

BULLOCK COUNTY NATURAL HAZARD MITIGATION PLAN

ADOPTED BY:
BULLOCK COUNTY COMMISSION
CITY OF UNION SPRINGS
TOWN OF MIDWAY

September 2008

Submitted to AEMA:
August 29, 2008

FEMA APPROVED ON:

Prepared by:
**South Central Alabama
Development Commission**
5900 Carmichael Place
Montgomery, Alabama 36117-2345
www.scadc.state.al.

ACKNOWLEDGEMENTS

The Bullock County Natural Hazard Mitigation Plan was funded with a grant from the Alabama Department of Economic and Community Affairs (ADECA) with technical assistance from the South Central Alabama Development Commission. The plan was developed with the oversight of the Bullock County Local Emergency Planning Committee (LEPC), members of which are included herein and adopted by The Bullock County Commission. The plan is required by the Disaster Mitigation Act of 2000 as the 2000 Stafford Act Amendments and P.L. 106, 44 CFR 22201 and 206.

Additional copies of the Bullock County Natural Hazard Mitigation Plan are available by contacting:

Bullock County Emergency Management Agency
P. O. Box 472
Union Springs, Alabama 36089

Bullock County Local Emergency Planning Committee

The following is the Bullock County Local Emergency Planning Committee:

Clarence Wheeler, Chief of Police Union Springs Police Dept.	Randolph Hall Dixie Electric Cooperative	Ronald Miller Union Springs Utilities Board
Gary Harris Dixie Electric Cooperative	Bill Gholston Public Works Director	Kimberly Adams, Manager Alabama Power Company
Johnny H. Williamson Probate Judge	Ted Youngblood Director of Admissions Bullock Centennial Baptist Association	Neara S. Reed Revenue Commissioner
Elizabeth Smithhardt Bullock County Development Authority	Jenette Lindsey Organized Community Action Program	George Tabb, County Extension Coordinator Bullock County Extension Office
Dr. Julian Cope Bullock County Development Authority	Arnold Holt, Warden Bullock Correctional Facility	John McGowan, Place Three City of Union Springs
Keith Stewart, Superintendent Bullock County Board of Education	Ronald Smith, Chairman Bullock County Commission	Randy Estes, Division Engineer AL Dept. of Transportation, Sixth Division
James Perry, District One Bullock County Commission	Jacques Jerry, CEO Bullock County Hospital	John L. Adams, District Two Bullock County Commission
Carol Hall Alabama Department of Transportation	Dock McGowan, District Three Bullock County Commission	Van Hasson, Outside Plant Engineer Union Springs Telephone Company
Alonzo Ellis, District Four Bullock County Commission	Terry Ingram, Postmaster Union Springs Post Office	James N. Robbins, Sr., Mayor Town of Midway
Saint T. Thomas Local Homeland Security POC	Richard Parker, Place One Town of Midway	Dollie Blue, Place Two Town of Midway
James Anderson, Place Four City of Union Springs	Robert Lee Murray, Place Three Town of Midway	Tommy Main, Place Five City of Union Springs
Samuel Hall, IV, Place Four Town of Midway	Rob Cameron, President Bullock County Volunteer Fire Association	Richard Penn, Place Five Town of Midway
Wilbert Jernigan, Circuit Clerk Bullock County Circuit Court	Earl Hinson, Mayor City of Union Springs	Cope Lawrence, Place Two City of Union Springs
Donald Pierce RCS Alabama National Guard	Fred Hollon, County Engineer Bullock County, EMA Director	

TABLE OF CONTENTS

	<u>Page</u>
I. Purpose and Process.....	6
II. Community Profile.....	10
III. Hazard Identification.....	24
IV. Risk Assessment and Vulnerability Analysis.....	32
V. Hazard Mitigation Strategy.....	51
VI. Plan Maintenance and Review.....	74
Appendix A: Documentation of the Adoption And Public Involvement Process	
Appendix B: Supplementary Information	

LIST OF FIGURES

	<u>Page</u>
1. Hazard Mitigation 10-Step Planning Process	9
2. Bullock County Population, 2000	11
3. ..Bullock County Location Map	12
4. Housing Units Per Square Mile	18
5. Median Income	19
6. Regional Access	20
7. Land Use and Land Cover	21
8. Elevation	22
9. Soils Map	23
10. Past Declared Disasters	24
11. Bullock County Hazard Identification and Prioritization	27
12. Flood Plains	28
13. Landslide Potential	29
14. Tropical Cyclone Patterns	30
15. Historical Storm Events	31

I. PURPOSE AND PROCESS

Natural hazard mitigation is the process of reducing or eliminating the loss of life and property damage resulting from natural disaster events. The hazard mitigation plan identifies hazards and their potential impact on counties and communities and steps are outlined to avoid or minimize the impact. The purpose of the hazard mitigation plan and planning process is the resulting mitigation strategy, which outlines the coordinated implementation of action steps.

The Bullock County Natural Hazard Mitigation Plan is multi-jurisdictional in scope, covering Bullock County in its entirety including the incorporated municipalities of Union Springs and Midway. The plan has been reviewed and approved by the County Commission and made available to the two municipal governments located within the county through the planning process. During the planning process, the following three strategic goals were established to guide mitigation efforts:

- Promote natural hazard mitigation as a means to decrease loss of life, property damage, and economic loss during a disaster occurrence.
- Provide on-going support of the Bullock County Emergency Management Agency's efforts to make Bullock County less vulnerable to natural disasters.
- Educate the general population about natural hazards and hazard mitigation options.

To develop the Bullock County Natural Hazard Mitigation Plan, the Bullock County Local Emergency Planning Committee (LEPC) was utilized to guide the plan and lend individual expertise to the planning process. The Bullock County LEPC is a standing committee comprised of members representing emergency services, the County Commission, each of the two municipal governments, law enforcement, medical services, utilities, education, business and industry, forestry, agriculture, social services, and the media. The plan was developed using a ten-step process outlined by the Federal Emergency Management Agency.

During the planning process, the Local Emergency Planning Committee met on five occasions to discuss progress and provide information and comments. Additionally, two public meetings were held to make the general public aware of the hazard mitigation plan and its contents and recommendations, and to hear citizens' comments and suggestions. Notification of the public meetings was accomplished with newspaper coverage and posting of meeting flyers in various public locations in Bullock County. Citizen comments were used to finalize the plan and the plan was made available to the Bullock County Commission, and the municipal councils of the Towns of Union Springs Midway. A joint LEPC and County Commission meeting was held to authorize the submission to the Alabama Emergency Management Agency for review, comments and revisions prior to adoption by the local governments in Bullock County. Documentation of the adoption of the plan can be found in Appendix A.

Each adopting jurisdiction (i.e., the County Commission and the two municipalities) was invited to participate and send representatives to the Bullock County LEPC. Representatives from each

of the jurisdictions participated by either attending the LEPC and/or public meetings; reviewing drafts of the Bullock County Natural Hazard Mitigation Plan; submitting suggestions and information for inclusion in the Plan; and/or by formal adoption (via resolution) of the Bullock County Natural Hazard Mitigation Plan.

Implementation of the Bullock County Natural Mitigation Plan will be shared by all local governments in the county, along with a number of emergency agencies and responders. The on-going review and evaluation by the LEPC will allow the Bullock County Emergency Management Agency to revise and update the mitigation plan in response to changing conditions and changes in the economic climate that may have an impact on the provision of facilities and services.

In addition to the obvious needs for such a Plan by Bullock County, there are federal requirements necessitating the Natural Hazard Mitigation Plan. In an attempt to reduce and mitigate the rising costs of disasters, the Disaster Mitigation Act of 2000 (DMA 2000; also known as the 2000 Stafford Act Amendments and P. L. 106-390) was passed by Congress and signed by the President in October 2000. This Act emphasized the need for State and local governments to coordinate and implement local mitigation plans. Specific rules on the implementation of DMA 2000 were published by the Federal Emergency Management Agency (FEMA) in February and October 2002, in the Federal Register as the *Interim Final Rule*, 44 CFR Parts 201 and 206. These rules provide information on the policies and procedures for mitigation planning as required by §322 of the Stafford Act 42 U.S.C. 5165. As mentioned previously, DMA 2000 requires that all communities must have a Hazard Mitigation Plan in place in order to qualify for future federal disaster mitigation and recovery funds, such as FEMA's Hazard Mitigation Grant Program (HMGP) and certain types of Public Assistance. Since the County did not have a Plan in place by the referenced deadline, eligibility for funds from FEMA's Flood Mitigation Assistance (FMA), Pre-Disaster Mitigation (PDM), and Fire Management Assistance Grant (FMAG) programs have been or will be suspended if a local Natural Hazard Mitigation Plan is not adopted and implemented.

As part of the planning process, a review was conducted of known historical and current plans, ordinances, and studies. These planning activities include the development of the joint Bullock & Macon Counties Strategic Plan, 2002-2010 and zoning ordinances in Union Springs. Other plans considered as relevant to Hazard Mitigation planning include: Emergency Management Operations Plan; Water System Plans/Water Supply Improvements/extensions; Dixie Electric emergency plans; Regional comprehensive Economic Development Strategies, 2006, 2007; Rural Transportation Plans through SCADC; Bullock County Road Maintenance Plans; Aging Program Plans and the regional united we Ride program. These materials were researched for ideas and relevance in terms of disaster mitigation and preparedness, with a conclusion that there was especially little data or information directly related hazard mitigation found, except for location of critical facilities, etc. The information found was used to help identify hazards and risks, determine vulnerabilities, and provide ideas for mitigation strategies and activities. Other information obtained for the plans includes technical information from various states and Federal agencies including FEMA, AEMA, Alabama Data Center and U.S. Census Reports, NOAA and NWS Reports, local Disaster Reports, information from the South Central Alabama Development Commission, Flood Insurance Studies.

The public involvement process provided for the LEPC to work directly on the preparation of the mitigation plan including suggestions from both an individual or agency perspectives. Following the committee meetings and public meetings and review by the local governments ensured that the citizens were aware of the process, had ample opportunity to comment, and that the plan was not biased in the direction of any one agency or segment of the population.

An inventory was conducted to determine the physical characteristics of the area, development and land use patterns, and demographics. The inventory was followed by identification of natural hazards and their potential impact on Bullock County, coupled with an investigation of previous disaster events. The LEPC was able to determine those hazards that are most likely to impact Bullock County and cause the most severe damage. The LEPC identified natural hazards that became priority one hazards, meaning they were most likely to occur more often and/or have the most severe impact on Bullock County and the citizens that live in the county. The plan also identified those facilities that are critical in terms of disaster recovery or disaster impact. Measures to protect these critical facilities became a part of the mitigation strategy portion of the Bullock County Natural Hazard Mitigation Plan. The final parts of the plan include an implementation schedule and a plan to review and maintain the Bullock County Natural Hazard Mitigation Plan on a regular basis.

Figure 1
Hazard Mitigation
10-Step Planning Process

- | | |
|----------|---|
| Step 1: | Organize |
| Step 2: | Involve the Public* |
| Step 3: | Coordinate with Agencies and Organizations* |
| Step 4: | Assess the Hazard |
| Step 5: | Assess the Problem |
| Step 6: | Set Goals |
| Step 7: | Review Possible Activities |
| Step 8: | Draft an Action Plan |
| Step 9: | Adopt an Action Plan |
| Step 10: | Implement, Evaluate and Revise** |

*Step 2 and 3 are continuous throughout the process.

**Upon evaluation and revision, the process should begin again at Step 2. Evaluation and revision of the plan should occur at least every five years.

II. COMMUNITY PROFILE

What is now known as Bullock County was cultivated when Creek Indians moving westward from Georgia settled here in the early 1700s. In those days, 27 springs of fresh water fed the area making the land around the prominent Chunnenugee Ridge a fertile oasis for the migrating Creeks. Thus, it became the settling point for the start of a town in the heart of the county. Bullock County was created on Dec. 5, 1866, though its boundaries were changed in 1867. It was named to honor Confederate Colonel Edward C. Bullock of Barbour County. Bullock County encompasses 625 square miles.

Bullock County, located in southeast/central Alabama, is a rural county with two incorporated municipalities; Union Springs and Midway. Union Springs is the county seat, located in the north central part of the county. Bullock County is located within 75 miles of Montgomery, Troy and Auburn. Major cities within a 200-mile radius include Birmingham, Dothan, Huntsville, Mobile and Tuscaloosa. Other major cities within the 200 mile radius include; Atlanta, Columbus and Macon, Georgia; Fort Walton, Panama City, Pensacola and Tallahassee, Florida. Bullock County has an extensive county street network. The major highway that spans east to west is U.S. Highway 82 while the major highways that span north to south are U.S. Highway 29 and Alabama 51. There is one rail line that follows roughly the line of the Conecuh River to Union Springs then continues a northeast route through the areas of Peachburg, Suspension and Guerryton.

Bullock County has a population of 11,714 persons, according to the 2000 Census. That figure has not changed significantly since 2000. Of that total the City of Union Springs had a population of 3,670 and the town of Midway had a population of 457. The male population for Bullock County is 6,140 and the female population is 5,574.

The median age in Bullock County is 35, slightly less than the median age of the state, which is 35.8. The median age for Union Springs is 31.1 and the median age for Midway is 35.3. The four largest age groups in numbers in the county are; 25 to 34, 1,604 (13.7%); 35 to 44, 1,825 (15.6%) and 45 to 54, 1,505 (12.8%). Those who are 65 and over number 1267 (10.8%).

According to the 2000 Census, 73.1 percent of the county's population is black/African-American; 25.3 percent is white. The presence of other races in Bullock County has been limited, with all other races combined only comprising 0.7 percent of the total population.

There are 3,986 households in Bullock County, of which, 1,582 are located in the City of Union Springs and the Town of Midway. Total housing units in Bullock County is 4,727 of which 3,986 represent occupied housing units, 741 as vacant housing units, 221 as seasonal, recreational or occasional use. Of the 3,986 occupied housing units, 2,969 are owner-occupied and 1,017 are renter-occupied. Average household size of owner occupied units is 2.55 and average household size of renter-occupied units is 2.58. Single-family units number 2,711 (57%), multi-family units are minimal. The number of units that are mobile homes is 1552 (32.8%), a very high percentage and increasing. A large portion of housing units were built prior to 1970.

Bullock County is fairly sparsely populated with extremely low population densities ranging from a low of 3.53 units/square mile to a high of 31.47 units per square mile near Union Springs, AL and 18.76 units/square mile near Midway. There are concentrations of densities higher than these densities, i.e. Midway and Union Springs; however, these areas are very limited in geographic area to a corridor, including and between the two centers. Approximately a third of the county’s population lives in the City of Union Springs.

Figure 2

Bullock County Population, 2000

Area	Population	% of Total Population
Bullock County	11,714	100%
Union Springs	3,670	30%
Midway	457	4%

Figure 3

Bullock County Location Map



With respect to unincorporated Bullock County, there are 2,880 housing units reported present in unincorporated areas of Bullock County according to the 2000 Census. Occupied units, which encompass 83% (2,404) of total housing, are classified into two categories, owner-occupied and renter-occupied. About 84% (2,017) of the occupied units are owner-occupied, while 16% (387) are renter-occupied. The remaining 17% of total housing units in unincorporated Bullock County are vacant. A majority of the vacant units (45%) are for seasonal and recreational usage, a typical statistic for a predominantly rural area. Housing in rural Bullock County is comprised of various structures. Single, detached units are the most prevalent, encompassing 55% (1,587) of total housing. Mobile homes are the next most common structure. In 2000, there were 1,160 mobile homes in the unincorporated parts of the county, comprising nearly 40% of total housing in the unincorporated areas. Mobile homes are especially vulnerable during periods of inclement weather. In cases of severe thunderstorms and tornadoes, these residents must vacate their mobile homes for safer and more secure structures.

Most houses in rural Bullock County are small, with 71.5% having six rooms or less. The Census Bureau dictates that a housing structure is overcrowded, and consequently substandard, if it contains 1.01 or more persons per room. Overcrowding generally leads to adverse health and social conditions for those impacted. A housing stock analysis indicates that 123 housing units are overcrowded. Additionally, there are 96 units without complete plumbing facilities (2000 US Census). These substandard units comprise a little uses 5% of the units in unincorporated Bullock County.

Bullock County is very active in its economic development planning and its regional coordination with the South Central Alabama Development Commission. It is also led by a Union Springs/Bullock County Chamber of Commerce, Union Springs/Bullock County Development Authority and Tourism Council of Bullock County.

There are three industrial sites located in Bullock County; Hicks Industrial Park, Jinks Property, both of which have Natural Gas, Water, Sewer, Electricity and telecommunication capacity. A third site known as the Moorer Property, has none of the aforementioned amenities.

From 1989 through 2004, Bullock County announced new and or expanded manufacturing industries for a total announced capital investment of \$2,003,500. The total announced jobs with this investment were 388.

In coordination with regional planning efforts, Bullock County has identified priorities for which it needs to pursue to enhance its opportunities for economic development: Capital Improvements/Public Facilities Planning, upgrade and widen Alabama Highway 110 from Montgomery to Union Springs; historic preservation - develop a new industrial park; improve airport through renovation and extension of runways and the expansion and improvement of existing industrial parks.

According to the 2000 Census, Bullock County overall has a per capita income of \$10,163 and a median household income of \$23,990. This is considerably less than that of the State, which had a 2000 per capita income of \$18,189 and a 2000 median household income of \$34,135. The City of Union Springs had a per capita income of \$9,666 according to the 2000 Census and a median

family income of \$20,645. The Town of Midway has a per capita income of \$9,037 according to the 2000 Census and a median family income of \$19,063.

Bullock County, has an employed civilian population, 16 years and over, of 3,441, according to the 2000 Census. Of this number the highest number in occupation category is 1,068 in production, transportation and material moving occupations. As far as industry category employment, manufacturing has the highest with 799 and educational, health and social services has 613 employed in these fields. According to the 2000 Census, 105 worked at home.

Income levels are a major impediment to affordable and standard housing in Bullock County. Low and moderate-income persons generally lack sufficient resources to attain safe and sanitary housing. For this reason, it may be concluded that these persons occupy the substandard and overcrowded units identified in the previous section on the large number of mobile homes. Bullock County is a predominantly rural environment that does not have the expertise or resources necessary to pursue available federal housing subsidies and programs. Furthermore, landowners and developers are uninformed about the subsidies and programs. In addition, landowners and developers are uninformed about the standards established for subdivisions that are geared to house federally subsidized housing and low and moderate income families are unaware of information regarding mortgage financing, owner and tenant rights, and home maintenance.

Like most counties in Alabama's Black Belt, Bullock is economically challenged. As of consequence, household and family incomes are perpetually below those of the state and national averages, and double-digit unemployment is considered the norm. Unfortunately, elderly, single, and female-headed households are more likely to shoulder these adverse economic conditions. In general, these households depend on a single source of income, which makes financing the construction of purchase of a single, detached home unfeasible.

Apartments and mobile homes provide an alternative for many persons who cannot afford to invest financially in constructing or purchasing single unit homes. Considering the lack of apartments and the present economic climate in the county, it is safe to assume that low and moderate-income persons occupy a vast majority of the mobile homes discussed in the previous section. Therefore, these individuals are more likely to be put in harms way during severe weather.

The unincorporated sections of Bullock County are served by two water systems. The Mount Andrew Water Authority, based in Barbour County, serves a small portion of southeastern Bullock County, while South Bullock Water and Fire Protection Authority is the prominent water authority for the county. The South Bullock Authority serves approximately 2,330 residential and 106 business customers. Currently, the system has two wells that supply 518,000 gallons per day (GPD). Additional water may be purchased through interconnections with both the City of Union Springs and the Town of Midway. The system's storage capabilities consist of four elevated tanks situated in various locations throughout the county. The total storage capacity of these tanks is 450,000 gallons. The demand of the existing system averages 603,810 GPD with a peak demand of 637,557 GPD.

According to the South Bullock Water and Fire Protection Authority, the water system is in need of improvements. Specifically, there is a need for two additional 5000,000-gallon storage tanks. There is also a need to drill two new wells to allow the county to become self-sufficient for water needs. Lastly, the system needs to install a booster pump for additional water pressure and install additional fire hydrants throughout the county to assure effective fire protection.

Additionally, there is a need for water system improvements for many residential communities, which are scattered and in “pockets” throughout the county. Needed improvements entail installing new water mains and fire hydrants. Bullock County needs to have a local hazard mitigation plan in plan to address threats to the county’s water infrastructure and to protect homes and infrastructure from natural disasters such as wildfires.

Almost all households in Bullock County have access to public water service. All citizens, however, are impacted by deficiencies in the water system, in that deteriorated and undersized lines lead to inadequate water flow and water pressure. These problems are mostly located in older neighborhoods. If current usage continues without the recommended well replacements and storage tank, many rural customers will experience increasing problems with their water and may resort to using unsafe alternatives.

Poor water flow and pressure are also precarious for fire protection. Most LMI persons cannot afford homeowner insurance; inadequate fire protection increases the rates for the effected households. Fire departments cannot effectively provide protection when having to deal with insufficient water flow and pressure and shortages in the number of fire hydrants present. These factors can be critical whenever firefighters have to deal with a devastating fire in which real estate and personal properties could be entirely lost. If such occurs, property owners without insurance will be unable to recoup their losses.

While there are sewer systems in the older more urban areas, there are no public sewer services presently available to the rural areas of Bullock County. Low population density makes public collection and treatment facilities financially unfeasible using existing technology. Septic tanks serve most rural sewage disposal needs at this time; however, poor soil conditions in the northern half of the county result in a high proportion of septic tank failure in that area, especially during exceptionally rainy periods. Future plans are to extend public sewage services to communities experiencing septic tank failures. Until the time public sewage service may be feasibly extended to such communities, it is essential to address the drainage issues that exacerbate septic tank failure.

Lack of adequate sewage service is considered to be an especially serious health threat to lower income households. Clustered houses usually share drinking wells and illegally connect to other septic tanks. This compounds unsanitary conditions and affects the water quality found in nearby shallow wells. The aforementioned residential and commercial customers presently without public sewage rely on private, onsite systems. Lower income persons often endure the greatest financial burden from sewage and septic tank problems. First and foremost, septic tanks are relatively expensive to install and maintain. Septic tanks must be placed in soils that percolate well and installed at depths to assure gravitational flow.

The County maintains approximately 483 miles of roads, (not including local streets in Union Springs and Midway) of which approximately 150 miles (31%) are unpaved. None of the unpaved roads are major arterials or collectors. While major highways in Bullock County are paved, many of the roads in the rural areas remain unpaved. These unpaved roads, usually made of dirt, are prone to erosion during periods of heavy showers, isolating parts of the county from emergency services and school bus access. The unpaved routes need to be paved to increase accessibility. The constant maintenance and repairs to unpaved routes consume a significant portion of the county's resources. Many of the county's paved roads are in need of repaving and widening. Narrow roads make two-way traffic impossible and are even more difficult to travel during inclement weather. Bullock County needs a comprehensive road improvement initiative to stabilize existing roads and bring the remaining roads up to long-term standards; however, funds are extremely limited proportional to the vast need.

Several unpaved roads and road segments serve concentrations of low and moderate income households throughout the county. Unpaved routes and vulnerable bridges are also more susceptible to become impassible during periods of inclement weather.

Union Springs has a network of storm drainage; however, there are no structured drainage facilities in the unincorporated areas of Bullock County other than roadside ditches. These ditches are insufficient for handling moderate to heavy rain showers. Some communities, such as Greenwood community, are located in the Lower Selma Group, a geographical region exemplified by high water tables and slow runoff infiltration rates. Oftentimes, there are few drainage pipes and open ditches in such communities. Consequently, many residential properties maintain standing water during moderate to heavy showers due to the soil's slow infiltration rates. Even moderate rain events lead to prolonged periods of standing water that generally flood surrounding buildings, yards, and streets. Additional development in the area has only compounded this problem.

The drainage problems discussed above have a blighting effect on the impacted areas and are especially troublesome to lower income households due to property damage that occurs from frequent flooding. Additionally, due to poor drainage, rainwater can accumulate on roads leaving them impassable. Unpaved routes are particularly susceptible to the adverse effects of flooding.

Open space is abundant in Bullock County; however, due to the low tax base and large area of the county, it has not been economically feasible to develop recreational programs and facilities on a countywide basis. The Bullock County Recreational Board, a joint city-county entity, is responsible for operating and maintaining public recreational facilities throughout the county. The City of Union Springs currently owns and maintains three recreational facilities, Holcombe Street Park, City Park, and a converted Armory facility. Holcombe Street Park is a two-acre recreation park consisting of one lighted basketball court and an opened playground with equipment. City Park is a picnic and passive recreational site located in the downtown area. In 1999, the City of Union Springs, using CDBG funds, purchased the former National Guard Armory building and converted the facility into a YMCA.

Local officials have been engaged in other efforts to increase recreational offerings in the community, but have not been successful due to limited resources and budget constraints. There is a need for recreational facilities in Bullock County since the closest available facilities are in Eufaula and Montgomery, a distance of approximately fifty miles. Bullock County has abundant open lands for numerous rural-related activities and sports (i.e. hunting and fishing).

With respect to land cover, residential land uses throughout Bullock County tend to be low density single family housing, with a small percentage of medium and high density housing found in the Union Springs area. The land use/land cover map does not show any high intensity residential uses outside of the City of Union Springs.

Agricultural uses in Bullock County are primarily livestock, poultry and timberland or forested land. Forested land is located throughout the county, but primarily in the southern half. The most concentrated areas in crop and pasture land uses are found in the northern half of the county.

The county is in the Tallapoosa watershed, including numerous creeks and streams. Ground water is the source of most of the water for domestic and industrial uses in Bullock County. Floodplains are found primarily along these tributaries. The existing floodplains are linear in nature and generally are not expansive in width, with the widest floodplains being approximately one to one and a half mile wide. There are a significant number of tributaries feeding the primary creeks in the county; however, floodplains along the tributaries are minimal in size. Much of the area subject to flooding are in open pastures. Small conservation dams serve the rural areas.

There is some flash flooding in a few isolated parts of Unions Springs and Midway. Topography in Bullock County is characterized by relatively flat and rolling land in the Northwest quadrant of the county with pastures, etc. The southeast, south and eastern parts of the county are rolling to steep, with forested land. Soils in Bullock County are classified in nine general soils units.

In conclusion, Bullock County is a very low density, rural county. For the past 20 years, there has been relatively limited new subdivision development; however, the out-migration from Montgomery might impact growth in Bullock County over the next 20 years. The population in Bullock County is limited, except in Union Springs and Midway. Access to remote parts of the county is an issue.

Figure 4

Housing Units Per Square Mile

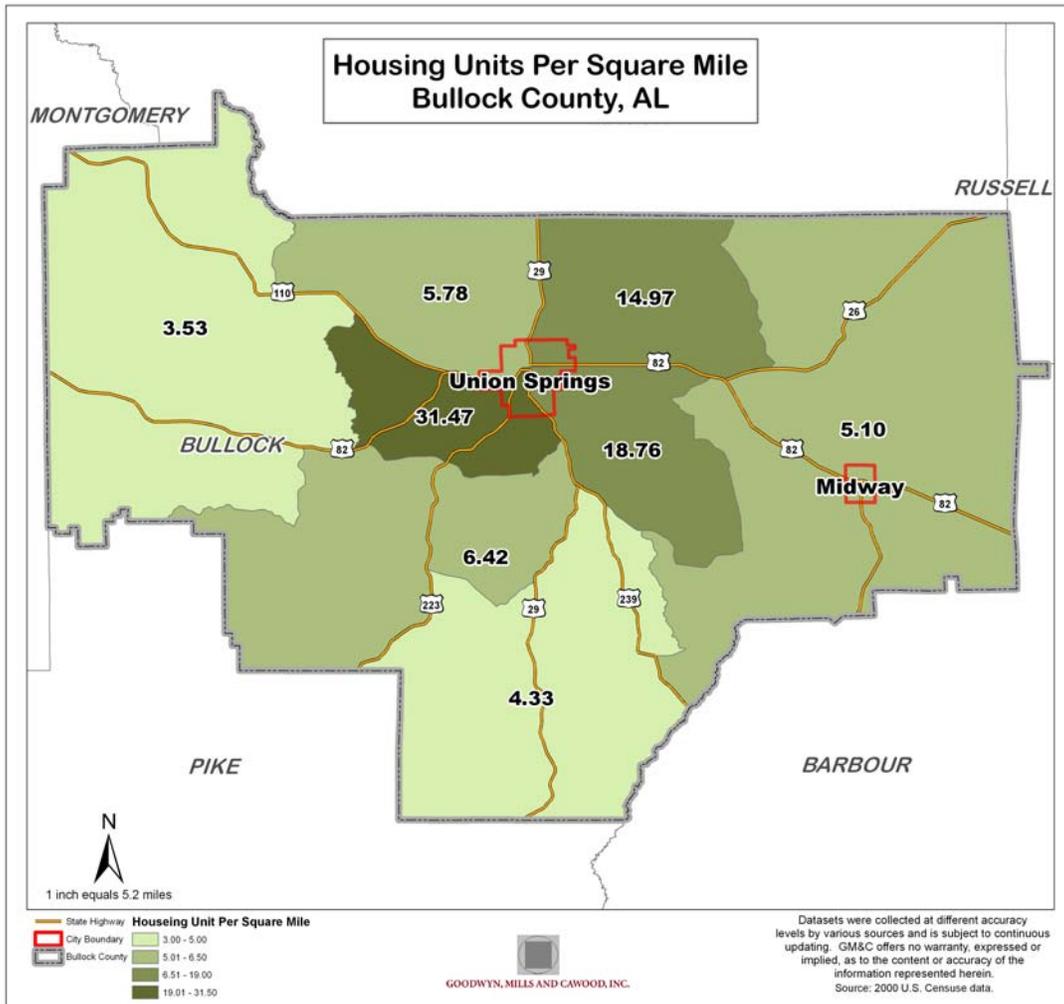


Figure 5

Median Household Income

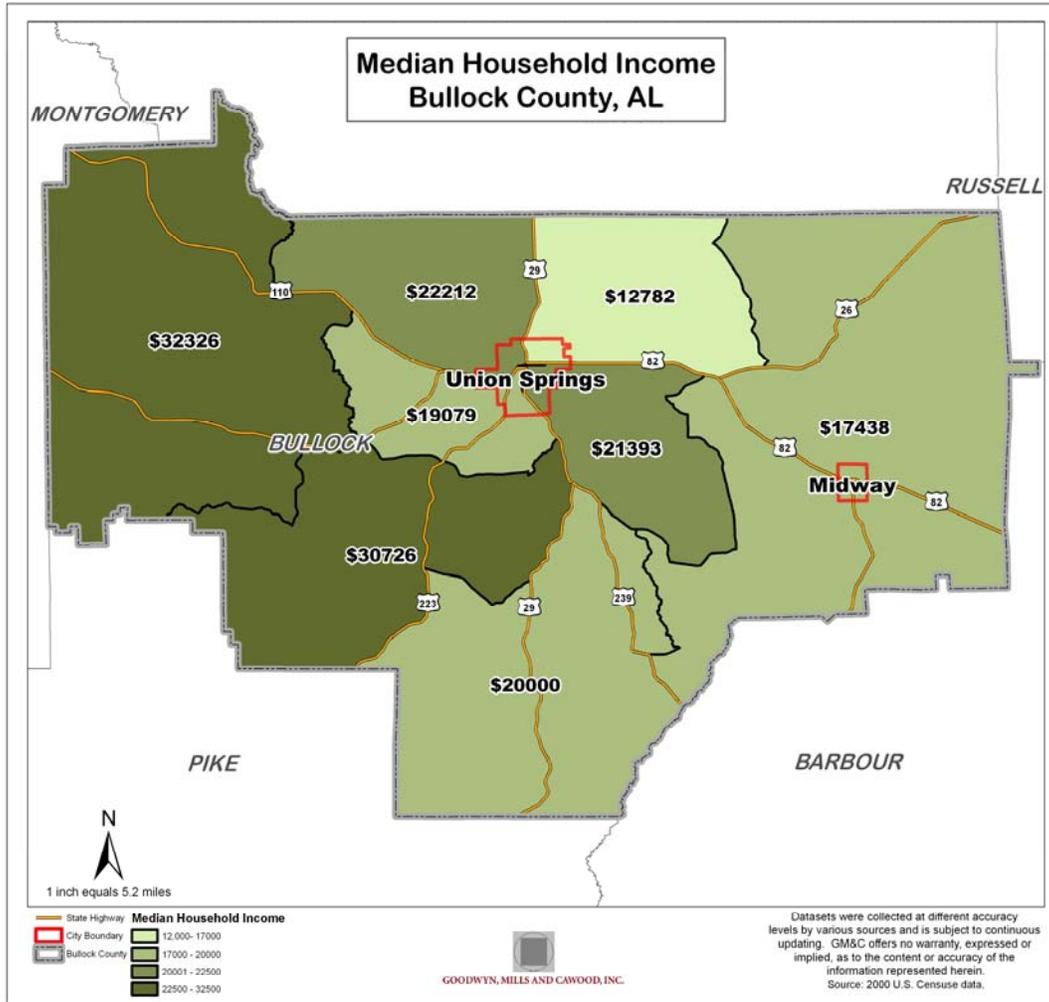


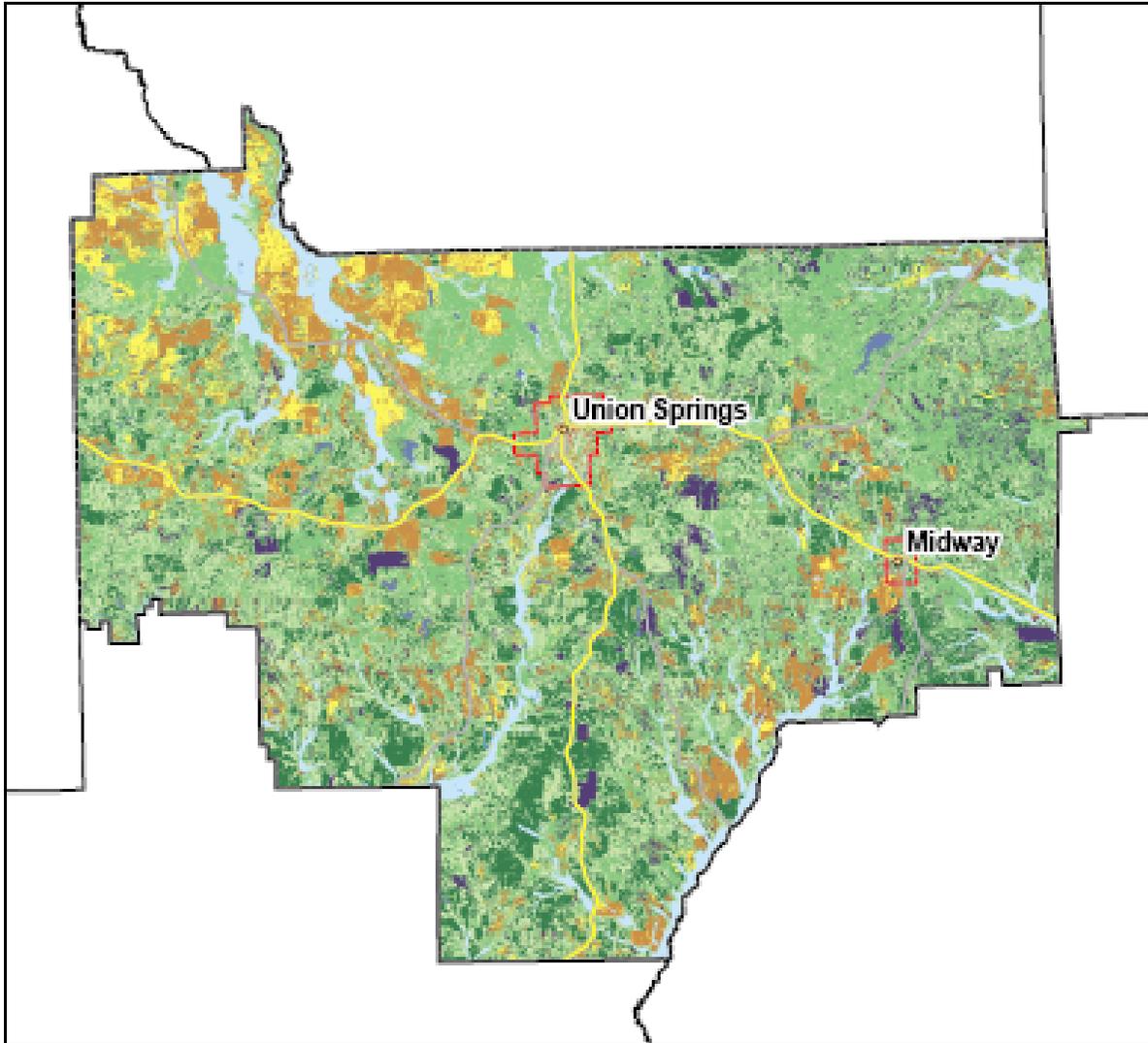
Figure 6

Bullock County Regional Access



Figure 7

Land Use and Land Cover



Legend

Open Water	Evergreen Forest
Low Intensity Residential	Mixed Forest
High Intensity Residential	Pasture/Hay
Commercial/Industrial/Transportation	Row Crops
Barren Soil/Sand/Clay	Urban/Recreational/Open
Quarries/Strip Mining/Gravel Pits	Wetland
Transitional	Emergent Herbaceous Wetlands
Deciduous Forest	



Sources: NOAA, Tropical Prediction Center/National Hurricane Center; Historical North Atlantic Cyclone Tracks, 2004; Census Bureau TIGER/Line Files, 2000; and local sources.

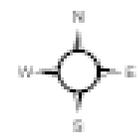
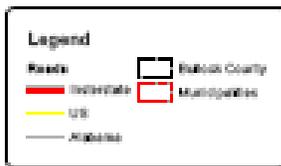
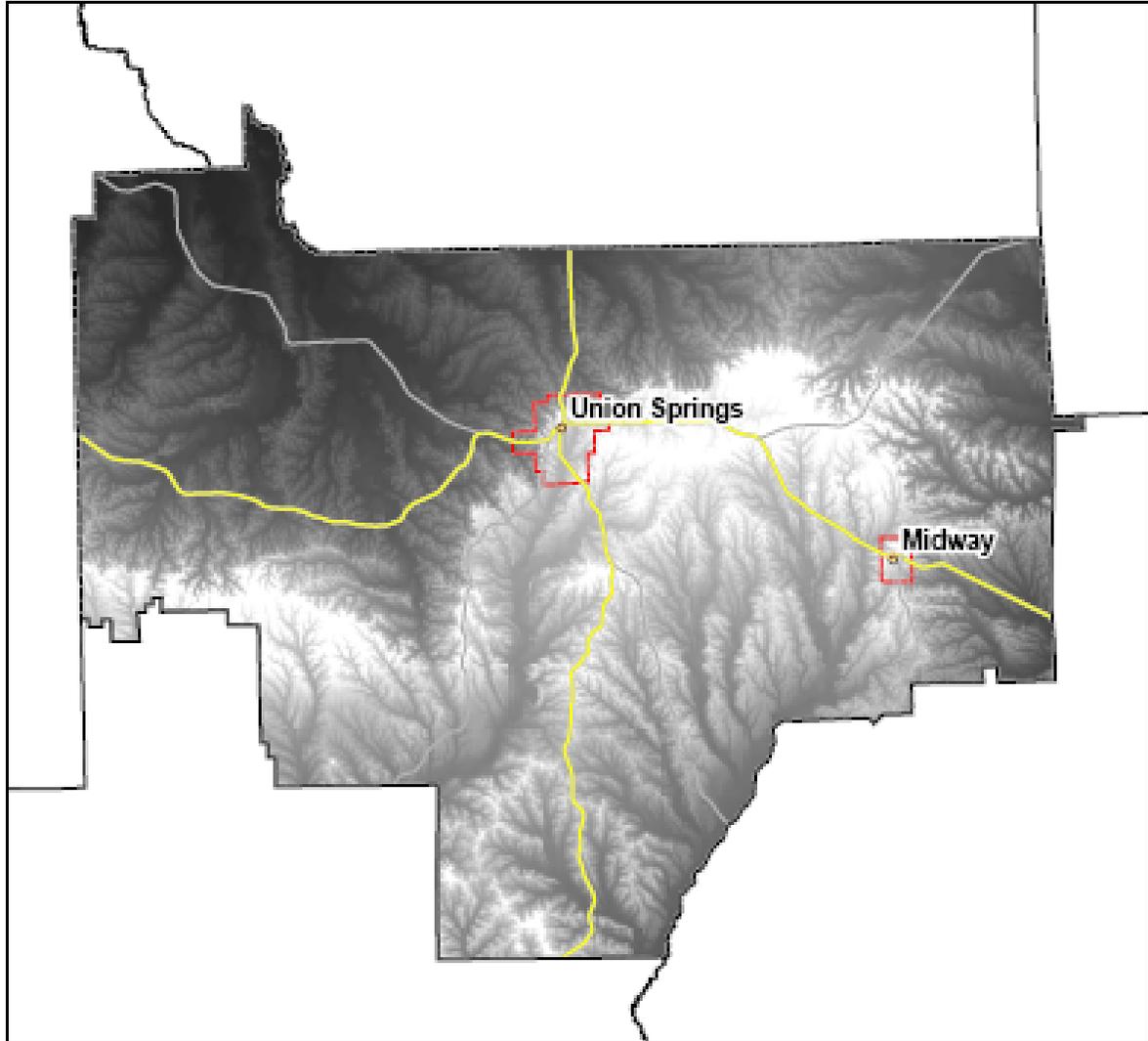


Figure 8

Digital Elevation Model



Sources: NOAA, Tropical Prediction Center/National Hurricane Center, Historical North Atlantic Cyclone Tracks, 2004; Census Bureau TIGER/Line Files, 2000; and local sources.

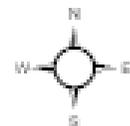
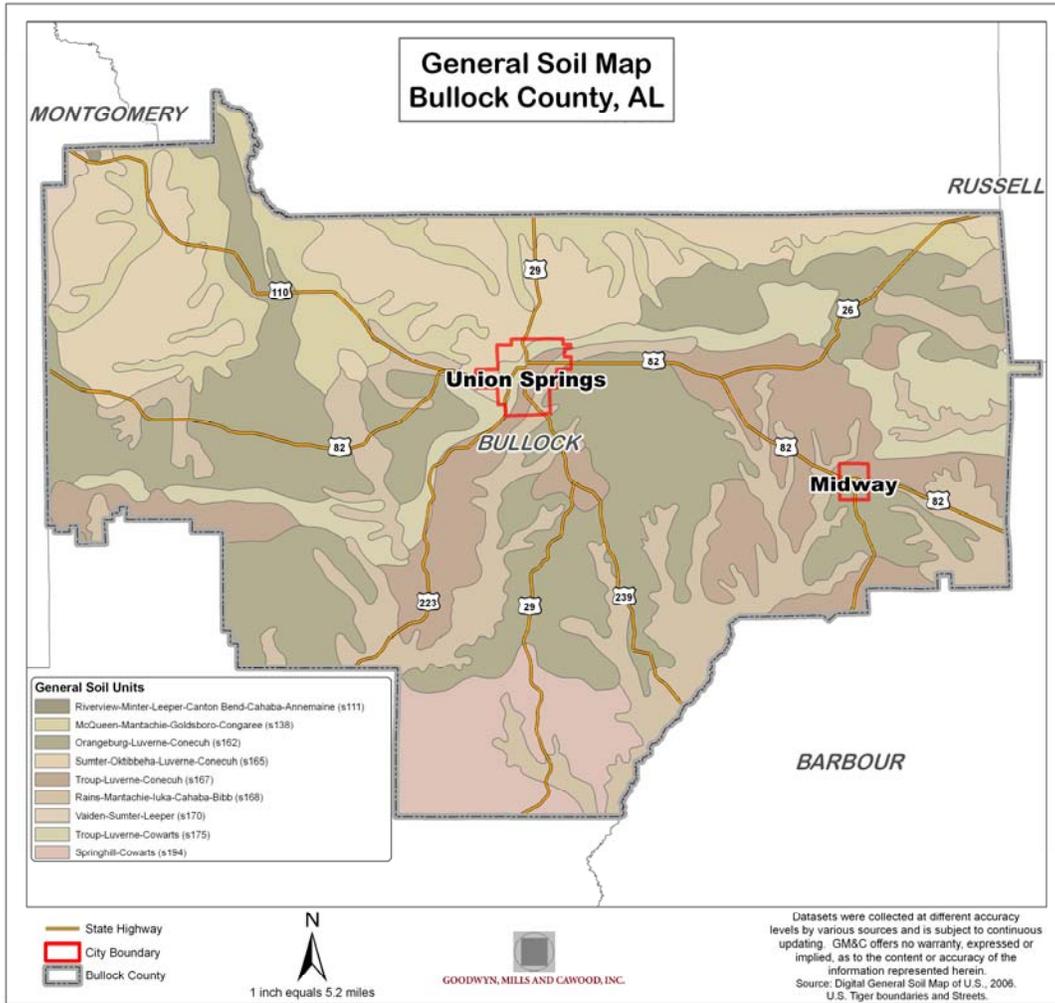


Figure 9

Soils Map For Bullock County



III. HAZARD IDENTIFICATION

Natural hazards that have the potential to impact Bullock County were identified using a variety of sources. An overall list of natural hazards was obtained from Federal Emergency Management Agency Publication 386-2. Research was conducted into past disaster occurrences in Bullock County and the physical characteristics of the county that lend themselves to natural hazard occurrences, along with a review of related studies and plans relative to Bullock County.

In the initial review, five of the 19 listed hazards (including some combinations as shown on Figure 11) were eliminated due to a lack of applicability in Bullock County. The five hazards that were eliminated were avalanche, coastal erosion, tsunami, earthquake, and volcano. The list of the remaining hazards was then utilized to identify which hazards had the greatest potential to impact Bullock County. The hazards that were researched include: dam failure, drought and extreme heat, expansive soils/land subsidence, flood, hurricane/tropical storm, landslide, winter storm, tornado, wildfire, hail and severe thunderstorm/lightning or windstorm. A review of past disaster events in Bullock County revealed that the most frequent declared natural disasters between 1957 and 2007 have been severe thunderstorms and hurricanes, tornadoes, and flooding. Other events include drought and a winter storm.

Of the events during the 50-year period, six were federal declarations. The dates and types of occurrences are shown in Figure 10. In each of the six federal declarations, federal assistance was provided to Bullock County and individuals.

Figure 10

PAST DECLARED DISASTERS, 1955 – 2006

Date	Disaster	Declaration
October 1995	Opal	Federal
September 1998	George	Federal
September 2004	Ivan	Federal
September 2005	Dennis	Federal
August 2005	Katrina	Federal
	Eloise	Federal
	Frederick	Federal

Information available through the National Climatic Data Center (NCDC) and the National Weather Service (NWS) – both agencies of the National Oceanographic and Atmospheric Administration (NOAA) – show that Bullock County suffered a total of 108 weather events between January 1957 through December 2007, which is an average of about 2 events per year. The most frequent weather event during the 57-year time period were severe thunderstorms/hail/wind storms, with 48 occurrences resulting in a total of \$300,000 in property damage. Thunderstorms and wind storms were followed by tornados, with 12 events resulting in over \$766 million in property damage, and 3 injuries. Of the remaining weather events profiled by the NCDC during the same period, Bullock County suffered 1 winter storm, (1 additional extensive cold/heavy snow), 5 heavy rain/flash floods, 5 extreme heat and drought events. Although they occur less frequently, the NCDC information shows that tropical storms/Hurricanes Opal, Ivan and Frederick were, by far, the most costly to the county, resulting in about \$60 million.

With this information, the Bullock County Local Emergency Planning Committee (LEPC) was able to identify and prioritize those hazards that have the most potential to impact Bullock County and its municipalities. As a result of the committee discussions about the previous information, 6 hazards were identified as Priority 1 hazards, meaning that they were the most likely to have the greatest and/or most frequent impact on Bullock County and each of its municipalities. These Priority 1 hazards are severe thunderstorm / lightning / hail / windstorm; tornados; hurricanes/tropical storms; extreme heat and drought, and wildfires. Natural hazards that were determined not to be applicable to Bullock County and its municipalities include: avalanches, coastal erosion, tsunamis, earthquakes, and volcanoes. Priority 2 hazards include: flooding, and Priority 3 hazards include: winter storms, landslides, dam failures, expansive soils, land subsidence. The hazard identification and prioritization are shown in Figure 11.

Hurricanes and tropical storms have been a significant threat including the pressure on shelters resulting from evacuation from the coast. Tornados were determined to be a Priority 1 hazard due to the history of past occurrences, the speed of the event, the severity of damage incurred, and the high potential for loss of life. The frequency of severe storms make them a Priority 1 hazard. Of the past storm events, between 1957 and 2007 thunderstorms, windstorms, and hail storms were the most frequent hazard event. Blocking of roads and bridges is caused by debris as a result of wind and flooding.

Sixteen (16) tropical cyclones have traversed Bullock County during the 150-year period from 1851 through 2004, as shown in Figure 14. However, only 3 tropical hurricanes have occurred in the county in the referenced time period.

According to the Alabama Forestry Commission, wildfire is a significant hazard for residents of the county. The potential impact of wildfire is increasing, somewhat, as residents continue to build residential structures outside the corporate limits, expanding the urban interface area and limited capacity of volunteer fire departments and water service to fight fires and limited size of water pipes and fire hydrants. Fire fighting training is also limited.

Location and climatic conditions of Bullock County make extreme heat and drought Priority 1 hazards. The agricultural community is particularly at risk in terms of property and crop damage

from extreme heat and related drought conditions. The high percentage of the population with low income or living in poverty and those living in unincorporated areas without access to public water are particularly at risk due to dry wells and lack of financial resources for air conditioning.

Bullock County does not have a history of severe flooding; however, local residents report occasional flash flooding and road washing and erosion as a result of heavy rains and localized flash floods. Floodplains in Bullock County are shown in Figure 12. The floodplain areas tend to be narrow and mainly in agricultural areas, following stream beds and mainly characterized by flooding in underdeveloped areas, except for isolated flash flooding in Union Springs and Midway, where storm sewers need improvement.

Bullock County does not suffer from extreme property damage or loss of life due to flooding, thus the potential of flooding events makes it a Priority 2 hazard. The impact of flooding in Bullock County is due more to crop damage and the interruption of services due to impassable roads and continued road and bridge improvements and some flash flooding in urban areas of Union Springs.

Information available from the Geological Survey of Alabama (GSA) shows that Bullock County has never been impacted by an earthquake in the reporting period. GSA information also reveals that Bullock County has a low incidence probability of landslides occurring in the county, as shown in Figure 13.

A review of historical and existing plans and regulations for Bullock County and its municipalities revealed that there is little current information that is directly related to hazard identification or natural hazard mitigation. Existing information does include limited police and fire protection services and needs; and statements as to the need for road and bridge improvements, and limitations to development in flood-prone areas. Development planning for the county, although limited, is reflected in the relative lack of development that has occurred in the flood-prone areas of the county. This review also resulted in a short list of available tools that can be utilized to facilitate or complement current and future hazard mitigation activities. These tools include flood damage prevention ordinances, in the county and Union Springs, storm water management guidelines, subdivision regulations, (including Bullock County), and zoning ordinances in Union Springs.

Figure 11

**Hazard Identification & Priorities
For Bullock County and Municipalities**

	Priority 1	Priority 2	Priority 3	N/A
Avalanche				X
Coastal Erosion				X
Dam Failure			X	
Drought/Extreme Heat	X			
Earthquake				
Expansive Soils/Sinkholes			X	
Flooding		X		
Landslides			X	
Land Subsidence			X	
Hurricane/Tropical/Coastal Storms	X			
Severe Windstorm/Thunderstorm & Lightning/Hailstorm	X			
Tornado	X			
Tsunami				X
Volcano				X
Wildfire	X			
Winter Storm			X	

Figure 12

Floodplains

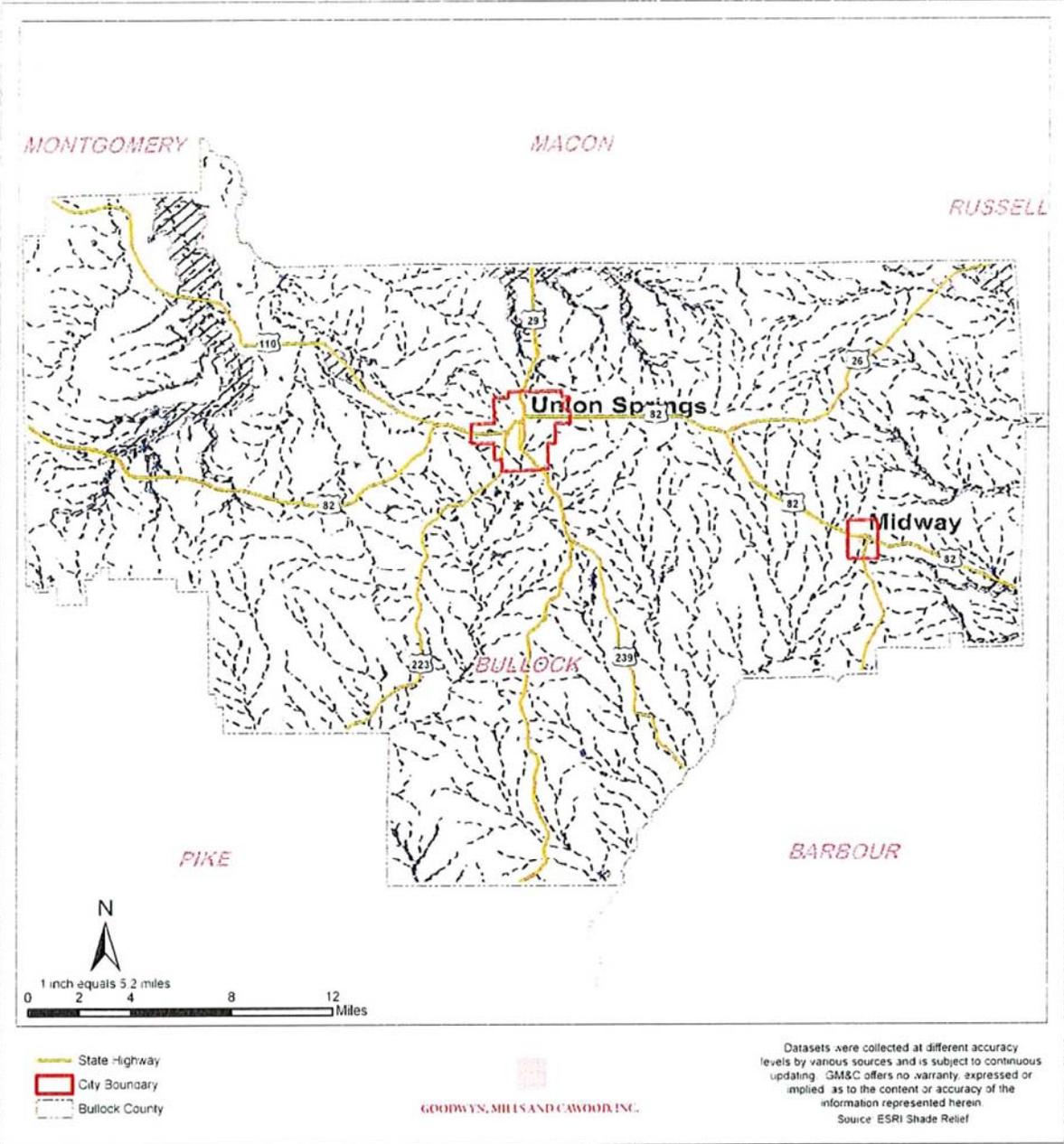


Figure 13

Landslide and Sinkhole Potential

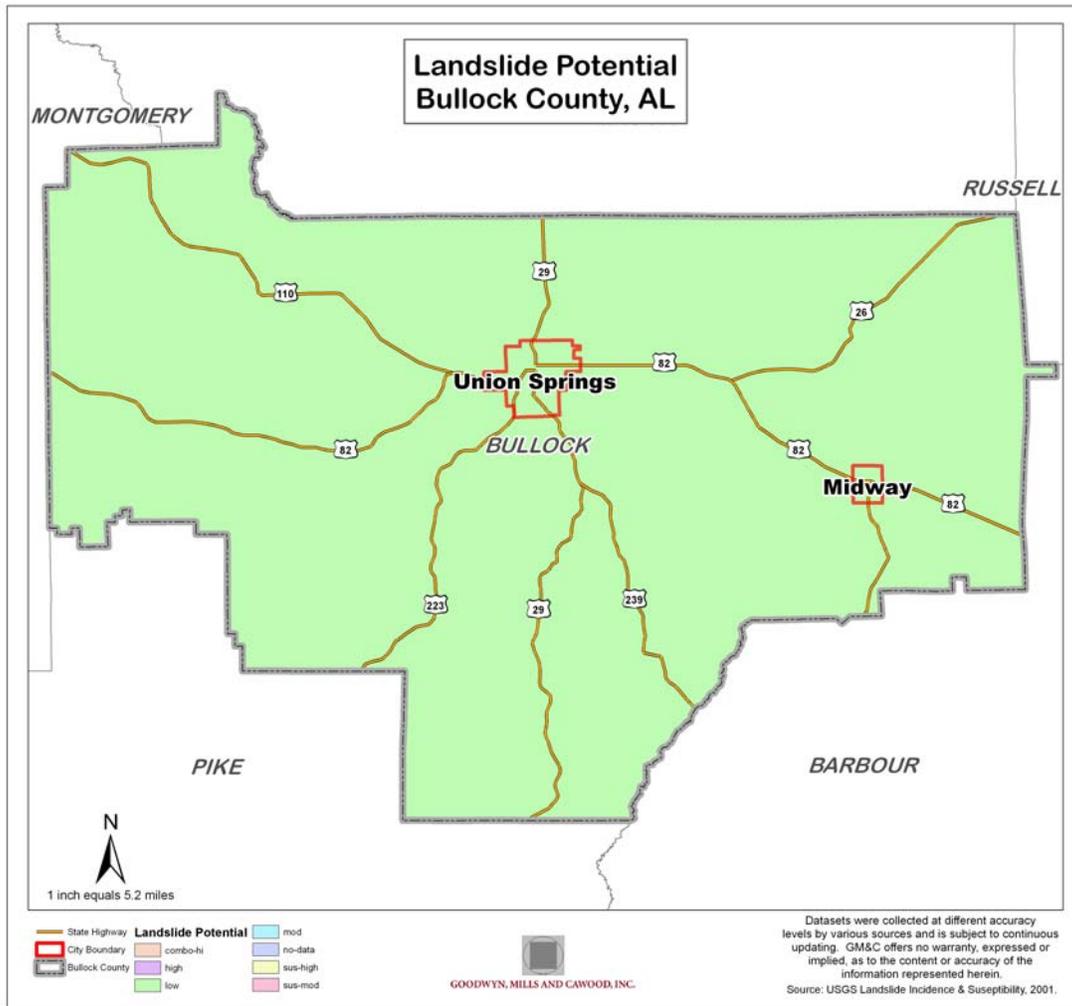


Figure 14

Tropical Cyclones

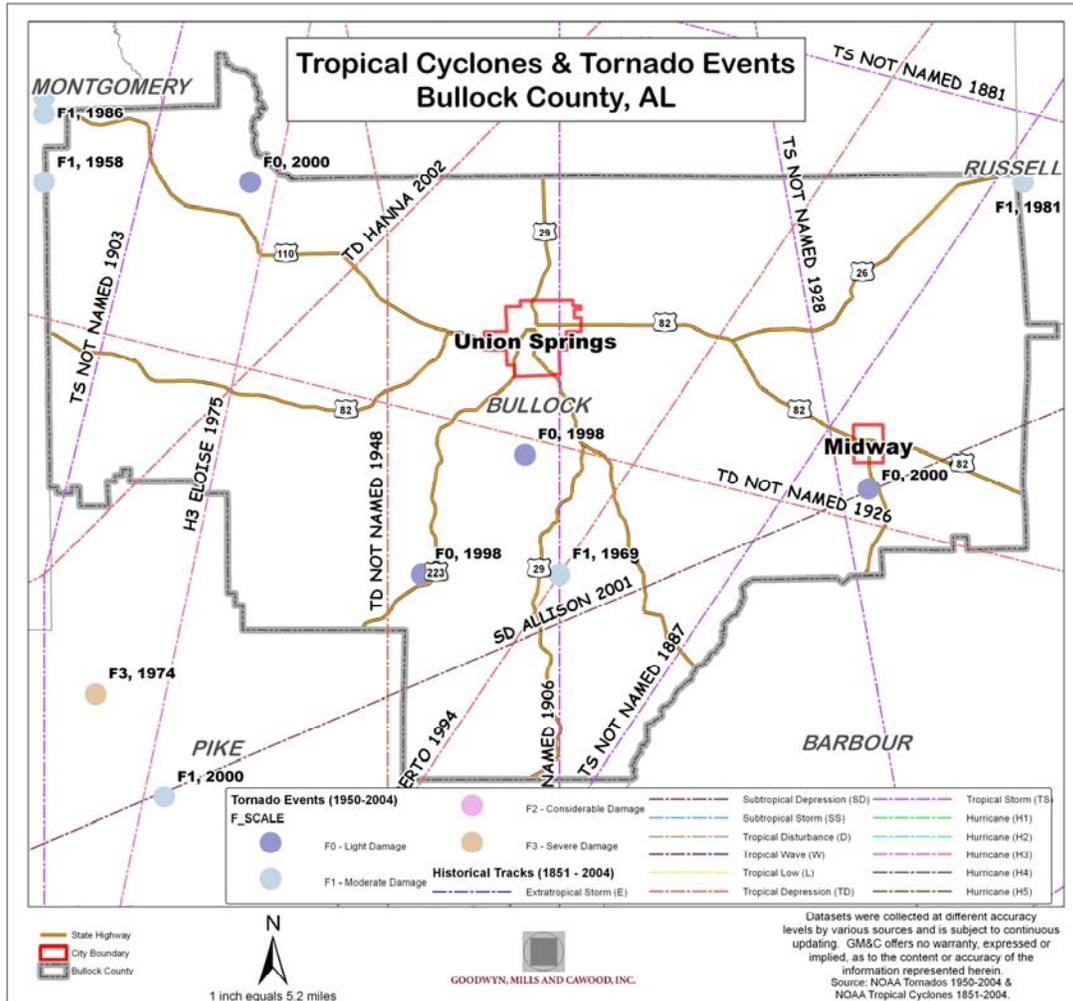
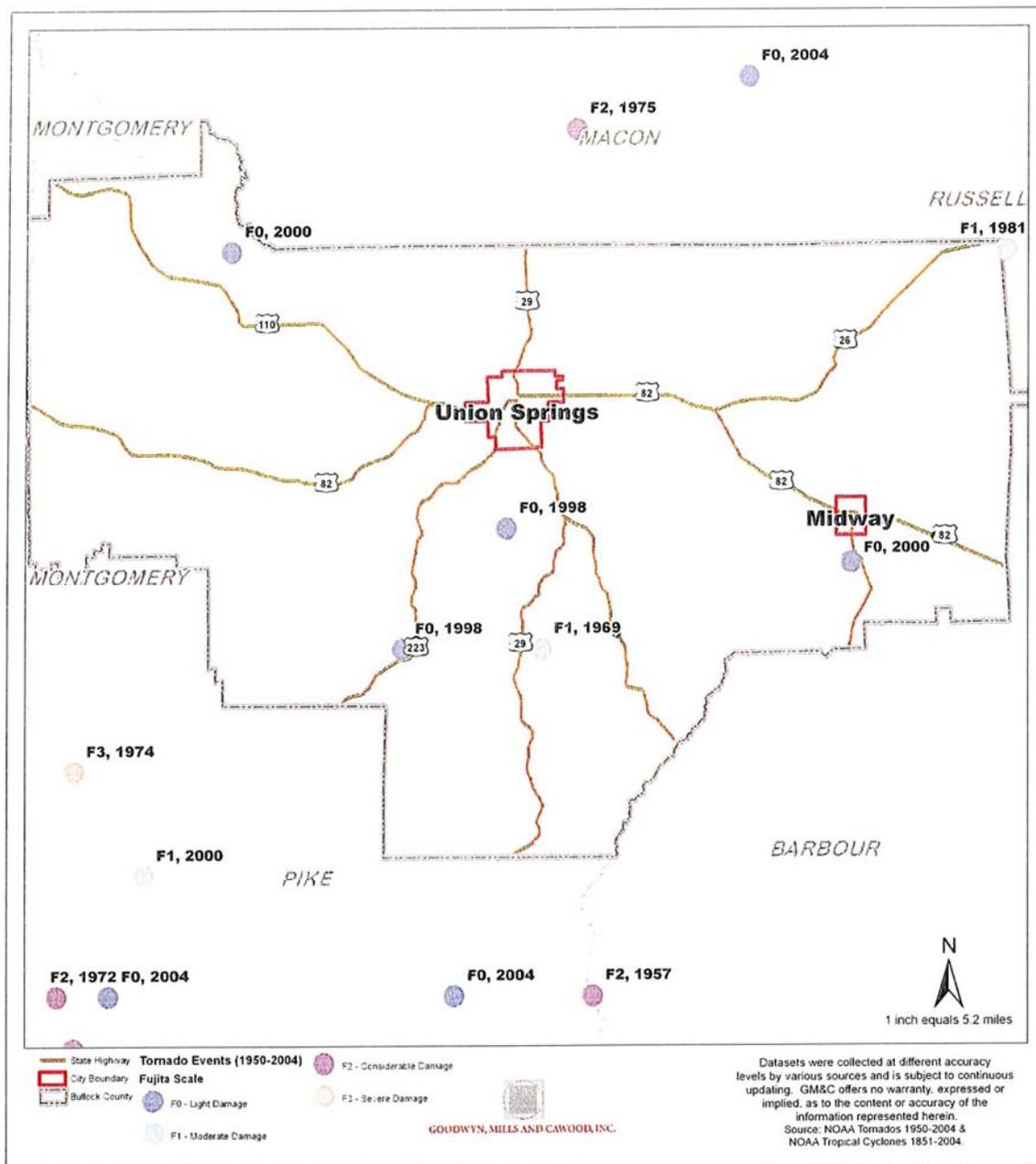


Figure 15

Historical Storm Events



IV. RISK ASSESSMENT AND VULNERABILITY ANALYSIS

The *State of Alabama Hazard Risk and Vulnerability Analysis*, prepared by the Alabama Emergency management Agency defines **risk** as the probability that damage to life and property will occur due to impacts from a particular natural hazard. Risk include an analysis of: the **magnitude**, or how big or strong the event is, the **duration**, or how long the event will last, the **frequency**, or how often the event occurs, and the **area affected**, or where and how much area may be impacted by an event. **Vulnerability** is defined as the degree of **exposure** to a hazard – how susceptible an area is to a hazard and the losses likely to result from a disaster.

The risk assessment and vulnerability analysis is based on the following priority natural hazards as identified by the Bullock County LEPC and described in the previous chapter: severe thunderstorms/windstorms/lightning/hail/storms; tornados; hurricanes and tropical storms; extreme heat and drought; and wildfires; flooding. Other hazards are not profiled in detail due to limited data available and consideration by the LEPC that these priorities have such limited history.

In this chapter, Priority hazards are assessed in terms of risk and vulnerability, as defined. Information provided for each category includes a definition of the hazard; the degree of risk as noted by the priority rating given to each hazard by the Bullock County Emergency Planning Committee upon identification of the hazard; historical and financial loss data, as available; the degree of impact (vulnerability) on Bullock County and its residents, with comments regarding how the hazard might affect the county, including the geographic location of the hazards' impacts. The chapter is concluded with the identification of critical facilities that could be impacted by any of these hazard events.

Severe Windstorms/Thunderstorms/Hail/Lightning

Thunderstorms are generated by atmospheric imbalance due to the combination of unstable warm air rising rapidly into the atmosphere, sufficient moisture to form clouds and rain, and an upward lift of air currents caused by colliding waterfronts, sea breezes, or mountains. Thunderstorms can produce tornados and floods (both discussed in other portions of this plan), hail, high winds, and lightning.

Severe thunderstorms, wind, hail, and lightning have been a common event for Bullock County and its municipalities in the past and will continue to be so in the future. The loss of critical facilities as a result of severe thunderstorms, wind, hail, and lightning are rare. There have been reports of minor property damage most being a result of lightning strikes or hail. Overall, the impact of severe thunderstorms, wind, hail, and lightning on Bullock County have been minor. As a result, it has been concluded that future impacts will most likely continue to be minor meaning minor injuries may occur; critical facilities may be shut down for 24 hours or less, and less than ten percent of the property in the community would be damaged. Nonetheless, due to frequency in occurrence, the Bullock County LEPC has ranked severe windstorms, thunderstorms, wind, hail, and lightning as a priority hazard that has the greatest potential to

impact Bullock County due to frequency of events. Figure 15 indicates the locations impacted by storms from a historical perspective and the chart which profiles these storms indicates the impact on the different jurisdictions in the county. These maps and data are not conclusive with respect to future locations of these events, however. Windstorms and thunderstorms have the potential to occur in any part of the county. Those areas where the land use and population are concentrated are likely to experience greater damage in terms of loss of life and property.

Profile of Severe Thunderstorm, Wind, & Hail Events in Bullock County & Municipalities, 1956 to 2006						
Severe Thunderstorms, Wind & Hail						
Date	Location	Hail (H) or Thunderstorm/wind (T)	Magnitude*	Loss of Life	Injuries	Financial Loss
12/24/1964	County	T	0	0	0	\$0
4/7/1973	County	T	0	0	0	\$0
2/19/1974	County	T	0	0	0	\$0
3/21/1974	County	T	0	0	0	\$0
4/26/1979	County	T	0	0	0	\$0
3/5/1980	County	H	1.75"	0	0	\$0
4/23/1983	County	T	0	0	0	\$0
4/23/1983	County	T	0	0	0	\$0
3/24/1984	County	T	0	0	0	\$0
5/3/1984	County	T	0	0	0	\$0
7/31/1986	County	T	0	0	0	\$0
8/16/1986	County	T	0	0	0	\$0
12/15/1987	County	T	0	0	0	\$0
12/15/1987	County	T	0	0	0	\$0
4/25/1988	County	T	0	0	0	\$0
5/24/1988	County	T	0	0	0	\$0
5/24/1988	County	H	.75"	0	0	\$0
7/15/1988	County	T	0	0	0	\$0
6/5/1989	County	T	0	0	0	\$0
1/25/1990	County	T	0	0	0	\$0
1/25/1990	County	T	0	0	0	\$0
2/10/1990	County	T	0	0	0	\$0
2/22/1990	County	T	0	0	0	\$0
3/16/1990	County	T	0	0	0	\$0
4/1/1990	County	T	0	0	0	\$0
4/28/1990	County	H	.75"	0	0	\$0
4/28/1990	County	H	1.75"	0	0	\$0
4/28/1990	County	H	1.75"	0	0	\$0
6/21/1990	County	H	.75"	0	0	\$0
3/29/1991	County	H	1.75"	0	0	\$0
4/9/1991	County	H	1.75"	0	0	\$0
4/28/1991	County	T	0	0	0	\$0
5/5/1991	County	T	0	0	0	\$0
7/13/1991	County	T	0	0	0	\$0
3/30/1992	County	H	.75"	0	0	\$0
7/3/1992	County	T	0	0	0	\$0
8/17/1995	Union Springs	T	N/A	0	0	\$2,000

8/18/1995	Union Springs	T	N/A	0	0	\$3,000
3/13/1997	Union Springs	H	.75"	0	0	\$3,000
4/30/1998	Union Springs	H	.75"	0	0	\$0
4/15/1999	County	T	55	0	0	\$10,000
4/15/1999	County (Perote)	T	50	0	0	\$1,000
5/13/1999	Union Springs	H	1.75"	0	0	\$5,000
8/9/1999	County (Perote)	T	50	0	0	\$3,000
1/9/2000	Midway	H	.88"	0	0	\$0
7/29/2000	Midway	T	60	0	0	\$125,000
5/11/2001	Union Springs	T	50	0	0	\$4,000
1/19/2002	Midway	T	55	0	0	\$6,000
3/12/2002	Midway	T	50	0	0	\$2,000
4/30/2002	Union Springs	H	1.00"	0	0	\$0
4/30/2002	County (Perote)	H	1.00"	0	0	\$2,000
8/20/2002	Union Springs	T	50	0	0	\$5,000
8/20/2002	Union Springs	T	50	0	0	\$3,000
3/13/2003	Union Springs	T	60	0	0	\$18,000
4/24/2003	County (Mitchell)	T	55	0	0	\$3,000
4/25/2003	County (Perote)	H	.75"	0	0	\$0
7/13/2003	Union Springs	H	.75"	0	0	\$0
7/19/2003	Union Springs	T	50	0	0	\$20,000
7/19/2003	Union Springs	H	1.00"	0	0	\$0
6/27/2004	County (Inverness)	T	50	0	0	\$2,000
9/7/2004	County	T	N/A	0	0	\$4,000
4/12/2005	County	T	N/A	0	0	\$2,000
3/26/2005	County (Perote)	H	1.75"	0	0	\$11,000
3/26/2005	County (Shopton)	H	.75"	0	0	\$0
4/22/2005	County (Fitzpatrick)	H	1.75"	0	0	\$1,000
4/30/2005	County	T	52	0	0	\$8,000
4/30/2005	County (Perote)	T	55	0	0	\$20,000
12/28/2005	County (Fitzpatrick)	H	.75"	0	0	\$0

12/28/2005	Union Springs	H	.75"	0	0	\$0
12/28/2005	Midway	H	.75"	0	0	\$0
3/20/2006	County	T	75	0	0	\$50,000
8/30/2006	County (Fitzpatrick)	H	.75"	0	0	\$0

JURISDICTIONAL SUMMARY						
<i>Midway</i>	5 Events			0	0	\$133,000
<i>Union Springs</i>	14 Events			0	0	\$58,000
<i>Unincorporated Areas</i>	55 Events			0	0	\$122,000
Note: *Magnitude for hail events is depicted as the average diameter of hail stones. Magnitude for thunderstorms and wind events is expressed in knots.						
Total		73	Events	0	0	\$313,000

Sources: Storm Events 1950-2006, NCDC, NOAA, 2007.

Tornados

As defined by the Federal Emergency Management Agency, a tornado is a violently rotating column of air extending from a thunderstorm to the ground. The most violent of tornadoes are capable of tremendous destruction with wind speeds of 250 miles per hour or more. Damage paths can be in excess of one mile wide and 50 miles long. Tornadoes are a Priority 1 hazard risk for Bullock County, due to the severity of destruction and the limited warning time for response. Bullock County is located in Wind Zone III, which is associated with 200 miles per hour wind speeds. Tornado paths have the potential to affect any portion of the entire county during a given event. A review of the maps showing the historical occurrences of tornado events provides a picture of previous events, however, these maps should not be relied upon to predict future locations of these events. Obviously, the areas of greater land development and population could experience greater loss of life or property due to a tornado. Mobile homes account for 80% of new housing permits and compose a high prevalence of existing units. These units are especially vulnerable to tornados.

With the available information as presented, the Bullock County LEPC determined that Bullock County is vulnerable to tornados as a Priority 1 hazard. Potential impacts from tornados include loss of life and injury; severe property damage with frame, manufactured, and congregate housing being the most susceptible; water contamination and water shortage; blocked access and road deterioration; power outages, disruption of commerce. Bullock County's vulnerability can be increased due to a lack of available trained response personnel, slower emergency response time, and limited existing medical facilities. Resulting secondary impacts of a tornado could include panic, anxiety, and depression; power outages; interruption in utility services (e.g., communications and water); loss of tax revenue and economic opportunities; spoilage of goods; decreased employer production; and loss of timber income.

Profile of Tornado Events in Bullock County & Municipalities, 1956 to 2007					
Flooding					
Date	Location	Magnitude	Loss of Life	Injuries	Financial Loss
4/10/1969	Bullock	F4	0	3	250,000
5/18/1969	Bullock	F1	0	0	25,000
3/18/1981	Bullock	F1	0	0	250,000
9/28/1998	Union Springs	F0	0	0	75,000
1/9/2000	Midway	F0	0	0	0
2/13/2000	Bullock	F0	0	0	15,000
2/13/2000	Bullock	F0	0	0	10,000
4/30/2005	Bullock	F0	0	0	45,000
8/29/200	Bullock	F0	0	0	70,000
8/29/2005	Union Springs	F0	0	0	1,000
4/14/2007	Bullock	F0	0	0	10,000
Total		12 Events			\$766,000
JURISDICTIONAL SUMMARY					
<i>Union Springs</i>	3 Events	0	0	0	\$91,000
<i>Midway</i>	1 Event	0	0	0	0
<i>Unincorporated Areas</i>	8 Events	0	0	3	\$875,000
<i>Sources: Storm Events 1950-2007, NCDC, NOAA, 2007; and Alabama Tornado Database, National Weather Service (NWS), NOAA, 2007.</i>					

Tropical Cyclones (Hurricanes & Tropical Storms)

As defined by the Federal Emergency Management Agency, a tropical cyclone is a generic term for a cyclonic, low-pressure system over tropical or subtropical waters. Hurricanes are intense tropical systems that generate winds in excess of 74 mph. These storms are generally characterized by thunderstorms and defined surface wind circulation. They can produce high winds, heavy rains, erosion, flooding, and spawn tornados. Extratropical storms generate similar effects but tend to occur in the fall or winter. Because tropical and extratropical cyclones are large, moving storm systems, they can impact not only coastal areas, but inland areas as well. Hurricane Opal (1995), which traversed Bullock County, is an excellent example of a tropical system having such a large impact inland. While Bullock County is not necessarily susceptible to the full effects of a tropical cyclone making landfall along the coast, it is highly susceptible to the other events that occur or spawn off of the cyclonic system. Floods caused by the storm's rain can make parts of the county inaccessible by road and interrupt the delivery of services and the ability to respond in an emergency. Tornados spawned off of a hurricane can cause loss of life, injuries, and cause damage to buildings and infrastructure. Tropical cyclones are a Priority

1 hazard on the list of natural hazards that have the greatest potential to impact Bullock County. Bullock County is especially vulnerable to an overflow of shelters from coastal evacuees. Figure 14 reflects the historical trends for the location of tropical cyclones, however, it should be noted that such events may occur in any part of the county. Damage is likely to be greater in areas of higher population densities and concentrations of land use, which are reflected in the various maps in the previous chapter.

Profile of Tropical, Subtropical, & Extratropical Cyclone Events in Bullock County & Municipalities, 1893 to 2003**					
Tropical Cyclones and Hurricanes					
Date	Name	Category	Loss of Life	Injuries	Financial Loss
1881	Not Named	Tropical Storm			
1887	Not Named	Tropical Storm			
1903	Not Names	Tropical Storm			
1906	Not Named	Tropical Storm			
1926	Not Named	Tropical Depression			
1928	Not Named	Tropical Storm			
1948	Not Named	Tropical Depression			
1975	Eloise	H3			
1994	Alberto	Tropical Depression			
2001	Allison	Subtropical Depression			
10/4/1995	Opal	Hurricane	2	0	\$110,000,000
2002	Hannah	Tropical Depression			
7/10/2005		Tropical Storm	0	0	\$24,000
8/29/2005	Katrina	Tropical Storm	0	8	\$34,900,000
Total					
<i>Notes: *Figures are from NCDC data and are statewide; figures not immediately available for Bullock County. **With the exception of Opal, Georges, and Barry, the rest of the listed cyclones were those that directly traversed Bullock County.</i>					
<i>Sources: Historical North Atlantic Tropical Cyclone Tracks, National Hurricane Center, NOAA, 2002; Storm Events 1950-2003, NCDC, NOAA, 2004.</i>					

Extreme Heat and Drought

Extreme heat and drought often occur simultaneously in Bullock County. Drought is a prolonged period of dry weather due to a lack of rain. The National Oceanic and Atmospheric Administration reports that the annual normal daily mean temperature for Montgomery, which is the closest station to Bullock County, between 1971 and 2000 is 65.1 degrees Fahrenheit, with the warmest month being July at 81.8 degrees Fahrenheit and the coldest month being January at 46.6 degrees Fahrenheit. Bullock County's economic dependence upon agriculture, coupled with the low per capita income of the county, makes the county population very susceptible to extreme changes in weather. Conditions of extreme heat and drought affect the population's ability to produce livable earnings and produce dangerous living conditions for the low-income sector of the population due to an inability to find refuge from extreme heat.

The Bullock County LEPC determined that the county's vulnerability to extreme heat and drought is a Priority 1 hazard with the most severe threat being to county's elderly and low-income population during excessive heat periods. Extreme heat and drought also places an increased demand on medical services and emergency response services that are already in short supply. Additional impacts on the county due to extreme heat and drought include increased road cracking and road repairs resulting in higher maintenance costs and inaccessibility to some portions of the county; increased power and water usage resulting in higher payments and sometimes higher rates; increased fire potential; increased loss of vegetation and property damage with the most significant threat to agricultural production including crops, timber and livestock; an increased threat to the quantity and quality of water supplies; and increased anxiety in the population which can result in increased crime. Extreme heat and drought are likely to occur in any part of the county. Rural areas are likely to be impacted through crop loss during drought conditions and higher numbers of people and property loss is likely to be greater in more urbanized parts of the county and incorporated jurisdictions. These areas are shown on the Land Cover map including the jurisdictions of Union Springs and Midway.

Profile of Extreme Heat and Drought in Bullock County, 1950 to 2006					
Cyclones					
Date	Location	Type	Loss of Life	Injuries	Financial Loss
2/23/96	Bullock	Heat	0	0	0
7/11/06	Bullock	Drought	0	0	0
8/01/06	Bullock	Drought	0	0	0
9/01/06	Bullock	Drought	0	0	0
6/05/07	Bullock	Drought	0	0	0

Wildfire

As defined by the Federal Emergency Management Agency, a wildfire is an uncontrolled fire spreading through vegetative fuels, exposing and possibly consuming structures. Wildfires often begin unnoticed and spread quickly and are usually signaled by dense smoke that fills the area for miles around. Naturally occurring and non-native species of grasses, brush, and trees fuel wildfires. Wildfires are priority in Bullock County, due to the percent of land is in forested land. Due to an expanding urban interface area, the threat of human danger from wildfires is steadily increasing in Bullock County, although interface exposure is very limited due to sparsely populated character in the county. Beyond loss of life, injury and property damage issues that arise from wildfires, Bullock County’s dependence upon the timber industry means that the overall economic well being of the county is threatened by wildfires as well. Limited pipe sizes, depend on Volunteer Fire Department add to the concerns with wildfires. The areas most likely to be impacted by this type of event can be considered at the edges of the urbanized areas and jurisdictions in Midway and Union Springs. These characteristics may be viewed on the appropriate maps in the previous chapter.

With the available information as presented, the Bullock County LEPC determined that, the risk is high enough to be a Priority 1 hazard. Potential impacts from wildfires include loss of life and injury; severe property damage; injury to victims and response personnel; smoke inhalation and toxic fumes; decreased visibility for vehicular traffic leading to a documented increase in auto accidents; threats to utility lines and poles, phone boxes and fiber optic lines.

Secondary impacts from wildfires include a loss of tax revenue due to a loss of timber; erosion which leads to road and bridge deterioration; loss of habitat and a threat to endangered species; threatened water quality and stream sedimentation. The risks and vulnerability associated with wildfire are only increasing with continued urban sprawl.

A specific analysis of the probability of impact from wildfires is not included at this time, because there simply isn’t enough documented historical data available in a consistent form to assess probability. According to discussions with the LEPC, the wildfire hazard potential is being managed through Forestry Commission and Extension System efforts and, although an important priority, is not a highly probable event. As more information is available, additional analysis of the probability of these events will be included in Plan updates.

Profile of Wildfire Events in Bullock County, 1995 to 2003			
Wildfires			
Fiscal Year	Number	Burned Acres	Avg. Size (Acres)
NA			

Total			
<i>Source: Alabama Forestry Commission, 2004.</i>			

Flooding & Dam Failures

As defined by the Federal Emergency Management Agency, a flood is a natural event for rivers and streams. Excess water from snowmelt, rainfall, or storm surge accumulates and overflows onto the banks and adjacent floodplains. Floodplains are lowlands, adjacent to rivers, lakes and oceans that are subject to recurring floods. Flooding is one of the most common hazards in the United States and kills an average of 150 people a year nationwide. While Bullock County is not highly susceptible to severe inundation of riverside flood waters which impacts low lying agricultural areas, it is susceptible to the rapid occurrence of localized flash floods and flooding in areas that make parts of the count inaccessible by road and interrupt the delivery of services and the ability to respond in an emergency and in localized conditions in more urban development in Union Springs and Midway due to storm drainage limitations. Flooding is a Priority 2 in the list of natural hazards that have the greatest potential to impact Bullock County given information available to the LEPC. Flooding is likely to occur in those areas shown on the previously documented map in the previous chapter, most of which is located in rural or unincorporated Bullock County.

Bullock County does not have large structural dams; however, there are numerous conservation, agricultural oriented dams, and on going support by the Soil and Water Conservation Service. There is limited data available on the failures of these dams; however, they are well maintained and mainly in undeveloped areas. There are no major structural dams according to the LEPC.

The location of flooding and dam failures may be identified on the map showing the flood plain and adjacent towns. Data is very limited on dam structures, except that a concentration of these land owners will be reporting back to City Hall in its current location.

Winter Storms

Winter storms can affect agriculture, transportation, utilities, businesses, and schools, and can pose great danger to the public. While the region and Bullock County are generally unaccustomed to snow, ice, and extreme freezing temperatures, they do occur and can cause severe consequences. Wet snow and ice can accumulate on trees, utility lines, and power/utility poles and towers causing them to snap under the extra weight. Motorists in this region are typically unfamiliar with driving on slick and iced over roads and bridges, and traffic accidents increase. Additionally, some buildings may not be adequately insulated or lack heat altogether, creating danger to the occupants. Crops can also be affected and a year’s or season’s entire yield could be damaged or lost. Since these occurrences are rare, local municipalities generally do not possess snow or ice removal and treatment equipment to help minimize accidents.

Winter storms are likely to impact the entire county and cause damages to a greater degree according to maps located in the previous Chapter of this County Hazard Mitigation Plan.

Profile of Flooding Events in Bullock County & Municipalities, 1956 to 2006					
Flooding					
Date	Location	Type	Loss of Life	Injuries	Financial Loss
1/2/98	Bullock	Flash Flood	0	3	30,000
9/29/98	Bullock	Flash Flood	0	0	50,000
7/13/03	Union Springs	Flash Flood	0	0	8,000
9/16/04	Bullock	Flash Flood	0	0	2,000
JURISDICTIONAL SUMMARY					
<i>Union Springs</i>	1 Event				\$8,000
<i>Midway</i>	0	0	0	0	0
<i>Unincorporated Areas</i>	3 Events				\$82,000
<i>Sources: Storm Events 1950-2003, NCDC, NOAA, 2004.</i>					

Probability

The probability (%) that an identified hazard of Priority 1 status will occur on an annual basis was determined using the following formula:

$$\frac{\text{Number of historical or reported events in that time period}}{\text{Number of years incidents occurred within}} = \text{Damage Expectations Per Damaging Event}$$

A similar formula was used to determine an estimate of the expected damages from each event:

$$\frac{\text{Total amount of damages (in dollars) for each historical or reported event}}{\text{Number of damage causing events within the time period}} = \text{Damage Expectations Per Damaging Event}$$

Priority Event Probability for Bullock County & Municipalities			
Natural Hazard Events	Number of Historical Events	Probability of a Future Annual Event	Damage Expectations Per Damaging Event (in \$)*
<i>County & Municipalities</i>			
Flooding (1950-2006; 56)	4	7%	\$22,500
Tornado (1886-2005; 119)	18	15%	\$42,000
Hurricane/Tropical Storms (1887-2006; 119)	49	88%	\$5,939
<i>Wildfires</i>			
Severe Thunderstorm/Wind (1950—2006; 56)	49	88%	\$5,939
Hail (1950-2006;56)	26	46%	\$846
Drought (1950-2006;56)	3	5%	Unknown or \$0
<i>Midway</i>			
Tornado (1886-2005; 119)	1	1%	Unknown \$0
Severe Thunderstorm/Wind (1950-2006; 56)	3	3%	\$44,333
Hail (1950-2006; 56)	2	4%	Unknown or \$0
<i>Union Springs</i>			
Flooding (1950-2006; 56)	1	2%	\$8,000
Tornado (1886-2005; 119)	3	3%	\$33,333
Severe Thunderstorm/Wind (1950-2006; 56)	7	13%	\$7,857
Hail (1950-2006; 56)	7	13%	\$1,143
<i>Unincorporated Areas</i>			
Flooding (1950-2006; 56)	3	5%	\$27,333
Tornado (1886-2005; 119)	14	12%	\$46857
Severe Thunderstorm/Wind (1950-2006; 56)	39	70%	\$2,641
Hail (1950-2006; 56)	17	30%	\$824
<i>Notes: Some historical damage figures for certain types of events were unknown, not recorded, or not immediately available. ** These events occurred on a countywide basis and therefore not factored into the separate listings for each municipality.</i>			

Sources: Storm Events 1950-2006, NCDC, NOAA, 2007; Alabama Tornado Database, NWS, NOAA, 2007; Historical North Atlantic Tropical Cyclone Tracks, National Hurricane Center, NOAA, 2005; and Alabama Forestry Commission, 2004.

Note: It is not possible to estimate wildfire damage projections using the chart on priority event probability. This data should be used as part of a company-wide assessment of risk, in future updates of the plan.

Profile of Priority Storm Events in Bullock County and Municipalities, 1886 to 2006								
All Priority 1 Storm Events*								
Location**	F	Tor.	Hur.	Th.	H	Loss of Life	Injuries	Financial Loss***
Bullock County (Countywide)	3		12			2	8	\$145,014,000
Bullock County (Unincorporated Communities)	0	4		5	7	0	0	\$183,000
Bullock County (Unknown)	0	10		34	10	26	94	\$2,999,000
Town of Midway	0	1		3	2	0	0	\$133,000
Town of Union Springs	1	3		7	7	0	0	\$171,000
TOTALS	4	18	12	49	26	28	102	\$148,500,000
<i>Key: F = Flooding; Tor = Tornadoes; Hur = Hurricanes/Tropical Storms; Th = Severe Thunderstorms/Winds; H = Hail</i>								
<i>Notes: * Does not include wildfires or sinkholes. ** Countywide events are not counted under municipalities. ***Hurricane/Tropical Storms dollar figures are from NCDC data and are statewide; figures not immediately available for Bullock County.</i>								

Sources: Storm Events 1950-2006, NCDC, NOAA, 2007; and Alabama Tornado Database, National Weather Service (NWS), NOAA, 2006.

Overview and Summary of Extent and Risk Assessment in Bullock County

A summary of general vulnerability to natural hazard events is reflected in the charts on probability of events. In general, the County is vulnerable to tornadoes, flooding and hurricanes resulting from a few number of, but, very costly events. Along with these events, the county is especially vulnerable to more frequent/less costly events such as thunderstorms, windstorms, drought/extreme heat events. Data is especially limited with respect to wildfire events. Future updates will include more detailed information on location of these and various storm events.

Location of Hazards

As stated previously, most hazards identified in this plan are applicable to county as a whole, including incorporated and un-incorporated jurisdictions.

The location of public and private assets and critical facilities are reflected on Page 47, in the next chapter.

Impacts on Population

As stated in the section above, the entire area of Bullock County is vulnerable to all identified Priority 1 natural hazards with the exception of flooding. Population figures and number of households vulnerable to the identified Priority 1 and 2 hazards are as follow. Priority 2 hazards are not included due to lack of sufficient incidences.

Hazard	Population	Households
County Total	11,714	3,986
Storms	11,714	
Tornados	11,714	
Tropical Storms	11,714	
Drought/Heat	11,714	
Wildfires	TBD	TBD
Flooding	TBD	TBD
Union Springs	3,670	1,424
Storms	3,670	1,424
Tornados	3,670	1,424
Tropical Storms	3,670	1,424
Drought/Heat	3,670	1,424
Wildfires	TBD	TBD
Flooding	TBD	TBD
Midway	457	158
Storms	457	158
Tornados	457	158
Tropical Storms	457	158
Drought/Heat	457	158
Wildfires	TBD	TBD
Flooding	TBD	TBD

Structural Assets and Impacts

An inventory of assets and critical facilities susceptible to the identified Priority 1 hazards within Bullock County has been attempted. At the time of this plan's submission to AEMA and FEMA, a complete inventory has not been completed. Values for the different types of buildings (i.e., residential, commercial, industrial, agricultural, institutional, governmental/educational, and utilities) in Bullock County has not been performed. The Bullock County EMA and LEPC intend to have this information collected and analyzed by the next five-year major update. Such an analysis should describe the vulnerability of the types and numbers of existing and potential future buildings, infrastructure, and critical facilities located in specific hazard areas. (Building values should be obtained from the Bullock County Tax Assessor's Office and/or from each jurisdiction's property insurance providers). Of the Priority 1 hazards, only flooding and wildfires poses a localized risk to buildings and structures in certain areas – primarily in the built areas lying in or along the identified floodplains. Otherwise, all buildings and structures within Bullock County are vulnerable to all natural hazards identified as being Priority 1.

Critical Facilities

The process of determining Bullock County's risk and vulnerability to natural hazards enabled the Bullock County LEPC to identify critical facilities that would be impacted in the event of a disaster event. The LEPC identified critical facilities located in Bullock County, based on two types of criteria: (1) Buildings or locations vital to the response and recovery effort, such as police and fire stations and telephone exchanges; and (2) Buildings or locations that, if damaged, would create secondary disasters, such as hazardous materials facilities and nursing homes. The critical facilities were grouped into one of seven categories as shown in the list on the following page.

As of the submission of this plan, a complete inventory of critical facilities susceptible to the identified Priority hazards within Bullock County has not been completed. Exact locations and facility values will be researched and assessed for updates to the Plan. With the exception of flooding, all of the critical facilities are vulnerable to all of the identified Priority natural hazards.

Location of Critical Facilities

As stated in other parts of the plan, many of the hazards identified in the plan are applicable to the entire county-unincorporated and incorporated. The likely extent of greatest impact from hazardous events are in the incorporated jurisdictions and the urbanized areas. Most of the public and private assets and critical facilities are located in the urbanized areas reflected on Page 47. This includes shelters, etc. that are mainly located in these urbanized jurisdictions. This is likely to be the case for the next 5-10 years given the limited growth projected for the county.

Critical facilities are likely to be impacted by storms, tornadoes, tropical storms and flooding in those areas illustrated in figure 7 and the other maps included in chapter II depicting flooding areas, etc. Relative to flooding in particular, few critical facilities are located in or near areas shown as potential flooding areas, as depicted in figure 12.

It should be noted that the LEPC identified roads and bridges as critical facilities and many of these are located in the unincorporated county. This is why improvements to these facilities are a high priority and action item in the plan.

A priority in the first update of the plan is the completion of a map and tabular inventory of the assets and critical facilities versus potential hazards.

Risk Assessment for Each Jurisdiction

The overall risk assessment for the County as a whole and the jurisdictions is reflected in the chart depicting probability of events, broken down by jurisdiction based on information available and the charts depicting population impacted by events for the county and broken down by jurisdiction. Many of the hazards have the potential to impact the entire county. A review of the maps showing land cover and population distribution reflect where the greatest concentrations of facilities and people might be impacted

With respect to flooding and wildfire, most of the potential impact is related to flooding as shown on the flooding map included in the plan. The greatest risk is in the rural and unincorporated parts of the county where roads and bridges are the greatest issue. That is why there is an emphasis in the plan on continuing to give those kinds of improvements and emphasis. There are areas subject to localized flooding, mainly due to storm drainage deficiencies in Midway and Union Springs and in some areas near Midway where mobile homes are at some greater risk. Although these local conditions have not been studied in detail, they have been addressed in the strategy and additional study and recommendations will be included in future updates of the plan.

With respect to wildfire, the areas of greatest risk are the edges of urban and rural development near Midway and Union Springs. Generally, unincorporated and incorporated jurisdictions are at risk. Data is limited as to the extent of the risk, however, the land cover map is being used as the guide to target those areas. In addition, the plan acknowledges the issues of fire protection and there are actions included relative to training, education and improvements to water lines to address the wildfire risk.

Bullock County Critical Facilities	
Continuity of Government	Water, Sewer, and Solid Waste Utilities
Bullock County Courthouse Bullock County Courthouse Annex Midway Town Hall Union Springs City Hall	South Bullock County Utilities Board Sewer in Union Springs BFI Waste Services 10 Wells operated by Utilities Board 2 Treatment Plants
Law Enforcement	Hospitals/Health Care Agencies
Bullock County Sheriff's Office Union Springs Police Department at City Hall Midway Police Department Bullock County Jail	1 (Regional) Hospital Family Rural Health Department Bullock County Health Department Nursing Home Facility Ambulance Service provided by Regional provider
Disaster Coordination and Emergency Support Agencies/Social Services	Electric Power & Gas Utilities
Bullock Co. Emergency Mgmt Agency Bullock Co. Dept. of Human Resources Organized Community Action Program (OCAP) Union Springs Police Dept./Communications Center EMA Operations Center adjacent to County Courthouse	Alabama Power Company Dixie Electric Cooperative South Bullock Utilities Board AmeriGas Dowdle Gas Co. Southeast Alabama Gas District Ace Propane
Fire Protection	Telephone, Cable, & Communications
Six (6) Volunteer Fire Departments Union Springs Fire Department/Station Midway Fire Department/City Hall Limited Emergency Services Limited Emergency Medical Services Forest Service Fire Services	BellSouth (1) Newspaper Bright House Networks Cable TV Channel 23 Newspaper Communications Center in Union Springs Police Department
Mass Care Shelters	Building & Farm Supplies
All Public Schools County Disaster Relief Teams Red Cross at National Guard Armory Post Office in Union Springs Baptist Association Baptist and Methodist Churches in Union Springs Vocational Center	Union Springs Hardware Company

Adult & Child Daycare/Senior Center	
Church Daycares Day Care Center, Inc. Senior Center Union Springs/Midway Senior Center at Midway Community Center Nursing Home/Union Springs	
Highways and Bridges	
US 82, 29 AL 239, 51, 223, 110 County Road 47 Other County Roads 1 Airport 1 Private Airstrip 1 Active Railroad	

Development Patterns

Bullock County is located in the south central part of the state and is very rural, with the primary land uses being farming and forestry. Most of the population and development is in areas around Midway and Union Springs. There are numerous mobile homes in the county. Union Springs has zoning and subdivision regulations and the county enforces subdivision regulations. Union Springs, the largest municipality, is located in the center of the county. Land uses in the county consist of: industrial areas located primarily in Union Springs, there is a state prison and a few industrial sites in the county, commercial located in each of the three municipalities, in downtown areas and along major roads; residential areas, mostly located throughout the two municipalities, and in very small pockets throughout the county; farmland is located throughout and adjacent to the county. Forests are located throughout the county, but especially in the southern two-thirds of the county, and various specialized land uses (institutional, mixed, etc.) are located in the two municipalities, mainly Union Springs. Land uses within the municipalities are generally in conformance with current zoning (Union Springs only) subdivision regulations (County and Union Springs), and are expected to remain in the current use for the foreseeable future.

A potential increase in residential and commercial development is expected to follow as employees to auto plants and any “spin-off” businesses locate to the area. Based on the most recent land use plan for the city, Union Springs appears to have enough room within its boundaries to expand and develop the aforementioned and other uses. The zoning for the currently undeveloped areas will permit any growth to occur in the near future, with no major zoning changes.

The County’s population and development is generally stable, very sparse, and low density. There is some potential for development in the western part of the county. Additional background and perspective about current and future development patterns are found in Chapter II of the plan, especially as illustrated in figure 7, Land cover. There is a recognition of the importance of

improved planning and zoning regulations and beginning to think about land management, reflected in the strategies and action items of the plan.

The remainder of the county is not expected to undergo significant development pressure and there are not significant anticipated changes in land use for the near future.

Estimated Losses

The estimated damage expectations for priority events are generally reflected in the previous charts on probability of priority hazard events, summarizing historical trends to provide an order of magnitude estimate. This information is the best information available at this time.

Given that most hazard related losses can impact any place in the County and that most critical facilities and assets, likely to be damaged, are located in the municipalities, it is assumed that the estimates included in these charts provide a reasonable estimate of potential losses, at least, based on available data and realistic methodology at this time.

The table depicts general estimates of property damage that could result from each of the identified priority hazards based on historical data per event average in Bullock County and all four municipalities. These are gross estimates of yearly damages and should only be interpreted as indicators of the degree of damage possible. The figures are based solely on past occurrences, as described in other parts of this plan. More accurate methods are available to assess damages, particularly the U.S. Army Corps of Engineers' Flood Damage Assessment (HEC-FDA) model, FEMA's Benefit Cost Modules, and the HAZUG loss estimation software. The Bullock County EMA and LEPC intend to conduct more detailed loss estimates by applying the latest version of HAZUS-MH for multi-hazard assessments, and have this information analyzed by the next five-year major update.

The method used to estimate losses is based on the historical trends and best available data on the losses from these events, projected as indications of relative order of magnitude for future losses. The premise behind this approach is that losses of structures, assets and critical facilities will generally approximate the historical trends. This is a relatively sound method in light of the limited growth in population and development in the county over the next 5-10 years. This method will be improved in future updates of the plan, especially as better and more specific data is included on the location of facilities and structures relative to potential hazards. As the inventory of critical facilities and assets is completed, the estimates of potential losses will be greatly improved.

Estimated Loss Projections Resulting From Priority 1 Hazards

Hazard	Average Occurrences (Per Year)	Total Deaths	Total Injuries	Average Crop and Property Loss (Per event/per year)	Maximum Historical Property Loss (per event)
Flooding	0.07	0	0	\$22,500/\$1,607	\$40,000
Tornado	0.15	26	94	\$24,000/\$6,353	\$250,000
Hurricane/Tropical Storm	0.10	2	8	*	*
Expansive Soils/Sinkhole				**	**
Wildfires		***	***	***	***
Severe Thunderstorm/Wind	0.88	0	0	\$291,000/\$5,196	\$125,000
Hail	0.46	0	0	\$846/\$393	\$11,000
Drought	0.05	0	0	\$0/\$0	\$0

Notes: *The potential for damages from hurricane and other major cyclonic events does not exist within Bullock County. However, county specific damage estimates were not available. **The potential for damages from expansive soils/sinkholes and drought does exist. However, per NCDC data, there have been no recorded instances of such occurring in the county. County specific damages were not available. ***The potential for wildfire damages within Bullock County does exist. The figures for wildfire damages under these columns were not available at this time, however.

Sources: *Storm Events 1950-2006, NCDC, NOAA, 2007; Alabama Tornado Database, NWS, NOAA, 2007; Historical North Atlantic Tropical Cyclone Tracks, National Hurricane Center, NOAA, 2005; and Alabama Forestry Commission, 2004.*

V. HAZARD MITIGATION STRATEGY

The Hazard Mitigation Strategy outlines methods, and action steps, for implementation of the Bullock County Natural Hazard Mitigation Plan over a five year time period. The strategy includes goals and objectives that were developed to guide the development of the plan and mitigation efforts; specific mitigation action steps to be implemented; estimated cost per item; and the responsible agency or agencies. The mitigation strategy includes a five-year time schedule and cost breakdown per year for implementation. With input from the LEPC, and input received at the public meetings, the goals and objectives were established by the LEPC to guide hazard mitigation efforts on an on-going basis beyond the five-year time frame of the implementation strategy. The following goals and objectives were established for the County and all of its municipalities.

Goal A: Promote natural hazard mitigation and planning as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.

Objective A-1: Establish a full warning system for notification of impending disasters throughout Bullock County; adding sirens and other warning methods.

Objective A-2: Ensure that adequate protection shelters are available for use during disaster occurrences; include public and individual shelters.

Objective A-3: Develop and adopt, or amend, and enforce development plans, land use regulations and ordinances and modern building codes to reduce vulnerability to natural hazards.

Objective A-4: Implement fire protection measures to decrease potential for loss of life and property damage; add fire hydrants and increase water service lines for fire hazard prevention.

Objective A-5: Limit impact of heat and drought on human health, property damage, and agricultural losses.

Objective A-6: Improve infrastructure and facilities and remove at-risk commercial and residential buildings to limit the impact of natural hazard events.

Objective A-7 Investigate, prepare, and provide for mitigation and emergency services and activities before, during, and after a disaster event.

Goal B: Provide on-going support of the Bullock County Emergency Management efforts to make Bullock County less vulnerable to natural disasters.

Objective B-1: Ensure that the Bullock County Hazard Mitigation Plan remains current, is maintained and is implemented.

Objective B-2: Improve coordination and communication between emergency response organizations and highly vulnerable facilities and organizations, including EOC and added towers, etc.

Objective B-3: Improve the County's and municipalities' capability to conduct further hazard risk assessments, better demonstrate funding needs, and track mitigation activities throughout the County.

Goal C: Educate general population about natural hazards and hazard mitigation options.

Objective C-1: Establish and implement hazard mitigation public awareness programs and increase numbers participating in programs.

Objective C2: Establish and promote disaster prevention education programs, utilizing all forms of media (e.g., print, TV, internet websites – government and related non-governmental) to help distribute information and materials.

Cost-Benefit Emphasis

In establishing goals, objectives and strategies as well as action items, the LEPC, County Commission and representatives of Union Springs and Midway have considered the potential costs and benefits of these actions relative to the priorities various hazards that have the greatest impact on the county and municipal jurisdictions.

Although no formal analysis of cost benefit ways conducted, the LEPC, consultant and staff thoroughly discussed the costs included in the plan and the realistic benefits and feasibility of specific actions. In approving the plan, the LEPC emphasized the general cost-benefit of the proposed actions, based on the data available. The LEPC also considered the most readily available funding opportunities from the federal, state and local level, in finalizing the plan. In implementing the plan the LEPC, County Commission and municipalities will continue to emphasize cost and benefit of proposed actions. The LEPC will include in future updates of the plan a detailed cost-benefit analysis, reflecting more detailed inventories and cost estimates.

Bullock County Hazard Mitigation Action Steps

Goal A: Promote natural hazard mitigation as a means to decrease loss of life, property damage and economic loss during a disaster occurrence.

Objective A-1: Establish a full warning system for notification of impending disasters throughout Bullock County, including sirens and other warning methods	Estimated Cost Over 5 Years	Funding Source Responsible Agency
a. Develop a warning plan to install approximately 10 sirens at targeted sites to adequately cover population pockets in Bullock County.	\$150,000.00	Federal, State & Municipal
<i>Geographic Beneficiaries & Jurisdictions:</i> Countywide and All Municipalities		Bullock Co. EMA
b. Designate volunteer emergency coordinators in each municipality and community to better facilitate communications with the Bullock County Emergency Management Agency.	See other	County & Municipal (County Commissioners)
<i>Geographic Beneficiaries & Jurisdictions:</i> County Unincorporated Communities (based on VFDs) and All Municipalities	See other	All Municipalities
c. Consider individual weather radios-county wide		Federal, State & County
<i>Geographic Beneficiaries & Jurisdictions:</i> Countywide and All Municipalities	\$20,000	County EMA
d. Investigate use of phone messaging system to provide warning of all impending hazardous conditions.	\$0.00	County & Municipal
<i>Geographic Beneficiaries & Jurisdictions:</i> Countywide and All Municipalities	\$0.00	Bullock Co. EMA
Total	\$170,000	

Objective A-2: Ensure that adequate Protection shelters are available for use during disaster occurrences.	Estimated Cost Over 5 Years	Funding Source Responsible Agency
a. Maintain and expand existing shelter facilities to provide adequate pre-disaster care and space, as needed; upgrade electrical and indicate adequate supplier and 9 elevators	\$5,000.00 Power and Water	Federal, State & Municipal
<i>Geographic Beneficiaries & Jurisdictions:</i> Countywide and All Municipalities		County, All Municipalities & Shelter Operators
b. Designate and upgrade/retrofit, as necessary, existing public facilities to provide shelter in areas of Bullock County where there currently are no shelters, primarily targeting schools and community centers, at a rate of one site every two years; combine with ADECA Enhancement program (Midway)	\$50,000.00	Federal, State, County & Municipal
<i>Geographic Beneficiaries & Jurisdictions:</i> Countywide and All Municipalities		County, All Municipalities & Shelter Operators
c. Investigate construction of new public shelter facilities in those areas of the county with no shelter facilities as long-term and low-priority task. (Midway)		ADECA, ADSS Federal, County
<i>Geographic Beneficiaries & Jurisdictions:</i> Countywide and All Municipalities	tbd	Bullock Co. EMA
d. Secure funds to assist citizens in constructing private shelters on their land at a rate of five shelters per year. (Approx. \$5,000 per shelter)	\$125,000.00	Federal & Private
<i>Geographic Beneficiaries & Jurisdictions:</i> Countywide and All Municipalities		Bullock Co. EMA, & County & All Municipal Building/Planning Officials

e. Work with developers, homebuilders and contractors to promote construction of a safe room in all new residential development.	\$0.00	County & Municipal
<i>Geographic Beneficiaries & Jurisdictions:</i> Countywide and All Municipalities		Bullock Co. EMA & County & All Municipal Building/Planning Officials
f. Publicize information on locations of existing public shelters and when to use them.	\$3,000.00	County, Municipal, Red Cross & DHR
<i>Geographic Beneficiaries & Jurisdictions:</i> Countywide and All Municipalities		County, All Municipalities, Bullock Co. EMA, Red Cross & DHR
Total	\$183,000.00	

Note: Add Supplies for shelters and distribution.

Objective A-3: Develop and adopt, or amend, and enforce development plans, and use regulations and ordinances and building codes to reduce vulnerability from natural hazards.	Estimated Cost Over 5 Years	Funding Source Responsible Agency
a. Incorporate and enforce flood management provisions in all county and municipal land use and zoning ordinances and regulations.	\$0.00	County & Municipal
<i>Geographic Beneficiaries & Jurisdictions:</i> Countywide and All Municipalities		County, All Municipal Building/Planning Officials
b. Ensure that future land use and growth plans do not extend into flood plain areas;	\$0.00	County & Municipal
<i>Geographic Beneficiaries & Jurisdictions:</i> Countywide and All Municipalities		County & All Municipal Building/Planning Officials
c. Consider model growth and development		

plan for Bullock County including permitting process in unincorporated areas.	\$12,500.00	County and Municipalities
<i>Geographic Beneficiaries & Jurisdictions:</i> County Unincorporated Communities		County Engineer/Planning Official
d. Consider enforcing modern building codes (e.g., the 2003 International Building Code or the NFPA 5000) at the county and municipal levels; include permitting enforcement	\$25,000.00	County & Municipal
<i>Geographic Beneficiaries & Jurisdictions:</i> Countywide and All Municipalities		County & Municipal Building/Planning Officials
f. Utilize AEMA flood relocation program and identify and obtain properties in floodplains to be used for greenways, open spaces, parks, trails, and other recreational activities.	\$25,000.00 Plan only	Federal, State, County & Municipal
<i>Geographic Beneficiaries & Jurisdictions:</i> Countywide and All Municipalities		County & Municipal Recreation & Planning Officials
g. Consider contract building or Enforcement Staff Person/EMA Staff.	\$75,000.00	County
Total	\$175,000.00	

Objective A-4: Implement fire protection measures to decrease potential for loss of life and property damage.	Estimated Cost Over 5 Years	Funding Source Responsible Agency
a. Develop and utilize zoning ordinances and subdivision regulations to manage development in urban fringe areas. (See Staffing)	\$0.00	County & Municipal
<i>Geographic Beneficiaries & Jurisdictions:</i> Municipalities		County & All Municipal Building/Planning Officials
b. Consider funding for added training and staff for volunteer fire departments to man stations	\$75,000.00	Federal, State, County & Municipal
<i>Geographic Beneficiaries & Jurisdictions:</i> Countywide and All Municipalities		Bullock Co. EMA, & All County & Municipal Fire Protection Authorities
c. Support Alabama Forestry Commission efforts to help educate private landowners to protect their own and other's property through construction of fire lanes and fire breaks on forested property, making landowners aware of both their responsibility and liability, include the provision of buffers between land use interface.	\$0.00	County & Municipal
<i>Geographic Beneficiaries & Jurisdictions:</i> Countywide and All Municipalities		Bullock Co. EMA, & County & All Municipal Fire Protection Authorities, & County & All Municipal Building/Planning Officials
Total	\$75,000.00	

Objective A-5: Limit impact of heat and drought on human health, property damage and agricultural losses.	Estimated Cost Over 5 Years	Funding Source Responsible Agency
a. Work with the County and municipalities to implement public awareness and education efforts about water conservation and water quality, including participation in Tallapoosa	\$0.00	State, County Municipal & Water Suppliers, Clean Water Partnership
<i>Geographic Beneficiaries & Jurisdictions:</i> Municipalities		Bullock Co. EMA & Water Suppliers
b. Work with Bullock County medical providers and others to develop emergency supplies and education program, including added generators to be available in drought and extreme heat conditions	\$15,000.00	County, Municipal & Medical Providers
<i>Geographic Beneficiaries & Jurisdictions:</i> Countywide and All Municipalities		Bullock Co. EMA, & County Health Dept. & Medical Providers
c. Work with Bullock County Farm Service Agency and County Extension Service to establish a drought information center.	\$0.00	Federal, State, County & Municipal
<i>Geographic Beneficiaries & Jurisdictions:</i> Countywide and All Municipalities		County
d. Develop a drought and heat indicator plan and warning system that includes a response strategy to include seniors and public health	\$0.00	State, County & Municipal
<i>Geographic Beneficiaries & Jurisdictions:</i> Countywide and All Municipalities		Bullock Co. EMA, Bullock County Farm Service Agency & County Extension Service
e. Develop print public service announcements.	\$2,500.00	State, County & Municipal
<i>Geographic Beneficiaries & Jurisdictions:</i> Countywide and All Municipalities		Bullock Co. EMA, Bullock County Farm Service Agency & County Extension Service
Total	\$17,500.00	

Objective A-6: Improve infrastructure facilities and remove at risk commercial and residential buildings to limit the impact of natural hazard events.	Estimated Cost Over 5 Years	Funding Source Responsible Agency
a. Identify roads that require elevation and paving, and that have a high potential for flooding and/or washing during flood events, to provide access and limit erosion and sedimentation.	\$0.00	State, County & Municipal
<i>Geographic Beneficiaries & Jurisdictions:</i> Municipalities		State, County & All Municipal Road Depts.
b. Continue bridge inspection and improvement efforts to prevent washing and/or failure during flood events.	\$2,000,000.00	Federal, State, County & Municipal
<i>Geographic Beneficiaries & Jurisdictions:</i> Countywide and All Municipalities		State, County & All Municipal Road Depts.
c. Maintain all county roads to allow constant access for emergency response, recovery and repair, and continuity of delivery services at eight roads per year.	\$2,000,000.00	Federal State & County
<i>Geographic Beneficiaries & Jurisdictions:</i> Countywide and All Municipalities		State & County Road Depts.
d. Utilize AEMA Flood Relocation Program and other appropriate FEMA and/or AEMA programs to remove at-risk commercial and residential structures from flood prone and other natural hazard areas, if necessary in the future; include relocation or storm water improvements in urban areas	\$500,000.00	Federal, State, County & Municipal
<i>Geographic Beneficiaries & Jurisdictions:</i> Countywide and All Municipalities		Bullock Co. EMA, & County & All Municipal Engineers
Total	\$4,500,000.00	

Objective A-7: Investigate, prepare, and provide for mitigation and emergency services and activities before, during, and after a disaster event.	Estimated Cost Over 5 Years	Funding Source Responsible Agency
a. Investigate need for emergency water supply during disaster events; added fire hydrants and extended/upgraded water service lines	\$2,500,000.00	State, County Municipal & Water Suppliers
<i>Geographic Beneficiaries & Jurisdictions:</i> Countywide and All Municipalities		Bullock Co. EMA & Water Suppliers
b. Limit non-critical water consumption during severe drought conditions.	\$0.00	County & Municipal & Water Suppliers
<i>Geographic Beneficiaries & Jurisdictions:</i> Countywide and All Municipalities		County, All Municipalities & Water Suppliers
c. Conduct inventory of the county's emergency response services to identify any existing needs or shortfalls in terms of personnel, equipment, or required resources.	\$0.00	County & Municipal
<i>Geographic Beneficiaries & Jurisdictions:</i> Countywide and All Municipalities		Bullock Co. EMA, & All Emergency Services Agencies in County
d. Investigate the need and feasibility of establishing a local reserve fund for repairing and/or incorporating hazard mitigation measures for public and private facilities and infrastructure that are at risk of being damaged or have been damaged by natural hazards.	\$0.00	County, Municipal & Private
<i>Geographic Beneficiaries & Jurisdictions:</i> Countywide and All Municipalities		County Commission & All Municipal Councils
e. Continue to research and provide hazard mitigation, emergency preparedness, and disaster recovery grant writing and/or administration services for available grant and loan programs (e.g., AFGP, FMA, HMGP, PDM, etc.)	\$0.00	County & Municipal
<i>Geographic Beneficiaries & Jurisdictions:</i> Countywide and All Municipalities		Bullock Co. EMA, County Commission & All Municipalities

f. Investigate the need for and acquire emergency electrical power generation equipment to provide back-up emergency electrical power to critical facilities.	\$150,000.00	Federal, State, County & Municipal Utilities
<i>Geographic Beneficiaries & Jurisdictions:</i> Countywide and All Municipalities		Bullock Co. EMA, County Commission & All Municipalities
Total	\$2,650,000.00	

Goal B: Provide an on-going support of the Bullock County Emergency Management efforts to make Bullock County less vulnerable to natural disasters.

Objective B-1: Ensure that the Bullock County Hazard Mitigation Plan remains current and is implemented.	Estimated Cost Over 5 Years	Funding Source Responsible Agency
a. Update the Bullock County Hazard Mitigation Plan every five years as required by regulations.	\$7,500.00	Federal, State, & County
<i>Geographic Beneficiaries & Jurisdictions:</i> Countywide and Municipalities		Bullock Co. EMA & LEPC
b. Communicate with the general public at least annually to provide a status report of the plan and any project or programs that are a result of the plan and its implementation.	\$12,500.00	County
<i>Geographic Beneficiaries & Jurisdictions:</i> Countywide and All Municipalities		Bullock Co. EMA
c. Municipalities should provide local human resources or other resources, such as materials and supplies, to assist in implementation of the Bullock County Hazard Mitigation Plan and its regular update.	\$25,000.00	Municipal
<i>Geographic Beneficiaries & Jurisdictions:</i> Countywide and All Municipalities		All Municipalities
Total	\$45,000.00	

Objective B-2: Improve coordination and communication between emergency response organizations and highly vulnerable entities.	Estimated Cost Over 5 Years	Funding Source Responsible Agency
a. Designate a volunteer emergency coordinator in each municipality and community to better facilitate communications with the Bullock County Emergency Management Agency.	\$25,000.00	County & Municipal
<i>Geographic Beneficiaries & Jurisdictions:</i> Countywide and Municipalities		County Commission & All Municipal Councils/Mayors
b. Provide for incident command training for the local emergency coordinators and other responders.	\$2,500.00	Federal, State, County & Municipal
<i>Geographic Beneficiaries & Jurisdictions:</i> Countywide and All Municipalities		Bullock Co. EMA
c. Develop an on-going cycle to provide regular updates to the Bullock County Commission, municipal councils, fire protection and law enforcement officials, utility boards, and other emergency responders.	\$7,500.00	County
<i>Geographic Beneficiaries & Jurisdictions:</i> Countywide and All Municipalities		Bullock Co. EMA
Total	\$35,000.00	

Objective B-3: Enhance the County’s and municipalities’ capability to conduct further hazard risk assessments, better demonstrate funding needs, and track mitigation activities throughout the County.	Estimated Cost Over 5 Years	Funding Source Responsible Agency
a. Continue to identify the County’s most at-risk critical facilities, and evaluate the potential mitigation techniques and activities for protecting each facility to the maximum extent possible.	\$0.00	County, Municipal & All Utilities
<i>Geographic Beneficiaries & Jurisdictions:</i> Countywide and All Municipalities		Bullock Co. EMA & LEPC, All County & Municipal Departments, & All Utilities
b. Incorporate (or continue) development of a Geographic Information System (GIS) to maintain current cadastral and spatial data for purposes of inventorying critical facilities and infrastructure, conducting more detailed hazard risk assessments, and for tracking permitting and land use patterns.		County
Work with Alabama Dept. of Revenue	\$150,000.00	State, SCADC, Bullock Co. EMA E-911, Tax Assessor, All County & Municipal Engineers & Building/Planning Officials, & All Utilities
<i>Geographic Beneficiaries & Jurisdictions:</i> Countywide and All Municipalities		
Total	\$150,000.00	

Goal C: Educate general population about natural hazards and hazard mitigation options.

Objective C-1: Establish and implement hazard mitigation public awareness program.	Estimated Cost Over 5 Years	Funding Source Responsible Agency
a. Cooperate and coordinate with various agencies and entities to assist with distribution of information and materials, including DHR, Bullock County Board of Education, churches, municipalities, etc.	\$2,500.00	County, Municipal & Private
<i>Geographic Beneficiaries & Jurisdictions:</i> Countywide and Municipalities		Bullock Co. EMA & the listed entities
b. Develop a portable information display of local fairs and public events to distribute materials.	\$5,500.00	County & Municipal
<i>Geographic Beneficiaries & Jurisdictions:</i> Countywide and All Municipalities		Bullock Co. EMA
c. Create and distribute information to schools and other organizations that list all emergency contact information of local responding agencies.	\$2,500.00	County, Municipal & Private
<i>Geographic Beneficiaries & Jurisdictions:</i> Countywide		Bullock Co. EMA & All Municipalities
Total	\$10,500.00	

Objective C-2: Establish and promote disaster prevention education programs, utilizing all forms of media (e.g., print, TV, internet websites - government and related non-governmental) to help distribute information and materials.	Estimated Cost Over 5 Years	Funding Source Responsible Agency
a. Investigate working with Bullock County Extension System to develop adult training/certification courses on land management to decrease property damage during natural disaster events.	\$20,000.00	USDA & County
<i>Geographic Beneficiaries & Jurisdictions:</i> Countywide and All Municipalities		Bullock Co. EMA
b. Develop broadcast public service announcements for airing on local television and radio stations; need access to Montgomery/network TV news, utilize cable channel 23 for increased public information.	\$15,000.00	County & Municipal
<i>Geographic Beneficiaries & Jurisdictions:</i> Countywide and All Municipalities		Bullock Co. EMA
c. Develop print public service announcements for publication in local newspaper and agency newsletters.	\$2,500.00	County, Municipal & Private
<i>Geographic Beneficiaries & Jurisdictions:</i> Countywide and All Municipalities		Bullock Co. EMA
d. Develop information website with links from Bullock County Commission and municipal websites.	\$5,000.00	County, Municipal & Private
<i>Geographic Beneficiaries & Jurisdictions:</i> Countywide and All Municipalities		Bullock Co. EMA
e. Incorporate hazard awareness and mitigation into the curricula of local schools.	\$7,000.00	State & County
<i>Geographic Beneficiaries & Jurisdictions:</i> Countywide and All Municipalities		Bullock Co. Board of Education
f. Develop tool kits for distribution to appropriate age levels for widespread continuous distribution.	\$6,500.00	Federal, State, County & Municipal

<i>Geographic Beneficiaries & Jurisdictions:</i> Countywide and All Municipalities		Bullock Co. EMA and Bullock Co. Board of Ed
Total	\$56,000.00	

Bullock County Hazard Mitigation Plan Five-Year Cost Summary

Mitigation Objective	FY 07-08	FY 08-09	FY 09-10	FY 10-11	FY 11-12
A-1. Establish full warning system	\$34,000.00	\$34,000.00	\$34,000.00	\$34,000.00	\$34,000.00
A-2. Ensure adequate protection shelters	\$44,000.00	\$43,500.00	\$43,500.00	\$43,500.00	\$43,500.00
A-3. Regulations to support hazard mitigation	\$36,600.00	\$36,600.00	\$36,600.00	\$36,600.00	\$36,600.00
A-4. Fire Protection measures	\$3,500.00	\$3,500.00	\$3,500.00	\$3,500.00	\$3,500.00
A-5. Limit impact of heat and drought	\$15,000.00	\$15,000.00	\$15,000.00	\$15,000.00	\$15,000.00
A-6. Improve infrastructure / Remove buildings	\$900,000.00	\$900,000.00	\$900,000.00	\$900,000.00	\$900,000.00
A-7. Emergency services	\$530,000.00	\$530,000.00	\$530,000.00	\$530,000.00	\$530,000.00
B-1. Implementation of Hazard Mitigation Plan	\$9,000.00	\$9,000.00	\$9,000.00	\$9,000.00	\$9,000.00
B-2. Coordination/ Communication among emergency agencies	\$7,000.00	\$7,000.00	\$7,000.00	\$7,000.00	\$7,000.00
B-3. Assessment Capability	\$30,000.00	\$30,000.00	\$30,000.00	\$30,000.00	\$30,000.00
C-1. Public awareness program	\$2,100.00	\$2,100.00	\$2,100.00	\$2,100.00	\$2,100.00
C-2. Disaster prevention education programs	\$10,200.00	\$10,200.00	\$10,200.00	\$10,200.00	\$10,200.00
Total	\$1,612,920	\$1,612,920	\$1,612,920	\$1,612,920	\$1,612,920
Grand Total					\$8,064,600

Bullock County Hazard Mitigation Plan Action Prioritization

In considering the appropriate precedence of mitigation activities to undertake, the Bullock County LEPC reviewed the hazard profiles and prioritization, and the hazard risk assessment and vulnerability analysis. Though no formal cost-benefit analyses were conducted for each of the proposed mitigation actions, the LEPC did consider a variety of factors such as social impact, technical feasibility, financial costs, administrative capabilities, possible political and legal effects, as well as other issues. It was determined by the LEPC that all of the proposed actions would benefit citizens of Bullock County and each of its municipalities. It was also decided that formal cost-benefit evaluations for specific actions should be completed when and if required (e.g., when applying for certain FEMA grant funds). Following this review and discussion, the following prioritization proposal was completed by the LEPC in order to assist the jurisdictions with the implementation of the Plan.

Mitigation Objective & Action	Hazard	Priority	Target Completion Date
<i>A-1. Establish full warning system</i>			
A-1-a. Installation of warning sirens.	Tornados, Hurricanes/Tropical Storms, Severe Storms	High	October 1, 2012
A-1-b. Designate a volunteer emergency coordinator in each community	All	High	July 1, 2009
A-1-c. Additional weather radios	All	Moderate	October 1, 2012
A-1-d. Investigate phone messaging system	All	High	January 1, 2009
<i>A-2. Ensure adequate protection shelters</i>			
A-2-a. Maintain & expand existing shelters; upgrade electrical	Tornados, Hurricanes/Tropical Storms, Severe Storms	High	Continuous
A-2-b. Designate and upgrade/retrofit existing public facilities to shelter capability	Tornados, Hurricanes/Tropical Storms, Severe Storms	Moderate	Continuous

A-2-c. Investigate construction of new shelter(s)/combine with senior center(s)	Tornados, Hurricanes/Tropical Storms, Severe Storms	Moderate	Continuous
A-2-d. Secure funds for private shelters	Tornados, Hurricanes/Tropical Storms, Severe Storms	High	Continuous
A-2-e. Work with builders to promote safe rooms	Tornados, Hurricanes/Tropical Storms, Severe Storms	Moderate	Continuous
A-2-f. Publicize shelters	All	High	Continuous
<i>A-3. Regulations to support hazard mitigation</i>			
A-3.a. Incorporate and enforce flood management provisions in all county and municipal regulations and ordinances	Flooding	Moderate	Continuous
A-3-b. Ensure future land use plans do not extend into floodplains	Flooding	Moderate	Continuous
A-3-c. Consider model growth and development permitting and construction in unincorporated areas	All	Moderate	October 1, 2012
A-3-d. Consider adopting and enforcing building codes. Hire add'l staff	All	Moderate	October 1, 2012
A-3-e. Bullock Co. EMA involvement in future development plans. Designated EMA staff	All	Moderate	Continuous
A-3-f. Acquisition of properties in floodplains	Flooding	Moderate	Continuous

<i>A-4. Fire protection measures</i>			
A-4-a. Developing and utilizing zoning ordinances in urban fringe areas	Wildfires	High	Continuous
A-4-b. Added training for Volunteer Fire Departments and education program on fire buffers and breaks. Add funding for volunteer Fire Departments.	Wildfires	Moderate	January 1, 2010
A-4.c. Support Alabama Forestry Commission education efforts, including fire buffers and breaks	Wildfires	Moderate	Continuous
<i>A-5. Limit impact of heat and drought</i>			
A-5-a. Implement water conservation and water quality education	Extreme Heat/Drought	Moderate	Continuous
A-5-b. Work with medical providers to develop emergency supplies and education program	Extreme Heat/Drought	High	October 1, 2009
A-5-c. Work with Bullock Co. Farm Agency and County Ext. Svc. To establish a drought information center	Extreme Heat/Drought	High	October 1, 2009
A-5-d. Develop a drought plan and warning system	Extreme Heat/Drought	High	October 1, 2009
A-5-e. Develop print PSAs	Extreme Heat/Drought	Moderate	Continuous

<i>A-6. Improve infrastructure</i>			
A-6-a. Identify roads that are at risk of flood damage	Flooding	Moderate	Continuous
A-6-b. Continue bridge inspections and improvements	Flooding	High	Continuous
A-6-c. Maintain all county roads for emergency services	All	High	Continuous
A-6-d. Utilize FEMA/AEMA Flood relocation and Buy-out program	All	Moderate	Continuous
<i>A-7. Emergency Services</i>			
A-7-a. Investigate need for emergency water supply during disasters; add fire hydrants and extend lines	Fires	High	Continuous
A-7-b. Limit non-critical water consumption during droughts	Extreme Heat/Drought	Moderate	Continuous
A-7-c. Inventory emergency response services and assess needs	All	High	October 1, 2009
A-7-d. Establish local reserve funds	All	High	October 1, 2009
A-7-e. Provide grant services	All	Moderate	Continuous
A-7-f. Assess need for and acquire emergency generators	All	High	Continuous
<i>B-1. Implementation of Hazard Mitigation Plan</i>			
B-1-a. Update Bullock Co. Haz. Mit. Plan every five years	All	Moderate	October 1, 2012
B-1-b. Provide annual			

public reports on the status of the Plan's implementations	All	Moderate	Continuous
B-1-c. Municipalities to provide assistance for implementing Plan	All	High	Continuous
<i>B-2. Coordination/Communication among emergency agencies</i>			
B-2-a. Designate a voluntary emergency coordinator in each community	All	High	July 1, 2009
B-2-b. Provide for incident command training	All	High	Continuous
<i>B-3. Assessment Capability</i>			
B-3-a. Continue identifying critical facilities and evaluate mitigation techniques for each	All	High	Continuous
B-3-b. Incorporate/develop a GIS	All	High	Continuous
<i>C-1. Public awareness program</i>			
C-1-a. Coordinate with other entities to distribute information	All	Moderate	Continuous
C-1-b. Develop information display	All	Moderate	October 1, 2009
C-1-c. Create and distribute information to schools and other groups	All	Moderate	Continuous
<i>C-2. Disaster prevention education programs</i>			
C-2-a. Develop land management course/training with County Ext. Sys.	All	Moderate	October 1, 2009
C-2-b. Develop			

broadcast PSAs, utilize Channel 23	All	Moderate	October 1, 2009
C-2-c. Develop print PSAs	All	Moderate	October 1, 2009
C-2-d. Bullock Co. EMA website	All	Moderate	October 1, 2009
C-2-e. Incorporate hazard mitigation into local schools	All	Moderate	October 1, 2009
C-2-f. Tool kits for schools and other special age groups	All	Low	October 1, 2009

Summary of Hazard Mitigation Strategy for Union Springs and Midway

With only two incorporated municipalities in Bullock County, plan goals, objectives and strategies have not been broken down by jurisdiction. The charts reflecting funding source and responsible agency may be used to confirm municipal or county responsibilities. In addition, the following are priorities in Midway and Union Springs.

Union Springs Priority Actions

- Install Warning Sirens
- Establish Volunteer Coordinator
- Additional Weather Radios
- Maintain and upgrade shelters
- Secure Funds for private shelters
- Work with builders to promote safe rooms
- Continue to enforce flood ordinances: Land new plans
- Added training for Fire Department
- Identify and upgrade streets, storm sewers in areas experiencing flash floods
- Increase fire hydrants and pipe sizes
- Access need for and secure funds for additional generators
- Provide assistance in implementing and updating plans
- Identify critical facilities and costs to replace work with county as LIS

Summary of Hazard Mitigation Strategy for Midway

Install warning sirens

Designate community coordinator

Additional weather radios

Maintain and upgrade shelters

Upgrade/Expand public shelter/communicate with Senior Center

Funds for private shelters

Work with builders for Safe Room

Establish and enforce flood ordinance

Consider land use plan area zoning, building permits

Added training for VFD

Identify and improve streets and storm drainage in areas of flash flooding

Add Fire Hydrants; increase pipe sizes for fire fighting

Acquire funds for additional generators

Assist county in implementing Hazmit Plans

Identify critical facilities and costs to replace

VI. PLAN MAINTENANCE AND REVIEW

The Bullock County Natural Hazard Mitigation Plan was developed with the guidance of the Bullock County Local Emergency Planning Committee so that the committee would be aware of the plan and its contents and, therefore, could ensure its ongoing implementation, review and amendment, as necessary. The Bullock County LEPC is a standing committee comprised of members representing each of the local governments located in Bullock County, along with both public and private representatives that have a vital stake in emergency management. The Bullock County LEPC will meet on a regular basis for other emergency matters. The continued review and update of the Bullock County Natural Hazard Mitigation Plan shall become an additional responsibility of the Bullock County LEPC.

The plan is developed on a five-year time frame. It is intended to be reviewed on an annual basis for any necessary amendments, and to undergo a major review and update every five years. In this way, Bullock County will have an ongoing mitigation plan and process.

The Bullock County EMA staff will continue to serve as the LEPC's facilitator responsible for holding regularly scheduled meetings, assigning specific tasks necessary to monitor and update the plan to Committee members, and serving as the Committee's liaison with those assigned implementation responsibilities. The facilitator will also serve as the Committee's liaison with participating municipalities and the County Commission. New committee members may be nominated by the EMA Director and then approved by the entire committee.

The LEPC shall meet at least once per year to review and update the plan, as necessary. Update will include at least:

- Each member or a designated alternate must attend at least one meeting a year.
- A list of completed and ongoing mitigation projects will be reviewed at each meeting.
- Previously implemented mitigation actions will be evaluated for effectiveness.
- There will be an update on the status of current mitigation projects.
- Changing land use patterns and new developments will be addressed.
- Any additions or changes in risk assessment and/or risk vulnerability will be identified.
- Any other concerns will be addressed, possible future mitigation plans discussed, and any new projects will be adopted by signed resolution.

The facilitator will schedule the meetings at a time and location convenient to all of the LEPC members. All meetings will be advertised in the local newspaper and open to the public for their comments and suggestions.

In the event that modifications to the plan are required, the LEPC will recommend, and/or approve all revisions and amendments to the Bullock County Natural Hazards Mitigation Plan. The LEPC will then submit all revisions, except for mitigation projects or activities not of a countywide nature, for adoption (via signed resolutions) by all of the jurisdictions. Any new projects (developed and/or proposed prior to the first five-year and between subsequent five-year

major updates), not of a countywide nature, will be added to the Bullock County Natural Hazards Mitigation Plan upon recommendation of the LEPC and adoption (via signed resolution) by the appropriate governing body where the proposed project is to be located. A copy of and/or access to any and all adopted plan revisions will be provided to all LEPC members, the County Commission, and each of the municipalities.

At the end of the five-year cycle of the Action Program, the Committee will conduct a major update to the plan that follows the Federal planning criteria in effect at the time of the update. The updated plan will be submitted to the AEMA and FEMA for approval.

Implementation of the plan will be the responsibility of a number of local governments and agencies. For this reason, two public workshops were held to inform citizens about the contents of the plan. For each mitigation action item, a responsible agency has been identified. Furthermore, the implementation of the action items was outlined by year for the first five years. The Bullock County Emergency Management Agency will coordinate implementation efforts with each of the local governments and with other agencies as necessary.

A critical part of maintaining an effective and relevant natural hazard mitigation plan is ongoing public review and comment. The LEPC is dedicated to direct involvement of its citizens in providing input on the plan throughout the five-year implementation cycle.

A hard copy of the plan will be available for viewing at all appropriate agencies throughout Bullock County, at minimum to include: the Bullock County Emergency Management Agency office, the Bullock County Clerk's office, the offices of the Clerks of each municipality, and County or municipal government websites, if available. After adoption, a public information notice in the local newspaper will inform the public that the plan may be viewed at these locations.

Public meetings will be held when significant modifications to the plan are required or when otherwise deemed necessary by the LEPC. The public will be able to express their ideas, concerns, and opinions at the meetings. At a minimum, two public hearings will be held during the drafting stage of the five-year plan update and to present the final plan to the public before adoption.

If deemed appropriate by the Coordinator of the Bullock County Emergency Management Agency and once adopted, this plan shall be considered as an Annex to the Bullock County Emergency Operations Plan, which is administered through the Bullock County Emergency Management Agency office. In addition to adopting the Bullock County Natural Hazards Mitigation Plan in its entirety, it is recommended that each adopting jurisdiction incorporate this plan or its elements into their own respective existing or future planning documents, if and when appropriate. Examples of such existing or future planning documents may include, but are not limited to: countywide or municipal comprehensive and/or land use plans and regulations/ordinances; countywide or municipal floodplain management plans; countywide or municipal capital improvement plans and budgets; and any other county or municipal disaster, readiness, and/or contingency plans. The process and/or procedure used by each jurisdiction in adopting and incorporating the Bullock County Natural Hazards Mitigation Plan or its elements

into their own planning documents shall be the same as that delineated in the Code of Alabama and any applicable local ordinances and regulations. The Bullock County EMA staff and/or the planning staff of the South Central Alabama Development Commission will provide technical assistance as needed.

APPENDIX A

Documentation of

Jurisdictional Adoption
and
Planning and Public Involvement Process

Bullock County Natural Hazard Mitigation Plan Public Involvement and Adoption Process

LEPC Meetings

The LEPC met on five occasions to review information and provide input into the planning process.

Public Meetings

The LEPC conducted two public meetings. The first meeting was for input and the second meeting was to receive comments on the Draft Plan. Reports were distributed to the municipalities, and the Plan will be submitted for final approval after comments are made by AEMA/FEMA. The LEPC and County Council adopted the plan, subject to revisions and comments from AEMA/FEMA.

RESOLUTION

Whereas, the Local Emergency Planning Committee, working with the Bullock County Emergency Agency and South Central Alabama Development Commission, has reviewed and approved a Plan for Natural Hazard Mitigation; and

Whereas, the Local Emergency Planning Committee has recommended that the Bullock County Commission adopt the Plan for Natural Hazard Mitigation, as revised per AEMA and FEMA requirements;

Now, Therefore It Be Resolved, that the Bullock County Commission hereby adopts the Bullock County Plan for Natural Hazard Mitigation, as submitted to the Commission for approval and authorizes submission to the Ala EMA and FEMA, as appropriate; and

This resolution is being executed in the name of the County, by the Chairman of the Commission for and on its behalf and that it be attested by the County Clerk and the seal of the County affixed thereto.

Passed, adopted, and approved this _____ day of _____, 2008.

ATTESTED:

County Clerk Chairman, County Commission

I, the undersigned qualified and acting clerk of Bullock County, Alabama, do hereby certify that the above and foregoing is a true copy of a resolution lawfully passed and adopted by the County Commission of the County named therein, at a regular meeting of such Commission held on the _____ day of _____, 2008, and that such resolution is of record in the Minute Book of the County.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the official seal of the County on this _____ day of _____, 2008.

SEAL

County Clerk

**A RESOLUTION TO ADOPT
THE BULLOCK COUNTY NATURAL HAZARD MITIGATION PLAN**

WHEREAS, the Bullock County Emergency Management Agency has engaged in extensive studies of the natural hazards facing Bullock County; and,

WHEREAS, the Bullock County Emergency Management Agency, with guidance from the Bullock County Local Emergency Planning Committee, has prepared a Natural Hazard Mitigation Plan; and,

WHEREAS, the City of Union Springs is formally represented by a delegation on the Bullock County Local Emergency Planning Committee; and,

WHEREAS, the goals of this plan are to reduce the loss of life, decrease repetitive property losses due to disasters, and provide leadership and coordination to encourage all levels of government and public and private organizations in Bullock County to undertake mitigation in minimizing potential disasters and to employ mitigation in the recovery following disasters; and,

WHEREAS, the strategies of this plan are to identify and characterize hazards, assess risk, prioritize and implement mitigation measures; and,

WHEREAS, the adoption of the Bullock County Natural Hazard Mitigation Plan would be in the best interest and protection of the Citizens of the City of Union Springs; and,

NOW THEREFORE BE IT RESOLVED by The City Council of the City of Union Springs, Alabama that the document entitled the Bullock County Natural Hazard Mitigation Plan and all official maps pertaining thereto are hereby adopted this ____ day of _____, 2008.

ADOPTED and APPROVED by the City Council of City of Union Springs, Alabama on the _____ of _____, 2008.

Deliver to and approved by the Mayor on this _____ day of _____ 2008.

Attest:

City Clerk

Date

**A RESOLUTION TO ADOPT
THE BULLOCK COUNTY NATURAL HAZARD MITIGATION PLAN**

WHEREAS, the Bullock County Emergency Management Agency has engaged in extensive studies of the natural hazards facing Bullock County; and,

WHEREAS, the Bullock County Emergency Management Agency, with guidance from the Bullock County Local Emergency Planning Committee, has prepared a Natural Hazard Mitigation Plan; and,

WHEREAS, the City of Midway is formally represented by a delegation on the Bullock County Local Emergency Planning Committee; and,

WHEREAS, the goals of this plan are to reduce the loss of life, decrease repetitive property losses due to disasters, and provide leadership and coordination to encourage all levels of government and public and private organizations in Bullock County to undertake mitigation in minimizing potential disasters and to employ mitigation in the recovery following disasters; and,

WHEREAS, the strategies of this plan are to identify and characterize hazards, assess risk, prioritize and implement mitigation measures; and,

WHEREAS, the adoption of the Bullock County Natural Hazard Mitigation Plan would be in the best interest and protection of the Citizens of the Town of Midway; and,

NOW THEREFORE BE IT RESOLVED by The City Council of the Town of Midway, Alabama that the document entitled the Bullock County Natural Hazard Mitigation Plan and all official maps pertaining thereto are hereby adopted this ____ day of _____, 2008.

ADOPTED and APPROVED by the City Council of Town of Midway, Alabama on the _____ of _____, 2008.

Deliver to and approved by the Mayor on this _____ day of _____ 2008.

Attest:

City Clerk

Date

APPENDIX B

Supplementary Information

Storm Events

Major storm event data was obtained from the National Climatic Data Center (NCDC) – a subordinate unit of the National Oceanic & Atmospheric Administration (which is itself an agency under the U.S. Department of Commerce). Additional information for tornados was obtained from the Birmingham, Alabama office of the National Weather Service (NWS) – another subordinate unit of NOAA.

Sources:

- A. Originators: NCDC, NOAA, DOC
 Accessed: March 19 and May 25, 2004
 Title: Storm Events for Alabama
 Website: <http://www4.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwEvent~Storms>.

- B. Originators: Birmingham Office, NWS, NOAA, DOC
 Accessed: May 14, 2004
 Title: Alabama Tornado Database
 Publication Date: April 14, 2003
 Website: <http://www.srh.noaa.gov/bmx/tornadoes/index.html>.