HAZARD MITIGATION PLAN

FOR

MADISON COUNTY

Including the Cities of
Jackson, Medon, and Three Way

2004

Prepared by
Jackson-Madison County Emergency Management Agency

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I. Planning Process

The planning process utilized in Madison County was based on the Section 322 local planning requirements of the Disaster Mitigation Act of 2000 and guidance documents developed by FEMA and the Tennessee Emergency Management Agency (TEMA). The planning process included the following steps, which will be described in greater detail throughout the plan:

1. Establish a Core Planning Team
2. Conduct the Risk Assessment
3. Develop Capabilities Assessment
4. Create a Mitigation Plan
5. Adopt and Implement the Plan

This process was initiated by the Jackson-Madison County Emergency Management Agency, and supported by representatives from the different municipalities and agencies.

Madison County government has representatives from the Madison County Building Dept., the Madison County Sheriffs Dept., the Jackson-Madison County Health Dept., the Madison County Mayor's Office and the Jackson-Madison County Emergency Management Agency involved in the planning process. Other county agencies were invited to participate but declined. (Pg 2)

The City of Jackson has representatives from the fire department, building department, police department, planning department, mayor's office and engineering department. These departments were chosen to represent the City of Jackson's involvement in the plan. (Pgs 2 & 52)

The City of Medon was contacted and requested to provide a representative on the HMP Committee. Contact by telephone with the City of Medon mayor was held regarding the Mitigation Plan approximately six times, with one face to face meeting. The City of Medon elected to review and adopt the plan developed by the committee. (Pgs 2 & 53)

The City of Three Way was also contacted and requested to provide a representative on the HMP Committee. Contact by telephone with the City of Three Way mayor was held regarding the Mitigation Plan approximately four times, with one face-to-face meeting. The City of Three Way also elected to review and adopt the plan developed by the committee. (Pgs 2 & 54)

A. Development

The planning process started with the Emergency Management Director's representative reviewing the current status of the mitigation program, requesting guidance from TEMA and utilizing the FEMA guidance booklet on Hazard Identification and Risk Assessment. The mitigation committee held their first meeting and assigned its members the tasks of completing the process of determining the main risks facing the community. Next, public meetings were held at select locations in the county in order to obtain county wide representation. Notices of the meetings were placed in the local newspaper requesting public attendance and input; either at the meeting or to the Emergency

Management Office. (Pg. 59 – 69) The plan also adopts and incorporates policies from the BEOP, TEMP, FRP and local departmental and municipality SOP's

B. Hazard Mitigation Planning Committee

Table 1 lists the persons who were involved in the decision and evaluation processes of the Hazard Mitigation Plan. For a more detailed list of those who attended the Hazard Mitigation Planning meetings and the meeting minutes see (Pgs 59-69).

Name	Organization
Britt, Sammy	City of Jackson Police Department
Farmer, Charles	Mayor of Jackson
Ferrell, Jim	Jackson Energy Authority
George, Paul	City of Jackson Planning Department
Gist, Jerry	Mayor of Madison County
Gregg, Barry	Madison County Sheriffs Department
Hill, James	Mayor of Three Way
Johnson, Kim	Jackson-Madison County Health Department
MaHolmes, James	City of Jackson Building Department
Maroney, James	Mayor of Medon
Meggs, Dale	Jackson-Madison County EMA
Meggs, Tracy	City of Jackson Engineering Department
Morgan, Mike	City of Jackson Fire Department
Porter, Ryan	Jackson Energy Authority
Ross, Sherry	Madison Co. Building Department
Sklar, Ami	Jackson-Madison County Health Department
Spurlin, Steve	U.S. Environmental Protection Agency

C. Public Involvement

Throughout the process, there were several opportunities for general public and area business input. Four public meetings were held during the different stages of the process: the first meeting, January 14, 2003 was held at the South Side High School to announce the kick-off of the project and describe the planning process; the second, January 15, 2003 at the Garden Plaza Hotel was to present the initial findings of the draft risk assessment; and the third, on January 21, 2003 at the North Side High School, and the fourth, on January 30, 2003 at the West Middle School were to discuss, evaluate, and prioritize possible actions to be implemented in order to mitigate each potential disaster. Legal notices in the local newspaper, The Jackson Sun, advertised each of the meetings. All comments that have been received to date from the public have been reviewed and incorporated into the final version of the plan as appropriate. Meetings were held to determine what projects could be a joint effort. Questionnaires were handed out at each meeting and made available to the public upon request. These were summarized by the HMPG Team. (Meeting info provided by HMPG team members and copies of emails are on file, but not published due to confidentiality due to members)

Both Lowe's and Home Depot partnered with the mitigation committee and held public events, during the fall and spring of '02 & '03, to demonstrate simple ways people can make their home more disaster residence. These events were past though the West Tennessee Emergency Management Association (WTEMA) and advertised on regional media to insure that the word got out throughout all of west Tennessee. WTEMA quarterly meeting included mitigation topics in order that surrounding counties could coordinate their mitigation activities.

II. Planning Area Description

Madison County's Hazard Mitigation Plan has been developed in accordance with the requirements of the Federal Emergency Management Agency's (FEMA) Section 322 local hazard mitigation planning regulations, as well as, additional guidance documents provided by FEMA and the Tennessee Emergency Management Agency (TEMA). The goal of this plan is to assist Madison County in reducing the loss of human life and economic costs of natural and man made disasters. The intention of this plan is to provide a comprehensive risk assessment, vulnerability analysis, mitigation strategies, and an implementation schedule for the county and each of the municipalities. At the request of the Madison County Hazard Mitigation Committee, this plan analyses both natural and man-made hazards including acts of terrorism. Potential mitigation projects are currently being discussed and a cost benefit analysis are being conducted, these projects will be examined further during follow-up meeting

The following plan has been developed to assist in the reduction or elimination of losses of life and property in the community as the result of natural and man-made hazards. Madison County has taken the lead in the planning process. All of the incorporated municipalities were given the choice of adopting the county's plan or writing their own and including it as an appendix to this plan before submitting

it to the State for approval. The **City of Jackson**, the **City of Medon**, and the **City of Three Way** chose to adopt the plan. (Pg. 51 - 53)

A. Madison County

Madison County is located in the central portion of western Tennessee. The county is bordered at the north by Gibson County, the northeast by Carroll County, the east by Henderson County, the southeast by Chester County, the south by Hardeman County, the west by Haywood County, and the northwest by Crocket County. The total land area in Madison County is approximately 561 square miles. Madison County is located approximately 50 miles northeast of Memphis and 90 miles southwest of Nashville. The population of Madison County based on the 2000 Census was 91,837, showing an increase of 13,855 or 15% over the last decade, due to the county central location in western Tennessee and the many merging highway junctions that facilitate the needs of industry. These highways consists of U.S. Highways 70, 45, and 412, state highways 18, 198 and 223, and Interstate Highway #40. (Pg. 70 – 74)

Madison County contains three incorporated municipalities: the **City of Jackson** (which the county seat), the **City of Medon** and the **City of Three Way,** which are considered bedroom communities for the greater Jackson area. Madison County also contains the following unincorporated communities: Adair, Beech Bluff, Carroll, Denmark, East Union, Five Points, Gilmore, Hatchie, Huntersville, Madison Hall, Mercer, Neely, Oak Field, Oak Grove, Parkburg, Pinson, Providence, Roberts, Rose Hill, Springbrook, Spring Creek, Sturdivant Crossing, Westover, Windy City, and Youngs Crossings.

Madison County is served by multiple transportation facilitators: by railway the CSX Transportation Corp., the West Tennessee Railroad., and the Norfolk Southern Railway; by highway: Madison County has in excess of one hundred motor freight companies, inter city bus services and an air freight and a passenger company that operates from the county's McKellar-Sipes Regional Airport.

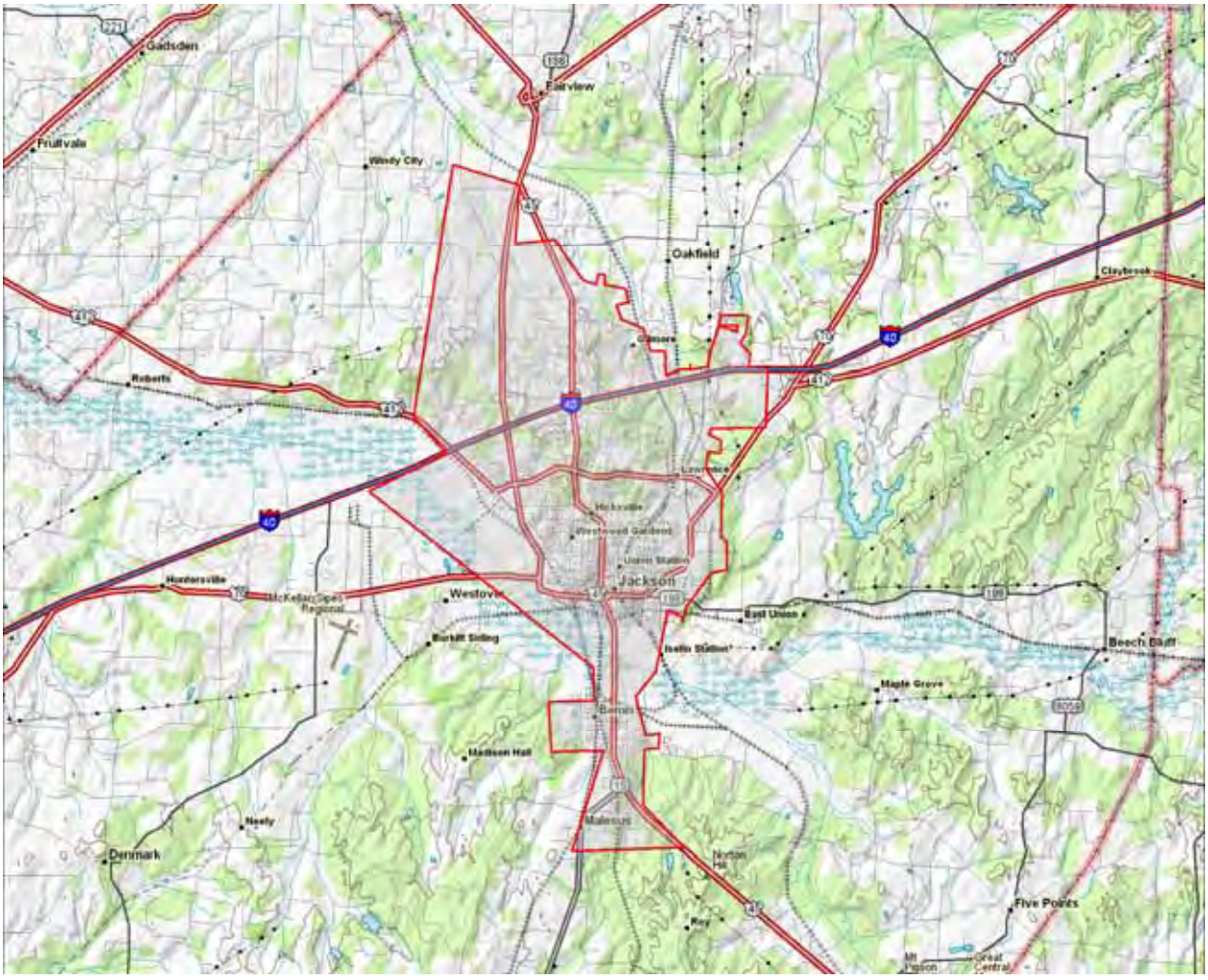
There are an estimated 40,856 structures in the county. Approximately 94% of these buildings are considered residential uses. The county has other amenities including two hospitals containing 864 beds, 33 health clinics, 11 nursing homes, 33 schools and colleges, 80 day care facilities, 20 fire stations manned by 315 firefighter, two primary law enforcement agencies composed of 311 law enforcement personnel, an emergency communications facility, and an office of Emergency Management.

The climate in Madison County consists of an average annual temperature of 59.4 degrees, with an average low of 28 degrees and an average high 90.4 degrees. The rainfall average is 53.96 inches, and average snowfall is 5.51 inches. At an average elevation of 433 ft. above sea level the prevailing winds are from the South-Southwest.

Map of Madison County

B. City of Jackson

The City of is the largest city in Madison County. Jackson is located in the center of West Tennessee on I-40, 85 miles east of Memphis and 130 miles west of Nashville. The population in the City of Jackson is 59,643. It provides the major economic base for Madison County due to its large industrial force. Jackson has several communication services: by newspapers; The Jackson Sun, Metro Forum, and The City; by television; WBBJ Channel 7 (ABC Affiliate), WLJT Channel 11 (PBS), WJTE Channel 19 (PAX), and by radio; three local AM station, 10 local FM stations and a National Public Radio Booster. The City of Jackson also houses a local cable company (Charter Communication) and two telephone companies Aeneas Internet and Telephone and BellSouth. Jackson is the home of Jackson Energy Authority which is a municipal utility providing electric, natural gas, water and water waste services for Madison County as well as Jackson. The city has two law enforcement agencies which are the Jackson Police Department and the Madison County Sheriff's Department. As for transportation, the City of Jackson currently has two bus lines, the Greyhound Bus Lines, which transports passengers to various cities and state and the Jackson Transit Authority which transport passengers within the city limits of the City of Jackson.

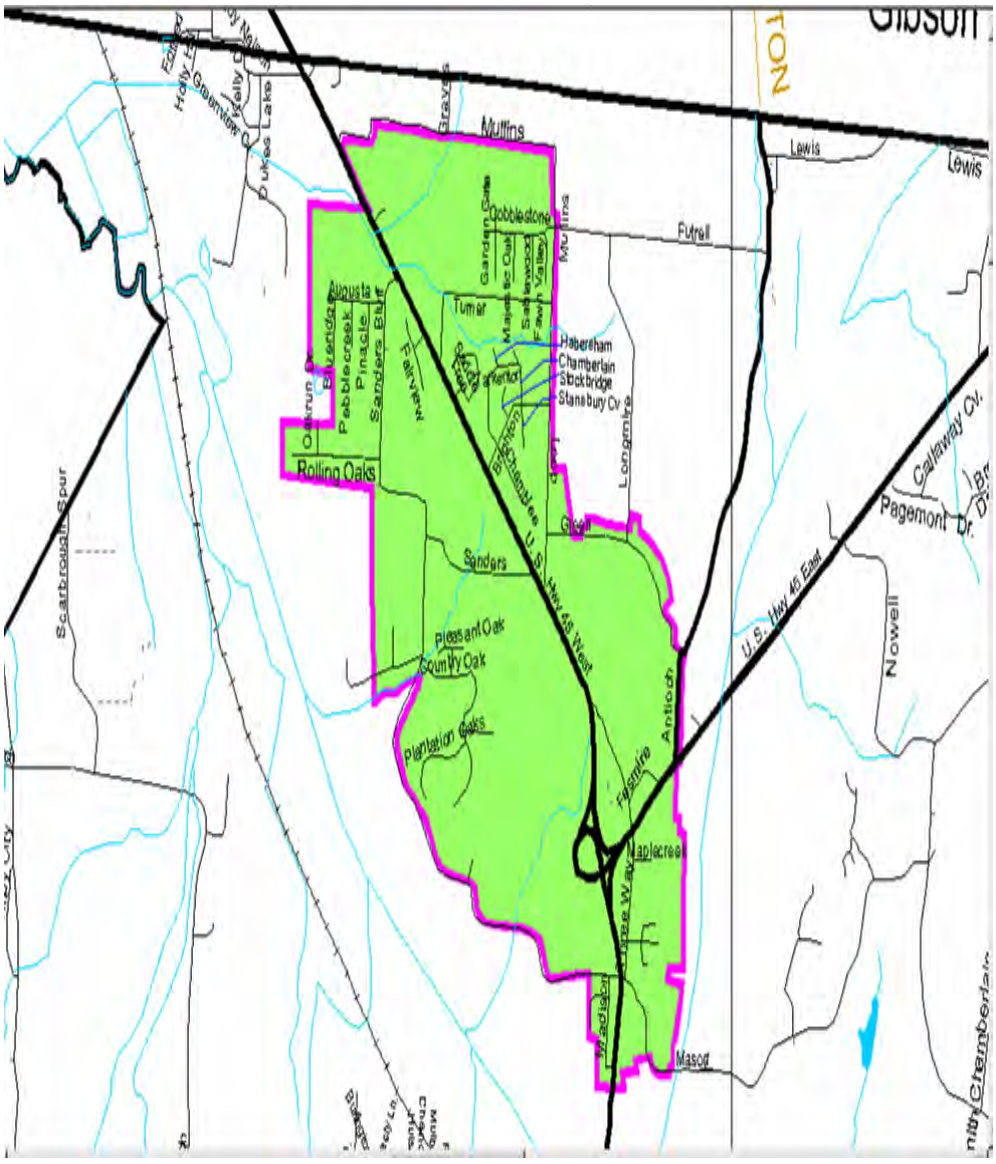


City of Medon

The City of Medon is located about eight miles south of Jackson. Now with only a population of 269, Medon was once the largest city in Madison County. Medon is now a small quiet residential community that provides a stable and tranquil environment for its citizens.

D. City of Three Way

The City of Three Way, formerly known as Fairview is located in north Madison County near the Gibson County Line. It became incorporated in 1998 and contains a population of 1375. It contains approximately 3.9 square miles of primarily residential property.



Hereafter the term Madison County refers to the County of Madison in Tennessee and all its municipalities and communities unless otherwise noted.

III. Risk Assessment

The risks assessment is the primary tool used in the process of measuring the potential loss of life, personal injury, economic impact, and property damage resulting from natural or technological hazards. This information also serves as the cornerstone for the development of the mitigation plan and strategies to help reduce risks from future hazard events. The results of this risk assessment assisted Madison County in identifying and understanding their risks from natural and technological hazards. This risks assessment followed the methodology described in the FEMA publication 386-2 "Understanding Your Risks – Identifying Hazards and Estimating Losses" and was based on a four step process:

1. Identify Potential Hazards
2. Profile and Evaluate Potential Hazard Events
3. Inventory Available Assets
4. Estimate Losses

Using FEMA and TEMA guidance, as well as the Section 322 regulations for developing local hazard mitigation plans the county has developed a risks assessment that would:

a. Identify the hazards to which the county are susceptible.
b. Identify the impact of these hazards on physical, social, and economical assets. Identify the areas within the county that is most vulnerable to these hazards.
c. Identify the potential costs of damages or costs avoided through future mitigation projects

A. Hazard Identification

The first step in the risks assessment process was to identify each of the hazards that can occur within Madison County. The hazard identification process began with a review of previous hazard events based on historical data provided by the Tennessee Emergency management Agency, Jackson-Madison County Emergency Management Records, and the Madison County Hazards Mitigation Committee. The Hazard Mitigation Committee also conducted a review of existing resources, plans, and reports provided by FEMA, TEMA, Madison County, and other sources to understand the nature and extent of natural and technological disasters. The results of this risks assessment assisted in identifying and understanding the risks from natural and technological hazards. The findings from these steps were utilized to determine the priority of hazards for Madison County, which will become the focus of the mitigation strategies developed in the remainder of the plan. Due to similarity of topography within Madison County all potential hazards present equal vulnerability to all its municipalities.

1. Tornadoes

A tornado is a violently column of air extending from a thunderstorm to the ground. The most violent tornadoes are capable of tremendous destruction with wind speeds of 250 mph or more. Damage paths can be in excess of 1 mile wide and 50 miles long. Tornadoes are among the most unpredictable of weather phenomena. Tornadoes can occur in any state in the U.S. but are more frequent in the Midwest, Southeast, and Southwest.

The nature of tornadoes is they strike at random. While it is known that some areas of the country experience tornadoes more than others, predicting exactly what parts of Madison County have greater chance of being struck by a tornadoes is difficult. The best predictor of future tornadoes is the occurrence of previous tornadoes. According to records there have been several recorded tornadoes events in Madison County. (Pg 24)

An F1 tornado is considered a moderate tornado with wind speed ranging from 73 to 112 mph and can cause damages such as moving cars off roads and mobile car off roads and mobile homes off of their foundations. An F2 tornado is a significant is significant tornado with wind speeds from 113 to 157 mph a may result in considerable damages such as torn-off roofs and tornadoes and uprooted trees.

An F3, F4, and F5 tornadoes will bring about more destruction. An F3 tornado has wind speeds ranging from 158 to 206 mph. Destruction can range from overturned trains, houses lifted off their foundations, and heavy cars lifted and thrown. F4 tornadoes have wind speed capacity of 207 to 260 mph, with potential damage such as: Well constructed homes leveled; structures with weak foundations blown off some distance; cars thrown and disintegrated; large missiles generated; trees in forest uprooted and carried some distance away. An F5 tornado will carry wind speeds of 270 to 316 mph and can lead to what is called incredible damage Strong frame houses lifted off foundations and carried considerable distance to disintegrate; automobile-sized missiles fly through the air in excess of 300 ft (100 m); trees debarked; incredible phenomena will occur.

For planning purposes it is less important to map tornado risk that it is to identify it. This is because it is so difficult to predict the path of future tornadoes. The Fujita scale provides us with an idea of the strength and extent of damages of tornadoes that can occur in Madison County.

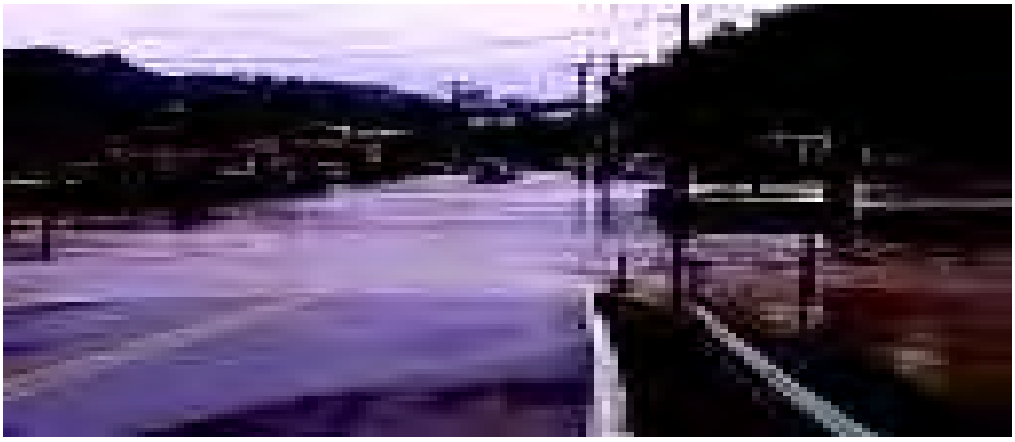
2. Severe Thunderstorm

The National Weather Services defines a severe thunderstorm as a storm with hail equal to or greater than ¾" in diameter or convective wind gusts equal or greater than 58 mph. Lightning and general thunderstorm wind gusts pose a threat to life and/or property. Severe thunderstorms also have the potential of producing a tornado with little or no advanced tornado warning. Based on historical evidence, it is assumed that all of Madison County is equally at risk of severe thunderstorm events.

Madison County has experienced structural damage due to thunderstorms such as flooding, roadways blocked by fallen trees and downed power lines. Thunderstorms pose a high risk because they happen more frequently. (Pg 32)

3. Flooding

An abundance of rainfall often results in flooding hazards, whether it is a flash flood, urban flood or riverine flood. Madison County's flooding problems are normally infrequent and most commonly involve roadways and low lying areas. Due to planning and zoning regulations no building is allowed in any flood prone areas without first building the area up to allow at least one foot freeboard according to the 100 year flood maps. Most roadways that flood are usually clear within a few hours. Although there are occasional washouts from time to time, we have experienced two deaths in recent history. Flooding has also caused in excess of twenty one million dollars in damages to properties in Madison County in the last decade. (Pg 26)



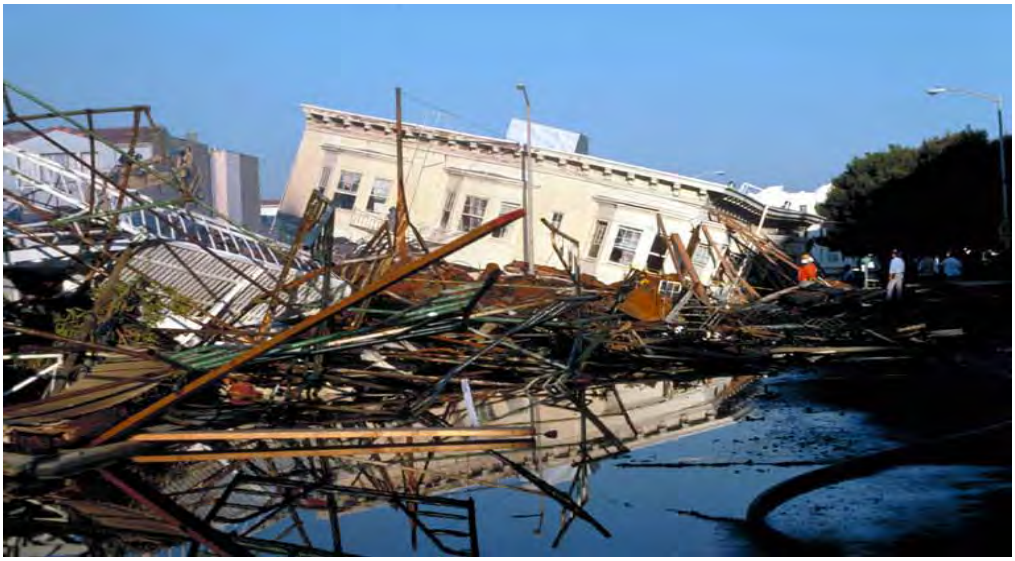
4. Winter Storm

A winter storm includes ice storms and blizzards as well as extreme cold. Even though severe winter storms are not frequent in this region, we can anticipate a severe winter storm approximately every 5 to 6 years. In the past, heavy ice accumulations have occurred when we are not generally prepared for it. As well as, severely limiting general transportation abilities, these storms usually include wide spread power outages resulting from downed power lines. In many areas of the United States, a few inches of snowfall will have very little effect. In our area it can pose a serious threat. Most people are unprepared for such occurrences and may inadvertently place themselves in peril. (Pg 33)

5. Earthquake

An earthquake is a sudden motion or trembling that is caused by a release of strain accumulation within or along the edge of Earth's tectonic plates. The severity of these effects is dependent on the amount of energy released from the fault or epicenter. The effects of an earthquake can be felt far beyond the site of its occurrence. Earthquakes usually occur without warning and after just a few seconds can cause massive damage and extensive casualties. Common effects of earthquakes are ground motion and shaking, surface fault ruptures, and ground failure. Earthquakes possess the potential to be the single most devastating hazard threatening the Jackson-Madison County area. Studies have shown that the Jackson-Madison County area could experience damage from earthquakes as frequently as every 55 to 85 years.

Since Madison County is in such close proximity of the New Madrid Seismic zone we anticipate some major structural damage in both residents and bridges, depending on the epicenter (location, magnitude, duration, etc).



HAZUS EVALUATION

Since Madison County is in such close proximity of the New Madrid Seismic zone we anticipate some major structural damage in both residents and bridges, depending on the epicenter (location, magnitude, duration, etc).

In order to obtain additional information regarding the impact an earthquake would have on Madison County, a HAZUS simulation was required. This simulation was based on an earthquake with a magnitude of seven impacting the county. The HAZUS simulation employed was based upon the 2000 census data; therefore most references will be given in percentages to more accurately depict actual impact. The following information is derived from the HAZUS data.

1. The geographical size of the region is 558 square miles and contains 21 census tracts. Based on an estimated 38,205 households in the region with a total population of 91,837 (2000 census).
2. There are an estimated 32,442 buildings with a total replacement value (excluding contents) of 6.2 million dollars
3. The replacement value of the transportation and utilities is estimated to be approximately 2.5 million dollars respectively.
4. From a total bridge count of 120, 11 of which will suffer moderate damage and 40 will have complete damage.
5. The county has three railway facilities, of which, all would suffer moderate to complete damage.

6. Of the county's two bus facilities, one could expect complete damage, giving the county only half the normally available bus transportation.
7. On day one after the earthquake 94.40%% of the households in the county would be without electricity, after one week this number would be reduced to 58.40%, and after one month it would be reduced to 20.30%. It would require ninety days to restore the electrical grid back to normal status.
8. Potable water available to households within the county would be only 8.1% on the first day after the earthquake, 13% after one week, and 100% after a one-month period. After ninety days only all of the households in the county would have potable water.
9. HAZUS also estimates that 2.1% of the county's area or about 20 sq. miles would be consumed by fires resulting from the earthquake and lack of available water for extinguishing those fires.
10. As a result of the earthquake HAZUS estimates there would be an estimated 1.6 million tons of debris generated. Thirty nine percent of the debris would be from brick and wood structures, the remaining sixty one percent from reinforced concrete and steel structures. If this tonnage were converted into truck loads containing an estimated twenty five tons per load, it would require 67,000 truckloads to remove the debris.
11. In the aftermath of the earthquake scenario, an estimated 2.4% of the populace would require temporary sheltering.

The HAZUS causality estimation is presented in the following table. This estimation is based upon the time of day the earthquake occurs and using a population based on 91,837.

Highway Bridge Damage

July 15, 2004

	# of Bridges	Average for Damage State				
		None	Slight	Moderate	Extensive	Complete
Tennessee						
Madison	120	0.29	0.10	0.09	0.18	0.34
Total State	120	0.29	0.10	0.09	0.18	0.34
Study Region Average	120	0.29	0.10	0.09	0.18	0.34

Electrical Power System Performance

July 15, 2004

	Total Households	# of households without power									
		At day 1		At day 3		At day 7		At day 30		At day 90	
		Count	%	Count	%	Count	%	Count	%	Count	%
Tennessee											
Madison	35,552	33,554	94.40	29,417	82.70	20,749	58.40	7,200	20.30	36	0.10
Total State	35,552	33,554	94.40	29,417	82.70	20,749	58.40	7,200	20.30	36	0.10
Study Region	35,552	33,554	94.40	29,417	82.70	20,749	58.40	7,200	20.30	36	0.10

Potable Water System Performance

July 15, 2004

	Total Households	# of households without water									
		At day 1		At day 3		At day 7		At day 30		At day 90	
		Count	%	Count	%	Count	%	Count	%	Count	%
Tennessee											
Madison	35,552	32,658	91.90	32,183	90.50	30,913	87.00	0	0.00	0	0.00
Total State	35,552	32,658	91.90	32,183	90.50	30,913	87.00	0	0.00	0	0.00
Study Region	35,552	32,658	91.90	32,183	90.50	30,913	87.00	0	0.00	0	0.00

Transportation System Dollar Exposure

July 16, 2004

All values are in thousands of dollars

	Highway	Railway	Light Rail	Bus Facility	Ports	Ferries	Airport	Runway	Total
Tennessee									
Madison									
Segments	1,090,419	59,597	0						1,150,016
Bridges	123,671	0	0						123,671
Tunnels	0	0	0						0
Facilities		0	0	1,918	0	0	9,592	82,051	11,510
Total County	1,214,089	59,597	0	1,918	0	0	9,592	82,051	1,367,248
Total State	1,214,089	59,597	0	1,918	0	0	9,592	82,051	1,367,248
Total Study Region	1,214,089	59,597	0	1,918	0	0	9,592	82,051	1,367,248

Building Damage by Count by General Occupancy

July 15, 2004

	# of Buildings					
	None	Slight	Moderate	Extensive	Complete	Total
Tennessee						
Madison						
Agriculture	0	0	0	0	1	1
Commercial	4	14	70	120	249	456
Education	0	0	1	2	4	6
Government	0	0	1	2	6	9
Industrial	0	1	7	16	44	68
Religion	0	2	6	7	13	28
Other Residential	70	352	1,089	1,371	1,455	4,337
Single Family	1,152	4,979	10,868	6,843	3,695	27,537
Total State	1,226	5,349	12,041	8,360	5,466	32,442
Studyregion	1,226	5,349	12,041	8,360	5,466	32,442

Shelter Summary Report

July 15, 2004

	# of Displaced Households	# of People Needing Short Term Shelter
Tennessee		
Madison	7,493	2,212
Total State	7,493	2,212
Study Region Total	7,493	2,212

1. The HAZUS estimated building related losses included two categories, actual building loss and business interruption loss. Total losses were estimated at $13.7 million. Twenty seven percent of this loss was due to business interruption. The largest loss was from the residential sector, reaching 55% of the total loss.

2. HAZUS also estimates the long-term economic impact to the region for fifteen years after the earthquake. The following table indicates the projected losses in percentage over the fifteen-year period. (Pgs 99 – 117)

Direct Economic Losses For Buildings

July 15, 2004

All values are in thousands of dollars

	Capital Stock Losses					Income Losses				
	Cost Structural Damage	Cost Non-struct. Damage	Cost Contents Damage	Inventory Loss	Loss Ratio %	Relocation Loss	Capital Related Loss	Wages Losses	Rental Income Loss	Total Loss
Tennessee										
Madison	528,491	2,087,141	711,728	26,605	42.01	10,262	103,227	139,845	150,036	3,757,336
Total State	528,491	2,087,141	711,728	26,605	42.01	10,262	103,227	139,845	150,036	3,757,336
Study Region Total	528,491	2,087,141	711,728	26,605	42.01	10,262	103,227	139,845	150,036	3,757,336

Debris Summary Report

July 15, 2004

All values are in thousands of tons.

	Brick, Wood & Others	Concrete & Steel	Total
Tennessee			
Madison	695	867	1,562
Total State	695	867	1,562
Study Region Total	695	867	1,562

Building Stock Exposure By General Occupancy

June 15, 2004

All values are in thousands of dollars

	Residential	Commercial	Industrial	Agriculture	Religion	Government	Education	Total
Tennessee								
Madison	4,941,782	903,393	229,263	6,413	70,659	11,739	63,561	6,226,810
Total State	4,941,782	903,393	229,263	6,413	70,659	11,739	63,561	6,226,810
Total Study Region	4,941,782	903,393	229,263	6,413	70,659	11,739	63,561	6,226,810

6. Urban and Wildfires

Fires are always a threat, from uncontrolled grassland fires to raging city building fires that can expand from building to building. Most urban fires are extinguished by the community fire department and seldom result in the requirement for additional resources from neighboring communities; but wildfires can present a different kind of problem. Most wildfires occur outside a municipality, in rural areas, where fire suppression is limited to volunteers with minimum equipment available at their disposal. The State of Tennessee Forestry Service normally provides aid in such cases with equipment such as bulldozers and specially trained firefighters. Although an infrequent occurrence, Madison County will usually experience an urban wildfire, effecting approximately two hundred people, at least once every fifteen years.

a. Urban Fires

An urban fire is any instance of uncontrolled burning which results in major structural damage to residential, commercial, industrial, institutional, or other properties in developed areas. Municipalities with significant development in either a downtown area or an industrial park are prime targets for this type of occurrence. For he purposes of this risk assessment urban fire hazards will be considered low for the incorporated municipalities of the county

b. Wildfires

A wildfire is an uncontrolled fire spreading through vegetative fuels, exposing and possibly consuming structures. They 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.

Wildfire maps do not show the extent or range of where a wildfire will occur because they are dependent on the amount of fuel available, weather conditions, and wind speed and direction. As there is no historical record of wildfires in Madison County, this assessment does not map previous locations of wildfires as a determinant for future wildfires events. Based on available data at the state level it is assumed that the entire county is at moderate risk from wildfires. (Pg 35)

7. Technological Hazards

The term technological hazard refers to the origins of incidents that can arise from human activities such as the manufacture, transportation, storage, and use of hazardous materials. For the purposes of this risk assessment it is assumed that technological emergencies are accidental and that their consequences are unintended. Hazardous materials incidents typically take two forms, fixed facility incidents and transportation incidents. The major difference between the two is that it is reasonably possible to identify and prepare for a fixed site incident, because laws require those facilities to notify state and local authorities about what is being used or produced there. Transportation incidents are substantially harder to prepare for however, because it is difficult to determine what material(s) could be involved until the accident actually happens.

In order to profile the technological hazards in Madison County, a program called CAMEO was accessed. This program allows information to be compiled on the locations of facilities that store hazardous materials. In addition a facility information sheet has been put together for each facility. These sheets provide information for responders on such things as: where to set up roadblocks, chemicals present at the facility, water sources and names and contact numbers for each facility.

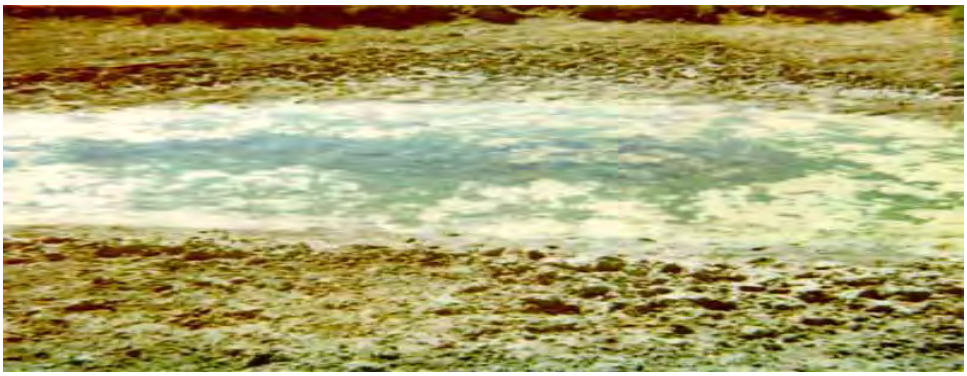
8. Terrorism

The term terrorism refers to intentional criminal and malicious acts. For the purposes of this risk assessment terrorism refers to the use of Weapons of Mass Destruction (WMD), including, biological, chemical, nuclear, and radiological weapons; arson, incendiary, explosive, and armed attacks; industrial sabotage and intentional hazardous materials releases and cyber-terrorism. (Pg 36)

9. Drought

Drought refers to an extended period of deficient rainfall relative to the statistical mean for a region. Drought can be defined according to meteorological, hydrological, and agricultural criteria. Meteorological drought is qualified by any significant deficit of precipitation. Hydrological drought is manifest in noticeably reduced river and stream flow and critically low groundwater tables. The term agricultural drought indicates an extended dry period that results in crop stress and harvest reduction.

For the purposes of this risk assessment it is assumed that Madison County has a moderate drought risk even though there are no recorded instances of drought historically. The risk of drought is not targeted to any particular areas within the county.



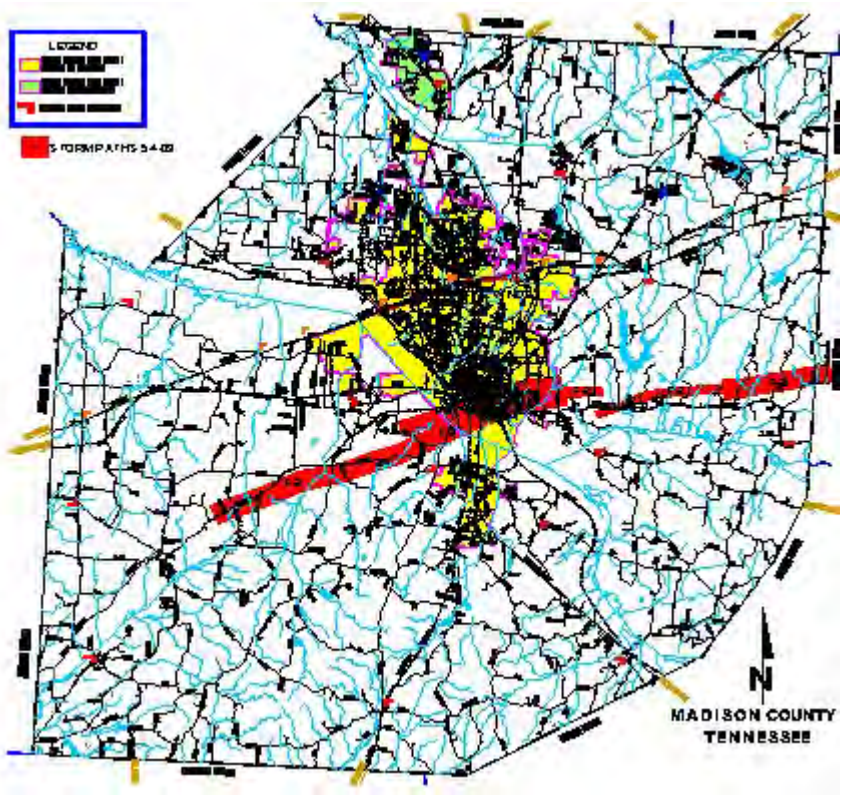
B. History of Hazard Events

Hazard events of the past are the best predictors of the future. Reviewing the hazard history of Madison County, therefore, helps to provide a better understanding of what hazards the county is susceptible to. The following are summaries of the major events by hazard type based on the available information acquired during the development of this plan.

1. Tornadoes

Madison County has experience several recorded incidences of tornadoes touchdowns. Below is a listing of some of the most costly recorded tornadoes which have affected Madison County since 1950.

a. **May 4, 2003**: Madison County was struck by two tornadoes, which crossed the entire county, an F3 and F4, entering from the southwest, and exiting in the east. Its effect caused loss of as, personal injuries, extensive property damage, extended power outages, communication disruptions, and massive debris cleanup. Area affected were Demark, Jackson, and the Beech Bluff community, as well as, the areas between. There were eleven lives lost, 66 casualties, and over one hundred million dollars in estimated damages resulted from this tornado. Severe straight-line winds also caused extensive property damage in the northern part of the county. (See map next page) ***Final costs of the May 2003 tornado has yet to be determined**



b. **November 10, 2002:** The City of Jackson and Medon were struck by an F1 tornado causing 3.05 million dollars in estimated damages. (Pg 82)

c. **January 17, 1999**: Madison County was struck by a tornado which entered the county as an F3 near the Mercer community and gained intensity to an F4, as it crossed the county to the Bemis community in south Jackson and continued through the Latham subdivision located southeast of Jackson. There were six lives lost, 106 casualties, and 35 million dollars in estimated property damages, which resulted from this tornado. (Pg 84)

d. **November 19, 1988:** Madison County was struck by an F2 tornado causing approximately one quarter million dollars in damages. (Pg 86)

e. **April 18, 1975:** Madison County was struck by an F1 tornadoes causing approximately two and one half million dollars in damages**.** (Pg 87)

Madison County has experienced a recorded 23 tornadoes in the past fifty years at a cost of more than 100 million dollars. (Pgs 79 - 87)

Mitigation Strategy

Madison County is located in a tornado prone region. Early warning sirens are the primary warning device installed for public notification of a pending disaster. There are currently forty seven locations within the county that have sirens warning devices installed. There are discussions to expand this coverage with an additional fifteen sirens which will provide near county wide coverage.

Madison County is currently investigating the cost/benefit analysis of a reverse 911 system. This system would allow warnings alert calls to be placed through the telephone system in call quantities ranging from a few surrounding neighbors of a burning home, up to notifying each county resident in the case of a large potential disaster. This could all be accomplished with a matter of minutes.

2. Flooding

An abundance of rainfall often results in flooding hazards, whether it a flash flood, urban flood or river flood. Madison County's flooding problems are normally infrequent and most commonly involve roadways and low lying areas. Due to planning and zoning regulations no building is allowed in any flood prone areas without first building the area up to allow at least a one foot freeboard according to the 100 year flood maps. Most roadways that flood usually run off within a few hours. Although there are occasional washouts from time to time and we have experienced two deaths in recent history due to flooded roadways. Flooding has also caused in excess of twenty-one million dollars in damages to properties in Madison County in the last decade. (Pg 91 –93)

The following are three examples of flooding events:

a. **May 5, 2003:** Many roads throughout the city and county were flooded. This resulted from the heavy rain during and after the tornado. The roadway flooding hampered emergency personnel in rescue efforts.

b. **November 28, 2001:** Eleven inches of rain fell from November 26th through November 29th. The widespread flooding caused home and business to be evacuated leaving extensive damage in the aftermath. (Pg 91)

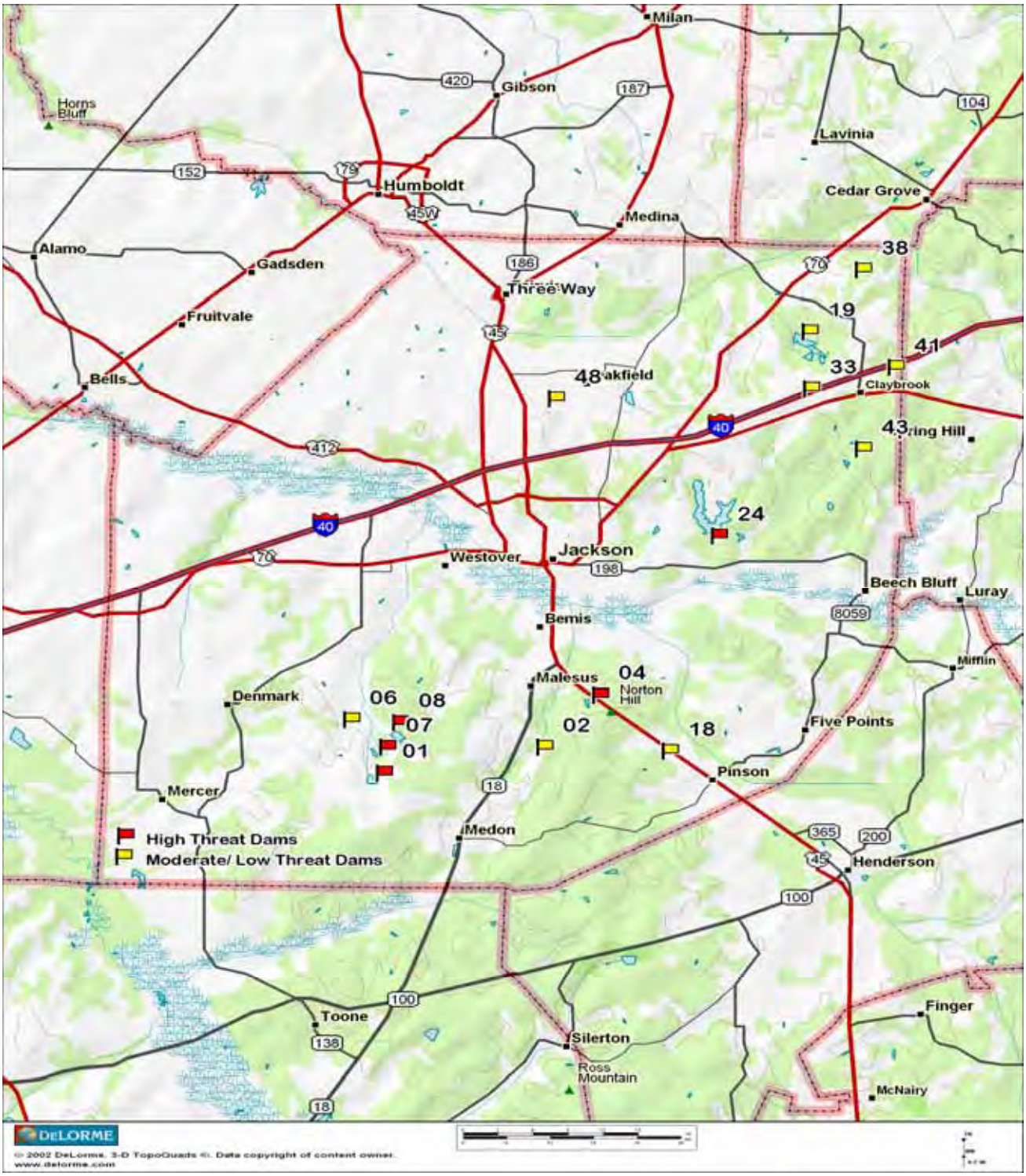
c. **March 1, 1997:** Multiple days of rainfall added to preexisting saturated soil caused excessive flooding along the County's rivers and tributaries. Many homes and business were abandoned until the water receded. (Pgs 92)

Flooding may also result as a failure of a dam or levy. All dams in Madison County are required to be compliant with the Safe Dams At. This act requires an Emergency Action Plan (EAP) to be on file in the event of a dam or levy failure. Currently Madison County has five EAP's on file with the Tennessee Department of Environment and Conservation (TDEC), which will pose a threat to life and property and an additional nine on file, which pose a potential threat to property. (See Madison County Dams next page)

Mitigation Strategy

Inform the public on specific ways to prevent major flooding in areas of the community. The public will be encouraged to have in place an evacuation plan, invest in emergency supplies in case of a power outage and ways to prevent electrical shock before, during, or after a flood. Additional tactics will be employed in respect to flood plain buy out. With the cooperation of grants from the Federal Emergency Management Agency, plans are underway to purchase property located within flood plain zones. These buyouts will negate the reoccurring expense and need of the government grants to victims who have received qualifying damage from a flood. (See the Anderson Creek Acquisition Project on page 30 as an example.)

MADISON COUNTY DAMS



MADISON DAM LOCATION

ID	NAME OF DAM	HPC	LATITUDE	LONGITUDE	TOP O
577001	JOHNSON CREEK #2	1	352934	885519	439NW
577002	MERIDIAN CREEK #1	2	353023	884939	438SE
577003	MERIDIAN CREEK #2	3	353044	884901	438SE
577004	MERIDIAN CREEK #3	1	353205	884739	438SE
577005	JOHNSON CREEK #4	3	353320	885331	438SW
577006	JOHNSON CREEK #7	2	353105	885606	438SW
577007	JOHNSON CREEK #10	1	353019	885503	438SW
577008	JOHNSON CREEK #5	1	353100	885427	439SW
577009	DUNCAN	L	353733	884203	446NW
577010	WILDERWOOD	S	352715	884634	438NE
577011	TYSON	L	353634	890345	430SE
577012	SPRINGBROOK	3	354403	883940	446NW
577013	SUNSET	3	354346	883937	446NW
577014	FERN	3	354343	883925	446NW
577016	WILLIAMSON CAMP LAKE	3	354509	884903	437SE
577018	YOUTHTOWN	2	353009	884500	438SE
577019	SPRING CREEK (86-95-2)	2	354431	884015	446NW
577021	PORTER CABLE LAKE	3	354425	885105	438NE
577023	PATTON	3	353051	884931	438SE
577024	LAKE GRAHAM	1	353745	884320	446NW
577025	CUB CREEK #1 (438-SW-1)		353330	885730	438SW
577026	DYER CREEK (438-NE-3)	3	354001	884609	438NE
577027	EUBANK BRANCH (445-SE-1)	3	354527	883700	445SE
577028	GILMER'S CREEK (446-NW-6	3	354423	884137	446NW
577029	NEW CARMEL (445-SW-4)	3	354605	883924	445SW
577030	MCKELLAR CREEK (438-SW-6)	3	353538	885408	438SW
577031	MILLER CREEK (438-SW-6)	3	353525	885615	438SW
577032	PHILLIPS CREEK (446-NW-8)	3	354045	884007	446NW
577033	COTTON GROVE CREEK (446-N)	2	354230	884005	446NW
577034	HICKS CREEK (438-SE-SW-1)	3	353514	885211	438SW
577035	POWELL CREEK (438-SW-3B)	3	353337	885554	446NW
577036	CUB CREEK #2 (438-SW-7)	3	353247	885651	438SE
577038	HUGHES CREEK (445-SW-10)	2	354642	883822	438SW
577039	EUBANK BRANCH (445-SE-SW-1)	3	354608	883639	438SW
577040	BEECH BRANCH (438-NW-1)	3	354323	885545	445SW
577041	CLAYBROOK (446-NE-8)	2	353915	883706	445SE
577042	BROWN CREEK (446-NW-1)	3	353915	884209	438NW
577043	JONES CREEK (446-NW-NE-4)	2	354034	883818	446NE
577044	DIAMOND GROVE (446-SW-4)	3	353321	883830	446NW
577045	WILLOUGHBY (446-NW-14)	3	353735	883925	446SW
577047	LAKE OF THE WOODS	3	354525	884926	446NW
577048	EMERALD LAKE	2	354200	884900	438NE
577049	BIGFORD	L	354524	885000	437SE
577050	BOWYER	L	352820	885909	439NW
577051	BELLE MEADE	3	354106	885047	438NE
577052	EDWARDS	L	352827	885318	439NW

Anderson Creek Acquisition Project
Jackson, Tennessee

Project Area:

The project area includes the Flood Way and 100-yr Flood Plain along Anderson Creek from East Chester Street on the north to the "V" crossing of railroad tracks at Mobile Street to the South.

The project area contains 184 land parcels
Containing approximately 77 residential structures
5 commercial structures

The owner:renter ratio of residential structures in the project area is roughly 35:65. Most homes in this area were constructed before 1950 and are in substandard condition. Home values in the area range generally from $10,000 - $25,000.

Historic Damage:

F4 tornado of May 4, 2003 - 21 structures suffered "substantial damage" of more than 51%. Many other structures were damaged to a lesser extent. In some cases, the damage caused by the tornado greatly exceeds the value of the residence. Many homes in this area were underinsured or uninsured.

Flooding - Anderson Creek is a perennial stream, with a constant flow of water. The low-lying flood plain area has always flooded during heavy rains, though its waters tend to recede quickly. In 1998, two people were killed in this area during flooding after driving around a street barricade intended to prevent access. Evacuation of homes with small boats has been necessary in the past, and at least two homes were demolished between 1999-2000 due to unsafe conditions caused by repeated flooding.

Project Description:

The Anderson Creek Acquisition Project consists of a voluntary buyout process to relocate residents in the Anderson Creek flood plain, and would provide participating homeowners with pre-disaster market value for their homes. Other compensation would include relocation assistance for renters and up to $25,000 for owner-occupants to find comparable housing.

Upon completion of a successful mitigation project, the City of Jackson would utilize the area as a recreation facility. While providing surrounding neighborhoods with a meeting place and park, the area would also serve as a gateway from the downtown core to the East Jackson residential neighborhoods.

The scope of the entire project with 100% homeowner participation would total more than $5 million. The City of Jackson would be required to match 25% of that amount. FEMA estimates that long-term costs if the project is not undertaken would total over $9 million, and the flood plain area would continue to pose a life-threatening hazard to the residents of that community.

City of Jackson Tornado Recovery
121 East Main Street; Suite 301
Jackson, TN 38301

The impetus for undertaking this project now is magnified because of the damage suffered as a result of the May 4 F4 tornadoes. Many residents would have to invest much more than the value of their homes to bring the structures up to building code compliance. Some of the parcels are too small to meet current code.

The City of Jackson has been advised that acquisition is the only feasible mitigation method in the case of Anderson Creek.

Due to the substandard nature of the majority of structures in the area and low property values, an elevation program would carry costs comparable to acquisition, and ultimately still leave residents in an unsafe area.

Expanding or altering the Anderson Creek structure in any way is not an option for environmental reasons. The Anderson branch passes the Conalco plant, and it has recently been found that heavy metals are bound up within the sediment of the creek. TDEC has advised that these metals do not pose environmental risks if left sedentary and undisturbed.

As a large part of Jackson's overall recovery and redevelopment plan, the mitigation of the Anderson Creek flood plain hazard will be managed by the Jackson Housing and Redevelopment Authority (pending ratification of redevelopment authorization in Jackson's City Council meeting on January 6.) the JHA has expressed a commitment to working with Anderson Creek residents to facilitate a smooth transition and help residents understand relocation options. Additionally, gap financing grants, and forgivable and low-interest loans are being pursued to assist those residents who, even with FEMA's comparable housing stipend, will still fall short of available market housing options.

The purpose of the Anderson Creek Acquisition Project is threefold:

1) Helping residents relocate to safe, secure, equitable and affordable housing.
2) Preventing any further loss of life or property in the Anderson Creek area.
3) Providing a recreational facility and gateway between the Downtown core and the East Jackson residential neighborhood.

Timeline:

Nov. 26, 2003	Application materials to be sent to TEMA offices
Dec. 1, 2003	TEMA council meets to review proposals and make recommendations to FEMA
Up to six months	Decision reached by FEMA
Up to six months	(after FEMA approval) Tennessee state contracting process
Up to five years	Appraisal, acquisition, relocation, demolition, project completion

City of Jackson Tornado Recovery
121 East Main Street; Suite 301
Jackson, TN 38301

3. Severe Thunderstorm

Madison County has experienced structural damage due to thunderstorms, such as flooding, roadways blocked by fallen trees and downed power lines. Even though we have had several tornadoes over the years, severe thunderstorms pose a high risk because they happen more frequently.

According to the records provided by the National Oceanic and Atmosphere Administration (NOAA) for this risk assessment, Madison County has experienced 109 severe thunderstorm events in the past fifty years. High winds and hail resulted in 1 death, 6 casualties and approximately three million dollars in damages. Listed below are two such events. (Pgs 88 – 90)

a. **April 3, 1999**: A severe thunderstorm with extremely high winds, heavy lightning affected most of the county. Wal-Mart lost part of its roof, a mobile home was overturned and more than fifty other homes and buildings were damaged. (Pg 88)

b. **April 11, 1995**: Winds speeds in excess of seventy miles per hour from a severe thunderstorm caused damage to buildings, trees and power lines. As a result of this many residents were without power and trees blocked several roads. (Pg 89 – 90)

Severe Thunderstorms occur more frequently than other events, usually causing more of a nuisance than anything else but there is always a chance it will spawn a tornado. Damages normally are downed trees and power lines with some minor home damage resulting from high wind and/or large hail.

Mitigation Strategy

Educate the public on what measures to be taken during the event of a severe thunderstorm. Information such as: preparing to take cover in the event of lightning and strong winds, staying away from windows and open areas. Have the necessary supplies in hand in case of a power outage.

4. Winter Storm

This occurrence within its self can have devastating effects. Many homes in the area rely on electricity as their single or primary source of heat. Damage resulting from downed tree limbs from snow and ice, and snow and ice accumulation on structures has cost Madison County over one and one half million dollars in the past years alone.

Below are examples of winter storm activity in Madison County. (Pgs 94 – 98)

a. **February 25, 2003**: Two to four inches of snow fell, temporarily immobilizing the county, causing delays and postponing work and activities.

b. **February 6, 2003:** Three to six inches of snow fell, temporarily immobilizing the county.

c. **December 23, 1998:** An ice storm leaving up two inches of accumulation in some areas immobilizing the county. Power outages were common as well as minor damages reported from fallen trees and limbs.

d. **January 15, 1998:** A mix of freezing rain, sleet and snow brought down numerous power lines, leaving thousands without power. Some damage occurred to homes and automobiles from fallen trees and limbs (Pg 94)

Mitigation Strategy

Inform and educate the public on what procedures to take whenever a winter storm occurs. The public will also be informed on the way to prevent major losses and damage.

5. Earthquakes

The probability of extensive earthquake damage in Madison County is considered low. Although Madison County has received minor damage from previous historical recorded earthquakes no major damage has been recorded. West Tennessee has received a minor earthquake at 55 to 85 year intervals.

a. The western part of Tennessee was shaken strongly by the New Madrid, Missouri, earthquake of 1811 - 1812 and by earthquakes in 1843 and 1895. The area has also experienced minor shocks.
b. On January 4, 1843, a severe earthquake (intensity VIII) affected Memphis and other places in western Tennessee. The shock was reported to have lasted 2 minutes, though this is probably exaggerated. Walls were cracked, chimneys fell, and windows were broken. The total felt area was about 1 million square kilometers.
c. Another earthquake in the Mississippi Valley region caused damage in Tennessee and Arkansas on May 7, 1927.
d. A sizable area in western Tennessee was affected by a fairly strong earthquake centered near Covington on November 16, 1941. Cracks appeared in the courthouse at Covington, where the tremor was noticed by everyone (V-VI). At Henning, it was felt by many, and an explosive noise preceded the trembling. The shock was also felt at Dyersburg, Frayser, Memphis, Millington, Pleasant Hill, and Ripley.
e. Dyersburg was the center of another disturbance on July 16, 1952. The press reported numerous cracks in a concrete-block structure.
f. Minor damage occurred at Covington from a January 28, 1956, earthquake.

Mitigation Strategy

Improve construction codes to meet earthquake standards and educate the public regarding emergency procedures to be implemented during such events.

6. Wildfires

Wildfire is a serious and growing hazard over much of the United States, posing a great threat to life and property, particularly when it moves from forest or rangeland into developed areas. However, wildfire is also a natural process, and its suppression is now recognized to have created a larger fire hazard, as live and dead vegetation accumulates in areas where fire has been excluded. In addition, the absence of fire has altered or disrupted the cycle of natural plant succession and wildlife habitat in many areas.

Mitigation Strategy

The public will be educated on fire safety and wildfire urban interface protective measures and be encouraged to take action to protect their homes. The communities will be urged to develop evacuation plans for all family members and pets before a fire nears or when instructed to do so by local officials. (See Pg 118 for Wildfire History of Madison County)

7. Technological Hazards

Technological hazards are a moderate concern for Madison County. Madison County has numerous industrial facilities as well as several major highways crossing through the county. Although industrial accidents are rare, highway accidents containing hazardous materials are not. Currently Madison County experiences an average of two hazardous materials spill per month resulting from vehicular accidents. Even though these spills are normally fuel they often require professional responders for cleanup. Since technological hazards are somewhat new in occurrence, record keeping is sparse and only short term records exist. Therefore no history is provided.

Mitigation Strategy

Plans have been implemented to provide better and more accurate record keeping of hazardous materials spills. Cameo is utilized for recording type, quantity and location for hazardous industrial materials. Training of hazardous materials technicians is being expanded to include law enforcement, emergency medical technicians as well as fire fighting personnel. Public education regarding siren chemical spill warning is being implemented. Plans to install a reverse 911 phone system which will enable targeted warnings and procedures to the public are being examined. Due to the possible combining of technological hazards and terrorism, new plans and procedures are being implemented for the protection of first responders and the public.

8. Terrorism

The term terrorism refers to intentional criminal and malicious acts. For the purposes of this risk assessment terrorism refers to the use of Weapons of Mass Destruction (WMD), including, biological, chemical, nuclear, and radiological weapons; arson, incendiary, explosive, and armed attacks; industrial sabotage and intentional hazardous materials releases and cyber-terrorism. Terrorism has become a much higher priority since the event of September 11, 2001. Although our community does not consider itself as a priority target, the possibility definitely exists and has become an increased concern. Shortly after the 9/11 incident we experienced a brief rash of concern over biological agents. Since there are many more aspects of terrorism ranging from hostage taking to chemical and nuclear incidents, we must have an adequate plan to deal with these potential threats.

THE USS COLE OFF THE COAST OF YEMEN

The following is a mild example of the potential of a terrorist act in Madison County.

October 31, 2003 – Deputies were dispatched to an area in northwest Madison County to investigate a suspicious person complaint. After arriving officers placed the suspect in custody, then while checking out the suspect's vehicle, officers discovered drug paraphernalia and a hand grenade. The immediate area

was quarantined off and residents in close proximity were evacuated until the bomb squad arrived and destroyed the grenade.

Mitigation Strategy

Terrorism – We must provide security of the Emergency Operating Center from unauthorized entry or acts of terrorism and establish the Emergency Operations Center in an underground bunker and install the latest security technology available for prevention of unauthorized access. This includes but is not limited to security fencing, security cameras, metal detectors and such individual identification techniques as retina scan, card scanners and/or palm and fingerprint scanners. Increase the capabilities of the Hazard Materials Response Team and the Bomb Disposal Units by providing the most recent training and equipment available.

Note: A history of secondary hazards have been omitted due to their lack of meeting the probability of occurrence threshold for planning purposes but these will continue to be monitored and will be re-evaluated periodically for status changes.

IV. Hazard Priority

The historical hazard information provided insight into some of the high priority hazards that should be included in the plan; however, it did not capture all of the possible hazard risks in the county. An additional review of possible hazard risks was conducted using the resources provided in ”Understanding Your Risks – Identifying Hazards” and Estimating Losses (FEMA 386-2)

Based on the findings and the results of technical research, and the review and assessment of the Hazard Mitigation Planning Team, the following hazards were selected as priority hazards for Madison County: tornadoes, floods, severe thunderstorms, severe winter storms, earthquakes, wildfires, technological hazards and terrorism. Secondary hazards are listed as urban fires, dam failures, land subsistence, subsoil expansions, extreme summer heat and drought.

Prioritization of Hazards for Madison County

Type of Hazard (Primary)	Probability Of Occurrence	Public Concern	Historical Records	Source
Tornado	**Moderate**	**High**	**Yes**	**NCDC, EMA**
Floods	**High**	**Moderate**	**Yes**	**NCDC, EMA**
Severe Thunderstorm	**High**	**High**	**Yes**	**NCDC, EMA**
Severe Winter Storms	**Moderate**	**Moderate**	**Yes**	**NCDC**
Earthquake	**Low**	**Low**	**Yes**	**USGS**
Wildfires	**Low**	**Low**	**Yes**	**MCFD, JFD**
Technological	**Moderate**	**Low**	**Unknown**	**EMA**
Terrorism	**Low**	**Moderate**	**Unknown**	**EMA, MCSD**

Type of Hazard (Secondary)	Probability Of Occurrence	Public Concern	Historical Records	Sources
Urban Interface Fires	**Low**	**Low**	**Yes**	**JFD**
Dam Failures	**Low**	**Low**	**Yes**	**TDEC, EMA**
Land Subsidence	**Low**	**Low**	**Unknown**	**USGS**
Subsoil Expansion	**Low**	**Low**	**Unknown**	**USGS**
Extreme Summer Heat	**Low**	**Low**	**Unknown**	**NCDC**
Drought	**Low**	**Low**	No	**NCDC**

V. Vulnerability Assessment Summary

The vulnerability assessment uses the hazard profile information and combines it with community asset information to analyze and quantify potential damages from future hazard events. This process combines the final two steps of the risk assessment: the inventory of assets and the estimation of losses.

Note: A vulnerability assessment summary of secondary hazards have been omitted due to their lack of meeting the probability of occurrence threshold for planning purposes but these will continue to be monitored and will be re-evaluated periodically for status changes. Hereafter the term Madison County refers to the County of Madison in Tennessee and all its municipalities and communities unless otherwise noted.

1. **Tornados**

   Tornados provide one of the highest threat vulnerability concerns for the citizens of Madison County. Early warning tools provide the best means of combating loss of lives and injury from these events. (See tornado mitigation strategy, Page 26)

2. **Floods**

   Flooding is the second type of disaster that Madison County is vulnerable too. Although the probability is high, public concern is considered moderate. Flooding is normally more of an inconvenience to the public in general but becomes a major concern for those living within flood prone areas. (See flood mitigation strategy on Page 27)

3. **Severe Thunderstorm**

   Severe thunderstorms frequently occur throughout Madison County. They are of high public concern as they sometimes develop into tornados and often leave property damaged by high winds and large hail. (See mitigation strategy on page 33)

4. **Severe Winter Storms**

   Severe Winter Storms occur occasionally through out the winter months. These are of moderate concern to the citizens of Madison County. The damage left by these storms normally imposes disruption of services but can produce exponential costs of repairing damaged infrastructure and have an economic impact if the recurrence is frequent. (See mitigation strategy on Page 34)

5. **Earthquake**

   Although the earthquake probability and public concern is low in Madison County, a high magnitude earthquake could produce the highest causality and economic cost of any disaster listed. Madison County must consider this possibility and take as many preventative measures as are feasible. Damage from an earthquake would be more severe in the City of Jackson due to multi-story buildings that are not earthquake resistant. Also damage to water, sewer and gas supply lines would be greater in the municipalities of Jackson, Three Way and Medon (large areas of Madison County are not served by these services) as these lines are extremely vulnerable to damage by earthquakes. (See mitigation strategy on page 34)

6. **Wildfires**

   Wildfires are normally of low occurrence and concern to the citizens of Madison County. Standard fire fighting procedures usually control these events. Better building codes and public education are considered the best tools of defense. (See mitigation strategy on page 35)

7. **Technological Hazards**

   Minor hazardous materials spills are common place within Madison County. These incidents are usually corrected with minor efforts from local authorities. Plans are in place for dealing with major incidents but revision should be considered when technological hazards are coupled with terrorism. Technological Hazards are more likely to occur either in industrial settings and along major highways therefore the municipalities of Jackson, Medon and Three Way are

more susceptible to this type of hazard than is the majority of Madison County. (See mitigation strategy on page 35)

8. Terrorism

Since September 11, 2001 terrorism has become a growing concern. Once it was considered a very low threat but has since escalated in its importance considerably. Many new measures have been implemented to reduce the likely hood of a terrorist event but new concerns always arise. Terrorism is most likely to occur in a densely populated area therefore the most likely target in Madison County would be the City of Jackson. (See mitigation strategy in page 37)

Asset Inventory

The asset inventory identifies buildings, roads, and other facilities that can be damaged or affected by the hazard events. In order to assess where and to what extent the identified hazards will affect the assets of Madison County the locations of assets were identified and intersected with the mapped hazards in GIS.

The information source used to compile the asset inventory was the City of Jackson Planning Department database and maps created by planning department as part of the Madison County planning project. This project assigned street addresses to all structures and located them on maps in relation to identified roadways in the county. These maps were used as base maps for the purposes of this risk assessment.

The structures from the planning department database were then intersected with each of the mapped hazard layers in order to determine the number and location of structures at risk from hazards. According to the U.S. Census database there are 40,856 structures throughout the county. Also taken from the planning department database was the location of infrastructure including roadways, railroads, and utilities, which were also intersected with hazard data in GIS to determine vulnerability. Using the data supplied by the Jackson-Madison County Emergency Management Agency, the Tennessee Emergency Management Agency, and local fire and law enforcement, maps were developed to show the locations of critical facilities. Critical facilities are defined as facilities that are critical to the health and welfare of the county and that are especially important following hazard events. Critical facilities include, but are not limited to, shelters, police and fire stations, and hospitals. According to this data there are 81 critical facilities in Madison County. The complete list of critical facilities in Madison County is included in Pgs 120 & 121 of this document. Historical sites are also included in the asset inventory and a complete listing of Historical Registry sites is located on Pg 122.

VI. Mitigation Strategy

Utilizing the information collected for the risk and capabilities assessment the Hazard Mitigation Team developed the following mitigation goals, objectives, and strategies.

A. Capability Assessment

The capability assessment describes the regulations currently active in local government to aid in lessening the impact of impact of natural and man-made hazards on the community.

1. Madison County

Tennessee state law requires that each county have an Emergency Management /Civil Defense director to coordinate emergency preparedness, response, recovery, mitigation and planning. Madison County established the Jackson-Madison County Civil Defense in April 1967. This was amended and became the Jackson-Madison County Emergency Management Agency in 1987. This office is the lead agency for mitigation against, preparedness for, response to and recovery from, any event, which threatens or actually inflicts damage to lives and/or property. This office also provides public information programs on emergency and disaster preparedness including what to do before, during and after a disaster or event, as well as coordinating training in hazard mitigation, hazardous materials, disaster recovery and anti-terrorism. (Pgs 124 & 125)

Madison County is a participant in the National Flood Insurance Program (NFIP) that makes subsidized flood insurance available to public and private property owners. It provides maps depicting areas susceptible to the 100-year frequency flood. It also provides information on non-structural floodplain management measures to assist communities in dealing with their flood problems. A one foot free board regulation on structures is in effect to minimize structural flooding.

The Jackson-Madison County Planning Commission reviews prospective developments at the site plan stage for FEMA flood zone and flood way encroachment. The Madison County Building Department and the City of Jackson Building, Engineering and Planning Departments inspect and enforce building regulations regarding the quality and quantity of storm water runoff for Madison County. All new construction projects are reviewed and considered for surface water runoff. Zoning plans are developed to mitigate the improper use of agricultural farmlands, industry and residential properties. Subdivision regulations are also monitored and enforced to protect against flooding and provide erosion control.

The Madison County Building Department adopted the 1999 Southern Standards Building Codes and the City of Jackson utilizes the 1994 Southern Standard Building Codes. All structures are inspected for compliance to the minimum code requirements prior to occupancy. Permits are required for new as well as for the improvement of existing structures.

Madison County adopted a resolution establishing the Madison County E 911. This resolution provides unique assignments of names to properties, streets and roadways.

The Tennessee Department of Environment and Conservation oversees the design and inspection of all dams in Madison County and assures their compliance meets or exceeds the requirements of the Safe Dam Act.

Madison County has a chapter of the American Red Cross (ARC), which provides emergency preparedness and disaster awareness programs relating to the variety of potential disasters threatening the Jackson-Madison County areas. The ARC operates in supportive stature that supplements local legislative and legal requirements according to the Disaster Relief Act of 1974 as well as a statement of understanding between the ARC and FEMA.

The City of Jackson and Madison County designed and implemented the NPDES Phase II regulation of Storm Water Management, to regulate and control the disposal of storm water quantity and quality in Jackson and the urban areas of Madison County. Madison County operates under permit number TNS075604 and the City of Jackson under permit number TNS075361.

2. **The City of Jackson**

   The City of Jackson adopted a property safety ordinance to regulate the repair or removal of unsafe structures and debris.

3. **The City of Medon**

   The City of Medon is currently applying to become a participant in the National Flood Insurance Program.

4. **The City of Three Way**

   The City of Three Way currently utilizes the City of Jackson Planning Department for growth and regulatory planning.

Results

The results of this capability assessment will help provide the needed information for developing plans for specific mitigation actions that need implementing. By describing what capabilities exist, it will enable the identification of possible shortfalls where there is potential need for improvement. The feasibility of possible mitigation strategies are described in more detail in the Mitigation Strategies section of this plan.

The following goals, objectives and strategies apply to Madison County and each of the municipalities within Madison County unless otherwise specified.

B. Statement of Goals:

1. To provide each resident of Madison County a safe environment through minimum exposure to the risk of natural and man-made hazards.
2. To protect and properly manage the communities identified flood plains.
3. To ensure that possible disaster warnings are carried to each individual citizen by developing a comprehensive alerting and warning system.
4. To increase public awareness regarding the effects of natural and man-made hazards and promotes individual activities that can lessen exposure to those hazards.

Madison County Floodplain Map

C. Statement of Objectives

Madison County

1. Identify, annually evaluate, and implement a hazard mitigation planning process for the purpose of eliminating risk associated with natural and man-made hazards by distributing materials to the public about hazard preparedness and mitigation.
2. Continue as a program participant in good standing with the NFIP through the enforcement of local codes and regulations and the mitigation of historical hazards.
3. Create an ongoing community–wide public information preparedness program targeting earthquake, fire safety, winter storm, tornado and flood.
4. Encourage each municipality to budget for warning systems, training of emergency personnel, and upgrading the equipment needed during disasters.

City of Jackson

1. Continue as a program participant in good standing with the NFIP through the enforcement of local codes and regulations and the mitigation of historical hazards.
2. Create an ongoing community–wide public information preparedness program targeting earthquake, fire safety, winter storm, tornado and flood.
3. Continue current flood mitigation activities and explore other hazard mitigation procedures.

City of Medon

1. Become National Flood Insurance Program participant.
2. Educate residents about NFIP and investigate other possible hazard mitigation procedures.

City of Three Way

1. Work with Planning Department to seek ways to improve infrastructure within the city that will accommodate the increasing population and lessen the impact of a disaster.
2. Educate residents about the use of early warning devices.

D. Infrastructure Improvement

1. Investigate and assess the vulnerability of transportation systems and assets located in hazard areas. Update the existing hazardous materials emergency plans for within these areas. Conduct a Hazardous Materials Survey to better understand the nature and extent of hazardous materials risks throughout the county in order to identify all hazardous materials that are either stored or traveling through the County. Use the

results of this survey to develop a mitigation plan for all identified risks. Requesting the LEPC to conduct survey. Priority - medium

2. Improve coordination and communication – Improve coordination and communications among disaster response organizations, local, and county governments. Working with Homeland Security to improve interoperable communication. Priority - medium

3. Improve emergency preparedness – Improve emergency preparedness in Madison County by updating the Emergency Operations Plan (EOP). Obtain adoption of the plan from all the counties municipalities. EMA is doing. Priority - High

4. Provide better early warning capabilities – Madison County is currently investigating the cost/benefit analysis of installing a reverse 911 system. This system would allow warning alert calls to be placed through the telephone system in call quantities ranging from a few surrounding neighbors of a burning home, up to notifying each county resident in the case of a large potential disaster. This could all be accomplished with a matter of a few minutes. EMA conducting analysis and making proposal. Priority - High

5. Update equipment at the Emergency Communications Centers – Develop a plan to update the centers or to build and equip a new center. Identify potential funding sources outside of the County to continue a program of building and maintaining community partnerships, planning, public awareness, education, mitigation and preparedness. Joint emergency services committee will work on. Priority - Medium

6. Update equipment at the Jackson-Madison County Emergency Operations Center – Seek a plan which will allow the upgrading of antiquated equipment and software at the emergency operating center or develop a plan to build a new properly equipped center with the availability of outside funding resources. EMA is in process. Priority - Medium

7. Work toward the development of better hazard data – Create better GIS mapping information for Madison County by creating a flood hazard map and mapping the storage locations of all hazardous materials. EMA is in process. Priority - High

E. Relocation Mitigation

1. Evaluate and revise existing floodplain ordinance– Plan to assure that all flood plain ordinances meet or exceed the NFIP standards. Work with the municipalities to update all floodplain ordinances. Provide additional training to county and municipal development officials on NFIP requirements. Ensure that flood insurance policies remain affordable through county and municipal government programs by preparing a CRS (Community Rating System) application for the County and encouraging municipalities to participate. Plan to obtain updated

NFIP policyholder information within Madison County. EMA will work with city & county governments. Priority - High

2. Identify structures throughout the county that are at risk from hazards. Once the historical sites are determined, expand the study to identify individual properties and to better understand their risks. This will allow the development of mitigation strategies which will assist in protecting these structures. EMA is working on. Priority - High

3. Work to direct new development in Madison County away from high hazard areas. This will reduce future risks of damage from hazards in Madison County. This may be accomplished by the Planning Offices reviewing existing regulations to ensure they are adequate for future development in identified hazard areas. Priority - High

4. EMA will work with FEMA and TEMA to get updated repetitive loss information on properties within the county in order to plan future mitigation activities. Develop a data base in a hazard GIS system of all repetitive loss properties in the county in order to identify owners of repetitive loss properties who are interested in future property acquisition and relocation projects. Priority - High

F. Shelter Analysis and Development

1. MCHD and EMA hold annual meetings – The Madison County Health Department and Madison County Emergency Management Agency to hold an annual work session to share information about local shelters. This information should include the site of each shelter, how many people it can house and feed, if it has back-up power available on site, completed site survey forms and types of resources that they have or that they need. This will benefit all areas of Madison County in the event of the need to open shelters. Priority - High

2. Establish centralized shelter information system – Create a system whereby all shelter occupant information is easily obtainable at any given time. This system should contain all relevant personal information as well as the occupant's potential needs. This will enable faster response by the various relief organizations. Priority - High

3. Evaluate existing shelters – Evaluate existing shelters to determine adequacy for current and future populations. Ensure that all shelters have adequate emergency power resources and communications facilities. Work with the Madison County Health Department towards upgrading all shelter resources. Evaluate current shelter capabilities and establish a minimum stock of disaster relief products to be stored and available in the event of disaster. Priority - High

4. Establish new shelters – Establish new shelter locations according to the potential threat analysis. Assure all shelters meet the requirements established by the Hazard Mitigation Planning Committee, the Jackson-Madison County Emergency Management Agency, and the local planning and building codes departments. Priority – High

(*Priority was determined by cost, public concern (from page 38) and on a basic cost-benefit analysis. Before any costly action is implemented a more extensive analysis will be completed)*

VII. Maintenance Procedures

The Mitigation Committee will meet annually each third quarter to monitor, evaluate and/or amend the plan. Special meetings should be held within a month following each disaster event to determine if any changes are needed in the plan. All amendments to the plan will be submitted for adoption to Madison County, the City of Jackson, the City of Medon, and the City of Three Way.

A. Maintenance

According to the Disaster Mitigation Act of 2000 local plans are required to develop a method and schedule of monitoring, evaluating, and updating the hazard mitigation plan within a five-year cycle.

B. Monitor

Using the implementation schedule developed for the mitigation projects, the Madison County Hazard Mitigation Planning Committee shall meet on a quarterly basis to track the progress of the mitigation plan. Change of Status reports shall be submitted to the city and county administrators which detail efforts to date and evaluate any challenges they are experiencing in implementing the mitigation projects. The Jackson-Madison County Emergency Management Agency will be responsible for tracking the progress of the implementing agencies and ensuring that the plan time line is adhered to.

C. Evaluate

On an annual basis the Jackson-Madison County Emergency Management Agency will develop an end-of year report. The report should detail mitigation activities undertaken over the course of the year as well as any mitigation projects that have been completed. Any mitigation success stories should be highlighted. The report should also address the following points:

1. Evaluate the goals and objectives to ensure they address current and expected conditions;
2. Determine if the nature or magnitude of risk has changed.
3. Evaluate whether the current resources are adequate for implementing the plan.
4. Document any implementation problems; such as technical, political, legal, or coordination issues with other agencies and plans.
5. Discuss whether the outcomes have occurred as expected.
6. Document agency and other partner participation.
7. Copies of the annual report will be made available to each of the implementing agencies, local governments, citizens, TEMA, and FEMA.

D. Update

The plan should be updated every five years after the adoption date. In the event of a significant disaster or any substantial changes in land use planning or regulations that would impact the recommended mitigation projects, more frequent updates should be considered. The Hazard Mitigation Planning Committee in partnership with the local planning departments, Jackson-Madison County Emergency Management Agency, Madison County government, and the Cities of Jackson, Medon and Three Way would be responsible for overseeing the update of the hazard mitigation plan. The update process would be similar to the one used to develop the original plan and would incorporate as many opportunities as possible for public input and involvement.

E. Incorporate

The mitigation plan for Madison County will combine all preparedness efforts with the other established plan (including but not limited to the BEOP, local planning departments' development plans, terrorism plans, etc). In a collaborative effort the Madison County Hazard Mitigation Planning Committee will implement the mitigation projects into the changes in the day-to-day operation in the local government. To ensure the success of an on-going program, it is critical that the plan remains relevant. It is extremely important to conduct periodic evaluations and make revisions as needed. Prior to those evaluations, notices will be given to the public by utilizing the media, that we are seeking input regarding current and future mitigation activities. Since the hazard mitigation planning committee meets annually or after any disaster, they will review and incorporate the data received from the public input into the hazard mitigation plan.

F. Public Participation

1. Conduct annual disaster exercises – Have disaster exercises with local law enforcement, emergency managers, city and county officials, and other disaster response agencies. Develop and manage disaster exercises in various areas of the county. Types of exercises to include: Flood exercise, Weapons of Mass Destruction Exercise, Hazardous Materials Spill Exercise, Tornado, Winter Storm and Bio-Terrorism Exercise.
2. Conduct National Weather Service Storm Spotter classes – Partner with the National Weather Service to provide training to people throughout Madison County on Storm Spotting in the areas of Flooding, High Winds, and Basic I and Basic II classes.
3. Create a Business Continuity Plan – Develop displays and handouts designed to raise the awareness level of WHY it is important to have a Business Continuity Plan, how to develop a plan, and will encourage businesses to make sure that their plan fits in with the County's plan. This display will be appropriate for use at local Chamber of Commerce meetings and activities, civic group gatherings and other business-related gatherings.
4. Create displays and handouts for children's programs that teach safety – The City of Jackson has developed a plan for teaching children storm water awareness. This approach could be used to educate children about natural and man-made disasters as well. The information to be used would be presented in ways similar to that used in fire safety or storm water awareness.
5. Create displays for use at public events – Expose the public by the use of posters and handouts to the "how to" elements of disaster preparedness and mitigation.
6. Create hazard resource centers – Establish resource centers at public locations such as the county court house, the city halls of each municipality, the library etc. These centers will provide information pertaining to hazard identification, preparedness, flood insurance, maps and mitigation booklets for use by local citizens and businesses.
7. Develop Animals in Disaster Plan – Promote education at public events, civic organizations, in veterinarians offices and other places that animal owners may gather. The display will have information about preparing animals for disasters by making a disaster plan and a disaster supply kit for each animal. The display will encourage animal owners to decide ahead of time where animals will be sheltered and to familiarize them with the County's Animals in Disaster Annex of the Emergency Operations Plan. Establish a committee representative of all areas of the County that will include vets, pet store owners, the Humane Society, animal shelters, and other interested parties to work on animal-specific evacuation and sheltering needs.
8. Establish CERT (Citizens Emergency Response Teams – Train interested citizens in Madison County to assist first responders at specified emergencies throughout the county. Emergency Management Personnel to take the CERT the Trainer Course to assist with training within the County. Additional trainers need to attend future Train the Trainer Courses. Plan to meet with groups of potential volunteers in order to increase the number of trained responders for: All County

Fire Departments, doctors and nurses who may become first responders in a bio-terrorism event, EMS personnel, etc.

9. Establish a Volunteer Hazard Mitigation Training Corp. – A group of volunteer facilitators to hold classes in the many venues of hazard mitigation; as first responders for fire, police and emergency medical technicians, as volunteer organizers and civic group liaisons. Utilize these volunteers to train citizens in disaster response techniques such as creating emergency survival kits, proper sheltering techniques and turning off the utilities to their homes.
10. Hold seminars – Schedule a series of public meetings to include topics such as types of natural disasters and risks, how to develop a family disaster plan, how to develop a family disaster supply kit, how to develop a business continuity plan, simple types of mitigation projects for homeowners, etc. These speaking engagements will be offered to civic groups such as Rotary and Kiwanis Clubs, the Chamber of Commerce, Church and interfaith groups, etc.
11. Promote Red Cross Courses – Assist the American Red Cross in holding a variety of courses, including: Adult and Child CPR, Basic First Aid, Introduction to Disaster Services, Mass Care, Shelter Operations and others at the Red Cross Office and at other locations throughout the County.
12. Provide adequate training – Ensure all emergency response organizations are adequately trained and equipped. Develop a list of training opportunities that are available and to distribute the list to all local emergency responders.
13. Utilize the media for the distribution and publication of hazard information. Send news releases to local newspapers, radio and TV stations about pre-disaster information. Design distribution to best reach all areas of Madison County.
14. Work with the Madison County school system – Promote hazard mitigation education and awareness and discuss ways to better integrate mitigation into the curriculum. EMA and representatives of the Madison County Board of Education to hold meetings to find ways to integrate hazard mitigation into programs such as the science curriculum, math and other subjects.
15. General mitigation strategies – Have annual and post disaster meetings to discuss problems, solutions, and suggestions involving the HMP committee with the general public

VIII. Verification of Plan Adoption

A. Plan Adoption

This plan has been formally adopted by each incorporated jurisdiction as per their local ordnances and Madison County for submission to the Tennessee Emergency Management Agency (TEMA) in accordance with Section 322 of the Stafford Act and 44 Code of Federal Regulations Section 206. In order to demonstrate compliance, this section outlines the required adoption process for each local municipality. As proof of this adoption the signature of the Mayors can be found on the following adoption forms. If any incorporated community decides not to adopt or write their own plan it will be so noted on the adoption form.

This plan will be adopted prior to being submitted to the FEMA regional office for final approval.

B. Notification

In an effort to ensure newly elected officials are familiar with the contents of this plan, the plan will be reviewed and explained to all newly chief elected officials within six (6) months of their taking office for their newly elected positions.

121 East Main Street, Suite 301
P.O. Box 2508
Jackson, Tennessee 38302-2508

Telephone: 731-425-8240
Fax: 731-425-8605
E-Mail: cfarmer@cityofjackson.net

City of Jackson

Charles H. Farmer
Mayor

November 21, 2003

Mr. Dale Meggs
Public Assistance Coordinator
Jackson Madison County Emergency Management Agency
234 Institute Street
Jackson, TN 38301

Dear Sir or Madam:

This is to advise that the City of Jackson would like to be included in the Madison County mitigation planning.

Thank you for your consideration.

Yours very truly,

Charles H. Farmer
Mayor, City of Jackson

CHF:tpr

CITY OF MEDON

25 College Street / P.O. Box 23
Medon, Tennessee 38356
Phone - 731.422.6237 / Fax - 731.422.1764
Email - medon@aeneas.net
Website - www.cityofmedontn.homestead.com

July 9, 2004

Lonell Gunn, Hazard Mitigation Intern
Jackson-Madison County EMA

Mr. Gunn,

Per our telephone conversation on July 9, this is the city of Medon's letter of intent to adopt the Jackson-Madison County EMA's Hazard Mitigation Plan. We are aware we will receive a copy of the plan to look over before deciding to adopt the plan.

Sincerely,

James S. Maroney
Mayor

JM/ls

James R. Hill, Mayor
Norma Jones, Recorder
L. A. (Hoot) Gibson, Alderman
David Turner, Alderman

City of Three Way, Tennessee
174 Three Way Lane
Humboldt, TN 38343
(901) 784-9269

July 15, 2004

Mr. Dale Meggs
Public Assistance Coordinator
Jackson Madison County Emergency Management Agency
234 Institute Street
Jackson, Tn. 38301

Dear Sir or Madam:

This is to advise that The City of Three Way would like to be Included in the Madison County mitigation planning.

The City of Three Way will adopt the Hazard Mitigation Plan When it is completed.

Yours very truly,

James R. Hill

James R. Hill
Mayor

Hazard Mitigation Plan
Adoption Form

Whereas, Madison County, TN recognizes the potential threat that natural and technological hazards pose to persons and property; and

Whereas, the act of undertaking hazard mitigation actions prior to disaster occurrence will reduce the potential for personal harm and the destruction of property, thereby saving taxpayer dollars; and

Whereas, the adoption of a hazards mitigation plan is required as a condition of receiving future grant funding for mitigation projects; and

Whereas, Madison County, TN participated in the planning process with other units of local government within Madison County to prepare the Hazards Mitigation Plan;

Now, therefore, be it resolved, that the County of Madison hereby adopts the Madison County Hazard Mitigation Plan as an official plan; and

Be it further resolved, that the Jackson-Madison County Emergency Management Agency will submit on behalf of the participating municipalities the adopted Hazards Mitigation Plan to the Federal Emergency Management Agency officials for final review and approval.

Resolution # _____

Ordinance # _____

Passed: (Date) 9/20/04

Name

Madison County Mayor
Title

Hazard Mitigation Plan
Adoption Form

Whereas, the City of Jackson recognizes the potential threat that natural and technological hazards pose to persons and property; and

Whereas, the act of undertaking hazard mitigation actions prior to disaster occurrence will reduce the potential for personal harm and the destruction of property, thereby saving taxpayer dollars; and

Whereas, the adoption of a hazards mitigation plan is required as a condition of receiving future grant funding for mitigation projects; and

Whereas, the City of Jackson participated in the planning process with other units of local government with Madison County to prepare the Hazards Mitigation Plan;

Now, therefore, be it resolved, that the City of Jackson hereby adopts the Madison County Hazard Mitigation Plan as an official plan; and

Be it further resolved, that the Jackson-Madison County Emergency Management Agency will submit on behalf of the participating municipalities the adopted Hazards Mitigation Plan to the Federal Emergency Management Agency officials for final review and approval.

Resolution # _____

Ordinance # _____

Passed: (Date) August 25, 2004

Charles W. Farmer
Name

MAYOR
Title

Hazard Mitigation Plan
Adoption Form

Whereas, the City of Medon recognizes the potential threat that natural and technological hazards pose to persons and property; and

Whereas, the act of undertaking hazard mitigation actions prior to disaster occurrence will reduce the potential for personal harm and the destruction of property, thereby saving taxpayer dollars; and

Whereas, the adoption of a hazards mitigation plan is required as a condition of receiving future grant funding for mitigation projects; and

Whereas, the City of Medon participated in the planning process with other units of local government with Madison County to prepare the Hazards Mitigation Plan;

Now, therefore, be it resolved, that the City of Medon hereby adopts the Madison County Hazard Mitigation Plan as an official plan; and

Be it further resolved, that the Jackson-Madison County Emergency Management Agency will submit on behalf of the participating municipalities the adopted Hazards Mitigation Plan to the Federal Emergency Management Agency officials for final review and approval.

Resolution # _____

Ordinance # _____

Passed: (Date) Aug. 25, 2004

James L Maroney
Name

Mayor City of Medon
Title

Copy

Hazard Mitigation Plan

RESOLUTION VI

Whereas, the City of Three Way recognizes the potential threat that natural and technological hazards pose to persons and property; and

Whereas, the act of undertaking hazard mitigation actions prior to disaster occurrence will reduce the potential for personal harm and the destruction of property, thereby saving taxpayer dollars; and

Whereas, the adoption of a hazards mitigation plan is required as a condition of receiving future grant funding for mitigation projects; and

Whereas, the City of Three Way participated in the planning process with other units of local government with Madison County to prepare the Hazards Mitigation Plan;

Now, therefore, be it resolved, that the City of Three Way hereby adopts the Madison County Hazard Mitigation Plan as an official plan; and

Be it further resolved, that the Jackson-Madison County Emergency Management Agency will submit on behalf of the participating municipalities the adopted Hazards Mitigation Plan to the Federal Emergency Management Agency officials for final review and approval.

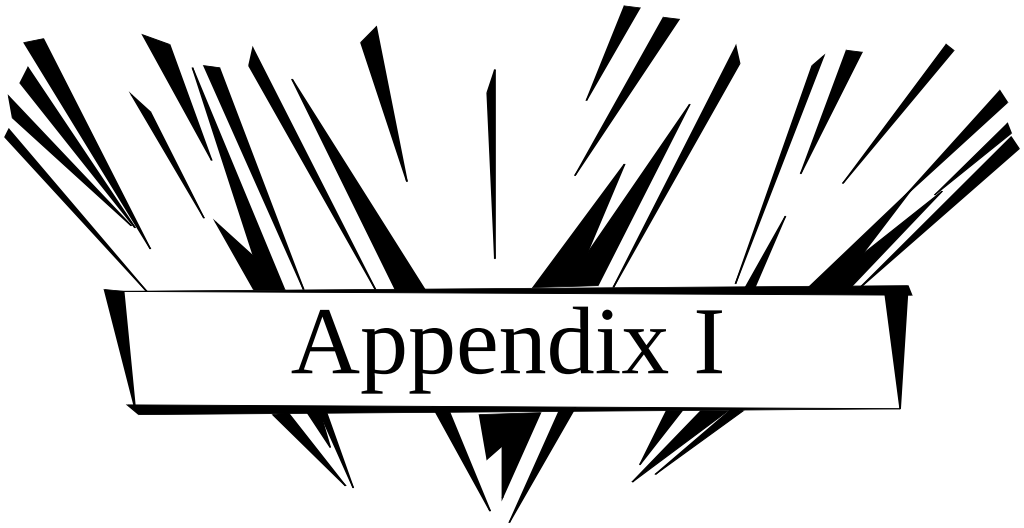
Resolution # VI

Ordinance # XXXVII

Passed: (Date) 11-01-04

James R. Hill
Name

Mayor
Title



… Planning Process

Hazard Mitigation Planning Team
Meeting 9-10-02
0900-1000
EOC
Meeting Attendees and Minutes

NAME	COMPANY
Ryan Porter[2]	JEA
Sherry Ross[2]	Madison Co. Bldg.
Mike Morgan[2]	JFD
James Maholmes[1]	Jackson Bldg.
Sammy Britt[1]	JPD
Randall Roby[1,2]	J-MC EMA
Jim Ferrell[2]	JEA
Paul George[2]	Jackson Planning
Dan Vaughn[1]	J-MC EMA

The following are ideas and opinions about what we are doing:

- Anticipate disasters and prevent the loss
- Know who is doing what—more organization
- Long-range community planning—disaster sustainability
- Will it save a life?
- Will it save property?
- Awareness program to make the public better prepared.

The following people or departments were recommended by the group for inclusion in the Mitigation Planning Process:

- Health Department
- Sheriff's Department
- EMS
- Health Care Facilities
- LEPC
- Media—Jackie Hillman—Jackson Sun
- Transit Authority
- School Department
- Partners in Education
- Street/Road/Highway Departments
- Relief Agencies (Red Cross, Salvation Army)
- Builders, Architects, Contractors—TLM, Anderson-Vaughan

The group determined that our mission statement should include emphasis on the following:

- Public/Community Awareness/Involvement
- Community Sustainability/Survivability
- Loss Prevention thru Construction Techniques, Codes, and Awareness
- Life Loss Prevention
- Cooperative effort of public, private, and non-profits
- Thereby improving preparedness

Two sub-teams were identified by the group. The number beside the attendees' names above indicates which team(s) they are members of.

1. Community Involvement
2. Hazard ID/Risk Assessment

Hazard Mitigation Planning Team

Meeting 9-24-02 0900-1000 EOC

Meeting Attendees and Minutes

NAME	COMPANY
Randall Roby	J-MC EMA
Ryan Porter	JEA
Jim Ferrell	JEA
Mike Morgan	JFD
Sammy Britt	JPD
Sherry Ross	MC Building Dept
James Maholmes	Jackson Building Dept

Based on ideas received at the previous meeting, the team was able to agree on a mission statement for this planning effort. The statement is listed below.

Other items of business discussed at the 9-24-02 meeting:

- A folder is being made for each member of the Hazard Mitigation Planning Team that includes important information about the planning process and our team
- Public meetings (need for them)
- Outreach program for our process

MISSION

The MISSION of the Jackson-Madison County Hazard Mitigation Planning Team is to improve the community's overall preparedness, sustainability, and survivability against all hazards, be they natural, technological or man-made.

This mission will be met through a cooperative effort of public, private and non-profit organizations by raising the community's awareness of its hazards and risks and increasing their involvement in the reduction of these through construction techniques, codes and various other methods.

Hazard Mitigation Planning Team

Meeting 10-8-02 0900-1000 EOC

Meeting Attendees and Minutes

NAME	COMPANY
Randall Roby	J-MC EMA
Ami Sklar	J-MC Health Dept.
Mike Morgan	Jackson Fire Dept.
Sherry Ross	MC Building Dept
Sammy Britt	Jackson Police Dept
Dan Vaughn	J-MC EMA

Items of business discussed at the 10-8-02 meeting:

- Preparedness Survey

Hazard Mitigation Planning Team

Meeting 10-29-02 0900-1000 EOC

Meeting Attendees and Minutes

NAME	COMPANY
Randall Roby	J-MC EMA
Steve Spurlin	US EPA
Jim Ferrell	JEA
Tracy Meggs	City of Jackson
Paul George	City of Jackson
Sherry Ross	MC Building Dept
James Maholmes	Jackson Building Dept
Kim Johnson	J-MC Health Dept

Items of business discussed at the 10-29-02 meeting:

- Upcoming training session for Mitigation Planning Team Members
- Brainstorming on what should be included in the community meetings
  - Preliminary results of survey
  - Purpose of mitigation and planning
  - Determine public concerns
  - Last no more than 1-hr
  - Use visual aids
- Dates for community meetings set
  - South—January 14, 2003—6pm
  - West—January 16, 2003—6pm
  - North—January 21, 2003—6pm
  - East—January 23, 2003—6pm
- Next meeting—November 25, 2002

Hazard Mitigation Planning Team

Meeting 11-15-02 0900-1000 EOC

Meeting Attendees and Minutes

NAME	COMPANY
Randall Roby	J-MC EMA
Ami Sklar	J-MC Health Dept.
Mike Morgan	Jackson Fire Dept.
Sherry Ross	MC Building Dept
Ryan Porter	JEA
Dan Vaughn	J-MC EMA
Tracy Meggs	Jackson Engineering
Jane Waldrop	TEMA
Judy Huff	TEMA
Barry Gregg	MC Sheriff's Dept

Items of business discussed at the 11-15-02 meeting:

- Need for community meetings

Ms. Judy Huff from TEMA spoke on the need for community involvement and fielded questions.

Hazard Mitigation Planning Team

Meeting 12-5-02 0900-1000 EOC

Meeting Attendees and Minutes

NAME	COMPANY
Randall Roby	J-MC EMA
Ami Sklar	J-MC Health Dept.
Mike Morgan	Jackson Fire Dept.
Jim Ferrell	JEA
Ryan Porter	JEA
Elvis Hollis	Jackson Planning Dept
Tracy Meggs	Jackson Engineering
Ron Smith	Red Cross
Brian Griffin	
James Maholmes	Jackson Building Dept
Sammy Britt	Jackson Police Dept

Items of business discussed at the 12-5-02 meeting:

- Hazard Mitigation Planning Grant

Randall Roby covered the Hazard Mitigation Planning Grant and how it would be handled.

Hazard Mitigation Planning Team Meeting

Date: November 4, 2003 Time: 0900 – 1000 hrs

Meeting Attendees and Minutes

Attendees:	Mike Morgan	Jackson Fire Department
	Ryan Porter	Jackson Energy Authority
	Tracy Meggs	Jackson Engineering Department
	Ron Smith	American Red Cross
	James Maholmes	Jackson Building Department
	Marty Clements	Emergency Management Agency
	Dale Meggs	Emergency Management Agency

Meeting Discussion:

- The events were discussed which ultimately led to the postponing of the Hazard Mitigation Meetings.
- Before the next meeting each person will attempt to regain the data that had been acquired since the last meetings.
- We discussed safe-rooms as a disaster preventative instrument.
- We discussed possibly expanding the counties warning siren system.
- We discussed the potential of Reverse 911 calling.
- Tracy Meggs will provide information on the Phase 2 storm water implementation as it pertains to mitigation.
- Safe Dam Act information was discussed. (In process of obtaining the locations affecting Madison County)
- Scheduled next meeting for November 17, 2003 0900

Hazard Mitigation Planning Team Meeting

Date: November 17, 2003 Time: 0900 – 1000 hrs

Meeting Attendees and Minutes

Attendees:	Will Beyer	Madison County Schools
	Ryan Porter	Jackson Energy Authority
	Tracy Meggs	Jackson Engineering Department
	Ami Sklar	Madison county Health Department
	James Maholmes	Jackson Building Department
	Jim Ferrell	Jackson Energy Authority
	Dale Meggs	Emergency Management Agency

Meeting Discussion:

- Discussed availability of information and possible sources.
- No data was found by team members referencing project assignments.
- Dale passed out copies of current draft plan to members for review.
- We discussed the potential application for media in hazards. It was decided I would contact a media representative prior to next meeting.
- We discussed the potential of Reverse 911 calling.
- The needs for security of disaster plans were discussed. Ref: JEA
- Discussed the creation of canned disaster warning and info to disperse to the media during hazard situations.
- Scheduled next meeting for December 8, 2003 0900

Hazard Mitigation Planning Team Meeting

Date: December 8, 2003 Time: 0900 – 1000 hrs

Meeting Attendees and Minutes

Attendees:	Tracy Meggs	Jackson Engineering Department
	James Maholmes	Jackson Building Department
	Dale Meggs	Emergency Management Agency
	Ron Smith	American Red Cross
	Kim Johnson	Jackson-Madison Co. Health Dept.

Meeting Discussion:

- Discussed submittal of draft and its contents.
- Discussed need to update and compile shelter list.
- No members had the opportunity to review the draft that was passed out during the last meeting so new copies of current draft plan were passed out to the attending members for review.
- We discussed the necessity of establishing Special Needs Clinics to provide medicine for the elderly and other persons requiring medication after a disaster. It was stated that we could establish a volunteer group of pharmacists to assist.
- We discussed the need for additional medical doctor services at shelters. We also need to investigate what the actual doctor's liability is during a disaster and develop a plan where that liability would be lessened.
- Check on the status of LEPC meetings. The Safety Trainer at Delta Faucet was the last known president of the LEPC group.
- Discussed the creation of canned disaster warning and info to disperse to the media during hazard situations.
- Scheduled next meeting for January 12, 2004 @ 0900

Hazard Mitigation Planning Team Meeting

Date: February 9, 2004 Time: 0900 – 1000 hrs

Meeting Attendees and Minutes

Attendees:	Tracy Meggs	Jackson Engineering Department
	James Maholmes	Jackson Building Department
	Dale Meggs	Emergency Management Agency
	Ron Smith	American Red Cross
	Kim Johnson	Jackson-Madison Co. Health Dept.
	Marty Clements	Jackson Madison County EMA
	John Lewoczko	Homeland Security
	Mark Garmon	Homeland Security
	Mike Morgan	Jackson Fire Department
	Brian Griffin	College Student
	Sharon Walley	Jackson Madison Co. Health Dept.
	John Johnson	Jackson Madison Co. Health Dept.
	Ryan Parker	Jackson Energy Authority
	Gay Emison	Jackson Madison County EMA

Meeting Summary:

John Lewoczko and Mark Garmon with the Department of Homeland Security were guest speakers at today's meeting. They presented a power point presentation explaining the role of Homeland Security and discussed the premise on which it is founded.

Mr. Garmon explained the principal need of establishing districts in the state. These districts would allow resources to be shared in more areas. Due to the present funding situation, all the counties would not have the finances available to properly train and equip the personnel needed to handle all the possible hazards that might arise. The need for mitigation in this area is extremely important and should be activated as soon as possible.

Contact information was distributed and representatives from the different agencies were invited to contact Mr. Lewoczko and Mr. Garmon with any questions or concerns regarding mitigation planning partnership with Homeland Security and to ascertain suggested techniques to be used for implementation.

Hazard Mitigation Planning Team Meeting

Date: March 8, 2004

Time: 0900 – 1000 hrs

Meeting Attendees and Minutes

Attendees:	Tracy Meggs	Jackson Engineering Department
	Dale Meggs	Emergency Management Agency
	Ron Smith	American Red Cross
	Kim Johnson	Jackson-Madison Co. Health Dept.
	Sharon Walley	Jackson Madison Co. Health Dept.
	John Johnson	Jackson Madison Co. Health Dept.
	Ryan Parker	Jackson Energy Authority
	Jim Ferrell	Jackson Energy Authority

Meeting Summary:

Mike Caudill from West TEMA was our guest speaker at today's meeting. He presented a power point presentation re-emphasizing the role of Hazard Mitigation as well as restating the guidelines to be followed.

Mr. Caudill stated that FEMA has completed their latest issue of HAZUS and instructional classes should begin later next month. He also reiterated the need for documentation and participation of each municipality in the county as well as documentation that adjacent counties have discussed matters of practical support during disasters. The need for all hazard mitigation is extremely important and should be support all goals, objectives and strategies.

…Planning Area Description

TENNESSEE COMMUNITY DATA

Jackson
2004

LOCATION

Mkt. Region: Jackson
County: Madison **Sq. Miles:** 561
Distance From:(City) Memphis **Miles:** 79
Nashville **Miles:** 126

POPULATION

	City	County
2000(Census).....	59,643	91,837
2002(Estimates).....	60,635	93,367
% Nonwhite (2000 census)	45	35

TAX STRUCTURE

Local

	City	County
Property Tax		
Rate Per $100 Value.....	$2.22	$2.46
Ratio of Assessment		
Residential.....	25%	25%
Industrial.....	40%	40%
Personal (Equipment)	30%	30%
(Inventory Tax) Raw Materials Only		
Bonded Debt.....	$68,900,000	$47,220,000
Assessed Valuation	$1,012,511,354	$1,456,699,879
School Tax.....	None	None
Sales Tax.....	0.00%	2.75%
Hotel-Motel Tax.....	0.00%	5.00%

State

Sales Tax..... 7%(6% for food and food ingredients for human consumption)

Income Tax
Personal..... 6% on Interest & Dividends
Excise..... 6.5% of Net Earnings

Franchise..... .25 per $100 of Capital Properties

Unemployment Tax
New Employers..... 2.7% of first $7000

TRANSPORTATION

Railroads

Served by: CSX Transportation, West Tennessee Railroad, Norfolk-Southern

Highways

0 Miles to Access of Interstate - 40

U.S. Highways: 70, 45, 412

State Highways: 18,198, 223

Common Carriers

Air Freight Companies: 1

Motor Freight Companies: 100 **Terminal Facilities:** 40

Bus Services - Inter-City: Yes

Local: Yes

Carrier Service: Yes

Navigable Waterway

River: Mississippi **Channel Depth:** 9'

Nearest Port: Memphis **Miles:** 80

Air Service

General Aviation/Distance: McKellar-Sipes Regional Airport

Runway Lengths: 6,008' X 150' 3,540 **Surface:** Groved

Lighting: MIRL/PAPI

Fuel: 100 LL/Jet A

Repair: Major

Transportation: Rental & Courtesy Car

Nearest Commercial Service: McKellar-Sipes Regional Airport

Airlines Serving: American Connection (a division of American Airlines)

Daily Flights: 2

COMMUNICATIONS

Post Office Class: First

Newspapers	Frequency
The Jackson Sun	Daily
The City News	Monthly
The Metro Forum	Weekly

Radio Stations: 13
TV Networks: 3 (ABC affiliate, PBS, Cable)
Cable Companies: Charter Communications, Jackson Energy Authority
Channels: 62
Phone Companies: Aeneas Communications, BellSouth

INDUSTRIAL SUPPORT SERVICES

Service	Town	Distance(Miles)
Tool & Die.....	Local	
Heat Treating....	Local	
Foundry.....	Local	
Heavy Hardware..	Local	
Sheet Metal.....	Local	
Lubricants.....	Local	
Welding Supplies	Local	
Other:		

FINANCE

Banks: 9
Combined Deposits: $1,313,000,000

GOVERNMENT

Gov't (type): City: Mayor & City Council
County: County Mayor & Commissioners

	City	County
Police Officers:	186	62
Police Cars:	143	67
Planning Commission:	Yes	Yes
Zoning Regulations:	Yes	Yes
Industrial Development Corp:	Yes	Yes
Fire Stations:	6	16
Fire Trucks:	17	63
Firefighters:	175	0
Volunteers:	0	175
Insurance Rating:	3	7

NATURAL RESOURCES

Minerals:
Timber: Oak, Pine, Walnut

AGRICULTURAL PRODUCTS

Crops: Cotton, Corn, Soybeans, Wheat, Grain Sorghum, Alfalfa, Hay

COMMUNITY FACILITIES

Day Care

Day Care Centers: 32 **Day Care Homes:** 19

Education

State Industrial Training Service Available: Yes
Type of Public School System: City-County

	# Local Schools	Enrollment
Elementary.....	14	5,456
Middle/Jr. High.....	7	4,907
High School.....	5	4,207
Private &/or Parochial..	5	3,203
Technology Centers.....	1	924
Colleges (2 & 4 year)..	5	8,381
Other.....		

Libraries: Jackson

Health Care

Hospitals: Jackson-Madison Co. General Hospital & Regional Hospital **Beds:** 861
Clinics: 33 **Beds:** 0
Doctors: 300
Dentists: 74
Nursing Homes: 6 **Beds:**
Retirement Homes: 11 **Beds:**
Assisted Living Homes: 5 **Beds:**

Churches

Protestant: 213
Catholic: 1
Jewish: 1
Other:

Recreation

Parks..... 18
Golf Courses..... 7 **(Public & Private)**
Swimming Pools..... 3 **(Public & Private)**
Country Clubs..... 3
Theaters..... 2
Bowling Alleys..... 2
Hotels & Motels..... 25 **Rooms:** 2,200
Largest Meeting Room Capacity 6,000
Restaurants..... 145

Other: Casey Jones Museum, West Tennessee Diamond Jaxx Double A Baseball Team, Cypress Grove Nature Park, NAIA Women's Basketball Tournament, Skyfest TN Air Show

CLIMATE

Annual Avg. Temperature: 59.4
Monthly Avg. High Temp: Jan. 46.4 July 90.4
Monthly Avg. Low Temp: Jan. 28 July 69.3
Annual Avg. Precipitation: 53.96
Annual Avg. Snowfall: 5.51
Elevation: 433' above sea level
Prevailing Winds: South-Southwest
Mean Length of Freeze Free Period (Days):

SELECTED ECONOMIC INDICATORS FOR MADISON COUNTY

Estimated County Available Labor

Date: Jan-03
Total: 2,850 **Male:** 1,400 **Female:** 1,450
Estimated Total in Surrounding Area: 11,360
High School Graduates (2002): 959

Labor Force Estimates

Annual Avg. Employment	2002
Civilian Labor Force.....	52,840
Unemployment.....	2,920
Unemployment Rate.....	5.5
Total Employment.....	49,920

Per Capita Income

Year	Amount
2001	$25,527.00

Retail Sales

Year	Amount
2002	$1,472,362,110.00

County 10-Year Growth Report

Years: 1994-2003	New Plants	Expansions
Number Projects:	14	251
Total Investments:	$390,750,000	$1,487,023,440

ENERGY

Electricity

Electric Power System: Jackson Energy Authority
Source Company: TVA

Gas

Gas Supplier: Jackson Energy Authority
Source Company: Williams Pipeline
Fuel Oil Suppliers: 1
Suppliers of LP Gas: 8

UTILITIES

Treated Water Suppliers

Source: Deep Wells
Capacity: 25,000,000 GPD
Current Consumption: 16,000,000 GPD
Storage Capacity: 16.75 MG

Sewage Treatment

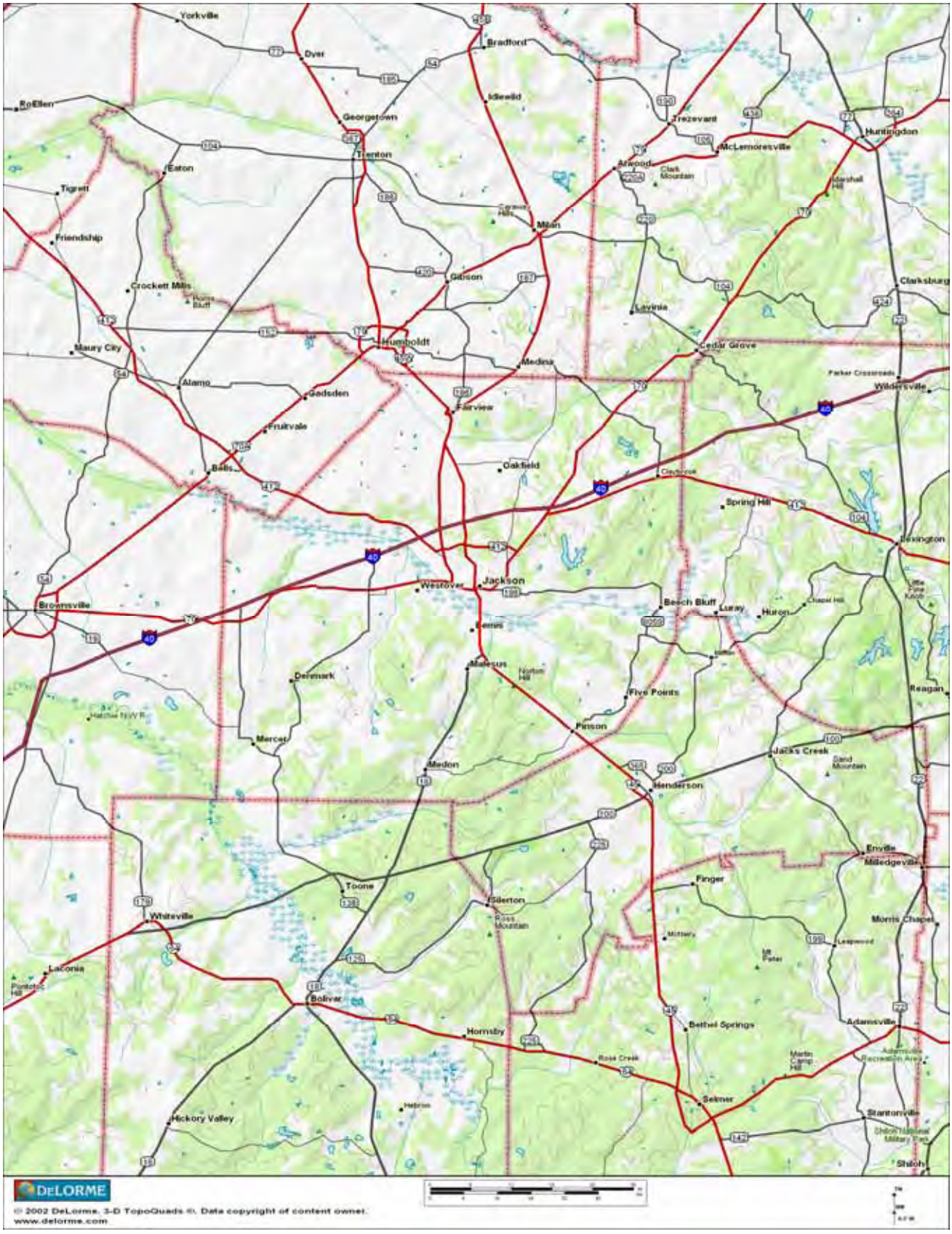
Type of Treatment: Trickling Filter & Activated Sludge

Capacity: 17,000,000 GPD
Current Usage: 14,000,000 GPD
% City Sewer Coverage: 100
% Storm Sewer Coverage: 99
Solid Waste Disposals: Yes

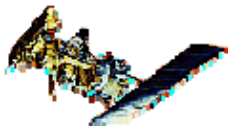
For information on Available Buildings and Industrial Sites, visit our website:

http://www.state.tn.us/ecd/bizdev_realestate.htm

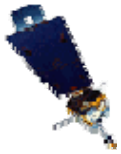
Madison County



… Risk Assessment



I. The Fujita Tornado Scale



Wind speeds in tornadoes range from values below that of hurricane speeds to more than 300 miles per hour! Unlike hurricanes, which produce wind speeds of similar values over relatively widespread areas (when compared to tornadoes), the maximum winds in tornadoes are often confined to extremely small areas, and vary tremendously over very short distances, even within the funnel itself. The tales of complete destruction of one house next to one that is totally undamaged are true and well documented.

In 1971, Dr. T. Theodore Fujita of the University of Chicago devised a six-category scale to classify U.S. tornadoes into six intensity categories, named F0-F5. These categories are based upon the estimated maximum winds occurring within the funnel. The Fujita Tornado Scale (or the "F Scale") has subsequently become the definitive scale for estimating wind speeds within tornadoes based upon the damage done to buildings and structures. It is used extensively by the National Weather Service in investigating tornadoes (all tornadoes are now assigned an F scale), and by engineers in correlating damage to building structures and techniques with different wind speeds caused by tornadoes.

The Fujita scale bridges the gap between the Beaufort Wind Speed Scale and Mach numbers (ratio of the speed of an object to the speed of sound) by connecting Beaufort Force 12 with Mach 1 in twelve steps. The equation relating the wind velocities (V in mph) with the F scale (F) is V = 14.1 * ((F+2) to the 1.5 power).

F1 on the Fujita scale is equal to B12 (73 mph) on the Beaufort scale, which is the minimum windspeed required to upgrade a tropical storm to a hurricane. F12 on the Fujita scale is equal to M1 (738 mph) on the Mach numbers. Though the Fujita scale itself ranges up to F12, the strongest tornadoes max out in the F5 range (261 to 318 mph).

The Fujita Tornado Scale

Maximum Wind Speeds	**Equivalent Saffir-Simpson Scale***	**Typical Effects**
F0 Category Tornado		
40-72 mph (35-62 kt)	NA	Gale Tornado. Light Damage: Some damage to chimneys; breaks twigs and branches off tress; pushes over shallow-rooted trees; damages signboards; some windows broken; hurricane wind speed

F1 Category Tornado		
73-112 mph (63-97 kt)	Cat 1/2/3	Moderate Tornado. Moderate damage: Peels surfaces off roofs; mobile homes pushed off foundations or overturned; outbuildings demolished; moving autos pushed off the roads; trees snapped or broken.
F2 Category Tornado		
113-157 mph (98-136 kt)	Cat 3/4/5	Significant Tornado. Considerable damage: Roofs torn off frame houses; mobile homes demolished; frame houses with weak foundations lifted and moved; boxcars pushed over; large trees snapped or uprooted; light-object missiles generated.
F3 Category Tornado		
158-206 mph (137-179 kt)	Cat 5	Severe Tornado. Severe damage: Roofs and some walls torn off well-constructed houses; trains overturned; most trees in forests uprooted; heavy cars lifted off the ground and thrown; weak pavement blown off roads.
F4 Category Tornado		
207-260 mph (180-226 kt)	Cat 5?	Devastating Tornado. Devastating damage: Well constructed homes leveled; structures with weak foundations blown off some distance; cars thrown and disintegrated; large missiles generated; trees in forest uprooted and carried some distance away.
F5 Category Tornado		
261-318 mph (227-276 kt)	NA	Incredible Tornado. Incredible damage: Strong frame houses lifted off foundations and carried considerable distance to disintegrate; automobile-sized missiles fly through the air in excess of 300 ft (100 m); trees debarked; incredible phenomena will occur.
F6-F12 Category Tornadoes		
Gtr than 319 mph (277 kt)	NA	The maximum wind speeds of tornadoes are not expected to reach the F6 wind speeds.

* The Saffir-Simpson Scale is a five-category wind speed / storm surge classification scale used to classify Atlantic hurricane intensities. The Saffir-Simpson values range from Category 1 to Category 5. The strongest SUSTAINED hurricane wind speeds correspond to a strong F3 (Severe Tornado) or possibly a weak F4 (Devastating Tornado) value. Whereas the highest wind gusts in Category 5 hurricanes correspond to moderate F4 tornado values, F5 tornado wind speeds are not reached in hurricanes.

1987: Fujita, T. Theodore, "U.S. Tornadoes Part 1 70-Year Statistics," Satellite and Mesometeorology Research Project (SMRP) Research Paper Number 218, University of Chicago, 122 pp.

TORNADOS

Event Record Details

Event:	**Tornado**
Begin Date:	**05 May 2003, 12:45:00 PM CST**
Begin Location:	**10 Miles West of Jackson**
Begin LAT/LON:	**35°37'N / 89°01'W**
End Date:	**05 May 2003, 12:53:00 PM CST**
End Location:	**9 Miles North West of Jackson**
End LAT/LON:	**35°43'N / 88°57'W**
Length:	**4 Miles**
Width:	**200 Yards**
Magnitude:	**F0**
Fatalities:	**0**
Injuries:	**0**
Property Damage:	**$ 10.0K**
Crop Damage:	**$ 0.0**

State: **Tennessee**
Map of Counties
County: **Madison**

Description:
The tornado touched down west of Jackson along Highway 74 and moved northeast. Several trees and power lines were knocked down.

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Event Record Details

Event:	**Tornado**
Begin Date:	**04 May 2003, 10:43:00 PM CST**
Begin Location:	**5 Miles South East of Denmark**
Begin LAT/LON:	**35°29'N / 88°56'W**
End Date:	**04 May 2003, 10:58:00 PM CST**
End Location:	**2 Miles South East of Beech Bluff**
End LAT/LON:	**35°35'N / 88°37'W**
Length:	**14 Miles**
Width:	**440 Yards**
Magnitude:	**F3**
Fatalities:	**0**
Injuries:	**0**
Property Damage:	**$ 100.0K**
Crop Damage:	**$ 0.0**

State: **Tennessee**
Map of Counties
County: **Madison**

Description:
The tornado touched down south of where the tornado which struck the city of Jackson started. This tornado also moved east and eventually moved into Henderson county. Numerous homes were damaged or destroyed.

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Event Record Details

Event:	**Tornado**
Begin Date:	**04 May 2003, 10:35:00 PM CST**
Begin Location:	**2 Miles South West of Denmark**
Begin LAT/LON:	**35°31'N / 89°02'W**
End Date:	**04 May 2003, 10:57:00 PM CST**
End Location:	**3 Miles North East of Beech Bluff**
End LAT/LON:	**35°38'N / 88°37'W**
Length:	**26 Miles**
Width:	**880 Yards**
Magnitude:	**F4**
Fatalities:	**11**
Injuries:	**66**
Property Damage:	**$ 30.0M**
Crop Damage:	**$ 0.0**

State: **Tennessee**
Map of Counties
County: **Madison**

Description:
The tornado touched down in the southwest part of Madison county near Denmark and tracked east through the downtown section of Jackson. The tornado continued to move east and eventually crossed into Henderson county. Nine people were killed in mobile homes between Denmark and Jackson and two other persons were killed in an apartment complex in Jackson. Numerous buildings were destroyed, particularly in downtown Jackson. St. Luke Episcopal Church, one of the oldest churches in Tennessee built in 1844, was destroyed. The Carl Perkins Civic Center, Tennessee Supreme Court Building, the downtown Jackson Post Office and National Guard Armory were damaged. Also damaged was the Proctor and Gamble factory where Pringles Potato Chips are made and a Coca-Cola bottling plant was also damaged. Denmark Elementary School and Jackson Middle School were destroyed and 24 other schools in the county were damaged. The tornado caused severe damage to the local power and water utilities across the county. One of eight stone balls that were set up to commemorate the eight fatalities from the Jackson tornado of January 17, 1999 was blown across a street. M1PH, M7MH, M8MH, F22PH, F23MH, F25MH, M33MH, M39MH, F40MH, F44MH, M53MH

Event Record Details

Event:	**Tornado**
Begin Date:	**10 Nov 2002, 12:10:00 AM CST**
Begin Location:	**5 Miles North West of Jackson**
Begin LAT/LON:	**35°40'N / 88°54'W**
End Date:	**10 Nov 2002, 12:20:00 AM CST**
End Location:	**1 Mile North West of Jackson**
End LAT/LON:	**35°38'N / 88°51'W**
Length:	**4 Miles**
Width:	**220 Yards**
Magnitude:	**F1**
Fatalities:	**0**
Injuries:	**0**
Property Damage:	**$ 3.0M**
Crop Damage:	**$ 0.0**

State: **Tennessee**
Map of Counties
County: **Madison**

Description:
The tornado touched down northwest of Jackson and moved northeast. The tornado hit a subdivision and also hit parts of Union University where several buildings on campus was badly damaged. Around 500 cars at the school were damaged. Overall, one home was destroyed and over 150 homes and businesses were damaged.

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Event Record Details

Event:	**Tornado**
Begin Date:	**10 Nov 2002, 05:55:00 PM CST**
Begin Location:	**Medon**
Begin LAT/LON:	**35°28'N / 88°53'W**
End Date:	**10 Nov 2002, 05:57:00 PM CST**
End Location:	**Medon**
End LAT/LON:	**35°28'N / 88°53'W**
Length:	**0 Mile**
Width:	**66 Yards**
Magnitude:	**F0**
Fatalities:	**0**
Injuries:	**0**
Property Damage:	**$ 50.0K**
Crop Damage:	**$ 0.0**

State: **Tennessee**
Map of Counties
County: **Madison**

Description:
The tornado briefly touched down in the town of Medon. A barn was demolished. A mobile home and tavern were damaged. Some trees were blown down.

Event Record Details

Event:	**Tornado**
Begin Date:	**17 Jan 1999, 06:25:00 PM CST**
Begin Location:	**2 Miles West of Mercer**
Begin LAT/LON:	**35°29'N / 89°04'W**
End Date:	**17 Jan 1999, 06:40:00 PM CST**
End Location:	**1 Mile West North West of Jackson**
End LAT/LON:	**35°37'N / 88°51'W**
Length:	**15 Miles**
Width:	**600 Yards**
Magnitude:	**F3**
Fatalities:	**0**
Injuries:	**0**
Property Damage:	**$ 25.0M**
Crop Damage:	**$ 0.0**

State: **Tennessee**
Map of Counties
County: **Madison**

Description:
The tornado started southeast of Eurekaton in Haywood County and traveled northeast crossing into Madison County eventually reaching the north part of the city of Jackson. In Haywood county, seven houses, five mobile homes, five barns and seven sheds were destroyed. In Madison county, the tornado damaged or destroyed several homes in Mercer and Denmark. While moving toward Jackson, the tornado struck the south side of McKellar-Sipes Regional Airport damaging the ASOS equipment located at the airport. The new Tennessee National Guard armory and a hangar were flattened. Two UH-60 helicopters and two other helicopters were destroyed with four additional helicopters damaged. In Jackson, a total of 38 apartments were destroyed.

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Event Record Details

Event:	**Tornado**
Begin Date:	**17 Jan 1999, 06:25:00 PM CST**
Begin Location:	**3 Miles West of Bemis**
Begin LAT/LON:	**35°35'N / 88°53'W**
End Date:	**17 Jan 1999, 06:40:00 PM CST**
End Location:	**3 Miles North West of Beech Bluff**
End LAT/LON:	**35°38'N / 88°41'W**
Length:	**16 Miles**
Width:	**500 Yards**
Magnitude:	**F4**
Fatalities:	**6**
Injuries:	**106**
Property Damage:	**$ 10.0M**
Crop Damage:	**$ 0.0**

State: **Tennessee**
Map of Counties
County: **Madison**

Description:
The tornado developed just east of Bemis and tracked northeast across the southern part of the city of Jackson. A shopping center suffered severe damage while a nearby funeral home was demolished except for the interior rooms. More than 200 homes were obliterated or heavily damaged while 300 other homes sustained lesser damage. The building housing the school buses for the county was destroyed and 55 school buses were damaged. A high-school baseball stadium was destroyed and the football stadium was damaged. F9PH, F81PH, F46OT, M43PH, M43MH, F29PH

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Event Record Details

Event:	**Tornado**
Begin Date:	**19 Nov 1988, 2117 CST**
Begin Location:	**Not Known**
Begin LAT/LON:	**35°27'N / 88°49'W**
End Location:	**Not Known**
End LAT/LON:	**35°31'N / 88°44'W**
Length:	**6 Miles**
Width:	**90 Yards**
Magnitude:	**F2**
Fatalities:	**0**
Injuries:	**1**
Property Damage:	**$ 250.0K**
Crop Damage:	**$ 0.0**

State: **Tennessee**
Map of Counties
County: **Madison**

Description:
None Reported

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Event Record Details

Event:	**Tornado**
Begin Date:	**18 Apr 1975, 2230 CST**
Begin Location:	**Not Known**
Begin LAT/LON:	**35°37'N / 88°48'W**
End Location:	**Not Known**
End LAT/LON:	**35°40'N / 88°42'W**
Length:	**7 Miles**
Width:	**440 Yards**
Magnitude:	**F1**
Fatalities:	**1**
Injuries:	**6**
Property Damage:	**$ 2.5M**
Crop Damage:	**$ 0.0**

State: **Tennessee**
Map of Counties
County: **Madison**

Description:
None Reported

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SEVERE THUNDERSTORM

Event Record Details

Event:	**Tstm Wind**	State:	**Tennessee**
Begin Date:	**03 Apr 1999, 08:10:00 PM CST**		Map of Counties
Begin Location:	**Bemis**	County:	**Madison**
Begin LAT/LON:	**35°35'N / 88°50'W**		
End Date:	**03 Apr 1999, 08:25:00 PM CST**		
End Location:	**Bemis**		
End LAT/LON:	**35°35'N / 88°50'W**		
Magnitude:	**0**		
Fatalities:	**0**		
Injuries:	**0**		
Property Damage:	**$ 750.0K**		
Crop Damage:	**$ 0.0**		

Description:
A Walmart lost part of its roof. One trailer was overturned. At least 50 other homes and buildings were damaged.

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Event Record Details

Event:	**High Winds**
Begin Date:	**11 Apr 1995, 0630 CST**
Begin Location:	**Not Known**
End Location:	**Not Known**
Magnitude:	**0 knots**
Fatalities:	**0**
Injuries:	**4**
Property Damage:	**$ 1.0M**
Crop Damage:	**$ 0.0**

State: **Tennessee**
Map of Counties

Forecast Zones affected: **Bedford, Benton, Cannon, Carroll, Cheatham, Chester, Clay, Cocke/smoky Mountains, Coffee, Davidson, Decatur, Dekalb, Dickson, Fayette, Franklin, Giles, Hardeman, Hardin, Henderson, Henry, Hickman, Houston, Humphreys, Jackson, Lawrence, Lewis, Lincoln, Macon, Madison, Marshall, Maury, Mcnairy, Montgomery, Moore, Northwest Blount, Northwest Carter, Northwest Cocke, Northwest Greene, Overton, Perry, Putnam, Robertson, Rutherford, Smith, Southeast Carter, Southeast Greene, Stewart, Sumner, Trousdale, Unicoi, Warren, Washington, Wayne, White, Williamson, Wilson**

Description:
A large part of the state experienced high winds after a line of thunderstorms moved through.

The winds were not associated with the thunderstorms. Winds speeds exceeded 70 mph at times. Two persons were injured in Clarksville (Montgomery County) when a tree was blown on top of the truck they were in. Another person was injured in Decherd (Franklin County) when the car they were driving was blown off the road. A fourth person was also injured in Decherd when they were struck by a portable sign. A church that was under construction in Clarksville was destroyed. A greenhouse collapsed in St. James (Greene County). A church steeple was broken off in McEwen (Humphreys County). A boat dock and a 17-foot fishing boat were damaged in Wilson County. One person was trapped in an elevator that had lost power on the campus of East Tennessee State University in Johnson City. There were widespread reports of damage to mobile homes and outbuildings. Numerous homes and businesses suffered roof or awning damage. Trees, power lines and power poles by the hundreds were blown down.

FLOODING

Event Record Details

Event:	**Flood**
Begin Date:	**28 Nov 2001, 06:08:00 PM CST**
Begin Location:	**Not Known**
End Date:	**30 Nov 2001, 11:59:00 PM CST**
End Location:	**Not Known**
Magnitude:	**0**
Fatalities:	**1**
Injuries:	**0**
Property Damage:	**$ 1.4M**
Crop Damage:	**$ 0.0**

State: **Tennessee**
Map of Counties

Forecast Zones affected: **Carroll, Chester, Crockett, Decatur, Dyer, Fayette, Gibson, Hardeman, Hardin, Haywood, Henry, Lauderdale, Madison, Mcnairy, Shelby, Tipton, Weakley**

Description:
Rainfall of between 5 and 11 inches fell on West Tennessee between November 26 and November 29. This produced widespread flooding across the region. Numerous roads were closed. Numerous homes and businesses flooded with as much as 6' of water in some houses. Five bridges washed out. Nearly 500 people had to be evacuated, most of them in Shelby county. Several people were trapped in vehicles and were rescued. One woman was killed in McNairy county when she drove her car into flowing water.

NCDC / Climate Resources / Climate Data / Events / Storm Events / Results / Search / Help

Event Record Details

Event:	**Flood**	State:	**Tennessee**

Event Record Details

Begin Date:	**01 Mar 1997, 04:00:00 AM CST**
Begin Location:	**Not Known**
End Date:	**11 Mar 1997, 12:00:00 AM CST**
End Location:	**Not Known**
Magnitude:	**0**
Fatalities:	**3**
Injuries:	**0**
Property Damage:	**$ 19.8M**
Crop Damage:	**$ 150.0K**

Map of Counties

Forecast Zones affected: **Carroll, Chester, Crockett, Dyer, Gibson, Hardeman, Hardin, Henderson, Henry, Lake, Lauderdale, Madison, Mcnairy, Obion, Shelby, Tipton, Weakley**

Description:
Excessive rainfall during the first few days of March along with rivers that were already high caused prolonged flooding along the Mississippi and Tennessee rivers as well as their tributaries. Along the Mississippi, the river reached levels that had not been seen since 1937. Numerous roads were closed for days. In several counties people had to be evacuated from homes including 400 persons in the town of Rives in Obion county. In Madison county, two persons were killed when their car was swept off a flooded road. One person was killed in Shelby county when his car went over a flooded bridge. One man was also killed in Obion county when he fell out of a boat helping people out of their homes. M18VE, F31VE, M50VE

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WINTER STORM

Event Record Details

Event:	**Winter Storm**
Begin Date:	**15 Jan 1998, 02:00:00 PM CST**
Begin Location:	**Not Known**
End Date:	**16 Jan 1998, 04:00:00 AM CST**
End Location:	**Not Known**
Magnitude:	**0**
Fatalities:	**0**
Injuries:	**0**
Property Damage:	**$ 970.0K**
Crop Damage:	**$ 0.0**

State: **Tennessee**
Map of Counties

Forecast Zones affected: **Carroll, Chester, Crockett, Fayette, Gibson, Hardeman, Hardin, Haywood, Lauderdale, Madison, Mcnairy, Shelby, Tipton**

Description:
A winter storm brought a mix of freezing rain, sleet and snow to much of southwest Tennessee. Numerous trees, power lines and phone lines were brought down by the freezing rain and sleet leaving more than 75,000 homes without power. Several areas had fallen trees damaging homes and cars. Up to 4 inches of snow accumulated in some areas.

NCDC / Climate Resources / Climate Data / Events / Storm Events / Results / Search / Help

Event Record Details

Event: **Ice Storm**
Begin Date: **09 Feb 1994, 2000 CST**

State: **Tennessee**
Map of Counties
Forecast **Anderson, Anderson,**

Event Record Details

Begin Location: **Not Known**
End Date: **10 Feb 1994, 1200CST CST**
End Location: **Not Known**
Magnitude: **0**
Fatalities: **0**
Injuries: **0**
Property Damage: **$ 500.0K**
Crop Damage: **$ 0.0**

Zones affected: **Anderson, Bedford, Bedford, Benton, Benton, Benton, Benton, Bledsoe, Bledsoe, Blount/smoky Mountains, Blount/smoky Mountains, Campbell, Campbell, Campbell, Campbell, Cannon, Cannon, Cannon, Carroll, Carroll, Carroll, Carroll, Cheatham, Cheatham, Cheatham, Cheatham, Chester, Chester, Chester, Claiborne, Claiborne, Claiborne, Claiborne, Clay, Clay, Clay, Clay, Cocke/smoky Mountains, Cocke/smoky Mountains, Cocke/smoky Mountains, Coffee,**

Coffee, Crockett,
Crockett, Crockett,
Cumberland,
Cumberland,
Cumberland, Davidson,
Davidson, Davidson,
Davidson, Decatur,
Decatur, Decatur,
Madison, Marshall,
Marshall, Marshall,
Maury, Maury, Maury,
Mcminn, Mcnairy,
Meigs, Montgomery,
Montgomery,
Montgomery,
Montgomery, Moore,
Moore, Morgan,
Morgan, Morgan,
Morgan, North Sevier,
North Sevier,
Northwest Blount,
Northwest Blount,
Northwest Carter,
Northwest Carter,
Northwest Carter,
Northwest Cocke,
Northwest Cocke,
Northwest Cocke,
Northwest Greene,
Northwest Greene,
Northwest Greene,
Northwest Monroe,
Obion, Obion, Obion,
Overton, Overton,
Overton, Overton,
Perry, Perry, Perry,
Pickett, Pickett, Pickett,
Pickett, Putnam,
Putnam, Putnam,
Putnam, Rhea, Roane,
Roane, Robertson,
Robertson, Robertson,
Robertson, Rutherford,
Rutherford,
Rutherford, Scott,

Scott, Scott, Scott, Sequatchie, Sequatchie, Sevier/smoky Mountains, Sevier/smoky Mountains, Shelby, Smith, Smith, Smith, Smith, Southeast Carter, Southeast Carter, Southeast Carter, Southeast Greene, Southeast Greene, Southeast Greene, Southeast Monroe, Stewart, Stewart, Stewart, Stewart, Sullivan, Sullivan, Sullivan, Sullivan, Sumner, Sumner, Sumner, Sumner, Tipton, Tipton, Tipton, Trousdale, Trousdale, Trousdale, Trousdale, Unicoi, Unicoi, Unicoi, Union, Union, Union, Van Buren, Van Buren, Warren, Warren, Washington, Washington, Washington, Wayne, Weakley, Weakley, Weakley, Weakley, White, White, White, Williamson, Williamson, Williamson, Wilson, Wilson, Wilson, Wilson

Description:
A major ice storm hit much of Tennessee. Numerous trees were knocked down. Many of these trees took down power lines as well. About 770,000 people in the state lost power for some period of time. One person was killed in Memphis when a tree fell upon his car while he was driving. (M37V)

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HAZUS-MH: Earthquake Event Report

Region Name: ***Madison County Earthquake***

Earthquake Scenario: ***MadCoEquak7***

Print Date: ***July 15, 2004***

Disclaimer:
The estimates of social and economic impacts contained in this report were produced using HAZUS loss estimation methodology software which is based on current scientific and engineering knowledge. There are uncertainties inherent in any loss estimation technique. Therefore, there may be significant differences between the modeled results contained in this report and the actual social and economic losses following a specific earthquake. These results can be improved by using enhanced inventory, geotechnical, and observed ground motion data.

Table of Contents

General Description of the Region

HAZUS is a regional earthquake loss estimation model that was developed by the Federal Emergency Management Agency and the National Institute of Building Sciences. The primary purpose of HAZUS is to provide a methodology and software application to develop earthquake losses at a regional scale. These loss estimates would be used primarily by local, state and regional officials to plan and stimulate efforts to reduce risks from earthquakes and to prepare for emergency response and recovery.

The earthquake loss estimates provided in this report was based on a region that includes 1 county(ies) from the following state(s):

Tennessee

Note:
Appendix A contains a complete listing of the counties contained in the region.

The geographical size of the region is 558.45 square miles and contains 27 census tracts. There are over 35 thousand households in the region and has a total population of 91,837 people (2000 Census Bureau data). The distribution of population by State and County is provided in Appendix B.

There are an estimated 32 thousand buildings in the region with a total building replacement value (excluding contents) of 6,226 (millions of dollars). Approximately 98.00 % of the buildings (and 79.00% of the building value) are associated with residential housing.

The replacement value of the transportation and utility lifeline systems is estimated to be 1,367 and 528 (millions of dollars) , respectively.

Building and Lifeline Inventory

Building Inventory

HAZUS estimates that there are 32 thousand buildings in the region which have an aggregate total replacement value of 6,226 (millions of dollars) . Appendix B provides a general distribution of the building value by State and County.

In terms of building construction types found in the region, wood frame construction makes up 81% of the building inventory. The remaining percentage is distributed between the other general building types.

Critical Facility Inventory

HAZUS breaks critical facilities into two (2) groups: essential facilities and high potential loss (HPL) facilities. Essential facilities include hospitals, medical clinics, schools, fire stations, police stations and emergency operations facilities. High potential loss facilities include dams, levees, military installations, nuclear power plants and hazardous material sites.

For essential facilities, there are 3 hospitals in the region with a total bed capacity of 849 beds. There are 29 schools, 3 fire stations, 2 police stations and 2 emergency operation facilities. With respect to HPL facilities, there are 40 dams identified within the region. Of these, 4 of the dams are classified as 'high hazard'. The inventory also includes 48 hazardous material sites, 0 military installations and 0 nuclear power plants.

Transportation and Utility Lifeline Inventory

Within HAZUS, the lifeline inventory is divided between transportation and utility lifeline systems. There are seven (7) transportation systems that include highways, railways, light rail, bus, ports, ferry and airports. There are six (6) utility systems that include potable water, wastewater, natural gas, crude & refined oil, electric power and communications. The lifeline inventory data are provided in Tables 2 and 3.

The total value of the lifeline inventory is over 1,895.00 (millions of dollars). This inventory includes over 315 kilometers of highways, 120 bridges, 4,440 kilometers of pipes.

Table 2: Transportation System Lifeline Inventory

System	Component	# locations/ # Segments	Replacement value (millions of dollars)
Highway	Bridges	120	123.70
	Segments	44	1,090.40
	Tunnels	0	0.00
		Subtotal	**1,214.10**
Railways	Bridges	0	0.00
	Facilities	0	0.00
	Segments	54	59.60
	Tunnels	0	0.00
		Subtotal	**59.60**
Light Rail	Bridges	0	0.00
	Facilities	0	0.00
	Segments	0	0.00
	Tunnels	0	0.00
		Subtotal	**0.00**
Bus	Facilities	2	1.90
		Subtotal	**1.90**
Ferry	Facilities	0	0.00
		Subtotal	**0.00**
Port	Facilities	0	0.00
		Subtotal	**0.00**
Airport	Facilities	2	9.60
	Runways	3	82.10
		Subtotal	**91.60**
		Total	**1,367.20**

Table 3: Utility System Lifeline inventory

System	Component	# Locations / Segments	Replacement value (millions of dollars)
Potable Water	Distribution Lines	NA	44.40
	Facilities	0	0.00
	Pipelines	0	0.00
		Subtotal	**44.40**
Waste Water	Distribution Lines	NA	26.60
	Facilities	9	527.50
	Pipelines	0	0.00
		Subtotal	**554.10**
Natural Gas	Distribution Lines	NA	17.80
	Facilities	0	0.00
	Pipelines	0	0.00
		Subtotal	**17.80**
Oil Systems	Facilities	0	0.00
	Pipelines	0	0.00
		Subtotal	**0.00**
Electrical Power	Facilities	0	0.00
		Subtotal	**0.00**
Communication	Facilities	13	1.10
		Subtotal	**1.10**
		Total	**617.40**

Earthquake Scenario

HAZUS uses the following set of information to define the earthquake parameters used for the earthquake loss estimate provided in this report.

Scenario Name	MadCoEquak7
Type of Earthquake	Arbitrary
Fault Name	NA
Historical Epicenter ID #	NA
Probabilistic Return Period	NA
Longitude of Epicenter	-88.83
Latitude of Epicenter	35.60
Earthquake Magnitude	7.00
Depth (Km)	10.00
Rupture Length (Km)	NA
Rupture Orientation (degrees)	NA
Attenuation Function	Project 2000 East

Building Damage

Building Damage

HAZUS estimates that about 25,867 thousand buildings will be at least moderately damaged. This is over 80.00 % of the total number of buildings in the region. There are an estimated 5,465 buildings that will be completely destroyed. The definition of the 'damage states' is provided in Volume 1: Chapter 5 of the HAZUS technical manual. Table 4 below summaries the expected damage by general occupancy for the buildings in the region. Table 5 summaries the expected damage by general building type.

Table 4: Expected Building Damage by Occupancy

	None		Slight		Moderate		Extensive		Complete	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Agriculture	0	0.00	0	0.00	0	0.00	0	0.00	1	0.01
Commercial	4	0.30	14	0.25	70	0.58	120	1.44	249	4.55
Education	0	0.00	0	0.00	1	0.01	2	0.02	4	0.06
Government	0	0.00	0	0.00	1	0.01	2	0.03	6	0.10
Industrial	0	0.03	1	0.02	7	0.05	16	0.19	44	0.81
Other Residential	70	5.69	352	6.59	1,089	9.04	1,371	16.40	1,455	26.6
Religion	0	0.04	2	0.04	6	0.05	7	0.08	13	0.23
Single Family	1,152	93.93	4,979	93.09	10,868	90.26	6,843	81.84	3,695	67.6
Total	**1,226**		**5,349**		**12,041**		**8,360**		**5,466**	

Table 5: Expected Building Damage by Building Type (All Design Levels)

	None		Slight		Moderate		Extensive		Complete	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Concrete	0	0.00	0	0.00	0	0.00	1	0.02	4	0.07
MH*	25	2.06	118	2.20	468	3.89	884	10.57	1,009	18.46
Precast	0	0.03	1	0.01	5	0.04	12	0.14	32	0.59
RM*	1	0.05	1	0.02	5	0.04	12	0.14	29	0.53
Steel	1	0.01	0	0.00	3	0.03	10	0.12	52	0.95
UM*	43	3.51	164	3.07	576	4.78	871	10.42	1,696	31.03
Wood	1,155	94.12	5055	94.52	10,930	90.77	6,481	77.52	2,496	45.67
Total	**1,226**		**5,349**		**12,041**		**8,360**		**5,466**	

*Note:
RM Reinforced Masonry
URM Unreinforced Masonry
MH Manufactured Housing

Essential Facility Damage

Before the earthquake, the region had 849 hospital beds available for use. On the day of the earthquake, the model estimates that only 3 hospital beds (0.00%) are available for use by patients already in the hospital and those injured by the earthquake. After one week, 2.00% of the beds will be back in service. By 30 days, 14.00% will be operational.

Table 6: Expected Damage to Essential Facilities

Classification	Total	# Facilities		
		Least Moderate Damage > 50%	Complete Damage > 50%	# likely Functional on day 1
Hospitals	3	3	2	0
Schools	29	29	9	0
EOCs	2	2	2	0
PoliceStations	2	2	2	0
FireStations	3	3	2	0

Transportation and Utility Lifeline Damage

Table 7 provides damage estimates for the transportation system.

Table 7: Expected Damage to the Transportation Systems

System	Component	Number of Locations				
		Locations/ Segments	With at Least Mod. Damage	With Complete Damage	With Functionality > 50 %	
					After Day 1	After Day 7
Highway	Segments	44	0	0	44	44
	Bridges	120	69	40	51	59
	Tunnels	0	0	0	0	0
Railways	Segments	54	0	0	54	54
	Bridges	0	0	0	0	0
	Tunnels	0	0	0	0	0
	Facilities	0	0	0	0	0
Light Rail	Segments	0	0	0	0	0
	Bridges	0	0	0	0	0
	Tunnels	0	0	0	0	0
	Facilities	0	0	0	0	0
Bus	Facilities	2	2	2	0	0
Ferry	Facilities	0	0	0	0	0
Port	Facilities	0	0	0	0	0
Airport	Facilities	2	2	0	0	0
	Runways	3	0	0	3	3

Note: Roadway segments, railroad tracks and light rail tracks are assumed to be damaged by ground failure only. If ground failure maps are not provided, damage estimates to these components will not be computed.

Tables 8-10 provide information on the damage to the utility lifeline systems. Table 8 provides damage to the utility system facilities. Table 9 provides estimates on the number of leaks and breaks by the pipelines of the utility systems. For electric power and potable water, HAZUS performs a simplified system performance analysis. Table 10 provides a summary of the system performance information.

Table 8 : Expected Utility System Facility Damage

System	# of Locations				
	Total #	With at Least Moderate Damage	With Complete Damage	with Functionality > 50 %	
				After Day 1	After Day 7
Potable Water	0	0	0	0	0
Waste Water	9	9	1	0	0
Natural Gas	0	0	0	0	0
Oil Systems	0	0	0	0	0
Electrical Power	0	0	0	0	0
Communication	13	13	4	0	4

Table 9 : Expected Utility System Pipeline Damage (Site Specific)

System	Total Pipelines Length (kms)	Number of Leaks	Number of Breaks
Potable Water	2,220	3010	752
Waste Water	1,332	2381	595
Natural Gas	888	2545	636
Oil	0	0	0

Table 10: Expected Potable Water and Electric Power System Performance

	Total # of Households	Number of Households without Service				
		At Day 1	At Day 3	At Day 7	At Day 30	At Day 90
Potable Water	35,552	32,658	32,183	30,913	0	0
Electric Power		33,554	29,417	20,749	7,200	36

Induced Earthquake Damage

Fire Following Earthquake

Fires often occur after an earthquake. Because of the number of fires and the lack of water to fight the fires, they can often burn out of control. HAZUS uses a Monte Carlo simulation model to estimate the number of ignitions and the amount of burnt area. For this scenario, the model estimates that there will be 14 ignitions that will burn about 0.19 sq. mi 0.03 % of the region's total area.) The model also estimates that the fires will displace about 241 people and burn about 16 (millions of dollars) of building value.

Debris Generation

HAZUS estimates the amount of debris that will be generated by the earthquake. The model breaks the debris into two general categories: a) Brick/Wood and b) Reinforced Concrete/Steel. This distinction is made because of the different types of material handling equipment required to handle the debris.

The model estimates that a total of 1 million tons of debris will be generated. Of the total amount, Brick/Wood comprises 44.00% of the total, with the remainder being Reinforced Concrete/Steel. If the debris tonnage is converted to an estimated number of truckloads, it will require 40,000 truckloads (@25 tons/truck) to remove the debris generated by the earthquake.

Social Impact

Shelter Requirement

HAZUS estimates the number of households that are expected to be displaced from their homes due to the earthquake and the number of displaced people that will require accommodations in temporary public shelters. The model estimates (7,493 households to be displaced due to the earthquake. Of these, 2,211 people (out of a total population of 91,837 will seek temporary shelter in public shelters.

Casualties

HAZUS estimates the number of people that will be injured and killed by the earthquake. The casualties are broken down into four (4) severity levels that describe the extent of the injuries. The levels are described as follows;

- Severity Level 1: Injuries will require medical attention but hospitalization is not needed.
- Severity Level 2: Injuries will require hospitalization but are not considered life-threatening
- Severity Level 3: Injuries will require hospitalization and can become life threatening if not promptly treated.
- Severity Level 4: Victims are killed by the earthquake.

The casualty estimates are provided for three (3) times of day: 2:00 AM, 2:00 PM and 5:00 PM. These times represent the periods of the day that different sectors of the community are at their peak occupancy loads. The 2:00 AM estimate considers that the residential occupancy load is maximum, the 2:00 PM estimate considers that the educational, commercial and industrial sector loads are maximum and 5:00 PM represents peak commute time.

Table 11 provides a summary of the casualties estimated for this earthquake

Table 11: Casualty Estimates

		Level 1	Level 2	Level 3	Level 4
2 AM	Commercial	29	9	1	3
	Commuting	0	0	0	0
	Educational	0	0	0	0
	Hotels	23	7	1	2
	Industrial	35	11	2	3
	Other-Residential	651	186	26	49
	Single Family	1,067	268	31	59
	Total	**1,807**	**480**	**61**	**116**
2 PM	Commercial	1,706	521	81	158
	Commuting	2	2	4	1
	Educational	326	103	17	33
	Hotels	5	1	0	0
	Industrial	261	81	12	24
	Other-Residential	137	40	6	11
	Single Family	227	58	7	13
	Total	**2,664**	**805**	**127**	**239**
5 PM	Commercial	1,223	374	59	112
	Commuting	54	67	119	23
	Educational	42	13	2	4
	Hotels	7	2	0	1
	Industrial	163	50	8	15
	Other-Residential	256	74	11	20
	Single Family	430	110	14	24
	Total	**2,176**	**691**	**212**	**199**

Economic Loss

The total economic loss estimated for the earthquake is 4,154.88 (millions of dollars), which includes building and lifeline related losses based on the region's available inventory. The following three sections provide more detailed information about these losses.

Building-Related Losses

The building losses are broken into two categories: direct building losses and business interruption losses. The direct building losses are the estimated costs to repair or replace the damage caused to the building and its contents. The business interruption losses are the losses associated with inability to operate a business because of the damage sustained during the earthquake. Business interruption losses also include the temporary living expenses for those

The total building-related losses were 3,757.08 (millions of dollars); 11 % of the estimated losses were related to the business interruption of the region. By far, the largest loss was sustained by the residential occupancies which made up over 61 % of the total loss. Table 12 below provides a summary of the losses associated with the building damage.

Table 12: Building-Related Economic Loss Estimates

(Millions of dollars)

Category	Area	Single Family	Other Residential	Commercial	Industrial	Others	Total
Income Loses							
	Wage	0.00	12.29	118.36	4.42	4.79	139.85
	Capital-Related	0.00	5.22	93.15	3.16	1.70	103.23
	Rental	51.58	50.79	43.20	1.59	2.62	149.78
	Relocation	5.48	1.07	2.75	0.10	0.86	10.26
	Subtotal	**57.07**	**69.36**	**257.46**	**9.27**	**9.97**	**403.12**
Capital Stock Loses							
	Structural	276.95	74.08	131.36	27.56	18.54	528.49
	Non_Structural	1,068.49	388.29	434.25	121.82	74.30	2,087.14
	Content	280.22	90.42	221.48	81.45	38.16	711.73
	Inventory	0.00	0.00	7.90	18.43	0.28	26.60
	Subtotal	**1,625.66**	**552.79**	**794.98**	**249.25**	**131.28**	**3,353.96**
	Total	**1,682.73**	**622.14**	**1,052.44**	**258.52**	**141.25**	**3,757.08**

Transportation and Utility Lifeline Losses

For the transportation and utility lifeline systems, HAZUS computes the direct repair cost for each component only. There are no losses computed by HAZUS for business interruption due to lifeline outages. Tables 13 & 14 provide a detailed breakdown in the expected lifeline losses.

HAZUS estimates the long-term economic impacts to the region for 15 years after the earthquake. The model quantifies this information in terms of income and employment changes within the region. Table 15 presents the results of the region for the given earthquake.

Table 13: Transportation System Economic Losses
(Millions of dollars)

System	Component	Inventory Value	Economic Loss	Loss Ratio (%)
Highway	Segments	1,090.42	$0.00	0.00
	Bridges	123.67	$28.38	22.95
	Tunnels	0.00	$0.00	0.00
	Subtotal	**1214.10**	**28.40**	
Railways	Segments	59.60	$0.00	0.00
	Bridges	0.00	$0.00	0.00
	Tunnels	0.00	$0.00	0.00
	Facilities	0.00	$0.00	0.00
	Subtotal	**59.60**	**0.00**	
Light Rail	Segments	0.00	$0.00	0.00
	Bridges	0.00	$0.00	0.00
	Tunnels	0.00	$0.00	0.00
	Facilities	0.00	$0.00	0.00
	Subtotal	**0.00**	**0.00**	
Bus	Facilities	1.92	$1.58	82.33
	Subtotal	**1.90**	**1.60**	
Ferry	Facilities	0.00	$0.00	0.00
	Subtotal	**0.00**	**0.00**	
Port	Facilities	0.00	$0.00	0.00
	Subtotal	**0.00**	**0.00**	
Airport	Facilities	9.59	$7.13	74.33
	Runways	82.05	$0.00	0.00
	Subtotal	**91.60**	**7.10**	
	Total	**1367.20**	**37.10**	

Table 14: Utility System Economic Losses

(Millions of dollars)

System	Component	Inventory Value	Economic Loss	Loss Ratio (%)
Potable Water	Pipelines	0.00	$0.00	0.00
	Facilities	0.00	$0.00	0.00
	Distribution	44.40	$27.09	61.00
	Subtotal	**44.41**	**$27.09**	
Waste Water	Pipelines	0.00	$0.00	0.00
	Facilities	527.50	$288.53	54.70
	Distribution	26.60	$21.43	80.41
	Subtotal	**554.12**	**$309.95**	
Natural Gas	Pipelines	0.00	$0.00	0.00
	Facilities	0.00	$0.00	0.00
	Distribution	17.80	$22.90	128.94
	Subtotal	**17.76**	**$22.90**	
Oil Systems	Pipelines	0.00	$0.00	0.00
	Facilities	0.00	$0.00	0.00
	Subtotal	**0.00**	**$0.00**	
Electrical Power	Facilities	0.00	$0.00	0.00
	Subtotal	**0.00**	**$0.00**	
Communication	Facilities	1.10	$0.77	67.65
	Subtotal	**1.14**	**$0.77**	
	Total	**617.43**	**$360.72**	

Table 15. Indirect Economic Impact with outside aid
(Employment as # of people and Income in millions of $)

	LOSS	Total	%
First Year			
	Employment Impact	25	0.07
	Income Impact	(90)	-6.43
Second Year			
	Employment Impact	10	0.03
	Income Impact	(155)	-11.06
Third Year			
	Employment Impact	0	0.00
	Income Impact	(183)	-13.02
Fourth Year			
	Employment Impact	0	0.00
	Income Impact	(183)	-13.03
Fifth Year			
	Employment Impact	0	0.00
	Income Impact	(183)	-13.03
Years 6 to 15			
	Employment Impact	0	0.00
	Income Impact	(183)	-13.03

Appendix A: County Listing for the Region

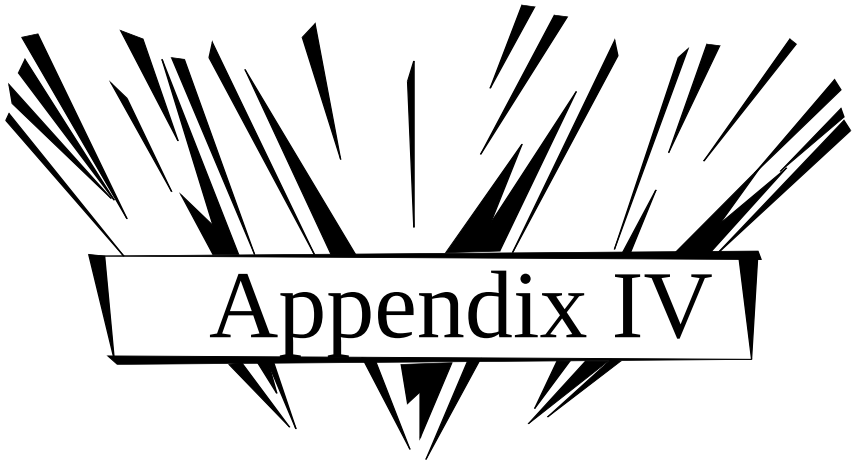
Madison,TN

Appendix B: Regional Population and Building Value Data

State	County Name	Population	Building Value (millions of dollars)		
			Residential	Non-Residential	Total
Tennessee	Madison	91,837	4,941	1,285	6,226
Total State		**91,837**	**4,941**	**1,285**	**6,226**
Total Region		**91,837**	**4,941**	**1,285**	**6,226**

MADISON COUNTY – WILDFIRES STATISTICS

Year	No. of Forest Fires	Forest Acres Burned	Non-Forest Acres Burned	No. of Non Forest Fires	No. of Non-Forest Acres Burned	Total Number of Fires	Total Number of Acres
1960						42	1305
1961						49	280
1962						34	340
1963						88	839
1964						55	281
1965						41	518
1966						65	1124
1967						56	670
1968						14	146
1969						13	112
1970						14	64
1971						7	70
1972						13	120
1973						2	7
1974						6	37
1975						18	88
1976						172	1544
1977						255	1742
1978						147	564
1979						50	344
1980	16	124	31	28	48	44	203
1981	67	861	121	47	122	114	1104
1982	29	179	40	53	85	82	304
1983	21	87	41	47	65	68	193
1984	41	176	74	43	276	84	526
1985	52	257	2	13	4	65	263
1986	46	412	12	22	63	80	446
1987	44	786	178	32	62	76	1003
1988	24	108	76	13	7	37	191
1989	11	80	9	7	12	18	101
1990	4	16	20.3	9	6.7	13	43
1991	6	14.6	31.5	10	10.5	16	56.6
1992	15	99.3	34	17	63.3	32	196.6
1993						6	38
1994						28	231
1995	16	174.8		4	11.2	22	178.1
1996	41	148.5		3	12.3	20	155.8
1997	3	47		2	2.5	7	58.2
1998	1	5		0	0	4	17.3
1999	6	110.1		0	0	8	112.6
2000	1	1		0	0	1	1
2001	0	0		0	0	0	0
2002	0	0		0	0	0	0
2003	0	0		0	0	0	0
2004						1	20

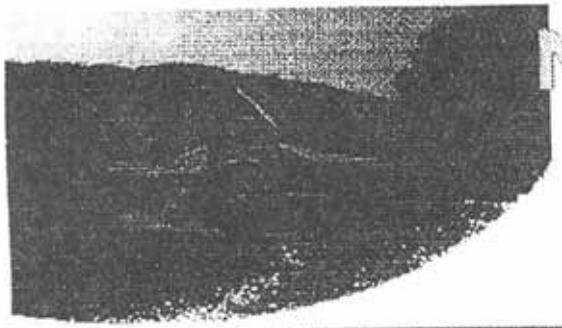


… Vulnerability Assessment

Madison County Critical Facilities List

Name	Address	Phone
American Red Cross	718 N. Highland Ave	731-427-5543
BellSouth Telephone Service	Customer Service	557-6123
Chamber of Commerce	197 Auditorium St.	731-423-2200
City of Jackson Civic Center	400 S. Highland	731-425-8580
City of Medon	Bolivar Highway	731-422-6237
City of Three Way	136 Green Rd.	731-784-9269
Jackson Christian School	832 Country Club Ln.	731-668-8055
Jackson City Hall	101 E. Main St.	731-425-8210
Jackson Control Tower (Airport)	2396 Technology Center Dr.	731-425-9430
Jackson Energy Authority	119 E. College	731-422-7500
Jackson Energy Authority	185 Medow St.	731-422-7500
Jackson Energy Authority	87 Hannah Dr.	731-660-3676
Jackson Fire Department (Fire Station 1)	440 E. Chester	731-425-8350
Jackson Fire Department (Fire Station 2)	550 Westwood Ave.	731-425-8355
Jackson Fire Department (Fire Station 3)	15 Roosevelt Parkway	731-425-8351
Jackson Fire Department (Fire Station 4)	1526 S. Highland Ave.	731-425-8354
Jackson Fire Department (Fire Station 5)	50 Vann Drive	731-425-8352
Jackson Fire Department (Fire Station 6)	1291 Ashport Rd.	731-425-8353
Jackson Housing Authority	125 Preston St.	731-422-1671
Jackson Madison County School Bus Garage	59 Hartsbridge Rd.	731-988-3890
Jackson Police Department	234 Institute St.	731-425-8400
Jackson State Community College	2046 N. Parkway	731-424-3520
Jackson Street Department	123 Farrar	731-425-8540
Jackson Transit Authority	241 Deaderick	731-423-0200
Jackson-Madison County Ambulance Authority	708 W. Forrest	731-423-6107
Jackson-Madison County Emergency Management Agency	234 Institute St.	731-427-1271
Jackson-Madison County General Hospital	708 W. Forrest	731-425-5000
Jackson-Madison County Schools (Alexander Elementary)	900 N. Highland	731-422-1841
Jackson-Madison County Schools (Alternative School)	701 S. Highland	731-422-1142
Jackson-Madison County Schools (Andrew Jackson Elementary)	211 Old Hickory Blvd.	731-668-8023
Jackson-Madison County Schools (Arlington Elementary)	701 Arlington Ave.	731-265-9784
Jackson-Madison County Schools (Beech Bluff Elementary)	4488 Beech Bluff Rd.	731-422-1572
Jackson-Madison County Schools (Denmark Elementary)	1945 Denmark-Jackson Rd.	731-427-5986
Jackson-Madison County Schools (East Elementary)	2480 Ashport Rd.	731-988-3860
Jackson-Madison County Schools (Highland Park Intermediate)	617 W. Forrest	731-427-4581
Jackson-Madison County Schools (Isaac Lane Elementary)	746 Lexington St.	731-423-4720
Jackson-Madison County Schools (Jackson Academic High School)	179 Allen St.	731-424-2200
Jackson-Madison County Schools (Jackson Central-Merry High School)	332 Lane Ave.	731-427-3351
Jackson-Madison County Schools (Jackson Middle School)	666 E. Lexington	731-423-6170
Jackson-Madison County Schools (Liberty Magnet High School)	3470Ridgecrest Rd.Ext.	731-423-9086
Jackson-Madison County Schools (Lincoln Elementary)	425 Berry St.	731-988-3800
Jackson-Madison County Schools (Malesus Elementary)	610 Bolivar Highway	731-423-0634
Jackson-Madison County Schools (North Parkway Middle School)	1341 N. Parkway	731-427-3384
Jackson-Madison County Schools (Northeast Middle School)	2663 Christmasville Rd.	731-422-6687
Jackson-Madison County Schools (Northside High School)	3070 N. Highland	731-668-7877
Jackson-Madison County Schools (Nova Elementary)	248 Bedford White Rd.	731-424-1591
Jackson-Madison County Schools (Parkview Elementary)	905 E. Chester	731-422-3116
Jackson-Madison County Schools (Pope Elementary)	1071 Old Humboldt Rd.	731-668-0350
Jackson-Madison County Schools (South Elementary)	570 Stone Rd. Pinson	731-988-5413
Jackson-Madison County Schools (Southside High School)	84 Hartsbridge Rd.	731-422-9923

Jackson-Madison County Schools (Washington-Douglas Elementary)	409 Iselin St.	731-422-4839
Jackson-Madison County Schools (West Jackson Elementary)	227 McCowat St.	731-427-2841
Jackson-Madison County Schools (West Middle School)	317 Denmark Rd.	731-988-3810
Jackson-Madison County Schools (White Hall Elementary)	532 White Hall St.	731-427-6396
Lambuth University	705 Lambuth Blvd.	731-425-3201
Lane College	545 Lane Ave.	731-426-7595
Madison County Airport Authority	308 Grady Montogomery Drive	731-423-0995
Madison County Court House	100 E. Main St.	731-423-6020
Madison County Criminal Justice Complex (Security Office)	515 Liberty Street	731-988-3072
Madison County E911	546 E. College	731-423-3911
Madison County Fire Department	722 Hartsbridge Rd.	731-424-9677
Madison County General Sessions Judge Division II	110 Irby St.	731-423-6074
Madison County Health Department E. Jackson	589 E. College	731-427-3040
Madison County Health Department Environmental Health	745 W. Forrest	731-423-0443
Madison County Juvenile Court	224 Lexington Ave.	731-423-6146
Madison County Penal Farm	1524 Westover Rd.	731-422-1344
Madison County Property Assessor	118 E. Baltimore	731-423-6063
Madison County Rabies Control	146 Miller Av.	731-668-4211
Madison County Sheriffs Department	546 E. College	731-423-6000
Northside Christian Academy	2842 Old Medina Rd.	731-424-9525
Regional Hospital	367 Hospital Blvd.	731-660-6300
Tennessee Army National Guard	1510 R E Bailey By-Pass	731-421-8609
Tennessee Department of Transportation	300 Benchmark Pl.	731-935-0100
Tennessee Emergency Management Agency (Western Division)	Hwy 70 E. By-Pass	731-422-3300
Tennessee Highway Patrol (Jackson Division)	20 Country Club Ln.	731-423-6630
Tennessee Technology Center	2468 Technology Center Dr.	731-424-0691
The Salvation Army	125 Allen Ave.	731-424-1432
The Salvation Army	116 Allen Ave	731-422-6781
Trinity Christian Academy	10 Windy City Rd.	731-668-4040
U.S. Postal Service	200 Dr. Martin Luther King Dr.	731-422-6461
U.S. Postal Service	After 5 PM and Weekends	731-422-5369
Union University	1050 Union University Dr.	731-661-5180
University School of Jackson	232 McClellan Rd.	731-664-0812
West Tennessee Business College	1186 Hwy. 45 By-Pass	731-668-7240



National Register of Historic Places

TENNESSEE - Madison County - Vacant / Not In Use

Jackson Free Library (added 1975 - **Building** - #75001769)
Madison County - College and Church Sts., Jackson
(10 acres, 1 building)

Historic Significance: Architecture/Engineering
Architect, builder, or engineer: Unknown
Architectural Style: Other, Renaissance
Area of Significance: Architecture
Period of Significance: 1900-1924
Owner: **Local Gov't**
Historic Function: Education
Historic Sub-function: Library
Current Function: Vacant/Not In Use

Nashville, Chattanooga & St. Louis Passenger Depot--Jackson
(added 1993 - **Building** - #92001870)
Also known as **Louisville and Nashville Depot**
Madison County - 590 S. Royal St., Jackson
(less then 1 acres, 1 building)

Historic Significance: Architecture/Engineering, Event
Architect, builder, or engineer: Nashville,Chattanooga & St. Louis RR
Architectural Style: Bungalow/Craftsman
Area of Significance: Transportation, Architecture
Period of Significance: 1900-1924, 1925-1949
Owner: **Private**
Historic Function: Transportation
Historic Sub-function: Rail-Related
Current Function: Vacant/Not In Use

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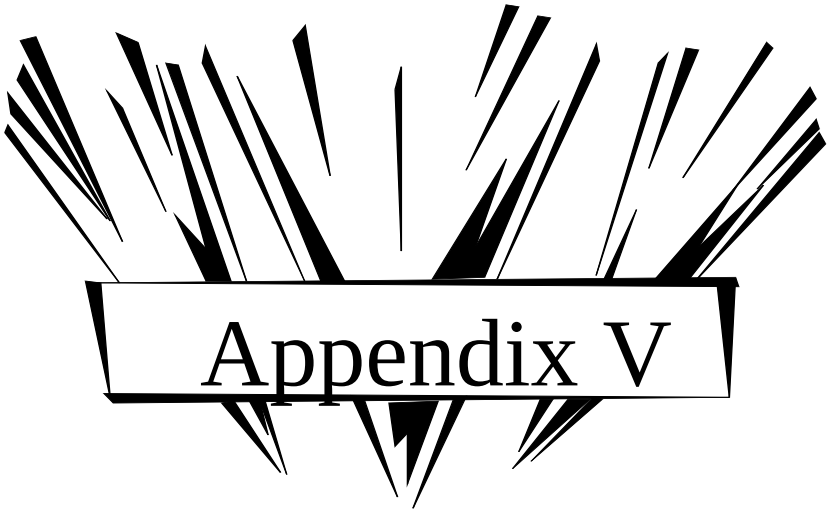
Select a Different TENNESSEE County (map) Anderson Bedford Blount Bradley Carter Cheatham Claiborne Cocke Coffee Cumberland Davidson De Kalb Dickson Dyer Fayette Fentress Franklin Gibson Giles Greene Grundy Hamblen Hamilton Hancock Hawkins Henry Hickman Humphreys Knox Lawrence Lewis Lincoln Loudon Madison Marshall Maury McMinn Meigs Monroe Montgomery Obion Overton Perry Polk Putnam Roane Rutherford Scott Sequatchie Sevier Shelby Stewart Sullivan Sumner Tipton Unicoi Van Buren Warren Washington White Williamson Wilson



… Capability Assessment

CHANGE NAME OF JACKSON-MADISON COUNTY CIVIL DEFENSE DEPARTMENT

R E S O L U T I O N

TO CHANGE THE NAME OF THE JACKSON-MADISON COUNTY CIVIL DEFENSE DEPARTMENT TO THE JACKSON-MADISON COUNTY EMERGENCY MANAGEMENT AGENCY.

WHEREAS: Chapter 336 of the Tennessee Public Acts of 1981, codified as T.C.A. 58-2-103, changed the official name of the Tennessee Civil Defense Agency to the "Tennessee Emergency Management Agency and also reflecting changes in the scope and purposes of such organizations; and

WHEREAS: The Director of the Jackson-Madison County Civil Defense Department has recommended that the name of the Jackson-Madison County Civil Defense Department should be changed to remain consistent with the Federal and State Designations; and

WHEREAS: The County Executive of Madison County, Tennessee and the Mayor of the City of Jackson, Tennessee have approved this change subject to action of the County and City Commissions;

NOW, THEREFORE, BE IT RESOLVED BY THESE LEGISLATIVE BODIES IN SESSION ASSEMBLED that the name of the Jackson-Madison County Civil Defense Department be changed to the Jackson-Madison County Emergency Management Agency by which name it shall hereafter be known and referred to; and

BE IT FURTHER RESOLVED that this Resolution take effect from and after its passage, the public welfare requiring it.

IN WITNESS WHEREOF WE HEREUNTO SET OUR HANDS AND CAUSE THE SEALS OF THE CITY OF JACKSON, TENNESSEE AND THE COUNTY OF MADISON, TENNESSEE TO BE AFFIXED THIS 23rd day of October 1987.

/s/ Robert D. Conger
ROBERT D. CONGER, MAYOR
CITY OF JACKSON, TENNESSEE

/s/ J. Alex Leech
DR. J. ALEX LEECH, COUNTY EXECUTIVE
MADISON COUNTY, TENNESSEE

A motion was made by Commissioner Arthur Johnson, Jr., seconded by Commissioner T. C. Dzier to approve the change of name of the Madison County Civil Defense Department.

MOTION CARRIED: Voice vote with Commissioner Watlington passing.

JOINT RESOLUTION

WHEREAS, the City of Jackson and the Quarterly County Cour of Madison County, Tennessee desire to create the Jackson-Madis County Civil Defense Organization as authorized by Section 7-60 et seq., Tennessee Code Annotated, to define its authority, to provide for appropriation and the operation of such organizatio

Be it jointly resolved by the Board of Commissioners of the City of Jackson and the Quarterly County Court of Madison County, Tennessee as follows:

SECTION 1. There is hereby created the Jackson-Madison County Civil Defense Organization which shall be a joint operat ion of the City of Jackson and the County of Madison for the purpose of organizing and directing civil defense for the citi- zens of the City of Jackson and Madison County, Tennessee, out- side of Jackson.

SECTION 2. In accordance with applicable Federal and Sta of Tennessee laws, the Jackson-Madison County Civil Defense Organization is hereby authorized to assist the regular govern- ment of the City of Jackson, when requested to do so by the May of the City of Jackson, and the regular government of Madison County, Tennessee ~~shall be~~ outside the corporate limits of the City of Jackson, when requested by the County Judge of Madison County, Tennessee, as may be necessary due to emergencies or disasters resulting from enemy or natural causes which occur affecting the lives, health, safety, welfare and property of t citizens of the City of Jackson, or the citizens of Madison County, Tennessee outside the corporate limits of the City of Jackson. The Jackson-Madison County Civil Defense Organizatio is hereby authorized, when requested to do so by the Mayor of