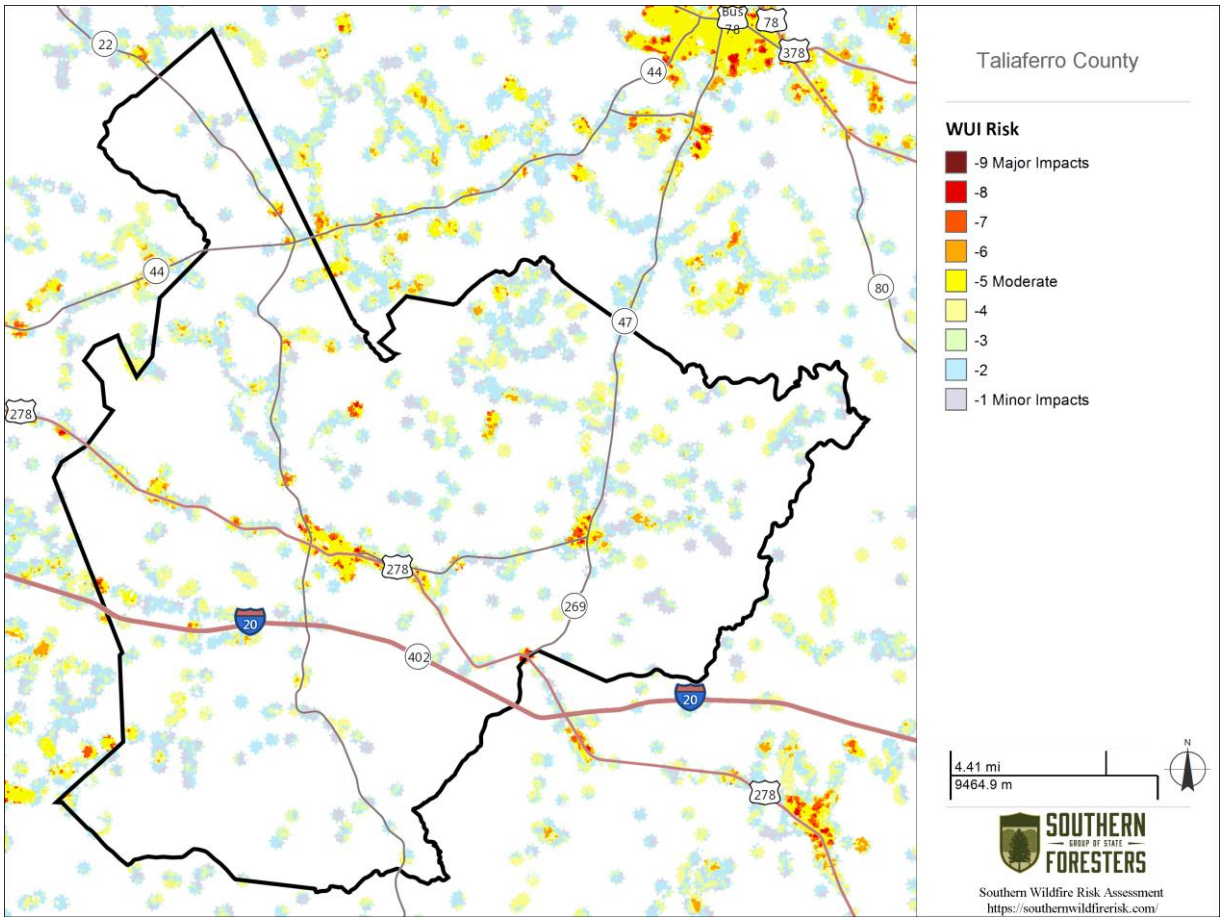


Community Protection Zones map from the Taliaferro County SWRA

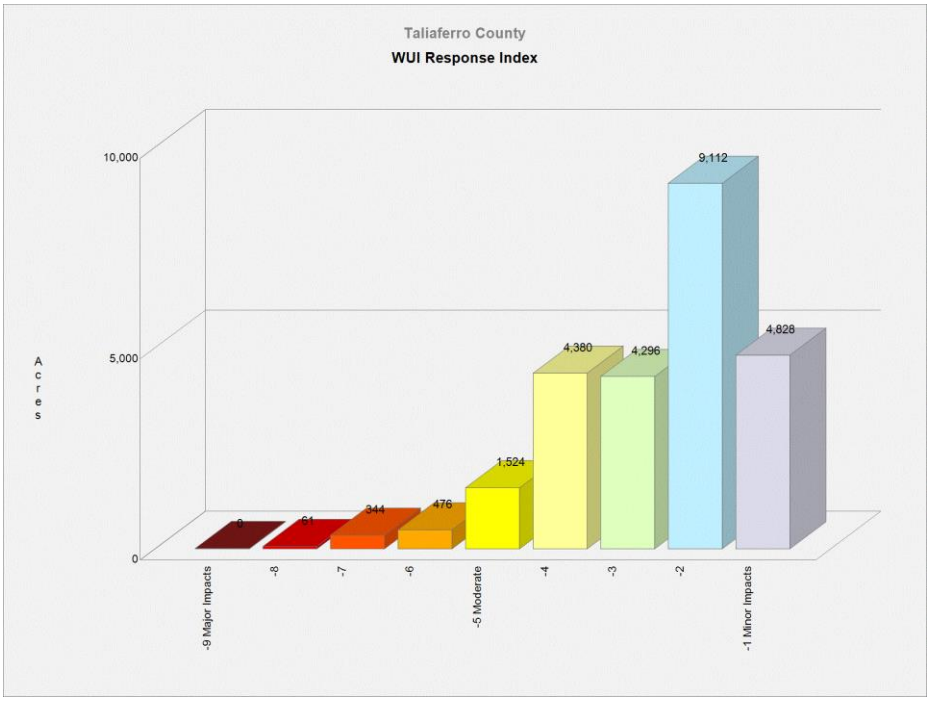


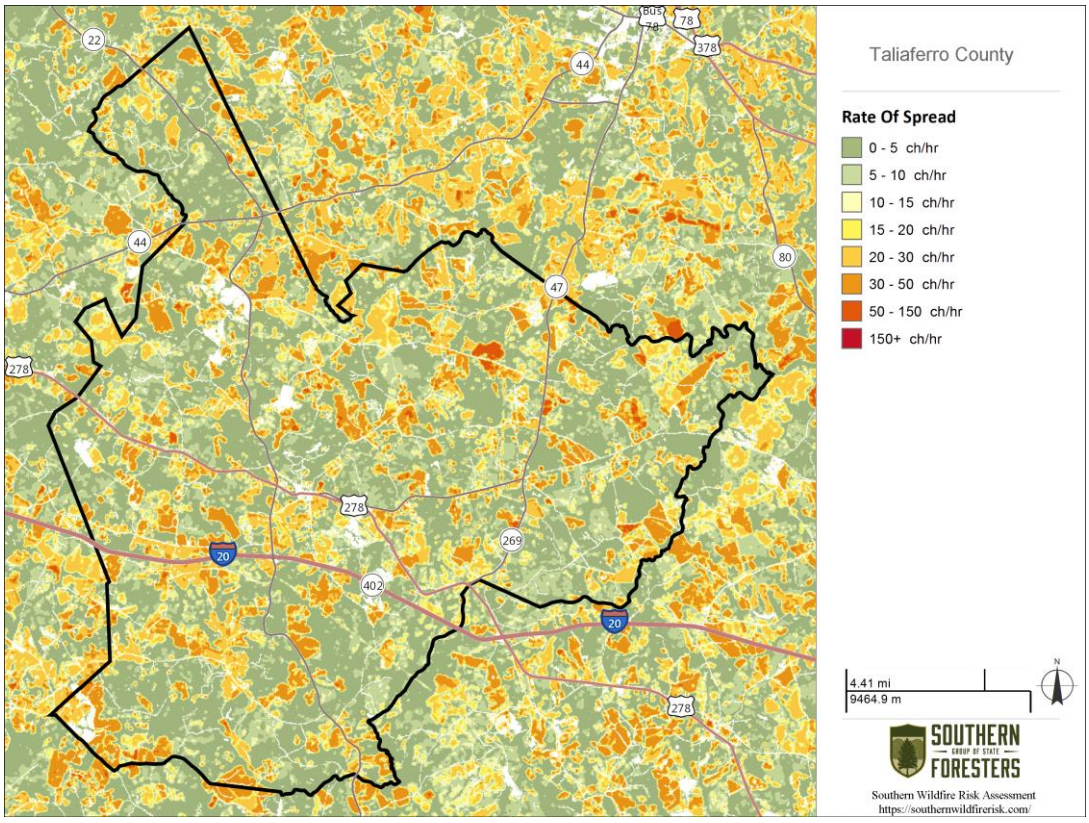
Above: Wildland Urban Interface (WUI) map **Below: WUI Acres (left) WUI Population (right)**



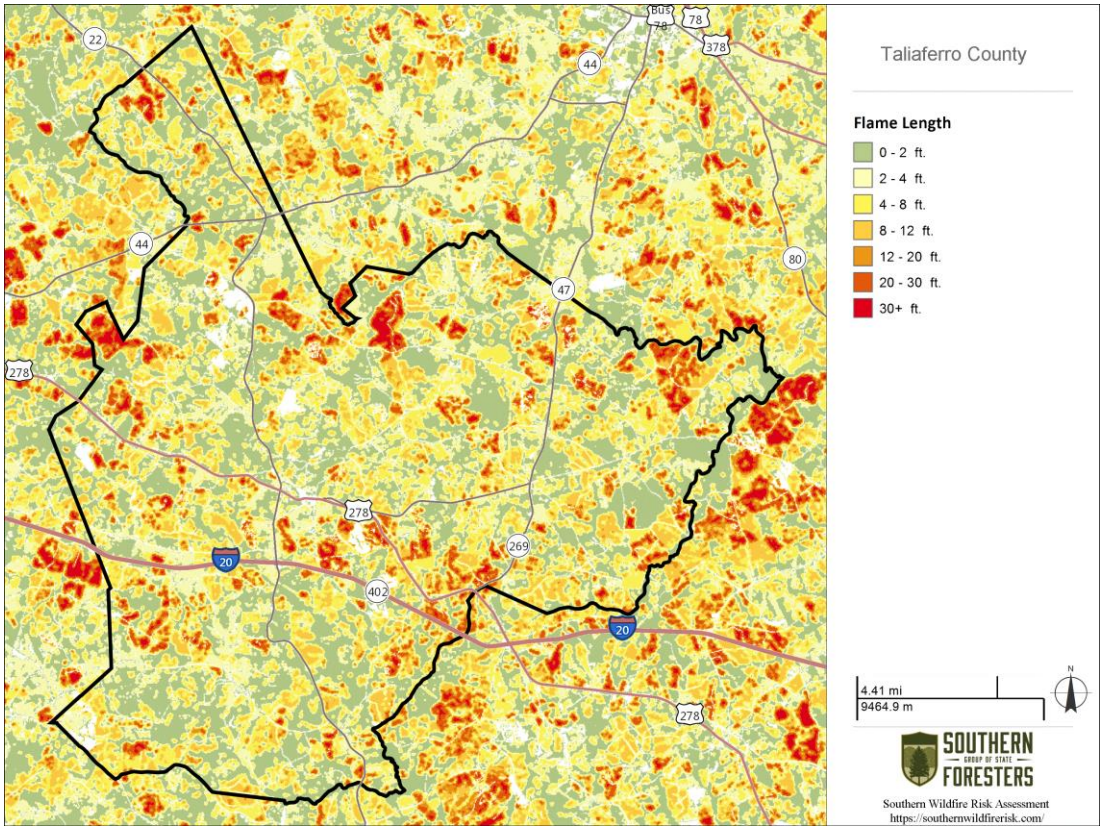


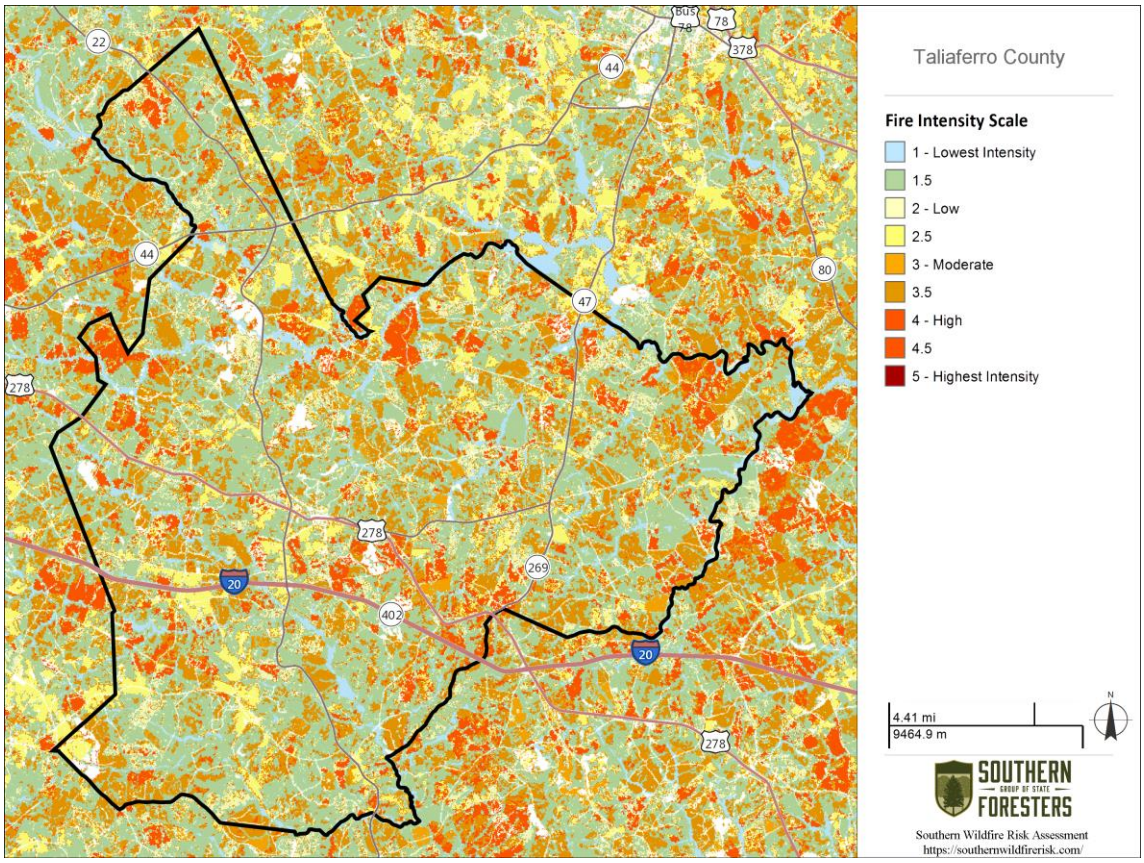
Above: Wildland Urban Interface (WUI) Risk map Below WUI Risk Acres Index



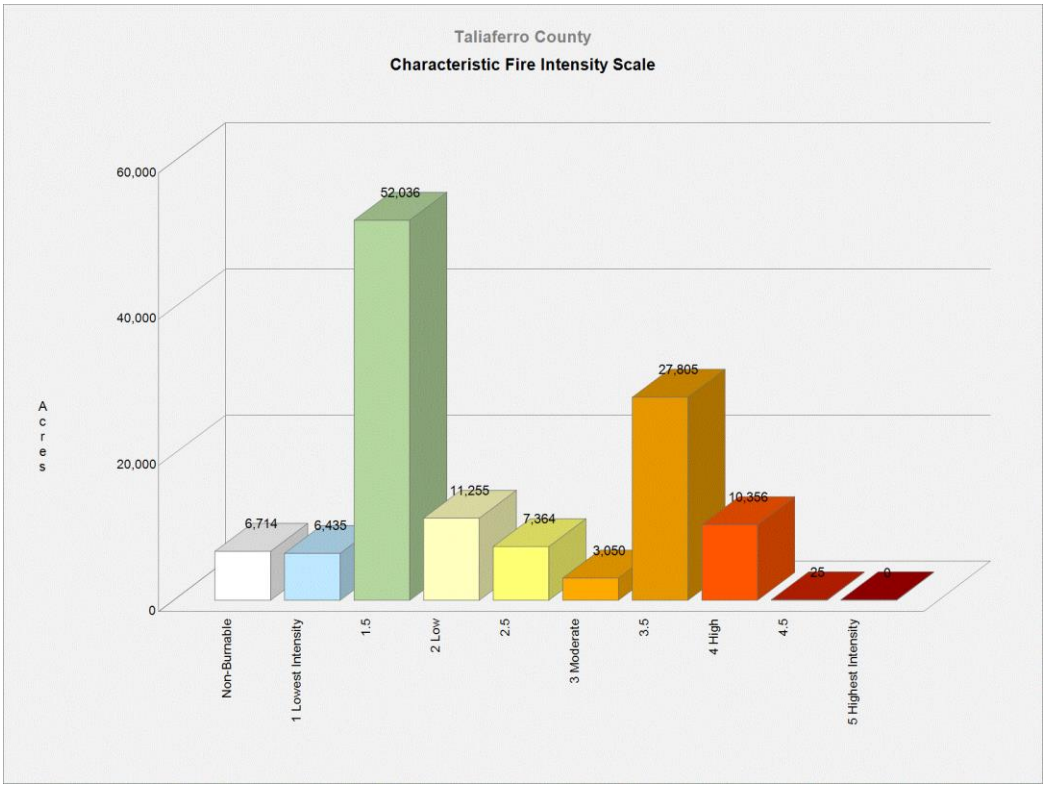


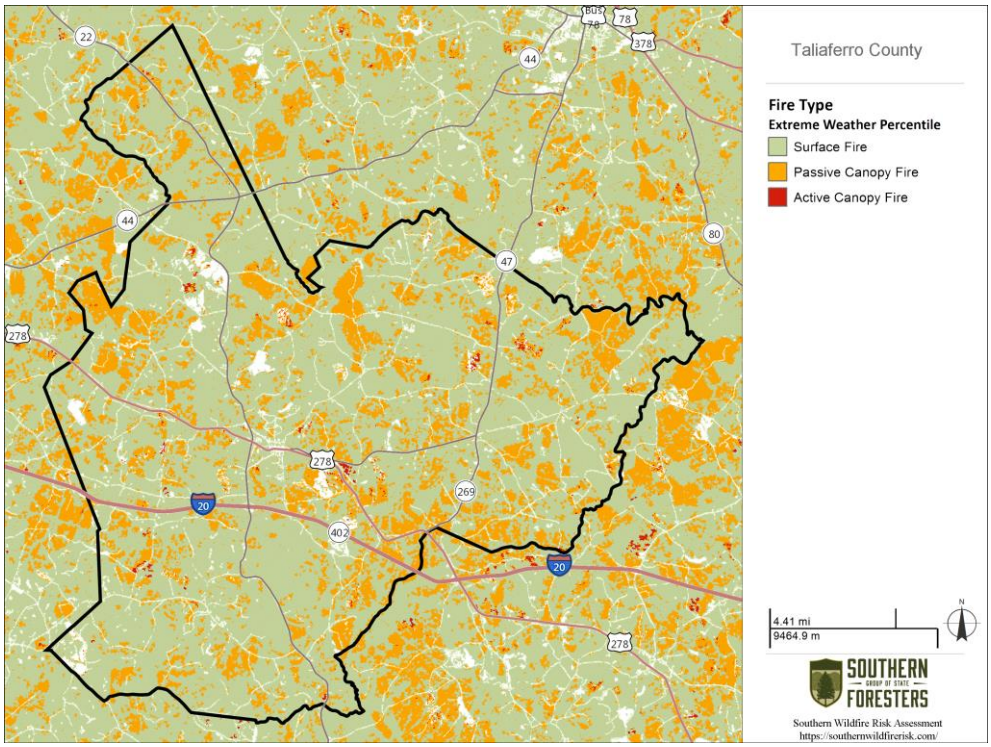
Above: Rate of Spread map Below: Flame Length map





Above : Fire Intensity Scale Below Fire Intensity Scale Acres





Above: Fire Type map

Description

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).

VII. PRIORITIZED MITIGATION RECOMMENDATIONS

Executive Summary

As rural Georgia continues to see increased growth from other areas seeking less crowded and warmer climes, new development will occur more frequently on forest and wildland areas. Taliaferro County will have an opportunity to significantly influence the wildland fire safety of new developments. It is important that new development be planned and constructed to provide for public safety in the event of a wildland fire emergency.

Over the past 25 years, much has been learned about how and why homes burn during wildland fire emergencies. Perhaps most importantly, case histories and research have shown that even in the most severe circumstances, wildland fire disasters can be avoided. Homes can be designed, built and maintained to withstand a wildfire even in the absence of fire services on the scene. The national Firewise Communities program is a national awareness initiative to help people understand that they don't have to be victims in a wildfire emergency. The National Fire Protection Association has produced two standards for reference: NFPA 1144 Standard for Reducing Structure Ignition Hazards from Wildland Fire. 2008 Edition and NFPA 1141 Standard for Fire Protection Infrastructure for Land Development in Suburban and Rural Areas.

When new developments are built in the Wildland/Urban Interface, a number of public safety challenges may be created for the local fire services: (1) the water supply in the immediate areas may be inadequate for fire suppression; (2) if the Development is in an outlying area, there may be a longer response time for emergency services; (3) in a wildfire emergency, the access road(s) may need to simultaneously support evacuation of residents and the arrival of emergency vehicles; and (4) when wildland fire disasters strike, many structures may be involved simultaneously, quickly exceeding the capability of even the best equipped fire departments.

In 2012 the International Code Council developed the International Wildland Urban Interface Code (IWUIC). This code was adopted by the Georgia Legislature in 2014 for Counties to use when developing building and zoning codes in the Wildland Urban Interface (WUI) to help reduce risk and minimize structure loss.

The following recommendations were developed by the Taliaferro County CWPP Core team as a result of surveying and assessing fuels and structures and by conducting meetings and interviews with county and city officials. A priority order was determined based on which mitigation projects would best reduce the hazard of wildfire in the assessment area.

Proposed Community Hazard and Structural Ignitability Reduction Priorities

Primary Protection for Community and Its Essential Infrastructure		
Treatment Area	Treatment Types	Treatment Method(s)
1. All Structures	Create minimum of 30-feet of defensible space**	Trim shrubs and vines to 30 feet from structures, trim overhanging limbs, replace flammable plants near homes with less flammable varieties, remove vegetation around chimneys.
2. Applicable Structures	Reduce structural ignitability**	Clean flammable vegetative material from roofs and gutters, store firewood appropriately, install skirting around raised structures, store water hoses for ready access, and replace pine straw and mulch around plantings with less flammable landscaping materials.
3. Community Clean-up Day	Cutting, mowing, pruning**	Cut, prune, and mow vegetation in shared community spaces.
4. Driveway Access	Right of Way Clearance	Maintain vertical and horizontal clearance for emergency equipment. See that adequate lengths of culverts are installed to allow emergency vehicle access.
5. Road Access	Identify needed road improvements	As roads are upgraded, widen to minimum standards with at least 50 foot diameter cul de sacs or turn arounds. Work with road department to improve standards for new culvert installation and replacement sufficient to allow access by fire fighting equipment.
6. Codes and Ordinances	Examine existing codes and ordinances. Utilize the International Wildland Urban Interface Code IWUIC	Amend and enforce existing building codes as they relate to skirting, propane tank locations, public nuisances (trash/debris on property), Property address marking standards and other relevant concerns Review Subdivision and development ordinances for public safety concerns. Enforce uniform addressing ordinance.

Proposed Community Wildland Fuel Reduction Priorities		
Treatment Area	Treatment Types	Treatment Method(s)
1. Adjacent WUI Lands	Reduce hazardous fuels	Encourage prescribed burning for private landowners and industrial timberlands particularly adjacent to residential areas. Seek grant for mowing or prescribed burning in WUI areas.
2. Railroad Corridors	Reduce hazardous fuels	Encourage railroads to better maintain their ROW eliminating brush and grass through herbicide and mowing. Maintain firebreaks along ROW adjacent to residential areas.
3. Existing Fire Lines	Reduce hazardous fuels	Clean and re-harrow existing lines.
Proposed Improved Community Wildland Fire Response Priorities		
1. Water Sources	Dry Hydrants	Inspect, maintain and improve access to existing dry hydrants. Add signage along road to mark the hydrants. Locate additional dry hydrants or drafting locations needed. Locate and pre-clear helicopter dip sites. Map location of dry hydrants.
2. Fire Stations	Equipment	Seek grants or other funding for Wildland hand tools and lightweight Wildland PPE Gear.
3. Response	Equipment	Investigate need for brush truck.
4. Road Names	Road Signage	Timely replacement of missing road signs. “Dead End” or “No Outlet” Tags on Road Signs.
5. Personnel	Training	Obtain Wildland Fire Suppression training for Fire Personnel. Work with GFC and GEMA for affordable classes for personnel. Ready Set Go training.
**Actions to be taken by homeowners and community stakeholders		

Proposed Education and Outreach Priorities

1. Conduct "How to Have a Firewise Home" Workshop for Taliaferro County Residents
Set up and conduct a workshop for homeowners that teach the principles of making homes and properties safe from wildfire. Topics for discussion include defensible space, landscaping, building construction, etc. Workshop will be scheduled for evenings or weekends when most homeowners are available and advertised through local media outlets. Target local schools, community groups and local senior centers. Distribute materials promoting firewise practices and planning through local community and governmental meetings.
2. Conduct "Firewise" Workshop for Community Leaders
Arrange for GFC Firewise program to work with local community leaders and governmental officials on the importance of "Firewise Planning" in developing ordinances and codes as the county as the need arises. Identify additional "Communities at Risk" within the county for possible firewise community recognition.
3. Spring Clean-up Event (National Wildfire Preparedness Day – 1st Saturday in May annually)
Conduct clean-up event every spring involving the Georgia Forestry Commission, Taliaferro County Fire Department and community residents. Set up information table with educational materials and refreshments. Initiate the event with a morning briefing by GFC Firewise coordinator and local fire officials detailing plans for the day and safety precautions. Activities to include the following: • Clean flammable vegetative material from roofs and gutters • Trim shrubs and vines to 30 feet away from structures • Trim overhanging limbs • Clean hazardous or flammable debris from adjacent properties Celebrate the work with a community cookout, with Community officials, GFC and Taliaferro County Fire Department discussing and commending the work accomplished.
4. Informational Packets
Develop and distribute informational packets to be distributed by realtors and insurance agents. Included in the packets are the following: • Be Firewise Around Your Home • Firewise Guide to Landscape and Construction • Firewise Communities USA brochures • Ready Set Go materials • Fire Adapted Community information

5. Wildfire Protection Display
Create and exhibit a display for the general public at the county festivals and other local events. Display can be independent or combined with the Georgia Forestry Commission display. Hold Open House at individual Fire Stations to promote Community Firewise Safety and develop community support and understanding of local fire departments and current issues.
6. Media
Invite the local news media to community "Firewise" functions for news coverage and regularly submit press releases documenting wildfire risk improvements in Taliaferro County. Utilize TV, radio, cable, and social media to reach a diverse audience.

Prescribed burning of woodlands is the best management practice to reduce hazardous fuel accumulation. The Georgia Forestry Commission can provide a prescribed burning plan, establish fire breaks, and can also provide equipment standby and assist with burning when personnel are available. Forestry contractors can also provide this service.

Mastication equipment, such as pictured on left, can be very effective in mowing or mulching understory fuels to reduce wildfire hazard. This management practice is practical for areas near homes where prescribed burning may not be possible. This type of service is available from private contractors.

VIII. ACTION PLAN

Roles and Responsibilities

The following roles and responsibilities have been developed to implement the action plan:

Role	Responsibility
Hazardous Fuels and Structural Ignitability Reduction	
Taliaferro County WUI Fire Council	Create this informal team or council comprised of concerned residents, officials from Taliaferro County Fire Departments and Georgia Forestry Commission along with the EMA Director for Taliaferro County. Meet periodically to review progress towards mitigation goals, appoint and delegate special activities, work with federal, state, and local officials to assess progress and develop future goals and action plans. Work with residents to implement projects and firewise activities.
Key Messages to focus on	1 Defensible Space and Firewise Landscaping 2 Debris Burning Safety 3 Firewise information for homeowners 4 Prescribed burning benefits
Communications objectives	1 Create public awareness for fire danger and defensible space issues 2 Identify most significant human cause fire issues 3 Enlist public support to help prevent these causes 4 Encourage people to employ fire prevention and defensible spaces in their communities.
Target Audiences	1 Homeowners 2 Forest Landowners and users 3 Civic Groups 4 School Groups
Methods	1 News Releases 2 Radio and TV PSA's for area stations and cable access channels 3 Personal Contacts 4 Key messages and prevention tips 5 Visuals such as signs, brochures and posters

Spring Clean-up Day (National Wildfire Preparedness Day)	
Event Coordinator	Coordinate day's events and schedule, catering for cookout, guest attendance, and moderate activities the day of the day of the event.
Event Treasurer	Collect funds from residents to cover food, equipment rentals, and supplies.
Publicity Coordinator	Advertise event through neighborhood newsletter, letters to officials, and public service announcements (PSAs) for local media outlets. Publicize post-event through local paper and radio PSAs.
Work Supervisor	Develop volunteer labor force of community residents; develop labor/advisory force from Georgia Forestry Commission, Taliaferro County Fire Department and Emergency Management Agency. Procure needed equipment and supplies. In cooperation with local city and county officials, develop safety protocol. Supervise work and monitor activities for safety the day of the event.

Funding Needs

The following funding is needed to implement the action plan:

Project	Estimated Cost	Potential Funding Source(s)
1. Create a minimum of 30 feet of defensible space around structures.	Varies	Residents will supply labor and fund required work on their own properties.
2. Reduce structural ignitability by cleaning flammable vegetation from roofs and gutters; appropriately storing firewood, installing skirting around raised structures, storing water hoses for ready access, replacing pine needles and mulch around plantings with less flammable material.	Varies	Residents will supply labor and fund required work on their own properties.
3. Amend codes and ordinances to provide better driveway access, increased visibility of house numbers, properly stored firewood, minimum defensible space brush clearance, required Class A roofing materials and skirting around raised structures, planned maintenance of community lots.	No Cost	To be adopted by city and county governments.
4. Spring Cleanup Day National Wildfire Preparedness Day	Varies	Community Business Donations. State Farm grants.
5. Fuel Reduction Activities	$35/acre	FEMA & USFS Grants.

Assessment Strategy

To accurately assess progress and effectiveness for the action plan, the Taliaferro County WUI Fire Council will implement the following:

- Annual wildfire risk assessment will be conducted to re-assess wildfire hazards and prioritize needed actions.

- Mitigation efforts that are recurring (such as mowing, burning, and clearing of defensible space) will be incorporated into an annual renewal of the original action plan.

- Mitigation efforts that could not be funded in the requested year will be incorporated into the annual renewal of the original action plan.

- Continuing educational and outreach programs will be conducted and assessed for effectiveness. Workshops will be evaluated based on attendance and post surveys that are distributed by mail 1 month and 6 months following workshop date.

- The Taliaferro County WUI Council will publish an annual report detailing mitigation projects initiated and completed, progress for ongoing actions, funds received, funds spent, and in-kind services utilized. The report will include a "state of the community" section that critically evaluates mitigation progress and identifies areas for improvement. Recommendations will be incorporated into the annual renewal of the action plan.

- An annual survey will be distributed to residents soliciting information on individual mitigation efforts on their own property (e.g., defensible space). Responses will be tallied and reviewed at the next Taliaferro County WUI Council meeting. Needed actions will be discussed and delegated.

This plan should become a working document that is shared by local, state, and federal agencies that will use it to accomplish common goals. An agreed-upon schedule for meeting to review accomplishments, solve problems, and plan for the future should extend beyond the scope of this plan. Without this follow up this plan will have limited value.

IX. MITIGATION ASSISTANCE & GRANT FUNDING

Community Protection Grant: US Forest Service sponsored prescribed fire program. Communities with "at-risk" properties that lie within ten miles of a National Forest, National Park Service or Bureau of Land Management tracts may apply with the Georgia Forestry Commission to have their land prescribe burned free-of-charge. Forest mastication, where it is practical with Georgia Forestry Commission equipment, is also available under this grant program.

FEMA Mitigation Policy MRR-2-08-01: through GEMA – Hazard Mitigation Grant Program (HMGP) and Pre-Disaster Mitigation Program (PDM).

1. To provide technical and financial assistance to local governments to assist in the implementation of long term, cost effective hazard mitigation accomplishments.

2. This policy addresses wildfire mitigation for the purpose of reducing the threat to all-risk structures through creating defensible space, structural protection through the application of ignition resistant construction and limited hazardous fuel reduction to protect life and property.

3. With a completed registered plan (addendum to the State Plan) counties can apply for pre-mitigation funding. They will also be eligible for HMGP funding if the county is declared under a wildfire disaster.

Georgia Forestry Commission: Plowing and prescribed burning assistance, as well as forest mastication, can be obtained from the GFC as a low-cost option for mitigation efforts.

The Georgia Forestry Commission Firewise Community Mitigation Assistance Grants – Nationally recognized Firewise Communities can receive up to $5000 grants to help address potential wildfire risk reduction projects. Grant submission can be made through local Georgia Forestry Commission offices or your Regional Wildfire Prevention Specialist.

The International Association of Fire Chiefs (IAFC) and American International Group, Inc. (AIG) offer grants to assist local fire departments in establishing or enhancing their community fuels mitigation programs while educating members of the community about community wildfire readiness and encouraging personal action.

X. GLOSSARY

Community-At-Risk – *A group of two or more structures whose proximity to forested or wildland areas places homes and residents at some degree of risk.*

Critical Facilities – *Buildings, structures or other parts of the community infrastructure that require special protection from an approaching wildfire.*

CWPP – *The Community Wildfire Protection Plan.*

Defensible Space – *The immediate landscaped area around a structure (usually a minimum of 30 ft.) kept "lean, clean and green" to prevent an approaching wildfire from igniting the structure.*

Dry Hydrant - *A non-pressurized pipe system permanently installed in existing lakes, ponds and streams that provides a suction supply of water to a fire department tank truck.*

FEMA – *The Federal Emergency Management Agency whose mission is to support our citizens and first responders to ensure that as a nation we work together to build, sustain, and improve our capability to prepare for, protect against, respond to, recover from, and mitigate all hazards.*

Fire Adapted Community – *A community fully prepared for its wildfire risk by taking actions to address safety, homes, neighborhoods, businesses and infrastructure, forest, parks, open spaces, and other community assets.*

Firewise Program – *A national initiative with a purpose to reduce structural losses from wildland fires.*

Firewise Community/USA – *A national recognition program for communities that take action to protect themselves from wildland fire. To qualify a community must have a wildfire risk assessment by the Georgia Forestry Commission, develop a mitigation action plan, have an annual firewise mitigation/education event, have dedicated firewise leadership, and complete the certification application.*

Fuels – *All combustible materials within the wildland/urban interface or intermix including, but not limited to, vegetation and structures.*

Fuel Modification – *Any manipulation or removal of fuels to reduce the likelihood of ignition or the resistance to fire control.*

Hazard & Wildfire Risk Assessment – *An evaluation to determine an area's (community's) potential to be impacted by an approaching wildland fire.*

Healthy Forests Initiative - *Launched in August 2002 by President Bush (following passage of the Healthy Forests Restoration Act by Congress) with the intent to reduce the risks severe wildfires pose to people, communities, and the environment.*

Home Ignition Zone (Structure Ignition Zone) - *Treatment area for wildfire protection. The "zone" includes the structure(s) and their immediate surroundings from 0-200 ft.*
Mitigation – An a*ction that moderates the severity of a fire hazard or risk.*

National Fire Plan – *National initiative, passed by Congress in the year 2000, following a landmark wildland fire season, with the intent of actively responding to severe wildland fires and their impacts to communities while ensuring sufficient firefighting capacity for the future.*

National Fire Protection Association (NFPA) - *An international nonprofit organization established in 1896, whose mission is to reduce the worldwide burden of fire and other hazards on the quality of life by providing and advocating consensus codes and standards, research, training, and education.*

National Wildfire Preparedness Day – *Started in 2014 by the National Fire Protection Association as a day for communities to work together to prepare for the approaching wildfire season. It is held annually on the first Saturday in May.*

Prescribed Burning (prescribed fire) –*The use of planned fire that is deliberately set under specific fuel and weather condition to accomplish a variety of management objectives and is under control until it burns out or is extinguished.*

Ready, Set, Go - *A program fire services use to help homeowners understand wildfire preparedness, awareness, and planning procedures for evacuation.*

Southern Group of State Foresters – *Organization whose members are the agency heads of the forestry agencies of the 13 southern states, Puerto Rico and the Virgin Islands.*

Stakeholders– *Individuals, groups, organizations, businesses or others who have an interest in wildland fire protection and may wish to review and/or contribute to the CWPP content.*

Wildfire or Wildland Fire – *An unplanned and uncontrolled fire spreading through vegetative fuels.*

Wildland/Urban Interface - *The presence of structures in locations in which the authority having jurisdiction (AHJ) determines that topographical features, vegetation, fuel types, local weather conditions and prevailing winds result in the potential for ignition of the structures within the area from flames and firebrands from a wildland fire* (NFPA 1144, 2008).

XI. SOURCES OF INFORMATION

Publications/Brochures/Websites:

- FIREWISE materials can be ordered at www.firewise.org
- Georgia Forestry Commission www.georgiafirewise.org
- Examples of successful wildfire mitigation programs can be viewed at the website for National Database of State and Local wildfire Hazard Mitigation Programs sponsored by the U.S. Forest Service and the Southern Group of State Foresters www.wildfireprograms.com
- Information about a variety of interface issues (including wildfire) can be found at the USFS website for Interface South: www.interfacesouth.org
- Information on codes and standards for emergency services including wildfire can be found on National Fire Protection Association website at www.nfpa.org
- Information on FEMA Assistance to Firefighters Grants (AFG) can be found at www.firegrantsupport.com
- Information on National Fire Plan grants can be found at http://www.federalgrantswire.com/national-fire-plan--rural-fire-assistance.html
- Southern Wildfire Risk Assessment website SouthWRAP www.SouthernWildfireRisk.com
- Fire Adapted Communities www.fireadapted.org
- Ready, Set, Go www.wildlandfirersg.org
- National Wildfire Preparedness Day www.wildfireprepday.org

Appended Documents:

Taliaferro County Southern Wildfire Risk Assessment Summary Report (SWRA)

Taliaferro County Wildfire assessment scoresheets

All files that make up this plan are available in an electronic format from the Georgia Forestry Commission.

Georgia Forestry Commission
Riggins Mill Road
Dry Branch, GA 31020

1-800-GA-TREES
GaTrees.org

The Georgia Forestry Commission provides leadership, service, and education in the protection and conservation of Georgia's forest resources.

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CSRA REGIONAL PLAN 2035

REGIONAL ASSESSMENT
COMMUNITY PARTICIPATION PLAN
REGIONAL AGENDA

Central Savannah River Area
CSRA
RC
Regional Commission

Table of Contents

CSRA REGIONAL PLAN 2035

Regional Assessment

Section 1: INTRODUCTION

1.1 Regional Plan Overview

The CSRA Regional Plan 2035 (hereinafter 'the Plan') is the long-range plan for the management of the region's projected growth by local governments and the CSRA Regional Commission. The Plan's horizon is twenty years but will be updated in ten years to address changing regional conditions. The process is divided into three distinct parts, per the *Regional Planning Requirements* established by the Georgia Department of Community Affairs (DCA):

- Regional Assessment: Identification and analysis of existing conditions using available data
- Stakeholder Involvement Program: Strategy for public participation in the development of the Regional Agenda
- Regional Agenda: Regional vision and implementation program

The resulting analysis will assess the state of the region's socioeconomic, land use, and environmental opportunities and threats. The CSRA's vision and goals, together with an appraisal of the region, will set the strategic direction for the regional agenda. The regional agenda establishes program priorities for implementation.

This document contains the Regional Assessment and the Stakeholder Involvement Program, which will set the stage for the development of the Regional Agenda.

1.2 Regional Assessment Overview

This Regional Assessment includes a thorough analysis of issues and opportunities backed by extensive data gathering and analysis. It contains a map of Projected Development Patterns and an assessment of Areas Requiring Special Attention, which includes a range of categories, such as areas where rapid development is occurring or where infill or redevelopment is desirable. Finally, it includes an assessment of the region's development patterns in light of the state's Quality Community Objectives.

1.3 Stakeholder Involvement Program

This program outlines the process for participation by stakeholders in the creation of the Regional Agenda. It identifies stakeholders, outlines participation techniques and includes a schedule for the completion of the Regional Agenda.

1.4 Regional Agenda

The Regional Agenda is the culmination of the planning process. It will include a vision of the CSRA's future, along with an implementation program for how to get there.

1.5 How to Use This Plan

The CSRA Regional Plan is intended to serve as a reference and implementation point for potential users. A number of companion planning documents should be used in conjunction with the Regional Plan. These include:

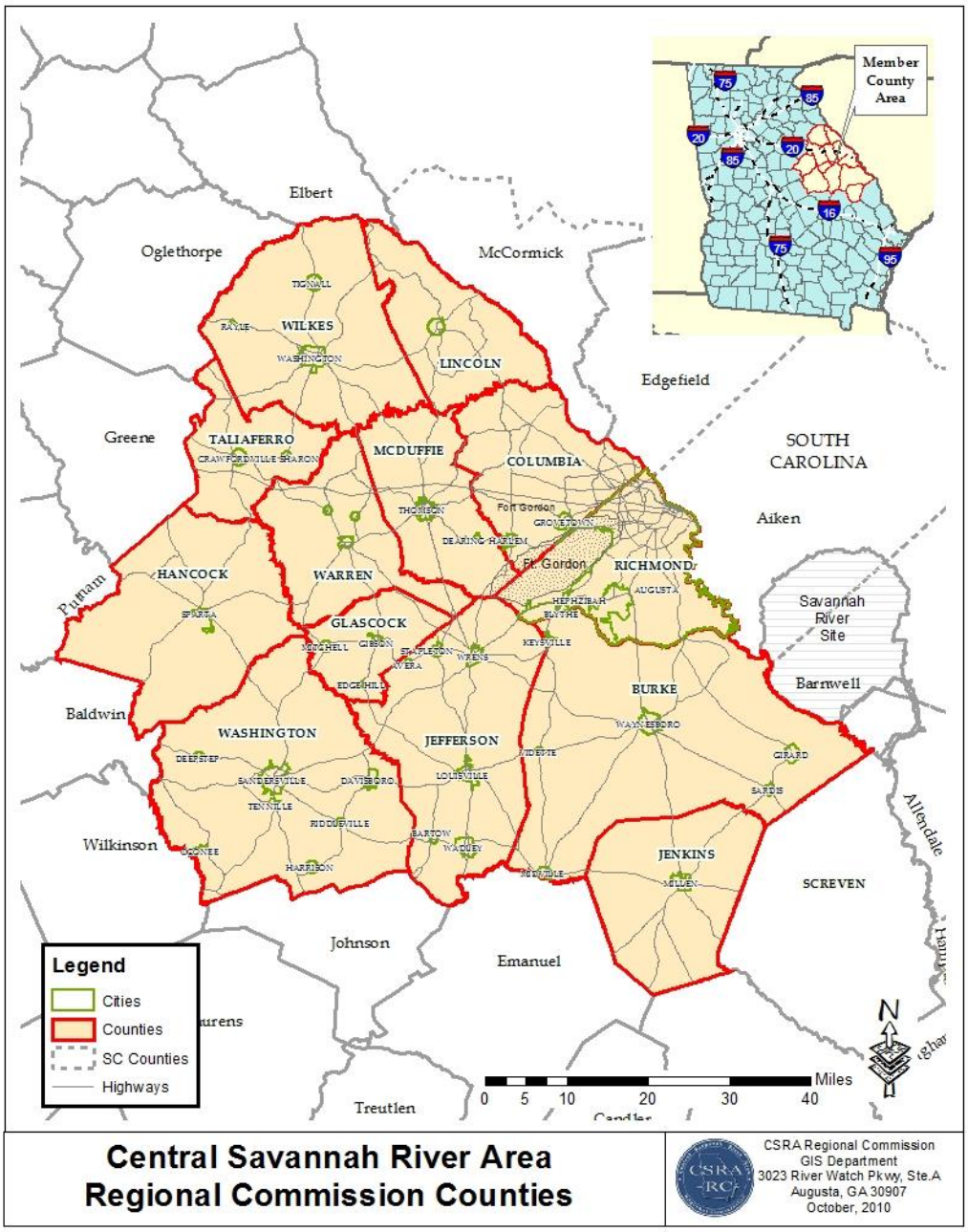
- CSRA Comprehensive Economic Development Strategy
- Augusta Area Diversification Initiative
- Fort Gordon Joint Land Use Study
- CSRA Regionally Important Resources Plan
- County and City Comprehensive Plans

- Statewide Plans

1.6 The Central Savannah River Area

The Central Savannah River Area (CSRA) encompasses an area nearly 6,500 square miles — the largest political region in the state. Located in the east-central Georgia, along the Savannah River, the CSRA includes 13 counties: Burke, Columbia, Glascock, Hancock, Jefferson, Jenkins, Lincoln, McDuffie, Richmond, Taliaferro, Warren, Washington, and Wilkes (Figure 1). The largest city in the CSRA is Augusta – the economic core of the region.

Figure 1: CSRA Location Map



1.6 About the CSRA Regional Commission

The CSRA Regional Commission (CSRA RC) serves thirteen counties and 41 municipalities in east-central Georgia, providing services in the areas of planning and land-use development, grant writing and administration, economic development, historic preservation, and geographic information systems development and implementation to member jurisdictions.

Additionally, the CSRA RC serves as the state-designated Area Agency on Aging (AAA) for the region. In this capacity, the CSRA RC works with local providers to ensure that services for the elderly are provided and monitored. By utilizing pass-through funds from state and federal sources, the Commission's AAA serves as a gateway for programs and resources aimed at helping senior citizens improve the quality of their lives during their retirement years.

The CSRA RC is also the parent company of the CSRA Business Lending. CSRA Business Lending makes loans to small and start-up businesses for the purposes of creating jobs and economic development opportunities within its service area.

Section 2: POTENTIAL REGIONAL ISSUES AND OPPORTUNITIES

2. Potential Issues and Opportunities

This section provides an objective, professional analysis (not based on public or stakeholder input) of the region. This section, presented in divisions relating to classical planning analysis areas such as housing and transportation, presents a preliminary catalog of potential focal points to be examined during the development of Plan.

The Georgia Department of Community Affairs (DCA) publishes a list of typical issues and opportunities as part of the *State Planning Goals and Objectives*. This list, in addition to an evaluation for the region's consistency with the DCA's *Quality Community Objectives*, was used as the starting point for developing the Potential Issues and Opportunities list (please refer to the Appendix of this document for an assessment of the region based on these objectives). Further issues and opportunities were identified as part of a thorough analysis of regional datasets and regional development patterns. The issues and opportunities compiled in this Regional Assessment are preliminary in nature; they will be reexamined and a final list will be assembled as part of the Regional Agenda planning process.

2.1 Population

The population growth illustrated in historical trends is expected to continue over the twenty-year period. However, this growth is not uniform across the CSRA.

- By 2035, the 13-county region's population is projected at 575,304, an increase of approximately 26.5 percent over the 2010 population and 67.4 percent from 1980. This increase will have implications for housing, jobs, transportation, land use, environmental resources, and infrastructure.
- While the urbanized area (Augusta-Richmond and Columbia Counties) has enjoyed population growth, the rural areas continue to lag. Eight of eleven rural counties lost population since the last census. What little population growth is occurring in rural areas is further away from incorporated municipalities, where infrastructure is already established. Should this trend continue, county governments will have to pay more to extend and maintain public services in these areas.
- Household incomes continue to lag the state average. Most concerning, nearly a third of CSRA households are at income levels near or below the poverty line.
- The CSRA is aging rapidly. The proportion of residents 45 years and older has increased 10 percent since 1990, while the proportion of residents under 29 years declined by 8 percent. Needs associated with an aging population (affordable housing, transportation, and medical services) are anticipated to increase over the next twenty years.

Detailed data on population can be found on pages 21 through 25.

2.2 Housing

***State Planning Housing Goal**: To ensure that all residents of the state have access to adequate and affordable housing.*

The CSRA's housing stock is both a strength and weakness for residents.

- The region's housing stock contains a good balance of owner and rental units (55 percent and 30 percent respectively).
- Housing stocks are plentiful in the urbanized area but inadequate in rural counties. Although the official vacancy rate stands at 15 percent, over a third of vacant units are unavailable for purchase or rent. Another 17.2 percent of the region's housing is valued at less than $50,000, an indicator of poor housing conditions.
- Median ($99,937) and average ($127,997) housing values are among the lowest in the state and nation. Low housing costs are a major reason for the CSRA's low cost of living, and a major strength for new residents and business attraction.
- While affordable housing values are a benefit for the region, sprawl threatens county budgets by requiring public services further away from established municipalities. Sprawl also makes it more likely that transportation costs will increase for residents as they have to commute farther to work.

Detailed data on housing can be found on pages 25 through 27.

2.3 Economic Development

***State Planning Economic Development Goal**: To achieve a growing and balanced economy, consistent with the prudent management of the state's resources, that equitably benefits all segments of the population.*

The CSRA region's economy is diverse, and communities typically make concerted efforts to attract new business. However, coordinated economic development planning and promotion could be strengthened, both on a region-wide scale and between proximately-located communities.

- The CSRA RC serves as the region's Economic Development District in coordination with the U.S. Economic Development Administration (EDA), and encourages cooperation between local government officials, community-based organizations, and the private sector. Per EDA requirements, the CSRA RC developed a Comprehensive Economic Development Strategy (CEDS) in 2011.
- The CSRA's job base has shifted significantly in the last two decades. The service sector now accounts for 60 percent of all CSRA jobs, an increase of 20 percent since 1990. The goods-producing sector has declined from 35 percent in 1990 to less than 15 percent of employment today.

- The region's jobs balance is heavily slanted towards the urbanized area. Augusta-Richmond and Columbia Counties account for 78 percent of the CSRA's 233,147 jobs. The urbanized area also accounted for over 90 percent of job growth since 1990. Seven of 11 rural CSRA counties have fewer jobs today than they did in 1990. This corresponds to trends in population, which saw eight of those counties lose residents since 2000.

- Unemployment levels in the CSRA's rural counties have been chronic during the last decade. All rural counties have unemployment rates above the state average (9.7 percent). Three counties (Hancock, Jenkins, and Warren) have unemployment rates of 17 percent or higher. All rural counties meet the criteria of Economically Distressed Areas, according to the federal Public Works and Economic Development Act. The rapid increase in rural unemployment was caused by the closure of major manufacturing employers, which had sustained local economies.

- The CSRA lags behind the state in educational performance, raising concerns about workforce readiness in the new service economy. CSRA scores on the Scholastic Aptitude Test, Georgia High School Graduations Tests, and End-of-Course Assessments all fall below the state average.

Detailed data on economic development can be found on pages 27 through 50.

2.4 Land Use

State Planning Land Use and Transportation Goal*: To ensure the coordination of land use planning and transportation planning throughout the state in support of efficient growth and development patterns that will promote sustainable economic development, protection of natural and cultural resources and provision of adequate and affordable housing.*

The CSRA is a primarily rural region, with an urban core in the Augusta-Richmond County and Columbia County area. Approximately 88 percent of the region's land area is rural.

- The vast majority of the region's housing and commercial growth has occurred in the urbanized area. This corresponds to population trends, which saw the two urban counties gain 35,509 residents since 2000, while the 11 rural counties saw a net gain of only 433 people. Even that figure masks population decline in much of the area. In fact, eight counties - Hancock, Jefferson, Jenkins, Lincoln, Taliaferro, Warren, Washington and Wilkes – combined to lose 2,550 residents since 2000.

- The growth effect that has occurred in the last three decades (development away from established municipalities) resulted in sprawl beyond cities and city centers.

- While cities and downtown areas still have the largest densities, this is quickly eroding as residents locate into unincorporated areas. Revitalization efforts are critical in stemming city population decline.

- If the trend of growth in unincorporated areas continues, this will result in the region's county governments incurring additional costs of providing public infrastructure (such as water & sewer lines, parks, libraries, etc.) further away from established population centers.

Detailed data on land use can be found on pages 50 through 52.

2.5 Transportation and Community Facilities

State Planning Community Facilities and Services Goal*: To ensure the provision of community facilities and services throughout the state to support efficient growth and development patterns that will protect and enhance the quality of life of Georgia's residents.*

The region's physical infrastructure is extensive and diverse, featuring state and federal highways, hospitals, facilities to manage solid waste and wastewater, and other resources. Most community facilities are locally operated and maintained.

- The CSRA has a small network of interstates and four-lane U.S. highways that provide east-west and north-south access to regional and national markets. Interstates 20 and 520, as well as U.S. 1 and U.S. 25 link the CSRA's major cities to each other as well as to the state's major cities, such as Atlanta, Macon, and Savannah (Figure 25). However, the highway system does not fully meet needs throughout the region. Combined, the interstates and U.S 1 and U.S. 25 serve only portions of the CSRA, leaving large areas in the northern and southern part of the region without adequate highway infrastructure.

- While the transportation system serves automobiles relatively well, it is less friendly to other users. Many streets are designed only with vehicle traffic in mind, making them unsafe or unpleasant for pedestrians and cyclists. Moreover, development patterns in many cases continue to separate uses and rely on arterial roads to make connections. These two factors limit mobility for many residents and contribute to inactivity and growing obesity levels for children and adults in the region.

- The region's two primary rail freight carriers: Norfolk Southern and CSX Rail Service carry among the lowest volumes of rail freight in the state. Only Augusta-Richmond and Warren Counties have direct connections to major rail freight hubs in Atlanta and Macon.

- Augusta Regional Airport provides regularly-scheduled commercial flights. The airport currently has 21 daily departures and 22 daily arrivals to three major hubs (Atlanta, Charlotte and Dallas) from three carriers (Delta, U.S. Air and American). In calendar year 2010, the annual passenger volume at the Augusta airport was 246,587, compared to 198,489 (24.2 percent increase) in 2009. Between 2005 and 2010, Augusta Regional's growth rate was 57.9 percent, making it one of the fastest growing small commercial services airports in the nation. Air freight information is unavailable.

- Fixed-route public transit in the CSRA is limited to Augusta-Richmond County. Augusta Public Transit operates nine routes from Monday through Saturday, with daily ridership averaging approximately 3,000. The rest of the CSRA is served with demand-response service.

- Most areas of the CSRA outside of the urbanized parts of Columbia and Augusta-Richmond Counties lag in both choice and quality of broadband service. Most of these areas are not served by any land broadband service provider, making slower satellite internet service the only option. The CSRA RC considers broadband the region's top infrastructure priority and has been aggressively pursuing state and federal funding to remedy this deficiency by extending broadband infrastructure to areas of the region that currently lack it.

- Local community facilities such as parks, water and sewage services, public water, libraries, and medical facilities, are mostly located within incorporated municipalities. Access to some public facilities, however, remains a concern as rural county populations are widely dispersed.

Detailed data on transportation and community facilities can be found on pages 52 through 58.

2.6 Natural and Environmental Resources

***State Planning Natural and Cultural Resources Goal**: To conserve and protect the environmental, natural and cultural resources of Georgia's communities, regions and the state.*

The CSRA contains a wealth of natural and environmental resources that provide the region with numerous social, economic, and environmental benefits. However, these same resources are in need of protection if they are to continue providing these benefits.

- Timber resources account for 2.3 million acres in the CSRA, and are a major driver of the region's forest products industry.

- Kaolin, a type of clay, is the major mineral extracted in the region, providing substantial employment in Jefferson and Washington counties. This sector is under pressure from South American kaolin, which is now being exported around the world.

- Farmland accounts for 22.1 percent of the CSRA's land mass, and sustains approximately 5 percent of the region's employment. The number of farms in the region today is less than half the number of farms in operation in 1982, highlighting a trend towards large, industrial-scale farming.

- The CSRA contains a number of protected watershed areas in Lincoln, Wilkes, McDuffie, Warren, Burke, and Augusta-Richmond counties. The region's watersheds will need to be monitored to ensure future development does not render them vulnerable.

- The region's river basins and major lakes ensure adequate water supplies. However, continued growth of the urbanized area and out-of-region impacts over the next twenty years will place pressure on these supplies, as well as pollution threats from growth.

- The CSRA has a rich history and counts no less than 184 properties and districts listed in the National Register of Historic Places, including National Historic Landmarks, State Historic Parks and Sites. Most of these resources, however, lack preservation plans.

Detailed data on natural and environmental resources can be found on page 58 through 73.

2.7 Intergovernmental Coordination

***State Planning Intergovernmental Coordination Goal**: To ensure the coordination of local planning efforts with other local service providers and authorities, with neighboring communities and with state and regional plans and programs.*

The CSRA RC, founded in 1962, offers member governments avenues to coordinate planning, economic development, workforce development, and aging services. Other instances of intergovernmental coordination takes place between municipalities within a given county, between counties, from region to region, and with state and federal government agencies.

- The CSRA RC Area Agency on Aging provides consolidated services for seniors (including transportation) for the CSRA.
- The CSRA RC serves as the Economic Development District for the region.
- The CSRA RC serves as the coordinating mechanism for CSRA Unified Development Council (UDC). The UDC is a project-oriented volunteer organization comprised of economic, industrial, and regional development organizations, as well as service and educational institutions representing the entire CSRA. The UDC serves as the marketing arm for the CSRA.
- The CSRA RC serves as the coordinating mechanism for CSRA Unified Development Authority (UDA). The UDA promotes the economic development of the CSRA and encourages cooperation among economic development organizations within the member counties.
- The CSRA RC reviews and comments on applications for federal and state grant, loan, and permit assistance submitted by local governments and other applicants within the region. This is known as the Georgia Intergovernmental Consultation Process (Executive Order 12372), and is intended to offer comment on a proposed project's consistency with local and regional comprehensive plans.
- The CSRA RC develops and maintains the CSRA Regionally Important Resources Plan and the CSRA Comprehensive Economic Development Strategy.