

# **BLOUNT COUNTY**



## **BASIC EMERGENCY OPERATIONS PLAN (BEOP)**

**2015**



# BLOUNT COUNTY MAYOR

Ed Mitchell

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December 9, 2015

To: Local Emergency Response Agencies and the Citizens of Blount County

FROM: Blount County Mayor

Blount County has been and will continue to be subjected to a wide variety of hazards that have the potential for causing significant damage and/or loss of life. It is imperative that county government agencies, municipal departments, as well as private citizens to be prepared to deal effectively with dangerous and damaging events. Additionally, it is prudent to take appropriate steps to lessen the potential effects of such events or to prevent their occurrence altogether. This Basic Emergency Operations Plan is one of many mechanisms through which this can be accomplished. Another mechanism is the adoption and use of the National Incident Management System (NIMS) for the response to and management of emergencies in the county. The County's NIMS adoption resolution appears immediately after this letter of promulgation.

By virtue of the powers and authority vested in me by the Constitution of the State of Tennessee and in accordance with the provisions of the Tennessee Code annotated and the federal Civil Defense Act of 1950, as amended, as the County Mayor of Blount County, I hereby promulgate and issue, effective this date, the Blount County Basic Emergency Operations Plan. Further, I declare this plan to be the official emergency management plan for Blount County and its municipalities and mandatory upon all agencies and political subdivisions within.

This plan is effective upon receipt and for execution when directed. The Director of the Emergency Management Agency is responsible for maintaining and updating this plan, as required, in coordination with the appropriate agencies.

Sincerely,

A handwritten signature in black ink, appearing to read "Ed Mitchell".

Ed Mitchell  
Blount County Mayor

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County Court House  
County of Blount  
State of Tennessee  
**Proclamation**



**WHEREAS:** In Homeland Security Directive (HSPD)-5, the President directed the Secretary of the Department of Homeland Security to develop and administer a National Incident Management System (NIMS), which would provide a consistent nationwide approach for Federal, State, Local and Tribal Governments to work together more effectively and efficiently to prevent, prepare for, respond to, and recover from domestic incidents, regardless of cause, size, or complexity. The collective input and guidance from all Federal, State, Local and Tribal Homeland Security Partners has been vital to the development, implementation, and utilization of a comprehensive NIMS. It is necessary and desirable that all Federal, State, Local and Tribal emergency agencies and personnel coordinate their efforts to provide the highest levels of incident management, and

**WHEREAS:** To facilitate the most efficient and effective incident management, it is critical that Federal, State, Local and Tribal organizations utilize standardized terminology, standardized organizational structure, interoperable communications, consolidated action plans, unified command structure, uniform personnel qualification standards, and uniform standards for training and exercising, emergencies or disasters, and

**WHEREAS:** The NIMS standardized procedures for managing personnel, communications, facilities, and resources will improve the State's ability to utilize federal funding to enhance local and state agency readiness, maintain first responders safety, and streamline incident management processes. The Incident Command System components of NIMS are already an integral part of various incident management training programs, and The National Commission of Terrorist Attacks (9-11 Commission) recommended adoption of a standardized Incident Command System.

**NOW THEREFORE I, BEVERLEY D. WOODRUFF**, Mayor of Blount County, Tennessee, by virtue of authority vested in me by the Constitution and Laws of the State of Tennessee, do hereby establish the National Incident Management System (NIMS) as the County Standard of incident management.



*In witness whereof, I have hereunto set my hand  
and caused the seal of this county to be affixed*

*Signature:* Beverley D. Woodruff

*Title:* Blount County Mayor

*Attest:* Ray C. [Signature]

*Title:* Blount County Clerk

*Date:* February 17, 2005

RESOLUTION NO. 2005-20

**A RESOLUTION IN REGARD TO DESIGNATING THE NATIONAL INCIDENT MANAGEMENT SYSTEM (NIMS) AS THE BASIS FOR ALL INCIDENT MANAGEMENT IN THE CITY OF MARYVILLE, TN.**

**WHEREAS**, the President in Homeland Security Directive (HSPD)-5, directed the Secretary of the Department of Homeland Security to develop and administer a National Incident Management System (NIMS), which would provide a consistent nationwide approach for Federal, State, local and Tribal Governments to work together more effectively and efficiently to prevent, prepare for, respond to and recover from domestic incidents, regardless of cause, size or complexity;

**WHEREAS**, the collective input and guidance from all Federal, State, and Local and Tribal Homeland Security partners has been and will continue to be vital to the development, effective implementation and utilization of a comprehensive NIMS;

**WHEREAS**, it is necessary and desirable that all Federal, State, Local and Tribal emergency agencies and personnel coordinate their efforts to effectively and efficiently provide the highest levels of incident management;

**WHEREAS**, to facilitate the most efficient and effective incident management it is critical that Federal, State, Local and Tribal organizations utilize standardized terminology, standardized organizational structure, interoperable communications consolidated action plans unified command structure, uniform personnel qualification standards, uniform standard for training and exercising, emergencies or disasters;

**WHEREAS**, the NIMS standardized procedures for managing personnel, communications, facilities and resources will improve the State's ability to utilize federal funding to enhance local and state agency readiness, maintain first responders safety, and streamline incident management processes;

**WHEREAS**, the Incident Command System components of NIMS are already an integral part of various incident management training programs; and

**WHEREAS**, the National Commission of Terrorist Attacks (9-11 Commission) recommended adoption of a standardized Incident Command System;

**NOW, THEREFORE BE IT RESOLVED BY THE City Council of the City Of Maryville, TN THE FOLLOWING:**

- Section 1. That the National Incident Management System (NIMS) be designated as the City of Maryville's standard of incident management.
- Section 2. That this resolution take effect immediately upon its passage.

RESOLUTION NO. R05-041

A RESOLUTION DESIGNATING THE NATIONAL INCIDENT MANAGEMENT SYSTEM (NIMS) AS THE BASIS FOR ALL INCIDENT MANAGEMENT IN THE CITY OF ALCOA

WHEREAS, in Homeland Security Presidential Directive (HSPD)-5, *Management of Domestic Incidents*, the President of the United States directed the Secretary of the Department of Homeland Security to develop and administer a National Incident Management System (NIMS), which would provide a consistent nationwide approach for Federal, State, territorial, local, and tribal governments to work together more effectively and efficiently to prevent, prepare for, respond to and recover from domestic incidents, regardless of cause, size or complexity; and

WHEREAS, in order to facilitate the most efficient and effective incident management, it is critical that Federal, State, territorial, local, and tribal organizations utilize standardized terminology, organizational structures, interoperable communications, consolidated action plans, unified command structures, uniform personnel qualification standards, uniform standards for planning, training, and exercising, comprehensive resource management, and designated incident facilities during emergencies or disasters; and

WHEREAS, it is necessary and desirable that all City of Alcoa departments and personnel coordinate their efforts to effectively and efficiently provide the highest levels of incident management; and

WHEREAS, the NIMS standardized procedures for managing personnel, communications, facilities and resources will improve the City of Alcoa's ability to utilize federal funding to enhance local readiness, maintain first responder safety, and streamline incident management processes; and

WHEREAS, the Incident Command System components of NIMS are already an integral part of various incident management activities throughout the City of Alcoa.

NOW, THEREFORE, BE IT RESOLVED by the Board of Commissioners of the City of Alcoa, Tennessee, that the National Incident Management System (NIMS) be and hereby is established as the standard for incident management in the City of Alcoa.

ADOPTED this 9<sup>th</sup> day of August, 2005.

/s/ Donald R. Mull  
Mayor

(THE SEAL)  
(OF THE CITY)  
(OF ALCOA)

ATTEST:

/s/ Ray E. Richesin  
Recorder

APPROVED AS TO FORM:

/s/ Douglas Overbey  
City Attorney

The foregoing resolution was entered of record this 10<sup>th</sup> day of August, 2005.

/s/ Ray E. Richesin  
Recorder

## ABSTRACT

The Blount County Emergency Management Plan (hereinafter referred to as “the plan” is organized into three (3) parts: Introduction, Basic Plan, and 16 Emergency Support Function (ESF) annexes (plus supporting documentation).

The Introduction contains the following: table of contents, a preface (which describes the process used to develop this plan and its related documents), a form for recording changes, a list of offices and personnel who receive a copy of the plan, a list of definitions and acronyms used throughout the plan, the authorities and references used as bases for the development of the document, and a comprehensive hazard analysis for the state of Tennessee. Included are maps delineating areas subject to seismic risk, areas potentially targets for nuclear attack, Nuclear Power Plant locations, and other maps showing the various portions of the state subject to particular hazards.

The Basic Plan describes, in general, the concept of operations for emergency management activities within the County given the hazards presented in the Introduction. The purpose and scope of the plan are provided, as are the situations and assumptions upon which the plan is based. A description of the emergency management organization and assigned responsibilities follows, as does a section on the direction and control mechanisms utilized in the emergency management process, a description of continuity of government principles, and sections dedicated to describing the upkeep and promulgation of the plan itself. Finally, a series of appendices are provided that describe the Emergency Operations Center, the Emergency Services Coordinator (ESC) program, and a wide variety of other support documentation.

The third part of the plan consists of 16 Emergency Support Function (ESF) annexes. These are: Transportation, Communications, Infrastructure, Fire-fighting, Information and Planning, Human Services, Resource Support, Health and Medical, Urban Search and Rescue, Environmental Response, Food, Energy, Law Enforcement, Donations/Volunteers, and Recovery. These correspond with the ESFs of the Tennessee Emergency Management Plan as promulgated on March 31, 1995 and most recently revised in 2007. Each ESF may be broken down into smaller components. For each annex, supporting documentation in the form of maps, organizational charts, checklists, etc., are provided as necessary.

# TABLE OF CONTENTS

<b>PART ONE: INTRODUCTION</b>	<b>Page</b>
Abstract.....	vii
Record of Changes.....	xii
Distribution.....	xiii
Foreword.....	xv
Letter of Agreement.....	xvi
Hazard Identification .....	xvii
Attachment 1 Tennessee Earthquake Risk .....	xxi
Attachment 2 Nuclear Power Plants, DOE Facility, & Spent Fuel Shipment Routes.....	xxiv
Attachment 3 Tennessee Tornado Incidence .....	xxv
Attachment 4 Floods/High-Hazard Dams .....	xxvi
Definitions/Acronyms .....	xxvii
Authorities/References .....	xxxii
 <b>PART TWO: BASIC PLAN</b>	
 Introduction (Purpose and Scope) .....	BP-1
Planning Assumptions .....	BP-2
Concept of Operations .....	BP-2
Organization and Responsibilities .....	BP-4
Direction and Control .....	BP-16
Continuity of Government.....	BP-17
Administration and Logistics.....	BP-18
List of Appendices.....	BP-21

Appendix 1 Responsibilities and Assignments Matrix .....	BP-22
Appendix 1 Emergency Operations Center.....	BP-22
Tab A EMA Organizational Chart.....	BP-25
Tab B EOC Diagram .....	BP-26
Tab C County Operational Areas .....	BP-27
Tab D EOC, Alternate EOC Locations.....	BP-28
Appendix 2 Emergency Services Coordinator Program .....	BP-29
Tab A to Appendix 3 List of ESC Agencies.....	BP-31
Appendix 3 Training and Education .....	BP-34
Appendix 4 DFO, POA, and MC Locations .....	BP-37
Appendix 5 Summary of the Tennessee Civil Defense Act.....	BP-38
Appendix 6 Local CD/EM Resolution .....	BP-41
Appendix 7 Mutual Aid Agreements Among Blount Co. Fire Departments.....	BP-42

**PART THREE: EMERGENCY SUPPORT FUNCTIONS**

Emergency Support Function Concept of Operations .....	ESF 0-1
Attachment 1 Emergency Operations Center Organizational Chart .....	ESF 0-9
Attachment 2 Local Emergency Management Planning Concept.....	ESF 0-10
Emergency Support Function 1 - Transportation .....	ESF 1-1
Transportation Networking .....	ESF 1-10
Emergency Support Function 2 - Communications.....	ESF 2-1
Communications Systems .....	ESF 2-3
Warning.....	ESF 2-9
Emergency Support Function 3 - Infrastructure.....	ESF 3-1
Building Inspection and Condemnation.....	ESF 3-4
Route Clearance and Bridge Inspection .....	ESF 3-8

Debris Removal.....	ESF 3-12
Water and Sewerage Systems .....	ESF 3-15
Emergency Support Function 4 – Fire-fighting.....	ESF 4-3
Emergency Support Function 5 - Information and Planning.....	ESF 5-1
Disaster Information.....	ESF 5-4
Public Information .....	ESF 5-8
Damage Assessment.....	ESF 5-12
Emergency Support Function 6 - Shelter and Human Services.....	ESF 6-1
Shelter and Mass Care Operations .....	ESF 6-4
Disaster Victim Services .....	ESF 6-9
Emergency Support Function 7 - Resource Support .....	ESF 7-1
Logistics .....	ESF 7-3
Resource Management.....	ESF 7-7
Staging Areas .....	ESF 7-11
Emergency Support Function 8 - Health and Medical Services.....	ESF 8-1
Emergency Medical Services.....	ESF 8-4
Public Health.....	ESF 8-10
Crisis Intervention Support .....	ESF 8-15
Emergency Support Function 9 - Search and Rescue.....	ESF 9-3
Emergency Support Function 10 - Environmental Response.....	ESF 10-1
Hazardous Materials.....	ESF 10-3
Radiological Materials .....	ESF 10-8
Emergency Support Function 11 - Food.....	ESF 11-1
Emergency Support Function 12 - Energy .....	ESF 12-1
Emergency Support Function 13 - Law Enforcement .....	ESF 13-1

Traffic Control .....	ESF 13-4
Security/Crime Control .....	ESF 13-8
Institutions/Jails .....	ESF 13-13
Evacuation/Movement .....	ESF 13-16
Terrorist Incident.....	ESF 13-21
Emergency Support Function 14 - Donations and Volunteers .....	ESF 14-1
Donations .....	ESF 14-3
Volunteers .....	ESF 14-8
Emergency Support Function 15 - Recovery.....	ESF 15-1
Assistance Programs .....	ESF 15-3
Recovery and Reconstruction .....	ESF 15-7
Emergency Support Function 16 – Animal Care and Housing.....	ESF 16-3



## DISTRIBUTION LIST

Copies	Copy #	Office/Department
1	1	County Mayor
6	2-7	City Mayors
2	8-9	EMA Director
1	10	County Attorney's Office
7	11-17	Fire Chiefs
1	18	County Sheriff
6	19-24	Police Chiefs
1	25	Rural Metro Ambulance Service
1	26	Blount County Rescue Squad
1	27	Blount County Commission
9	28-36	Water/Sewer Departments
3	37-39	Electrical/Natural Gas Utility
1	40	Director of Blount County Health Department
1	41	Director of Schools
1	42	Superintendent of Blount County Highway Department
4	43-46	Director of City Street Departments
1	47	Blount County Chamber of Commerce
2	45-49	Blount County Office of Planning and Development
1	50	Blount County Local Emergency Planning Committee
1	51	Blount County Emergency Communications Board (9-1-1)
2	52-53	TEMA Emergency Management Planning Branch
1	54	TEMA Regional Office
1	55	Tennessee Department of Agriculture - Division of Forestry (County Office)

1	56	Tennessee Highway Patrol Knoxville District
1	57	Tennessee Department of Human Services (County Office)
1	58	McGhee Tyson Airport Authority
2	59-60	American Red Cross (Maryville & Knoxville Chapters)
1	61	Radio Amateur Civil Emergency Service (RACES)
1	62	Blount County Public Library
1	63	City of Alcoa Landfill
2	64-65	Reserved

## FOREWORD

Historically, both before and after the enactment of the Federal Civil Defense Act of 1950, attack preparedness (conventional and later, nuclear), natural disaster preparedness, disaster relief, resource management, etc., were handled by separate entities within the federal government. Even when attempts at consolidation were made, the resulting single agency had different divisions concentrating on their own specific concerns. With the creation of the Federal Emergency Management Agency (FEMA) in 1979, most of these programs were again consolidated into one agency. However, legislative authorities were not changed and FEMA still reported to more than 100 subcommittees in the U. S. Senate and House of Representatives. Within FEMA, each specific area was still handled by a separate division.

In 1983, FEMA developed a concept called the Integrated Emergency Management System (IEMS). IEMS recognized that the majority of problems that would be evident in a nuclear attack were identical or similar in nature to those brought about as a result of a natural disaster (or vice versa). IEMS recognized that these common elements could be planned for in general terms and satisfy, to a large extent, the logistical problems associated with having multiple groups plan for similar results of different origins. Therefore, one could prepare evacuation plans (for instance) that could be used in both natural disasters and nuclear attack. The same would be true for such concepts as communications, warning, fire protection, emergency medical services, etc. This concept still forms the basis for emergency management planning today.

In 1986, the state of Tennessee promulgated a new Tennessee Emergency Management Plan (TEMP). This plan was based on the 1981 TEMP, the 1978 Tennessee Disaster Assistance Plan, the 1983 State Emergency Evacuation Plan, and the 1986 Greeneville-Greene County Emergency Operations Plan (which was the first to be built under the IEMS concept). The result was a new TEMP that formed the basis for the state emergency management program until 1993. In 1993, the emergency planning staff, using concepts contained in the 1986 TEMP, as well as the new ESF format utilized in the Federal Response Plan, developed a new TEMP that reflects the current planning philosophies used at both the state and federal level.

All of the agencies tasked in the County EMP have provided input into its development. In addition, concepts outlined in FEMA's State and Local Guide (SLG 101) for all-hazard emergency operations planning has been incorporated to the maximum extent possible. Additionally, a revised Hazard Analysis was accomplished in 2005 that provided the contextual framework for the development of concepts utilized within the plan.

The planning process used in the county is as follows: The Emergency Management Director, County Mayor, representatives of the cities, and county department heads attended one or more planning sessions held by Blount County Emergency Management Agency (BEMA) Emergency Management Planners. At these meetings, the various planning criteria were discussed and a copy of the model county plan was distributed for review. TEMA planners went through the model BEOP line by line with this group and made the necessary modifications to allow the plan to conform to current county practices. A draft of the final revision was circulated to those who attended the meeting(s) and any final comments were solicited. Final changes were made, maps were prepared, and the plan was finalized for publication.

Emergency planning is a very dynamic field. Natural and human-caused disasters continue to occur, and the local, state, and federal response structure will continue to adapt to the pressures brought about as a result of those events. Continuous evaluation of the response to these situations will inevitably lead to new and more efficient emergency planning concepts. Additionally, drills, tests, and exercises are used to identify weaknesses in the coordination of response activities. Lessons learned from both the exercises and actual events will be used to formulate changes in procedures that will be incorporated into future versions of the county Basic Emergency Management Plan.

## LETTER OF AGREEMENT

The Blount County Emergency Management Plan, hereinafter referred to as the Plan, establishes the basis for all emergency management activities within the County and its political subdivisions. The plan is required by section 58-2-101, et. seq., of the Tennessee Code Annotated, and by the Tennessee Emergency Management Plan.

The following department and agency heads, by affixing their signatures hereto, signify their approval of this document and the policies, and responsibility contained herein.



Blount County Mayor

# HAZARD IDENTIFICATION

The State of Tennessee is faced with a wide variety of both natural and technological hazards. A brief summary of these hazards follows. More detailed information concerning the nature of these hazards, and the extent to which they might affect state residents can be found in other guidance produced by the Tennessee Emergency Management Agency.

## Natural Hazards

### Earthquake

An earthquake is the sudden motion or trembling in the earth caused by an abrupt release of slowly accumulating strain. This sudden release results in ground shaking, surface faulting, and/or ground failures. Most earthquakes result in little or no damage, but they are potentially the most dangerous of all natural hazards affecting this state. Each year more than 400 seismic events occur—largely unfelt by the populace. Over the past few years, several have been large enough to be felt in the western portion of the state adjacent to what is known as the New Madrid Seismic Zone (NMSZ). The NMSZ is the most seismically active area east of the Rocky Mountains. The area for the greatest potential for earthquakes in Tennessee, therefore, is the western third of the state. A series of large events occurred during the winter of 1811-1812 that caused the formation of Reelfoot Lake in northwestern Tennessee. An equivalent event today would wreak havoc on a wide area of the Mid-South, including the Memphis area. Fortunately, the vast majority of these events are detectable only with sensitive instrumentation. In terms of response, the state could experience a relatively significant earthquake every 25 years. There is concern, however, that a large magnitude event grows more probable with each passing day. Such an event could directly affect more than 75% of the state's population.

In 1993, an additional seismic zone was identified in East Tennessee running roughly parallel to Interstate 75 between Chattanooga and Knoxville. This is the East Tennessee Seismic Zone (ETSZ). The risk associated with this seismic area has not been quantified. Although the maximum potential earthquake in East Tennessee is unknown, there are no recorded earthquakes in the Southern Appalachian Mountains stronger than a 5.8, which occurred in Blacksburg, Virginia in 1895. The strongest earthquake recorded in East Tennessee was a 4.7 event in Blount County in 1973. This earthquake, like many in East Tennessee, was widely felt. Only minor damage occurred, limited to items falling from shelves and a few cracked windows

Blount County is located in an active seismic area and is at moderate risk for damage from a New Madrid earthquake, and to a lesser extent from an ETSZ quake. Perhaps of more concern than damage to structures, is damage caused by rockslides that may or may not occur as a result of earthquake activity.

### Winter Storm

Winter storms include ice storms, blizzards and extreme cold. Winter storms in Tennessee often include extreme cold and ice. These storms are especially hazardous in terms of closing emergency routes, creating power and utility system failures, and immobilizing economic activity. Because of the state's generally mild winters, major storms occur on average about once every five years. When they do occur, they typically affect as much as one half of the state's population. The potential, however, exists that a major storm could affect the entire state. In March of 1993 the "Storm of the Century" struck the eastern half of the state killing 18 people and causing \$22 million in damage. In 1994, a major ice storm and a blizzard in 2003 created massive utility outages and road damage over two-thirds of the state. The net result was over \$100 million in damages, by far the largest disaster in the state's history. On the average winter storms occur three times a year in Blount County and typically affect the entire county.

### **Tornado**

A tornado is a violently whirling column of air extending downward to the ground with winds as high as 300 miles per hour. In a typical year in Tennessee, 11 tornadoes occur, killing five and injuring about a dozen of the state's citizens. Since tornado statistics began in 1916 more than 525 tornadoes have impacted the state, 126 of which have killed almost 450 people. Tornadoes occur more frequently in the western portion of the state than in the middle or eastern portions. The springtime months, from mid-March through the first of June, are the peak months for tornado activity; however, tornadoes can and have occurred in every month of the year. The afternoon and early evening hours from 3:00 P.M. to 9:00 P.M. are the best time for tornado development. In Blount County, the tornado risk is moderate with possible high winds and tornado activity. Approximately a dozen tornadoes have occurred in Blount County since 1950.

### **Flood**

There are several different types of floods: flash, riverine, urban, and coastal. Obviously, coastal flooding would not be a problem in Tennessee. There are several incidents of each of the other types annually, however. Regardless of the type of flood, the cause can almost always be attributed to excessive rainfall, either in the flood area or upstream. Since most precipitation in the state occurs between December and late March, this is the period during which the majority of the flooding can be expected to occur. There are several instances each year, however, of locally heavy rainfall that results in flash flooding.

On an annual basis, flooding causes the most damage and the most fatalities in Tennessee. From 1963 through 2004, flooding had resulted in 16 Presidential-declared disasters across the state, with expenditures in excess of \$30 million. Flooding occurs several times a year in Blount County, most of which is of the minor flash flood variety. Floods typically affect 10% of the county's population at any given time.

### **Agricultural Drought**

A drought is a prolonged period with little or no rain. This is, generally speaking, mostly an agricultural (and therefore economic) problem. Significant droughts occur about once every 15 years or so in Tennessee. The year 2008 was the longest drought that we have had in that 15 year period and it affected the entire state.

### **Wildfire**

A wildfire is any incident of uncontrolled burning in grasslands, brush, or woodlands. In 1992, there were almost 3,000 such occurrences in Tennessee, burning approximately 26,000 acres. Significant wild land fires occur about once every two years. However, several hundred lesser events occur annually across the entire state. The eastern and middle portions of the state are most affected. Wildfires occur several times per year in Blount County, affecting mostly agricultural and other uninhabited land.

### **Subsidence**

Subsidence is the formation of depressions, cracks, and sinkholes in the earth's surface, which normally occurs over many days to a few years. Incidence of subsidence is always a danger to property, dams, factories, and utility lines, but when they occur quickly they can also threaten lives. Incidence of subsidence affect the population of this state once every 11 years or so, and then only in very specific locations

### **Landslide**

A landslide is the downward movement of slope-forming materials reacting to the force of gravity. Landslides are the least significant hazard (with respect to its effects upon the citizenry), and most often occur in the mountainous regions of the eastern part of the state. Portions of Blount County are subject to landslide.

## **Technological Hazards**

### **Power Failure**

A power failure is any interruption or loss of electrical service due to disruption of power generation or transmission caused by an accident, sabotage, natural hazards, equipment failure, or fuel shortage. These interruptions can last anywhere from a few seconds to several days. Power failures are considered significant problems only if the local emergency management organization is required to coordinate the provision of food, water, heating, etc. as a result. Power failures are common with severe weather and winter storm activity. Significant power outages occur, on the average, about every year, affecting as much as 30% of the population.

### **Hazardous Materials Transportation Incident**

This is any occurrence resulting in uncontrolled release of materials, during transport, that are capable of posing risk to health, safety, and property as defined by Department of Transportation Materials Transport regulations. Each year, about 325,000 shipments of hazardous materials crisscross the state of Tennessee. Incidents such as the propane explosion in Waverly in 1978 and the bromine spill in Rockwood occur several times a year throughout the state. Additionally, thousands of shipments of radiological materials, mostly medical materials and low-level radioactive waste, take place across the state. Many incidents occur in sparsely populated areas and affect very few people. There are occasions, however, where materials are involved in accidents in areas with much higher population densities such as the propane tanker explosion in Memphis on December 23, 1989, that killed eight people. Fortunately, such events are rare. Hazardous materials transportation incidents can occur at any place within the state, although the vast majority occurs on the interstate highways or major federal or state highways, or on the major rail lines. There are 4 major highways (interstates, state highways, etc.) passing through Blount County. A significant incident occurs on these routes approximately three times per year affecting less than 5% of the population.

### **Urban Fire**

An urban fire is any instance of uncontrolled burning which results in structural damage to residential, commercial, industrial, institutional, or other properties in developed areas. Almost every county has at least one city that has significant development in either a downtown area or an industrial park. Each of these locations is a prime target for this type of occurrence. Major urban fire is a risk in the Blount County cities of Maryville and Alcoa. With this threat in mind, the Fire Departments of Maryville and Alcoa, and the Fire Departments of the mutual aid communities, are well equipped to handle major structural fires. On the average, major urban-type fires occur once every ten years in Blount County.

### **Stationary Hazardous Materials Incident**

This is any occurrence of uncontrolled release of materials, from a fixed site, capable of posing a risk to health, safety, and property as determined in the EPA's Resource Conservation and Recovery Act. These materials are classed identically to those specified in the section on transportation accidents. Hazardous materials incidents of this type occur several times a month in many of the counties in Tennessee. Major events (i.e., those requiring significant evacuations) occur approximately six times per year across the state. There are approximately twelve facilities within Blount County that manufacture, store, or utilize hazardous materials in some capacity. An incident at one of these facilities could be expected to affect as much as 10% of the county's population.

### **Fixed Nuclear Facilities**

TVA and the Department of Energy operate fixed nuclear facilities in Tennessee. Blount County lies outside the areas that have the potential to be impacted by a release of material for a DOE facility in Oak Ridge, TN. However, portions of Blount County are within 50 miles of the Watts Bar Nuclear Power Plant ingestion exposure pathway. Should a large scale release occur at Watts Bar, agricultural interests in Blount County could suffer damage and/or economic loss.

### **Civil Disturbance**

A civil disorder is defined as any incident intended to disrupt community affairs and threaten the public safety. Civil disorders include terrorist attacks, riots, mob violence, and any demonstration resulting in police intervention and arrests. Civil Disturbances seldom occur in Blount County.

### **Attack**

An attack upon the United States (either conventional or unconventional) is extremely unlikely. The potential for such an event does however exist. Although the chances of a strike on the U.S. have greatly diminished, several countries throughout the world have developed, or are seeking to develop such capabilities. Additionally, the possibility exists that a terrorist or terrorist organization might acquire such capabilities. The potential for similar attacks upon Blount County's critical infrastructure exists, but is unlikely and considered a low probability event.

## **OTHER NATURAL AND TECHNOLOGICAL INCIDENTS**

### **Urban Drought**

Urban droughts generally affect areas dependent on reservoirs for water. Such droughts usually lead to restrictions on water use to what is essential for living. Urban droughts occur less frequently than agricultural droughts, occurring once every 15 years and affecting about 10-15% of the state's population. The latest urban drought occurred in 2008, affecting the cities within Blount County requiring restriction of water usage.

### **Dam Failure**

A dam failure is when downstream flooding occurs due to the partial or complete collapse of an impoundment. Dam failures are often the result of prolonged rainfall and flooding or, during very dry conditions, erosion. The primary danger associated with a dam failure is the swift, unpredictable flooding of those immediately downstream of the dam. In Tennessee, there are more than 1,200 dams and, fortunately, significant dam failures occur on an average of less than once every 40 years. There are two major dams in Blount County, one high hazard dam and several high hazard farm ponds.

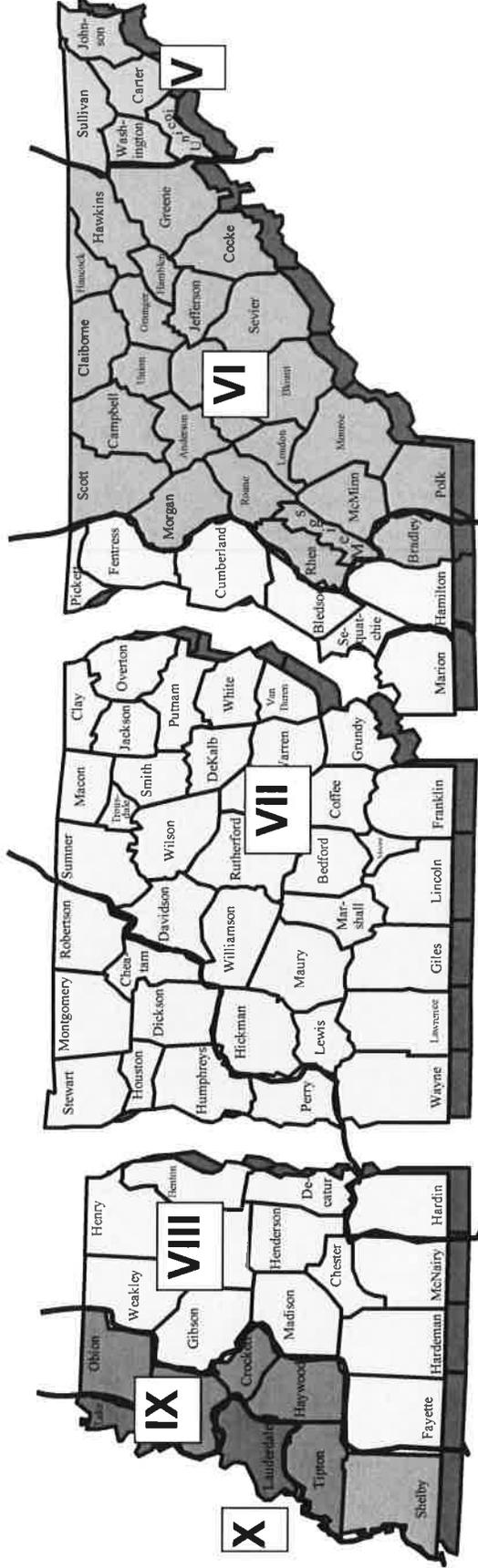
### **Air and Rail Transportation Accidents**

These are incidents involving air or rail passenger travel resulting in death or serious injury. Highway incidents are excluded because they are generally handled without emergency management organization involvement. In Tennessee, significant air incidents occur less than once every seven years, while rail incidents involving passengers are less frequent. Blount County lies in the approach and departure path to Knoxville Metropolitan Airport. The potential for a major crash is significant. There are two major railways passing through Blount County, each of which carries approximately 30-60 cars transporting hazardous materials daily. There is no passenger rail traffic through Blount County.

# ATTACHMENT 1A - HAZARD IDENTIFICATION

## EARTHQUAKE RISK

ESTIMATED MAXIMUM REGIONAL SEISMIC INTENSITIES ASSOCIATED WITH AN ENSEMBLE OF GREAT EARTHQUAKES THAT MIGHT OCCUR ALONG THE NEW MADRID SEISMIC ZONE, EAST-CENTRAL UNITED STATES



This map shows hypothetical maximum intensities, by county, that would result from a magnitude  $M_s=7.5$  maximum intensity  $IQ=X$ , earthquake anywhere along the New Madrid Seismic Zone. The estimated distribution of effects on the map is based on an analysis of the effects of smaller, but better documented earthquakes in the New Madrid Seismic Zone. This composite intensity map shows a more widespread distribution of effects than would result from a single earthquake of 7.5 because the distributions of effects were plotted for magnitude 7.5 earthquakes that could occur anywhere from the northern to the southern end of the seismic zone. A composite map has been prepared because (1) it is not certain where in the zone an earthquake might occur in the future, and (2) in 1811-1812 at least three and probably four large shocks occurred at different places throughout the zone. This composite intensity map is believed to represent the upper level of shaking likely to occur in any county regardless of the location of the epicenter within the seismic zone.

See Attachment 1B for a description of the Modified Mercalli Intensity Scale. This map is for planning purposes only.

## ATTACHMENT 1B - MODIFIED MERCALLI INTENSITY SCALE

Intensity Value	Description
I	not felt. Detectable only by sensitive seismic instrumentation.
II	Felt by persons at rest, on upper floors, or favorably placed.
III	Felt indoors. Hanging objects swing. Vibration like passing of light trucks. Duration estimated. May not be recognized as an earthquake.
IV	Hanging objects swing. Vibration like passing of heavy trucks; or sensation of jolt like a heavy ball striking the walls. Standing cars rock. Windows, dishes, and doors rattle. Glasses clink. Crockery clashes. In the upper range of IV, wooden walls and frame creak.
V	Felt outdoors; direction estimated. Sleepers awakened. Liquids disturbed, some spilled. Small unstable objects displaced or upset. Doors swing, close, open. Shutters, pictures move. Pendulum clocks stop, start, change rate.
VI	Felt by all. Many frightened and run outdoors. Persons walk unsteadily. Windows, dishes, glassware broken. Knickknacks, books, etc., fall off shelves. Pictures fall from walls. Furniture moved or overturned. Weak plaster and masonry D cracked. Small bells ring. Tress, bushes shaken visibly, heard.
VII	Difficult to stand. Noticed by drivers. Hanging objects quiver. Furniture broken. Damage to masonry D, including cracks. Weak chimneys broken at roof line. Fall of plaster, loose bricks, stones, tiles, cornices, also unbraced parapets, and architectural ornaments. Some cracks in masonry C. Waves on ponds, water turbid with mud. Small slides and caving in along sand or gravel banks. Large bells ring. Concrete irrigation ditches damaged.
VIII	Steering of cars affected. Damage to masonry C; partial collapse. Some damage to masonry B; none to masonry A. Fall of stucco and some masonry walls. Twisting, fall of chimneys, factory stacks, monuments, towers, elevated tanks. Frame houses moved on foundation if not bolted down; loose panel walls thrown out. Decaying piling broken off. Branches broken from trees. Changes in flow or temperature of springs and wells. Cracks in wet ground and on steep slopes.
IX	General panic. Masonry D destroyed; masonry C heavily damaged, sometimes with complete collapse; masonry B seriously damaged. General damage to foundations. Frame structures, if not bolted, shifted off foundations. Frames racked. Serious damage to reservoirs. Underground pipes broken. Obvious cracks in ground. In alluviated areas, sand and mud ejected, earthquake fountains, sand craters, liquefaction occurs.
X	Most masonry and frame structures destroyed with their foundations. Some well-built wooden structures and bridges destroyed. Serious damage to dams, dikes, embankments. Large landslides. Water thrown on banks of canals, rivers, lakes, etc. Sand and mud shifted horizontally on beaches and flat land. Rails bent slightly.
XI	Rails bent greatly. Underground pipelines completely out of service.
XII	Damage nearly total. Large rock masses displaced. Lines of sight and level distorted. Objects thrown into the air.

**Masonry A, B, C, & D.** To avoid ambiguity of language, the quality of masonry, brick, and otherwise, is specified by the following lettering.

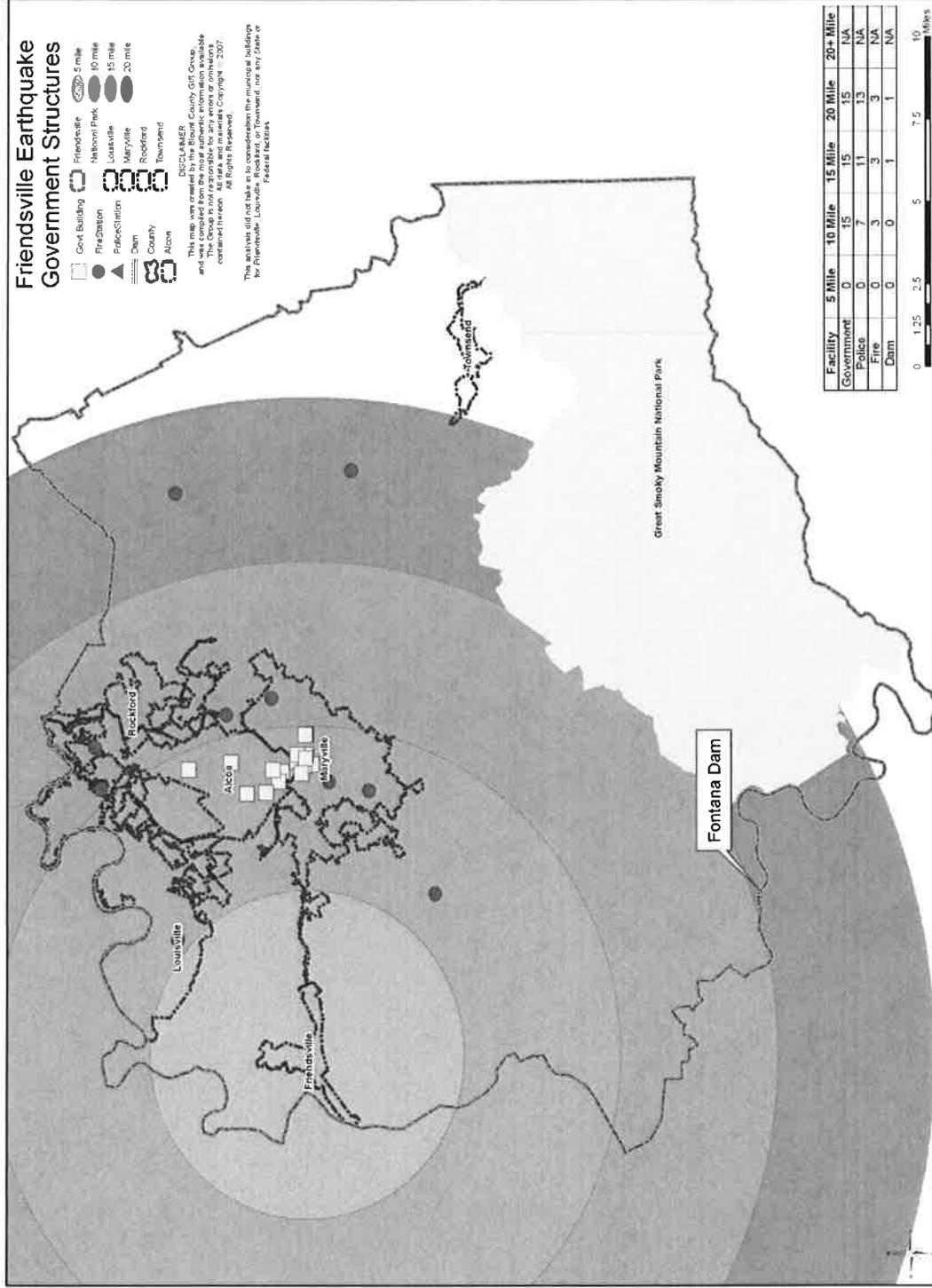
**Masonry A:** Good workmanship, mortar, and design, reinforced, especially laterally, and bound together using steel, concrete, etc.

**Masonry B:** Good workmanship and mortar, reinforced, but not designed in detail to resist lateral forces.

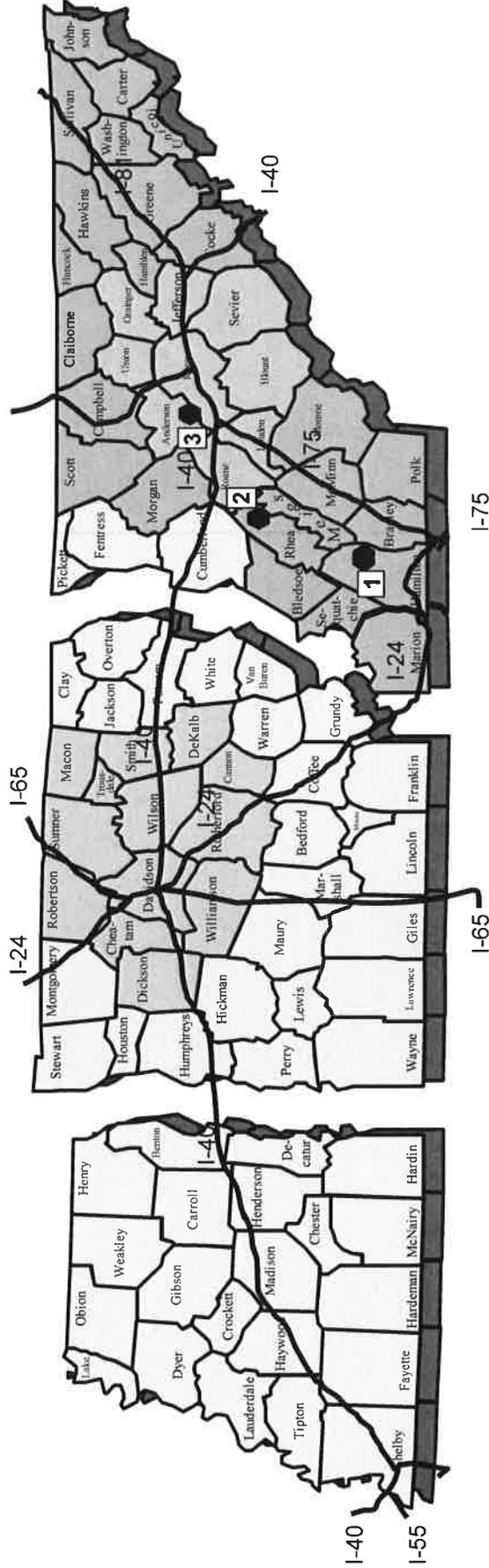
**Masonry C:** Ordinary workmanship and mortar, no extreme weaknesses like failing to tie at corners, but neither reinforced nor designed against horizontal forces.

**Masonry D:** Weak materials, such as adobe; poor mortar, low standards of workmanship; weak horizontally.

# Attachment 1C – Effect Radius of Friendsville Earthquake



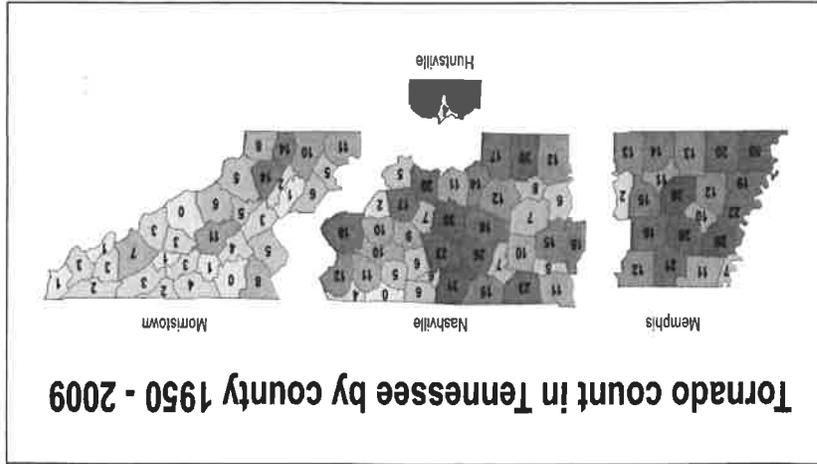
**ATTACHMENT 2 - HAZARD IDENTIFICATION  
COMMERCIAL NUCLEAR POWER PLANT REACTOR SITES,  
U.S. DEPARTMENT OF ENERGY RESEARCH FACILITIES, AND APPROVED SPENT FUEL SHIPMENT ROUTES**



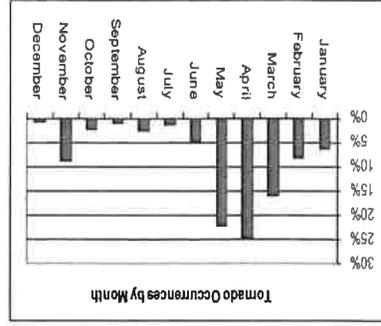
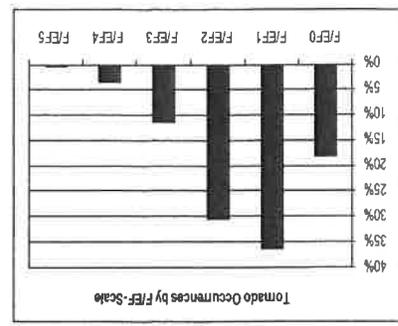
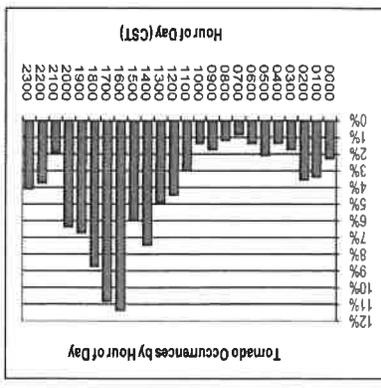
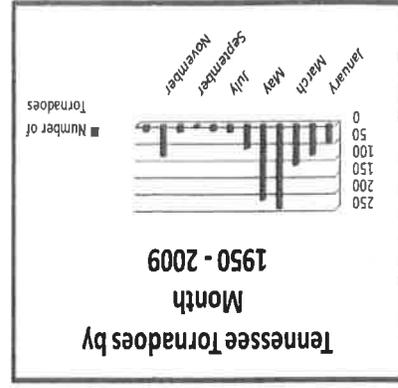
1. Sequoyah Nuclear Power Plant (TVA)
2. Watts Bar Nuclear Power Plant (TVA)
3. U. S. Department of Energy Research Facilities

# ATTACHMENT 3 - HAZARD IDENTIFICATION TORNADO INCIDENCE/FATALITIES IN TENNESSEE

Number of Tornadoes (1950 - 2009)



In '09, 39 TN counties were affected by tornadoes. Tornado damage estimates for the year exceeded \$100 million and 62 injuries. There were 2 fatalities statewide.





## DEFINITIONS/ACRONYMS

ARC: American Red Cross

AT&T: American Telephone & Telegraph

BEOP: Basic Emergency Operations Plan

CCP: Casualty Collection Point

CIS: Crisis Intervention Support

COG: Continuity of Government

(CPG) Civil Protection Guide

Series of FEMA publications providing guidance to state and local emergency management organizations in preparing for emergencies/disasters

CUSEC: Central United States Earthquake Consortium

DAC: Disaster Assistance Center

DFO: Disaster Field Office

Direction and Control: The control/coordination group in an EOC.

Disaster

An event, the effects of which cause loss of life, human suffering, property damage, both public and private, and severe economic and social disruption. Disasters can be natural or manmade events, major accidents, or enemy attack. Disasters are differentiated from those day-to-day emergencies and accidents that are routinely responded to by local emergency organizations, and may be of such magnitude or unusual circumstance as to require response by all levels of government - local, state, and federal.

DAC: Disaster Application Center

A pre-selected area designed to provide information on a variety of disaster assistance programs as quickly and conveniently as possible to those adversely affected by a disaster.

DOG: Disaster Operations Guide

ECD: Economic and Community Development

EEI: Essential Elements of Information

EOC: Emergency Operations Center

Emergency

According to the Disaster Relief Act of 1974 (PL 93-288), the term emergency means any hurricane, tornado, storm, flood, high water, wind-driven water, tsunami, earthquake, volcanic eruption, landslide, mudslide, snowstorm, drought, fire, explosion, or other catastrophe in any part of the United States which requires federal emergency assistance to supplement state and local efforts to save lives and property, carry out public health and safety activities, or to avert or lessen the threat of a major disaster.

EAS: Emergency Alert System

A network of broadcast stations and interconnecting facilities which have been authorized by the Federal Communications Commission to warn the public and provide emergency information and instructions during severe weather, disasters and other national emergencies.

EMP: Emergency Management Plan

A brief, clear, and concise document which provides instructions to appropriate individuals and entities as to what steps should be taken to prepare for and respond to emergencies or the threat of emergencies. The plan describes these instructions based on a given set of circumstances and assumptions as to what the plan will accomplish. The entirety of the local or state response scheme is considered throughout the plan.

EMS: Emergency Medical Services

Ambulances and rescue units, staffed by paramedics and emergency medical technicians who provide emergency medical treatment to victims in a pre-hospital environment (i.e., in the field).

EOC: Emergency Operations Center

This is a facility from which key officials can direct and coordinate emergency response personnel.

EPI: Emergency Public Information

Information which is disseminated before, during, and/or after an emergency; it instructs and transmits direct orders to the public via the news media.

ESC: Emergency Services Coordinator

Person designated by each agency, tasked with the responsibility of providing expertise to the emergency management director, and empowered to act on the behalf of the agency in terms of allocating personnel, resources, etc., to emergencies.

EO: Executive Order

ESF: Emergency Support Function

EPA: U. S. Environmental Protection Agency

Evacuees, Spontaneous

Persons who leave an area in periods of emergency whether or not they are advised to do so.

Executive Group

The governing body of the local jurisdiction during an emergency.

FCP: Forward Command Post

An assigned area which is set up to supervise on-site response as well as coordinating communications with the EOC.

FEMA: Federal Emergency Management Agency

FNF: Fixed Nuclear Facility (Nuclear Power Plant)

FRP: Federal Response Plan

FS: Fire Service

Hazard: A potential threat or circumstance which presents a threat to life and/or property.

HAZMAT: Hazardous Materials

HMTUSA: Hazardous Materials Transportation Uniform Safety Act

High Hazard Areas

Areas designated by the federal government, or through a hazard analysis as relatively more likely to experience the direct effects of any given hazard.

IC: Incident Command

ICS: Incident Command System

I&FG: Individual and Family Grant Program

IEMS: Integrated Emergency Management System

A concept that applies mitigation, preparedness, response, and recovery activities to all-hazards in a local/state/federal partnership.

In-Place Shelter:

The use of a person's house or building to shield him from the negative effects of the environment.

JIC: Joint Information Center

LE: Law Enforcement

Local Planning Zone

Usually a fire district or other suitable planning district used to simplify planning efforts directed at preparing for local emergencies.

MAA: Mutual Aid Agreement

Major Disaster

According to the Disaster Relief Act of 1974 (PL 93-288), the term means any occurrence listed under "Emergency" which, in the determination of the President, causes damage of sufficient severity and magnitude to warrant major disaster assistance under this Act, above and beyond the emergency services by the federal government to supplement the efforts and available resources of states, local governments, and disaster relief organizations in alleviating the damage, loss, hardship, or suffering caused thereby.

MC: Mobilization Center

MHz: Megahertz

MRU: Mobile Reserve Unit

An organization created for emergency management to provide support to local organizations when dispatched by the Governor to a stricken area.

MOU: Memorandum of Understanding

MJREERP: Multi Jurisdictional Radiological Emergency Response Plan

MJRP: Multi Jurisdictional Response Plan

NAWAS: National Warning System

NDMS: National Disaster Medical System

NIMS: National Incident Management System

NMSZ: New Madrid Seismic Zone

NRF: National Response Framework

NRP: National Response Plan

NOAA-NWS: National Oceanic and Atmospheric Administration, National Weather Service

OSC: On-Scene Commander

PIO: Public Information Officer

Person responsible for providing disaster-related information to the media and other people in a disaster area.

POA: Point of Arrival

PODS: Points of Distribution

RACES: Radio Amateur Civil Emergency Services (Ham radio operators)

RO: Radiological Officer

A person who has been trained to assume the responsibility for policy recommendations for the radiological protection of a state, county, or facility.

Radiological Analyst:

A person who has been trained to prepare monitored radiological data in analyzed form for use in the area served as well as by other levels of government to which reports of such data are sent. The analyst also evaluates the radiation decay patterns as a basis for estimates of future exposure rates and exposures associated with emergency operations.

Reception Area

A specified area which is relatively unlikely to experience the direct effects of a disaster and which is designated for the reception, care, and logistical support of the hazard evacuees.

REOC: Regional Emergency Operations Center

Resources

Manpower, raw or basic materials, finished goods and products, services and facilities.

Primary Resources

Those which by their nature have a national or interstate use. These generally include interstate wholesale goods or manufacturers' inventories.

Secondary Resources

Retail goods and intrastate wholesale goods necessary to meet essential needs within a single state.

Resource List

A list, maintained by the emergency management agency, of the resources (personnel, equipment, and supplies) in the county/state which can be used by the emergency services in response to local disasters/emergencies.

SARA: Superfund Amendments and Reauthorization Act

SCO: State Coordinating Officer

SEOC: State Emergency Operations Center

SITREP: Situation Report. Reports of damage assessment in a disaster area.

SLG 101: FEMA State and Local Guidance 101

SO: Sheriff's Office

SOP: Standard Operating Procedures:

A set of instructions, having the force of a directive, covering those features of operations which lend themselves to a definite or standardized procedure without loss of effectiveness.

Staging Area

Area specifically set aside for the marshaling and coordination of incoming resources.

TARS: Tennessee Association of Rescue Squads

TBI: Tennessee Bureau of Investigation

TCA: Tennessee Code Annotated (Tennessee state law)

TDEC: Tennessee Department of Environmental and Conservation

TDOT: Tennessee Department of Transportation

TEMA: Tennessee Emergency Management Agency

TEMP:

Tennessee Emergency Management Plan, designed specifically for state-level response to emergencies or disasters and which sets forth actions to be taken by state and local governments, including those for implementing federal disaster assistance programs.

TGL: Target Capabilities List

TVA: Tennessee Valley Authority

TWRA: Tennessee Wildlife Resource Agency

US&R: Urban Search and Rescue

VOAD: Volunteer Organizations Active in Disasters

Vulnerability (or Risk)

The degree to which people, property, the environment, or social and economic activity is susceptible to injury, damage, disruption, or loss of life.

## AUTHORITIES AND REFERENCES

### II. Authorities

#### A. Federal

1. Public Law 93-288, as amended by PL 100-707, Robert T. Stafford Disaster Relief and Emergency Assistance Act, November 23, 1988.
2. Public Law 81-920, Federal Civil Defense Act of 1950, as amended.
3. CFR, Emergency Management and Assistance.
4. Public Law 92-367, National Dam Inspection Act of 1972.
5. USC, American Red Cross, January 5, 1905, as amended.
6. Public Law 81-774, Defense Production Act of 1950, as amended.
7. Public Law 95-124, Earthquake Hazards Reduction Act of 1977.
8. Public Law 95-313, Cooperative Forestry Assistance Act of 1978.
9. Public Law 96-510, Section 104(i), Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (Superfund).
10. Presidential Executive Order 12148, "Federal Emergency Management," July 20, 1979.
11. Presidential Executive Order 12656, "Assignment of Emergency Preparedness Responsibilities," November 18, 1988.
12. Presidential Executive Order 12777, "FEMA Assistance in Emergency Preparedness Planning at Commercial Nuclear Power Plants," October 18, 1991.

#### B. State

1. TCA 58-2-101 through 58-2-518, Civil Defense Act of 1951, as amended.
2. TCA 68-212-201 through 68-212-207, Hazardous Waste Management.
3. TCA 69-12-102, Safe Dams Act of 1973.
4. Governor's Executive Order No. 4, February 13, 1987.
5. Governor's Executive Order No. 7, April 1, 1987.

C. *Local*: Blount County Resolution 96-07-005 dated July 18, 1996.

### III. References

#### A. General

1. Federal
  - a. Federal Response Plan for Public Law 93-288, as amended, (National Response Framework)
  - b. FEMA CPG 1-6, Disaster Operations, 1981.
  - c. FEMA State and Local Guide (SLG) 101, Guide for All-Hazard Emergency Operation Planning, September 1996.
  - d. FEMA Emergency Management Performance Grant (EMPG) as amended
  - e. Second U. S. Army, Military Support to Civil Authority Plan, 1985.
  - f. Air Force, State and Regional Disaster Airlift (SARDA) Planning, August 31, 1987.
2. State
  - a. Tennessee Hazardous Materials Program, 2006.

- b. Military Assistance to Civil Authorities (OPLAN TWO), Tennessee National Guard, October 1, 1995.
  - c. Tennessee Emergency Management Plan, 2007
  - d. Tennessee Hazard Mitigation Plan, June, 2007.
  - e. Hazard Management in Tennessee, A Community Handbook, 1996.
  - f. Tennessee Multi-Jurisdictional Radiological Response Plan for Watts Bar Nuclear Plant, March, 2009
  - g. Tennessee Multi-Jurisdictional Radiological Response Plan for Sequoyah Nuclear Plant, March, 2009.
  - h. Tennessee Multi-Jurisdictional Radiological Response Plan for the DOE-Oak Ridge Multi-Jurisdictional Emergency Response Plan (MJERP) as amended
3. Local: By proclamation of the Blount County Mayor July, 1996.