TANEY COUNTY

Natural Hazard Mitigation Plan

For Taney County, Missouri and its Incorporated Communities

June 2005

TANEY COUNTY

Natural Hazard Mitigation Plan

For Taney County, Missouri and its Incorporated Communities

Branson ♦ Bradleyville ♦ Bull Creek ♦ Forsyth

Hollister ♦ Kirbyville ♦ Merriam Woods

Rockaway Beach ♦ Taneyville

June 2005

Taney County Commission
Taney County Courthouse
P.O. Box 1086
Forsyth, MO 65653
(417) 546-7204

Southwest Missouri Council of Governments
901 S. National Avenue
Springfield, MO 65897
(417) 836-6900
smcog.missouristate.edu

Emergency Management
221 Jefferson Road
Branson, MO 65616
(417) 334-3440

Table of Contents

Executive Summary vii

Part 1: Introduction 1-1
Purpose of Plan 1-1
Plan Organization and Content 1-2
Assurance Statements of Compliance with FEMA 1-3
Basis for Planning Authority 1-3
Plan Adoption 1-4
Participants and Jurisdiction Represented 1-4
Plan Preparation Methodology and Schedule 1-4
Acknowledgements 1-7

Part 2: Community Profile 2-1
Location 2-1
Development History 2-2
Form of Government 2-2
Physical Characteristics 2-3
Physiography and Geography 2-3
Hydrology and Drainage 2-4
Climate and Weather 2-7
Soils 2-7
Significant Natural Communities 2-8
Demographics 2-9
Population Trends 2-9
Age Characteristics 2-11
Race and Ethnicity 2-12
Income Characteristics 2-12
Educational Attainment 2-13
Household Characteristics 2-13
Economy, Employment, and Industry 2-14
Labor Force Characteristics 2-14
Primary Industries 2-15
Access to Employment: In-commuting and Out-commuting 2-16
Land Use 2-17
Existing Land Use Patterns 2-17
Public Land/Use Areas 2-18
Development Trends 2-20
Housing 2-20
Transportation Infrastructure 2-22
Roads 2-22
Airports 2-22
Public Transportation 2-23
Railroads 2-23
MoDOT Maintenance Facilities 2-23
Utilities 2-25
Water Supply/Services 2-25
Wastewater Treatment Systems 2-25

Solid Waste Disposal 2-26
Electric Service 2-26
Telephone Service 2-27
Natural Gas Service 2-27
Underground Utilities 2-27
Key Community Facilities and Services 2-27
Law Enforcement 2-27
Fire Protection 2-28
911 Emergency Communications 2-28
Medical Facilities 2-29
Ambulance Service 2-30
Other Key Facilities/Services 2-30
Government Owned Buildings 2-32
Centers of Large Population Concentration 2-35
Schools 2-35
College of the Ozarks 2-36
Child Care Centers 2-37
Residential Care Facilities 2-38
Senior Centers 2-38
Commercial/Recreation Centers 2-38
Major Employers 2-39
Flood Plain Management/Wetlands 2-42
Wetlands 2-42
National Flood Insurance Program 2-42
Environmental Concerns 2-43
Hazardous Materials Sites 2-43
Endangered Species 2-43
Historic Properties and Archeological Sites 2-44
Community Plans 2-45
Building and Fire Codes 2-46
Community Partnerships 2-47
Significant Cultural/Social Issues 2-48
Public Awareness 2-48
Media Relations 2-48
City/Village Profiles 2-49

Part 3: Risk Assessment 3-1
Natural Hazard Identification/Elimination Process 3-1
Community-wide Hazard Profile and Hazards Identified 3-1
Hazards not Included and Reasons for Elimination 3-2
Severity Ratings 3-2
Tornadoes/Severe Thunderstorms 3-3
Flood 3-8
Severe Winter Weather 3-16
Drought 3-21
Heat Wave 3-25
Earthquakes 3-28
Dam Failure 3-34
Wildfires 3-39
Multi-jurisdictional Risk Assessment in the County and Municipalities 3-42
Hazard Profile Worksheets 3-44

Taney County Hazard Vulnerability Assessments 3-52
Taney County Vulnerability Assessment Worksheets 3-53

Part 4: City/County Capability Assessment 4-1
Mitigation Management Policies 4-1
Existing Plans 4-1
Mitigation Programs 4-1
Capabilities and Responsibilities 4-4
Vulnerability Assessment of Policies and Programs 4-10

Part 5: Mitigation 5-1
Introduction to Mitigation 5-1
Definition of Mitigation 5-1
Categories of Mitigation 5-1
Prevention Measures 5-1
Property Protection Measures 5-2
Natural Resource Protection Measures 5-2
Emergency Services Measures 5-2
Structural Mitigation Measures 5-3
Public Information Mitigation Measures 5-3
How Mitigation Differs from Preparedness, Response, and Recovery 5-4
Mitigation Plan Benefits 5-4
City of Branson All-Hazard Mitigation Plan 5-5
Goals, Objectives and Mitigation Actions 5-5
Development Process 5-5
Goals and Objectives 5-9
Mitigation Program/Strategy Development 5-12
Analysis and Prioritization of Mitigation Actions 5-13

Part 6: Plan Maintenance 6-1

Part 7: Appendices
Appendix A: Adoption Resolutions A-1
Appendix B: Repetitive Losses B-1
Appendix C: Taney County Theaters C-1
Appendix D: Acronyms D-1
Appendix E: Glossary E-1
Appendix F: References F-1

List of Tables

Table 2-1 Taney County Local Government 2-3
Table 2-2 Population Growth, 1990-2003 2-9
Table 2-3 Taney County Age Specific Population, 2000 2-11
Table 2-4 Taney County and Municipalities, Age, 2000 2-11
Table 2-5 Race and Hispanic Population, 2000 2-12
Table 2-6 Taney County Income, 1999 2-12
Table 2-7 Educational Attainment, Population 25 Years and Older, 2000 2-13
Table 2-8 Taney County Household Characteristics, 2000 2-14
Table 2-9 Employment by Industry, Taney County, 2000 2-15
Table 2-10 Taney County Businesses and Employees, 2002 2-15
Table 2-11 Place of Employment, 2000 2-16
Table 2-12 Public Lands in Taney County 2-18
Table 2-13 Taney County Housing Characteristics, 2000 2-20
Table 2-14 Taney County Housing Units in Structure, 2000 2-21
Table 2-15 Taney County Mobile Home Parks and Subdivisions 2-21
Table 2-16 Taney County Utility Service Providers 2-27
Table 2-17 Medical Facilities in Taney County 2-29
Table 2-18 Ambulance Services in Taney County 2-30
Table 2-19 Government Buildings in Taney County 2-32
Table 2-20 Schools in Taney County 2-36
Table 2-21 Licensed and License Exempt Child Care Centers in Taney County 2-37
Table 2-22 Residential Care Facilities in Taney County 2-38
Table 2-23 Senior Centers in Taney County 2-38
Table 2-24 Taney County Major Employers 2-39
Table 2-25 National Flood Insurance Program Participation 2-42
Table 2-26 Taney County Flood Insurance Policies 2-42
Table 2-27 Threatened and Endangered Species in Taney County 2-44
Table 2-28 Adopted Codes in Taney County 2-46
Table 2-29 Media Resources Serving Taney County 2-49

Table 3-1 Cascading Hazards Resulting from Natural Disasters 3-2
Table 3-2 SEMA Severity Ratings Table 3-2
Table 3-3 Fujita Tornado Damage Scale 3-4
Table 3-4 Tornado History - Taney County, 1957-2004 3-5
Table 3-5 Thunderstorm Winds History - Taney County, 1988-2004 3-5
Table 3-6 Hail and Lightning History - Taney County, 1962-2004 3-6
Table 3-7 Tornado-Likelihood of Probable Future Severity in Taney County 3-6
Table 3-8 Likelihood of Future Tornado Events Occurrence by F-Scale 3-7
Table 3-9 Likelihood of Future Thunderstorm Events Occurrence 3-7
Table 3-10 Flood History - Taney County, 1993-2004 3-9
Table 3-11 Federal Disaster Declarations, Taney County Flood Events, 1993-2003 3-9
Table 3-12 Flood Event Ratings, 1993-2004 3-10
Table 3-13 Flood Events by Month, 1993-2004 3-11
Table 3-14 Severe Winter Weather History Summary – Taney County, 1994-2004 3-18
Table 3-15 Severe Winter Weather History – Taney County, 1994-2004 3-18
Table 3-16 Snowfall Extremes, 1948-2001 3-19
Table 3-17 Likelihood of Future Severe Winter Weather Occurrence 3-20

Table 3-18 Stages of Drought....3-23
Table 3-19 Severity of Drought - Taney County....3-23
Table 3-20 Likelihood of Drought - Taney County....3-24
Table 3-21 Heat Index Chart (Temperature & Relative Humidity)....3-25
Table 3-22 Taney County Regional Heat Waves, 1994-2004....3-26
Table 3-23 Heat Index/Heat Disorder....3-26
Table 3-24 Heat Wave Response Levels....3-26
Table 3-25 Heat Wave Severity Levels....3-27
Table 3-26 Likelihood of Probable Severity - Heat Wave....3-27
Table 3-27 Earthquake Probable Severity....3-32
Table 3-28 Probable Risk of Earthquake....3-33
Table 3-29 Taney County Dams....3-36
Table 3-30 Missouri Fire Statistics: Causes....3-39
Table 3-31 Land Cover in Taney County....3-40
Table 3-32 Future Probable Severity - Wildfires....3-40
Table 3-33 Likelihood of Wildfire Occurrence by Danger Level....3-41
Table 3-34 Tornado Hazard Profile Worksheet....3-44
Table 3-35 Flood Hazard Profile Worksheet....3-45
Table 3-36 Severe Winter Weather Hazard Profile Worksheet....3-46
Table 3-37 Drought Hazard Profile Worksheet....3-47
Table 3-38 Heat Wave Hazard Profile Worksheet....3-48
Table 3-39 Earthquakes Hazard Profile Worksheet....3-49
Table 3-40 Dam Failure Hazard Profile Worksheet....3-50
Table 3-41 Wildfire Hazard Profile Worksheet....3-51
Table 3-42 Tornado: Taney County Vulnerability Assessment....3-53
Table 3-43 Flood: Taney County Vulnerability Assessment....3-54
Table 3-44 Severe Winter Storm: Taney County Vulnerability Assessment....3-55
Table 3-45 Drought: Taney County Vulnerability Assessment....3-56
Table 3-46 Heat Wave: Taney County Vulnerability Assessment....3-57
Table 3-47 Earthquake: Taney County Vulnerability Assessment....3-58
Table 3-48 Dam Failure: Taney County Vulnerability Assessment....3-59
Table 3-49 Wildfire: Taney County Vulnerability Assessment....3-60
Table 3-50 Total Taney County Vulnerability Assessment Summary....3-61
Table 3-51 Taney County Hazard Identification and Analysis Summary....3-62

Table 4-1 City Plans and Regulations....4-13
Table 4-2 Taney County Capability Assessment....4-14

Table 5-1 Taney County Proposed Mitigation Action Evaluation....5-6
Table 5-2 Taney County Five-Year Action Matrix....5-14

List of Figures

Figure 2-1 Taney County, Missouri....2-1
Figure 2-2 Regional Physiography....2-4
Figure 2-3 Taney County Watersheds....2-6
Figure 2-4 Taney County Population Density, 2000....2-10
Figure 2-5 Taney County Out-Commuting Patterns, 2000....2-16
Figure 2-6 Taney County Land Cover....2-19
Figure 2-7 Taney County Transportation System....2-24

Figure 2-8 Taney County Key Facilities 2-31
Figure 2-9 Taney County Government-Owned Buildings 2-34
Figure 2-10 Taney County School Districts 2-35
Figure 2-11 Vulnerable Facilities 2-41

Figure 3-1 Taney County 100-Year Floodplain 3-12
Figure 3-2 Branson and Hollister 100-Year Floodplain 3-13
Figure 3-3 Forsyth 100-Year Floodplain 3-14
Figure 3-4 Bull Creek, Merriam Woods, and Rockaway Beach 100-Year Floodplain 3-15
Figure 3-5 Drought Severity Index by Division 3-22
Figure 3-6 Earthquake Shock 3-29
Figure 3-7 Projected Earthquake Intensities, 7.6 Magnitude 3-31
Figure 3-8 Wabash Valley and New Madrid Earthquakes 3-32
Figure 3-9 Erosion at Silver Creek Dam 3-36
Figure 3-10 Taney County Dam Locations 3-38
Figure 3-11 Types of Wildfire 3-39
Figure 3-12 Taney County Natural Hazards Composite 3-43

Figure 4-1 NOAA Radio Transmission Area 4-9

Executive Summary

Overview

Natural hazard events in Taney County have historically caused injury, death, damages to property, and economic loss to the people and communities of Taney County. The *Taney County Natural Hazard Mitigation Plan* represents a collaborative effort between Taney County, its municipalities, and other public sector entities organizations to establish a guide for actions that can be undertaken to help reduce vulnerability to natural disasters and make Taney County safer.

The Federal Disaster Mitigation Act of 2000 (DMA 2000) requires, that as of November 1, 2004, all local governments must adopt a natural hazard mitigation plan to be eligible for federal hazard mitigation funding. The DMA 2000 provides for the preparation of multi-jurisdictional plans by local governments to meet these requirements. The *Taney County Natural Hazard Mitigation Plan* is developed in conformance with the requirements of the DMA 2000 and is a multi-jurisdictional plan that has involved the participation of Taney County and all incorporated communities.

This Plan only addresses natural hazards that may affect Taney County; man-made or technological hazards are not discussed. The natural hazards addressed in the Plan include:

- Tornado and Severe Thunderstorm
- Riverine and Flash Flood
- Severe Winter Weather
- Drought
- Heat Wave
- Earthquake
- Dam Failure
- Wildfire

Plan Organization and Content

The *Natural Hazard Mitigation Plan* is presented in seven parts, including:

Part 1: Introduction
Part 2: Community Profile
Part 3: Risk Assessment
Part 4: Capability Assessment
Part 5: Mitigation
Part 6: Plan Maintenance
Part 7: Appendices
- Appendix A: Signed Adoption Resolutions
- Appendix B: Repetitive Losses
- Appendix C: Taney County Theatres
- Appendix D: Acronyms
- Appendix E: Glossary
- Appendix F: References

Participants in Plan Development

This Plan was developed by the Southwest Missouri Council of Governments (SMCOG) with the assistance and participation of the local governments in Taney County. A Plan Advisory Committee was established to encourage community participation in the planning process and to provide review to the development of the Plan. The Plan Advisory Committee includes representatives from the participating jurisdictions and emergency services at the county and municipal levels. Representatives from medical services, utilities, businesses, and area residents also served on the Committee.

Information contained in the Plan was collected by both SMCOG and the participating jurisdictions and organizations through various formats, including survey forms that were distributed to all communities.

On January 20, 2004, citizens were invited to an advertised public hearing to review the draft plan and develop goals, objectives and mitigation actions to address the identified hazards. Following this meeting, the goals, objectives and mitigation actions developed through the public hearing process were further refined and distributed for review. The final Plan was further refined and updated for presentation to the participating jurisdictions for adoption. Copies of resolutions adopting the Plan are contained in Appendix A.

Plan Goals and Mitigation Actions

The goals of the Taney County Natural Hazard Mitigation Plan include:

1. Protect lives and minimize injuries to the people of Taney County.

2. Ensure continued operation of government and emergency functions in a disaster.

3. Increase public awareness of natural hazards in the county in order to make the public a partner in hazard mitigation.

4. Reduce the potential impact of natural disasters on new and existing properties and infrastructure and the local economy.

5. Ensure that future development in the county is as “hazard proof” as possible.

The objectives and mitigation actions to achieve these goals fall within the following broad categories of mitigation:

- Prevention
- Property Protection
- Emergency Services
- Natural Resource Protection
- Structural Mitigation
- Public Information

The goals, objectives and mitigation actions are outlined in Part 5, Mitigation, of this Plan. Part 5 includes a five-year action matrix that summarizes the following categories of information:

- Identified Hazard - The specific natural hazard addressed by each mitigation action is indicated in the matrix.

- Plan Goals and Objectives - Each goal and the objectives or specific desired result to achieve the goal is indicated.

- Mitigation Actions - Specific mitigation actions (steps, tasks, activities and/or projects) identified by the plan participants to mitigate the effects of natural hazards in their communities.
- Communities - The political subdivisions to which the objectives and specific mitigation actions apply.

- Lead Organizer - The lead organizer(s) are those entities with either the government responsibility or capability to initiate and manage the implementation of the hazard mitigation action.

- Priority Rank and Target Date - Mitigation actions are listed as high, medium or low priority. High priorities are those actions that generally should be implemented within two years. Medium priorities are those that may be implemented within two to four years, and low priority actions are those which can or may have to wait longer than four years. The degree of need and the capability of implementation were considered in determining priority rankings.

- Evaluation - Evaluation summarizes the review measure by which status of implementation of the mitigation action may be reviewed.

Implementation, Monitoring and Evaluation

Natural hazard mitigation planning is an on-going, dynamic process. The success of the Plan is dependent on implementation, monitoring, and evaluation of the outcomes. The viability of the Plan as an effective action guide will require that the Plan be periodically reviewed and updated or revised as necessary. All of the Taney County political subdivisions participated in the development of the *Natural Hazard Mitigation Plan* and the county has developed a method to ensure regular review and update of the Plan. Continued collaborative efforts, cooperation and communications between the county and municipal governments will enhance long term sustainability of the planning process and implementation activities to reduce the impacts of natural disasters on the Taney County community.

Part 1: Introduction

Purpose of Plan

Natural hazard mitigation is defined as actions or activities designed to reduce or eliminate losses resulting from natural disasters. Historical records indicate that natural disasters have affected Taney County, causing damages to property and economic loss. Flooding in particular has caused significant damages in Taney County. In September 1993, flash flooding along Bull Creek severely damaged or destroyed 150 mobile homes in the Rockaway Beach area, resulting in $5 million in damages and economic loss. The county has experienced loss from tornadoes and severe thunderstorms. In May 1957, an F2 tornado caused $250,000 in property damages over a 15-mile long path through the county; in March 1996, thunderstorm winds damaged boat docks and destroyed 20 boats on Lake Taneycomo in Rockaway Beach.

In addition to flooding and tornado/severe thunderstorms, there are several other natural hazards that have or may affect Taney County. Such hazards include severe winter weather, drought, heat wave, earthquake, dam failure and wildfire. The effects of natural hazard events are not just limited to a portion of Taney County. Rather, hazard events such as flash flooding, thunderstorms, and severe winter weather have resulted in loss throughout urban and rural areas of the county.

Taney County's rapid population growth and development increases the risk for natural hazards to affect more residents and property. There is no way to predict where and when natural disasters may occur or to prevent hazard events from occurring. However, the impacts of natural hazard events can be lessened and injuries, loss of life and damages to properties can be reduced through the application of prudent actions and strategies.

The *Taney County Natural Hazard Mitigation Plan* represents a collaborative effort between Taney County, its municipalities, and other public sector entities and organizations to establish a guide for actions that can be undertaken to help make Taney County safer.

This Plan only addresses natural hazards that may affect Taney County; man-made or technological hazards are not discussed other than in reference to cascading damages that could result from a natural hazard event. The natural hazards addressed in the Plan include:

- Tornado and Severe Thunderstorm
- Drought
- Heat Wave
- Earthquake
- Dam Failure
- Wildfire

The *Taney County Natural Hazard Mitigation Plan* is developed in conformance with the requirements of the Disaster Mitigation Act of 2000 which requires that local governments develop and approve a natural hazards mitigation plan to be eligible after November 1, 2004 for federally funded mitigation assistance. Mitigation plans will be required to receive mitigation assistance for all federally declared disasters.

The Missouri State Emergency Management Agency (SEMA) provided funding for the development of this Plan. SEMA requested the regional planning commissions in Missouri to work with local governments to develop the hazard mitigation plans. With the agreement of Taney County, SEMA contracted the hazard mitigation planning effort to the Southwest Missouri Council of Governments (SMCOG). SMCOG worked in collaboration with the county and municipalities to develop the *Taney County Natural Hazard Mitigation Plan*.

Plan Organization and Content

The Plan includes elements and information prescribed by SEMA's *Regional Planning Commission Hazard Mitigation Planning Guide 2002*, a guide designed to assist Missouri's regional planning commissions and local governments in developing natural hazard mitigation plans and meeting the hazard mitigation planning requirements.

Following the Executive Summary, the Plan is divided into seven parts, including Introduction, Community Profile, Risk Analysis, Capability Assessment, Mitigation, Plan Maintenance, and Appendices:

- Part 1 - Introduction. The Introduction provides an overview of the Plan's purpose and format, participating communities, assurances and authorities for conduct of the Plan, and timeline for preparation of the Plan.

- Part 2 - Community Profile. This element provides a description of the political, natural, cultural, demographic, socio-economic and developmental characteristics of Taney County and its municipalities. It also includes identification of critical facilities and infrastructures, vulnerable populations, and resources that may be affected by a natural hazard event.

- Part 3 - Risk Assessment. The Risk Assessment provides an analysis of the natural hazards addressed in the Plan, including review of historical disaster events, evaluation of future risk and assessment of vulnerability to future hazard events.

- Part 4 - Capability Assessment. The Capability Assessment discusses the current capabilities of Taney County and its municipalities to mitigate disaster events.

- Part 5 - Mitigation. This part describes the range of mitigation categories and activities that may be employed by a community, outlines the mitigation goals, objectives and mitigation strategies developed by Taney County and its communities, and provides a matrix that summarizes the mitigation strategies, priorities, responsibilities for implementation, and assessment.

- Part 6 - Plan Maintenance. The Plan Maintenance section notes the process and procedures outlined by Taney County and its municipalities to review and monitor progress of plan implementation and actions taken to reduce the risks of future disaster events that may affect the county. It also contains provisions for update of the Plan.

- Part 7 - Appendices. The Appendices includes the resolutions of plan adoption by Taney County and each city, repetitive losses incurred by the National Flood Insurance Program, acronyms, glossary of terms, and references.

Assurance Statements of Compliance with FEMA

The *Taney County Natural Hazard Mitigation Plan* complies with applicable Federal Emergency Management Agency (FEMA) regulations, rules, guidelines, and checklists; the Code of Federal Regulations (CFR); existing federal and state laws; and such other reasonable criteria as the President/Governor, federal/state legislatures and the FEMA/SEMA may establish in consultation with city and county governments during the development of this Plan (SEMA *Regional Planning Commission Hazard Mitigation Planning Guide* 2002, 29).

The Plan also meets the minimum planning requirements for all FEMA mitigation programs, such as the Flood Mitigation Assistance Program (FMA), the Pre-Disaster Mitigation Program (PDM), and the Hazard Mitigation Grant Program (HMGP), and where appropriate, other FEMA mitigation-related programs such as the National Earthquake Hazards Reduction Program (NEHRP), the National Flood Insurance Program (NFIP) and the Community Rating System (CRS) (SEMA *Regional Planning Commission Hazard Mitigation Planning Guide* 2002, 29).

In accordance with Missouri's "sunshine law" (RSMo §610.010, 610.020, 610.023, and 610.024), the public was notified when the Plan was presented for public review. Input from the Plan Advisory Committee and city and county officials was solicited through distribution of drafts of plan elements via mail, fax, and/or posting on the SMCOG website and through meetings with community representatives and presentations at meetings of the governing bodies. Input from the general public was solicited through media outlets, including public hearing notices published in county newspapers. Meeting dates were posted on the on the SMCOG website and the Plan is also posted on the website for public viewing.

Basis for Planning Authority

The basis for authority to create a natural hazard mitigation plan is Section 322 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, 42 U.S.C.5165 (referred to as the Stafford Act), enacted under Section 104 of the Disaster Mitigation Act of 2000, P.L. 106-390 (referred to as DMA 2000). Section 104 is the legal basis for FEMA's Interim Final Rule for 44 CFR Parts 201 and 206, published in the *Federal Register* on February 26, 2002 (SEMA *Regional Planning Commission Hazard Mitigation Planning Guide* 2002, 4).

Plan Adoption

To be eligible for mitigation funding after November 1, 2004, local governments must adopt FEMA-approved natural hazard mitigation plans. The active participation of the local government stakeholders in the planning process is considered critical to successful implementation of this plan. The Southwest Missouri Council of Governments collaborated with the local governments in Taney County to encourage participation in the planning process and the development of a plan that represents the needs and interests of the Taney County community. Appendix A contains the local government resolutions adopting the *Taney County Natural Hazard Mitigation Plan*.

Participants and Jurisdiction Represented

The *Taney County Natural Hazard Mitigation Plan* is a multi-jurisdictional plan including the participation of the following local jurisdictions:

- Taney County
- Village of Bradleyville
- City of Branson
- Village of Bull Creek
- City of Forsyth
- City of Hollister
- Village of Kirbyville
- Village of Merriam Woods
- City of Rockaway Beach
- Village of Taneyville

Plan Preparation Methodology and Schedule

Discussions on the development of the *Taney County Natural Hazard Mitigation Pla*n began in December of 2002 with a public meeting attended by SMCOG staff, SEMA representatives and representatives from Taney County, the municipalities and emergency management personnel. This meeting was conducted to discuss the benefits of developing a hazard mitigation plan, the planning process, and SEMA's intent to contract with SMCOG to prepare the multi-jurisdictional plan for Taney County and its municipalities. SEMA entered in agreement with SMCOG the end of March 2003 to develop the plan for Taney County.

In May, SMCOG staff conducted meetings with the emergency management directors and government officials to initiate the adoption of resolutions of intent to participate in the plan development process by all local governments in Taney County. A Plan Advisory Committee was also established to provide assistance to the SMCOG staff in obtaining data necessary for the plan, to provide review and comment on the plan as it was developed and to serve as liaison between the governing bodies and other community stakeholders and SMCOG in distributing information on the plan and soliciting comment. The Plan Advisory Committee included representatives from local government, emergency management, business, tourism industries, health care, education, and the media.

The actual planning process was started during the summer months but was hindered by the devastating tornadoes that struck southwest Missouri on May 4, 2003. The planning process was delayed while SMCOG staff actively worked on recovery activities for communities affected by the tornadoes. The planning process was started again in October with the compilation and analysis of data.

The Capabilities Survey provided by SEMA was used to initiate work on the Capabilities Assessment section of this Plan. The Emergency Management Director and local elected officials provided the information requested in the survey. From the information gained and discussions with those completing the survey, a detailed snapshot of local government resources was constructed.

A profile of the communities and areas vulnerable to natural hazards was constructed by combining the capabilities data with the local hazard identification histories. A comparison of the hazards history and the county's capabilities was used to identify vulnerabilities. Preliminary goals, objectives, and actions were then prepared for review by the Plan Advisory Committee prior to a mitigation workshop.

A workshop was held in the form of a Public Hearing on January 20, 2004. The preliminary drafts of the Plan were reviewed and meeting participants discussed several goals, objectives and actions at length. Meeting participants then "voted" on the highest priorities for their communities. This resulted in the selection of five goals, followed by 10 objectives, and 51 mitigation actions. The goals, objectives and mitigation actions were further refined following review of the outcomes of the public hearing and distributed for comment.

The following individuals participated in the development of the Plan. Many of these individuals represented community and the various economic sector interests on the Plan Advisory Committee. Others engaged in the development of the Plan through participation in the workshop to develop the Plan's goals, objectives and mitigation actions. Participation in the development of the Plan was also accomplished through telephone, fax and email communications to individual communities and through meetings with community representatives and presentations to the governing bodies.

- Chuck Pennel, Taney County Presiding Commissioner
- Ron Herschend, Taney County Commissioner
- Don Swan, Taney County Commissioner (retired)
- Eileen Cooper, Taney County Commission
- James Strayhan, Taney County Assessor
- Chalet Timms, Taney County Deputy Clerk
- Chris Berndt, Taney County Emergency Management Director
- Brenda Hoolier, Taney County Health Department
- Art Beck, Taney County Health Department
- Greg Smith, Administrator, Taney County Planning Department
- Jim Russell, Taney County Sheriff
- Kevin Hudleston, Regional Planner, Taney County Health Department
- John Combs, Chairman, Village of Bradleyville
- Charlie Huston, City of Branson
- Kevin Faught, Assistant City Administrator, City of Branson
- Anita Wimsatt, Village Clerk, Village of Bull Creek

- Ruth Whitley, City Clerk, City of Forsyth
- Rick Ziegenfuss, City Administrator, City of Hollister
- Amy Chamberlin, Village Clerk, Village of Kirbyville
- Angela Leist, Village Clerk, Village of Merriam Woods
- Danny Brown, Emergency Management, City of Rockaway Beach
- Don Burch, Alderman, City of Rockaway Beach
- Donna Riggs, Village Clerk, Village of Taneyville
- Bill Barrett, Greater Ozarks Chapter-American Red Cross
- Tracy Barton, Marketing - Skaggs Hospital, Branson
- Greg Brock, KRVK News
- Krystal Carman, Branson Daily News
- Linda Morgan, Taney County Times
- Joe Combs, Superintendent, Bradleyville Schools
- Dave Cook, 1st Community Bank
- Wayne Detrick, University Extension, University of Missouri
- Rick Findley, Forsyth Resident
- Ida Hermon, Forsyth Resident
- Al Moon, IDA Board
- Chris Myer, Tri-Lakes Lodging Association
- Robert R. Paulson II, Taney County Resident
- Steve Presley, Branson Theatre Association
- Craig Richards, Ozark Mountain Bank
- Becky Roberts, U.S. Bank – Forsyth

Significant dates in the preparation of the *Taney County Natural Hazard Mitigation Plan* include:

March 31, 2003	Agreements executed between SMCOG and SEMA to develop the Natural Hazards Mitigation Plan.
May – August 2003	SMCOG conducts meetings with local government representatives to introduce the planning project and work with participants to establish Plan Advisory Committee.
May – August 2003	Local governments pass resolution of intent to participate in the development of the hazard mitigation pan for Taney County.
August 27, 2003	Preliminary drafts of Community Profile, Risk Assessment, Capability Assessment and Mitigation distributed and posted on SMCOG website for review and comment.
October-Nov 2003	SMCOG works on the plan with background data research.
December 12, 2003	Meeting with Plan Advisory Committee to review preliminary drafts.

December 19, 2003	SMCOG staff met with the Taney County Commission to review draft elements of the hazard mitigation plan and to prepare for public meeting on January 20, 2004.
January 20, 2004	Workshop held in form of county-wide public meeting to solicit public input and comment on goals, objectives, and strategies.
February 2004	Goals, objectives and mitigation strategies developed from the January 20, 2004 workshop distributed for review and comment by the Plan Advisory Committee and other interested persons.
Winter 2004 & Spring 2005	Plan updated to incorporate changes in community conditions and characteristics.
June-July 2005	Plan submitted to participating communities for adoption.

Acknowledgements

Several county and municipal officials provided valuable assistance throughout the planning process. Special thanks to the Taney County Commission for their participation and guidance in establishing the Plan Advisory Committee. Thank you also to all the municipal and county officials, residents, and the representatives from local business, utilities, health care and other emergency management personnel who participated on the Plan Advisory Committee, reviewed and commented on the drafts of the Plan, and contributed their time and ideas to the county-wide workshop for developing the Mitigation component of the Plan. A special thank you also to the staff from the incorporated communities in Taney County and other public and private sector institutions and organizations that provided input, data, and other resource material used in the development of the Plan. A very special thank you to Chris Berndt, Taney County Emergency Management Director, for his input throughout the process of completing the *Taney County Natural Hazard Mitigation Plan*.

Part 2: Community Profile

Location

Taney County is located in Southwest Missouri and is bordered by Christian County to the north, Stone County to the west, Douglas and Ozark counties to the east, and the Arkansas counties of Boone and Marion to the south. Taney County covers 632 square miles. Of this territory, the county's incorporated cities and villages cover approximately 25 square miles.

Incorporated communities include the villages of Bradleyville, Bull Creek, Kirbyville, Merriam Woods, and Taneyville and the cities of Branson, Forsyth, Hollister, and Rockaway Beach. There are also several unincorporated settlement areas in the county, including Brown Branch, Kissee Mills, McClurg, Powersite, and Walnut Shade in the northern section of the county and Cedar Creek, Protem, Ridgedale, and Rueter in the southern portion. The City of Forsyth is the county seat.

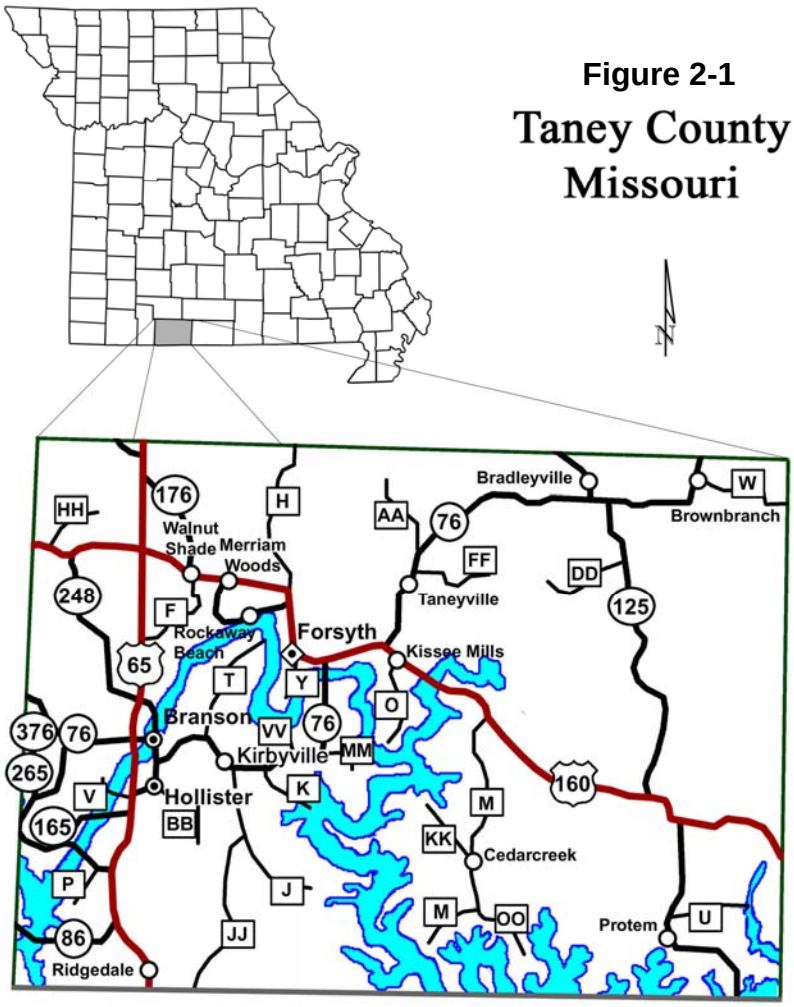


Figure 2-1

Taney County Missouri

Development History

Historically a rural, agrarian-based community, many changes have occurred since Taney County's organization as a Missouri county in 1837. The county has seen its primary economy change from one of labor intensive agricultural production of fruits, vegetables and other cash crops, lumbering, and manufacturing of goods from the area's natural resources to one heavily dependent on service and retail sector jobs created by the tourism industry.

The year 1909 brought about a proposal that would have long lasting impact on the economic future of Taney County. It was proposed that a dam be constructed across the White River for hydroelectric power generation. The Amhursen Hydraulic Construction Company began construction on the Powersite Dam in 1911. The dam was to be 70 feet tall and over 1000 feet in length and would inundate over 2,000 acres of prime farmland. The reservoir created was named Lake Taneycomo. The dam was completed in 1913 and provided power for Springfield, Joplin, Carthage, Forsyth, and many other towns. With the creation of Lake Taneycomo, the Hollister area quickly became an outdoor recreation destination, attracting vacationers from the St. Louis and Kansas City areas as well as throughout the region.

The evolution of the tourism industry was further spurred by the publication of Harold Bell Wright's book, *Shepherd of the Hills*, in 1907. Thousands of visitors from around the country traveled to the area to see the sites made famous in Wright's novel. The first Shepherd of the Hills pageant was held in 1960. Another important attraction contributing to tourism growth in Taney County was the opening of the Silver Dollar City theme park in neighboring Stone County in 1960.

By the early 1960s, the focus of the tourism activity in Taney County shifted to the Branson area, spurred by improvements to Highway 65, the creation of Table Rock Lake, and the growing popularity of attractions such as Silver Dollar City and the Shepherd of the Hills pageant. Branson's first music show, the Baldknobbers, opened in 1959. National recognition of the Branson area and the opening of many new music theatres in the early 1990s have made tourism the economic mainstay in Taney County.

Form of Government

Missouri is divided into 114 counties and the City of St. Louis by the Revised Statutes of Missouri (RSMo) §46.040. Counties are political subdivisions of the State "for governmental, political, and public purposes" (Freyermuth, n.d) and have a wide range of governmental responsibilities. The Missouri legislature has established four classes of counties, based on the assessed valuation of real and personal property (Freyermuth, n.d.; RSMo §48.820). Taney County is classified as a first class county and is governed by a three-member Commission. Under the provisions of RSMo §49.010, counties are divided into two districts of nearly equal population (in Taney County, the eastern district and the western district). Each district elects one commissioner and the presiding commissioner is elected by the county as a whole. Commissioners serve four-year terms.

There are currently two classes of cities in Missouri--third and fourth class cities, as well as villages and home rule charter cities (Freyermuth, n.d.). Fourth class cities are those with populations greater than 500 but less than 3,000 inhabitants. Villages/towns are incorporations with less than 500 inhabitants (RSMo §72.050). There are nine incorporated communities in Taney County, four of which are fourth class cities and five which are villages. Bradleyville, Bull Creek, Kirbyville, Merriam Woods, and Taneyville are villages and Branson, Forsyth, Hollister, and Rockaway Beach are fourth class cities.

Villages are regulated under RSMo §80 and are governed by a board of trustees. The board elects a presiding officer (chair) and a clerk, and appoints the village's officers. Fourth class cities are regulated by RSMo §79. Such cities may have the mayor/board of aldermen or mayor/city administrator/board of aldermen form of government. The mayor presides over the board but may vote only to break a tie. Table 2-1 lists the incorporated communities in Taney County, government form, and regular meeting dates of the governing bodies.

Table 2-1: Taney County Local Government

Local Government	Class	Form of Government	Meeting Schedule
Taney County	First	Commission	Mondays
Bradleyville	Village	Chair/Board of Trustees	3rd Mon, 7:00 p.m.
Branson	Fourth	Mayor/City Administrator/ Board of Aldermen	2nd and 4th Mon, 7:00 p.m.
Bull Creek	Village	Chair/Board of Trustees	1st Tues, 7:00 p.m.
Forsyth	Fourth	Mayor/Board of Aldermen	3rd Mon, 7:00 p.m.
Hollister	Fourth	Mayor/City Administrator/ Board of Aldermen	1st and 3rd Thurs, 7:00 p.m.
Kirbyville	Village	Chair/Board of Trustees	3rd Thurs, 7:00 p.m.
Merriam Woods	Village	Chair/Board of Trustees	2nd and 4th Tues, 7:00 p.m.
Rockaway Beach	Fourth	Mayor/Board of Aldermen	2nd Mon, 6:30 p.m.
Taneyville	Village	Chair/Board of Trustees	2nd Tues, 6:30 p.m.

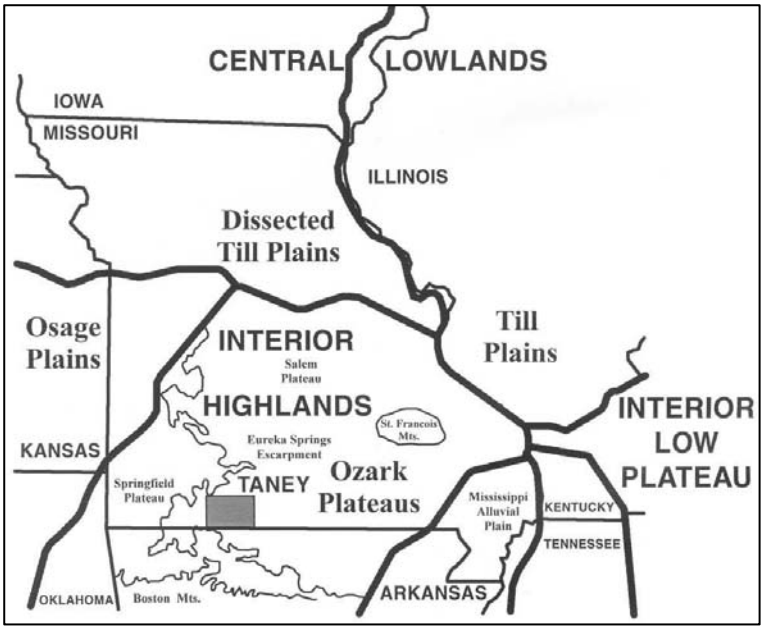
In addition to these incorporated communities, several smaller unincorporated settlements are scattered throughout the county. Some of these larger settlement areas include Protem and Walnut Shade. The county is also divided into eight townships including Branson, Beaver, Big Creek, Cedar Creek, Jasper, Oliver, Scott, and Swan.

Physical Characteristics

Physiography and Geography

Taney County is located in the southwestern Ozarks Plateau region of the Interior Highlands physiographic province. The county is situated on the Salem Plateau portion of the Ozarks Plateau. Rugged hills, steep ridges, and deep, narrowly entrenched stream valleys characterize the Salem Plateau. Topographic relief in Taney County is over 800 feet, ranging from high elevations of approximately 1,480 feet above mean sea level (msl) in the northeastern section of the county to 654 feet at Bull Shoals Lake (normal pool elevation). Much of the county is characterized by moderate to very steep slopes. Approximately 50 percent of the county has slopes of 10 percent or greater.

Figure 2-2: Regional Physiography



Source: Taney County Master Plan, 1999.

Taney County is primarily underlain by Mississippian and Ordovician age limestones and dolomites. The county's topographic surface features reflect an advanced stage of the geological erosion cycle. Surface features are primarily a result of the Ozark uplift and subsequent erosion of the limestone bedrock. Taney County is known for its panoramic vistas. Outliers, which are rock outcrops that have become detached from the main body of bedrock, extend in length from one to twelve miles and create long, panoramic vistas. Rock outcrops are found throughout the county and are particularly noticeable around the lakes areas (Dodd, J.A., and E.J. Dettman, 1996).

Karst topographic features are common throughout the county. Karst features develop in areas of bedrock with high carbonate content. The bedrock is easily dissolved by a dilute carbonic acid found in the atmosphere, vegetation, and shales. Water infiltrates the bedrock and is channelized through natural cracks, joints, faults, and bedding planes. The dissolution of the bedrock and channelization of water results in caves, sinkholes, losing streams, springs, and other karst features. Caves are particularly prevalent throughout Taney County (Southwest Missouri Council of Governments, *Taney County Master Plan*, p. 6.2).

Hydrology and Drainage

Taney County's water system is comprised of a complex and interconnected system of perennial and intermittent streams, impoundments, and subsurface water. The county is located in the White River Basin, which eventually flows to the Mississippi River. Taney County contains approximately 12,945 acres of surface water. One of the county's' defining features and important economic resources is the surface reservoir system. Lake Taneycomo, Bull Shoals Lake, and Table Rock Lake, created from the construction

of dams on the White River, account for approximately 10,480 acres of surface water in the county. All three lakes provide for hydroelectric power generation and flood control as well as recreation.

Lake Taneycomo, located completely in Taney County, was created in 1913 by the construction of the Powersite Dam (Ozark Beach Dam) near Forsyth. Originally constructed for hydroelectric power generation, the lake's surface water covers approximately 2,080 acres (Branson USA Online, 1996).

Lake Taneycomo is privately owned, but Bull Shoals and Table Rock Lakes are managed by the U.S. Army Corps of Engineers. Bull Shoals Lake was formed in 1952 by the construction of the Bull Shoals Dam on the White River, about 10 miles west of Mountain Home, Arkansas. Approximately 5,200 acres of the total surface water area at the conservation pool (45,440 acres) are located in Taney County.

Table Rock Lake was formed in 1959 from the construction of the Table Rock Dam on the main stem of the White River, about six miles south of the City of Branson along the Stone County/Taney County line. Of the 43,100 acre conservation pool surface area of the lake, 3,200 acres are in Taney County.

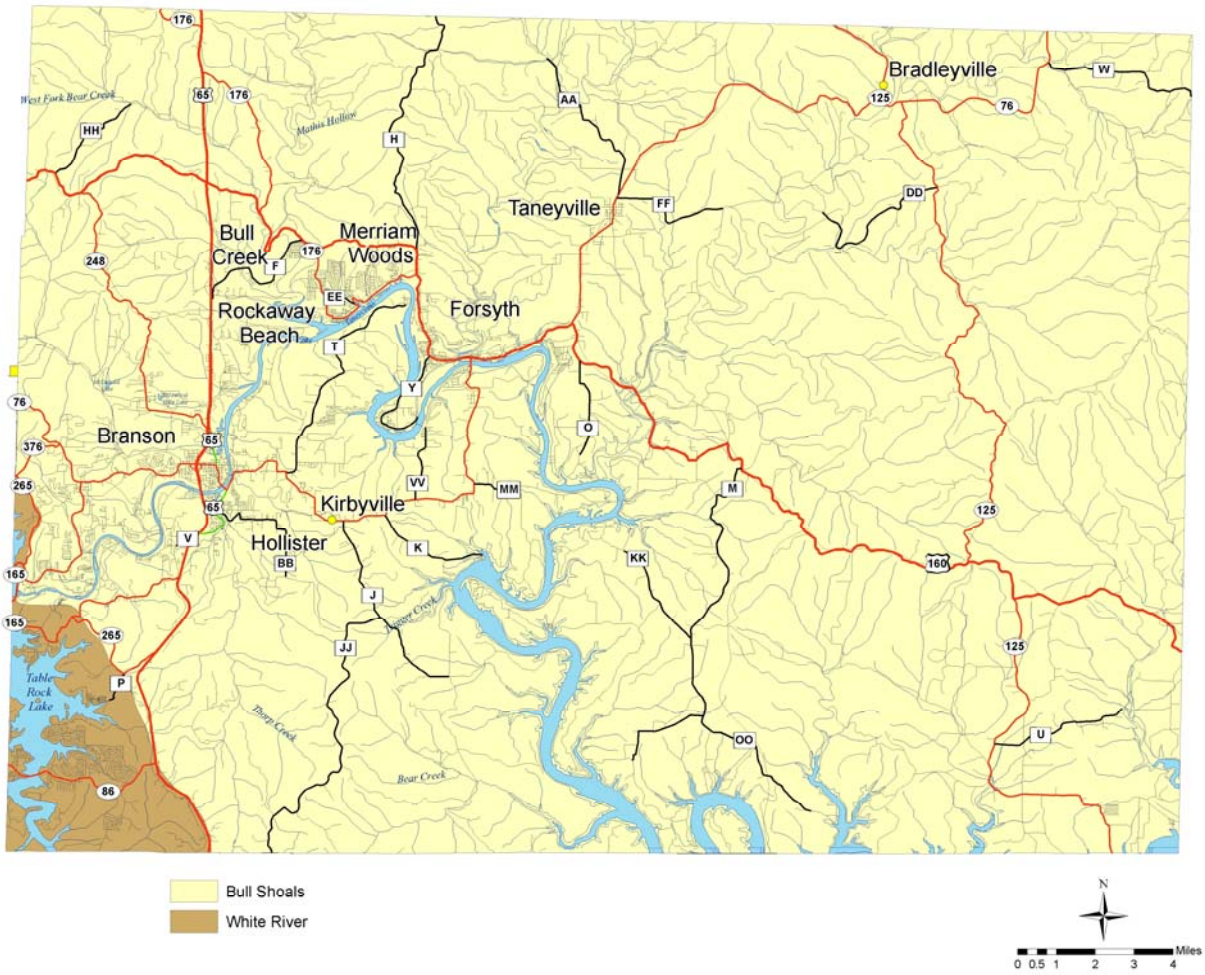
Table Rock Lake has a substantial influence on the county and region. Water released from Table Rock Dam into Lake Taneycomo comes from a depth of 140 feet below the surface of Table Rock Lake. This very cold water is ideal for trout. With the Missouri Department of Conservation's construction of the Shepherd of the Hills Hatchery on Lake Taneycomo, Lake Taneycomo is considered one of the best trout fishing lakes in the Mid-West (*Taney County Master Plan*, p. 6.5).

Taney County also has approximately 950 acres of ponds and 500 acres of perennial streams. All streams in the county either flow into Lake Taneycomo, Bull Shoals Lake, or Table Rock Lake. Most of the county lies within the Bull Shoals watershed, including Lake Taneycomo and Bull Shoals Lake. The southwestern corner of the county, including Table Rock Lake, lies within the Beaver Reservoir watershed.

Major perennial streams originating outside of Taney County include Beaver, Swan and Bull Creeks. Beaver Creek, the largest perennial stream, originates in Douglas County. It drains eastern portions of the county and flows into Bull Shoals Lake. Swan Creek originates in Christian County and drains the central portion of Taney County before flowing into Bull Shoals Lake. Western portions of the county are drained by Bull Creek, which originates in Christian County and flows into Lake Taneycomo.

Bradleyville is located in the Beaver Creek sub-watershed, with Caney Creek to the east of the Village, and Beaver Creek located to the south. Branson, Hollister, Kirbyville, and Merriam Woods are located in the Taneycomo sub-watershed. Roark Creek flows to the north of Branson, and Lake Taneycomo is located to the south and east of Branson. Turkey Creek flows through the middle of Hollister and Coon Creek flows along the city's northeastern boundary. No creeks or rivers flow through Kirbyville or Merriam Woods. Bull Creek and Rockaway Beach are located in the Lower Bull Creek sub-watershed. Bull Creek runs along the western edge of the Village of Bull Creek. Bull Creek also runs along the southwestern boundary of Rockaway Beach. The Village of Taneyville is located in the Swan Creek sub-watershed, but contains no creeks or rivers.

Figure 2-3: Taney County Watersheds



Groundwater is the primary source of water for human consumption in Taney County. With the exception of the City of Branson, which now draws most of its water supply from Lake Taneycomo, other water systems draw water from wells drilled in the Ozark aquifer. The Ozark aquifer consists of dolostones, limestones, and sandstones of late Cambrian through Devonian age (U.S. Department of the Interior, Water Resources Investigations Report 98-4164, 1998). Wells drilled in the Ozark aquifer generally produce good quality water and can yield more than 1,000 gallons per minute.

While the county generally has an abundant supply of groundwater, potential contamination of the groundwater from surface pollutants is a concern. Karst features, including sinkholes, caves, springs, losing streams and fractures in the bedrock, allow for the rapid movement of water between the surface water and groundwater systems. Surface pollutants, such as nitrates, phosphorus, and fecal coliform bacteria, can enter the groundwater system relatively easy with little filtration. The primary sources of these nutrient and bacterial contaminants are animal manure, wastewater treatment plants, septic tanks and fertilizers. In general, shallow wells (drilled to less than about 300 feet) and springs are more susceptible to contamination from surface pollutants (U.S. Department of the Interior, USGS Circular 1158, 1998).

There is growing concern for degradation of reservoir water quality due to nutrient loads, particularly nitrates and phosphorus, which can result in algae blooms, oxygen depletion and fish kills. Taney County's lakes are critical economic assets for water recreation, sport fishing, and the general tourism industry. The cities of Branson and Hollister have installed phosphorus removal systems at their wastewater treatment facilities on Lake Taneycomo to reduce nutrient loads; the Rockaway Beach Regional Treatment Facility also has stringent controls for phosphorous removal.

Climate and Weather

Taney County has a humid continental climate with mild winters and hot, humid summers. The climate data show that the average precipitation is about 40 inches per year. The average monthly rainfall is about three to five inches per month in the spring while it is only one to three inches per month in the late fall and winter. The mean annual air temperature is about 58° Fahrenheit, with average summer temperatures of 87° Fahrenheit and average winter temperatures of 34° Fahrenheit. The climate of Southwest Missouri, including Taney County, is characterized by thunderstorm events that are often sudden and intense in nature. Such storm events frequently result in flash flooding in low-lying areas.

Soils

The *Taney County Soil Survey* identifies twenty soils units in the county (Dodd, J.A., and E.J. Dettman, 1996). The soils are highly variable and range in thickness from thin to none on steep slopes to over 60 inches on ridge tops, foot slopes, stream terraces, and floodplains.

Of the approximate 19,100 acres classified as prime farmland soils, most are generally not suited to intensive crop cultivation due to severe flooding potential, slope, and susceptibility to erosion. Approximately 8,300 acres or 2.8 percent of the county's total acres are generally suited for more intensive crop cultivation. Soils suited for cultivated crops are found on the bottomlands, terraces, and a few gently to moderately sloping

upland areas. Actual acreage used for small grain crops and row crops in Taney County is quite limited. Stream terraces and the floodplains along the creeks and the lakes are used to produce winter wheat, grain sorghum and soybeans (*Taney County Master Plan*, p. 6.7). Most cleared areas in the county are used for pasture and hay production. The livestock industry includes dairy and beef cattle and the raising of hogs for the feeder pig market. Most of the county's soils have low soil fertility, requiring the addition of plant food for maximum production of crops and hays for the livestock industry.

Soil types and geologic features have a significant impact on the development of Taney County. Most soils have severe limitations for use of on-site sewage disposal systems. Conditions that affect the ability of the soils to adequately absorb the effluent discharge from septic systems include soil permeability, depth to bedrock, high water table, and flooding. Improperly designed, installed or maintained septic systems can result in the discharge of poorly treated or untreated wastes into the groundwater system through the underground conduits characteristic of karst topography.

Building site development in Taney County is also impacted by soils characteristics and geologic structure. Thin soils, depth to bedrock, wetness, slope, shrink-swell and low strength are common features of many of the soils associations which either severely restrict development or require increased building site preparation. Soil erosion in areas of thin soils and extreme slope is also a concern.

Significant Natural Communities

Significant natural communities in Taney County include chert savannas, dolomite and limestone glades, balds, caves, and creeks/small rivers. These natural communities provide habitats for several sensitive and endangered species, some of which are found only in Taney County. Glades and caves are predominant natural communities in Taney County. The Hercules Glades wilderness area and the Thorpe Creek Glade, located south of Hollister, are the largest and highest quality glades in the county. The Skaggs-Keeter Ranch, located near the Drury Refuge, is considered a significant savanna habitat. Other significant habitats in Taney County include the Hollister Tower Site and the White River Balds Natural Area, located in the Henning State Forest.

Both Hercules Glades and the White River Balds Natural Area are significant habitat-managed natural communities. The Hercules Glades Wilderness Area is designated by the U.S. Congress as a Wilderness Area. No motorized vehicles are allowed access and no timber harvesting or other similar type of environmental disturbance is allowed in Hercules Glades. The White River Balds is a state-designated Natural Area. The Missouri Department of Conservation and the Missouri Department of Natural Resources will not permit any use or diversion of this area for a use which is not compatible with the area's preservation objectives, unless there is a critical need and no other feasible alternative.

There are at least 130 known caves in Taney County (Missouri Speleological Survey, Inc., 1999). One of the more significant caves is Tumbling Creek Cave, located in the Protem area. Tumbling Creek Cave houses the Ozarks Underground Laboratory, the only such underground hydrogeology laboratory in the United States. This cave is also home to endangered species, including the Gray bat the Indiana bat, as well as Antrobia culveri, an aquatic snail which is a candidate for classification as a federally endangered

species. The Antrobia culveri is a unique species and genus found in no other place in the world. Tumbling Creek Cave is further noted as containing the greatest diversity of fauna in any cave located west of the Mississippi River. It has been designated as a Natural National Landmark by the Department of the Interior and is listed as a significant cave by the U.S. Forest Service.

Demographics

Population Trends

Taney County's population increased from 25,561 in 1990 to 39,703 in 2000 a 55.3 percent increase in ten years. This rapid population increase resulted from the in-migration of persons attracted by employment opportunities in the booming Branson area entertainment industry as well as the in-migration of retirees attracted by the area's lower cost of living and natural environment.

Although the percentage share of population living in the incorporated communities in Taney County has increased since the 1970s, the majority of the population resides in the unincorporated areas of the county. In 2000, 65% of the population lived in unincorporated areas. Two settlement areas have incorporated since the 2000 Census—Bradleyville and Kirbyville. In addition, Table Rock Village was incorporated into the City of Branson in 2004.

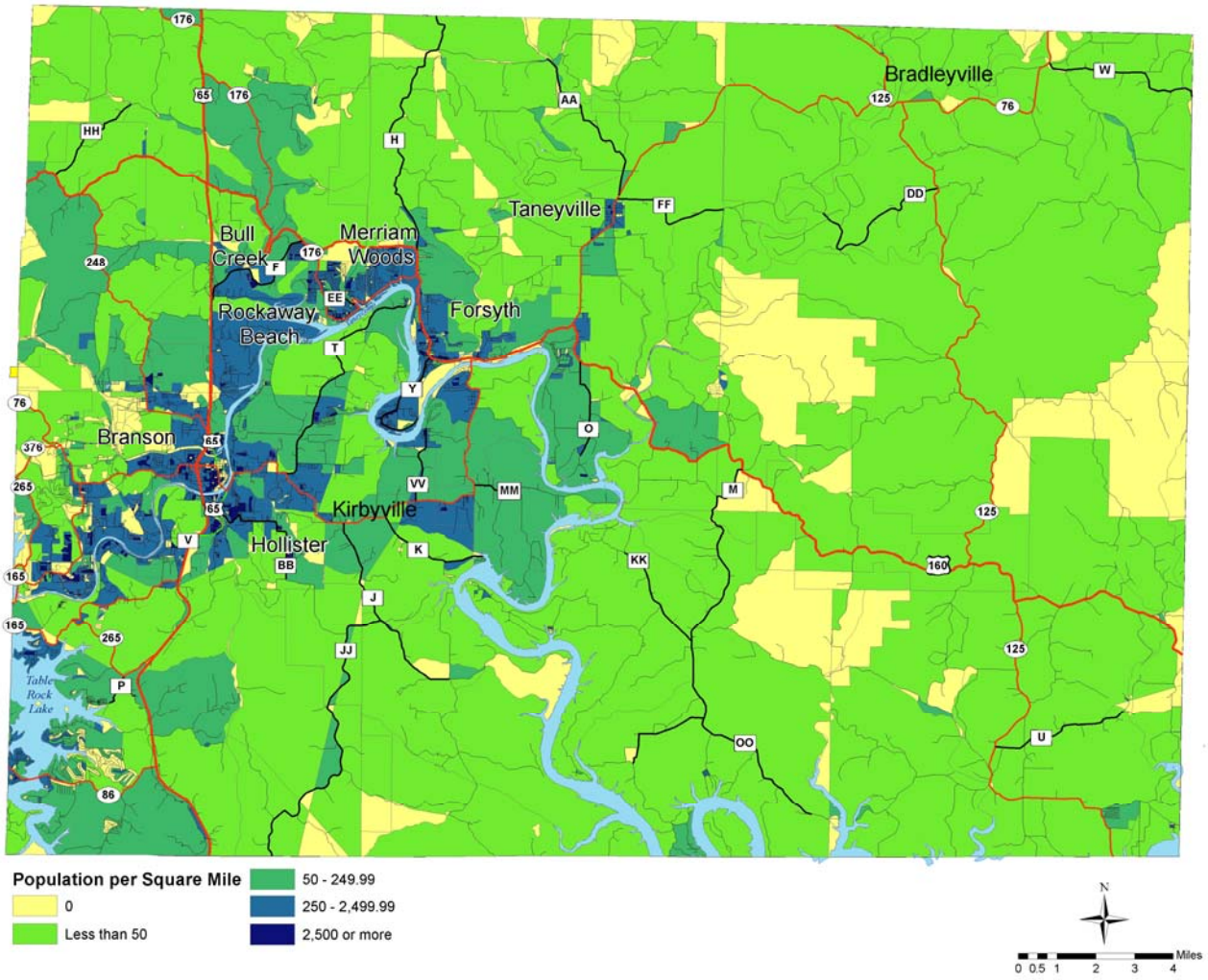
Table 2-2: Population Growth, 1990-2003

Jurisdiction	1990 Population	2000 Population	Change 1990-2000	% Change 1990-2000	2003 Estimated Population	%Change 2000-2003
Taney County Total	**25,561**	**39,703**	**14,142**	**55.3**	**41,339**	**4.12**
Bradleyville**	N/A	N/A	N/A	N/A	N/A	N/A
Branson	3,706	6,050	2,344	63.2	6,231	2.99
Bull Creek	N/A	225	N/A	N/A	235	4.44
Forsyth	1,175	1,686	511	43.4	1,659	-1.60
Hollister	2,628	3,867	1,239	47.1	3,884	0.44
Kirbyville**	N/A	N/A	N/A	N/A	144	N/A
Merriam Woods	601	1,142	541	90	1,156	1.23
Rockaway Beach	275	577	302	109.8	573	-0.69
Table Rock Village*	100	229	129	129	242	5.68
Taneyville	279	359	80	28.6	353	-1.67
Incorporated Total	8,764	14,135	5,371	61.2	14,477	2.42
Unincorporated Total	16,797	25,568	8,771	52.2	26,862	5.06

*Table Rock Village was incorporated into the City of Branson 5/06/2004.
**Bradleyville & Kirbyville incorporated after the 2000 census.
Source: U.S. Census Bureau. Summary File 1, 1990 and 2000 Census; 2003 Population Estimates.

The spatial distribution of population is significantly influenced by the county's topography, lakes, highway network, and location of public lands. Population in Taney County is primarily concentrated in the west half of the county, located along the major transportation corridors and in proximity to the lakes. The cities of Branson and Hollister, bordering on Table Rock Lake and Lake Taneycomo, form the population center in the western section of the county.

Figure 2-4: Taney County Population Density, 2000



Age Characteristics

Taney County's youth represented 25.6 percent of the total population in 2000, while working aged citizens (20-64 years) accounted for 58.1 percent of the population. The retirement-aged population (65 years and over) constitutes 16.2 percent.

Trends in the median age of the population for Taney County reflect the in-migration of younger working aged adults and families. Taney County's 1990 median age was 40.5 years. In 2000, the median age decreased to 38.8 years.

Table 2-4 shows the percentage of population by age cohort and jurisdiction in Taney County. Forsyth has the largest percentage of people 65 years and older, while Bull Creek Village has the highest percentage of younger population (under 18 years).

Table 2-3: Taney County Age Specific Population, 2000

Age Cohort	Population	Percent of Total
Under 5 years	2,428	6.1
5 to 9 years	2,413	6.1
10 to 14 years	2,521	6.3
15 to 19 years	2,809	7.1
20 to 24 years	2,795	7.0
25 to 34 years	4,829	12.2
35 to 44 years	5,574	14.0
45 to 54 years	5,324	13.4
55 to 59 years	2,378	6.0
60 to 64 years	2,207	5.6
65 to 74 years	3,690	9.3
75 to 84 years	2,072	5.2
85 years and over	663	1.7
Total	39,703	100

Source: U.S. Census Bureau. Summary File 1, Census 2000.

Table 2-4: Taney County and Municipalities, Age, 2000

Jurisdiction	Total Population	Percent Under 18	Percent 18 - 64	Percent 65 and over	Median Age
Taney County	39,703	22.4	61.4	16.2	38.8
Bradleyville	--	--	--	--	--
Branson	6,050	20.3	59.6	20.2	43.0
Bull Creek	225	36.0	60.4	3.6	29.1
Forsyth	1,686	16.9	49.6	33.5	52.8
Hollister	3,867	22.6	61.1	16.3	34.8
Kirbyville	--	--	--	--	--
Merriam Woods	1,142	26.0	54.9	19.1	39.3
Rockaway Beach	577	18.0	58.9	23.1	47.4
Taneyville	359	33.1	52.9	13.9	32.3

Source: U.S. Census Bureau. Profile of General Demographic Characteristics. DP1, Age Groups and Sex. QTP1, Census 2000.

Race and Ethnicity

Taney County's population is primarily White, with minority populations representing 3.8 percent of the total population in 2000. The Hispanic population has been growing rapidly in Southwest Missouri since 1990, particularly in counties located west of Taney County. Although Hispanics represented only 2.4 percent of Taney County's total population in 2000, the number of individuals identified as Hispanic increased from in 159 in 1990 to 774 in 2000, an increase of 487 percent.

Table 2-5: Race and Hispanic Population, 2000

Jurisdiction	Percent of Total Population							
	Race							Hispanic or Latino (any race)
	One Race						Two or More Races	
	White	Black or African American	American Indian and Alaska Native	Asian	Hawaiian and Pacific Islander	Some Other Race		
Taney County	94.8	0.3	0.9	0.3	0.1	0.7	1.4	2.4
Bradleyville	--	--	--	--	--	--	--	--
Branson	92.0	0.8	0.9	0.7	0.0	1.5	1.6	4.3
Bull Creek	93.8	0.0	0.9	0.0	0.0	2.2	3.1	4.0
Forsyth	98.0	0.1	0.3	0.2	0.0	0.4	0.5	1.0
Hollister	94.5	0.2	1.1	0.2	0.2	0.8	1.0	3.1
Kirbyville	--	--	--	--	--	--	--	--
Merriam Woods	97.8	0.0	0.4	0.0	0.0	0.2	1.1	0.9
Rockaway Beach	95.3	0.2	0.9	0.0	0.0	0.5	2.1	1.6
Taneyville	96.7	0.0	0.0	0.0	0.3	0.0	2.2	1.1

Source: U.S. Census Bureau. Summary File 1, Census 2000.

Income Characteristics

In 2000, 71 percent of the county's households had incomes between $15,000 and $99,999; and 19 percent had income lower than $14,999. Taney County's 1999 median household income was $30,898, lower than that of the State of Missouri ($37,934) and the Nation ($41,433). The 1999 per capita income for the county was also lower than the state and national figures.

While the number of county residents living below the poverty level increased from 3,329 persons in 1990 to 4,731

Table 2-6: Taney County Income, 1999

Households	Number of Households	Percent of Total
Less than $10,000	1,656	10.2
$10,000 to $14,999	1,448	9.0
$15,000 to $24,999	3,219	19.9
$25,000 to $34,999	2,839	17.6
$35,000 to $49,999	3,001	18.6
$50,000 to $74,999	2,425	15.0
$75,000 to $99,999	865	5.3
$100,000 to $149,999	469	2.9
$150,000 to $199,999	80	0.5
$200,000 or more	173	1.1
Total	16,175	100.0
Median Household Income	$30,898	--
Per capita income	$17,267	--

Source: U.S. Census Bureau. Summary File 3, Census 2000.

persons in 2000, the actual poverty rate decreased from 13.6 percent to 12.4 percent over the decade. Poverty is most acute for children under the age of 18. In 1999 for persons for whom poverty level could be determined, 18.3 percent of children under the age of 18 lived below the poverty level.

Educational Attainment

The educational and skills level of the workforce is a critical factor influencing opportunities for attracting new business development to Taney County and achieving greater economic diversification. Census 2000 indicates that 81.4 percent of the population 25 years and older are high school graduates or higher, and 14.9 percent have a bachelor's degree or higher. The percentage of the county's adults with a high school diploma lags behind that of the State of Missouri, Greene and Christian Counties. However, many of those who have not graduated from high school are older adults who completed their education a number of years ago.

Table 2-7: Educational Attainment, Population 25 Years and Older, 2000

Jurisdiction	Less than 9th grade	9th-12th grade, no diploma	High school graduate	Some college no degree	Assoc. degree	BA/BS degree or higher	% high school graduate or higher	Percent BA/BS degree or higher
Taney County	1096	3735	10135	6469	1226	3998	81.4	14.9
Bradleyville	--	--	--	--	--	--	--	--
Branson	136	579	1411	1207	234	952	83.3	20.8
Bull Creek	5	35	62	20	0	3	68.0	2.4
Forsyth	83	176	462	271	40	252	79.2	19.5
Hollister	105	346	965	651	126	301	81.4	12.0
Kirbyville	--	--	--	--	--	--	--	--
Merriam Woods	51	178	311	153	28	43	69.8	5.6
Rockaway Beach	34	70	158	105	27	70	76.9	15.0
Taneyville	26	52	90	41	0	10	63.8	4.5

Source: U.S. Census Bureau. Summary File 3, Census 2000.

Household Characteristics

In 2000, the number of households in Taney County was 16,158. Of these, 68 percent were family households, and 32 percent were non-family households. The traditional married couple with children under 18 years represented only 20 percent of the total households in the county, while single person households represented 26 percent. The most populated areas of the county, Branson, Hollister, and Forsyth, had, in general, higher percentages of single person household and lower percentages of family households than other jurisdictions. The average household size for Taney County is 2.37 persons per household, which is lower than the State (2.48) and the nation (2.59).

Table 2-8: Taney County Household Characteristics, 2000							
Jurisdiction	Total House holds	Family Households			Non-Family Household	Single Person House hold	Average Household Size
		Total Family	Married Couple w/children under 18	Single Parent w/children under 18			
Taney County	16,158	11,053	3,291	1,098	956	4,149	2.37
Bradleyville	--	--	--	--	--	--	--
Branson	2,701	1,660	456	194	179	862	2.21
Bull Creek	80	55	20	9	5	20	2.81
Forsyth	788	488	104	37	26	274	2.04
Hollister	1,682	1,005	264	184	142	535	2.23
Kirbyville	--	--	--	--	--	--	--
Merriam Woods	468	326	81	46	31	111	2.44
Rockaway Beach	274	170	48	12	19	85	2.11
Taneyville	134	91	38	15	14	29	2.68
Source: U.S. Census Bureau. Summary File 1, Census 2000.							

Economy, Employment, and Industry

Labor Force Characteristics

Taney County's rapid population growth since the early 1990s is reflected in the characteristics of its labor force. The county's civilian labor force increased from 14,601 persons in 1990 to 20,927 persons in 2000, a 43.3 percent increase. The labor force increased to an average of 32,650 persons in 2003. In 2000, 18,817 persons or 90 percent of the labor force were employed. The 2003 average employment for Taney County was 30,143 persons, or 92.3 percent of the labor force (Missouri Department of Economic Development, Local Area Unemployment Statistics).

Seasonal variation in unemployment rates reflects the dominance of the tourism industry in Taney County. Unemployment rates ranged from a low of 3.4 percent in October 2003 to a high of 21 percent in January 2003, with an average annual unemployment rate of 7.7 percent. Over the past several years, the tourist season has lengthened to include events and activities during the fall and early winter months.

The greatest numbers of Taney County's labor force are employed in the *Arts, Entertainment, Recreation, Accommodation, and Food Services* industrial sector, accounting for 29 percent of the employed labor force in 2000. Data in Table 2-9 reflect employment of Taney County residents by industry and not by actual place of employment. Employment in businesses and industry located in Taney County is presented in the following section on Primary Industries and Table 2-10.

Table 2-9: Employment by Industry, Taney County, 2000		
Industry	**Number Employed**	**Percent of Total**
Agriculture, Forestry, Fishing and Hunting, and Mining	219	1.2
Construction	1,472	7.8
Manufacturing	1,117	5.9
Wholesale Trade	351	1.9
Retail Trade	3,037	16.1
Transportation and Warehousing, and Utilities	622	3.3
Information	361	1.9
Finance, Insurance, Real Estate, and Rental and Leasing	1,145	6.1
Professional, Scientific, Mgmt., Admin., and Waste Mgmt. Services	1,318	7.0
Education, Health, and Social Services	2,539	13.5
Arts, Entertainment, Recreation, Accommodation, & Food Services	5,451	29.0
Other Services (except Public Administration)	725	3.9
Public Administration	460	2.4
Total	18,817	100.0
Source: U.S. Census Bureau. Summary File 3, Census 2000.		

Primary Industries

Table 2-10 lists businesses by industrial sector located in Taney County and the number of employees. *Retail* and *Accommodation and Food Services* industries account for the largest number of businesses and employees, reflecting the importance of the tourism industry in the county.

Table 2-10: Taney County Businesses and Employees, 2002				
Business	**Number of Businesses**	**% of Total**	**Number of Employees**	**% of Total**
Agricultural Services	2	0.1	0-19	--
Mining	3	0.2	20-99	--
Utilities	6	0.4	148	0.8
Construction	127	7.5	929	5.1
Manufacturing	59	3.5	528	2.9
Transportation & Warehousing	24	1.4	195	1.1
Wholesale	35	2.1	263	1.4
Retail	420	24.9	3,632	19.8
Information	27	1.6	365	2.0
F.I.R.E.	160	9.5	1,656	9.0
Professional	89	5.3	590	3.2
Management of Companies & Enterprises	5	0.3	76	0.4
Admin, Support, Waste Mgt, Remediation Services	73	4.3	774	4.2
Educational Services	8	0.5	324	1.8
Health Care and Social Assistance	96	5.7	1,629	8.9
Arts, Entertainment, and Recreation	94	5.6	1,542	8.4
Accommodation & Food Services	294	17.4	4,545	24.8
Other Services (except Public Admin)	157	9.3	1,023	5.6
Auxiliaries	3	0.2	78	0.4
Unclassified Establishments	3	0.2	0-19	--
Total	1,685	100.0	18,351	100.0
Source: U.S. Census Bureau. County Business Patterns, 2002.				

Access to Employment: In-commuting and Out-commuting

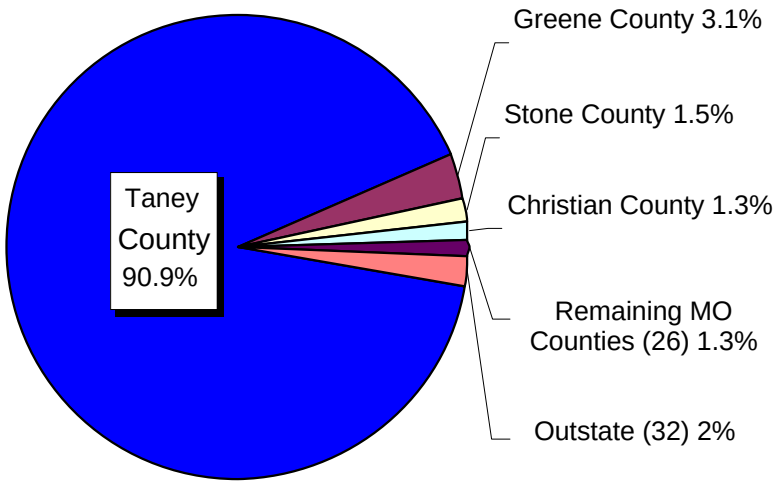
Approximately 91 percent (16,865) of the county's workers older than 16 years work in Taney County. The remaining nine percent of the workforce commutes outside of the county, with 5.9 percent working in Greene, Christian and Webster Counties (the MSA Area). The average travel time to work for Taney County residents increased from 17.8 minutes in 1990 to 21.7 minutes in 2000. However, travel time to work for county residents is still low when compared to other counties and the State, possibly because of the low percentage of out-commuting.

Table 2-11: Place of Employment, 2000

Taney County Employed	Number	Percent of Total
Work in County of Residence	16,865	90.9
Work Outside County of Residence	1,326	7.1
Work Outside of State	367	2.0
Work in Remainder of MSA	1,096	5.9
Work in Central City	*691*	*63.0*
Work in Remainder of MSA	*405*	*37.0*
Work Outside of Any MSA	17,462	94.1
Total Employed	18,558	100.0

Source: U.S. Census Bureau. SF3 Selected Characteristics, Census 2000.

Figure 2-5: Taney County Out-Commuting Patterns, 2000



Source: U.S. Census Bureau. SF3 Selected Characteristics, Census 2000.

Of the total workforce employed within Taney County, approximately 21 percent in-commute from neighboring counties or elsewhere. Of these persons that in-commute to Taney County, most reside in Stone and Christian counties. With the substantial commuting in and out of the county, a hazardous event could pose significant risks of injury or death to these commuters.

Land Use

Existing Land Use Patterns

The historical patterns of land development in Taney County have changed and intensified as a result of growth in the tourism industry and rapid in-migration of new population. The county's population is projected to increase by nearly 21,000 persons by the Year 2020, and if current land development trends continue, a majority of the population will reside in the incorporated communities.

The spatial distribution of land uses in Taney County are clearly influenced by the major transportation system, elements of the natural environment, and the substantial amount of land in federal and state ownership. Limited by the very steep topography throughout much of the county, development has occurred along the highways that tend to follow ridgelines. The major lakes also affect development patterns. Concentrations of residential and commercial development are located along Table Rock Lake and Lake Taneycomo and to a lesser extent along Bull Shoals Lake in eastern Taney County.

According to the *Taney County Master Plan*, adopted in 1999, developed land uses in Taney County account for over 14 percent of the county's total land area. This includes the incorporated cities and villages and developed uses in the unincorporated areas. Most residential development in Taney County is located in the cities, along the Highway 65, Highway 160 and Highway 76 corridors, and around the lakes in the western half of the county. Overall, residential land uses in the unincorporated area account for approximately 4.3 percent of total land area in the county. Single family residences are the primary residential use. Multi-family development, including duplexes, apartments, condominiums and time-share developments, are generally located in the urbanizing area of the county near the cities and in close proximity to the lakes.

The vast majorities of commercial land uses in Taney County are located in the cities or in the urbanizing areas along the major roads. Commercial strip development in the unincorporated areas is most pronounced in the western townships, particularly along (1) Highway 65 through and south of Hollister, (2) Highway 76 between Hollister and northeast of Forsyth, and (3) along Highway 160 between Highway 65 and Forsyth (*Taney County Master Plan*, 1999, p.7.5).

Industrial activity is one of the most underrepresented land use activities in the county, due in part to the historical rural nature of the area and the rugged terrain that limits suitable industrial sites and transportation access for shipment of raw materials and products. Rock quarries account for a significant majority of total industrial acreages. Most industrial uses and quarries are located near Branson and Hollister. Since 2000, there has been an increase in light industrial uses, particularly in the City of Hollister along the Highway 65 corridor.

Public and semi-public land uses in the unincorporated areas include schools, churches, government facilities and institutional uses. Most such uses are located in close proximity to the cities and in unincorporated settlement areas in the eastern section of the county.

Approximately 82,000 acres are designated as farmland, or 19.4 percent of the county. Most agricultural uses are located in the northern, eastern and southern sections of the county. The farmland acreage does not include the nearly 70,000 acres of farm woodlands. Of farm woodlands, approximately 48,000 acres are used for animal grazing (*Taney County Master Plan,* 1999, p.7.7). There has been a decrease in undeveloped forest lands in the county over the past decade, a trend that is expected to continue. The greatest loss in forest lands has occurred in the urbanizing areas in the western section of the county as land is cleared for new development.

Public Lands/Use Areas

Taney County itself does not own or operate any parks and recreation areas. However, there are nearly 7,770 acres of state owned parks and recreation lands in the unincorporated areas of the county. These sites include Table Rock State Park, Drury Refuge, the Mincy Public Hunting Area, and the Henning Conservation Area.

The Henning Conservation Area was annexed into the City of Branson (1,534 acres) in 2003. Another notable recreation area is the Hercules Glade Wilderness area located in the Mark Twain National Forest in the eastern section of the county. This 12,315-acre area allows for hiking, camping and horseback riding. Forested lands, most of which are undeveloped, represent the predominant land use in the unincorporated area of Taney County. Overall, forested land covers nearly 241,150 acres, representing 57.2 percent of land use in the county. Of these forest lands, the Mark Twain National Forest accounts for approximately 65,300 acres in the eastern and northeastern portion of the county and is the primary land use in Beaver Township.

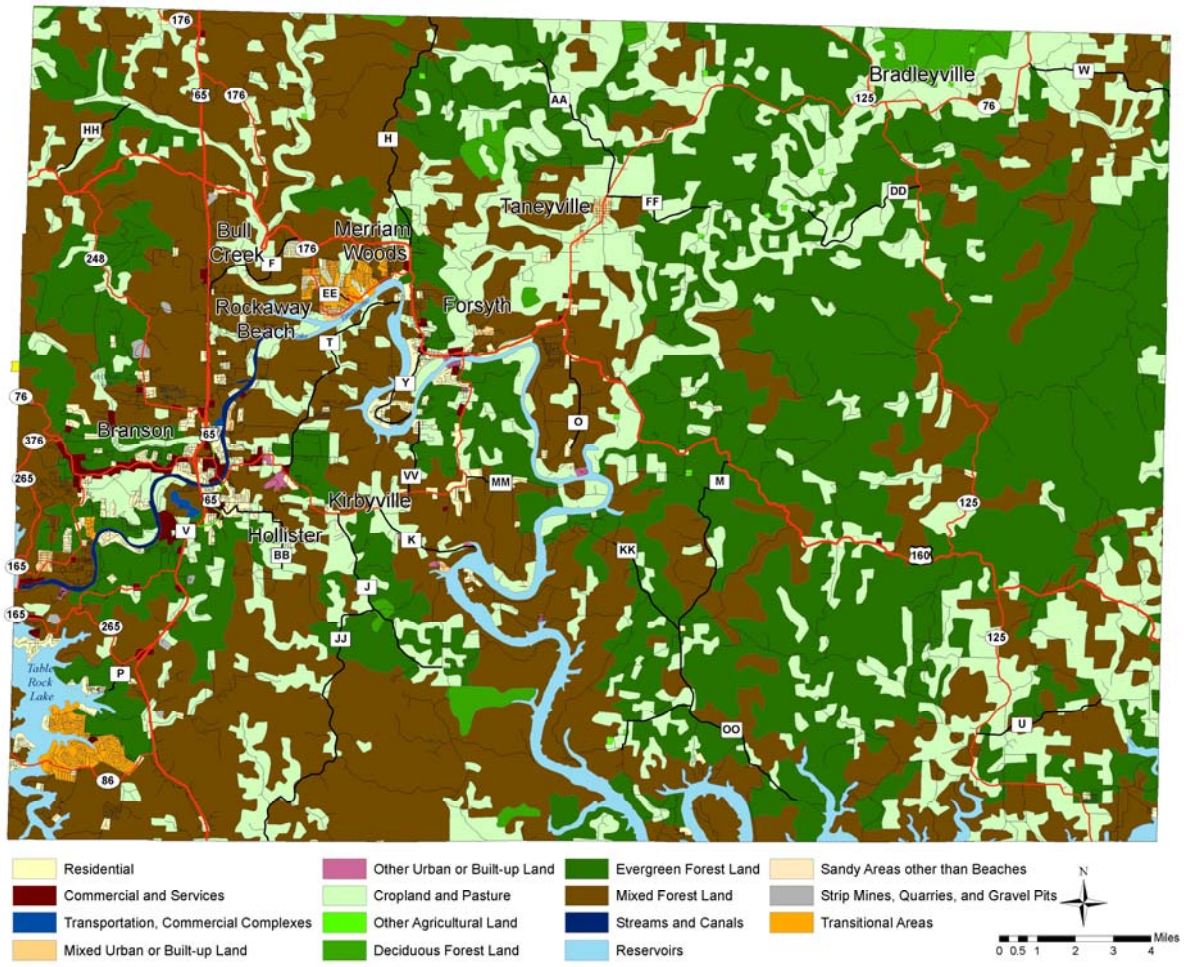
Table 2-12: Public Lands in Taney County

Management Areas	Ownership	Acres
Boston Ferry Conservation Area	MDC	180.96
Branson Forestry Office	MDC	4
Bull Shoals Lake ML	MDC	810
Cooper Creek Access	MDC	29.43
Drury-Mincy Conservation Area	MDC	7,188
Empire District Electric Company (Ozark Beach Recreation Area)	MDC	40
Henning Conservation Area	MDC	1,534
Hollister Towersite	MDC	177.08
Mark Twain National Forest	USFS	65,300
Rockaway Beach Access	MDC	1
Shepherd of the Hills Fish Hatchery	MDC	130
Table Rock/Taneycomo Lake Area	USACOE	26,516

MDC	Missouri Department of Conservation
USACOE	United States Army Corps of Engineers
USFS	United States Forest Services

Source: Missouri Department of Conservation, U.S. Forestry Service, U.S. Army Corps of Engineers.

Figure 2-6: Taney County Land Cover



Development Trends

The western Taney County area contains the greatest concentration and density of urbanized land uses, particularly in and around the larger cities of Branson and Hollister and the smaller communities of Bull Creek, Forsyth, Merriam Woods, and Rockaway Beach.

Substantial new development has occurred over the past decade along the major highway corridors in this part of the county, including U.S. Highway 65, Highway 76 and Highway 160. While most major commercial developments are located in the cities, much of the new development in the unincorporated areas is residential development, including both single family residential uses and multi-family. Condominium development is also included in the multi-family category.

Scattered residential uses are also located along the major and secondary roads, with increasing levels of development occurring in the Merriam Woods and Bull Creek areas as well as north of Branson.

Within the past few years, significant new commercial development has occurred in the City of Hollister, with many new retail and service businesses located along the Highway 65 corridor. Planned improvements to Highway 65 between Hollister and the Arkansas State line will increase development potential along this corridor. A major, new mixed use commercial development will be opening in Branson in 2006. Branson Landing, located adjacent to Lake Taneycomo and downtown Branson, will include a shorefront boardwalk, anchor stores, specialty shops, restaurants, a convention center, hotels, condominium residences, entertainment and recreation.

Housing

Taney County's housing stock increased from 13,273 units in 1990 to 19,699 units in 2000, a 48 percent increase over the decade. The Branson area tourism boom of the early 1990s served as the catalyst for new housing construction to meet the demands for new resident housing as well as seasonal housing for vacationers. Of the incorporated communities, Hollister in particular experienced a significant increase in new housing construction during the 1990s to serve the needs of the Branson tourism industry workforce.

Table 2-13: Taney County Housing Characteristics, 2000

Total Housing Units	19,688
Total Owner-Occupied Units	11,134
Total Renter-Occupied Units	5,024
Vacant Units	3,530
Vacant units for rent or sale	1157
Vacant units for seasonal use	1747
Other vacant units	626
Vacancy Rate- Home Owner	4.1%
Vacancy Rate - Rental	12.0%
Median Value Owner-Occupied Units	$93,500
Median Gross Rent	$483

Source: U.S. Census Bureau. SF1, DP-1, Census 2000.

Vacancy rates provide an indicator of housing availability. While the county's overall housing vacancy rate was 17.9 percent in 2000, this includes vacant units for seasonal use. The vacancy rate for owner-occupied units was 4.1 percent, indicating only a moderate availability of choice in the housing market.

In 2000, slightly over 50 percent of the housing units in Taney County were single family detached units. The second largest type of housing units in the county is mobile homes accounting for 25 percent of all housing units.

Table 2-14: Taney County Housing Units in Structure, 2000		
Housing Units	**Number**	**Percent of Total**
Total Housing Units	19,688	100.0
1, detached	10,283	52.2
1, attached	447	2.3
2	381	1.9
3 or 4	587	3.0
5 to 9	774	3.9
10 to 19	1,463	7.4
20 to 49	462	2.3
50 or more	217	1.1
Mobile home	4,908	24.9
Boat, RV, van, etc.	166	0.8
Source: U.S. Census Bureau. Summary File 3, QT-H4, Census 2000.		

The greatest concentrations of manufactured housing developments are located along the major highways, such as Highways 76 and 160, in close proximity to the cities. Individual mobile home lots or tracts are scattered along primary and secondary roads throughout the county, with clustering north of Branson, around Table Rock Lake, and in the fringe areas around Hollister, Merriam Woods, Taneyville, and Forsyth.

Table 2-15: Taney County Mobile Home Parks and Subdivisions			
Name	**Address**	**City**	**Telephone**
Country Living Mobile Home Park	Hwy 248	Branson	417-334-3794
The Yacht Club	Yacht Club Lane	Branson	417-334-5594
Misty Mountain Acres Mobile Home Park	N Hwy 65	Branson	417-443-3357
Smokey Mountain Estates	220 Cedar Park Rd	Branson	417-335-8043
Branson View Estates	2543 State Hwy F	Branson	417-561-2255
Carsons Country Court	Hwy 248 & Expressway	Branson	417-334-3084
Hidden Ridges Estates	370 Salem Rd	Branson	417-334-4926
Lakeview Mobile Home Park	3147 State Hwy YY	Branson	417-858-2027
Northwoods Mobile Home Park	154 Wintergreen Rd	Branson	417-334-3232
Summit Ridge Mobile Home Park	3 Cardinal Course	Forsyth	417-546-2141
Wall Eye Haven Court & Mobile Homes Park		Forsyth	417-546-5142
Justmoore Inc. Rolling Meadows Park	241 Rolling Meadows Rd	Forsyth	417-546-5182
Rolling Meadows Mobile Home Park	241 Rolling Meadows Rd	Forsyth	417-546-5182
Gobblers Knob Mobile Home Park	237 Early Lane	Hollister	417-334-3753
Whispering Oaks Mobile Home Park	Hwy BB	Hollister	417-335-2370
Yacht Club		Hollister	417-334-0990

Transportation Infrastructure

Roads

Several key roads are responsible for moving traffic in Taney County. The primary north-south arterial is U.S. Highway 65. Highway 65 links Branson with Springfield to the north and Harrison, Arkansas to the south. Highway 65 is Taney County's primary access route for bringing tourists, goods, and services into the region. Highway 65 also provides a linkage with other major routes outside of the county, including Interstate 44 and Highway 60. Highway 65 is also a primary link between Southwest Missouri and Little Rock, Arkansas. Because of the tremendous increase in traffic on Highway 65 caused by a greater number of tourists and residents, the road has been expanded to a four-lane limited access highway between Branson and Springfield and construction will start within the next few years to four-lane Highway 65 south to the Arkansas State line.

Highway 76 serves as a primary east-west route for Taney County. Highway 76 enters Taney County on the west near Branson, and exits the county's northeast corner near Brownbranch. Highway 76 has a major concentration of tourist attractions in the Branson area, and serves as the primary link from Branson to Forsyth. Another significant east-west highway is U.S. Highway 160. Highway 160 connects western Springfield with Stone County, and enters Taney County near its northwest corner. The road then intersects with Highway 65, proceeds through Forsyth, and provides the only major access to Ozark County to the east. Both Highway 160 and Highway 76 are two-lane facilities. These routes lack shoulders in most areas, especially where the terrain is hilly.

Taney County is divided into two road districts, each responsible for the county roads, with the Eastern and Western County Commissioners presiding over their own districts. Both districts are currently placing an emphasis on maintenance, road surfacing, and replacement of deteriorating bridges. The strain of maintaining the county road system is significant. Taney County has stopped accepting local roads for county maintenance.

Airports

There are two airports that serve Taney County. The M. Graham Clark Airport (general aviation), located west of U.S. Hwy 65 in the northwestern portion of Hollister, provides passenger services for smaller private planes and charter jets as well as limited freight shipment. Taney County recently took over operation of the M. Graham Clark Airport from the College of the Ozarks.

The Springfield-Branson Regional Airport (commercial airport), located an hour away in Springfield, provides regular commercial air service for the region. Visitors to Branson rely on motor coaches and shuttle vans to get from the Springfield-Branson Regional Airport to the Branson area. Taney County is also served by a seabase airport outside of Rockaway Beach as well as two private airstrips southwest of Kirbyville.

There are two heliports registered with the FAA (Federal Aviation Administration) in Taney County; one in the City of Branson at Skaggs Community Hospital and the other privately owned. There are other non-listed heliports throughout the county.

Public Transportation

Taney County is serviced by OATS, Inc. (Older Americans Transportation System) for public transportation needs. OATS transportation is available to anyone regardless of age or income. Days of the week and times of transit to specific towns are available through the internet or by calling an OATS driver in the county. There are two available vehicles in Taney County that run by caller demand. Appointments for pick-up may also be made by contacting the driver (http://www.oatstransit.org). Other transportation services are also provided by the Disabled American Veterans bus and Skaggs Hospital.

Railroads

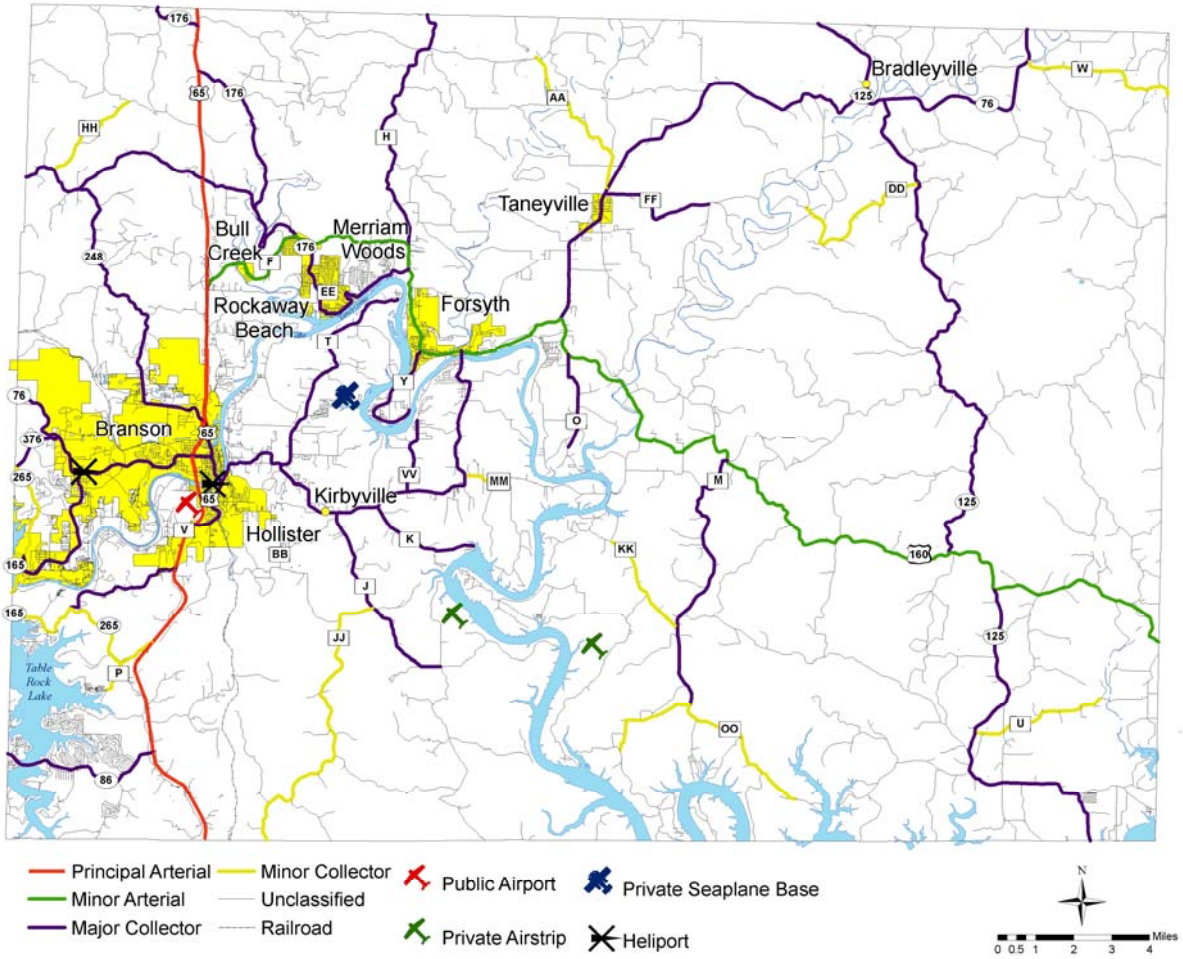
Freight rail service is provided by the Missouri and North Arkansas Railroad, which links Branson with Aurora and beyond. There is no passenger rail system in Taney County, although there is an excursion railway based in Branson. This is a 40-mile roundtrip tourist excursion route that runs through Branson, Reeds Spring and Galena, with return on the same track. The train currently does not stop at any of the communities along the route. There have also been trains chartered to the Branson area in past years.

MoDOT Maintenance Facilities

The Missouri Department of Transportation has four maintenance facilities in Taney County. One facility is located in Branson, at 275 West Outer Road, approximately 0.2 miles west of Highway 65. The second facility is located in Bradleyville at Route 76, 4.5 miles east of Route AA in Taneyville. The third facility is located in Reuter at Route 160, 2.75 miles west of 125, in Kissee Mills. The Hollister facility is located on Route 76 1.25 miles east of Business 65.

The Branson facility includes two concrete block buildings (6 bays each), a salt shed and another out building. Major equipment for road maintenance includes five extra heavy duty trucks, three heavy duty trucks, one 1ton pickup, one ½ ton pickup, one front end loader, one road grater. The Bradleyville facility includes one concrete block structure (6 bays), two dump trucks, and one front end loader. The Hollister facility includes one concrete block building (5 bays), one metal storage shed, two dump trucks, two pickup trucks, and one front end loader. The Reuter facility includes one concrete block building (6 bays), two dump trucks, and one front end loader. All vehicles in these facilities have snow removal capabilities.

Figure 2-7: Taney County Transportation System



Utilities

Water Supply/Services

The communities of Branson, Bull Creek, Forsyth, Hollister, Merriam Woods, Rockaway Beach, and Taneyville all provide municipal water service. In addition to these community water systems operated by the municipalities, there are 52 other community water systems serving 32,802 people, 54 transient non-community water systems serving 8,653 people, and ten non-transient non-community water systems serving 2,902 people in Taney County. Almost all of these systems utilize ground water. The City of Branson and College of the Ozarks derive their water from surface water, and one private development serving 65 people derives its water from groundwater under the direct influence of surface water (UDI). In addition to these water systems, many residents in rural areas derive their water from private wells. See Appendix E for definitions of water systems listed in the MDNR's *Safe Drinking Water Information System.*

Maintaining the quality of groundwater is of particular concern for Taney County. Features of karst topography which allow for the relatively easy movement of surface contaminants into the groundwater system, along with soils characteristics which limit the functioning of septic tank systems, increase the potential for groundwater contamination. Also, several of the more rural systems do not provide adequate pressure and the fire districts must obtain water from other sources for fire fighting purposes (Missouri Department of Natural Resources, http://www.dnr.mo.gov/wpscd/).

Wastewater Treatment Systems

Wastewater treatment in Taney County is provided through numerous public wastewater treatment systems and individual on-site wastewater systems (septic tank systems). The communities of Branson, Forsyth, Hollister, Rockaway Beach, Merriam Woods, and Taneyville provide municipal wastewater treatment to their residents and businesses. The Rockaway Beach Regional Treatment facility also serves the Village of Bull Creek. Bradleyville is currently seeking funding to build a wastewater treatment plant. Septic tanks are the primary method of wastewater treatment in the rural areas of the county, as well as in Kirbyville.

Many of the larger developments, including hotels and resorts, are served by on-site wastewater treatment systems. The terrain is such in Taney County, that if the system was not on-site, the cost would likely be prohibitive due to the number of lift stations that would be required. There are currently 216 wastewater treatment systems in Taney County, regulated Missouri Department of Natural Resources, including the six municipal systems (MDNR, www.epa.gov/).

Currently, the City of Branson has two wastewater treatment facilities. The facilities in Rockaway Beach and Hollister serve a larger regional area. The City of Hollister has a Sewer Services and Exclusive Territorial Agreement with the Taney County Sewer District, allowing the city to collect and treat wastewater for areas including Coon Creek, Table Rock, Turkey Creek, Short Creek, Poverty Point, Lake Shore, Long Beach, College of the Ozarks, and Oak Grove. The Rockaway Beach Regional Treatment Facility provides wastewater treatment to Bull Creek, Merriam Woods, and will potentially serve unincorporated areas of the county.

The Taney County Regional Sewer District's *Taney County Wastewater Master Plan* (April 1999) addresses the current and projected wastewater treatment needs in sixteen of the twenty-one watersheds in Taney County, excluding the watershed areas within the cities of Branson, Hollister, and Forsyth. The Master Plan notes that Taney County's soils are generally not well suited for septic tank use. If Taney County is to maintain the quality of its water resources as population continues to grow over the next 20 years, the extension of centralized sanitary sewers and further regionalization of wastewater treatment facilities in the urbanizing area is considered essential.

Solid Waste Disposal

Taney County is a member of Solid Waste District "N" which also includes the counties of Stone, Barry, Lawrence, and Dade. American Disposal Company serves the cities of Branson, Forsyth, Hollister, and Rockaway Beach and the villages of Bradleyville, Bull Creek, and Kirbyville. Approximately 85 percent of the county's solid wastes are hauled by this company. The Village of Taneyville has its own disposal service. Solid waste disposal in other communities is provided by independent trash haulers located in the county and in Arkansas.

Taney County does not have a permitted solid waste landfill. An old landfill is located in the central section of the county, southeast of the Highway 76-Mildred area (T23N, R20W, and Sec22). This landfill has been closed for many years. Most solid wastes are taken to a permitted landfill in Kansas. The county has one solid waste transfer station, located outside of the City of Branson.

Taney County has two public recycling centers in operation. One is located at the county's maintenance facility in Forsyth, where tin, aluminum, glass and plastics are accepted. The other recycling center is operated by the City of Branson, which accepts a variety of fibers and can products, and is one of the highest volume recycling centers in Solid Waste District "N". Nearly 65 percent of the recycled materials handled at the Branson facility are brought in from county residents living outside of the City of Branson (*Taney County Master Plan*, p. 9.15; http://www.co.taney.mo.us/TaneyCo/default.htm).

Electric Service

Three companies provide electric service to Taney County: the White River Valley Electric Cooperative, the Empire District Electric Company, and the Carroll Electric Cooperative. The White River Valley Electric Cooperative serves residential and commercial customers from the communities of Bradleyville, Bull Creek, Kirbyville, Merriam Woods, Rockaway Beach and Taneyville. The Empire District Electric Company serves customers in the western communities of Branson, Forsyth, Hollister, and part of Kirbyville. Empire District owns one power generation facility on Lake Taneycomo. The Powersite Dam facility, located near Forsyth, generates approximately 16,000 kilowatts of power, or 2 percent of the company's power generation.

The Carroll Electric Cooperative, headquartered in Berryville, Arkansas, serves the extreme southwestern corner of Taney County located between the Arkansas state line and the center line of Table Rock Lake.

Telephone Service

Telephone service in Taney County is provided by Century Tel. Century Tel provides internet access to areas of Taney County and the White River Valley Electric Cooperative is also using its infrastructure to run high-speed internet into many portions of the county. Currently, the age of the telephone system precludes many people from accessing medical care, internet services, as well as other important services because a call outside a person's prefix is automatically a long distance call. Cox Communications may soon be offering another alternative to the current phone service, but the benefits are yet undetermined.

Natural Gas Service

At the current time, Taney County does not have natural gas service.

Underground Utilities

Century Tel, the primary provider of telecommunications in Taney County, and White River Valley Electric Cooperative have underground lines in the county. For security purposes, the locations of utility lines are not disclosed in this Plan.

Table 2-16: Taney County Utility Service Providers

Utility Provider	Address	Telephone
Electric Service		
Carroll Electric Cooperative Corporation	920 Hwy. 62 Spur Berryville, AR 72616	870-423-2161
Empire District Electric Company	215 W. Main Branson, MO 65615	800-206-2300
White River Valley Electric Cooperative	State Highway 14 Ozark, MO 65721	417-485-6012
Natural Gas Service		
None Available		
Telephone Service		
Century Tel of Missouri, LLC	Jefferson City, MO 65101	573-636-4261
Cox Communications	310 Walnut Extension Branson, MO 65616	417-334-7897

Key Community Facilities and Services

Law Enforcement

The Taney County Sheriff's Department provides law enforcement and protection services to the unincorporated areas of the county and to incorporated communities that do not have their own police departments, including Bradleyville, Bull Creek, and Taneyville. The cities of Branson, Forsyth, Hollister, Rockaway Beach and the Village of Merriam Woods have police departments providing law enforcement services to their respective communities. The Sheriff's Department also provides assistance to the municipal police departments as needed. The Sheriff's Department offices and jail facilities (constructed in 1981) are located in Forsyth. The Department has fifty

employees, including dispatch, jail personnel and deputies. In addition to law enforcement and protection services, the Department provides the DARE Program, K-9 units to search residences and schools, Neighborhood Watch Program, Cub Scout and Boy Scout drug education program, Children ID photo and fingerprinting, and participates in various community fundraising events.

Fire Protection

Fire protection services in Taney County are provided by six fire departments and two fire protection districts. All of the districts or fire departments have mutual aid agreements with nearby departments. In addition to basic fire prevention and fire protection services, many of the fire departments and districts also have rescue units and/or provide first responders for emergency care situations. Four are tax supported, with the remaining supported either through membership fees or through internal funding (College of the Ozarks Fire Department).

The fire protection departments and districts with facilities in Taney County are listed below. For security purposes, information on the location of facilities, fire fighting vehicles, equipment, and number of firefighters is contained in the Taney County Emergency Management Director's Manual.

- Branson Fire Department
- Forsyth Fire Department
- Bradleyville Rural Fire Department
- Protem Volunteer Fire Department
- College of the Ozarks Fire Department
- Cedar Creek Volunteer Fire Department, Inc.
- Central Taney County Fire Protection District
- Western Taney County Fire Protection District

The Western Taney County Fire Protection District serves a 212 square mile area in the western section of the county, including unincorporated areas and the communities of Bull Creek, Hollister, Kirbyville, Merriam Wood and Rockaway Beach. The Central Taney County Fire Protection District serves unincorporated areas in the central portion of the county and the community of Taneyville.

911 Emergency Communications

The E-911 Service in Taney County is located in Forsyth and is dispatched through the Sheriff's Office. It is the main dispatcher of calls for the municipal law enforcement and fire departments/districts. Taney County also has an ambulance district which has a twenty-four hour dispatch center. This center has an E-911 computer and mapping system.

Medical Facilities

Taney County is served by Skaggs Community Health Center located in Branson. Skaggs is a 132-bed facility offering a wide range of medical services to residents and visitors. Residents are also served by St. John's Regional Health Center and Cox Medical Center located in Springfield and North Arkansas Regional Medical Center in Harrison, Arkansas. Most medical clinics within Taney County are located in Branson, Forsyth, and Hollister, although a new medical clinic opened in May 2005 in Bradleyville in the northeastern section of the county. Medical facilities located in Taney County are listed in Table 2-17.

The Taney County Health Department, located in Forsyth, provides a wide range of public health services to Taney County residents, such as the WIC program, blood pressure clinics, influenza shots, school athletic physicals and various other health services.

Under cooperative agreement with the Taney County Health Department, the Branson Health Department provides environmental health services to the City of Branson and Taney County at large. Some of the services offered include environmental health and pollution control services, inspections of food preparation establishments, swimming pools, etc.

Table 2-17: Medical Facilities in Taney County

Facility Name	Address	City	Telephone
Jordan Valley Health Clinic	25861 E. State Hwy 76	Bradleyville	417-796-2081
Branson Health Department	110 W. Maddux	Branson	417-334-3354
Burrell Behavioral Health	155 Corporate Place	Branson	417-269-2476
Cox Health Center	890 State Hwy 248	Branson	417-335-2299
Ferrell-Duncan Clinic	101 Skaggs Rd, Ste 102	Branson	417-875-3246
Skaggs Community Health Center	N. Bus 65 & Skaggs Rd	Branson	417-335-7733
Skaggs Family Health Clinic	545 N. Bus Hwy 65	Branson	417-335-7540
Skaggs Urgent Care	454 N. Bus. Hwy 65	Branson	417-335-7587
Skaggs Wound Care and Hyperbaric Medicine	101 Skaggs Rd, Ste 103	Branson	417-335-7792
Smith-Glynn-Callaway Clinic-Branson	101 Skaggs Rd, Ste 101	Branson	417-334-7647
St. John's Clinic	260 Terrace Rd	Branson	417-336-2273
St. John's Clinic	1065 State Hwy 248	Branson	417-337-9808
St. John's Clinic Urgent Care	1940 State Hwy 165	Branson	417-337-5000
Bridges Clinic	256 Hwy Y	Forsyth	417-546-4200
Forsyth Medical Center	517 Coy Blvd	Forsyth	417-546-2447
Skaggs Clinic	13852 State Hwy 160	Forsyth	417-546-3500
Taney County Health Department	15479 State Hwy 160	Forsyth	417-546-4725
Agape Primary Care	2331 S. Bus Hwy 65	Hollister	417-339-3033
Skaggs Community Hollister Clinic	590 Birch Rd	Hollister	417-239-3400
Skaggs Family Clinics	590 Birch Rd	Hollister	417-335-7726
Southside Family Clinic	590 Birch Rd	Hollister	417-239-3400
St. John's Hollister Medical Center	151 Birch Rd	Hollister	417-336-4355
Tri Lakes Primary Care	2460 S. Bus Hwy 65	Hollister	417-334-8271

Ambulance Service

Emergency ground transportation service for all of Taney County is provided by the Taney County Ambulance District. The dispatch center and headquarters are located in Hollister. The district includes three stations, and ambulances are strategically located throughout the county, based on call volume in those areas. One ambulance is a Critical Care Unit and the district has an MCI trailer that is used for Mass Casualty Incidents.

Air ambulance services are available through Cox Air Care (Cox Health Systems) and Hammons Life Line Air Ambulance (St. John's Regional Health Center) in Springfield.

Table 2-18: Ambulance Services in Taney County

Ambulance Service	Address	Telephone
Ground Ambulance		
Taney County EMS Ambulance District	18 Industrial Park Rd. Hollister	417-334-1441
Air Ambulance		
Cox Air Care	1423 N. Jefferson Springfield	800-333-5269
St. John's Life Line	1235 E. Cherokee Springfield	417-820-2300 800-433-5433

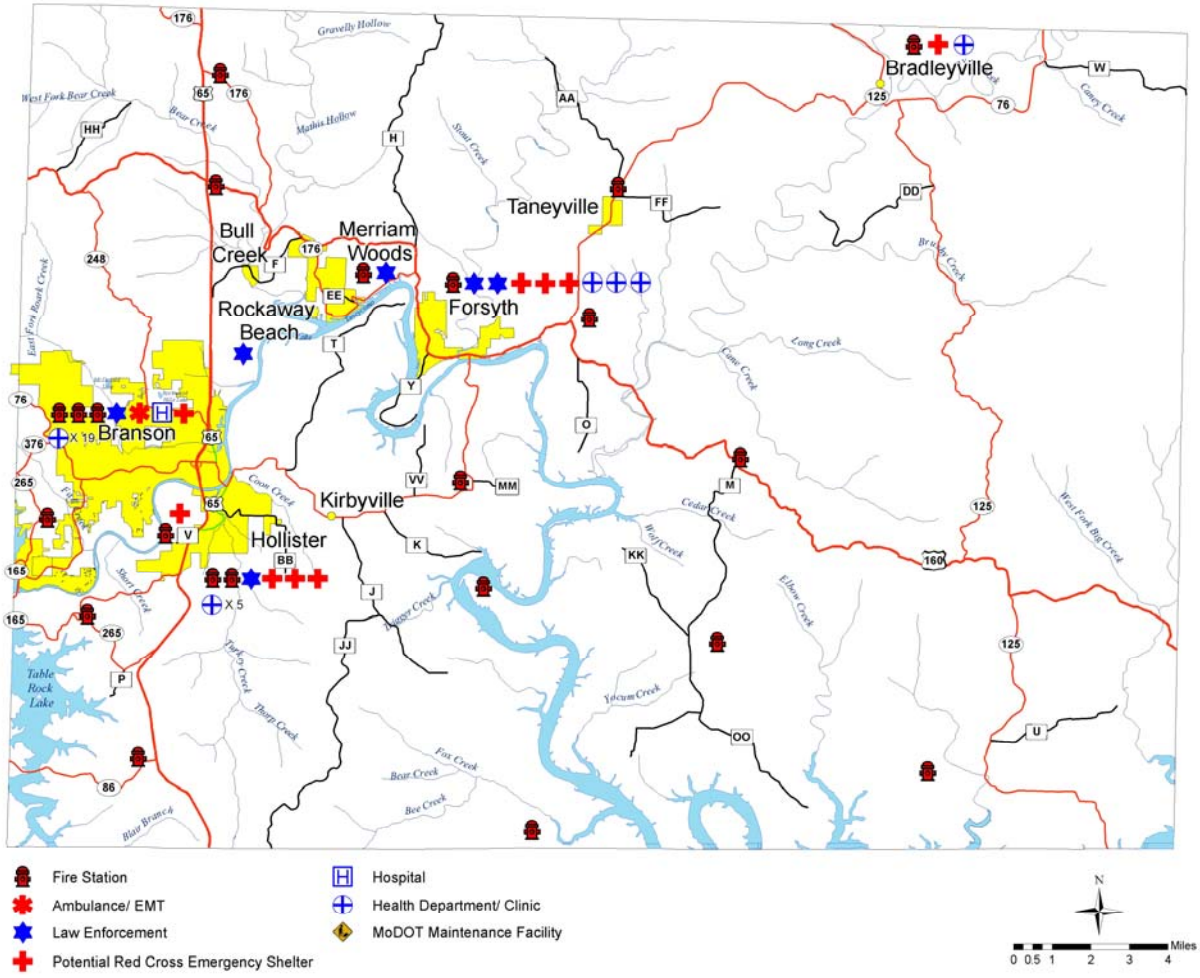
Other Key Facilities/Services

Other key services essential during natural disasters include the services provided by the American Red Cross-Greater Ozarks Chapter and Christian Associates of Table Rock Lake. Christian Associates, serving Stone County and part of Taney County, is located in the Kimberling City Shopping Center on Highway 13 in Stone County. Christian Associates provides various services that would assist in disaster recovery, including a domestic violence hotline, thrift shop, and assistance with rent and utilities. Individuals served through Christian Associates must first obtain possible assistance through the Red Cross.

The American Red Cross--Greater Ozarks Chapter is located at 1835 E. Chestnut Expressway in Springfield, Missouri. The Chapter's Disaster Action Team is available 24 hours a day, every day, to respond to disasters. Disaster relief focuses on disaster-caused emergent needs of shelter, food, clothing, and health. The Greater Ozarks Chapter also works with city, county, and state emergency management agencies on disaster preparedness and training. The Chapter has ongoing efforts to recruit and train volunteers as well as secure resources for shelter, communications and supplies (American Red Cross, Greater Ozarks Chapter, http://www.redcross-ozarks.org).

To secure shelter resources, the Chapter maintains records of institutions and organizations in each county that would be willing to enter into an agreement for use of the facility for a designated need as determined by the Red Cross following a disaster event. These entities have completed and filed forms with the Chapter that provide information on the physical facility and capabilities to function as an emergency shelter. When a disaster occurs, the Red Cross contacts these entities as may be necessary to arrange for use of the facility. The communities in which these potential Red Cross emergency shelters are located are noted on Figure 2-8.

Figure 2-8: Taney County Key Facilities



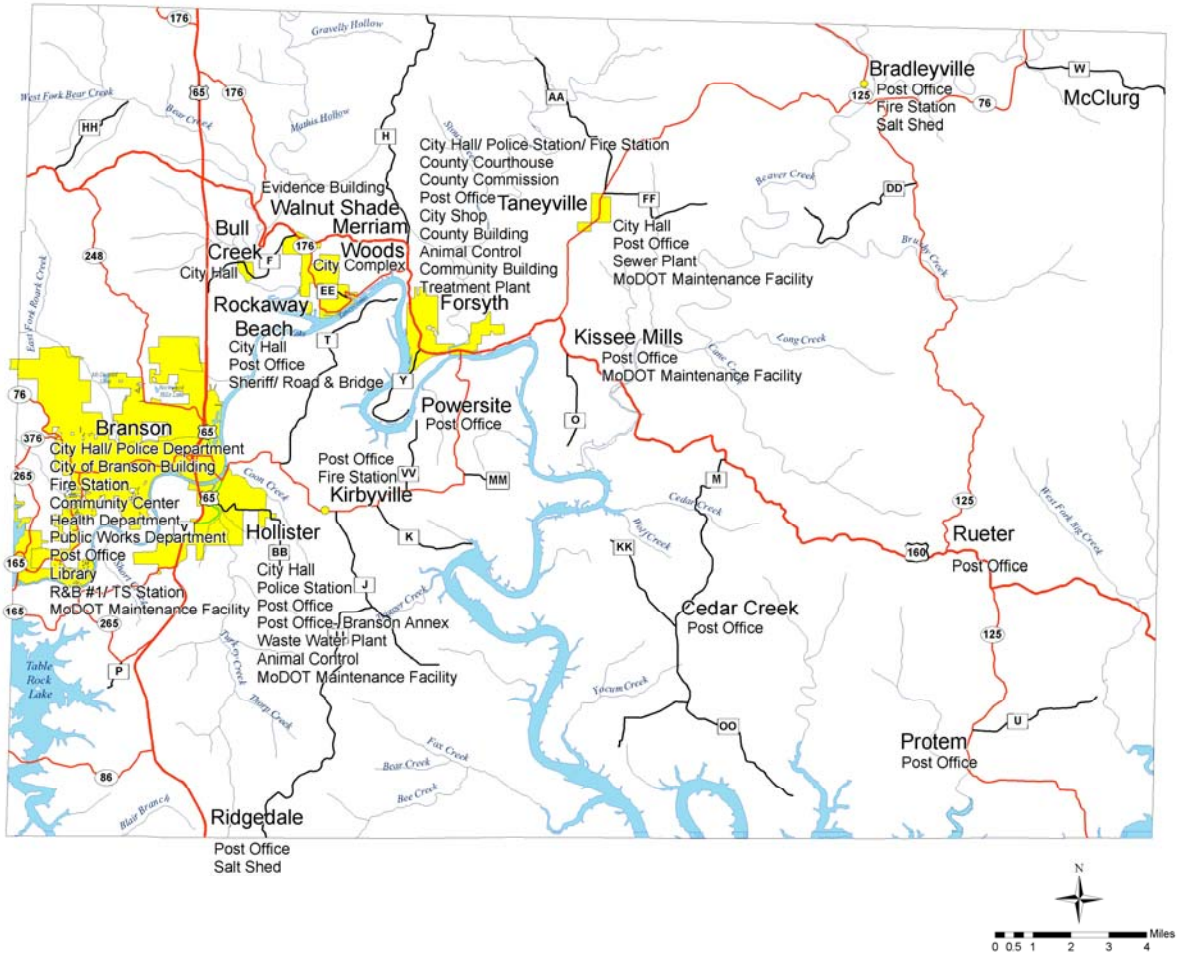
Government Owned Buildings

Government structures include county and municipal government facilities, judicial facilities, post offices, and state and federal facilities. The greatest concentration of government structures in Taney County is located in the county seat of Forsyth. The following table lists the locations of government facilities.

Table 2-19: Government Buildings in Taney County	
Structure	**Location**
Taney County	
Courthouse	132 David Street, Forsyth
County Commission	139 David Street, Forsyth
County Clerk's Office	266A Main Street, Forsyth
Animal Control	255 Critter Trail, Hollister
Health Department	15479 State Highway 160, Forsyth
Taney County Juvenile Office	211B Main Street, Forsyth
Road & Bridge #1/TS Station	274 Buchanan Road, Branson
Road & Bridge #2	195 Gilbert Lane, Hilda
Road & Bridge Superintendent	248 Main Street, Forsyth
Sheriff/Road & Bridge Storage (2), Salt Shed	3937 State Hwy F, Rockaway Beach
Salt Shed	865 Tate Road, Ridgedale
Salt Shed	15370 N. State Hwy 125, Bradleyville
Bradleyville	
Post Office	25856 State Highway 76
Fire Station	N. State Highway 125
Branson	
City Hall/Police Department	110 W Maddux
City of Branson Building	288 Fall Creek Road
Fire Station	110 Crosby
Community Center	210 Compton
Health Department	125 Gateway Drive
Public Works Department	601 Compton Drive
Post Office	320 S. Commercial
Library	200 S. 4th Street
Bull Creek	
City Hall	1886 State Highway F
Cedarcreek	
Post Office	6589 State Highway M
Forsyth	
City Hall/Police Station/Fire Station	15405 US Highway 160
Post Office	240 Main Street
City Shop	Blair Boulevard
Community Building	Panther Road
Wastewater Treatment Plant	Hwy 76, Shoals Bin Property
Hollister	
City Hall	290 Esplanade
Police Station	14848 S State Highway 65
Post Office	1980 Business Highway 65
Post Office – Branson Annex	141e Industrial Park Drive
Public Works Department	1393 V Highway

Table 2-19: Government Buildings in Taney County	
Structure	**Location**
Kirbyville	
Post Office	4202 E State Highway 76
Fire Station	8118 E State Highway 76
Kissee Mills	
Post Office	21423 US Highway 160
Merriam Woods	
City Complex	4417 State Hwy 176
Point Lookout	
Post Office	99980 Academic Avenue
Powersite	
Post Office	1885 State Highway Vv
Protem	
Post Office	5242 S State Highway 125
Ridgedale	
Post Office	3234 Ridgedale Road
Rockaway Beach	
City Hall	588 Boys Camp Road
Post Office	2578 State Highway 176
Rueter	
Post Office	149 N State Highway 125
Taneyville	
City Hall	227 Central Avenue
Post Office	310 Grand Avenue
Sewer Plant	485 Hulls Ford Road
Other	
MO Department of Social Services	2720 Shepherd of the Hills Expwy, Branson
MoDOT Maintenance Facility	20907 E. Hwy 76, Taneyville
MoDOT Maintenance Facility	33279 Hwy 160, Kissee Mills
MoDOT Maintenance Facility	275 West Outer Road, Branson
MoDOT Maintenance Facility	Hwy 76, Hollister

Figure 2-9: Taney County Government Buildings



Centers of Large Population Concentration

Facilities or other sites that concentrate large numbers of people within a defined area may require special attention for pre-disaster mitigation, advance notification of possible disaster, or disaster response. Examples of such facilities include schools, large employment centers, commercial centers, major recreation attractions, and facilities that serve special needs populations.

Schools

Nine public school districts serve Taney County. School districts with facilities in the county include Bradleyville R-I, Branson R-IV, Forsyth R-III, Hollister R-V, Kirbyville R-VI, Mark Twain R-VIII, and Taneyville R-II (Figure 2-10). The Branson School District serves the greatest number of students with a total enrollment of 3,333 during the 2003-2004 year. The remaining two school districts serving Taney County are Galena R-II and Spokane R-IV. These districts do not have school facilities in Taney County. There are also two private schools in Taney County. Riverview is a Baptist-affiliated K-12 school in Forsyth, and New Life Academy is a Pentecostal-affiliated K-12 school in Hollister.

Figure 2-10: Taney County School Districts

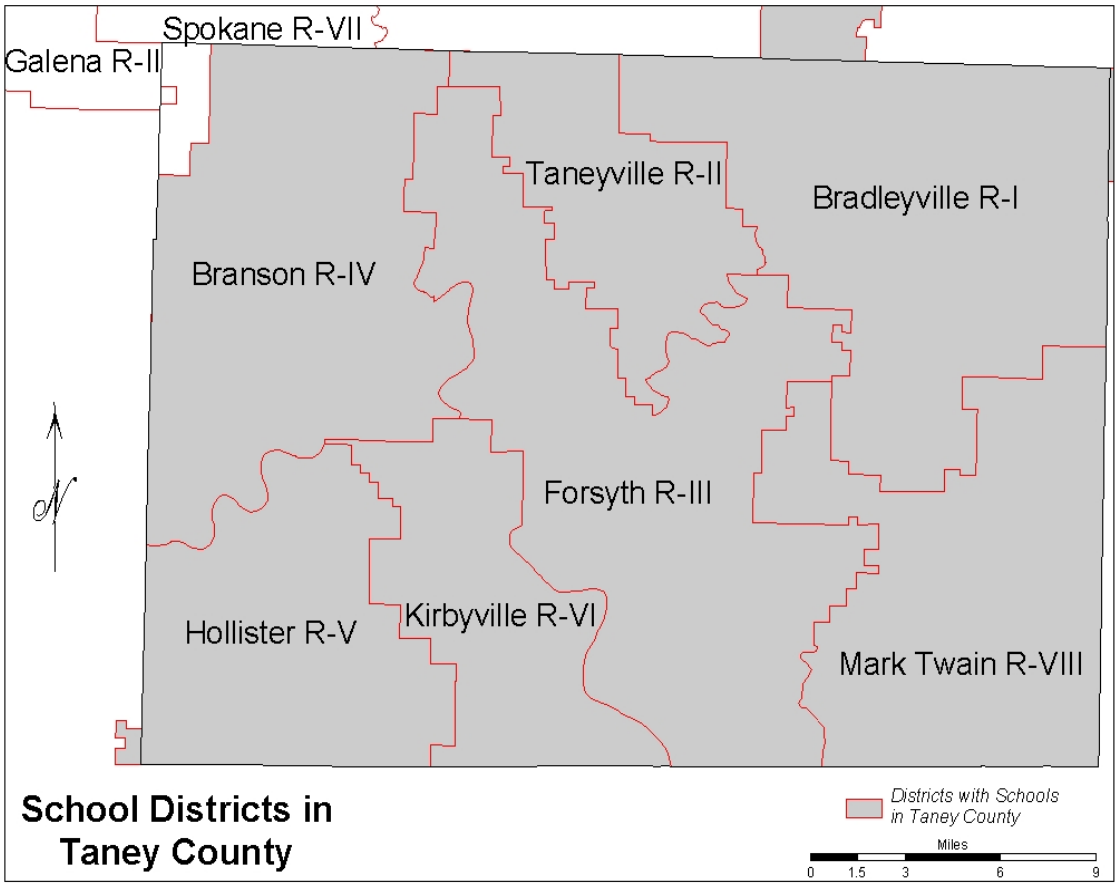


Table 2-20: Schools in Taney County			
School Facility	**Address**	**City**	**Occupants***
Public Schools			
Bradleyville R-I	**16474 N. State Hwy 125**	**Bradleyville**	**219**
Bradleyville High	16474 N. State Hwy 125	Bradleyville	138
Bradleyville Elementary	16474 N. State Hwy 125	Bradleyville	81
Branson R-IV	**400 Cedar Ridge Dr**	**Branson**	**3,607**
Branson High	935 Buchanan Rd.	Branson	1,080
Branson Jr. High	263 Buccaneer Blvd	Branson	585
Branson Primary	404 Cedar Ridge Dr.	Branson	517
Branson Elementary	396 Cedar Ridge Dr.	Branson	529
Branson Intermediate	308 Cedar Ridge Dr.	Branson	565
Kindergarten Center	402 Cedar Ridge Dr.	Branson	331
Forsyth R-III	**178 Panther St.**	**Forsyth**	**1,243**
Forsyth High	178 Panther St.	Forsyth	393
Forsyth Middle	178 Panther St.	Forsyth	392
Forsyth Elementary	178 Panther St.	Forsyth	458
Hollister R-V	**1798 State Hwy BB**	**Hollister**	**1,256**
Hollister High	1798 State Hwy BB	Hollister	363
Hollister Middle	1798 State Hwy BB	Hollister	319
Hollister Elementary	1794 State Hwy BB	Hollister	574
Kirbyville R-VI	**6225 State Hwy 76 E**	**Kirbyville**	**385**
Kirbyville Middle	6225 State Hwy 76 E	Kirbyville	223
Kirbyville Elementary	4278 State Hwy 76	Kirbyville	162
Mark Twain R-VIII	**37707 US Hwy 160**	**Rueter**	**69**
Mark Twain Elementary	37707 US Hwy 160	Rueter	69
Taneyville R-II	**302 Myrtle St.**	**Taneyville**	**256**
Taneyville Elementary	302 Myrtle St.	Taneyville	256
Private Schools			
Riverview Bible Baptist Christian School	13901 US Hwy 160	Forsyth	60
New Life Academy	P.O. Box 380	Hollister	211

*Occupants include students and staff.
Source: Missouri Department of Elementary and Secondary Education.
http://www.privateschoolreview.com/county_public_schools_state.php

College of the Ozarks

The College of the Ozarks is located in Taney County at Point Lookout. Established in 1906, it is now a private, accredited four-year institution situated on 1,000 acres with a student enrollment of 1,500 and 280 faculty and staff. The college has a work program for its students, which has created a wide range of facilities on the campus including a farm, feed mill, sale barn, post office, chapel, power plant, firehouse, restaurant, motel, and a new conference center. During the tourist season, approximately a thousand visitors a day visit the college. It hosts the NAIA Division II National Basketball Tournament in March, which draws over 10,000 during the week. Each June, it sponsors the Honor America event for the Fourth of July, which draws over 2,000. The Ralph Foster Museum is also located at the college, which draws thousands of visitors each week.

Child Care Centers

Child care centers in Taney County are listed in the following table. The table includes only licensed and license-exempt child care centers. A general location listing of licensed family home care centers is also provided. In all probability, child care is also provided in many private residences in the county that have not been licensed by the State.

Table 2-21: Licensed and License Exempt Child Care Centers in Taney County*

Name	Address	City	Telephone
1st General Baptist Church & Learning	5th and College	Branson	417-334-7124
Appleseed Christian Academy	254 Wilson Rd.	Branson	417-334-7332
Branson Latch Key	404 Cedar Ridge Dr.	Branson	417-334-6541
Branson Park and Recreation	201 Compton Dr.	Branson	417-337-8510
Early Head Start: Boys & Girls Club of the Ozarks	1460 Bee Creek Rd.	Branson	417-336-2818
First Baptist Learning Center	400 S Sunshine	Branson	417-336-2139
First Steps: Building Blocks	212 Hwy. T	Branson	417-332-2711
Head Start: Branson	829 S Falls Ave. Lot #1	Branson	417-332-0003
Little Ones Learning Center	414 Buchanan Rd.	Branson	417-334-5628
Our Shepherd's Child Care Center	221 Malone St.	Branson	417-332-1922
Presbyterian Preschool	420 W Main St.	Branson	417-334-3468
Tree House Day Care	152 Lost Tree Dr.	Branson	417-334-7315
Forsyth Kids Academy	501 Panther St.	Forsyth	417-546-9619
Head Start: Hollister	178 Jessica St.	Hollister	417-334-7515
New Life Academy	Hwy. V	Hollister	417-334-7084
Prime Time: Hollister	1794 State Hwy BB	Hollister	417-335-4607
Project Help	119 Myrtle Ave.	Hollister	417-334-5112
Kirbyville Preschool	4278 E State Hwy. 76	Kirbyville	417-239-3917
Head Start: Kissee Mills	415 Staake Spur	Kissee Mills	417-546-4635
College of the Ozarks Child Development Center	V Hwy,1 Opportunity 2 Play	Point Lookout	417-334-6411
Mark Twain Preschool	37707 US Highway 160	Reuter	417-785-4323

Source: Child Care Resource and Referral, Springfield, MO.
* Child care centers in churches are license exempt.

The number of licensed family home care centers in Taney County and general geographic location are listed below. Site specific location information is not disclosed here for security purposes.

- Branson 3
- Forsyth 3
- Hollister 3
- Kirbyville 2
- Power Site 1
- Rockaway Beach 1
- Taneyville 3

Residential Care Facilities

Residential care facilities serving special needs adults and seniors in Taney County are located in Branson, Forsyth, Hollister, and Walnut Shade. Two facilities provide adult day care. The DCO Senior Focus ADC of Taney County, located at 1627 E. Highway 76 in Branson, is a free-standing adult day care facility with a capacity of 20. The Forsyth Care Center provides adult day care in addition to its main operation as a skilled nursing facility.

Table 2-22: Residential Care Facilities in Taney County

Facility	Address	Telephone	Licensed Beds
Skilled Nursing Facility			
Beverly Healthcare	996 W. Highway 248, Branson	417-334-6431	100
Forsyth Care Center	477 Coy Blvd., Forsyth	417-546-6337	120
Point Lookout Nursing and Rehab	1186 State Hwy V, Hollister	417-334-4105	130
Skaggs Community Health Center	251 Skaggs Rd., Branson	417-335-7000	28
Residential Care Facility II			
Culpepper Place at Branson Meadows	5351 Gretna Rd., Branson	417-334-3336	60
Life Enhancement Village of Branson	421 Oakridge Rd., Walnut Shade	417-561-5395	18
Residential Care Facility I			
Foraker's Summerhouse	2163 Round Mountain Rd Walnut Shade	417-561-4544	7
Ozark Mountain Manor	238 Harmony Heights, Forsyth	417-546-5595	40

Source: Missouri Department of Health and Senior Services.

Senior Centers

Two senior centers are located in Taney County. These facilities provide a wide range of services to the senior population, including caregiver assistance, congregate meals, enrichment classes, health screenings, and home delivered meals.

Table 2-23: Senior Centers in Taney County

Senior Center	Address	Telephone
Branson Senior Center	201 Compton Drive Branson	417-335-4801
Forsyth Senior Friendship Center	13879 US Hwy 160 N Forsyth	417-546-6100

Commercial/Recreation Centers

The greatest concentrations of commercial activities in Taney County are in the downtown areas of Branson, Forsyth and Hollister and along the highways through these communities, including Highway 76, Highway 248 and Shepherd of the Hills Expressway in Branson, Highway 65 in Hollister and Highway 160 through Forsyth.

These commercial clusters include retail and service establishments, hotels, resorts, shopping centers, theatres and other recreation and entertainment establishments. In the spring of 2006, a new mixed use shopping, entertainment and residential development will open along the Taneycomo waterfront in Branson. Branson Landing will add to the draw of visitors to the Branson area.

Taney County offers numerous entertainment and recreation activities, such as caves, family entertainment centers, historical properties, lake cruises, miniature golf courses, movie theatres, museums, theme parks, tours, water rides, and several live entertainment shows. The tourism industry in the county draws millions of visitors each year. Branson alone attracts 7.2 million visitors each year. The busiest months are June, July, August, October and November, with 12 percent of the visitors in July and November.

There are over 40 theatres in Branson with a total of 56,797 seats. The Grand Palace is one of the largest theatres with 4,000 seats. Both the Tri-Lakes Center and the Welks Center have about 2,700 seats apiece. The Shoji Tabuchi Theatre holds about 2,500 people. Remington Theatre holds 2,600 people, while the Ray Steven's seats about 2,200. Many of the smaller theatres hold about 900 people (see Appendix C for a list of theatres in the Branson area).

From Taney County, visitors can also access three major lakes: Table Rock Lake, Lake Taneycomo, and Bull Shoals Lake. Recreation opportunities include hiking, sightseeing, water sports, hunting and fishing, camping, and picnicking.

Major Employers

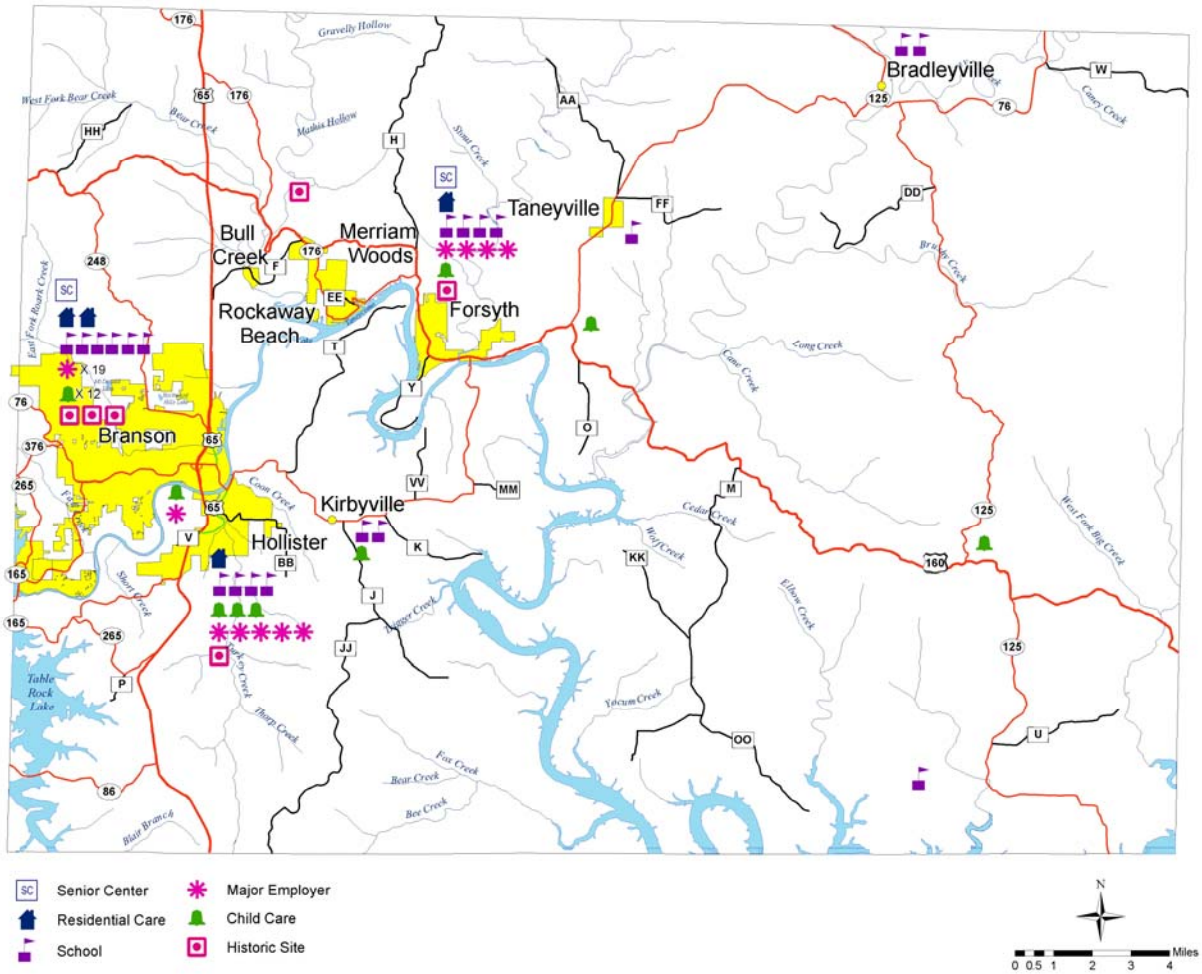
Industries and businesses in Taney County that employ 50 or more persons are listed in Table 2-24. The two largest employers in Taney County are located in Branson. These are Skaggs Community Health Center with 1,050 employees and Herschend Family Entertainment with approximately 675 employees located at four different tourist attractions in the Branson area.

Table 2-24: Taney County Major Employers

Employer	Location	Number of Employees
Skaggs Community Health Center	Branson	1,050
Herschend Family Entertainment		
Celebration City	Branson	250
Dixie Stampede	Branson	200
Ride the Ducks	Branson	100
White Water	Branson	125
Branson Public Schools	Branson	437
Shepherd of the Hills Outdoor Theatre	Branson	350 at summer peak
Tracks	Branson	320 at summer peak
Wal-Mart	Branson	286
McDonald's	Branson	275 (area wide)
City of Branson	Branson	256

Table 2-24: Taney County Major Employers		
Employer	**Location**	**Number of Employees**
White River Valley Electric Cooperative	Branson	132
Combs Hospitality	Branson	125
Morris Group Hotels	Branson	100
Ozark Mountain Bank	Branson	100
Table Rock Asphalt	Branson	95
Taney County Ambulance District	Branson	50 Full Time 20 Part-Time
Royal Oak Enterprises	Branson	60
Big Cedar Lodge	Branson	50+
Chateau on the Lake	Branson	50+
Empire District Electric Company	Branson	50+
Myer Hotels	Branson	50+
College of the Ozarks	Point Lookout	280
Hollister Public Schools	Hollister	180
Lowe's Home Improvement	Hollister	135
Point Lookout Nursing and Rehab	Hollister	120
Country Mart Groceries	Hollister	80
Nowells Foods	Hollister	60
City of Hollister	Hollister	50
Forsyth Schools	Forsyth	160
National Enzyme Company	Forsyth	90
Forsyth Care Center	Forsyth	85
Taney County Sheriff's Department	Forsyth	50

Figure 2-11: Taney County Vulnerable Facilities



Flood Plain Management/Wetlands

Wetlands

Wetlands are defined as "areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas."" (U.S. EPA, Section 404). Wetlands are not a primary natural feature in Taney County. Wetland habitats that existed in the White River floodplain were inundated with the impoundment of Table Rock Lake. However, wetland habitat does exist along streams and their tributaries and in low-lying areas in the county. In general, there are areas of associated forested and emergent wetland habitat along Bull Creek, Bear Creek, Beaver Creek, Roark Creek and Swan Creek (Burns & McDonnell, 1995, p. 3-15).

National Flood Insurance Program

In 1968, Congress created the National Flood Insurance Program (NFIP) in response to the rising cost of taxpayer funded disaster relief for flood victims and the increasing amount of damage caused by floods. The NFIP is self-supporting for the average historical loss year, which means that operating expenses and flood insurance claims are not paid for by the taxpayer, but through premiums collected for flood insurance policies. Taney County and the communities of Branson, Bull Creek, Hollister, and Rockaway Beach participate in the NFIP. These jurisdictions have adopted floodplain management regulations as a requirement for participation in the NFIP.

Table 2-25: National Flood Insurance Program Participation

Community	NFIP Participation	Date of Entry Emergency or Regular)	Current Effective Map
Taney County	Yes	04/01/2004 (r)	04/01/2004
Bradleyville	No		
Branson	Yes	10/26/1976 (r)	10/18/1995
Bull Creek	Yes	09/30/1997 (r)	1/19/2000
Forsyth	No		
Hollister	Yes	03/18/1985 (r)	1/19/2000
Kirbyville	No		
Merriam Woods	No		
Rockaway Beach	Yes	03/01/2000 (r)	03/01/2000
Taneyville	No		
Source: Federal Emergency Management Agency, Federal Insurance Administration.			

Table 2-26 notes the flood insurance policies in force in Taney County. Of the 85 policies currently in-force, nearly half are for properties located in the City of Branson.

Table 2-26: Taney County Flood Insurance Policies

Jurisdiction	Policies in-force
Taney County	20
Branson	42
Hollister	9
Rockaway Beach	1
Bull Creek	13
Total	85
Source: http://www.fema.gov/nfip/10110309.shtm#mot	

Environmental Concerns

A primary environmental concern for Taney County is protection of its surface water resources. Taney County's economy is heavily dependent on not only its live performance entertainment industries, but also on its water-based recreation industries. Lake Taneycomo and Table Rock Lake in particular are nationally known for fishing and the environments provided for other outdoor recreation activities. Several actions have already been taken by the county and its municipalities to address degradation of water quality, including installation of phosphorus removal systems at wastewater treatment plants, development of regional wastewater treatment facilities and expansion of wastewater collection systems into urbanizing areas of the county.

Maintenance of groundwater quality is also a significant concern. The county's geologic structure and soils characteristics significantly impact the use of septic tanks for wastewater disposal. It is relatively easy for surface contaminants as well as materials from failing septic systems to enter the groundwater with little filtration. Groundwater and surface water quality is a concern for human health as well as the animal husbandry industry which contributes to the economy in eastern Taney County.

Water quality in the White River Basin is an economic and quality of life concern for Missouri, Arkansas, and numerous local governments throughout the region, as well as area businesses and residents. Numerous local governments, state agencies, private citizens, business organizations and educational research institutions in Missouri and Arkansas are already collaborating or engaging in discussion on strategies to maintain and improve water quality in the tri-lakes. Any natural hazard event which significantly impacts surface water quality in Taney County would have adverse effects beyond the borders of the county.

Hazardous Materials Sites

Records of the Missouri Department of Natural Resources indicate seven hazardous waste generators located in Taney County. Five of these waste generators are located in Branson and two are located in Hollister. All facilities are small quantity waste generators with the exception of one large quantity waste generator in Branson. The specific locations of these facilities are not provided here for security reasons.

Endangered Species

Thirty-nine sensitive species found in Taney County are listed in the Missouri Natural Heritage Database. Three of these species, the Indiana Bat, the Gray Bat, and Running Buffalo Clover, are designated as endangered by the federal government. Another species, the Tumbling Creek Cave Snail (Antrobia culveri), is a candidate for federal listing.

Table 2-27: Threatened and Endangered Species in Taney County			
Common Name	**Scientific Name**	**State**	**Federal**
Gray Bat	Myotis sodalis	Endangered	Endangered
Indiana Bat	Myotis grisescens	Endangered	Endangered
Running Buffalo Clover	Trifolium stoloniferum	Endangered	Endangered
Tumbling Creek Cavesnail	Antrobia culveri		Candidate
Bachmans Sparrow	Aimophila aestivalis	Endangered	
Swainsons's Warbler	Limnothlypis swainsonii	Endangered	
Plains Spotted Skunk	Spilogale putorius interrupta	Endangered	
Source: Missouri Dept of Conservation. Missouri Fish and Wildlife Information System, Natural Heritage Database. http://www.conservation.state.mo.us/cgi-bin/heritage/search.cgi?county=Taney			

Historic Properties and Archaeological Sites

There are 593 recorded archaeological sites in Taney County. Most of these sites are privately owned and are not identified to protect the physical location of the sites. Six properties in Taney County are listed on the National Register of Historic Places. These include:

- The Bonniebrook Homestead is located off of U.S. Highway 65 near Walnut Shade. It was added in 1997 and is privately owned. Its area of significance is in Literature and Art. The periods of significance are 1875-1899, 1900-1924, and 1925-1949. Its historic function was Domestic and Funerary, and its current function is Funerary and Landscape.

- The Downing Street Historic District is located at Downing Street, Hollister. It was added in 1978, and is owned privately, by local government, and Federal. Its area of significance is in Community Planning and Development, Commerce, and Architecture. The period of significance is 1900-1924. Its historic and current functions are Commerce/Trade, Government, and Religion.

- The John Ross House is located at Missouri Highway 76, Branson. It was added in 1983 and is privately owned. Its area of significance is Industry, Literature, Architecture, and Social History. The periods of significance are 1875-1899 and 1900-1924. Its historic function was Domestic and its current function is Recreation and Culture.

- The Sammy Lane Resort Historic District is located at 320 E. Main Street, Branson. It was added in 2003 and is privately owned. Its area of significance is Commerce, Architecture, and Social History. Its period of significance is 1925-1949. Its historic and current functions are Domestic, Recreation, and Culture.

- The Swan Creek Bridge is located north of Forsyth. It was added in 1983 and is owned by the local government. Its area of significance is Architecture. The periods of significance are 1900-1924 and 1925-1949. Its historic and current functions are Transportation.

Ralph Foster Museum

The Ralph Foster Museum is located on the campus of the College of the Ozarks. Established by the president of the school in the 1920s, the museum has gradually increased in size and exhibit volume. It is now primarily focused on collecting and preserving items connected to the Ozarks region. It contains 40,000 square feet of exhibits including antiques, weapons, dolls, etc. from the Ozarks and around the world, as well as 20,000 square feet used for offices, storage, and a research library.

Community Plans

Taney County Master Plan: Taney County adopted an updated *Master Plan* in December 1999. The Plan focuses on several elements that provide an overview of the characteristics and conditions of Taney County - its people, natural resources, economy, housing, public infrastructure, transportation and land development. Overall, the goals, objectives and recommendations set forth within these elements focus on protecting and maintaining the quality of the natural environment that is critical to the county's economic future, while recognizing private property rights.

Taney County Emergency Operations Plan*:* The *Taney County Emergency Operations Plan* (EOP) establishes the organizations and procedures to enable Taney County and its municipalities to "save lives, minimize injuries, protect property, preserve functional civil governments and maintain economic activities essential to Taney County's survival and recovery from natural, technological, terrorism and war-related disasters" (Taney County EOP). The Plan establishes functional lines for operation and also identifies line of succession for continuity of government during a disaster.

Taney County Development Guidance Code: Adopted by the Taney County Commission in Nov. 1984, the purpose of these codes is to manage the growth and development of the unincorporated areas of Taney County so as to achieve the objectives authorized by law according to RSMo 64.815, RSMo 64.825, and RSMo 64.850. The *Development Guide Code* is a performance-based zoning and subdivision regulation; the Code is reviewed on an annual basis and updated as determined necessary.

Taney County Wastewater Master Plan (April 1999): The *Taney County Wastewater Master Plan*, developed for the Taney County Regional Sewer District, addresses the current and projected wastewater treatment needs in sixteen of the twenty-one watersheds in Taney County, excluding the watershed areas within the cities of Branson, Hollister, and Forsyth.

Community Health Assessment for Taney County: In 1997, the Taney County Health Department, with the assistance of the Center of Resource Planning and Management, Southwest Missouri State University, prepared the *Community Health Assessment, Community Health Improvement Board for Stone County, Taney County, and the City of Branson*. The health assessment provides guidance for the development and implementation of activities to improve the health status of area residents. The assessment focused on the areas of demographic characteristics relevant to health; health status conditions and trends; health resources inventory; and public perceptions of key health issues.

State Transportation Improvement Plan (STIP): The STIP is the Missouri Department of Transportation's plan outline for transportation system improvements programmed for a five year period. Programmed improvements in the 2005-2009 STIP relevant to Taney County include grading, bridge, and paving to upgrade U.S. 65 between south of Route 76 to south of Route 165, resurfacing from north of Route 248 to north of Business 65, and coldmilling, guardrail end treatments, and resurfacing from Route 165 to Route 186. Turn lanes and signals are be added to Route 76 at Fall Creek Road, Roark Valley Road, and Route 65. Warning devices on Main Street in Branson are to be upgraded.

Intermodal Transportation Study for Stone County, Taney County, and the City of Branson: Developed in 1995 for Stone County, Taney County and the City of Branson, this study examined all relevant modes of transportation in the two county area. The study identified priority highway projects for the area, as well as key needs for other transportation modes.

Southwest Missouri Comprehensive Economic Development Strategy (CEDS): Taney County is a participating member of the Southwest Missouri Economic Development District and detailed information on the county is included in the District's *Comprehensive Economic Development Strategy*. The 1998 CEDS sets strategic actions to promote job creation, economic diversity and a high quality of life within the region.

Building and Fire Codes

Table 2-28 lists building codes, fire codes and other codes adopted by municipalities within Taney County. The fire codes adopted by the Western Taney County Fire Protection District, the 1999 BOCA National Fire Prevention Code for commercial buildings, are used within the unincorporated areas within the District's jurisdiction as well as some of the municipalities. The Central Taney County Fire Protection District utilizes the 2000 International Fire Prevention Codes for commercial building construction within its service area which is unincorporated areas only.

Table 2-28: Adopted Codes in Taney County

Community	Building Code	Fire Code	Mechanical Code	Plumbing Code	Other Codes
Bradleyville	--	--	--	--	--
Branson	2003 IBC	2003 IFC	2003 IMC	2003 IPC	2002 NEC 2003 IEEC 2003 IECC 2003 IEBC 2003 ICCEC 2003 IFGC ICC/ANSI-A117.1, 1998 ed.
Bull Creek	--	WTFPD	--	--	--
Forsyth	2000 IBC	2000 IFC	2000 IMC	2000 IPC	1999 NEC 2000 IECC 2000 IFGC 2000 IRC

Table 2-28: Adopted Codes in Taney County

Community	Building Code	Fire Code	Mechanical Code	Plumbing Code	Other Codes
Hollister	2000 IBC	2000 IFC	2000 IMC	2000 IPC	1999 NEC 2000 IRC--1 & 2 Family Dwellings 2000 IPMC
Kirbyville	--	WTFPD	--	--	--
Merriam Woods	2003 IBC	WTFPD	--	--	2003 IRC--1 & 2 Family Dwellings
Rockaway Beach	2001 IBC	WTFPD	--	--	--
Taneyville	--	--	--	--	--

Codes:

IBC	International Building Code	IFGC	International Fuel Gas Code
ICC	Electric Code	IMC	International Mechanical Code
ICCEC	International Code Council Administrative Provisions	IPC	International Plumbing Code
IEBC	International Existing Building Code	IPMC	International Property Maintenance Code
IECC	International Energy Conservation Code	IRC	International Residential Code
IFC	International Fire Prevention Code	NEC	National Electric Code

ICC/ANSI A117.1 Handicap Accessibility

CTCFPD	Central Taney County Fire Protection District	2000 IFC (Commercial Buildings only)
WTCFPD	Western Taney County Fire Protection District	1999 BOCA National Fire Prevention Code (Commercial Buildings only)

Community Partnerships

Several community partnerships bring together the public sector, private sector and the citizens of Taney County. Although each of these partnerships has a specific mission and focus, all organizations engage in programs and activities supportive of quality of life and enhancement of the built and natural environment.

Ozarks Regional Economic Partnership: Communities and Chambers of Commerce in Taney County are members of the Ozarks Regional Economic Partnership, an organization of the Springfield Area Chamber of Commerce, which focuses on activities to promote economic development opportunities and job creation in the region.

Southwest Missouri Council of Governments (SMCOG): Taney County and several communities are also members of the Southwest Missouri Council of Governments and the Council's economic development district as designated by the U.S. Economic Development Administration. SMCOG's mission is to provide a forum for local governments to discuss issues of regional concern and to provide services in community development and planning to its membership.

Upper White River Basin Foundation: This foundation works with many different public and private organizations in Southwest Missouri and Northwest Arkansas to reduce pollution on the Upper White River and therefore improve the water quality of Beaver, Table Rock, Taneycomo and Bull Shoals Lakes. Some of the activities include water quality monitoring in the watershed, identifying the most effective on-site wastewater treatment systems for the Ozarks, assisting willing communities to find the resources to design and install appropriate centralized wastewater treatment systems in

order to eliminate standard septic tanks, and promoting programs to eliminate nutrient rich agricultural run-off (http://www.whiteriverbasin.org/).

Friends of Lake Taneycomo: This group of citizens and some private companies in the Branson Area is a watch dog group that addresses environmental issues that affect Lake Taneycomo.

Downtown Branson Main Street Association: This association sponsors six annual festivals in the historic business district and hosts two annual parades.

Significant Cultural/Social Issues

Taney County has historically been a rural county with a culture based on individualism and limited government control. The growth of the area's tourism industry and the rapid in-migration of population from outside of the region and the State have brought increased economic prosperity to Taney County. However, growth has changed the urban and rural landscape and brought substantial challenges to the county and its municipalities to meet the infrastructure and public services needs of the resident and tourist population. Preserving and protecting the quality of the natural environment, particularly the quality of the water reservoirs, is also a significant social and economic issue for the county. Balancing the interests of the various stakeholders and private investment with public interests and investments in Taney County is essential to Taney County's on-going effort to maintain quality of life and ensure sustainable economic growth.

Public Awareness

An initial meeting on the hazard mitigation planning process was held with stakeholders in Taney County in December 2002. Representatives from the county and incorporated communities were invited to this meeting to learn about the benefits of developing hazard mitigation plans, the planning process, and SEMA's intent to contract with the Southwest Missouri Council of Governments to develop the hazard mitigation plan for Taney County. This information was further distributed to community officials through individual meetings and to the public through presentations at meetings of the governing bodies in the various communities. Notices of public hearing to obtain public input on the Plan were published in local newspapers in Taney County, and information on the planning process and draft elements of the Plan were posted on SMCOG's website for public view and comment.

Media Relations

Several broadcast media serve the Taney County area. Television media routinely broadcast weather reports and warnings with detailed information on cities and counties at risk as well as news segments including information on actions to reduce risks to life and property. Weather reports and warnings are also broadcast from several radio stations in the area. Media resources that provide news and weather coverage in Taney County include:

Table 2-29: Media Resources Serving Taney County			
Media	**Address**	**Telephone**	**Fax**
Newspapers			
Branson Daily News	PO Box 1900, Branson, MO 65615	417-334-3161	417-334-4299
Springfield News-Leader	651 Boonville, Springfield, MO 65806	417-836-1100	417-837-1381
Taney County Times	P.O. Box 220, Forsyth, MO 65653	417-334-2285	417-334-4789
Television			
KDEB 27 KOLR 10	2650 E. Division, Spfld, MO 65801	417-862-6397	417-866-6397
KSPR 33	1359 St. Louis, Springfield, MO 65801	417-831-1333	417-831-9358
KWMB (WB31)	118 State Drive, Hollister, MO 65672	417-336-0031	417-336-3199
KYTV 3	999 W. Sunshine, Spfld, MO 65808	417-268-3000	417-268-3364
Radio			
KADI 99.5 FM	5431 W. Sunshine, Spfld, MO 65619	417-831-0995	417-831-4026
KHOZ 102.9 FM	752 S. Hwy 165, Branson, MO 65616	417-334-6750	417-334-6756
KLFC 88.1 FM	205 W. Atlantic, Branson, MO 65616	417-334-5532	417-335-2437
KOMC 1220 AM, 100.1 FM KRZK 106.3 FM	1220 Courtney, Branson, MO 65616	417-334-1200	417-334-7141
KTTS 94.7 FM KSPW 96.5 FM KSGS 104.1 FM	2330 W. Grand, Springfield MO 65802	417-865-6614	417-866-8537
KTOZ 95.5 FM	PO Box 3273, Springfield MO 65808	417-890-5555	417-890-5050
KTXR 101.3 FM	PO Box 3925, Springfield MO 65808	417-862-5600	417-869-7576
KOSP 105.1 FM	319-B. E. Battlefield, Spfld, MO 65807	417-886-5677	417-886-2155
KOZO 89.7 FM	Hollister, MO 65672	417-339-3388	

City/Village Profiles

The following list provides a summary profile of the characteristics of the incorporated communities in Taney County.

Bradleyville

Total Population*	80 estimated
Classification	Village
Leadership	Chair/Board of Trustees
Median household income, 1999	N/A
Total housing units	N/A
Housing unit, median year built	N/A
Median gross rent	N/A
Median owner-occupied housing value	N/A
Master plan	No
Zoning regulations	No
Building regulations	No
Including earthquake design	No

Bradleyville (continued)

Subdivision regulations	No
Stormwater regulations	No
Floodplain management regulations	No
Water service	Private wells
Sewer service	On-site wastewater systems
Electric service	White River Valley Electric Cooperative
Law enforcement	Taney County Sheriff's Department
Fire protection service	Bradleyville Volunteer Fire Department
Ambulance service	Taney County Ambulance
Solid waste disposal	American Disposal - private haulers

* Bradleyville incorporated in 2003.

Branson

Total Population - 2000	6,050
Classification	City-fourth class
Leadership	Mayor/City Administrator/Board of Aldermen
Median household income, 1999	$31,997
Total housing units	3,455
Housing unit, median year built	1983
Median gross rent	$510
Median owner-occupied housing value	$111,800
Master plan - land use plan only	Yes
Zoning regulations	Yes
Building regulations	Yes
Including earthquake design	No
Subdivision regulations	Yes
Stormwater regulations	Yes
Floodplain management regulations	Yes
Water service	City of Branson
Sewer service	City of Branson
Electric service	Empire District Electric Company
Law enforcement	City of Branson
Fire protection service	City of Branson
Ambulance service	Taney County Ambulance District
Solid waste disposal	American Disposal

Bull Creek

Total Population - 2000	225
Classification	Village
Leadership	Chair/Board of Trustees

Bull Creek (continued)

Median household income, 1999	$21,667
Total housing units	97
Housing unit, median year built	1988
Median gross rent	$442
Median owner-occupied housing value	$27,100
Master plan	No
Zoning regulations	No
Building regulations	No
Including earthquake design	No
Subdivision regulations	Yes
Stormwater regulations	No
Floodplain management regulations	Yes
Water service	Village of Bull Creek
Sewer service	Rockaway Regional Sewer District
Electric service	White River Valley Electric Cooperative
Law enforcement	Taney County Sheriff's Department
Fire protection service	Western Taney County Fire Protection District
Ambulance service	Taney County Ambulance
Solid waste disposal	American Disposal

Forsyth

Total Population - 2000	1,686
Classification	City-fourth Class
Leadership	Mayor/Board of Aldermen
Median household income, 1999	$31,801
Total housing units	913
Housing unit, median year built	1977
Median gross rent	$436
Median owner-occupied housing value	$90,200
Master plan	No
Zoning regulations	Yes
Building regulations	Yes
Including earthquake design	No
Subdivision regulations	Yes
Stormwater regulations	No
Floodplain management regulations	No
Water service	City of Forsyth
Sewer service	City of Forsyth
Electric service	Empire District Electric Company
Law enforcement	City of Forsyth

Forsyth (continued)

Fire protection service	Forsyth Fire Department
Ambulance service	Taney County Ambulance
Solid waste disposal	American Disposal

Hollister

Total Population - 2000	3,867
Classification	City-fourth class
Leadership	Mayor/City Administrator/Board of Aldermen
Median household income, 1999	$24,535
Total housing units	1,958
Housing unit, median year built	1986
Median gross rent	$456
Median owner-occupied housing value	$66,700
Master plan	Yes
Zoning regulations	Yes
Building regulations	Yes
Including earthquake design	No
Subdivision regulations	Yes
Stormwater regulations	Yes
Floodplain management regulations	Yes
Water service	City of Hollister
Sewer service	City of Hollister
Electric service	Empire District Electric Company
Law enforcement	City of Hollister
Fire protection service	Western Taney County Fire Protection District 2
Ambulance service	Taney County Ambulance Service
Solid waste disposal	American Disposal

Kirbyville

Total Population*	142 estimated
Classification	Village
Leadership	Chair/Board of Trustees
Median household income, 1999	N/A
Total housing units	N/A
Housing unit, median year built	N/A
Median gross rent	N/A
Median owner-occupied housing value	N/A
Master plan	No
Zoning regulations	Yes (adopted Taney County's regulations)

Kirbyville (continued)

Building regulations	No
Including earthquake design	No
Subdivision regulations	Yes (adopted Taney County's regulations)
Stormwater regulations	No
Floodplain management regulations	No
Water service	Taney County Water (part), Private Wells (part)
Sewer service	Private Septic Tanks
Electric service	White River Valley Electric Cooperative and Empire District Electric Company
Law enforcement	Taney County Sheriff's Department
Fire protection service	Western and Central Taney County Fire Protection Districts
Ambulance service	Taney County Ambulance District
Solid waste disposal	American Disposal

* Kirbyville incorporated in 2002

Merriam Woods

Total Population - 2000	1,142
Classification	Village
Leadership	Chair/Board of Trustees
Median household income, 1999	$24,132
Total housing units	600
Housing unit, median year built	1980
Median gross rent	$462
Median owner-occupied housing value	$42,200
Master plan	No
Zoning regulations	Yes
Building regulations	Yes
Including earthquake design	Yes
Subdivision regulations	No
Stormwater regulations	No
Floodplain management regulations	No
Water service	Village of Merriam Woods
Sewer service	Village of Merriam Woods
Electric service	White River Valley Electric Cooperative
Law enforcement	Village of Merriam Woods
Fire protection service	Western Taney County Fire Protection District
Ambulance service	Taney County Ambulance District
Solid waste disposal	Private haulers

Rockaway Beach

Total Population - 2000	577
Classification	City-fourth Class
Leadership	Mayor/Board of Aldermen
Median household income, 1999	$33,359
Total housing units	356
Housing unit, median year built	1977
Median gross rent	$442
Median owner-occupied housing value	$69,200
Master plan	No
Zoning regulations	Yes
Building regulations	Yes
Including earthquake design	No
Subdivision regulations	Yes
Stormwater regulations	No
Floodplain management regulations	Yes
Water service	City of Rockaway Beach
Sewer service	City of Rockaway Beach
Electric service	White River Valley Electric Cooperative
Law enforcement	City of Rockaway Beach
Fire protection service	Western Taney County Fire Protection District
Ambulance service	Taney County Ambulance Service
Solid waste disposal	American Disposal

Taneyville

Total Population - 2000	359
Classification	Village
Leadership	Chair/Board of Trustees
Median household income, 1999	$23,500
Total housing units	160
Housing unit, median year built	1972
Median gross rent	$380
Median owner-occupied housing value	$50,000
Master plan	No
Zoning regulations	Yes
Building regulations	No
Including earthquake design	No
Subdivision regulations	Yes
Stormwater regulations	No

Taneyville (continued)

Floodplain management regulations	No
Water service	Taneyville Water Department
Sewer service	Taneyville Sewer Department
Electric service	White River Valley Electric Cooperative
Law enforcement	Taney County Sheriff's Department
Fire protection service	Central Taney County Fire Protection District
Ambulance service	Taney County Ambulance District
Solid waste disposal	Village of Taneyville

Part 3: Risk Assessment

Natural Hazard Identification/Elimination Process

Information on natural hazards was obtained from a variety of sources. Principal data sources included FEMA, SEMA, the National Climatic Data Center (NCDC), and the National Oceanic and Atmospheric Administration (NOAA). The U.S. Geological Survey (USGS) and the Center for Earthquake Research and Information (CERI) were major sources for earthquake information. The Missouri Department of Natural Resources (MDNR) Dam Safety Division provided information concerning dams and the Missouri Department of Conservation (MDC) provided most of the wildfire information relevant to Taney County. Other information sources included county officials; existing city, county, regional and state plans; and information from local officials and residents.

The above noted data sources were researched for general information on natural hazards as well as incidences of natural hazards occurring in Taney County. In addition, hazards that are regional in impact and that have affected or may affect Taney County are also included in this risk assessment.

Community-wide Hazard Profile and Hazards Identified

Historical records indicate Taney County and its communities have been adversely affected by natural hazards. In September 1993, flash flooding along Bull Creek severely damaged or destroyed 150 mobile homes in the Rockaway Beach (Bull Creek) area, resulting in $5 million in property damage. Taney County has also experienced loss from tornado and thunderstorm winds. In May 1957, an F2 tornado caused $250,000 in property damages over a 15-mile long path through the county and in March 1996 thunderstorm winds damaged two boat docks and destroyed 20 boats on Lake Taneycomo in Rockaway Beach, resulting in $200,000 in property loss. In addition to flood and tornado/severe thunderstorm hazards, there are several other natural hazards which have or which may adversely affect Taney County. Such hazards include severe winter weather, drought, extreme heat, earthquake, dam failure, and wildfire.

A natural disaster can result in other hazards, such as interruption of water supply, power supply, business operation, and transportation. These emergencies can trigger health hazards resulting from water contamination and unsanitary conditions, loss of records through computer failure, and civil disturbance. Economic loss can affect the area in several ways, depending on the duration of interruption. A natural disaster may also trigger another natural hazard event. The following diagram provides an example of cascading natural hazards while Table 3-1 notes cascading hazards that may result from individual natural hazard events.

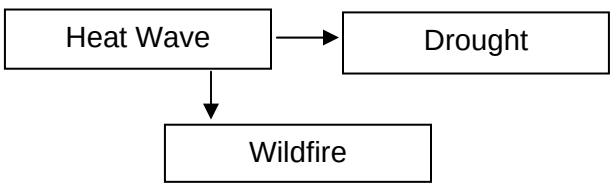


Table 3-1: Cascading Hazards Resulting from Natural Disasters							
Natural Disaster	**Power and Communications Interruption**	**Water Supply Interruption**	**Business Interruption**	**Civil Unrest**	**Computer Failure and/or Loss of Records**	**Transportation Interruption**	**Health and/or Environmental Hazards**
Tornado/Storm	X	X	X	X	X	X	X
Flood	X	X	X		X	X	X
Severe Winter	X	X	X		X	X	X
Drought		X					X
Heat Wave		X		X			X
Earthquake	X	X	X	X	X	X	X
Dam Failure	X	X	X	X		X	X
Wildfire	X	X	X		X	X	X

Hazards not Included and Reasons for Elimination

Certain natural hazards have been eliminated from consideration in this Risk Assessment for Taney County. These hazards include landslides, coastal storms, hurricanes, tsunamis, avalanche, and volcanic activity. While landslides occur in all 50 states, most areas affected have characteristics of steep slopes, periodic heavy rains, clay rich soils or areas where vegetation has been lost after wildfires. It is highly unlikely that landslide activity would have a notable adverse impact on Taney County. Coastal storms, hurricanes, and tsunamis are very unlikely due to Taney County's location in the central region of the United States. Also, the risk of avalanche and volcanic activity is not pertinent due to the county's geologic structure and location.

Severity Ratings

The identified hazards which have adversely affected or which may affect Taney County are profiled in the following sections. These profiles include a description of the hazard, a review of historical occurrences and damages experienced in the county, an evaluation of future probable severity and risk, and general recommendations for mitigation. In this analysis, the criteria for assessing future probable severity is based on the Severity Ratings Table derived from SEMA's *Regional Planning Commission Hazard Mitigation Planning Guide 2002* (Table 3-2).

Table 3-2: SEMA Severity Ratings Table	
Severity Level	**Characteristics**
Catastrophic	Multiple deaths. Complete shutdown of facilities for 30 days or more. More than 50 percent of property is severely damaged.
Critical	Injuries and/or illnesses result in permanent disability. Complete shutdown of critical facilities for at least 2 weeks. More than 25 percent of property is severely damaged.
Limited	Injuries and/or illnesses do not result in permanent disability. Complete shutdown of critical facilities for more than 1 week. More than 10 percent of property is severely damaged.
Negligible	Injuries and/or illnesses are treatable with first aid. Minimal quality-of-life impact. Shutdown of critical facilities and services for 24 hours or less. Less than 10 percent of property is severely damaged.
Source: SEMA. *Regional Planning Commission Hazard Mitigation Planning Guide 2002.*	

Tornadoes/Severe Thunderstorms

(High wind, hail, lightning)

Description of Tornado/Severe Thunderstorm Hazard

Tornadoes are the most concentrated and violent storms produced by the earth's atmosphere. Weather conditions which are conducive to tornadoes often produce a wide range of other dangerous storm activities, including severe thunderstorms, downbursts, straight line winds, lightning, hail, and heavy rains. Historical tornado data archived by the Storm Prediction Center ranks Missouri 9th in the nation for the number of reported tornadoes from 1950-1996 (Storm Prediction Center, *Tornado Reports by State*).

Essentially, tornadoes are cyclical storms with two components of wind. The first is rotational wind that can measure up to 500 miles an hour and the second is an uplifting current of great strength. The dynamic strength of both these currents can cause vacuums that can overpressure structures from the inside. Although tornadoes have been documented in all fifty states, most occur in the central United States. The unique geography of the central United States allows for the development of thunderstorms that spawn tornadoes. The jet stream, a high velocity stream of air, determines which area of the central United States will be prone to tornado development. The jet stream normally separates the cold air of the north from the warm air of the south. During the winter, the jet stream flows west to east over Texas to the Carolina coast. As the sun "moves" north, so does the jet stream, which at summer solstice flows from Canada across Lake Superior to Maine. During its move north in the spring and its recession south during the fall, the jet stream crosses Missouri causing the large thunderstorms that breed tornadoes (SEMA*, Missouri Hazard Analysis*, p. A-1).

Most tornadoes are just a few dozen yards wide and only briefly touch down on the ground. However, more violent tornadoes may stay on the ground for upward of 300 miles and carve out a path nearly a mile wide. The average forward speed of a tornado is 30 miles per hour but may vary from nearly stationary to 70 miles per hour. The average tornado moves from southwest to northeast, but tornadoes have been known to move in any direction. Tornadoes are most likely to occur between 3 and 9 in the afternoon and evening, but have been known to also occur at all hours of the day or night (National Disaster Education Coalition, *Talking About Disaster*, p. TO-1).

Tornadoes are classified according to the F- Scale, developed by Dr. Theodore Fujita in 1971. The F-Scale ranks tornadoes according to wind speed based on the damage caused. Table 3-3 notes the F-scale and examples of typical damage caused.

Table 3-3: Fujita Tornado Damage Scale

Scale	Wind Estimate (MPH)*	Typical Damage
F0	<73	**Light damage.** Some damage to chimneys; branches broken off trees; shallow-rooted trees pushed over; sign boards damaged.
F1	73-112	**Moderate damage.** Peels surface off roofs; mobile homes pushed off foundations or overturned; moving autos blown off roads.
F2	113-157	**Considerable damage.** Roofs torn off frame houses; mobile homes demolished; boxcars overturned; large trees snapped or uprooted; light-object missiles generated; cars lifted off ground.
F3	158-206	**Severe damage.** Roofs and some walls torn off well-constructed houses; trains overturned; most trees in forest uprooted; heavy cars lifted off the ground and thrown.
F4	207-260	**Devastating damage.** Well-constructed houses leveled; structures with weak foundations blown away some distance; cars thrown and large missiles generated.
F5	261-318	**Incredible damage.** Strong frame houses leveled off foundations and swept away; automobile-sized missiles fly through the air in excess of 100 meters (109 yds); trees debarked; incredible phenomena will occur.

Source: NOAA, http://www.spc.noaa.gov/faq/tornado/f-scale.html

* F-Scale Winds: These wind speeds are estimates and have not been scientifically verified. Different wind speeds may cause similar damage from place to place, and from building to building. Without a thorough engineering analysis of tornado damage in any event, the actual wind speeds needed to cause that damage are unknown.

The National Weather Service (NWS) rates a thunderstorm severe if it produces hail at least three-quarters of an inch in diameter, has winds of 58 miles per hour or higher, or produces a tornado. Thunderstorms may occur singly, in clusters or in lines. Some of the most severe weather occurs when a single thunderstorm affects one location for an extended time. Lightning is a major threat during a thunderstorm. Lightning is very unpredictable, which increases the risk to individuals and property. In the United States, 75 to 100 people are killed each year by lightning, although most lightning victims do survive (National Disaster Education Coalition, *Talking About Disaster*, p. TS-2).

History of Tornadoes/Severe Thunderstorms

The National Climatic Data Center (NCDC) Storm Event database contains reports on five incidences of tornado activity in Taney County between 1957 and 2004, four of which resulted in damages. The most costly event occurred on May 21, 1957 when an F2 tornado touched down, carving a 15-mile long path through the county. Although no specific damages are reported in the NCDC database, this event resulted in $250,000 in property losses. Table 3-4 outlines historical data about tornadoes.

Table 3-4: Tornado History – Taney County, 1957-2004					
Location	**Date**	**Magnitude**	**Death**	**Injury**	**Property Damage**
Taney	05/21/1957	F2	0	0	$250,000
Taney	05/18/1960	F0	0	0	$300
Taney	04/05/1965	F1	0	0	$25,000
Forsyth	04/27/1994	F0	0	0	$500
Forsyth	06/08/1995	F0	0	0	$0
Total			0	0	$275,800
Source: NCDC: http://www4.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwevent~storms					

In addition to tornadoes, other hazards associated with thunderstorms include strong winds. Between 1968 and 2004, Taney County experienced 68 thunderstorm winds events ranging in magnitude from 50 to 87 knots. Of those occurrences, eighteen resulted in a total of $709,000 in property damages and four injuries. Severe thunderstorms resulting in damage and/or injuries are listed in Table 3-5.

Table 3-5: Thunderstorm Winds History – Taney County, 1988-2004				
Location	**Date**	**Death**	**Injury**	**Property Damage**
Taney	08/17/1988	0	1	$0
Branson	09/13/1993	0	0	$50,000
Branson	04/11/1994	0	0	$50,000
Branson	06/08/1995	0	0	$3,000
Rockaway Beach	03/24/1996	0	0	$200,000
Chestnutridge	04/28/1996	0	0	$2,000
Branson	07/22/1996	0	0	$5,000
Rockaway Beach	07/09/1997	0	0	$1,000
Hollister	03/27/1998	0	0	$90,000
Forsyth	07/20/1998	0	0	$5,000
Forsyth	07/22/1998	0	0	$1,000
Branson	04/03/1999	0	0	$30,000
Ridgedale	05/17/1999	0	0	$3,000
Taneyville	08/11/1999	0	2	$50,000
Protem	01/03/2000	0	0	$5,000
Branson	03/26/2000	0	0	$4,000
Kirbyville	07/28/2000	0	0	$10,000
Branson	04/15/2001	0	1	$100,000
Taney	07/04/2004	0	0	$100,000
Total	-	0	4	$709,000
Source: NCDC, http://www4.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwevent~storms				

The most financially devastating thunderstorm event occurred on March 24, 1996 in Rockaway Beach. Thunderstorm winds damaged 2 boat docks and destroyed 20 boats totaling $200,000 in damages. Two events caused property damage totals of $100,000 each. The first event occurred on April 15, 2001 three miles west of Branson when 70-90 mph winds damaged trees and two homes under construction, destroyed a boat dock, and knocked down power lines. The number of trees and power lines knocked

down in southeast Taney County were so numerous that county roads were completely blocked for two days. The loss of power left 3,000 people without electricity for more than 18 hours. A woman was injured when the shed she occupied blew over. The second event occurred on July 4, 2004. Straight line winds damaged several structures in Branson and numerous trees and power lines were downed in the county.

The NCDC Storm Event database includes records of 72 hail events in Taney County since 1962, two of which reported property damages totaling $50,100. On May 9, 1998, golf ball sized hail fell in an area from Table Rock State Park northeast to the Highway 76 strip in Branson, damaging numerous vehicles. This event resulted in $50,000 in property damages. The second recorded hail event, resulting in $100 in damages, occurred in the Forsyth area on April 4, 1994. In addition to these two events, a thunderstorm wind event five miles north of Taneyville on August 11, 1999 resulted in slight injuries to two people hit by golf ball size hail as they ran for shelter from the storm.

One occurrence of property damages in the county from lightning has been recorded. On July 4, 2001, a lightning strike four miles northwest of Branson caused a house fire resulting in $25,000 in damages. The following table lists the hail and lightning events in Taney County which resulted in property damages and/or injury.

Table 3-6: Hail and Lightning History – Taney County, 1962-2004

Location	Date	Death	Injury	Property Damage
*Hail**				
Forsyth	04/15/1994	0	0	$100
Branson	05/09/1998	0	0	$50,000
Taneyville	08/11/1999	0	2	
Lightning				
Branson	07/04/2001	0	0	$25,000
*Of 72 hail events, two caused property damage.				
Source: NCDC, http://www4.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwevent~storms				

Statement of Future Probable Severity

The probability of future severity of tornado events is fairly predictable based on the F-Scale and distance from the path of the storm. Table 3-7 notes the probable severity of future tornado events based on F-Scale rankings.

Table 3-7: Tornado-Likelihood of Probable Future Severity in Taney County

F-Scale	Probable Severity
F0	Negligible
F1	Limited
F2	Critical
F3	Catastrophic
F4	Catastrophic
F5	Catastrophic

Statement of Probable Risk

According to the *Missouri State Hazard Analysis*, the State of Missouri averages 26 tornadoes per year. Based on the past occurrence of tornadoes in Taney County, there is a 10.5 percent probability that the county will experience a tornado in any given year. However, most prior tornado events have rated lower on the Fujita Scale. The county is highly likely to experience thunderstorm wind and hail events. Table 3-8 notes the risk of future tornadoes by F-Scale rank, while Table 3-9 notes the probable risk of thunderstorm events.

Table 3-8: Likelihood of Future Tornado Events Occurrence by F-Scale

F-Scale	# of Events	% Risk	Probable Risk of Occurrence
F0	3	6.3	Possible
F1	1	2.1	Possible
F2	1	2.1	Possible
F3	0	0.0	Unlikely
F4	0	0.0	Unlikely
F5	0	0.0	Unlikely

Table 3-9: Likelihood of Future Thunderstorm Events Occurrence

Event	# of Events	% Risk	Probable Risk of Occurrence
High Winds	68	188.9	Highly Likely
Hail	72	171.4	Highly Likely
Lightning	1	2.8	Possible

Statement of Next Disaster's Likely Adverse Impact on the Community

The power and destructive capability of tornadoes and severe thunderstorms are beyond mankind's ability to control and property damages, injury and deaths will result from these phenomena. However, advanced warning systems, improved construction techniques, and public education programs can reduce the adverse impacts of these hazards. The likely future adverse impact of tornadoes and severe thunderstorms in Taney County is summarized below:

Without Mitigation Measures:

Life Limited
Property Limited
Emotional Critical
Financial Limited

Comments: None

With Mitigation Measures:

Life Negligible
Property Limited
Emotional Limited
Financial Limited

Comments: None

Recommendations

Recommendations to mitigate the adverse impacts of tornado and severe thunderstorm hazards include enhancing advanced warning systems, increasing the availability of safe shelter, and reducing property damages through construction techniques. It is encouraged that NOAA weather alert radios be located in all facilities for public accommodation, all critical facilities and all vulnerable facilities such as schools, residential care facilities, senior centers and day care centers.

Recommended actions also include encouraging all incorporated areas to adopt building codes and/or amend existing codes to require mitigation standards, such as hurricane straps, for new construction, which can reduce damages to property.

Flood

(River flood, flash flood)

Description of Flood Hazard

A flood is a partial or complete inundation of normally dry land areas. Riverine flooding is defined as the overflow of rivers, streams, drains, and lakes due to excessive rainfall, rapid melting of snow and/or ice. There are several types of riverine floods including headwater, backwater, interior drainage, and flash flooding. Flash flooding is the most common type of flooding that has affected Taney County.

Flash flooding is characterized by rapid accumulation or runoff of surface waters from any source. This type of flooding can occur within six hours of a rain event, or after a dam or levee failure, or following a sudden release of water held by an ice or debris jam. Flash floods can catch people unprepared because they can develop in just a matter of hours. Most flood-related deaths result from this type of flood event.

Several factors contribute to flooding. Two key elements are rainfall intensity and duration. Intensity is the rate of rainfall, and duration is how long the rain lasts. Topography, soil conditions, and ground cover also play important roles. Most flash flooding is caused by slow-moving thunderstorms or heavy rains. Floods, on the other hand, can be fast-rising, but generally develop over a period of hours or days.

Urbanization further aggravates the flooding potential by increasing runoff two to six times over what would occur on natural terrain. As land is converted from fields or woodlands to urban uses, it loses its ability to absorb rainfall. During periods of urban flooding, streets can become swift moving rivers, while basements and viaducts can become death traps as they fill with water.

The areas adjacent to rivers and stream banks that serve to carry excess floodwater during rapid runoff are called floodplains. A floodplain is defined as the lowlands and relatively flat areas adjoining rivers and streams. The term “base flood,” or 100-year flood, refers to the area in the floodplain that is subject to a one percent or greater chance of flooding in any given year, based on historical records. Floodplains are a vital part of a larger entity called a basin, which is defined as all the land drained by a river and its branches (SEMA, *Missouri Hazard Analysis*, p. B-1).

Flooding may not necessarily be directly attributable to a river, stream, or lake. Rather, it may be the combination of excessive rainfall/snowmelt, saturated ground, and inadequate drainage. Water will flow to the lowest elevation, which is not always in a floodplain. Referred to as sheet flooding, this type of flooding is becoming more prevalent as development and increased rates of runoff outstrip the ability of the land and drainage infrastructure to carry and disperse the water.

History of Flood Events

A total of 30 flood events are recorded by the NCDC for Taney County between September 1993 and December 2004. The majority of these floods represent flash flooding causing road closures and minimal property and crop damages in the county. However, the NCDC records indicate five events which caused damage in Taney County. These events are listed in Table 3-10 and those more significant events for which specific damages are known are discussed below.

On September 24 of 1993, a flash flood affected the Rockaway Beach area and damaged or destroyed 150 mobile homes along Bull Creek, causing $5 million in damages. Extensive flooding also occurred statewide in 1994. Taney County was affected by flash flooding, but the NCDC database contains no specific information on damages incurred in the county. Taney County was also impacted by flood events of May 2002 that caused over $14 million in damages statewide. Flash flooding along Roark Creek on May 7, 2002 moved a large trailer 300 feet downstream and more than 30 homes were evacuated in the Village of Bull Creek as the creek overflowed its banks.

Table 3-10: Flood History – Taney County, 1993-2004

Location	Date	Type	Death	Injury	Property Damage	Crop Damage
Rockaway Beach	09/24/1993	Flash Flood	0	0	$5,000,000	$0
Branson	11/13/1993	Flash Flood	0	0	$50,000	$0
Central and Southern MO	04/11/1994	River Flood	0	0	$5,000,000 Statewide	$5,000,000 Statewide
Southwest MO	05/07/2002	Flood	0	0	$14,300,000 Statewide	$200,000 Statewide
Southwest MO	05/12/2002	Flood	0	0	$700,000	$0
Total	-	-	0	0	$25,050,000	$5,200,000

Source: NCDC, http://www4.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwevent~storms

Table 3-11 notes Federal Disaster Declarations for flood events in Missouri that included Taney County. The May 2002 disaster declaration designated Taney County eligible for public assistance, enabling the repair of roads and bridges damaged by the floods.

Table 3-11: Federal Disaster Declarations, Taney County Flood Events, 1993-2004

Date	DR#	Type of Assistance
May 2003	1463	Individual Assistance
May 2002	1412	Public Assistance
Summer 1993	995	Individual Assistance

Source: Federal Emergency Management Agency. *Federally Declared Disasters by Calendar Year*. http://www.fema.gov/library/drcys.shtm
Missouri State Emergency Management Agency. *Missouri Hazard Analysis*.

Statement of Future Probable Severity

Based on SEMA's Severity Ratings Table, the 1993 and 2002 floods would qualify as critical. However, most other flood events have had limited impact on quality of life, critical facilities and services, and property. Therefore, the probable severity of future floods could range from critical to negligible.

Table 3-12: Flood Event Ratings, 1993-2004

Event	Critical	Limited	Negligible
September 1993	X		
November 1993		X	
April 1994		X	
April 1995			X
June 1995 (2 events)			X
September 1996			X
July 1997			X
January 1998			X
March 1998			X
May 1998			X
February 1999			X
July 1999			X
August 1999			X
May 2000			X
June 2000			X
July 2000			X
June 2001			X
December 2001			X
April 2002 (2 events)	X		
May 2002 (4 events)	X		
August 2003			X
March 2004			X
April 2004 (2 events)			X
November 2004			X

Statement of Probable Risk

Taney County has 3 lakes and 25 rivers/creeks. This equates to 141 miles of stream, 494 acres of stream, and 11,853 acres of lake (the acres denotes standing water). There are several likely locations that can be affected by flooding,

The majority of incorporated jurisdictions within Taney County lie adjacent to Lake Taneycomo. Specifically, Branson, Hollister, Kirbyville, Merriam Woods, and Rockaway Beach are within the Lake Taneycomo watershed. Bull Creek is within the Lower Bull Creek watershed. Bradleyville and Taneyville are both in the Big Creek watershed. The Swan Creek watershed contains the City of Forsyth, as well as another portion of Taneyville. Specifically, historical records show Branson, Rockaway Beach and Bull Creek have been affected by flood events. Low lying areas throughout the rural areas of the county are also at risk for flash flooding.

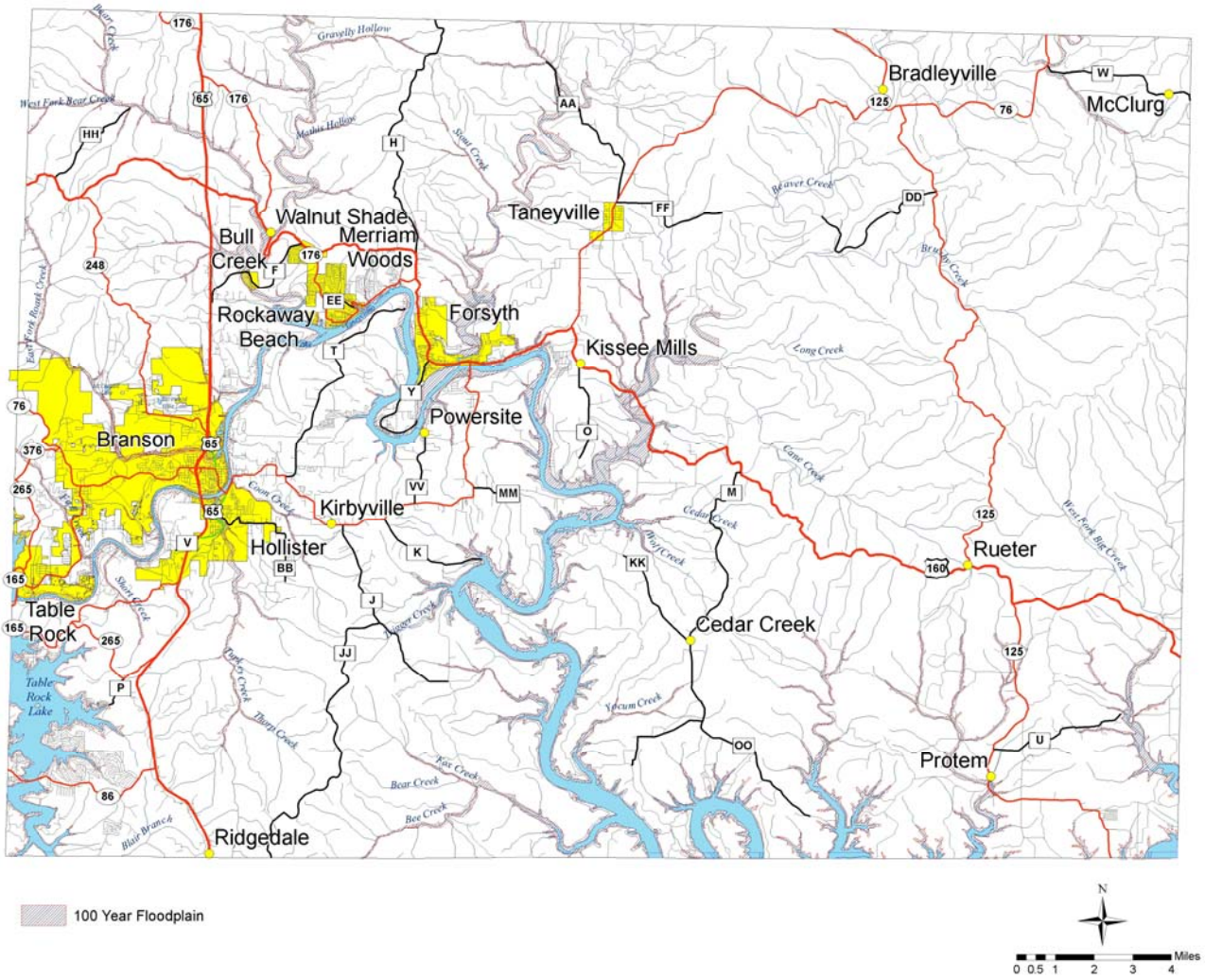
Seasonal patterns of flood events are shown in Table 3-13. The threat of flooding is a more natural occurrence in the spring, when late winter or spring rains, coupled with melting snow, fill river basins with too much water, too quickly. Spring also represents the onset of severe weather in the form of thunderstorms, tornadoes, and heavy rains which generate flash flooding along these storm fronts. However, as demonstrated by the events in Taney County, flooding can occur at anytime of the year. Based on the historical occurrence of flood events, Taney County is likely to experience one or more flood events in the months of April May and June.

Table 3-13: Flood Events by Month	
Month	**# of Events**
January	1
February	1
March	2
April	6
May	6
June	4
July	3
August	2
September	2
October	0
November	2
December	1

National Flood Insurance Program and Repetitive Losses

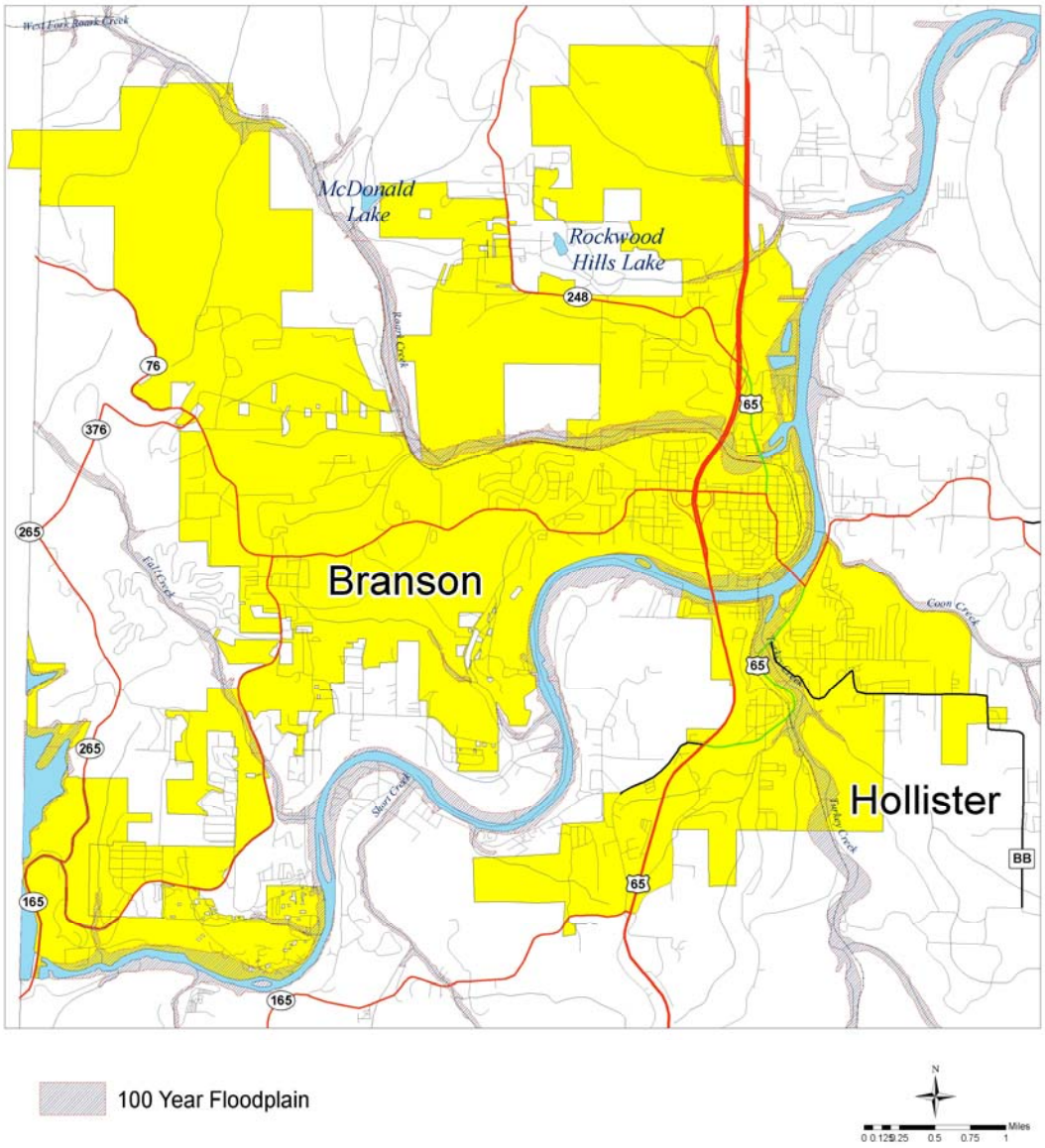
Taney County as well as Branson, Bull Creek, Hollister and Rockaway Beach belong to the National Flood Insurance Program. All have been mapped though Bull Creek uses the Taney County FIRM. Branson was last mapped in 1995, while Bull Creek, Hollister and Rockaway Beach were most recently mapped in 2000. Taney County itself was mapped in 2004 (see Part 2, Floodplain Management/Wetlands, page 2-42 for detailed information on NFIP participation). Information on repetitive losses to the NFIP in Taney County is listed in Appendix B. Figures 3-1 through 3-4 represent the 100-year floodplain areas within Taney County.

Figure 3-1: Taney County 100-Year Floodplain



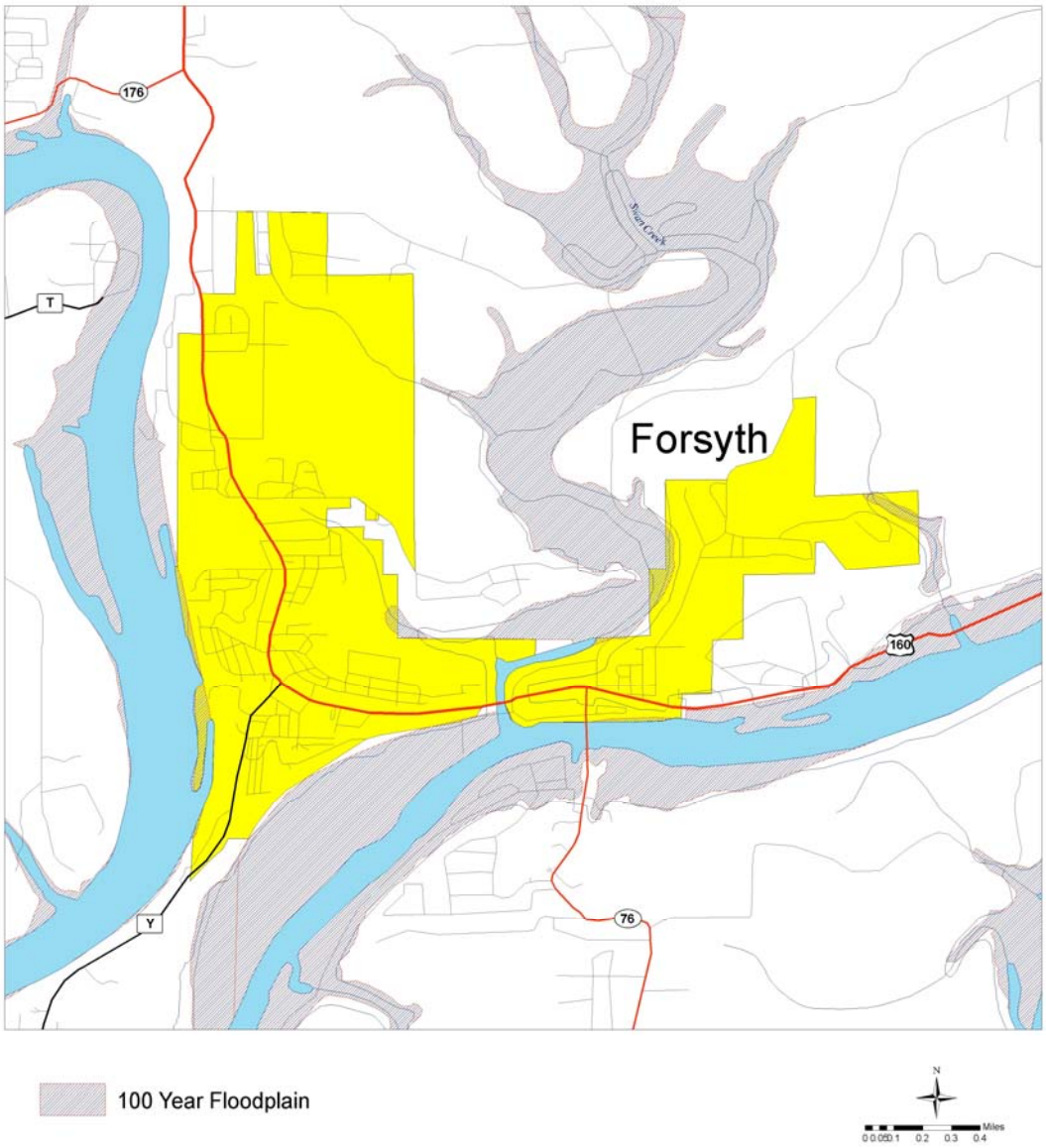
Source: Based on FEMA Q3 digital data derived from Missouri Spatial Data Information Service. For planning purposes only; not to be used for legal purposes.

Figure 3-2: Branson and Hollister 100-Year Floodplain



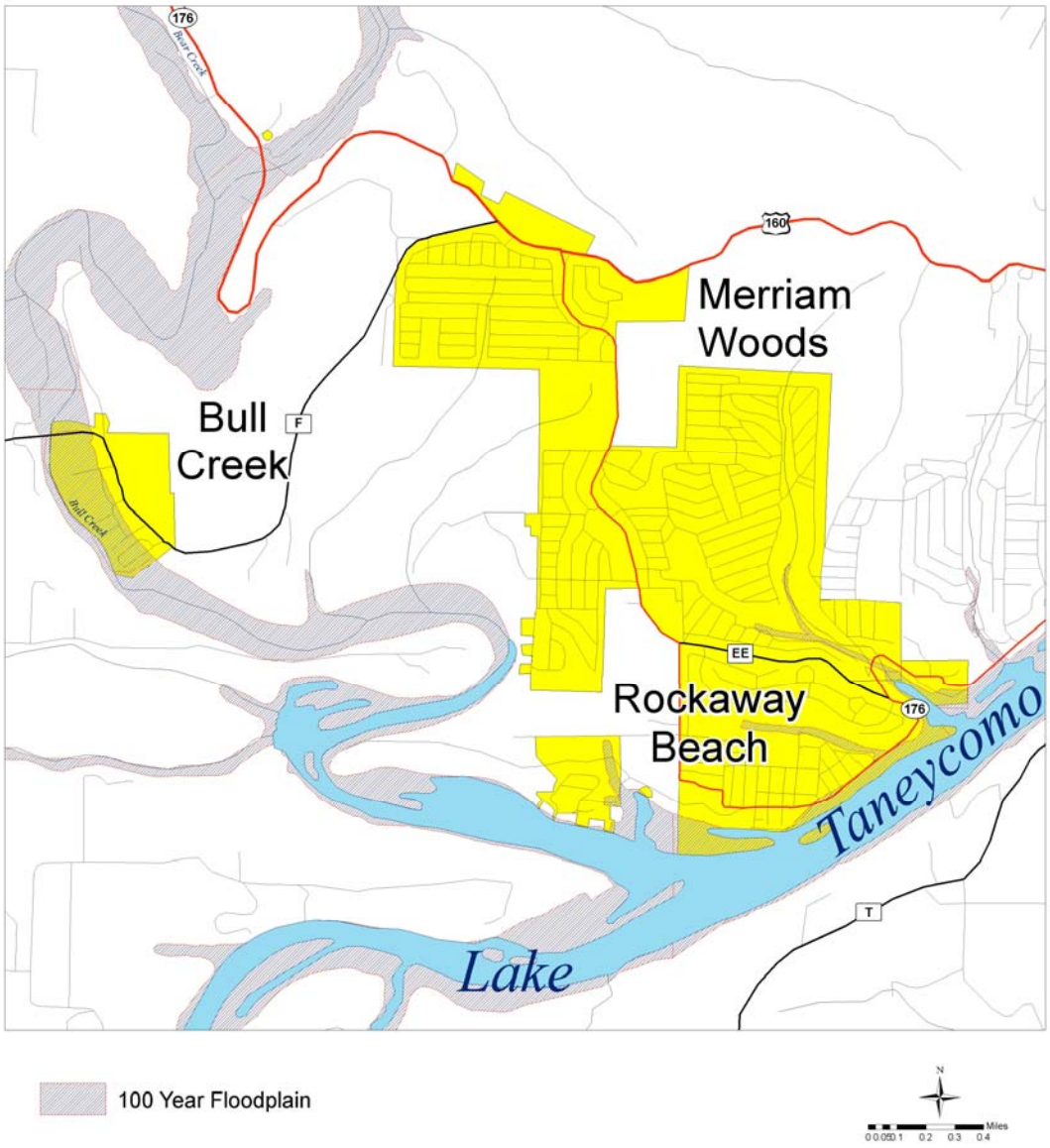
Source: Based on FEMA Q3 digital data derived from Missouri Spatial Data Information Service. For planning purposes only; not to be used for legal purposes.

Figure 3-3: Forsyth 100-Year Floodplain



Source: Based on FEMA Q3 digital data derived from Missouri Spatial Data Information Service. For planning purposes only; not to be used for legal purposes.

Figure 3-4: Bull Creek, Merriam Woods, and Rockaway Beach 100-Year Floodplain



Source: Based on FEMA Q3 digital data derived from Missouri Spatial Data Information Service. For planning purposes only; not to be used for legal purposes.

Statement of Next Disaster's Likely Adverse Impact on the Community

Another occurrence of disastrous flooding in Taney County could result in a repeat of the excessive damage caused by the floods of 2002 and 1993. The adverse impacts of future floods are shown below:

Without Mitigation Measures:

Life	Limited
Property	Critical
Emotional	Critical
Financial	Critical

Comments: The above values assume conditions at the time of the 1993 and 2002 floods.

With Mitigation Measures:

Life	Negligible
Property	Limited
Emotional	Limited
Financial	Limited

Comments: None

Recommendations

It is recommended that Taney County identify possible funding from state and federal programs to mitigate flood hazards. Other recommendations include encouraging communities that are not participating in the National Flood Insurance Program to join, identifying and taking action to remove water drainage obstructions, and encouraging collaborative planning and regulatory controls to promote infrastructure development practices that reduce the potential for flooding and property damages.

Severe Winter Weather

(Snow, ice, extreme cold)

Description of Severe Winter Weather Hazard

Severe winter weather, including winter storm, heavy snow, ice storms and extreme cold, can affect any area of Missouri. Heavy snow, ice storms and extreme cold can cause injuries, deaths and property/crop damage in a variety of ways. Winter storms are considered deceptive killers. This is because most deaths are indirectly related to the storm. Causes of death range from traffic accidents due to adverse driving conditions such as icy roads, to heart attacks caused by overexertion while shoveling snow and other related activities. Hypothermia or frostbite may be considered the most direct cause of death and injuries which can be attributed to winter storms and/or severe cold.

Heavy accumulations of ice can bring down trees, electric power lines and poles, telephone lines, and communications towers. Such power outages create an increased risk of fire, as home occupants seek the use of alternative fuel sources (wood, kerosene, etc. for heat, and fuel burning lanterns or candles for emergency lighting). Crops, trees

and livestock can be killed or injured due to deep snow, ice or severe cold. Buildings and automobiles may be damaged from falling tree limbs, power lines and poles, or collapse. Local governments, home and business owners and power companies may be faced with spending millions of dollars for restoration of services and debris removal.

A winter storm can range from a moderate snow over a few hours to blizzard conditions with blinding wind-driven snow that lasts several days. Some winter storms may be large enough to affect several states, while others may affect only a single community. Many winter storms are accompanied by low temperatures and heavy and/or blowing snow, which can severely reduce visibility. Sleet is raindrops that freeze into ice pellets before reaching the ground. Sleet usually bounces when hitting a surface and does not stick to objects; however, it can accumulate like snow and cause a hazard to motorists. Even small accumulations of ice can cause a significant hazard. An ice storm occurs when freezing rain falls onto a surface with a temperature below freezing; this causes it to freeze to surfaces, such as trees, cars, and roads, forming a glaze of ice. Communications and power can be disrupted for days, and even small accumulations of ice may cause extreme hazards to motorists and pedestrians.

Types of watches and warnings issued during severe winter weather are listed below:

Winter Weather Advisory: Winter weather conditions are expected to cause significant inconveniences and may be hazardous. If caution is exercised, these situations should not become life-threatening. Often the greatest hazard is to motorists.

Winter Storm Watch: Severe winter conditions, such as heavy snow and/or ice are possible within the next day or two.

Winter Storm Warning: Severe winter conditions have begun or are about to begin.

Blizzard Warning: Snow and strong winds will combine to produce a blinding snow (near zero visibility), deep drifts and life threatening wind chill.

History of Severe Winter Weather Events

Taney County has experienced 18 occurrences of winter storm, heavy snow, ice, and/or extreme cold since 1994. The events in which borderline conditions exist between freezing rain and icing conditions instead of rain or snow are highly unpredictable. Counties south of the Missouri River may receive an annual average of 8 to 12 inches. The duration of the more serious events combined with other factors, such as high winds, are also highly unpredictable. The degree of severity may be localized to a small area due to a combination of climatic conditions.

Table 3-14 summarizes severe winter weather events that impacted the region, including Taney County, between 1994 and 2004. Table 3-15 lists detailed information for those events with damages or losses recorded in the NCDC database. The following narratives describe the more significant severe winter weather events to affect Taney County.

Table 3-14: Severe Winter Weather History Summary – Taney County, 1994-2004					
Event Type	**# of Occurrences**	**Death**	**Injury**	**Property Damage**	**Crop Damage**
Winter Storm	11	0	0	$3,170,000	$0
Heavy Snow	3	0	0	$6,120,000	$0
Ice Storm	2	0	0	$400,000	$0
Extreme Cold	2	0	0	$125,000	$105,000
Total	18	0	0	$9,815,000	$105,000
Source: NCDC, http://www4.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwevent~storms					

Table 3-15: Severe Winter Weather History – Taney County, 1994-2004					
Event Type	**Date**	**Death**	**Injury**	**Property Damage**	**Crop Damage**
Winter Storm					
Southwest Missouri	01/18/1995	0	0	$100,000	$0
SW & Central MO	01/01/1996	0	0	$10,000	0
Southern Missouri	01/01/1999	0	0	$2,800,000	0
SW & SC MO	03/19/1999	0	0	$260,000	0
Ice					
Taney County	11/24/96	0	0	$400,000	0
Heavy Snow					
Southern Missouri	03/08/1994	0	0	$5,000,000	0
Central & Southern MO	01/08/1997	0	0	$670,000	0
Southern Missouri	12/12/2000	0	0	$450,000	0
Extreme Cold					
Southern Missouri	12/12/2000	0	0	$125,000	$105,000
Total				$9,660,000	$105,000
Source: NCDC. Storm Events Database, http://www4.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwevent~storms					

Of the eleven winter storms, the most damaging event to affect the region and Taney County occurred on January 1, 1999. This winter storm covered the larger region with freezing rain, sleet and snow, causing $2.8 million in property damages. The event's negative impact was mainly to downed power lines and trees from ice accumulation. Several counties were left without power and the more rural schools were closed for several days after the Christmas holiday. No deaths or injuries were directly related to these winter storm events.

Two ice storm occurrences in Taney County are recorded in the NCDC database. Of these, the ice storm of November 24, 1996 caused substantial damages in the county ($400,000 in property damages). This ice storm, the worst in 20 years, layered the ground with ice up to two inches thick, downed power lines and trees, created dangerous driving conditions, and closed schools and businesses in rural areas for up to a week.

Three heavy snow incidents since 1950 caused over $6 million in damages in the region. Heavy snow fall on March 8, 1994 affected numerous counties in southern Missouri, with Branson reporting 18 inches of snow from this event which caused $5 million in damages regionally. Damages in Taney County included broken tree limbs which

caused power outages, and collapse of numerous docks and damages to houseboats in the Branson area. No specific damages in Taney County are reported for the other two heavy snow events, although damages from these events throughout the region were primarily from collapse of roofs and carports, and snow removal costs.

Table 3-16 lists the records of snowfall extremes at the Ozark Beach recording station in Taney County.

Table 3-16: Snowfall Extremes, 1948-2001

Month	High (in)	Year	1-Day Max (in)	Date
January	17.3	1977	8.0	01-09-1977
February	13.6	1961	12.0	02-08-1980
March	28.5	1970	21.0	03-17-1970
April	2.0	1971	2.0	04-05-1971
May	0.0	-	-	-
June	0.0	-	-	-
July	0.0	-	-	-
August	0.0	-	-	-
September	0.0	-	-	-
October	0.5	1993	0.5	10-30-1993
November	7.0	1975	4.0	11-30-1974
December	11.3	1969	5.0	12-31-1969
Season(Jul-Jun)	49.3	1969-1970	21.0	03-17-1970

Source: http://mcc.sws.uiuc.edu/Snow/MO/236460_ssum.html

Two extreme cold events occurred in recent years in Southwest Missouri counties, including Taney County. One event beginning on December 12, 2000 and lasting until December 31, 2000, was described as having temperatures 10 to 20 degrees below normal. Snow conditions and cold weather made it difficult for farmers to feed their animals, and several calves in southwest Missouri died due to the stress of the cold. Total recorded loss to agriculture around the region from this event was $105,000.

Statement of Future Probable Severity

All types of winter weather will affect Taney County. Although Taney County has experienced several severe winter weather events that caused significant damages and economic loss, the overall severity of events is limited. There has been no past loss of life in Taney County. Primary roads are generally not closed for more than 24 hours. Schools may close for several days, but are not critical to the day-to-day operations of the county or municipalities. Most major business and government offices/services essential for day to day life continue to function. Since severe winter weather typically has not caused major disturbances in day to day life, future events statistically will not either.

Statement of Probable Risk

While severe winter weather is more prevalent north of the Missouri River, it frequently strikes all of Taney County during its seasonal pattern. No parts of the county are exempt from this natural hazard. Rural areas may see the effects of severe winter weather more than cities. Low amounts of traffic allow snow or ice to accumulate on unpaved roads making it difficult to plow. The severe winter weather may have a lesser effect on city residents where most roads are paved and city road crews can clear roads more frequently.

It is highly likely that Taney County will experience a severe winter weather event in any year. The risk of individual severe weather events is shown in Table 3-17.

Table 3-17: Likelihood of Future Severe Winter Weather Occurrence

Event Type	# of Events	% Risk	Future Occurrence
Winter Storm	10	58.8	Likely
Heavy Snow	3	17.6	Possible
Ice Storm	2	11.8	Unlikely
Extreme Cold	2	11.8	Unlikely

Statement of Next Disaster's Likely Adverse Impact on the Community

Based on recent history, the adverse impact on the community in Taney County winter storm events is shown below:

Without Mitigation Measures:

Life	Negligible
Property	Limited
Emotional	Critical
Financial	Critical

Comments: None

With Mitigation Measures:

Life	Negligible
Property	Limited
Emotional	Limited
Financial	Limited

Comments: None

Recommendations

A public awareness campaign regarding winter safety tips could help decrease the impact of winter storm events. It is also recommended that Taney County encourage the location of backup generators for critical water and sewer system facilities as well as other public facilities serving vulnerable populations.

Drought

Description of Drought Hazard

The impacts of drought are not limited to agriculture, but can extend to encompass the whole economy. Impacts can adversely affect a small town's water supply, the corner grocery store, commodity markets and tourism. According to the National Drought Mitigation Center, drought costs the U.S. economy $7-9 billion a year on average. While there's no cost estimate for the Drought of 1999-2000 that gripped Missouri and much of the nation, losses from the Great Drought of 1988-89 were assessed at $39 billion.

Drought's impact on society results from the interplay between a natural event (less precipitation than expected resulting from natural climatic variability) and the demand development places on groundwater reservoirs. A drought situation often is exacerbated by development practices that decrease the percolation of surface water into groundwater reservoirs. Recent droughts in both developing and developed countries and the resulting economic and environmental impacts have underscored society's vulnerability to this hazard.

Drought is defined as a period of prolonged dryness. Current drought literature commonly distinguishes between three categories of drought:

- Meteorological Drought – This is a reduction over time. This definition is regionally based. In the United States, this is indicated by less than 2.5 mm of rainfall in 48 hours, which is the first indication of drought.

- Agricultural Drought – This happens when soil moisture cannot meet the demands of a crop. This happens after a meteorological drought but before a hydrological drought.

- Hydrological Drought – This refers to reduction in surface and subsurface water supplies. This is measured through stream flow and lake, reservoir, and ground water levels.

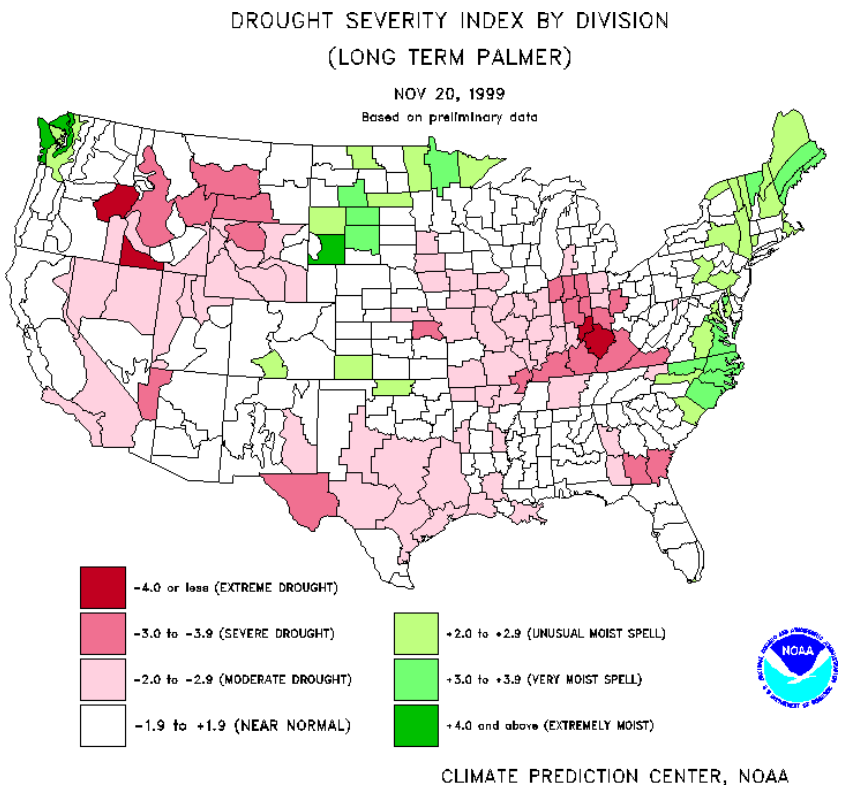
- Socioeconomic Drought – This occurs when water shortages affect people, either in terms of water supply or economic impacts (i.e. loss of crops so price increases).

The most commonly used indicator of drought and drought severity is the Palmer Drought Severity Index (PDSI), published jointly by NOAA and the United States Department of Agriculture. The PDSI measures the departure of water supply (in terms of precipitation and stored soil moisture) from demand (the amount of water required to recharge soil and keep rivers, lakes and reservoirs at normal levels). The result is a scale from +4 to -4, ranging from an extremely moist spell to extreme drought. By relating the PDSI number to a regional index, long-term wet or dry tendencies can be determined.

Regional indicators such as the PSDI are limited in that they respond slowly to deteriorating conditions. Also, observing surface conditions and groundwater measurements may provide only a snapshot of a very small area. Therefore, the use of

a variety of drought indicators is essential for effective assessment of drought conditions, with the PDSI being the primary drought severity indicator. Figure 3-5 displays the PDSI for the week of November 20, 1999 at the height of the 1999 drought.

Figure 3-5



Source: Climate Prediction Center, NOAA. http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/regional_monitoring/palmer/1999/11-20-1999.gif

History of Drought

In Missouri, the 1999-2000 droughts began in July of 1999 and developed rapidly into a widespread drought just three months later. The entire state was placed under a Phase I Drought Advisory level by DNR and the Governor declared an Agricultural Emergency. Agriculture reporting showed a 50 percent crop loss from the 50 of the 114 counties, with severe damage to pastures for livestock, corn crops, and soybeans. In October of 1999 the U.S. Agriculture Secretary declared a federal disaster, making low-interest loans available to farmers in Missouri and neighboring states. The drought intensity increased through autumn and peaked at the end of November 1999. That five-month period became known as the second driest period since 1895.

A wetter than normal winter diminished dry conditions in central and southern Missouri, but long-term moisture deficits continued to exist. Overall dry conditions returned through much of the state in March 2000, and costly wildfires and brush fires (26 total Missouri wildfires were reported in 1999-2000, National Climatic Data Center) erupted in many counties. By May the entire state was under a Phase II Drought Alert level. By

mid-July 2000 there was some relief for parts of the state but not enough. Several counties were still in a Phase II or were upgraded to Phase III Drought Conditions. Taney County was never upgraded; rather, the county was downgraded to normal levels by the end of July 2000. The three occurrences of recorded drought in the region, including Taney County, resulted in $660,000 in crop damage.

The American Water Works Association has outlined the phases of drought (shown below). This outline shows how severe Taney County's water shortage was during the droughts of 1999-2000. It also shows how a small percentage of a water shortage could have had an even larger affect on the economy.

Table 3-18: Stages of Drought	
Phase I – Watch	5-10 % shortage (voluntary reductions)
Phase II – Warning	10-20 % shortage (voluntary or mandatory reductions)
Phase III – Emergency	20-35% shortage (mandatory reductions)
Phase IV – Critical	35-50% shortage (mandatory reductions)
Source: http://www.awwa.org/Advocacy/pressroom/drought.cfm	

Statement of Future Probable Severity

Crops are the first to show the impact of drought. In Taney County, approximately 19 percent of land use is dedicated to agriculture. As drought increases, livestock water supplies become scarce and, finally, deep wells begin to fail. When good water becomes a scarce commodity and people must compete for the available supply, the importance of drought severity and duration increases dramatically.

Precipitation-related impacts on time scales ranging from a few days to a few months can include effects on wildfire danger, non-irrigated agriculture, topsoil moisture, pasture conditions, and unregulated stream flows. Lack of precipitation over a period of several months or years adversely affects reservoir stores, irrigated agriculture, groundwater levels, and well water depth. The Missouri Department of Natural Resources rates Taney County for moderate drought susceptibility.

MDNR's Drought Plan indicates southern Missouri's use of groundwater makes the area less susceptible to drought conditions. Also, due to the lack of row-crop farming in the area, the agriculture needs for water aren't as great (http://www.dnr.state.mo.us/geology/wrp/WR69.pdf). The tourism economy in Taney County may see the greatest impact of a drought. Using the American Water Works Association drought response system, the probable severity levels of a future drought are noted in Table 3-19.

Table 3-19: Severity of Drought – Taney County	
Phase	**Severity**
I	Negligible
II	Limited
III	Critical
IV	Critical

Statement of Probable Risk

It is possible for Taney County and the state of Missouri to experience a drought at any time throughout any given year. Table 3-20 shows the probable risk for Taney County experiencing any one phase of drought. While it is likely that Taney County could experience mild drought conditions, the probability of severe drought is unlikely.

Table 3-20: Likelihood of Drought – Taney County	
Phase	**Probable Risk**
I	Likely
II	Possible
III	Unlikely
IV	Unlikely

Statement of Next Disaster's Likely Adverse Impact on the Community

Based on recent history, the likely adverse impact of future Taney County droughts is shown below:

Without Mitigation Measures:

Life	Negligible
Property	Limited
Emotional	Limited
Financial	Limited

Comments: None

With Mitigation Measures:

Life	Negligible
Property	Negligible
Emotional	Negligible
Financial	Limited

Comments: None

Recommendations

The American Water Works Association recommends the following actions for the four stages of drought:

- Initiate public information campaign. Explain drought situation to the public and governmental bodies. Explain other stages and forecast future actions. Prepare and disseminate educational brochures, bill inserts, and so forth.

- Mandate voluntary conservation actions listed in Phase I. Continue rigorous public information campaign. Explain drought conditions. Disseminate technical information. Ask consumers for 10 to 20 percent mandatory or voluntary water-use reductions (depending on available supplies for future years).

- Institute rationing programs through fixed allotments based on per capita or per household data. Outside allotment can be based on lot size, past usage, or other data. Require all homes to have low-flow showerheads and toilet displacement devices or ULF toilets before granting an increased allotment. Require pool covers for all municipal pools.

- All of emergency stage (Phase III) steps intensified. Monitor production for compliance with necessary reductions weekly. Allocate water on a per capita or per household basis for residential customers and apartments. No additional water for outdoor or summer usage. No potable water used by landscape meters. There are many drought contingency plans in place across the country. Some use a staged approach as described here. Others, however, are embracing the modern approach of drought preparedness - to put into place programs and projects to minimize and/or avoid drought impacts. This has been a major endeavor at a national level.

Heat Wave

Description of Heat Wave Hazard

According to NOAA, heat is the number two killer among natural hazards. In contrast to the visible, destructive, and violent nature of floods, hurricanes, and tornadoes, a heat wave is a silent killer. Heat kills by overloading the human body's capacity to cool itself. In the disastrous heat wave of 1980, more than 1,250 people died nationwide. In a normal year, about 175 Americans succumb to the bodily stresses of summer heat.

Air temperature is not the only factor to consider when assessing the likely effects of a heat wave. High humidity, which often accompanies heat in Missouri, can increase the harmful effects of heat. Relative humidity must also be considered, along with exposure, wind, and activity. The Heat Index devised by the NWS combines air temperature and relative humidity. Also known as the *apparent* temperature, the Heat Index is a measure of how hot it really feels. For example, if the air temperature is 102 degrees and the relative humidity is 55 percent, then it feels like 130 degrees, 28 degrees hotter than the actual ambient temperature.

Table 3-21: Heat Index Chart (Temperature & Relative Humidity)

RH	Temperature (° F)															
(%)	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105
90	119	123	128	132	137	141	146	152	157	163	168	174	180	186	193	199
85	115	119	123	127	132	136	141	145	150	155	161	166	172	178	184	190
80	112	115	119	123	127	131	135	140	144	149	154	159	164	169	175	180
75	109	112	115	119	122	126	130	134	138	143	147	152	156	161	166	171
70	106	109	112	115	118	122	125	129	133	137	141	145	149	154	158	163
65	103	106	108	111	114	117	121	124	127	131	135	139	143	147	151	155
60	100	103	105	108	111	114	116	120	123	126	129	133	136	140	144	148
55	98	100	103	105	107	110	113	115	118	121	124	127	131	134	137	141
50	96	98	100	102	104	107	109	112	114	117	119	122	125	128	131	135
45	94	96	98	100	102	104	106	108	110	113	115	118	120	123	126	129
40	92	94	96	97	99	101	103	105	107	109	111	113	116	118	121	123
35	91	92	94	95	97	98	100	102	104	106	107	109	112	114	116	118
30	89	90	92	93	95	96	98	99	101	102	104	106	108	110	112	114

Note: *Exposure to full sunshine can increase HI values by up to 15° F*

Source: LiveWeather Images. http://www.weatherimages.org/data/heatindex.html

To find the Heat Index, locate the air temperature along the top of the chart and the relative humidity along the left side. Where the two intersect is the Heat Index for any given time of day.

History of Heat Wave

Table 3-22 shows the recent heat waves to hit in and around Taney County and their effects. These seven occurrences span several counties throughout Southern Missouri. At least 120 people reported heat-related illnesses during these events, and 16 deaths were reported. Although none of the deaths occurred in Taney County, it is possible that death or illness from a heat wave event could occur in the future. The event of 1994 also caused $50,000 in crop damages within the region.

Table 3-22: Taney County Regional Heat Waves, 1994-2004

Date	Heat Index (°F)	Deaths
June 12, 1994	100+	4
July 23, 1999	105-115	6
August 1, 1999	100+	2
August 27, 2000	100-110	1
September 1, 2000	100	0
July 17, 2001	100+	1
August 1, 2001	100-110	2

Source: NCDC. http://www4.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwevent~storms

Statement of Future Probable Severity

Based on 30-year statistics from the National Weather Service indicating the state's mean number of days above 90 degrees during the summer months, Missouri is vulnerable to heat waves ranging from high to moderate risk in the July and August months. The NWS has developed a Heat Index/Heat Disorder Chart that relates ranges of HI with specific disorders, particularly for people in higher risk groups.

Table 3-23: Heat Index/Heat Disorder

Heat Index (°F)	Heat Disorder
130° or higher	Heat stroke/sunstroke likely with continued exposure
105° to 129°	Sunstroke, heat cramps or heat exhaustion likely and heat stroke possible with prolonged exposure and/or physical activity
90° to 104°	Sunstroke, heat cramps and heat exhaustion possible with prolonged exposure and/or physical activity
80° to 89°	Fatigue possible with prolonged exposure and/or physical activity

Source: NWS: http://www.nws.noaa.gov/om/heat/index.shtml

The National Weather Service has designated three response levels based upon the Heat Index in order to alert the public to the potential heat hazard:

Table 3-24: Heat Wave Response Levels

Heat Index	Response Level
Heat Index 115+ F for 3+ hours w/Minimum Heat Index mid-70's F for 24 hours or Heat Index 105+ F w/Minimum Heat Index mid-70's F for more than 3 days	Warning
Heat Index 105+ F for 3+ hours w/Minimum Heat Index mid-70's F for 24 hours	Advisory
Potential for Excessive Heat Warning	Watch

Source: NOAA National Weather Service Forecast Office – Springfield, Missouri

Based on information from the Department of Health and the National Weather Service, the State rates the probability as moderate and severity as moderate, but could be upgraded to severe.

Table 3-25: Heat Wave Severity Levels	
Heat Index of 130˚F or higher	**Catastrophic**
Multiple deaths	Highly Likely
Multiple injuries	Highly Likely
Property damage	Likely
Crop damage	Likely
Heat Index of 105˚F to 129˚F	**Critical**
Multiple deaths	Possible
Multiple injuries	Likely
Property damage	Possible
Crop damage	Likely
Heat Index of 90˚F to 104˚F	**Limited**
Multiple deaths	Unlikely
Multiple injuries	Unlikely
Property damage	Possible
Crop damage	Possible
Heat Index of less than 90˚F	**Negligible**
Multiple deaths	Unlikely
Multiple injuries	Possible
Property damage	Unlikely
Crop damage	Possible

There are several risk factors associated with heat-related death and illnesses, such as lack of air conditioning, age, or outdoor activities. Heat-related death and illness can occur with exposure to intense heat in just one afternoon, as well as continuous exposure. Heat stress caused by continuous exposure has a cumulative effect.

In addition to the human toll, the MCC, in a paper on the 1999 heat wave, points out the other possible impacts on our environment. These impacts include infrastructure damage and failure, highway damage, crop damage, water shortages, livestock deaths, fish kills, and lost productivity among outdoor-oriented businesses. The future probably severity for Taney County is shown below according to severity levels.

Statement of Probable Risk

The National Weather Service defines a heat wave as three consecutive days of 90°F plus temperatures. These high temperatures generally occur from June through September, but are most prevalent in the months of July and August. Missouri experiences about 40 days per year above 90 degrees, based on a 30-year average compiled by the NWS from 1961-1990. July leads this statewide mean with 15 days above 90 degrees, followed by August with an average of 12 days over 90. June and September average 6 days and 4 days respectively for temperatures above 90 during the same 30-year period. In the Southwest region of Missouri, including Taney County, days with temperatures of 90 degrees and above generally occur during the month of July. A review of the data for 1999-2002 shows Taney County could experience a brief heat wave every year. Table 3-26 shows the county's risk of experiencing heat waves is shown below according to Heat Index severity levels.

Table 3-26: Likelihood of Probable Severity – Heat Wave	
Index	**Probable Risk**
Extreme Danger	Unlikely
Danger	Possible
Extreme Caution	Likely
Caution	Highly Likely

Statement of Next Disaster's Likely Adverse Impact on the Community

Heat waves are often a major contributing factor to power outages (brownouts, etc.) as the high temperatures result in a tremendous demand for electricity for cooling purposes. Power outages for prolonged periods increase the risk to heat stroke and subsequent fatalities due to loss of cooling and proper ventilation. Other interrelated hazards include water shortages, brought on by drought-like conditions and high demand. Local advisories which list priorities for water use and rationing are common during heat waves. Civil disturbances and riots are more likely to occur during heat waves, as well as incidents of domestic violence and abuse, government authorities report. The adverse impacts of future heat waves on Taney County are shown below:

Without Mitigation Measures:

Life	Limited
Property	Limited
Emotional	Critical
Financial	Limited

Comments: None

With Mitigation Measures:

Life	Negligible
Property	Negligible
Emotional	Limited
Financial	Limited

Comments: None

Recommendations

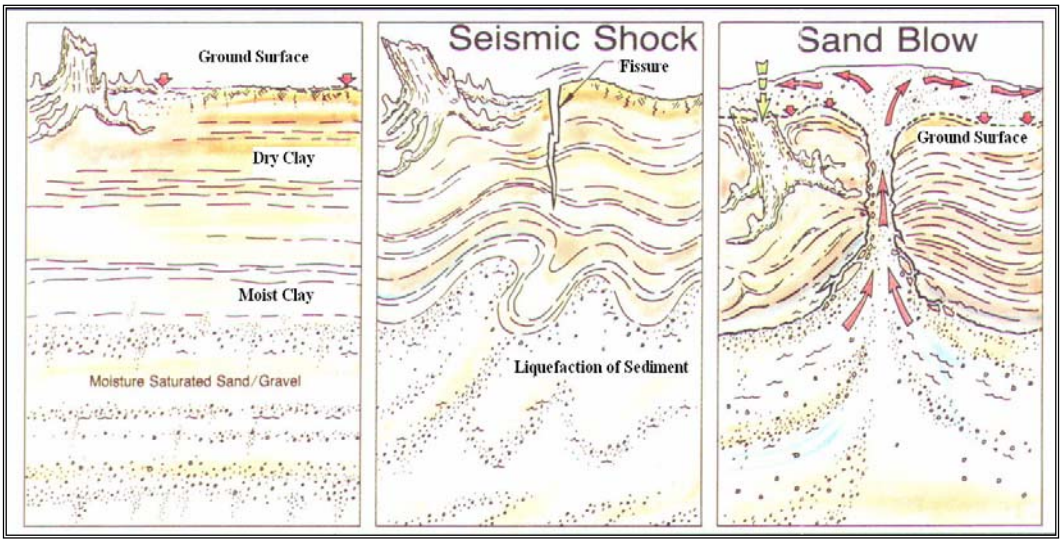
Recommendations to reduce the negative effects of heat wave include encouraging local newspapers to publish a special section with emergency information in extreme heat, covering health precautions and conservation of water and energy. A program should be developed through the local school system to encourage children to think of those persons who may require special assistance such as elderly people, infants, and those with disabilities. It is also recommended that information be distributed encouraging citizens to retrofit their homes to become more energy efficient.

Earthquakes

Description of Earthquake Hazard

According to SEMA, earthquakes can be defined as shifts in the Earth's crust causing the surface to become unstable. This instability can manifest itself in intensity from slight tremors to large shocks. The duration can be from a few seconds up to five minutes. The period of tremors and shocks can last up to several months. The larger shocks can cause ground failure, landslides, uplifts, liquefaction and sand blows. Figure 3-6 shows the ground as normal and how the shock of an earthquake can create liquefaction and sand blows.

Figure 3-6: Earthquake Shock



Source: http://www.gsa.state.al.us/gsa/EQ2/newmad.html

The earth's crust is made up of gigantic plates, referred to as tectonic plates. These plates form the lithosphere and vary in thickness from $6^1/_2$ miles (beneath oceans) to 40 miles (beneath mountain ranges) with an average thickness of 20 miles. These plates "float" over a partially melted layer of crust called the athenosphere. The plates are in motion and where a plate joins another, they form boundaries. Plates moving toward each other are called a convergent plate boundary. Plates moving away from each other are called a divergent plate boundary. The San Andreas Fault in California is a horizontal motion boundary, where the Pacific plate is moving north while the North American plate is moving west. These movements release built up energy in the form of earthquakes, tremors, and volcanism (volcanoes). Fault lines such as the San Andreas come all the way to the surface and can be readily seen and identified. There are also fault lines that do not come all the way to the surface (subterranean faults), yet they can store and release energy when they adjust (Missouri State Emergency Management Agency, *Missouri Hazard Analysis*, F-1).

The subterranean faults were formed many millions of years ago on or near the surface of the earth. Subsequent to that time, these ancient faults subsided, while the areas adjacent were pushed up. As this fault zone (also known as a rift) lowered, sediments filled in the lower areas. Under pressure, the sediments hardened into limestones, sandstones, and shales – thus burying the rifts. The pressures on the North American plate and the movements along the San Andreas Fault by the Pacific plate have reactivated the buried rift(s) in the Mississippi embayment. This rift system is called the Reelfoot Rift.

History of Earthquakes

Four earthquake source zones -- the New Madrid Fault, the Wabash Valley Fault, the Illinois Basin and the Nemaha Uplift -- could affect Taney County because of their close proximity. The New Madrid poses the greatest threat and has the longest history of activity. This fault runs from north Arkansas through southeast Missouri, western Tennessee and Kentucky. During the winter of 1811-1812 three earthquakes estimated

to have been magnitude 7.5 or greater were centered on the New Madrid fault in southeast Missouri. Thousands of aftershocks continued for years. Since 1811, 35 events of magnitude 5.0 or greater have affected Missouri and several surrounding states.

Significant earthquakes, each about magnitude 6, occurred in 1843 near Marked Tree, Arkansas, and on October 31, 1895 near Charleston, Missouri. In November 1968, a magnitude 5.5 earthquake centered in southeastern Illinois caused moderate damage to chimneys and walls at Hermann, St. Charles, St. Louis, and Sikeston, Missouri. The afflicted areas included all, or portions, of 23 states. Smaller earthquakes have occurred throughout southeastern parts of Missouri. While the magnitude of the earthquakes may not be as great they are still destructive and dangerous. Several smaller earthquakes can weaken structures and foundations, placing such structures in danger of collapse during an earthquake of greater magnitude.

Statement of Future Probable Severity

In 2003, the United States Geological Survey (USGS) and the Center for Earthquake Research and Information at the University of Memphis (CERI) updated forecasts of earthquake probability in the New Madrid fault zone. The probability of a magnitude 6.0 or greater earthquake is 25 to 40 percent through the year 2053. The probability of a repeat of the 1811-1812 earthquakes, estimated at a 7.5 to 8.0 magnitude, is seven to 10 percent through the year 2053 (USGS, *Scientists Update New Madrid*). With almost 12.5 million people living in the area, steps are being taken to reduce the hazard to the citizens and property in the area. Based on the information from CERI, the probability of an earthquake is rated as moderate and the severity is rated high.

New Madrid earthquake damage covers over more than 20 times the area of the typical California earthquake because of the underlying geology in the Midwest. Ground shaking affects structures close to the earthquake epicenter but also can damage structures far away. Certain types of buildings at a significant distance from the earthquake epicenter, such as unreinforced masonry structures, tall structures without adequate lateral resistance, and poorly maintained structures are specifically susceptible to large earthquakes.

While the Richter Scale is a measurement of the energy released by an earthquake, the effects of an earthquake will vary from place to place. The Modified Mercalli Intensity Scale is used by seismologists to describe the effects of an earthquake, at a given place, on the natural environment, the built environment and people. An abbreviated description of the Modified Mercalli Intensity Scale is noted below:

I. Not felt except by a very few under especially favorable conditions.
II. Felt only by a few persons at rest, especially on upper floors of buildings.
III. Felt quite noticeably by persons indoors, especially on upper floors of buildings. Many people do not recognize it as an earthquake. Standing motor cars may rock slightly. Vibrations similar to the passing of a truck. Duration estimated.
IV. Felt indoors by many, outdoors by few during the day. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motor cars rocked noticeably.
V. Felt by nearly everyone; many awakened. Some dishes, windows broken. Unstable objects overturned. Pendulum clocks may stop.

VI. Felt by all, many frightened. Some heavy furniture moved; a few instances of fallen plaster. Damage slight.

VII. Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable damage in poorly built or badly designed structures; some chimneys broken.

VIII. Damage slight in specially designed structures; considerable damage in ordinary substantial buildings with partial collapse. Damage great in poorly built structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned.

IX. Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb. Damage great in substantial buildings, with partial collapse. Buildings shifted off foundations.

X. Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations. Rails bent.

XI. Few, if any (masonry) structures remain standing. Bridges destroyed. Rails bent greatly.

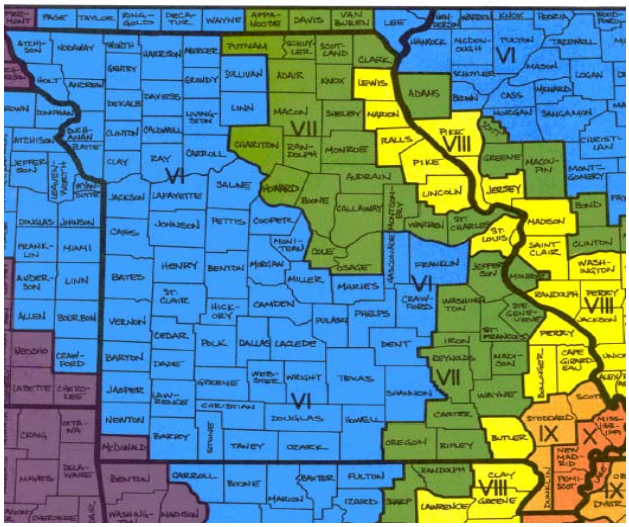
XII. Damage total. Lines of sight and level are distorted. Objects thrown into the air.

Abridged from *The Severity of an Earthquake,* a U. S. Geological Survey General Interest Publication.
Source: http://pubs.usgs.gov/gip/earthq4/severitygip.html

Indirect hazards may also occur at great distances from large earthquakes. Liquefaction (disintegration of alluvial soils), landslides and life-line disruptions will most affect areas closest to the epicenter, but may occur at significant distances. Secondary effects could include fire, building collapse, utility disruption, flooding, hazardous materials release, environmental impacts and economic disruptions/losses.

SEMA's Projected Earthquake Intensities indicate Taney County is at risk for a Level V impact on the Modified Mercalli Intensity Scale from a 6.7 magnitude earthquake; Level VI in a 7.6 magnitude earthquake; or Level VII in the event of an 8.6 magnitude earthquake centered within the New Madrid Fault. Figure 3-7 shows the highest projected Modified Mercalli intensities by county from a potential magnitude 7.6 earthquake whose epicenter could be anywhere along the New Madrid seismic zone.

Figure 3-7: Projected Earthquake Intensities, 7.6 Magnitude



The future probable severity for earthquakes at each level on the Modified Mercalli Scale is shown in Table 3-27.

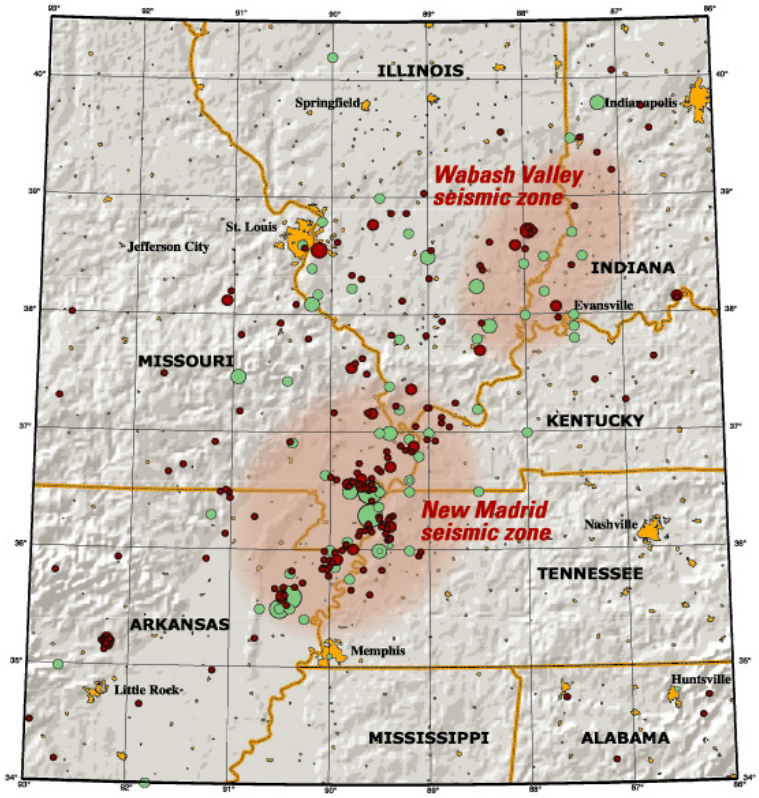
Table 3-27: Earthquake Probable Severity	
Modified Mercalli levels	**Future Probable Severity**
I-V	Negligible
VI	Limited
VII	Critical
VIII-XII	Catastrophic

Statement of Probable Risk

Current estimates of the recurrence intervals of a 6.0 or greater magnitude earthquake is approximately 100 years and the recurrence interval for a higher magnitude earthquake similar to the 1811-1812 earthquakes is about 500 years. Small quakes along the New Madrid fault occur in Missouri about every eight days, but are usually not noticeable.

The following figure depicting the Wabash Valley and New Madrid seismic zones shows earthquakes prior to 1974 as well as those quakes detected with the help of advanced sensor technology after 1974. Darker (red) circles indicate earthquakes that occurred from 1974 to 2002 with magnitudes greater than 2.5, located using modern instruments (University of Memphis). Lighter (green) circles denote earthquakes that occurred prior to 1974. Larger circles indicate larger earthquakes (USGS, Fact Sheet FS-131-02).

Figure 3-8: Wabash Valley and New Madrid Earthquakes



Source: http://pubs.usgs.gov/fs/fs-131-02/fs-131-02.pdf

Based on the history of seismic activity in the New Madrid Fault zone and the forecasts developed by the USGS and CERI, there is a 25-40 percent chance that an earthquake of magnitude 6.0 or greater will occur within the next 50 years. Taney County lies a distance from the New Madrid Fault, and the impact of a low level earthquake would be negligible. The more severe threat stems from an earthquake producing Modified Mercalli impact levels of VII-XII.

Table 3-28: Probable Risk of Earthquake

Modified Mercalli Levels	Risk
I-V	Likely
VI	Possible
VII	Possible
VIII-XII	Unlikely

Statement of Next Disaster's Likely Adverse Impact on the Community

Since Taney County is located a distance away from the New Madrid Fault, it is likely that the impacts of an earthquake will be negligible. However, many people are unaware of earthquake hazards and the possible damages that could occur from a higher magnitude earthquake. Including information on earthquake risk in education programs on natural hazards could be beneficial to Taney County residents. The likely adverse impact of a Level VI earthquake on Taney County is:

Without Mitigation Measures:

Life	Negligible
Property	Negligible
Emotional	Limited
Financial	Limited

Comments: None

With Mitigation Measures:

Life	Negligible
Property	Negligible
Emotional	Negligible
Financial	Negligible

Comments: Education, building regulation enhancements, and infrastructure enhancements will help to minimize building damage and injuries.

Recommendations

Although it is likely that the adverse impacts of an earthquake will be negligible, there could be some damages to poorly constructed or poorly anchored structures from ground shaking. It is recommended that the development of the Geographic Information System for the County be continued so that sound decisions may be made based upon data pertaining to the community. Also, informational materials on hazards distributed to the public should contain information on the possible effects of earthquakes.

Dam Failure

Description of Dam Failure Hazard

A dam is defined by the National Dam Safety Act as an artificial barrier that impounds or diverts water and (1) is at least 6 feet high and stores at least 50 acre-feet of water, or (2) is at least 25 feet high and stores at least 15 acre-feet. Of the 80,000-plus dams in the United States, less than 5 percent are under the control of the federal government.

Missouri had 4,100 recorded dams in 1995, the largest number of man-made dams of any state in the country. Missouri's topography allows lakes to be built easily and inexpensively, which accounts for the high number of dams. Despite such a large number, only about 620 Missouri dams (20 percent) fall under state regulations, while another 85 dams are federally controlled. A non-federal dam can be anything from a large farm pond to Bagnell Dam which created the Lake of the Ozarks. The great majority of nonfederal dams are privately owned structures that were built either for agriculture or for recreational use. Missouri also has some 600 dams which were built as small watershed projects under Public Law-566 (Watershed Protection and Flood Prevention Act of 1953).

These dams serve many functions, including flood control, erosion control, recreation, fish and wildlife habitat, water supply, and water quality improvement. Many are nearing the end of their 50-year lifespan and are in need of repair. Another group of older dams in the state was originally built by railroads to create drinking water reservoirs for the towns where the railroads were built.

Within the State of Missouri, the Department of Natural Resources maintains a Dam and Safety Program within the Division of Geology and Land Survey. The objective is to ensure that the dams are safely constructed, operated, and maintained pursuant to Chapter 236 Revised Statutes of Missouri. Under state statute, a dam must be 35 feet or higher to be state regulated. These dams are surveyed by state inspectors at least every five years. However, the majority of Missouri dams are less than 35 feet high and thus, not regulated. While the State has for many years encouraged dam owners to do owner inspections for those dams not under the law, the condition of many of these dams is deteriorating.

The Department of Natural Resources Geological Survey and Resources Assessment Division resumed inspecting regulated dams effective July 1, 2004. Because of budget cuts in FY 2003, dam owners were required to hire private professional engineers to conduct dam surveys for required permits.

While the state has ultimate responsibility for public safety, dam owners have primary responsibility for the safe design, operation and maintenance of their dams. They are responsible for providing early warning of problems at the dam, for developing an effective emergency action plan, and for coordinating that plan with local officials.

MDNR's Dam Safety Division maintains a database of all dams regardless of federal, state, local or private ownership.

Oversight is extremely valuable to the owners as well as those people living downstream of the dam who could be flooded in the event the dam should fail. Dams can fail for many reasons. The most common are:

- Piping: internal erosion caused by embankment leakage, foundation leakage and deterioration of pertinent structures appended to the dam.

- Erosion: inadequate spillway capacity causing overtopping of the dam, flow erosion, and inadequate slope protection.

- Structure Failure: caused by an earthquake, slope instability or faulty construction.

These failure types often are interrelated. For example, erosion, either on the surface or internal, may weaken the dam or lead to structural failure. Additionally, a structural failure may shorten the seepage path and lead to a piping failure.

History of Dam Failure

Dam failures in the United States have resulted in death, injuries and billions of dollars in property damage. Dam failure events in Missouri include dams in Lawrenceton in 1968, Washington County in 1975, Fredericktown in 1977, and a near failure in Franklin County in 1978.

Statement of Future Probable Severity

The Missouri Department of Natural Resources categorizes dam failure hazard as:

- High Hazard - If the dam were to fail, lives would be lost and extensive property damage could result.

- Significant Hazard - Failure could possibly result in the loss of life and appreciable property damage.

- Low Hazard - Failure results in only minimal property damage.

There are eight dams in Taney County. The most significant is the Table Rock Dam. Built in 1958, the dam created Lake Taneycomo and is managed by the Corps of Engineers out of Little Rock, Arkansas. Dams over 35 feet high are regulated by the State. In Taney County, though 4 dams are higher than 35 feet, two are federally regulated while Silver Creek Lake Dam and Cross Creek Dam remain State regulated. The majority of the dams in Taney County are used for recreational purposes, though Table Rock and Ozark Beach are used for hydroelectric power. Table Rock is also used for flood control.

Silver Creek Dam, however, poses an immediate threat due to its current condition. The dam has been identified both by SEMA and the Association of State Dam Safety

Officials as unsafe and in need of immediate repair. The dam is heavily eroded due to an improperly located spillway discharge channel on the east end of the dam. The failure of this dam would threaten the safety of one permanent residence, reduce property values of those residences located adjacent to the lake shoreline, as well as take out a section of Missouri 176 while dumping tons of silt into Lake Taneycomo. One of the biggest barriers to repairing this dam is its status as abandoned. Investigations into the location of the dam owners have proven fruitless since 1994. (http://www.damsafety.org/documents/pdf/Missouri.pdf) Figure 3-9 shows the extent of current damage to the Silver Creek Dam.

Table 3-29: Taney County Dams

Dam #	Official Name	River/Stream	Year Built	Ht.	Res. Area	State Reg.	Hazard Level
1	Oakmont Resort Dam	Unnamed Tributary to White River	0	34	1	No	L
2	Fall Creek Dam	Fall Creek	0	32	20	No	H
3	Silver Creek Lake Dam	Silver Creek	1982	41	30	Yes	S
4	Shepard of the Hills Historical Society Dam	Roark Creek	1971	33	4	No	L
5	Rockwood Hills Lake Dam	Bee Creek	1972	25	3	No	H
6	Table Rock Dam	White River	1959	252	0	Federal	H
7	Ozark Beach Dam	White River	1913	58	3,020	Federal	L
8	Cross Creek Dam	Unnamed Tributary to White River	2004A	40	2.8	Yes	L

Source: Missouri Department of Natural Resources. Dam Safety Program.

Figure 3-9: Erosion at Silver Creek Dam

Source: http://www.damsafety.org/documents/pdf/Missouri.pdf

Failure of Table Rock Dam would pose significant danger for those within the path of inundation. According to the *Taney County Emergency Operations Plan*, failure would result in a flash flood along the White River Basin to the east of the dam. Depending on the number of tourists present, this type of flooding could affect thousands of people as well as properties. The Army Corps of Engineers estimates over 6 million visitors a year.

As in all dam failures, the total impact depends upon the warning time allowed for evacuation and the water levels of the current system. The dam failure inundation path for Table Rock Dam would most affect Branson, Hollister and Bull Creek, with less impact on Merriam Woods, Rockaway Beach, and Forsyth. Ozark Beach Dam would also be affected if Table Rock Dam fails. Bradleyville and Kirbyville, though, would not be affected by the inundation of flood waters from a breach of the dam.

Statement of Probable Risk

The age and ownership of the dams are the most significant factors affecting the risk of dam failure. Dam failure may occur in a number of ways and the resultant impacts would be dependent on the type of failure. Therefore, without exact information, assessing risk is difficult. The likelihood of a dam failure is always possible; however, the dams in Taney County that could have the most significant adverse impact are under federal regulation and monitoring and therefore the risk of failure is less likely.

Statement of Next Disaster's Likely Adverse Impact on the Community

Based on information from DNR and USGS, the adverse impact in Taney County in regards to dam failure events is shown below:

Without Mitigation Measures:

Life	Critical
Property	Critical
Emotional	Critical
Financial	Critical

Comments: The ability for only one dam to fail could result in significant damages, injury and loss of life.

With Mitigation Measures:

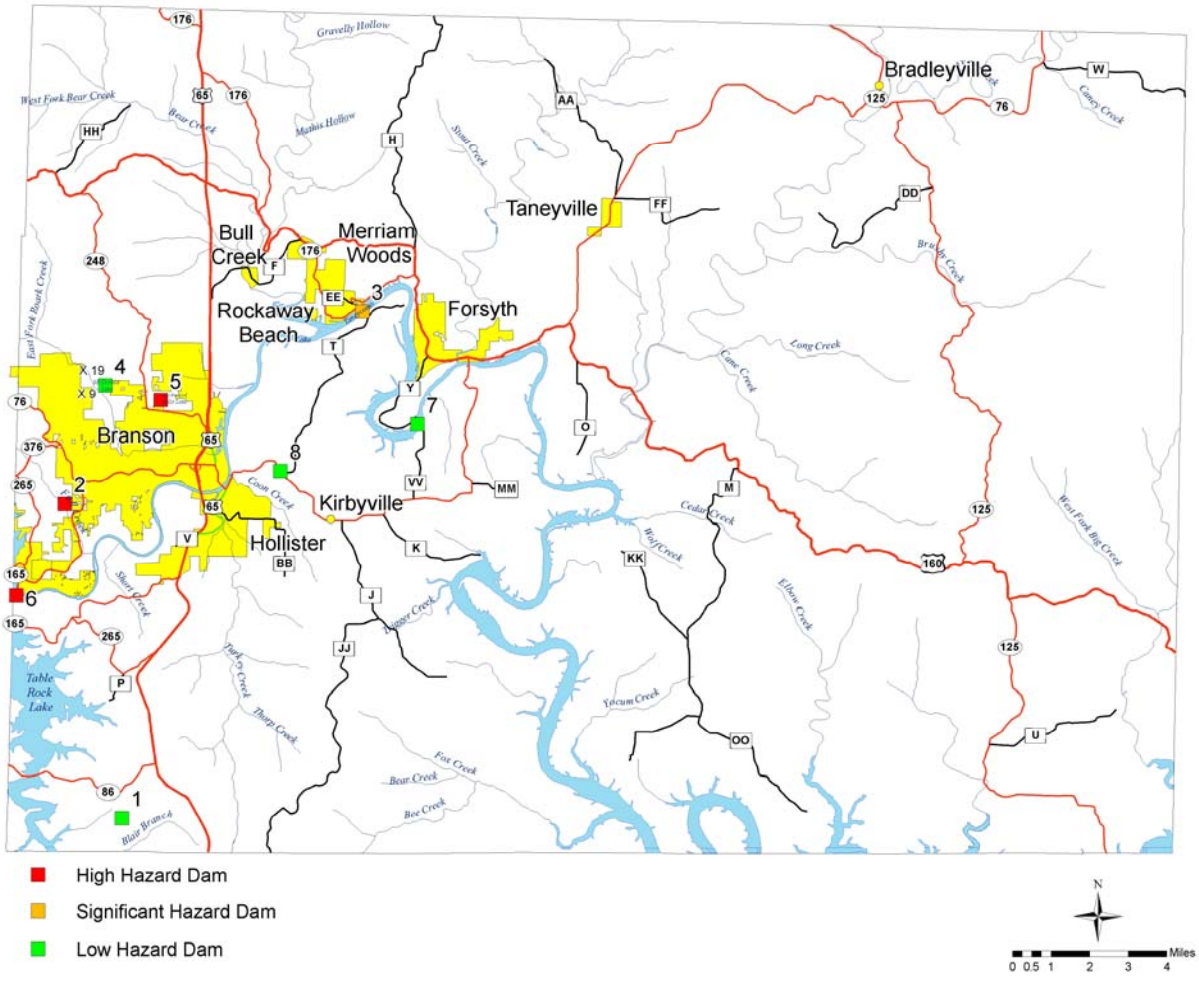
Life	Limited
Property	Limited
Emotional	Limited
Financial	Limited

Comments: None

Recommendations

To lessen the impact of possible dam failure in Taney County, emergency procedures should be updated as necessary to reflect dam failure. As new dams are built, their construction should comply with the national dam safety hazard reduction initiative. Additional action should include collaboration among jurisdictions, agencies, and special districts as all dam related recommendations are implemented.

Figure 3-10: Taney County Dam Locations



Wildfires

Description of Wildfire Hazard

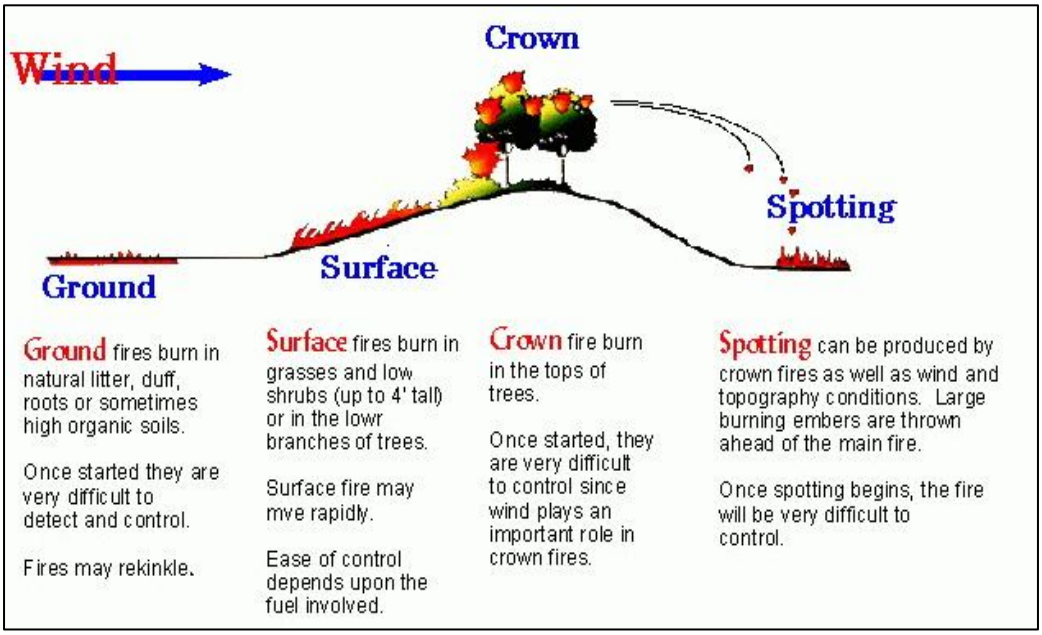
Forest and grassland fires can and have occurred on any day throughout the year. However, the majority of fires and the greatest acreage loss will occur during the spring fire season, which is normally between February 15 and May 10. The length and severity of this burning period depends on weather conditions. Spring in Missouri is noted for its low humidity and high winds. Spring is also the time of the year when rural residents normally burn their garden spots and brush piles. Many landowners believe it is necessary to burn the woods in the spring of the year in order to get more grass, kill ticks, and get rid of the brush. These conditions, together with below normal precipitation and high temperatures, result in extremely high fire danger. Depending on weather conditions, a sizable number of fires also can occur between mid-October and late November. Figure 3-11 below notes types of wildfires that may occur.

Table 3-30: Missouri Fire Statistics: Causes

Lightning	>1%
Camping	1%
Smoking	4%
Debris Burning	58%
Arson	20%
Equipment Use	3%
Railroads	1%
Children	1%
Miscellaneous Causes	12%

Source: MDC. http://www.conservation.state.mo.us/forest/fire/stats.htm

Figure 3-11: Types of Wildfire



Source: Missouri Department of Conservation

According to SEMA's *2000 Hazard Analysis*, wildfires are most common in the more heavily-timbered southern part of the state. While wild forest fires are not common in Taney County, it is possible for wildfires to occur due to drought, debris burning, and incendiary fires. Debris burning is consistently the number one cause of wildfires in Missouri. Fire caused by lightning is rare despite 50 to 70 thunderstorm days per year.

Wildfire fuel includes combustible material in the form of vegetation such as grass, leaves, ground litter, plants, shrubs and trees. Over 85 percent of the county's land cover is grasslands and forests, increasing the risk for wildfire.

Table 3-31: Land Cover in Taney County		
Land Cover Type	**Acres**	**% Coverage of County**
Non-Native, Cool-Season Grasslands	133,234.85	31.98
Deciduous Upland Mixed Oak Forest	114,818.35	27.56
Mixed Evergreen-Deciduous Shortleaf Pine-Oak Forest	68,639.44	16.48
Deciduous Upland Mixed Hardwood Forest	39,484.61	9.48
Land cover type - includes top four types of estimated land coverage.		
Source: MWIN, http://outreach.missouri.edu/mowin/counties2/taney.html		

History of Wildfires

No Missouri fires are listed among the significant wildfires in the U.S. since 1825. Each year, about 3,700 wildfires burn more than 55,000 acres of forest and grassland on average in Missouri. On April 5, 2000, dry conditions and wind gusts carrying sparks from other wildfires resulted in the outbreak of 88 wildfires throughout several southwest Missouri counties, including Taney County. These wildfires caused $5,000 in damages in the region; however, any specific damages in Taney County are not documented.

Statement of Future Probably Severity

Wildfires can flare out of control, often with catastrophic results. Grass grows back quickly with little damage, but fires in forests and croplands are costly. A major wildfire can leave large areas of scorched and barren land which may not return to pre-fire conditions for decades. If ground cover has been burned away, little is left to hold soil in place on steep slopes and hillsides and heavy rains could result in increased soil erosion and siltation of area streams and creeks. Fatalities occasionally can result from wildfires, usually due to overexertion or heart attack.

The probability of wildfires (forest, prairie and grassland) is considered moderate overall, but may increase to high during certain periods, such as spring, late fall, or under conditions of excessive heat, dryness, and/or drought. The severity would be considered low to moderate. However, as residential areas expand into relatively undeveloped rural lands, people living in these communities are increasingly at risk from wildfires. Protecting structures in isolated locations can stretch firefighting resources to the limit. The ability of fire fighters to quickly reach certain locations in Taney County is impacted by the location of development along fingers of the lake and roadway locations which require driving over many miles. The grasslands and forested areas in Taney County, combined with certain weather conditions, create the potential risk for a wildfire within the county. Table 3-32 notes the future probable severity of wildfire, based on the county's supply of wildfire fuel and development near forests and grasslands.

Table 3-32: Future Probable Severity - Wildfires	
Location	**Probable Severity**
Buffer Areas	Critical
Forests	Limited
Grasslands	Critical

Statement of Probable Risk

The occurrence of a disastrous wildfire in Taney County is unlikely. Table 3-33 notes the likelihood of risk based on the Missouri Department of Conservations fire danger index.

Table 3-33: Likelihood of Wildfire Occurrence by Danger Level	
Level	**Probable Risk of Occurrence**
Low Fire Danger	Unlikely
Moderate Fire Danger	Possible
High Fire Danger	Likely
Extreme Fire Danger	Highly Likely
Source: MDC, http://www.mdc.state.mo.us/forest/fire/adject.htm	

Statement of Next Disaster's Likely Adverse Impact on the Community

A major wildfire within the buffer development areas around a community could cause significant damage. The likely adverse impact of a disastrous wildfire is shown below.

Without Mitigation Measures:

Life	Limited
Property	Critical
Emotional	Critical
Financial	Critical

Comments: None

With Mitigation Measures:

Life	Negligible
Property	Limited
Emotional	Limited
Financial	Limited

Comments: None

Recommendations

It is recommended the county work to inventory and identify alternative firefighting water sources, while increasing the efficiency to enhance emergency service response. A "tips" brochure on ways to reduce risk, such as the use of fire-resistant materials and landscaping materials that are more resistant to spread of fire, would also be beneficial for homeowners.

Multi-jurisdictional Risk Assessment in the County and Municipalities

Taney County hazards strongly tend to be either geographically random or more regional in nature. Some areas within the county have experienced very few tornadoes and flash flooding with localized damages. The county and incorporated areas have experienced scattered damages due to winter weather, heat waves and drought. While all areas of the county are vulnerable to severe winter weather, power outages resulting from winter storms have the greatest impact on rural areas in terms of length of time to restore power.

Severe thunderstorms have more frequently affected Branson and other communities along Lake Taneycomo. Low lying areas throughout the county are vulnerable to flash flood events. Of the incorporated communities, Branson, Rockaway Beach and Bull Creek are most affected by flooding.

Figure 3-12: Taney County Natural Hazards Composite

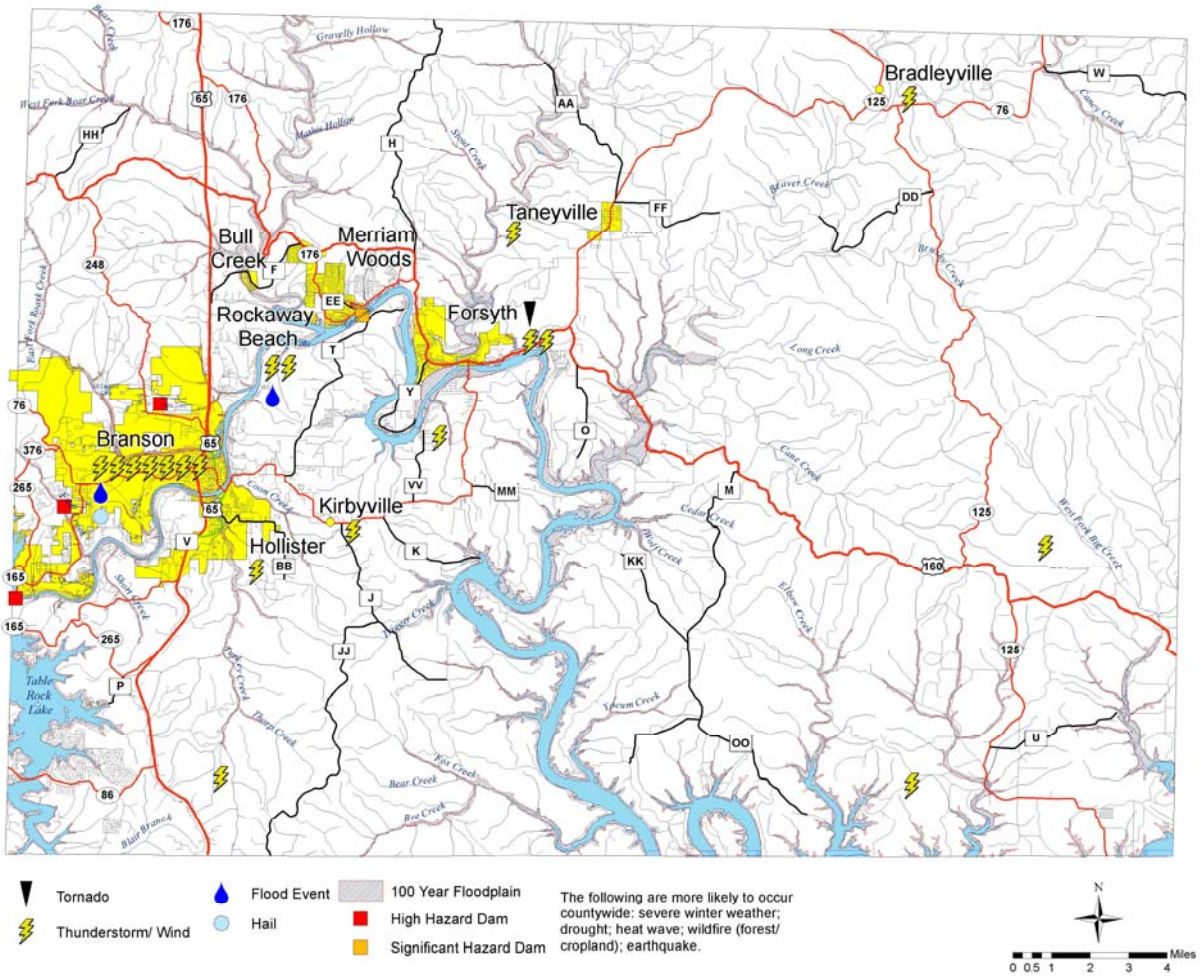


Table 3-34
TORNADO HAZARD PROFILE WORKSHEET

POTENTIAL MAGNITUDE (Percentage of the jurisdiction that can be affected):

- □ **Catastrophic**: More than 50%
- ■ **Critica**l: 25 to 50%
- □ **Limited**: 10 to 25%
- □ **Negligible**: Less than 10%

FREQUENCY OF OCCURRENCE:

- □ **Highly Likely**: Near 100% probability in next year.
- ■ **Likely**: Between 10 and 100% probability in next year, or at least one chance in 10 years.
- □ **Possible**: Between 1 and 10% Probability in next year, or at least one chance in next 100 years.
- □ **Unlikely**: Less than 1% probability in next 100 years.

SEASONAL PATTERN:

All Taney County tornadoes since 1957 have occurred between April and June

AREAS LIKELY TO BE AFFECTED MOST (BY SECTOR):

Any location in Taney County could be affected by a tornado

PROBABLE DURATION:

Taney County's tornadoes have only ranged from F0-F2. At this level, most tornadoes are only on the ground for a few minutes.

POTENTIAL SPEED OF ONSET (Probable amount of warning time):

- ■ Minimal (or no) warning.
- □ 6 to 12 hours warning.
- □ 12 to 24 hours warning.
- □ More than 24 hours warning.

EXISTING WARNING SYSTEMS:

NOAA weather alerts broadcast on radio and television Storm sirens: Branson-18, Forsyth-3, Rockaway Beach-1, Taneyville-1, and College of the Ozarks-1.

COMPLETE VULNERABILITY ANALYSIS:

Currently at risk (10% of the county): 11,098 people in 2,920 buildings valued at $416 million; including 21critical facilities.

Projected risk for undeveloped areas: 11,272 people in 2,946 buildings valued at $435 million; including 26 critical facilities.

Table 3-35
FLOOD HAZARD PROFILE WORKSHEET

POTENTIAL MAGNITUDE (Percentage of the jurisdiction that can be affected):

- □ **Catastrophic**: More than 50%
- □ **Critica**l: 25 to 50%
- ■ **Limited**: 10 to 25%
- □ **Negligible**: Less than 10%

FREQUENCY OF OCCURRENCE:

- □ **Highly Likely**: Near 100% probability in next year.
- ■ **Likely**: Between 10 and 100% probability in next year, or at least one chance in 10 years.
- □ **Possible**: Between 1 and 10% probability in next year, or at least one chance in next 100 years.
- □ **Unlikely**: Less than 1% probability in next 100 years.

SEASONAL PATTERN:

Flooding occurs most often between April and June.

AREAS LIKELY TO BE AFFECTED MOST (BY SECTOR):

All low lying areas and floodplain areas are likely to be inundated in a flood. Branson, Rockaway Beach and Bull Creek are most at risk.

PROBABLE DURATION:

Flash flooding can occur within a few hours. Sustained flooding can last over several days, weeks, or months.

POTENTIAL SPEED OF ONSET (Probable amount of warning time):

- ■ Minimal (or no) warning.
- □ 6 to 12 hours warning.
- □ 12 to 24 hours warning.
- □ More than 24 hours warning.

EXISTING WARNING SYSTEMS:

National Weather Service watches and warnings via TV and radio.

COMPLETE VULNERABILITY ANALYSIS:

Currently at risk (10% of the county): 3,520 people in 727 buildings valued at $10.7 million; including 11 critical facilities.

Projected risk for undeveloped areas: 3,677 people in 800 buildings valued at $11.1 million; including 13 critical facilities.

Table 3-36
SEVERE WINTER WEATHER HAZARD PROFILE WORKSHEET

POTENTIAL MAGNITUDE (Percentage of the jurisdiction that can be affected):

- □ **Catastrophic**: More than 50%
- ■ **Critica**l: 25 to 50%
- □ **Limited**: 10 to 25%
- □ **Negligible**: Less than 10%

FREQUENCY OF OCCURRENCE:

- □ **Highly Likely**: Near 100% probability in next year.
- ■ **Likely**: Between 10 and 100% probability in next year, or at least one chance in 10 years.
- □ **Possible**: Between 1 and 10% probability in next year, or at least one chance in next 100 years.
- □ **Unlikely**: Less than 1% probability in next 100 years.

SEASONAL PATTERN:

Severe winter weather occurs most often between the months of December and February.

AREAS LIKELY TO BE AFFECTED MOST (BY SECTOR):

Severe winter weather events occur on a regional scale and are more likely to affect the entire county.

PROBABLE DURATION:

Initial onset occurs within a few hours. Ice and snow can remain up to several days after initial onset. Cascading effects (utility outages, for example) can also last up to several days after onset.

POTENTIAL SPEED OF ONSET (Probable amount of warning time):

- □ Minimal (or no) warning.
- ■ 6 to 12 hours warning.
- □ 12 to 24 hours warning.
- □ More than 24 hours warning.

EXISTING WARNING SYSTEMS:

National Weather Service Watches and Warnings via TV and radio.

COMPLETE VULNERABILITY ANALYSIS:

Currently at risk (10%of the county): 1,591 people in 313 buildings valued at $1.37 million; including 2 critical facilities.

Projected risk for undeveloped areas: 1,659 people in 343 buildings valued at $1.51 million; including 2 critical facilities.

Table 3-37
DROUGHT HAZARD PROFILE WORKSHEET

POTENTIAL MAGNITUDE (Percentage of the jurisdiction that can be affected):

- ■ **Catastrophic**: More than 50%
- □ **Critica**l: 25 to 50%
- □ **Limited**: 10 to 25%
- □ **Negligible**: Less than 10%

FREQUENCY OF OCCURRENCE:

- □ **Highly Likely**: Near 100% probability in next year.
- ■ **Likely**: Between 10 and 100% probability in next year, or at least one chance in 10 years.
- □ **Possible**: Between 1 and 10% probability in next year, or at least one chance in next 100 years.
- □ **Unlikely**: Less than 1% probability in next 100 years.

SEASONAL PATTERN:

Drought alerts usually are issued in the summer months. However, impacts can extend all year.

AREAS LIKELY TO BE AFFECTED MOST (BY SECTOR):

Drought events occur on a regional scale and are more likely to affect the entire county.

PROBABLE DURATION:

Drought conditions can last several months to years.

POTENTIAL SPEED OF ONSET (Probable amount of warning time):

- □ Minimal (or no) warning.
- □ 6 to 12 hours warning.
- □ 12 to 24 hours warning.
- ■ More than 24 hours warning.

EXISTING WARNING SYSTEMS:

The DNR uses several indices to monitor precipitation and other drought factors. The PDSI is the main indicator.

COMPLETE VULNERABILITY ANALYSIS:

Currently at risk (100%): 1,407 people; crop damage valued at $0.55 million.

Projected risk for undeveloped areas: 1,748 people; crop damage valued at $0.57 million.

Table 3-38
HEAT WAVE HAZARD PROFILE WORKSHEET

POTENTIAL MAGNITUDE (Percentage of the jurisdiction that can be affected):

- ■ **Catastrophic**: More than 50%
- □ **Critica**l: 25 to 50%
- □ **Limited**: 10 to 25%
- □ **Negligible**: Less than 10%

FREQUENCY OF OCCURRENCE:

- □ **Highly Likely**: Near 100% probability in next year.
- ■ **Likely**: Between 10 and 100% probability in next year, or at least one chance in 10 years.
- □ **Possible**: Between 1 and 10% probability in next year, or at least one chance in next 100 years.
- □ **Unlikely**: Less than 1% probability in next 100 years.

SEASONAL PATTERN:

Heat waves occur between the months July and August.

AREAS LIKELY TO BE AFFECTED MOST (BY SECTOR):

Heat wave events occur on a regional scale and are more likely to affect the entire county.

PROBABLE DURATION:

Extreme heat conditions can last for several days.

POTENTIAL SPEED OF ONSET (Probable amount of warning time):

- □ Minimal (or no) warning.
- □ 6 to 12 hours warning.
- □ 12 to 24 hours warning.
- ■ More than 24 hours warning.

EXISTING WARNING SYSTEMS:

The National Weather Service uses the Heat Index to alert the public via TV and radio.

COMPLETE VULNERABILITY ANALYSIS:

Currently at risk (100%): 1,549 people; crop damage valued at $1.08 million.

Projected risk for undeveloped areas: 1,682 people; crop damage valued at $1.12 million.

Table 3-39
EARTHQUAKES HAZARD PROFILE WORKSHEET

POTENTIAL MAGNITUDE (Percentage of the jurisdiction that can be affected):

- □ **Catastrophic**: More than 50%
- ■ **Critica**l: 25 to 50%
- □ **Limited**: 10 to 25%
- □ **Negligible**: Less than 10%

FREQUENCY OF OCCURRENCE:

- □ **Highly Likely**: Near 100% probability in next year.
- ■ **Likely**: Between 10 and 100% probability in next year, or at least one chance in 10 years.
- □ **Possible**: Between 1 and 10% probability in next year, or at least one chance in next 100 years.
- □ **Unlikely**: Less than 1% probability in next 100 years.

SEASONAL PATTERN:

Earthquakes are not affected by seasonality.

AREAS LIKELY TO BE AFFECTED MOST (BY SECTOR):

Earthquake events occur on a regional scale and are more likely to affect the entire county.

PROBABLE DURATION:

Earthquakes usually last from a few to several minutes.

POTENTIAL SPEED OF ONSET(Probable amount of warning time):

- ■ Minimal (or no) warning.
- □ 6 to 12 hours warning.
- □ 12 to 24 hours warning.
- □ More than 24 hours warning.

EXISTING WARNING SYSTEMS:

Earthquake prediction is far from accurate. There are no warning systems in place.

COMPLETE VULNERABILITY ANALYSIS:

Currently at risk (100%): 10,181 people in 2,016 buildings valued at $13.7 million; including 17 critical facilities.

Projected risk for undeveloped areas: 11,401 people in 2,214 buildings valued at $14.2 million; including 19 critical facilities.

Table 3-40
DAM FAILURE HAZARD PROFILE WORKSHEET

POTENTIAL MAGNITUDE (Percentage of the jurisdiction that can be affected):

- □ **Catastrophic**: More than 50%
- □ **Critica**l: 25 to 50%
- ■ **Limited**: 10 to 25%
- □ **Negligible**: Less than 10%

FREQUENCY OF OCCURRENCE:

- □ **Highly Likely**: Near 100% probability in next year.
- ■ **Likely**: Between 10 and 100% probability in next year, or at least one chance in 10 years.
- □ **Possible**: Between 1 and 10% probability in next year, or at least one chance in next 100 years.
- □ **Unlikely**: Less than 1% probability in next 100 years.

SEASONAL PATTERN:

Dam failure would most likely be caused by heavy rains. Therefore, the highest seasonality would be between April and July.

AREAS LIKELY TO BE AFFECTED MOST (BY SECTOR):

Larger and significantly older dams and the areas directly downstream.

PROBABLE DURATION:

Dam failure and containment breach will only take several minutes but the damage and flooding can take several hours or days to alleviate.

POTENTIAL SPEED OF ONSET (Probable amount of warning time):

- ■ Minimal (or no) warning.
- □ 6 to 12 hours warning.
- □ 12 to 24 hours warning.
- □ More than 24 hours warning.

EXISTING WARNING SYSTEMS:

An unregulated dam could fail without warning. Those regulated by the federal government would have a better chance of a warning.

COMPLETE VULNERABILITY ANALYSIS:

Currently at risk (25%): 14,280 people in 3,872 buildings valued at $58.8 million; including 13 critical facilities.

Projected risk for undeveloped areas: 15,508 people in 4,259 buildings valued at $61.2 million; including 14 critical facilities.

Table 3-41
WILDFIRE HAZARD PROFILE WORKSHEET

POTENTIAL MAGNITUDE (Percentage of the jurisdiction that can be affected):

- □ **Catastrophic**: More than 50%
- □ **Critica**l: 25 to 50%
- ■ **Limited**: 10 to 25%
- □ **Negligible**: Less than 10%

FREQUENCY OF OCCURRENCE:

- □ **Highly Likely**: Near 100% probability in next year.
- □ **Likely**: Between 10 and 100% probability in next year, or at least one chance in 10 years.
- ■ **Possible**: Between 1 and 10% probability in next year, or at least one chance in next 100 years.
- □ **Unlikely**: Less than 1% probability in next 100 years.

SEASONAL PATTERN:

Wildfires are more likely to occur between April and June or during episodes of extreme heat, dryness, or drought.

AREAS LIKELY TO BE AFFECTED MOST (BY SECTOR):

In forested areas along the transition area between urban and rural development.

PROBABLE DURATION:

Wildfires can last a few minutes to several days.

POTENTIAL SPEED OF ONSET (Probable amount of warning time):

- ■ Minimal (or no) warning.
- □ 6 to 12 hours warning.
- □ 12 to 24 hours warning.
- □ More than 24 hours warning.

EXISTING WARNING SYSTEMS:

The Conservation Department relies on fire towers, air surveillance and 911 calls from the general public.

COMPLETE VULNERABILITY ANALYSIS:

Currently at risk (5% of the county): 2,374 people in 846 buildings valued at $5.3 million; including 7 critical facilities.

Projected risk for undeveloped areas: 2,682 people in 931 buildings valued at $6.1 million; including 8 critical facilities.

Taney County Hazard Vulnerability Assessments

The following Vulnerability Assessment worksheets provide loss estimates for each identified hazard affecting Taney County. Loss estimates were calculated by using data from various sources, including data collected from municipal and county officials, historical loss data from the hazard profile analysis, current property valuation data from the Taney County Assessor's Office, value estimates for critical buildings and infrastructure and properties with special vulnerabilities provided by public officials where available, and estimates of the spatial distribution of facilities that may be affected by hazards.

Building numbers were estimated from the community profiles and census data. Population statistics, including average household size, were derived from Census data. Dollar numbers are based on assessed valuation, adjusted for market value.

Table 3-42
Tornado: Taney County Vulnerability Assessment
(Estimates based on F3 tornado causing damage in 10% of Taney County)

	DEVELOPED LAND			UNDEVELOPED LAND		
Tornado	# of People	# of Buildings	Approx Value	# of People	# of Buildings	Approx Value
Residential	3,970	2,513	$234,291,000	4,010	2,546	$249,236,080
Commercial	6,052	334	$100,691,800	6,113	337	$106,676,060
Industrial	97	6	$7,500,000	98	6	$7,875,000
Agriculture	18	24	$10,003,800	18	24	$10,503,990
Key Non-profit public service facilities	10	2	$180,000	11	2	$189,000
Public buildings and critical facilities	21	4	$1,600,000	26	4	$1,680,000
Sewage treatment plants	8	12	$6,600,000	3	2	$1,155,000
Water treatment plants	3	4	$250,000	3	4	$262,500
Roads	2	2	$215,000	2	2	$225,750
Police	10	2	$120,000	11	2	$126,000
Fire	25	2	$200,000	25	2	$210,000
Schools/colleges	671	3	$35,000,000	738	3	$36,750,000
Utilities/communications	34	2	$275,000	34	2	$288,750
Hospital/medical/dental	60	2	$16,000,000	64	2	$16,800,000
Nursing/disability homes	28	1	$350,000	28	1	$367,500
Hazardous facilities	13	4	$520,000	13	4	$546,000
Other county, state and federal government	76	3	$1,800,000	76	3	$1,890,000
TOTAL	11,098	2,920	$415,596,600	11,272	2,946	$434,781,630

Note: Emergency shelters included in key non-profit and critical facilities.

The entire county is vulnerable to tornado and severe thunderstorm hazards.

Table 3-43
Flood: Taney County Vulnerability Assessment
(Estimates based on 100-year flood and flash flood causing damage in 5% of Taney County)

Flood	DEVELOPED LAND			UNDEVELOPED LAND		
	# of People	# of Buildings	Approx Value	# of People	# of Buildings	Approx Value
Residential	980	620	$8,250,000	1,078	682	$8,580,000
Commercial	2,420	74	$850,000	2,468	82	$884,000
Industrial	16	2	$120,000	16	2	$124,800
Agriculture	4	2	$90,000	5	2	$93,600
Key Non-profit public service facilities	0	0	$0	0	0	$0
Public buildings and critical facilities	11	2	$35,000	13	2	$36,400
Sewage treatment plants	18	16	$600,000	18	17	$624,000
Water treatment plants	6	4	$150,000	6	5	$156,000
Roads	14	2	$300,000	15	2	$312,000
Police	12	1	$60,000	12	1	$62,400
Fire	10	0	$31,000	12	1	$32,240
Schools/colleges	25	2	$120,000	29	2	$124,800
Utilities/communications	0	0	$0	0	0	$0
Hospital/medical/dental	0	0	$0	0	0	$0
Nursing/disability homes	0	0	$0	0	0	$0
Hazardous facilities	2	1	$50,000	3	1	$52,000
Other county, state and federal government	2	1	$35,000	2	1	$36,400
TOTAL	3,520	727	$10,691,000	3,677	800	$11,118,640

Note: Emergency shelters included in key non-profit and critical facilities.

Table 3-44
Severe Winter Storm: Taney County Vulnerability Assessment
(Estimates based on 10% of regional damages)

Severe Winter Storm	DEVELOPED LAND			UNDEVELOPED LAND		
	# of People	# of Buildings	Approx Value	# of People	# of Buildings	Approx Value
Residential	225	216	$658,800	248	238	$724,680
Commercial	1105	64	$392,000	1124	70	$431,200
Industrial	12	2	$8,000	13	2	$8,800
Agriculture	2	0	$114,000	2	0	$125,400
Key Non-profit public service facilities	6	2	$12,000	7	2	$13,200
Public buildings and critical facilities	2	2	$5,500	2	2	$6,050
Sewage treatment plants	7	6	$7,800	8	7	$8,580
Water treatment plants	4	2	$1,750	4	2	$1,925
Roads	15	6	$42,000	17	7	$46,200
Police	10	2	$7,800	11	2	$8,580
Fire	18	1	$8,200	20	1	$9,020
Schools/colleges	74	2	$18,000	81	2	$19,800
Utilities/communications	28	1	$80,000	31	1	$88,000
Hospital/medical/dental	45	2	$3,600	50	2	$3,960
Nursing/disability homes	34	1	$4,800	37	1	$5,280
Hazardous facilities	0	0	$0	0	0	$0
Other county, state and federal government	4	4	$6,120	4	4	$6,730
TOTAL	1,591	313	$1,370,370	1,659	343	$1,507,405

Note: Emergency shelters included in key non-profit and critical facilities.

The entire county is vulnerable to severe winter storm hazards.

Table 3-45
Drought: Taney County Vulnerability Assessment
(Estimates based on 10% of regional damages)

Drought	DEVELOPED LAND			UNDEVELOPED LAND		
	# of People	# of Buildings	Approx Value	# of People	# of Buildings	Approx Value
Residential	360	0	$201,600	396	0	$209,660
Commercial	995	0	$124,000	1,295	0	$128,960
Industrial	0	0	$0	0	0	$0
Agriculture	52	0	$200,000	57	0	$208,000
Key Non-profit public service facilities	0	0	$0	0	0	$0
Public buildings and critical facilities	0	0	$0	0	0	$0
Sewage treatment plants	0	2	$10,000	0	2	$10,400
Water treatment plants	0	2	$7,000	0	2	$7,280
Roads	0	0	$0	0	0	$0
Police	0	0	$0	0	0	$0
Fire	0	0	$3,500	0	0	$3,640
Schools/Colleges	0	0	$0	0	0	$0
Utilities/communications	0	0	$0	0	0	$0
Hospital/clinic/dental	0	0	$0	0	0	$0
Nursing/disability homes	0	0	$0	0	0	$0
Hazardous facilities	0	0	$0	0	0	$0
Other county, state and federal government	0	0	$2,000	0	4	$2,080
TOTAL	1,407	4	$548,100	1,748	8	$570,020

Note: Emergency shelters included in key non-profit and critical facilities.

The entire county is vulnerable to the effects of drought.

Table 3-46
Heat Wave: Taney County Vulnerability Assessment
(Estimates based on 10% of regional damages)

Heat Wave	DEVELOPED LAND			UNDEVELOPED LAND		
	# of People	# of Buildings	Approx Value	# of People	# of Buildings	Approx Value
Residential	315	178	$250,000	347	196	$260,000
Commercial	1,154	17	$466,000	1,196	19	$484,640
Industrial	16	2	$20,000	18	2	$20,800
Agriculture	65	0	$56,000	72	0	$58,240
Key Non-Profit public service facilities	0	0	$12,000	0	0	$12,480
Public Buildings	18	1	$6,800	20	1	$7,070
Sewage treatment plants	0	6	$15,000	0	7	$15,600
Water treatment plants	0	6	$12,000	0	7	$12,480
Roads	4	3	$30,500	4	3	$31,720
Police	0	2	$70,000	0	2	$72,800
Fire	3	1	$15,000	3	1	$15,600
Schools/Colleges	7	1	$4,500	8	1	$4,680
Utilities/communications	0	1	$85,000	0	1	$88,400
Hospital/clinic/dental	0	0	$0	0	0	$0
Nursing/disability homes	2	0	$5,000	2	0	$5,200
Hazardous facilities	5	2	$4,000	6	2	$4,160
Other county, state and federal government	5	1	$24,000	6	1	$24,960
TOTAL	1,594	221	$1,075,800	1,682	243	$1,118,830

Note: Emergency shelters included in key non-profit and critical facilities.

The entire county is vulnerable to the effects of heat wave.

Table 3-47
Earthquake: Taney County Vulnerability Assessment
(Estimates based on Level VI earthquake causing damage in 80% of Taney County)

Earthquake	DEVELOPED LAND			UNDEVELOPED LAND		
	# of People	# of Buildings	Approx Value	# of People	# of Buildings	Approx Value
Residential	4,127	1,617	$4,328,000	4,540	1,779	$4,501,120
Commercial	5,234	325	$8,534,000	5,958	356	$8,875,360
Industrial	37	6	$132,000	41	7	$137,280
Agriculture	16	21	$30,300	18	23	$31,510
Key Non-profit public service facilities	113	4	$15,750	124	4	$16,380
Public buildings and critical facilities	17	4	$8,900	19	4	$9,250
Sewage treatment plants	21	16	$95,800	23	18	$99,630
Water treatment plants	3	4	$6,800	3	4	$7,070
Roads	18	4	$112,000	20	4	$116,480
Police	21	2	$7,000	23	2	$7,280
Fire	20	3	$6,400	22	3	$6,660
Schools/colleges	485	3	$18,500	534	3	$19,240
Utilities/communications	20	1	$91,000	22	1	$94,640
Hospital/medical/dental	28	2	$213,000	31	2	$221,520
Nursing/disability homes	9	1	$12,000	10	1	$12,480
Hazardous facilities	2	1	$39,700	2	1	$41,280
Other county, state and federal government	10	2	$4,500	11	2	$4,900
TOTAL	10,181	2,016	$13,655,650	11,401	2,214	$14,202,080

Note: Emergency shelters included in key non-profit and critical facilities.

The entire county is vulnerable to minimal damage from a 7.6 magnitude earthquake.

Table 3-48
Dam Failure: Taney County Vulnerability Assessment
(Estimates based on single dam failure causing damage in 25% of Taney County)

Dam Failure	DEVELOPED LAND			UNDEVELOPED LAND		
	# of People	# of Buildings	Approx Value	# of People	# of Buildings	Approx Value
Residential	6,521	3,254	$35,912,000	7,173	3,579	$37,348,480
Commercial	6,958	527	$6,198,000	7,454	580	$6,445,920
Industrial	64	15	$1,523,000	70	17	$1,583,920
Agriculture	45	26	$2,254,000	50	29	$2,344,160
Key Non-profit public service facilities	16	3	$67,000	18	3	$69,680
Public buildings and critical facilities	13	2	$652,000	14	2	$678,080
Sewage treatment plants	19	15	$127,000	21	17	$132,080
Water treatment plants	4	3	$240,000	4	3	$249,600
Roads	21	5	$136,000	23	6	$141,440
Police	10	2	$120,000	11	2	$124,800
Fire	18	2	$165,000	20	2	$171,600
Schools/colleges	341	3	$8,524,000	375	3	$8,864,960
Utilities/communications	54	3	$310,000	59	3	$322,400
Hospital/medical/dental	82	3	$1,025,500	90	3	$1,066,520
Nursing/disability homes	31	1	$110,000	34	1	$114,400
Hazardous facilities	16	5	$605,000	18	6	$629,200
Other county, state and federal government	67	3	$847,500	74	3	$881,400
TOTAL	14,280	3,872	$58,816,000	15,508	4,259	$61,168,640

Note: Emergency shelters included in key non-profit and critical facilities.

Table 3-49
Wildfire: Taney County Vulnerability Assessment
(Estimates based on wildfire causing damage in 5% of Taney County)

Wildfire	DEVELOPED LAND			UNDEVELOPED LAND		
	# of People	# of Buildings	Approx Value	# of People	# of Buildings	Approx Value
Residential	1,275	756	$4,158,000	1,403	832	$4,324,320
Commercial	898	61	$457,500	1,058	67	$475,800
Industrial	18	1	$62,000	20	1	$64,480
Agriculture	8	5	$83,000	9	6	$86,320
Key Non-profit public service facilities	6	1	$62,700	7	1	$652,180
Public buildings and critical facilities	7	2	$98,050	8	2	$101,970
Sewage treatment plants	17	9	$47,080	19	10	$48,960
Water treatment plants	14	6	$79,500	15	7	$82,680
Roads	6	1	$32,100	7	1	$33,380
Police	2	0	$14,000	2	0	$14,560
Fire	23	0	$20,000	25	0	$20,800
Schools/colleges	81	1	$102,000	89	1	$106,080
Utilities/communications	2	0	$12,000	2	0	$12,480
Hospital/medical/dental	0	0	$0	0	0	$0
Nursing/disability homes	12	1	$7,500	13	1	$7,800
Hazardous facilities	2	1	$35,000	2	1	$36,400
Other county, state and federal government	3	1	$65,000	3	1	$67,600
TOTAL	2,374	846	$5,335,430	2,682	931	$6,135,810

Note: Emergency shelters included in key non-profit and critical facilities.

Table 3-50
Total Taney County Vulnerability Assessment Summary

	DEVELOPED LAND				UNDEVELOPED LAND			
Combined Total – All Natural Hazards	Total # of People	Total # of Buildings	Approx Value	# Critical Facilities	Total # of People	Total # of Buildings	Approx Value	# Critical Facilities
Residential	17,773	9,154	$288,049,400	0	19,195	9,852	$305,184,340	0
Commercial	24,816	1,402	$117,713,300	0	26,666	1,511	$124,401,940	0
Industrial	260	34	$9,365,000	0	276	37	$9,815,080	0
Agriculture	210	78	$12,831,100	0	231	84	$13,451,220	0
Key Non-profit public service facilities	151	12	$349,450	8	167	12	$952,920	9
Public buildings and critical facilities	89	17	$2,406,250	9	102	17	$2,518,820	11
Sewage treatment plants	90	82	$7,502,680	3	92	80	$2,094,250	4
Water treatment plants	34	31	$747,050	12	35	34	$779,535	13
Roads	80	23	$867,600	23	88	25	$906,970	25
Police	65	11	$398,800	11	70	11	$416,420	12
Fire	117	9	$449,100	9	127	10	$469,560	11
Schools/colleges	1,684	15	$43,787,000	3	1,854	15	$45,889,560	4
Utilities/communications	138	8	$853,000	4	148	8	$894,670	5
Hospital/medical/dental	215	9	$17,242,100	9	235	9	$18,092,000	11
Nursing/disability homes	116	5	$489,300	3	124	5	$512,660	3
Hazardous facilities	40	14	$1,253,700	2	44	15	$1,309,040	2
Other county, state and federal government	167	15	$2,784,120	1	176	19	$2,914,070	1
TOTAL	46,045	10,919	$507,088,950	97	49,629	11,744	$530,603,055	111

Note: Emergency shelters included in key non-profit and critical facilities.

Table 3-51: Taney County Hazard Identification and Analysis Summary					
Hazards	Locations Previously Damaged	Frequency of Past Damage	Severity (i.e. damages relative to other hazards)	Probability (i.e. Likelihood the hazard will strike your community)	Ranking of Adverse Impact on the County
Tornado/Severe Thunderstorm Total Events	Countywide, Branson, Chestnutridge, Forsyth, Kirbyville, Protem, Ridgedale, Rockaway Beach, Taneyville	-Damage by 25 events in 47 years -53.2% risk per year	-$351,609 in 47 years -Average $7,481 per year -4 deaths, 0 injury	- 146 events in 47 years -311% probability per year	High
Tornado Only Events	Countywide, Forsyth	-Damage by 4 events in 47 years -8.5% risk per year	-$275,800 in 47 years -Average $5,868 per year -No death/injury	-5 events in 47 years -10% probability per year	Low
Severe Thunderstorm (high wind, hail, lightning) Only Events	Countywide, Branson, Chestnutridge, Forsyth, Kirbyville, Protem, Ridgedale, Rockaway Beach, Taneyville	-Damage by 21 events in 42 years -50% risk per year	-$75,809 in 42 years -Average $1,805 per year -4 deaths, 0 injury	-141 events in 42 years -336% probability per year	High
Floods (river flood, flash flood)	Regional, Countywide, Branson, Forsyth, Protem, Ridgedale, Rockaway Beach, Taneyville	-Damage by 5 events in 11 years -45% risk per year	-$30,250,000 in 11 years -Average $2,750,000 per year -2 deaths, 0 injury	-30 events in 11 years -273% probability per year	High
Severe Winter Weather (snow, ice, extreme cold)	Regional	-Damage by 9 events in 10 years -90% risk per year	-$9,920,000 in 10 years -Average $992,000 per year -No death/injury	- 18 events in 10 years -180% probability per year	High
Drought	Regional	-Damage by 1 event in 6 years -17% risk per year	-$660,000 in 6 years -Average $110,000 per year -No death/injury	-3 events in 6 years -50% probability per year	Medium
Heat Wave	Regional	-Regional crop damage by 1 event in 10 years; no known damages in county	-No known damages or deaths within the county	-7 events in 10 years -70% probability per year	Medium
Earthquake	Regional	-No known damages or deaths in the county	-Damage would be limited (Level VI) for a 7.6 magnitude earthquake	-25-40% chance of a magnitude 6.0 or greater earthquake through 2053	Low
Dam Failure	None	-No known failures within the county -3 MO failures, 1 near failure	-Damages could be critical -Deaths/injury could be critical	-4 Missouri events in 35 years -11% probability per year	High
Wildfire	No Damages Reported	-Several small fires detected with minimal damage	-Possible timber, grazing and cropland, homes, injuries/deaths	-Moderate fire likely	Low

Part 4: City/County Capability Assessment

Mitigation Management Policies

The Taney County Emergency Management Agency is charged with preparing for disasters. This responsibility includes advising the Taney County Commission on mitigation measures and implementing those measures deemed appropriate by the Commission. In general, the county's policies encourage cooperation between the various Taney County agencies and cooperation between county agencies and those of neighboring jurisdictions.

Existing Plans

Taney County Master Plan

The *Taney County Master Plan*, developed and adopted by the county in 1999, sets forth goals, objectives and policies to better manage growth and development in the unincorporated areas of the county. One of the main goals is to encourage development in and around already-developed areas to provide more efficient access to adequate roadways, utilities, and emergency services.

Taney County Emergency Operations Plan

The *Taney County Emergency Operation Plan* (EOP) is approved by the County Commission and identifies facilities and resources that require special security during a disaster; promotes the development and maintenance of mutual aid agreements with nearby agencies; requires participation in drills and exercises; identifies vulnerabilities within the county; and includes an evacuation plan. The EOP includes all-hazard mitigation measures.

Mitigation Programs

The mitigation programs outlined below are primarily outlined in the *Taney County Emergency Operations Plan* (EOP). The county does have a floodplain ordinance, as required by the National Flood Insurance Program (NIFP). It is the intent of these mitigation programs to deal with hazards that can be potentially catastrophic to life and property and to attempt to minimize those losses.

Tornado

The National Weather Service monitors atmospheric conditions and issues weather forecasts. When threatening conditions are detected, the Weather Service will issue either a tornado watch to indicate when conditions are favorable for tornadoes to develop, or a tornado warning when a tornado is sighted or indicated by radar. The burden of heeding warnings and taking proper action rests with individual communities and citizens. Local Emergency Management Agencies have developed effective community warning systems.

Riverine Flooding

Taney County Emergency Management Operations has established a plan for the onset of floods. It contains an extensive plan and management practices for any flood hazards that may affect the entire county or smaller secluded areas.

a. Protect human life and health and property.

b. National Weather Service will give advanced notice of flooding conditions to the public to minimize loss of life and property.

c. Establish and designate areas to be evacuated.

d. Local authorities will take immediate steps to warn and evacuate citizens.

e. Local authorities will commit available resources before requesting assistance from the next higher level of government.

f. Establish a secure perimeter to limit access to looters and sightseers.

g. Establish shelters and relief services for victims.

h. Establish a support system for those victims, whom are returned and require assistance with the reestablishment of their homes.

Severe Winter Weather

Utility companies in Taney County engage in right of way tree trimming and brush removal programs to mitigate problems of downed lines and poles that may be caused by high winds or severe winter weather (ice and snow).

Heat Wave/Extreme Cold

The National Oceanic and Atmospheric Administration (NOAA) outlines safety measures that can be taken and are broadcast during times of excessive heat/cold from local and regional radio and television stations.

Drought

The National Oceanic and Atmospheric Administration provides the first warning to the onset of drought. During times of drought, the NOAA monitors precipitation conditions throughout the United States. The NOAA also issues guidelines for water conservation, agriculture, and livestock preservation. It is the responsibility of local and regional governmental agencies to alert the public to the onset of drought and conservation practices to alleviate further water depletion.

Earthquake

The overall organization and emergency responsibilities for Taney County Emergency Management operations are provided in the Emergency Operations Plan and its annexes. In the event of an earthquake emergency such responses will be established:

a. Save lives and eliminate hazards which pose an immediate threat.

b. Establish reliable lines of communication between state and federal governmental agencies.

c. Mobilize emergency medical services.

d. Maintain access to and from damaged areas (i.e., debris removal).

e. Establish procedures for resources management.

f. Mobilize search and rescue operations.

g. Evacuate hazardous structures (after inspection).

h. Maintain public health (potable water and disease control).

i. Establish and maintain public works (restore utilities).

j. Open shelters and establish feeding centers for persons unable to return home.

Dam Failure

There are eight dams located in Taney County. The largest is Table Rock Dam, an earth and rock-fill embankment dam, which is maintained by the U.S. Army Corps of Engineers in Little Rock. A failure of the Table Rock Dam would cause a major flash flood along the White River basin west and south of the dam site. This could affect thousands of residents and visitors, depending on the season.

A second dam down river, Ozark Beach Dam (also known as Powersite Dam), owned and operated by the Empire District Electric Company, would also be affected if there is a failure from Table Rock Dam.

Because dam failure is seldom sudden, it is assumed that the residents in the inundation pathway along the river basin would receive adequate warning. The warning for Table Rock would come from the project office located above the dam or the 911 service at the Taney County Sheriff's Office in Forsyth. They, in turn, would notify the public in the danger area with the assistance of the rangers and local emergency responders. The Empire District Electric Company also has an Emergency Action Plan in place responsive to dam failure of the Ozark Beach or Table Rock dams.

There are also six earthen dams located in Taney County. The owners of the dams are responsible for providing early warnings of problems at their dams, for developing effective emergency action plans, and for coordinating these plans with local officials. The Water Resources Program within the MDNR provides technical assistance and informational resources for all dam owners.

Wildfire

The Missouri Department of Conservation works closely with each county by supplying support to prevent wildfires. This support is an outreach program mainly to private owners to carefully maintain their grounds. The program teaches safe practices for leaf and rubbish burning and the clearance of the ground around wooded areas. There are certain types of grasses and trees that are more resistant to fires and species diversity is encouraged.

Capabilities and Responsibilities

The *Taney County Emergency Operations Plan* has a specific outline of emergency functions for most of the departments within local government. This is in addition to their day-to-day duties. The emergency management organization has set up the following functional lines and definitions:

- Direction and Control: To direct and control emergency support personnel from a centralized facility in the event of an emergency.

- Communications and Warning: To provide information and guidance concerning available communications and warning capabilities.

- Emergency Public Information: To provide the timely release of accurate information in the event of a disaster or emergency.

- Damage Assessment: To organize existing personnel and communities so that repair, outside assistance, safety and mitigation efforts are carried out in a timely manner.

- Law Enforcement: To organize local law enforcement personnel and develop procedures that will enable Taney County and its municipalities to provide law enforcement services regardless of the situation.

- Fire and Rescue: To organize local firefighting resources and establish procedures that will enable these resources to meet demands of a disaster situation.

- Resource and Supply: To give local officials the ability to maintain a continuous inventory of resources and to allocate these resources in a prompt and orderly manner.

- Public Works: To organize public works resources so that they will be able to perform the many tasks essential to an effective emergency (disaster) response.

- Evacuation: To establish an organization and procedures for evacuation operations.

- In-place Shelter: To establish an option of sheltering residents in place to protect them from the effects of a disaster that threatens Taney County.

- Reception and Care: To provide for the temporary reception and care of people displaced or evacuated from their residence because of an emergency or disaster situation.

- Health and Medical: To establish an organization and procedure to provide needed health and medical services following a disaster of any type.

The EOP also has functions for Hazardous Materials Response and Terrorism that are not covered in this mitigation plan. The subsequent sections outline the responsibilities and capabilities of local governments and private and public organizations in Taney County.

County Commission/Mayor

The primary responsibility of the County Commission/Mayor is Direction and Control. Under Direction and Control, the Presiding Commissioner/Mayor implements the Emergency Operations Plan, activates response personnel, and directs emergency response operations. They are also responsible for Emergency Public Information. They either prepare and release public information themselves or designate a Public Information Officer to be responsible for public information.

Law Enforcement

The Sheriff's Department/Municipal Police have the primary responsibilities for Law Enforcement, Communications and Warning, and Evacuation. These include, but are not limited to, maintaining law and order, providing protection/security for critical facilities and resources (EOC) and at the disaster site (private and public property), limit access to the disaster scene and/or evacuated area, and provide law enforcement in reception centers, lodging and feeding facilities, and emergency shelters. Law enforcement must also provide communications and assist in the dissemination of warning to the public (mobile units), provide traffic and crowd control, and assist in the evacuation of disaster areas. Due to security reasons, the specific capabilities and staffing of law enforcement are detailed only in the Emergency Management Director's Manual.

Several organizations provide law enforcement in Taney County and share the burden of all of these tasks. These entities include:

- Taney County Sheriff's Department
- Missouri Highway Patrol
- Missouri Water Patrol
- Missouri Department of Conservation
- Branson Police Department
- Forsyth Police Department
- Rockaway Beach Police Department
- Merriam Woods Police Department

- Surrounding Law Enforcement Agencies: Stone County Sheriff's Office, Christian County Sheriff's Office, Ozark County Sheriff's Office, Douglas County Sheriff's Office

County Engineer

The County Engineer has the primary responsibility of Public Works. The responsibilities include, but are not limited to, overall administration of the Public Works service for Taney County, clearing roads and assisting in restoring utilities to facilitate emergency operations, participating in cleanup and recovery operations, and assisting in search and rescue operations. Due to security reasons, the specific capabilities of Public Works are detailed only in the Director's Manual.

Fire Departments/Districts

The Fire Departments/Districts have the primary responsibility for Fire and Rescue. This includes, but is not limited to, controlling fires during emergency operations, assisting as medical first responders, and directing search and rescue operations for victims. They should also participate in tests, exercises, and drills and develop fire safety programs, to include disaster situations, and present them to the public. Due to security reasons, the fire departments/districts are outlined with their specific capabilities and staffing in the Emergency Management Director's Manual.

Emergency Management Director

The Emergency Management Director (EMD) for Taney County has the primary responsibilities for Emergency Operations, In-place Shelter, and Reception and Care. The EMD is responsible for the coordination of all emergency management activities and EOC (emergency operations center) operations, ensuring proper functioning of the EOC during emergency operations, and acting as liaison with other local, state, and federal emergency management agencies.

In-place shelter responsibilities include, but are not limited to, conducting public awareness programs and working with local officials to develop in-place protective shelter plans. The EMD is responsible for seeing that necessary plans and procedures are developed to ensure a capability for Reception and Care operations, which will include coordinating Reception and Care operations with the American Red Cross.

County Health Department

The County Health Department has the primary responsibility of Health and Medical. This includes, but is not limited to, identifying clinics, nursing homes, and other facilities (i.e., school gyms) that could be expanded into emergency treatment centers for disaster victims, instituting public health measures in reception centers, public shelters, and at the disaster scene, and distributing antidotes, drugs, vaccines, etc., to shelters when opened to the public. They need to develop and conduct programs for the public on first-aid and public health practices and provide public health information to the PIO for dissemination to the public. They should also train health and medical personnel and volunteers in special procedures.

The Local Public Health Emergency Plan (LPHEP) outlines the actions to be taken by the Local Public Health Agency (LPHA) in conjunction with local government officials and cooperating private and volunteer organizations. A local public health emergency can best be described as an event, which threatens the safety and well being of a number of people in an area, i.e. bio-terrorism incident, anthrax, smallpox, pandemic influenza, etc. The plan has been developed to:

- Reduce the vulnerability of citizens to any disasters that creates a local public health emergency.
- Establish capabilities for protecting citizens from the effects of a local public health emergency.
- Respond effectively to the actual occurrence of disasters.
- Provide for recovery in the aftermath of any local public health emergency.

County/City Clerk

The County/City Clerk has the primary responsibility of Resource and Supply. This includes, but is not limited to, identifying potential resource needs, locating the required resources in the community or finding their nearest location, and maintaining these resource lists. They need to coordinate activities with other response agencies (i.e., Red Cross) to ensure a coordinated and efficient allocation and with the PIO (public information officer) in informing the public of the locations of available assistance. They need to maintain records of services rendered, resources utilized and their costs, unused resources, etc. for the emergency.

County Assessor

The County Assessor has the primary responsibility of Damage Assessment. This includes, but is not limited to, maintaining a file of maps, pre-disaster photos, tax assessments, etc., conducting private and public damage assessments, accompanying/assisting state and federal damage assessment teams, and assisting in preparing damage repairs reports to receive federal aid.

County Coroner

The County Coroner has no primary responsibility but is to assist in the support of Health and Medical. The coroner must develop/maintain emergency mortuary plans and procedures, coordinate with the Missouri Funeral Directors Association, and provide a list of the deceased.

Ambulance District and Hospital

The Taney County Ambulance District does not have a primary responsibility but is to aid in the support of Health and Medical by being responsible for first responder emergency medical care including initial triage, emergency medical treatment, and patient transport. Taney County is supported by one hospital, Skaggs Community Health Center located in Branson. This hospital has developed emergency plans in accordance with state and federal regulations. Such plans are tested and exercised regularly.

County Department of Social Services

The County Department of Social Services (former Division of Family Services) does not have any primary responsibilities but is to assist in the support of Reception and Care.

Utility Companies

The utility companies do not have a primary responsibility but help in the support of Public Works. The private utility companies are responsible for the direction and control of the services they provide to their customers. The utility companies serving Taney County do maintain their own emergency plans.

American Red Cross

The Red Cross responds and provides emergency assistance to evacuees, disaster victims and emergency workers involved in a disaster or threatened by a disaster. Assistance may be in the form of fixed or mobile feeding stations, clothing, mass or individual shelter, cleaning supplies, comfort kits, first aid, supplementary medical care or blood and blood products. As soon as families are able to resume living as families rather than in shelters, they are assisted with their verified urgent needs—rent, beds and bedding, necessary furniture, fuel, cooking and eating utensils, health needs, occupational supplies, transportation and minor home repairs. In doing so, the Red Cross uses all available resources from the federal, state and local governments and private agencies.

Additional recovery assistance may be provided when other resources are not available or are inadequate; such assistance may include repair or rebuilding of homes, replacement of essential household contents or other needs.

The local chapter of the American Red Cross can and will call upon the regional and/or national headquarters for assistance and additional trained staff and volunteers to aid in the operations of disaster relief when necessary. The American Red Cross Ozarks Chapter office is located at 1211 S. Glenstone, Springfield, Missouri (Greene County).

911 Emergency Communications Center/Mobile Command Center

E-911 communications for Taney County is located in Forsyth at the County Sheriff's Department. The primary EOC is located in the ground level courtroom in the Taney County Courthouse in Forsyth. The alternate EOC is the Fire Station #1 in Branson. Municipal EOCs are as follows:

- Branson: Primary EOC - Fire Station #1
  Alternate EOC - Lower level of City Hall at Commercial & Maddux
- Hollister: Primary EOC - Hollister City Hall on Esplanade Street
  Alternate EOC - Hollister City Police Department
  -
- Forsyth: Primary EOC - Forsyth City Hall
  Alternate EOC - Forsyth Police Department

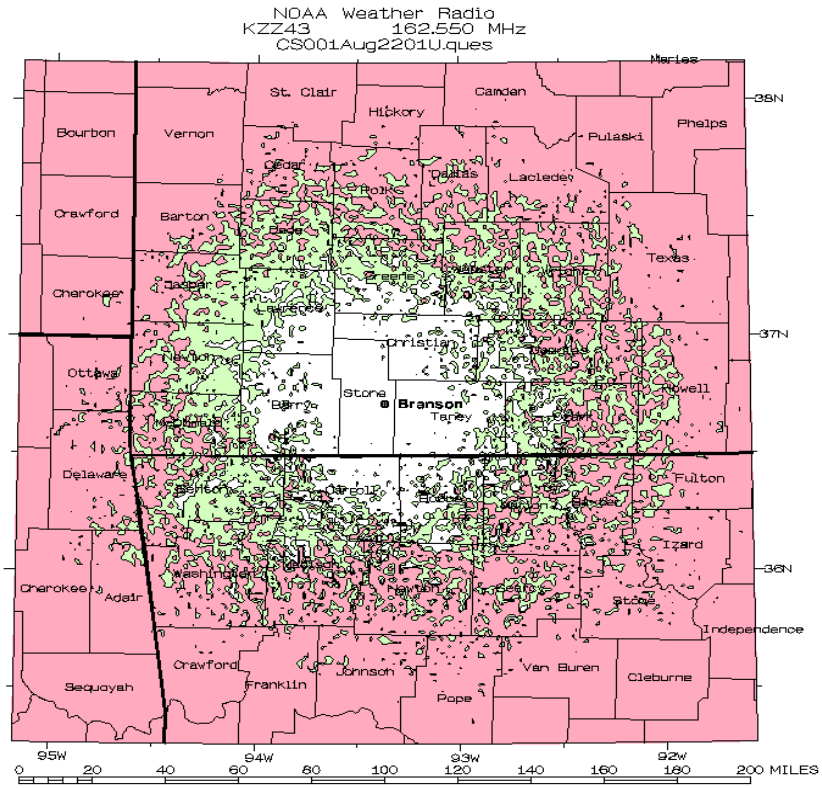
- Rockaway Beach
  - Primary EOC - Rockaway Beach City Hall
  - Alternate EOC - Rockaway Beach Police Department
- Merriam Woods
  - Primary EOC - Merriam Woods City Hall
  - Alternate EOC - No alternate EOC

The Taney County Ambulance District mobile multi-agency command center located at the district office in Hollister could be used as a mobile EOC, if necessary.

NOAA Weather Radios

The figure below shows the availability of receiving NOAA weather radio transmissions from the Branson, Missouri transmission station. The coverage statistics and maps are calculated using a computer model and station data assuming ideal conditions. Coverage may be 5 to 10 percent below the computer predicted coverage. As shown, coverage is available to all of Taney County, but the outlying areas in green may need to receive their information from neighboring transmission stations such as at Gainesville.

Figure 4-1: NOAA Radio Transmission Area



Source: http://www.nws.noaa.gov/nwr/mo/branson.gif

Advanced Warning Systems

There are presently 24 outdoor warning sirens in Taney County. These sirens can be activated on the authority of the Fire or Police Chief of the community, the Taney County Sheriff, or the Emergency Management Director. Warning in these communities and the remaining areas of Taney County will be supplemented with mobile public address operations by the Sheriff's Office, municipal police and local fire departments. Radio and television stations will also broadcast warnings.

- The City of Branson has 18 sirens that are radio activated by the fire and police departments.
- The City of Forsyth has three (3) sirens that are radio activated by the fire and police departments.
- The City of Rockaway Beach has one siren that is manually activated.
- The Village of Taneyville has one siren that is manually activated.
- College of the Ozarks (Point Lookout) has one siren that is manually activated.

Weather Spotters

Taney County has approximately 100 weather spotters, including firefighters from the various fire protection districts or departments, law enforcement, EMTs, ham radio operators, and citizens within the county. The last training course was held in March, 2005. Information on weather spotters is included in the Director's Manual.

Vulnerability Assessment of Policies and Programs

Commitments to a Comprehensive Mitigation Program

Taney County's participation in the National Flood Insurance Program, county and municipal floodplain management ordinances, and land development codes reduce some of the county's vulnerability to natural disasters. However, implementation of a multi-jurisdictional, comprehensive mitigation plan may decrease even more the impact of a natural hazard. The county desires to reduce the risks of natural hazards and flooding is one of the most damaging hazards in Taney County. Participation in the NFIP and restrictions on flood plain development are certainly the greatest mitigation actions in protecting the lives of county residents. The county also maintains and regularly updates the *Emergency Operations Plan* that includes mitigation measures for natural and manmade hazards.

Laws, Regulations, and Policies Relating to Development in Hazard–Prone Areas

The Taney County Commission has established a floodplain management program to maintain the community's eligibility for participation in the National Flood Insurance Program. The county contracts with the Planning and Zoning Administrator to administer the program. The county's floodplain management ordinance specifies the requirements for development in the identified special flood hazard areas. It states that anyone building in the flood hazard area must first obtain a floodplain permit. It also sets forth penalties for violation of the ordinance.

Taney County does require building permits. When a permit is requested the Planning and Zoning Department is contacted and asked to survey the land. While conducting the survey the administrator has the opportunity to review the building's location in, near, or around a floodplain. Once that has been established, the administrator can make recommendations as to whether the proposed building meets the requirements of the Floodplain Management ordinance.

Laws, Regulations, and Policies Related to Hazard Mitigation in General

Taney County's Development Guidance Code, which are reviewed and amended as determined necessary on an annual basis, provide for general regulation of land development location and intensity of development in the unincorporated portions of the county, including requirements for stormwater drainage and other infrastructure. Several of the incorporated communities have adopted zoning and subdivision regulations which contain general provisions related to hazard mitigation. Communities such as Merriam Woods are in the process of updating their land development codes to better manage the demands of growth.

How Risk Assessments are Incorporated and Prioritized into Local Planning

Since flooding has among the greatest impacts upon the county, the county's floodplain management ordinance combined with the stormwater management requirements of the Development Guidance Code provide the primary venue for incorporating risk assessment and mitigation into local planning. Stormwater regulations are also in effect in some of the cities and villages. Additional warning capabilities are being studied to mitigate the impacts of flash flooding, tornadoes, and severe thunderstorms.

The county also recognizes the danger and economic impact of severe winter storms. Clearing snow and ice from roadways is a main priority during winter storms.

How County Determines Cost-Effectiveness and Manages/Implements Programs

Cost-effectiveness is considered on a case-by-case basis, dependent upon the scope of damages, estimated savings in future hazard events, the type of mitigation project, and the probable hazard to human life in future events. For example, FEMA-funded mitigation projects must meet the benefit/cost analysis criteria required by FEMA.

Current Criteria Used to Prioritize Mitigation Funding

Mitigation funding priority is primarily based upon a combination of anticipated damage and injury/death impacts. It is a county priority to enable access to infrastructures and emergency measures in areas of higher population concentration.

Integration of Hazard Mitigation with the City/County Department's Plans

The *Taney County Emergency Operations Plan* outlines the departments and entities responsible for implementing plans, actions and specific duties prescribed in the EOP. The Taney County Commission has overall responsibility for integration of hazard mitigation into county plans. The Taney County Emergency Management Director advises the Commission on hazard mitigation. Several communities have emergency management coordinators that are responsible for advising their governing boards on

hazard mitigation. In addition, the Local Emergency Planning Committee (LEPC) meets bi-monthly. The Taney County EMA committee includes representatives from the fire district, law enforcement, emergency medical and health organizations. The cities rely on the county's EOP.

Mitigation Funding Options Including Federal, State, Local, Private Sources

Taney County and the municipalities have historically relied upon federal disaster declarations in cases of heavy widespread damages. Funding sources have included FEMA, SEMA, the Missouri Department of Natural Resources and Department of Economic Development (DED), and various other grant programs. In addition, investments in infrastructures that have mitigating effects have been funded from sources such as local tax revenues. Other funding options being considered for the future include the grant sources identified in SEMA's *Regional Planning Commission Hazard Mitigation Planning Guide – 2002.*

How County Government Meets Requirements for Hazard Mitigation Funding

Taney County primarily meets requirements for hazard mitigation funding through its participation in the National Flood Insurance Program. The county's *Emergency Operations Plan*, floodplain management ordinance, and Development Guidance Code (zoning and subdivision regulations) include various measures addressing floodplain development, sewer and water installations, roadway construction, and stormwater management.

Recommendations for Improvement

Recommended improvements include expanding collaboration between the county and the municipalities in promoting land development practices and infrastructure standards that reduce risk from hazard damages and utilizing a variety of venues to increase public awareness of hazards and methods to reduce risk.

In addition, Missouri's Structural Assessment and Visual Evaluation (SAVE) Coalition facilitates the use of volunteer engineers, architects and qualified building inspectors who perform damage assessments of homes following disasters such as earthquake, floods and tornadoes. The SAVE Coalition can provide sound advice to communities and citizens concerning the safety of reentering their homes following a disaster, with the added intent of minimizing the need for sheltering by keeping people in their homes as much as safely feasible. Missouri statute RSMo 44.023 provides immunity from liability for those working in disaster volunteer programs.

The Missouri Seismic Safety Commission (under Missouri statutes RSMo 44.227, 44.229, 44.231, 44.233, 44.235, and 44.227) has developed a Strategic Plan for Earthquake Safety in Missouri that contains a number of recommendations for earthquake mitigation. Although property damages resulting from an earthquake would likely be limited in Taney County, the Taney County Emergency Management Director may want to investigate the possibility of bringing some of these programs to a local venue to increase public awareness of this hazard.

City/Town/Village Policies and Development Trends

Table 4-1 notes the plans and regulations related to hazard mitigation that have been adopted by the municipalities in Taney County. Of the nine communities in the county, all but two have adopted subdivision regulations. Branson, Forsyth, Hollister, Kirbyville, Merriam Woods, Rockaway Beach, and Taneyville have adopted other regulations as well, including building codes, zoning regulations, and stormwater regulations. The Village of Merriam Woods also has earthquake design regulations. The communities of Branson, Hollister, and Merriam Woods have adopted comprehensive plans. Branson, Bull Creek, Hollister, and Rockaway Beach currently participate in the National Flood Insurance Program.

Substantial new development has occurred over the past decade along the major highway corridors in Taney County, including U.S. Highway 65 and Missouri Highways 76 and 160. Most major commercial developments are located in or near the cities. Much of the new development in the unincorporated areas is residential development, including both single family residential uses and multi-family. Condominium development is also included in the multi-family category. Scattered residential uses are also located along the major and secondary roads, with increasing levels of development occurring in the Merriam Woods and Bull Creek areas, north of Branson and in the Hollister area along Highway 65.

Table 4-1: City Plans and Regulations

Jurisdiction	Master Plan	Zoning	Building Codes	Earthquake Design	Subdivision Regulations	Stormwater Regulations	Floodplain Regulations
Bradleyville	No	No	No	No	No	No	No
Branson	Yes	Yes	Yes	No	Yes	Yes	Yes
Bull Creek	No	No	No	No	Yes	No	Yes
Forsyth	No	Yes	Yes	No	Yes	No	No
Hollister	Yes	Yes	Yes	No	Yes	Yes	Yes
Kirbyville	No	Yes	No	No	Yes	No	No
Merriam Woods	Yes	Yes	Yes	Yes	No	No	No
Rockaway Beach	No	No	Yes	No	Yes	No	Yes
Taneyville	No	Yes	No	No	Yes	No	No

Table 4-2: Taney County Capability Assessment			
Policies and Programs (ex. Zoning Ordinance)	**Document Reference (ex. Comprehensive Plan & page number)**	**Effectiveness for Mitigation (ex. low, medium, high)**	**Rationale for Effectiveness (ex. low because allows development in floodplain)**
Floodplain Management	Taney County Floodplain Management Resolution/Ordinance No. 60.3b, 4/22/2002 No. 60.3b amended on 12/23/2002	High	New construction and improvements not allowed without requirements.
Flood Insurance	National Flood Insurance Program, #290435, joined 4/1/2002	High	The county administers and participates in the NFIP.
Stormwater Regulations	Some stormwater management regulation included in the Development Guidance Code.	Medium	The county currently does not have separate stormwater regulations. The Development Guidance Code does provide some regulation for stormwater management in new developments.
Comprehensive Plan	Taney County Master Plan, adopted 12/27/1999	Medium	The Master Plan contains goals, objectives and strategies related to stormwater management.
Zoning and Subdivision Regulations	Taney County Development Guidance Code, adopted 11/1984	Medium	Provides some regulation for stormwater management infrastructure in new development.
Building Regulations	N/A	Low	The county does not have building regulations.
Right-of-way tree trimming/brush removal	Utility companies' programs	Medium	Removes tree limbs/brush near power lines to prevent power outages caused by heavy winds and winter storms

Part 5: Mitigation

Introduction to Mitigation

Definition of Mitigation

Mitigation is defined by FEMA as "...sustained action that reduces or eliminates long-term risk to people and property from natural hazards and their effects" (FEMA, “Report on Costs and Benefits of Natural Hazard Mitigation”). The goal of mitigation is to reduce or eliminate loss of lives and property. Mitigation is a proactive effort to lessen the impact of disasters upon families, communities, and economy.

Categories of Mitigation

Mitigation includes any actions or measures that prevent an emergency, reduce the chance of an emergency occurring, or lessen the effects of a disaster. Federal, state and local governments can restrict or limit development in hazard-prone areas, direct development to less vulnerable areas, and promote ways to safeguard existing development in hazard-prone areas. Individuals and families also can participate by engaging in personal safety and property prevention activities.

There are six categories of mitigation that can produce safer environments including prevention, property protection, natural resource protection, emergency services, structural projects and public information.

Prevention Measures

Prevention measures are intended to keep a hazard risk problem from getting worse. They ensure that future development does not increase hazard losses. Communities can achieve significant progress toward hazard resistance through prevention measures. This is particularly true in areas that have not been developed or where capital investment has not been substantial. Using prevention measures, future development can be guided away from hazards, while maintaining other community goals such as economic development and quality of life. Some examples of prevention measures are:

- Planning
- Open space preservation
- Land use and land development regulations, including zoning and subdivision regulations
- Storm water management
- Erosion and sediment control regulations
- Engineered foundation standards

Property Protection Measures

Property protection measures are used to modify buildings subject to hazard risk, or their surroundings, rather than to prevent the hazard from occurring. A community may find these to be inexpensive measures because often they are implemented or cost-shared with property owners. These measures directly protect people and property at risk. Protecting a building does not have to affect the building's appearance and is therefore a popular measure for historic and cultural sites. Some examples of property protection measures are:

- Acquisition – public procurement and management of lands that are vulnerable to damage from hazards
- Relocation – permanent evacuation of hazard-prone areas through movement of existing hazard-prone development and population to safer areas
- Rebuilding – modifying structures to reduce damage by future hazard events
- Floodproofing – protecting a flood-prone building using one or more of several different methods
- Elevation of existing buildings above the flood height
- Installation of saferooms for protection against tornadoes and severe storms
- Installation of backup power generators in the event of power outages due to severe weather conditions

Natural Resource Protection Measures

Natural resource protection measures are intended to reduce the intensity of hazard effects as well as to improve the quality of the environment and wildlife habitats. Parks, recreation, or conservation agencies or organizations usually implement these activities. Examples of natural resource protection include:

- Erosion and sediment control
- Wetlands protection
- Open space easements
- Acquisition of environmentally beneficial lands
- Hillside conservation
- Stream bank restoration
- Riparian zone protection
- Urban forestry and horticulture programs
- Watershed protection programs

Emergency Services Measures

Emergency services measures protect people before and after a hazard event. Most counties and many cities have emergency management offices to coordinate warning, response, and recovery during a disaster. Emergency services include:

- Warning
- Critical facilities protection
- Health and safety maintenance
- Distribution of weather alert radios to homes and businesses

- Emergency response and recovery support
- Community storm shelters
- Disaster relief centers
- Emergency housing shelters

Structural Mitigation Measures

Structural measures directly protect people and property at risk. These measures involve construction of man-made structures to control hazards. For example, structural projects for flood control may include:

- Reservoirs
- Levees, floodwalls and seawalls
- Diversions
- Channel modifications
- Storm sewers

Public Information Mitigation Measures

Public information activities inform and remind people about hazardous areas and the measures necessary to avoid potential damage and injury. Public information activities for mitigation are directed toward property owners, potential property owners, business owners and visitors. Examples of public information activities to achieve mitigation are:

- Providing hazard maps and other hazard information on a request basis
- Outreach programs that provide hazard and mitigation information to people when they have not asked for it

Public information activities might be accomplished through:

- Print media
- Radio/TV spots and interviews
- Videotape
- Mass mailings
- Notices to residents and property owners in a specific, hazard-prone area
- Displays in widely used facilities such as public buildings and malls
- Property owner handbook
- Presentations at meetings of neighborhood groups
- Real estate disclosure
- Information in the public library or a library developed specifically for mitigation information
- Available technical assistance
- School age and adult education

How Mitigation Differs from Preparedness, Response, and Recovery

Emergency management is divided into four phases, with each phase involving different types of organization, preparation, and activities. These four phases include: preparedness, response, recovery, and mitigation.

Preparedness focuses on building emergency response and management capabilities before a disaster occurs in order to respond to and recover from disaster events. Preparedness activities include programs for training emergency response personnel, exercising plans, and conducting public outreach programs. Preparedness also includes activities such as developing and maintaining warning systems, maintaining communications networks, and establishing procedures for mobilizing response personnel.

Response refers to the actions taken immediately before, during and after a disaster event to save lives, minimize property damage and aid in the recovery process. Response activities typically involve public warning, evacuation and sheltering, search and rescue, emergency medical care, and securing property. Other types of response activities depend on the type of disaster and may include activities such as supplying emergency water and power, removing debris from roads, attending to the needs of people with disabilities or special health concerns, closing roads, or fire fighting.

Recovery involves short term post disaster activities to restore vital services and longer term activities to return the community to normal or pre-disaster status. The first step of recovery is assessment of damages to determine needs and priorities. Typical recovery activities include debris removal, coordinating volunteers and donations of goods, delivering disaster aid to individuals and families, restoring vital community services, and repairing and reconstructing buildings and public infrastructure. Recovery can take from a few days to years, depending on the magnitude of the disaster and the resources available to address the community's needs.

Mitigation is the cornerstone of emergency management. Mitigation differs from preparedness, response and recovery in that it is an ongoing effort focused on activities and policies that will reduce or eliminate the community's vulnerability to damage from future hazard events. Mitigation measures generally are those that can be put in place before a disaster occurs.

Mitigation Plan Benefits

The planning process provides a method for communities to identify weaknesses and threats that affect quality of life as well as those strengths and opportunities that may contribute to achieving the future desired by the community. Planning further enables communities to establish goals and identify strategic actions that can be undertaken to preserve, protect, and enhance those resources that contribute to quality of life and long term economic prosperity. The hazard mitigation planning process likewise offers opportunities and benefits to communities to reduce injury and death, safeguard the natural and built environment, protect public and private investments, and reinforce long term economic viability and community livability. Hazard mitigation planning enables communities to:

- Reduce injury, death and property losses
- Identify specific problems and appropriate solutions
- Achieve multiple objectives in a sustainable manner
- Reduce future risks
- Prioritize post-disaster projects
- Enhance funding opportunities through federal, state and local programs
- Promote public participation and ownership of solutions

City of Branson All-Hazard Mitigation Plan

In 2000, the City of Branson agreed to participate in Project Impact, a FEMA program that promotes total community involvement to build safe communities. As a Missouri Disaster Resistant Community, it developed its own All-Hazard Mitigation Plan. It included goals and actions for several hazard categories, including natural hazards. The natural hazards goals are similar to those in this Plan and have been incorporated into the following section. Many of the actions for natural hazards mitigation have already been completed, including:

- Becoming a National Weather Service "Storm Ready Community"
- Providing watch/warning placards in each hotel/motel room
- Providing programmable storm alert radios in every public building
- Developing a fire prevention program for residences/apartments
- Purchasing a Fire Safety Trailer

Branson is currently implementing another mitigation activity identified in the Plan—painting 911 addresses on driveway curbs. This project is approximately 15-20 percent complete.

The Branson All-Hazard Mitigation Plan is incorporated in this Plan by reference hereto and those remaining or ongoing mitigation actions identified in the Branson Plan are specifically incorporated into the following goals, objectives and mitigation actions.

Goals, Objectives, and Mitigation Actions

Development Process

Representatives from Taney County, its municipalities, the advisory committee members and the public attended a public hearing held at the Taney County Courthouse in Forsyth, Missouri on January 20, 2004. SMCOG staff presented a list of possible goals, objectives and mitigation actions derived in part from the *Taney County Master Plan* and the *Emergency Operations Plan*, and evaluation of existing conditions and hazard event histories in Taney County. The group discussed the possible goals, objectives and strategies in depth. Following discussion on the goals, objectives and possible actions to mitigate the adverse impacts of the hazards addressed in this Plan, the meeting participants were asked to "vote" or rank the top five actions in each category. The mitigation actions discussed that received no "votes" were deleted and the remaining mitigation actions were summarized and prioritized according to the number of "votes."

The ideas and strategies developed at the workshop were written into goals, objectives and mitigation actions, posted on the SMCOG website for further public comment, and distributed to the Plan Advisory Committee for review. The STAPLEE evaluation criteria were used to evaluate the potential benefits of the various mitigation actions. The STAPLEE evaluation considers the social, technical, administrative, political, legal, economic and environmental impacts of the mitigation actions.

Several mitigation actions initially proposed at the county-wide workshop were very similar and these ideas were combined together. Those mitigation actions or strategies initially considered that were eliminated from further consideration in the plan are listed below.

- A strategy to develop maps on wildfire hazards for distribution to builders, homeowners and emergency responders was initially considered. Given the county's extensive acreage of grasslands and forests that could be prone to wildfire spread, such maps would be of limited benefit. This strategy was therefore not considered a priority and was eliminated.

- Also eliminated from further consideration was a proposed strategy to reduce windborne debris through regulatory control over the design, manufacture and installation of architectural features. Regulatory control over the manufacture of building elements would not be feasible at the local level. Encouraging communities to adopt building regulations would be a more appropriate action.

- A third strategy considered but eliminated was the development of an ordinance requiring buffers, enforcement of stringent erosion controls, and prohibition of enclosing creeks. Taney County's land development regulations and municipal zoning and subdivision regulations include provisions for buffers and erosion control. Prohibiting the enclosure or damming of creeks would require revisions to current state statutes, a legislative action not viewed as probable.

Table 5.1 summarizes the mitigation actions reviewed according to the STAPLEE criteria. As noted, the STAPLEE evaluation includes social, technical, administrative, political, legal, economic and environmental considerations that may affect the ability to implement a mitigation strategy. The asterisks in the columns on the right hand side of the table indicate that the proposed mitigation actions would have a positive or beneficial effect.

Table 5.1: Taney County Proposed Mitigation Action Evaluation

Proposed Action	Evaluation Criteria						
	S	**T**	**A**	**P**	**L**	**E**	**E**
Objective 1.1: Reduce risks and vulnerabilities of people in hazard-prone areas.							
Strengthen emergency services preparedness and response by linking emergency services with hazard mitigation programs, and enhancing public education.	*	*	*				*
Continue the development of the Geographic Information System (GIS) for the county to further identify, analyze, and make sound decisions based upon data pertaining to the community.	*	*	*				*
Enhance data and mapping for floodplain information and flood-prone areas outside of designated floodplains.	*	*	*				*

Table 5.1: Taney County Proposed Mitigation Action Evaluation							
	Evaluation Criteria						
Proposed Action	**S**	**T**	**A**	**P**	**L**	**E**	**E**
Objective 1.2: Provide adequate warning and communication systems to alert the population of imminent hazard events and ensure availability of shelters.							
Promote the installation of additional radio controlled storm warning sirens throughout the county and make all existing sirens radio activated.	*	*	*	*			*
Provide for a NOAA weather radio in continuous operation in all facilities for public accommodation.	*	*	*				*
Evaluate the need for tornado plans and shelters in essential facilities and other establishments serving the public (e.g., schools, hospitals, and critical facilities).	*	*		*			*
Designate "safe places" in public buildings.	*	*	*	*			*
Build tornado/severe wind shelter(s) in new and existing buildings, essential facilities and mobile home parks.	*	*		*			*
Objective 2.1: Improve the efficiency, timing, and effectiveness of response and recovery efforts for natural hazard disasters.							
Continue to inventory alternative firefighting water sources and encourage the development of additional services.	*	*	*			*	*
Enhance emergency services to increase the efficiency of wildfire response and recovery activities.	*	*	*			*	*
Enhance strategies for debris management for severe winter/ice storm events.	*	*	*	*		*	*
Provide 911 curb addressing for residences.	*	*	*				*
Objective 3.1: Promote education, outreach, research and development programs to improve knowledge and awareness among citizens and industry about hazard mitigation.							
Encourage the newspapers to publish a special section with emergency information on natural hazards.	*	*	*	*		*	*
Develop “tips” brochures for homeowners on how to halt or reduce the risks of natural hazards.	*	*	*			*	*
Develop public information programs to increase awareness of flood hazards.	*	*	*			*	*
Establish a quarterly public education program in all schools on weather safety and upcoming weather dangers.	*	*	*	*		*	*
Objective 3.2: Strengthen communication and coordinate participation between public agencies, citizens, non-profit organizations, and business to create widespread interest in mitigation.							
Identify, review and implement mechanisms to foster collaboration among jurisdictions, agencies and special districts.	*	*	*	*		*	*
Develop public and private partnerships to implement mitigation actions.	*	*	*	*		*	*
Develop a program through the local school system to encourage children to think of those persons that require special assistance during severe weather conditions.	*	*	*				*
Distribute information to encourage citizens to retrofit their homes to become more energy efficient.	*	*	*			*	*
Encourage local community organizations to continue and augment programs to provide fans, air conditioners, and winter weatherization for those at risk.	*	*	*			*	*

Table 5.1: Taney County Proposed Mitigation Action Evaluation							
	Evaluation Criteria						
Proposed Action	**S**	**T**	**A**	**P**	**L**	**E**	**E**
Objective 4.1: Increase the county's capabilities to mitigate the effects of a natural hazard in the county.							
Map and publicize locations around the county that have the highest incidence of extreme severe winter storms.	*	*	*				*
Encourage collaborative planning and compatible regulatory controls between the county and incorporated communities to promote infrastructure development practices that reduce the potential for flooding.	*	*	*	*	*	*	*
Analyze repetitive flood property and identify feasible mitigation measures.	*	*	*			*	*
Provide Community Emergency Response Team (CERT) training.	*	*	*				*
Objective 4.2: Protect structures and their occupants and contents from the damaging effects of natural hazards.							
Identify water drainage obstructions and make improvements to lessen the potential for flooding.	*	*	*			*	*
Make improvements to bridges to avoid future repetitive damage.	*	*	*			*	*
Purchase emergency generators for critical water and sewer system facilities.	*	*	*			*	*
Ensure that wastewater treatment plants in the communities will function during flooding events.	*	*	*			*	*
Install culverts to eliminate water flow restrictions.	*	*	*			*	*
Objective 4.3: Provide area small businesses with tools to properly prepare for business interruptions.							
Conduct "Open for Business: A Disaster Planning Toolkit for the Small Business Owner" seminar or similar program.	*	*	*				*
Objective 5.1: Secure resources for investment in hazard mitigation.							
Identify funding from state and federal programs for hazard mitigation activities.	*	*	*	*		*	*
Objective 5.2: Design, enhance, or amend county policies to limit the impact a natural hazard has on the county.							
The NFIP communities of Taney County, Branson, Bull Creek, Hollister and Rockaway Beach will maintain requirements for NFIP participation and work to reduce repetitive flood losses.	*		*		*	*	*
Encourage jurisdictions that are not participants in the NFIP to join.	*	*	*	*	*	*	*
Encourage electrical utilities to use underground construction methods where possible to reduce power outages from severe winter storms.	*	*	*			*	*
Encourage the adoption of building codes in incorporated areas that currently do not have such regulations.	*	*	*	*	*	*	*
Adopt measures to control runoff from developing areas outside the floodplain.	*	*	*			*	*
Ensure that new dams are constructed using methods and procedures that comply with the national dam safety hazard reduction initiative.	*	*	*	*	*	*	*

Goals and Objectives

The final mitigation recommendations were determined by informed consent through the discussion and evaluation process noted above. Goals, objectives, and recommended mitigation actions include, but are not limited to the following:

Goal 1: Protect the lives and livelihoods of all citizens.

Objective 1.1: Reduce risks and vulnerabilities of people in hazard-prone areas.

Action: Strengthen emergency services preparedness and response by linking emergency services with hazard mitigation programs and enhancing public education.

Action: Continue the development of the Geographic Information System (GIS) for the county to further identify, analyze, and make sound decisions based upon data pertaining to the community.

Action: Enhance data and mapping for floodplain information and flood-prone areas outside of designated floodplains.

Objective 1.2: Provide adequate warning and communication systems to alert the population of imminent hazard events and ensure availability of shelters.

Action: Promote the installation of additional radio controlled storm warning sirens throughout the county and make all existing sirens radio activated.

Action: Provide for a NOAA weather radio in continuous operation in all facilities for public accommodation.

Action: Evaluate the need for tornado plans and shelters in essential facilities and other establishments serving the public (e.g., schools, hospitals, and critical facilities).

Action: Designate "safe places" in public buildings.

Action: Build tornado/severe wind shelter(s) in new and existing buildings, essential facilities and mobile home parks.

Goal 2: Ensure continued operation of government and emergency functions in a disaster.

Objective 2.1: Improve the efficiency, timing, and effectiveness of response and recovery efforts for natural hazard disasters.

Action: Continue to inventory alternative firefighting water sources and encourage the development of additional services.

Action: Enhance emergency services to increase the efficiency of wildfire response and recovery activities.

Action: Enhance strategies for debris management for severe winter/ice storm events.

Action: Provide 911 curb addressing for residences.

Goal 3: Increase public awareness of natural hazards in the county in order to make the public a partner in hazard mitigation.

Objective 3.1: Promote education, outreach, research and development programs to improve knowledge and awareness among citizens and industry about hazard mitigation.

Action: Encourage the newspapers to publish a special section with emergency information on natural hazards.

Action: Develop "tips" brochures for homeowners on how to halt or reduce the risks of natural hazards.

Action: Develop public information programs to increase awareness of flood hazards.

Action: Establish a quarterly public education program in all schools on weather safety and upcoming weather dangers.

Objective 3.2: Strengthen communication and coordinate participation between public agencies, citizens, non-profit organizations, and business to create a widespread interest in mitigation.

Action: Identify, review and implement mechanisms to foster collaboration among jurisdictions, agencies and special districts.

Action: Develop public and private partnerships to implement mitigation actions.

Action: Develop a program through the local school system to encourage children to think of those persons that require special assistance during severe weather conditions.

Action: Distribute information to encourage citizens to retrofit their homes to become more energy efficient.

Action: Encourage local community organizations to continue and augment programs to provide fans, air conditioners, and winter weatherization for those at risk.

Goal 4: **Reduce the potential impact of natural disasters on new and existing properties and infrastructure and the local economy.**

Objective 4.1: ***Increase the county's capabilities to mitigate the effects of a natural hazard in the county.***

Action: Map and publicize locations around the county that have the highest incidence of extreme severe winter storms.

Action: Encourage collaborative planning and compatible regulatory controls between the county and incorporated communities to promote infrastructure development practices that reduce the potential for flooding.

Action: Analyze repetitive flood property and identify feasible mitigation measures.

Action: Provide Community Emergency Response Team (CERT) training.

Objective 4.2: ***Protect structures and their occupants and contents from the damaging effects of natural hazards.***

Action: Identify water drainage obstructions and make improvements to lessen the potential for flooding.

Action: Make improvements to bridges to avoid future repetitive damage.

Action: Purchase emergency generators for critical water and sewer system facilities.

Action: Ensure that wastewater treatment plants in the communities will function during flood events.

Action: Install culverts to eliminate water flow restrictions.

Objective 4.3: ***Provide area small businesses with tools to properly prepare for business interruptions.***

Action: Conduct "Open for Business: A Disaster Planning Toolkit for the Small Business Owner" seminar or similar program.

Goal 5: **Ensure that future development in the county is as "hazard proof" as possible.**

Objective 5.1: ***Secure resources for investment in hazard mitigation.***

Action: Identify funding from state and federal programs for hazard mitigation activities.

Objective 5.2: Design, enhance, or amend county policies that will work to limit the impact a natural hazard has on the county.

Action: The NFIP communities of Taney County, Branson, Bull Creek, Hollister and Rockaway Beach will maintain requirements for NFIP participation and work to reduce repetitive flood losses.

Action: Encourage jurisdictions that are not participants in the NFIP to join.

Action: Encourage electrical utilities to use underground construction methods where possible to reduce power outages from severe winter storms.

Action: Encourage the adoption of building codes in incorporated areas that currently do not have such regulations.

Action: Adopt measures to control runoff from developing areas outside the floodplain.

Action: Ensure that new dams are constructed using methods and procedures that comply with the national dam safety hazard reduction initiative.

Mitigation Program/Strategy Development

The development and implementation of the goals, objectives and mitigation actions includes the involvement of the county, individual communities, chambers of commerce, large employers, and the emergency management team. A mitigation planning committee comprised of members of these groups should be established to plan for and implement the activities and projects necessary to accomplish the goals and objectives identified during the planning process.

To help maintain a focus on the greater goal of the overall community well-being and to help ensure implementation, underlying operating principles such as those listed below should be utilized. These principles will improve fiscal and operational efficiency as well. Each action should be implemented according to the following principles:

- Promote and encourage collaboration between disparate agencies and departments to create a synergism that results in benefits that would not be possible through a single agency.

- Employ sustainable principles and techniques in the implementation of each objective to attain maximum benefits.

- Incorporate mitigation objectives into existing and future plans, regulations, programs and projects.

- Create and implement a prioritization process that includes monetary, environmental, and sociological considerations.

It is recommended that the *Taney County Natural Hazard Mitigation Plan* be implemented by the County Commission, through the Emergency Management Director and its delegates, and the incorporated communities participating in the Plan. The implementation process will include coordination among county departments, coordination with other relevant agencies or districts throughout the county, and the municipalities. The Emergency Management Director should set up a system to monitor progress and evaluate the effectiveness of implemented actions with revisions as needed. Every five years, the county should review the plan and include any needed updates. The updated plan must be submitted for SEMA/FEMA approval. In addition, the plan shall be reviewed for any necessary updates following any major disasters that occur within the county.

With the exception of normal responsibilities of local government agents, this is a voluntary participation that in no way states nor implies the acceptance of any liability for the success or failure of the program, activities, events or projects undertaken to complete the program or any portions thereof.

Local government acceptance and approval through government resolution of the details of this mitigation program document in no way obligates the local government to actually carry out its provisions. Each individual action contained in this document that incurs a cost and/or liability must still be approved by separate governmental actions commensurate with the normal governmental proceedings for approving such actions, in accordance with local ordinances, laws and regulations.

Analysis and Prioritization of Mitigation Actions

Taney County's mitigation actions promote and/or support the development of local hazard mitigation plans, projects and activities. Examples include encouraging collaborative planning and compatible regulatory controls between the county and municipalities, structural projects to reduce flood impacts on critical infrastructures, and education/training activities to increase public awareness of hazards and capacities to reduce risks.

The five-year action matrix provides an analysis and prioritization of the hazard mitigation goals, objectives and actions. The matrix also categorizes each action into one of the six categories of mitigation, and illustrates the hazards addressed, the potential sources of funding, the lead agency, and a method for evaluating the results of the action.

In addition, because certain hazards can impact incorporated areas more than Taney County as a whole, the matrix indicates which incorporated areas could be specifically affected (or responsible for the action). The involvement of the county is assumed on all actions. The codes for each incorporated area are shown below:

Bv	=	Bradleyville	Ki	=	Kirbyville
Br	=	Branson	MW	=	Merriam Woods
BC	=	Bull Creek	RB	=	Rockaway Beach
Fo	=	Forsyth	Ta	=	Taneyville
Ho	=	Hollister	A	=	Every incorporated area could be affected or involved

Table 5-2: Taney County Five-Year Action Matrix

								Identified Natural Hazards							
Community	**Action**	**Type of Strategy**	**New, Revision, Ongoing**	**Priority Rank and Estimated Target Date**	**Probable Lead Organizer**	**Potential Funding Sources**	**Evaluation**	**Tornado/Storm**	**Flood**	**Winter**	**Drought**	**Heat Wave**	**Earthquake**	**Dam Failure**	**Wildfire**
Goal #1: Protect the lives and livelihoods of all citizens.															
1.1	***Reduce risks and vulnerabilities of people in hazard-prone areas.***														
A	Strengthen emergency services preparedness and response by linking emergency services with hazard mitigation programs, and enhancing public education.	Emergency Services Public Information	Ongoing	Medium 2006-2007	EMA	Internal funds Government program funds	Publicize information on emergency services	X	X	X	X	X	X	X	X
A	Continue the development of the Geographic Information System (GIS) for the county to further identify, analyze, and make sound decisions based upon data pertaining to the community.	Prevention	Ongoing	High 2005 & continuing	County Mapping Office Cities	Internal funds	GIS capability increased and used for decision making in development proposals	X	X	X			X	X	
A	Enhance data and mapping for floodplain information and flood-prone areas outside of designated floodplains.	Natural Resource Protection	Ongoing	Medium 2005-2007	Floodplain Manager County Mapping Office	Internal funds	Flood reports and warning coverage maps		X						
1.2	***Provide adequate warning and communication systems to alert the population of imminent hazard events and ensure availability of shelters.***														
A	Promote the installation of additional radio controlled storm warning sirens in the county and make all existing sirens radio activated.	Emergency Services	New	Medium 2007-2009	Cities	Government program funds Internal funds	Additional storm warning sirens installed and existing sirens radio activated.	X							

Table 5-2: Taney County Five-Year Action Matrix

Community	Action	Type of Strategy	New, Revision, Ongoing	Priority Rank and Estimated Target Date	Probable Lead Organizer	Potential Funding Sources	Evaluation	Identified Natural Hazards: Tornado/Storm	Flood	Winter	Drought	Heat Wave	Earthquake	Dam Failure	Wildfire
A	Provide for a NOAA weather radio in continuous operation in all facilities for public accommodation.	Emergency Services	New	High 2005 & continuing	EMA Cities	Internal funds Private funds	NOAA weather radios in all public facilities, schools, nursing homes, senior centers	X	X	X			X	X	
A	Evaluate the need for tornado plans and shelters in essential facilities and other establishments serving the public (e.g., schools, hospitals, and critical facilities).	Prevention	Ongoing	Low 2007-2008	EMA	Internal funds	Tornado plans in place	X							
A	Designate "safe places" in public buildings.	Emergency Services	Ongoing	Medium 2006	County Cities	Internal funds	Safe place list published	X							
A	Build tornado/severe wind shelter(s) in new and existing buildings, essential facilities and mobile home parks	Structural Projects Property Protection	New	Low 2007 & continuing	EMA	Government program funds	shelters in new & existing essential facilities & mobile home parks	X							
Goal #2: Ensure continued operation of government and emergency functions in a disaster.															
2.1 Improve the efficiency, timing, and effectiveness of response and recovery efforts for natural hazard disasters.															
A	Continue to inventory alternative firefighting water sources and encourage the development of additional services.	Emergency Services	Ongoing	High 2005-2007	Fire Depts./Districts	Government program funds Internal funds	Revise current firefighting plans to include alternative water resources				X				X

Table 5-2: Taney County Five-Year Action Matrix															
								Identified Natural Hazards							
Community	**Action**	**Type of Strategy**	**New, Revision, Ongoing**	**Priority Rank and Estimated Target Date**	**Probable Lead Organizer**	**Potential Funding Sources**	**Evaluation**	**Tornado/Storm**	**Flood**	**Winter**	**Drought**	**Heat Wave**	**Earthquake**	**Dam Failure**	**Wildfire**
A	Enhance emergency services to increase the efficiency of wildfire response and recovery activities.	Emergency Services	Ongoing	Low 2008-2009	EMA Fire Depts./Districts	Government program funds Internal funds	Adopt or update wildfire response plan								X
A	Enhance strategies for debris management for severe winter/ice storm events.	Property Protection	Ongoing	Low 2008-2009	County Cities	Internal funds	Adopt severe weather debris removal plan			X					
Br	Provide 911 curb addressing for residences.	Emergency Services	Ongoing	High 2005-2006	City	Internal funds	Residences have 911 curb addresses	X	X	X	X	X	X	X	X
Goal #3: Increase public awareness of natural hazards in the county in order to make the public a partner in hazard mitigation.															
3.1	***Promote education, outreach, research and development programs to improve knowledge and awareness among citizens and industry about hazard mitigation.***														
A	Encourage the newspapers to publish a special section with emergency information on natural hazards.	Public Information	New	High Annual	EMA	Internal funds	Information distributed annually				X	X			
A	Develop "tips" brochures for homeowners on how to halt or reduce the risks of natural hazards.	Public Information	New	High 2006 & continuing	EMA	Internal funds	Tips brochure distributed	X	X	X	X	X	X	X	X
A	Develop public information programs to increase awareness of flood hazards.	Public Information	New	Medium 2006 & continuing	EMA	Internal funds	Public information programs conducted		X						

Table 5-2: Taney County Five-Year Action Matrix

Community	Action	Type of Strategy	New, Revision, Ongoing	Priority Rank and Estimated Target Date	Probable Lead Organizer	Potential Funding Sources	Evaluation	Identified Natural Hazards							
								Tornado/Storm	Flood	Winter	Drought	Heat Wave	Earthquake	Dam Failure	Wildfire
A	Establish a quarterly public education program in all schools on weather safety and upcoming weather dangers.	Public Information	New	Medium Annual	EMA Schools	Internal funds	Programs conducted in schools	X	X	X	X	X	X	X	X
3.2	***Strengthen communication and coordinate participation between public agencies, citizens, non-profit organizations, business, and industry to create a widespread interest in mitigation.***														
A	Identify, review and implement mechanisms to foster collaboration among jurisdictions, agencies and special districts.	Public Information	New	High 2005 & continuing	EMA County Cities	Internal funds	Cooperative community agreement	X	X	X	X	X	X	X	X
A	Develop public and private partnerships to implement mitigation actions.	All	Ongoing	Medium 2006 & continuing	EMA County Cities	Internal funds	Cooperative community agreement signed	X	X	X	X	X	X	X	X
A	Develop a program through the local school system to encourage children to think of those persons that require special assistance during severe weather conditions.	Public Information	New	Medium Annual	EMA Schools	Internal funds	Quarterly programs in schools	X	X	X	X	X	X	X	X
A	Distribute information to encourage citizens to retrofit their homes to become more energy efficient.	Public Information	New	Medium 2007-2008	EMA	Internal funds	Tips brochure distributed			X		X			

Table 5-2: Taney County Five-Year Action Matrix																
								Identified Natural Hazards								
Community	**Action**	**Type of Strategy**	**New, Revision, Ongoing**	**Priority Rank and Estimated Target Date**	**Probable Lead Organizer**	**Potential Funding Sources**	**Evaluation**	**Tornado/Storm**	**Flood**	**Winter**	**Drought**	**Heat Wave**	**Earthquake**	**Dam Failure**	**Wildfire**
A	Encourage local community organizations to continue and augment programs to provide fans, air conditioners, and winter weatherization for those at risk.	Public Information	Ongoing	Low Annual	Local organizations	Government program funds Private funds	Fans distributed to those in need during extreme heat or cold. Provide "heat shelters" in times of high risk.			X		X			
Goal #4: Reduce the potential impact of natural disasters on new and existing properties and infrastructure, and the local economy.																
4.1	***Increase the county's capabilities to mitigate the effects of a natural hazard in the county.***															
A	Map and publicize locations around the county that have the highest incidence of extreme severe winter storms.	Public Information	Ongoing	Low 2008-2009	County Mapping Office	Internal funds	Information distributed annually			X						
A	Encourage collaborative planning and compatible regulatory controls between the county and incorporated communities to promote infrastructure development practices that reduce the potential for flooding.	Prevention	Ongoing	Low 2006 & continuing	County & City Zoning Officers	Internal funds	Increase in cooperative agreements and development practices incorporated into zoning and/or codes		X							
A	Analyze repetitive flood property and identify feasible mitigation measures.	Natural Resource Protection	Ongoing	Medium 2007 & beyond	County Floodplain Manager Cities	Internal funds	Zoning ordinances amended		X							
Br	Provide Community Emergency Response Team (CERT) training.	Emergency Services	Ongoing	High 2005 & continuing	EMA	Internal funds Donations	CERTs trained	X	X	X	X	X	X	X	X	

Table 5-2: Taney County Five-Year Action Matrix

Community	Action	Type of Strategy	New, Revision, Ongoing	Priority Rank and Estimated Target Date	Probable Lead Organizer	Potential Funding Sources	Evaluation	Identified Natural Hazards							
								Tornado/Storm	Flood	Winter	Drought	Heat Wave	Earthquake	Dam Failure	Wildfire
4.2	***Protect structures and their occupants and contents from the damaging effects of natural hazards.***														
A	Identify water drainage obstructions and make improvements to lessen the potential for flooding.	Natural Resource Protection	Ongoing	High 2005 & continuing	County & City public works	Internal funds	Stormwater plans & improvements made		X						
A	Make improvements to bridges to avoid future repetitive damage.	Structural Projects	New	Medium 2007 & beyond	County	Government program funds Internal funds	Work with MoDOT to identify appropriate maintenance schedule	X	X				X		
A	Purchase emergency generators for critical water and sewer system facilities.	Emergency Services	New	Medium 2007-2009	Cities Private sector	Government program funds Internal funds	Backup generators installed for critical facilities	X	X	X			X		
A	Ensure that wastewater treatment plants in the communities will function during flooding events.	Emergency Services	New	Medium 2006-2008	Cities Private sector	Government program funds Internal funds Private	Adopt hazard procedure plan and update annually, improvements made as necessary		X					X	
A	Install culverts to eliminate water flow restrictions.	Structural Projects	New	Medium 2006 & continuing	County Cities	Government program funds Internal funds	Stormwater plans & improvements made		X						

Table 5-2: Taney County Five-Year Action Matrix															
								Identified Natural Hazards							
Community	**Action**	**Type of Strategy**	**New, Revision, Ongoing**	**Priority Rank and Estimated Target Date**	**Probable Lead Organizer**	**Potential Funding Sources**	**Evaluation**	**Tornado/Storm**	**Flood**	**Winter**	**Drought**	**Heat Wave**	**Earthquake**	**Dam Failure**	**Wildfire**
4.3	***Provide area small businesses with tools to properly prepare for business interruptions.***														
Br	Conduct "Open for Business: A Disaster Planning Toolkit for the Small Business Owner" seminar or similar program.	Public Information	Ongoing	High 2005 & continuing	EMA	Local government participants Private	Programs conducted, attendance records	X	X	X			X	X	X
Goal #5: Ensure that future development in the county is as "hazard proof" as possible.															
5.1	***Secure resources for investment in hazard mitigation.***														
A	Identify funding from state and federal programs for hazard mitigation activities.	All	Ongoing	High 2005 & continuing	EMA Cities	Internal funding	Form committee to look into potential funding opportunities	X	X	X	X	X	X	X	X
5.2	***Design, enhance, or amend county policies that will work to limit the impact a natural hazard has on the county.***														
Br BC Ho RB	The NFIP communities of Taney County, Branson, Bull Creek, Hollister and Rockaway Beach will maintain requirements for NFIP participation and work to reduce repetitive flood losses.	Prevention	Ongoing	High 2005 & continuing	County Cities	Internal funds	Communities continue participation in NFIP		X						
Bv Ki MW Ta	Encourage jurisdictions that are not participants in the NFIP to join.	Property Protection Prevention	New	Low 2009 and beyond	County Floodplain Manager	Internal funding	Non-participating communities join NFIP		X						
A	Encourage electrical utilities to use underground construction methods where possible to reduce power outages from severe winter storms.	Prevention	Ongoing	Low 2006 & continuing	County & City Zoning Officers	Internal funding	Increase in development s with underground utilities and incorporated into zoning			X					

Table 5-2: Taney County Five-Year Action Matrix

								Identified Natural Hazards							
Community	**Action**	**Type of Strategy**	**New, Revision, Ongoing**	**Priority Rank and Estimated Target Date**	**Probable Lead Organizer**	**Potential Funding Sources**	**Evaluation**	**Tornado/Storm**	**Flood**	**Winter**	**Drought**	**Heat Wave**	**Earthquake**	**Dam Failure**	**Wildfire**
Bv BC Ki Ta	Encourage the adoption of building codes in incorporated areas that currently do not have such regulations.	Prevention	New	High 2006 & continuing	Cities	Internal funding	Building codes adopted	X	X	X	X	X	X	X	X
A	Adopt measures to control runoff from developing areas outside the floodplain.	Natural Resource Protection	Revision	High 2006-2007	Floodplain Manager County & City Zoning Officers	Government program funds	Zoning ordinances amended		X						
A	Ensure that new dams are constructed using methods and procedures that comply with the national dam safety hazard reduction initiative.	Structural Projects	New	Medium 2006-2009	EMA County Zoning Officer	Internal funds Govt. funds	Implement plan review in land development regulations							X	

Part 6: Plan Maintenance

Taney County has developed a method to ensure regular review and update of the *Natural Hazard Mitigation Plan.* The County's Hazard Mitigation Planning Committee consists of the County Commissioners, municipal officials, members of the Taney County Emergency Management Committee (fire, law enforcement, emergency medical, and public health officers), officials responsible for various objectives in the Plan, and the County EMD. Hazard mitigation objectives will be an agenda item, as needed, at monthly meetings of the Taney County Emergency Management Committee.

The County EMD shall be responsible for contacting all Hazard Mitigation Planning Committee members and organizing the annual meeting. The County Commission, the EMD, and the participating municipalities will be responsible for monitoring and evaluating the progress of the mitigation strategies in the Plan. They will review each goal and objective to determine their relevance to changing situations in the county, as well as changes in State or Federal policy, and to ensure that they are addressing current and expected conditions. They also will review the risk assessment portion of the Plan to determine if this information should be updated or modified. The parties responsible for the various implementation actions will report on the status of their projects, including which implementation processes worked well, any difficulties encountered, how coordination efforts were proceeding, and which strategies should be revised.

Following the annual review, the County EMD will have three months to update and make changes to the Plan as determined necessary before submitting it to the Committee members and the State Hazard Mitigation Officer. If no changes are necessary, the State Hazard Mitigation Officer will be given a justification for this determination.

The general public will be encouraged to attend Hazard Mitigation Planning Committee meetings through published notices, reminders or announcements at civic meetings, and possibly public speaking engagements. The Southwest Missouri Council of Governments will host announcements as well as a copy of the latest Plan on the SMCOG website at www.smcog.missouristate.edu.

Part 7: Appendices

Appendix A: Signed Adoption Resolutions

Appendix B: Repetitive Losses

Appendix C: Taney County Theatres

Appendix D: Acronyms

Appendix E: Glossary

Appendix F: References

Appendix A: Signed Adoption Resolutions

Appendix A contains the local government resolutions adopting the *Taney County Natural Hazard Mitigation Plan*. The plan has been adopted by Taney County and all incorporated municipalities. The signed resolutions of adoption are presented in the following order:

- Taney County
- Village of Bradleyville
- City of Branson
- Village of Bull Creek
- City of Forsyth
- City of Hollister
- Village of Kirbyville
- Village of Merriam Woods
- City of Rockaway Beach
- Village of Taneyville

Resolution adopted by Taney County, Missouri on July 27, 2005.

A RESOLUTION OF INTENT TO PARTICIPATE IN NATURAL HAZARD MITIGATION AND TO WORK TOWARD BECOMING A SAFER COMMUNITY

WHEREAS, the County of Taney recognizes that no community is immune from natural hazards whether it be tornado/severe thunderstorm, flood, severe winter weather, drought, heat wave, earthquake, dam failure or wildfire and recognizes the importance enhancing its ability to withstand natural hazards as well as the importance of reducing the human suffering, property damage, interruption of public services and economic losses caused by those hazards; and

WHEREAS, the County of Taney may have previously pursued measures such as building codes, fire codes, floodplain management regulations, zoning ordinances, and stormwater management regulations to minimize the impact of natural hazards; and

WHEREAS, the Federal Emergency Management Agency and the State Emergency Management Agency have developed a natural hazard mitigation program that assists communities in their efforts to become Disaster-Resistant Communities which are sustainable communities after a natural disaster that focus, not just on disaster relief, but also on recovery and reconstruction that brings the community to at least pre-disaster conditions in an accelerated, orderly and preplanned manner; and

WHEREAS, by participating in the Natural Hazards Mitigation program, the County of Taney will be eligible to apply for post-disaster mitigation funds; and

WHEREAS, the County of Taney desires to commit to working with government partners and community partners to develop a local Natural Hazards Mitigation Plan; and

WHEREAS, the County of Taney will implement pertinent precepts of the mitigation plan by incorporation into other community plans and mechanisms where appropriate; and

WHEREAS, all aspects pertaining to the County, in the Taney County Multi-Jurisdictional Hazard Mitigation Plan attached hereto and incorporated by reference herein be approved; and,

WHEREAS, the County of Taney will evaluate and review the Plan regularly or after a disaster as well as complete a mandated five-year update submitted to the State Emergency Management Agency and the Federal Emergency Management Agency for review; and

NOW, THEREFORE BE IT RESOLVED BY THE COUNTY COMMISSION OF THE COUNTY OF TANEY, MISSOURI AS FOLLOWS:

The County of Taney will use its best efforts to become a safer community by participating in hazard identification and risk assessment to implement mitigation practices that can reduce vulnerability for residents and businesses.

Chuck Pennel, Taney County Presiding Commissioner — Date 8/15/05

Ron Herschend, Commissioner — Date 8/15/05

Danny Strahan, Commissioner — Date 8/15/05

(Plan adopted by Taney County Commission on 7/27/05; resolution signed on 8/15/05)

Resolution adopted by the Village of Bradleyville, Missouri on July 18, 2005.

RESOLUTION NO. _____

A RESOLUTION OF INTENT TO PARTICIPATE IN NATURAL HAZARD MITIGATION AND TO WORK TOWARD BECOMING A SAFER COMMUNITY

WHEREAS, the Village of Bradleyville recognizes that no community is immune from natural hazards whether it be tornado/severe thunderstorm, flood, severe winter weather, drought, heat wave, earthquake, dam failure or wildfire and recognizes the importance enhancing its ability to withstand natural hazards as well as the importance of reducing the human suffering, property damage, interruption of public services and economic losses caused by those hazards; and

WHEREAS, the Village of Bradleyville may have previously pursued measures such as building codes, fire codes, floodplain management regulations, zoning ordinances, and stormwater management regulations to minimize the impact of natural hazards; and

WHEREAS, the Federal Emergency Management Agency and the State Emergency Management Agency have developed a natural hazard mitigation program that assists communities in their efforts to become Disaster-Resistant Communities which are sustainable communities after a natural disaster that focus, not just on disaster relief, but also on recovery and reconstruction that brings the community to at least pre-disaster conditions in an accelerated, orderly and preplanned manner; and

WHEREAS, by participating in the Natural Hazards Mitigation program, the Village of Bradleyville will be eligible to apply for post-disaster mitigation funds; and

WHEREAS, the Village of Bradleyville desires to commit to working with government partners and community partners to develop a local Natural Hazards Mitigation Plan; and

WHEREAS, the Village of Bradleyville will implement pertinent precepts of the mitigation plan by incorporation into other community plans and mechanisms where appropriate; and

WHEREAS, all aspects pertaining to the Village of Bradleyville in the Taney County Multi-Jurisdictional Hazard Mitigation Plan attached hereto and incorporated by reference herein be approved; and,

WHEREAS, the Village of Bradleyville will evaluate and review the Plan regularly or after a disaster as well as complete a mandated five-year update submitted to the State Emergency Management Agency and the Federal Emergency Management Agency for review; and

NOW, THEREFORE BE IT RESOLVED BY THE BOARD OF TRUSTEES OF THE VILLAGE OF BRADLEYVILLE, MISSOURI AS FOLLOWS:

The Village of Bradleyville will use its best efforts to become a safer community by participating in hazard identification and risk assessment to implement mitigation practices that can reduce vulnerability for residents and businesses.

John Combs, Chairman — Date 7-18-05

ATTEST: Kim Koch, Village Clerk — Date 7-18-05

RESOLUTION NO. 2005-R023

A RESOLUTION OF INTENT TO PARTICIPATE IN A NATURAL HAZARD MITIGATION PROGRAM TO BE ELIGIBLE FOR POST-DISASTER MITIGATION FUNDS.

WHEREAS, the City of Branson recognizes that no community is immune from natural hazards whether it be tornado/severe thunderstorm, flood, severe winter weather, drought, heat wave, earthquake, dam failure or wildfire and recognizes the importance enhancing its ability to withstand natural hazards as well as the importance of reducing the human suffering, property damage, interruption of public services and economic losses caused by those hazards; and

WHEREAS, the City of Branson may have previously pursued measures such as building codes, fire codes, floodplain management regulations, zoning ordinances, and stormwater management regulations to minimize the impact of natural hazards; and

WHEREAS, the Federal Emergency Management Agency and the State Emergency Management Agency have developed a natural hazard mitigation program that assists communities in their efforts to become Disaster-Resistant Communities which are sustainable communities after a natural disaster that focus, not just on disaster relief, but also on recovery and reconstruction that brings the community to at least pre-disaster conditions in an accelerated, orderly and preplanned manner; and

WHEREAS, by participating in the Natural Hazards Mitigation program, the City of Branson will be eligible to apply for post-disaster mitigation funds; and

WHEREAS, the City of Branson desires to commit to working with government partners and community partners to develop a local Natural Hazards Mitigation Plan; and

WHEREAS, the City of Branson will implement pertinent precepts of the mitigation plan by incorporation into other community plans and mechanisms where appropriate; and

WHEREAS, all aspects pertaining to the City of Branson in the Taney County Multi-Jurisdictional Hazard Mitigation Plan available in the Office of the City Clerk and incorporated by reference herein be approved; and,

WHEREAS, the City of Branson will evaluate and review the Plan regularly or after a disaster as well as complete a mandated five-year update submitted to the State Emergency Management Agency and the Federal Emergency Management Agency for review; and

NOW, THEREFORE BE IT RESOLVED BY THE BOARD OF ALDERMEN OF THE CITY OF BRANSON, MISSOURI AS FOLLOWS:

The City of Branson will use its best efforts to become a safer community by participating in hazard identification and risk assessment to implement mitigation practices that can reduce vulnerability for residents and businesses.

This Resolution read, passed and truly agreed to this 25th day of July, 2005.

Louis Shaefer
Mayor

ATTEST:

Lisa K Westfall
City Clerk

APPROVED AS TO FORM:

Joseph L. Johnson
City Attorney

Resolution No. 2005-R023
Page 2 of 2

Resolution adopted by the Village of Bull Creek, Missouri on August 2, 2005.

RESOLUTION NO. 08022005

A RESOLUTION OF INTENT TO PARTICIPATE IN NATURAL HAZARD MITIGATION AND TO WORK TOWARD BECOMING A SAFER COMMUNITY

WHEREAS, the Village of Bull Creek recognizes that no community is immune from natural hazards whether it be tornado/severe thunderstorm, flood, severe winter weather, drought, heat wave, earthquake, dam failure or wildfire and recognizes the importance enhancing its ability to withstand natural hazards as well as the importance of reducing the human suffering, property damage, interruption of public services and economic losses caused by those hazards; and

WHEREAS, the Village of Bull Creek may have previously pursued measures such as building codes, fire codes, floodplain management regulations, zoning ordinances, and stormwater management regulations to minimize the impact of natural hazards; and

WHEREAS, the Federal Emergency Management Agency and the State Emergency Management Agency have developed a natural hazard mitigation program that assists communities in their efforts to become Disaster-Resistant Communities which are sustainable communities after a natural disaster that focus, not just on disaster relief, but also on recovery and reconstruction that brings the community to at least pre-disaster conditions in an accelerated, orderly and preplanned manner; and

WHEREAS, by participating in the Natural Hazards Mitigation program, the Village of Bull Creek will be eligible to apply for post-disaster mitigation funds; and

WHEREAS, the Village of Bull Creek desires to commit to working with government partners and community partners to develop a local Natural Hazards Mitigation Plan; and

WHEREAS, the Village of Bull Creek will implement pertinent precepts of the mitigation plan by incorporation into other community plans and mechanisms where appropriate; and

WHEREAS, all aspects pertaining to the Village of Bull Creek in the Taney County Multi-Jurisdictional Hazard Mitigation Plan attached hereto and incorporated by reference herein be approved; and

WHEREAS, the Village of Bull Creek will evaluate and review the Plan regularly or after a disaster as well as complete a mandated five-year update submitted to the State Emergency Management Agency and the Federal Emergency Management Agency for review; and

NOW, THEREFORE BE IT RESOLVED BY THE BOARD OF TRUSTEES OF THE VILLAGE OF BULL CREEK, MISSOURI AS FOLLOWS:

The Village of Bull Creek will use its best efforts to become a safer community by participating in hazard identification and risk assessment to implement mitigation practices that can reduce vulnerability for residents and businesses.

Jody LeMaster 8/2/05

Jody LeMaster, Chairman Date

Creagh Tucker 8/2/05

ATTEST: Creagh Tucker, Administrator Date

Resolution adopted by the City of Forsyth, Missouri on Aug 15 **, 2005.**

RESOLUTION NO. 8-8-05

A RESOLUTION OF INTENT TO PARTICIPATE IN NATURAL HAZARD MITIGATION AND TO WORK TOWARD BECOMING A SAFER COMMUNITY

WHEREAS, the City of Forsyth recognizes that no community is immune from natural hazards whether it be tornado/severe thunderstorm, flood, severe winter weather, drought, heat wave, earthquake, dam failure or wildfire and recognizes the importance enhancing its ability to withstand natural hazards as well as the importance of reducing the human suffering, property damage, interruption of public services and economic losses caused by those hazards; and

WHEREAS, the City of Forsyth may have previously pursued measures such as building codes, fire codes, floodplain management regulations, zoning ordinances, and stormwater management regulations to minimize the impact of natural hazards; and

WHEREAS, the Federal Emergency Management Agency and the State Emergency Management Agency have developed a natural hazard mitigation program that assists communities in their efforts to become Disaster-Resistant Communities which are sustainable communities after a natural disaster that focus, not just on disaster relief, but also on recovery and reconstruction that brings the community to at least pre-disaster conditions in an accelerated, orderly and preplanned manner; and

WHEREAS, by participating in the Natural Hazards Mitigation program, the City of Forsyth will be eligible to apply for post-disaster mitigation funds; and

WHEREAS, the City of Forsyth desires to commit to working with government partners and community partners to develop a local Natural Hazards Mitigation Plan; and

WHEREAS, the City of Forsyth will implement pertinent precepts of the mitigation plan by incorporation into other community plans and mechanisms where appropriate; and

WHEREAS, all aspects pertaining to the City of Forsyth in the Taney County Multi-Jurisdictional Hazard Mitigation Plan attached hereto and incorporated by reference herein be approved; and

WHEREAS, the City of Forsyth will evaluate and review the Plan regularly or after a disaster as well as complete a mandated five-year update submitted to the State Emergency Management Agency and the Federal Emergency Management Agency for review; and

NOW, THEREFORE BE IT RESOLVED BY THE BOARD OF ALDERMEN OF THE CITY OF FORSYTH, MISSOURI AS FOLLOWS:

The City of Forsyth will use its best efforts to become a safer community by participating in hazard identification and risk assessment to implement mitigation practices that can reduce vulnerability for residents and businesses.

Karl Smith, Mayor — Date: 8-15-05

ATTEST: Ruth Whitley, City Clerk — Date: 8-15-05

Resolution adopted by the City of Hollister, Missouri on July 21 **, 2005.**

RESOLUTION NO. 2005-07-21

A RESOLUTION OF INTENT TO PARTICIPATE IN NATURAL HAZARD MITIGATION AND TO WORK TOWARD BECOMING A SAFER COMMUNITY

WHEREAS, the City of Hollister recognizes that no community is immune from natural hazards whether it be tornado/severe thunderstorm, flood, severe winter weather, drought, heat wave, earthquake, dam failure or wildfire and recognizes the importance enhancing its ability to withstand natural hazards as well as the importance of reducing the human suffering, property damage, interruption of public services and economic losses caused by those hazards; and

WHEREAS, the City of Hollister may have previously pursued measures such as building codes, fire codes, floodplain management regulations, zoning ordinances, and stormwater management regulations to minimize the impact of natural hazards; and

WHEREAS, the Federal Emergency Management Agency and the State Emergency Management Agency have developed a natural hazard mitigation program that assists communities in their efforts to become Disaster-Resistant Communities which are sustainable communities after a natural disaster that focus, not just on disaster relief, but also on recovery and reconstruction that brings the community to at least pre-disaster conditions in an accelerated, orderly and preplanned manner; and

WHEREAS, by participating in the Natural Hazards Mitigation program, the City of Hollister will be eligible to apply for post-disaster mitigation funds; and

WHEREAS, the City of Hollister desires to commit to working with government partners and community partners to develop a local Natural Hazards Mitigation Plan; and

WHEREAS, the City of Hollister will implement pertinent precepts of the mitigation plan by incorporation into other community plans and mechanisms where appropriate; and

WHEREAS, all aspects pertaining to the City of Hollister in the Taney County Multi-Jurisdictional Hazard Mitigation Plan attached hereto and incorporated by reference herein be approved; and

WHEREAS, the City of Hollister will evaluate and review the Plan regularly or after a disaster as well as complete a mandated five-year update submitted to the State Emergency Management Agency and the Federal Emergency Management Agency for review; and

NOW, THEREFORE BE IT RESOLVED BY THE BOARD OF ALDERMEN OF THE CITY OF HOLLISTER, MISSOURI AS FOLLOWS:

The City of Hollister will use its best efforts to become a safer community by participating in hazard identification and risk assessment to implement mitigation practices that can reduce vulnerability for residents and businesses.

David G Tate 7-21-05

David Tate, Mayor Date

Sheryl Brashear 7-21-05

ATTEST: Sheryl Brashear, City Clerk Date

Resolution adopted by the Village of Kirbyville, Missouri on 7-21, 2005.

RESOLUTION NO. _____

A RESOLUTION OF INTENT TO PARTICIPATE IN NATURAL HAZARD MITIGATION AND TO WORK TOWARD BECOMING A SAFER COMMUNITY

WHEREAS, the Village of Kirbyville recognizes that no community is immune from natural hazards whether it be tornado/severe thunderstorm, flood, severe winter weather, drought, heat wave, earthquake, dam failure or wildfire and recognizes the importance enhancing its ability to withstand natural hazards as well as the importance of reducing the human suffering, property damage, interruption of public services and economic losses caused by those hazards; and

WHEREAS, the Village of Kirbyville may have previously pursued measures such as building codes, fire codes, floodplain management regulations, zoning ordinances, and stormwater management regulations to minimize the impact of natural hazards; and

WHEREAS, the Federal Emergency Management Agency and the State Emergency Management Agency have developed a natural hazard mitigation program that assists communities in their efforts to become Disaster-Resistant Communities which are sustainable communities after a natural disaster that focus, not just on disaster relief, but also on recovery and reconstruction that brings the community to at least pre-disaster conditions in an accelerated, orderly and preplanned manner; and

WHEREAS, by participating in the Natural Hazards Mitigation program, the Village of Kirbyville will be eligible to apply for post-disaster mitigation funds; and

WHEREAS, the Village of Kirbyville desires to commit to working with government partners and community partners to develop a local Natural Hazards Mitigation Plan; and

WHEREAS, the Village of Kirbyville will implement pertinent precepts of the mitigation plan by incorporation into other community plans and mechanisms where appropriate; and

WHEREAS, all aspects pertaining to the Village of Kirbyville in the Taney County Multi-Jurisdictional Hazard Mitigation Plan attached hereto and incorporated by reference herein be approved; and

WHEREAS, the Village of Kirbyville will evaluate and review the Plan regularly or after a disaster as well as complete a mandated five-year update submitted to the State Emergency Management Agency and the Federal Emergency Management Agency for review; and

NOW, THEREFORE BE IT RESOLVED BY THE BOARD OF TRUSTEES OF THE VILLAGE OF KIRBYVILLE, MISSOURI AS FOLLOWS:

The Village of Kirbyville will use its best efforts to become a safer community by participating in hazard identification and risk assessment to implement mitigation practices that can reduce vulnerability for residents and businesses.

Bobby Fausett 7-21-05

Bobby Fausett, Chairman Date

Amy M. Chamberlin 7-21-05

ATTEST: Amy Chamberlain, Village Clerk Date

Resolution adopted by the Village of Merriam Woods, Missouri on August 9 **, 2005.**

RESOLUTION NO. 2005-3

A RESOLUTION OF INTENT TO PARTICIPATE IN NATURAL HAZARD MITIGATION AND TO WORK TOWARD BECOMING A SAFER COMMUNITY

WHEREAS, the Village of Merriam Woods recognizes that no community is immune from natural hazards whether it be tornado/severe thunderstorm, flood, severe winter weather, drought, heat wave, earthquake, dam failure or wildfire and recognizes the importance enhancing its ability to withstand natural hazards as well as the importance of reducing the human suffering, property damage, interruption of public services and economic losses caused by those hazards; and

WHEREAS, the Village of Merriam Woods may have previously pursued measures such as building codes, fire codes, floodplain management regulations, zoning ordinances, and stormwater management regulations to minimize the impact of natural hazards; and

WHEREAS, the Federal Emergency Management Agency and the State Emergency Management Agency have developed a natural hazard mitigation program that assists communities in their efforts to become Disaster-Resistant Communities which are sustainable communities after a natural disaster that focus, not just on disaster relief, but also on recovery and reconstruction that brings the community to at least pre-disaster conditions in an accelerated, orderly and preplanned manner; and

WHEREAS, by participating in the Natural Hazards Mitigation program, the Village of Merriam Woods will be eligible to apply for post-disaster mitigation funds; and

WHEREAS, the Village of Merriam Woods desires to commit to working with government partners and community partners to develop a local Natural Hazards Mitigation Plan; and

WHEREAS, the Village of Merriam Woods will implement pertinent precepts of the mitigation plan by incorporation into other community plans and mechanisms where appropriate; and

WHEREAS, all aspects pertaining to the Village of Merriam Woods in the Taney County Multi-Jurisdictional Hazard Mitigation Plan attached hereto and incorporated by reference herein be approved; and

WHEREAS, the Village of Merriam Woods will evaluate and review the Plan regularly or after a disaster as well as complete a mandated five-year update submitted to the State Emergency Management Agency and the Federal Emergency Management Agency for review; and

NOW, THEREFORE BE IT RESOLVED BY THE BOARD OF TRUSTEES OF THE VILLAGE OF MERRIAM WOODS, MISSOURI AS FOLLOWS:

The Village of Merriam Woods will use its best efforts to become a safer community by participating in hazard identification and risk assessment to implement mitigation practices that can reduce vulnerability for residents and businesses.

Mike Wilkerson, Chairman — Date 8/9/05

ATTEST: Angela Leist, Village Clerk — Date 8/9/05

Resolution adopted by the City of Rockaway Beach, Missouri on July 27, 2005.

RESOLUTION NO. R205-703

A RESOLUTION OF INTENT TO PARTICIPATE IN NATURAL HAZARD MITIGATION AND TO WORK TOWARD BECOMING A SAFER COMMUNITY

WHEREAS, the City of Rockaway Beach recognizes that no community is immune from natural hazards whether it be tornado/severe thunderstorm, flood, severe winter weather, drought, heat wave, earthquake, dam failure or wildfire and recognizes the importance enhancing its ability to withstand natural hazards as well as the importance of reducing the human suffering, property damage, interruption of public services and economic losses caused by those hazards; and

WHEREAS, the City of Rockaway Beach may have previously pursued measures such as building codes, fire codes, floodplain management regulations, zoning ordinances, and stormwater management regulations to minimize the impact of natural hazards; and

WHEREAS, the Federal Emergency Management Agency and the State Emergency Management Agency have developed a natural hazard mitigation program that assists communities in their efforts to become Disaster-Resistant Communities which are sustainable communities after a natural disaster that focus, not just on disaster relief, but also on recovery and reconstruction that brings the community to at least pre-disaster conditions in an accelerated, orderly and preplanned manner; and

WHEREAS, by participating in the Natural Hazards Mitigation program, the City of Rockaway Beach will be eligible to apply for post-disaster mitigation funds; and

WHEREAS, the City of Rockaway Beach desires to commit to working with government partners and community partners to develop a local Natural Hazards Mitigation Plan; and

WHEREAS, the City of Rockaway Beach will implement pertinent precepts of the mitigation plan by incorporation into other community plans and mechanisms where appropriate; and

WHEREAS, all aspects pertaining to the City of Rockaway Beach in the Taney County Multi-Jurisdictional Hazard Mitigation Plan attached hereto and incorporated by reference herein be approved; and

WHEREAS, the City of Rockaway Beach will evaluate and review the Plan regularly or after a disaster as well as complete a mandated five-year update submitted to the State Emergency Management Agency and the Federal Emergency Management Agency for review; and

NOW, THEREFORE BE IT RESOLVED BY THE BOARD OF ALDERMEN OF THE CITY OF ROCKAWAY BEACH, MISSOURI AS FOLLOWS:

The City of Rockaway Beach will use its best efforts to become a safer community by participating in hazard identification and risk assessment to implement mitigation practices that can reduce vulnerability for residents and businesses.

Thomas Strom, Mayor — Date 7-27-05

ATTEST: Susan Kettelkamp, Clerk — Date 07-27-05

Resolution adopted by the Village of Taneyville, Missouri on Sept 13, **2005.**

RESOLUTION NO. 2005-2

A RESOLUTION OF INTENT TO PARTICIPATE IN NATURAL HAZARD MITIGATION AND TO WORK TOWARD BECOMING A SAFER COMMUNITY

WHEREAS, the Village of Taneyville recognizes that no community is immune from natural hazards whether it be tornado/severe thunderstorm, flood, severe winter weather, drought, heat wave, earthquake, dam failure or wildfire and recognizes the importance enhancing its ability to withstand natural hazards as well as the importance of reducing the human suffering, property damage, interruption of public services and economic losses caused by those hazards; and

WHEREAS, the Village of Taneyville may have previously pursued measures such as building codes, fire codes, floodplain management regulations, zoning ordinances, and stormwater management regulations to minimize the impact of natural hazards; and

WHEREAS, the Federal Emergency Management Agency and the State Emergency Management Agency have developed a natural hazard mitigation program that assists communities in their efforts to become Disaster-Resistant Communities which are sustainable communities after a natural disaster that focus, not just on disaster relief, but also on recovery and reconstruction that brings the community to at least pre-disaster conditions in an accelerated, orderly and preplanned manner; and

WHEREAS, by participating in the Natural Hazards Mitigation program, the Village of Taneyville will be eligible to apply for post-disaster mitigation funds; and

WHEREAS, the Village of Taneyville desires to commit to working with government partners and community partners to develop a local Natural Hazards Mitigation Plan; and

WHEREAS, the Village of Taneyville will implement pertinent precepts of the mitigation plan by incorporation into other community plans and mechanisms where appropriate; and

WHEREAS, all aspects pertaining to the Village of Taneyville in the Taney County Multi-Jurisdictional Hazard Mitigation Plan attached hereto and incorporated by reference herein be approved; and

WHEREAS, the Village of Taneyville will evaluate and review the Plan regularly or after a disaster as well as complete a mandated five-year update submitted to the State Emergency Management Agency and the Federal Emergency Management Agency for review; and

NOW, THEREFORE BE IT RESOLVED BY THE BOARD OF TRUSTEES OF THE VILLAGE OF TANEYVILLE, MISSOURI AS FOLLOWS:

The Village of Taneyville will use its best efforts to become a safer community by participating in hazard identification and risk assessment to implement mitigation practices that can reduce vulnerability for residents and businesses.

Joe M. Collins 9-13-05

Joe Collins, Chairman Date

Donna Riggs 9-13-05

ATTEST: Donna Riggs, Village Clerk Date

Appendix B: Repetitive Losses

Table B-1 shows repetitive losses to the National Flood Insurance Program (NFIP) in Taney County as of July 31, 2003. Information is shown concerning whether mitigation actions were previously taken, whether the property was insured at the time of the flood, total payments made by the NFIP for building losses and contents losses, the number of times the property has been claimed to the NFIP, total claims paid on the property, and average claim payment.

Table B-1: Taney County Repetitive Losses as of 7/31/2003	
Community	City of Branson
State	Missouri
Zip Code	65616-3600
Mitigated?	No
Insured?	No
Total Building Payment	$6,060.01
Total Contents Payment	$2,241.75
Losses	2
Total Paid	$8,301.76
Average Paid	$4,150.88
Source: Federal Emergency Management Agency, Region VII.	

Appendix C: Taney County Theatres

Table C-1: Branson Area Theatres					
Name	**Address**	**City**	**State**	**Zip Code**	**Telephone**
76 Musical Hall	76 Country Blvd.	Branson	MO	65616	417-335-2484
Ain't Misbehavin' Theatre	625 State Hwy 165	Branson	MO	65616	417-355-2700
Andy Williams Moon River Theatre	2500 76 Country Blvd	Branson	MO	65616	417-334-4500
Baldknobber's Jamboree	2845 76 Country Blvd.	Branson	MO	65616	417-334-4528
Branson Mall Music Theatre	2200 West Highway 76	Branson	MO	65616	417-335-3500
Branson Variety	2701 W Hwy 76	Branson	MO	65616	417-334-2500
Celebrity Theatre	3425 Hwy 76	Branson	MO	65616	417-334-7535
Circle B Chuckwagon	200 JessJo Parkway	Branson	MO	65616	417-336-1828
Country Tonite Theatre	4080 W. Hwy 76	Branson	MO	65616	417-334-2422
Dixie Stampede	1527 76 Country Blvd.	Branson	MO	65616	417-336-3000
Dutton's	3454 W Hwy 76	Branson	MO	65616	417-332-2244
Engler's Block Gift	1335 W Hwy 76	Branson	MO	65616	417-335-2200
Gaslighter Showtown Theatre	3115 W Hwy 76	Branson	MO	65616	417-337-9333
Grand Palace	2700 76 Country Blvd.	Branson	MO	65616	417-334-7263
Hamner Barber Theatre/Braschler Show	3090 Shepherd of the Hills Expy	Branson	MO	65616	417-334-4363
Jim Stafford Theatre	3440 Hwy 76	Branson	MO	65616	417-335-8080
Kirby VanBurch	P.O. Box 1006, Missouri Hwy 248	Branson	MO	65616	417-337-7140
Legend's Family Theater	3600 W Hwy 76	Branson	MO	65616	417-335-7827
Little Opry	3562 Shepherd of the Hills Expy.	Branson	MO	65616	417-335-4832
Mansion America Theatre	187 Expressway Ln	Branson	MO	65616	417-239-1333
MGH Performing Arts Center	464 State Hwy 248	Branson	MO	65616	417-335-2000
Mickey Gilley Theatre	3455 76 Country Blvd.	Branson	MO	65616	417-334-3210
Moe Bandy Theatre	3446 W Hwy 76	Branson	MO	65616	417-334-5333
Music City Centre	1835 W 76 Country Blvd.	Branson	MO	65616	417-332-1575
Musical Palace	2353 State Hwy 248	Branson	MO	65616	417-339-1960

Table C-1: Branson Area Theatres					
Name	**Address**	**City**	**State**	**Zip Code**	**Telephone**
New Shanghai	645 State Hwy 165	Branson	MO	65616	877-212-4462
Owen's Theatre	205 S. Commercial St.	Branson	MO	65616	417-336-2122
Ozarks Discovery IMAX Complex	3562 Shepherd of the Hills Expy.	Branson	MO	65616	417-335-4832
Paul Harris	3446 W State Hwy 76	Branson	MO	65616	417-334-5100
Pierce Arrow Theater	3069 Shepherd of the Hills Expy.	Branson	MO	65616	417-336-8742
Presley's Jubilee Theatre	2920 76 Country Blvd.	Branson	MO	65616	417-334-4874
Ray Stevens	4080 W Hwy 76	Branson	MO	65616	417-335-3000
Remington	3701 W Hwy 76	Branson	MO	65616	417-336-6220
Shepard Of The Hills Outdoor Theatre	5586 West Hwy 76	Branson	MO	65616	417-334-4191
Shoji Tabuchi Theatre	3260 Shepherd of the Hills Expy.	Branson	MO	65616	417-334-7469
Starlite Theatre	3115 W Hwy 76	Branson	MO	65616	417-337-9333
Tri-Lakes Center	2527 State Hwy 248	Branson	MO	65616	417-335-5715
Waltzing Waters	3617 W Hwy 76	Branson	MO	65615	417-334-4144
Welk Resort Theatre	1984 Hwy 165	Branson	MO	65616	417-337-7469
White House Theatre	755 Gretna Rd.	Branson	MO	65616	417-335-2396
Yakov's American Pavilion	1940 Hwy 165	Branson	MO	65616	417-339-2568

Appendix D: Acronyms

- ASM Archaeological Survey of Missouri
- BFE Base Flood Elevation
- BLM Bureau of Land Management
- CDBG Community Block Development Program
- CEDS Comprehensive Economic Development Strategy
- CERI Center for Earthquake Research and Information
- CPC Climate Prediction Center
- CRS Community Rating System
- CTCFPD Central Taney County Fire Protection District
- DMA 2000 Disaster Mitigation Act of 2000
- EDA Economic Development Administration
- EMD Emergency Management Director
- EOC Emergency Operations Center
- EOP Emergency Operations Plan
- EPA Environmental Protection Agency
- FEMA Federal Emergency Management Agency
- FIRM Flood Insurance Rate Map
- FMA Flood Management Assistance (FEMA Program)
- GIS Geographic Information System
- HMGP Hazard Mitigation Grant Program
- HMST Hazard Mitigation Survey Team
- HUD Housing and Urban Development (United States, Department of)
- ICC Increased Cost of Compliance
- LMI Labor Market Information
- MCC Midwestern Climate Center
- MDC Missouri Department of Conservation
- MDNR Missouri Department of Natural Resources
- MoDOT Missouri Department of Transportation
- NCDC National Climatic Data Center
- NEHRP National Earthquake Hazards Reduction Program
- NFIP National Flood Insurance Program
- NFPA National Fire Protection Association
- NHMP Natural Hazard Mitigation Plan
- NOAA National Oceanic and Atmospheric Administration
- NRHP National Register of Historic Places
- NRCS Natural Resources Conservation Service
- NWS National Weather Service
- OEDP Overall Economic Development Program (see CEDS)
- PDM Pre-Disaster Mitigation Program
- PDSI Palmer Drought Severity Index
- SBA Small Business Administration
- SEMA Missouri State Emergency Management Agency
- SHMO State Hazard Mitigation Officer
- SMCOG Southwest Missouri Council of Governments
- SPC Storm Prediction Center

- USACE United States Army Corps of Engineers
- USDA United States Department of Agriculture
- USFA United States Fire Administration
- USFS United States Forest Service
- USFWS United States Fish and Wildlife Service
- USGS United States Geological Survey
- WTCFPD Western Taney County Fire Protection District

Appendix E: Glossary

Acquisition: Local governments can acquire lands in high hazard areas through conservation easements, purchase of development rights, or outright purchase of property.

Acquisition of Hazard-prone structures: Local governments can acquire lands in high hazard areas through conservation easements, purchase of development rights, or outright purchase of property.

Asset: Any manmade or natural feature that has value, including, but not limited to people; buildings; infrastructure like bridges, roads, and sewer and water systems; lifelines like electricity and communication resources; or environmental, cultural, or recreational features like parks, dunes, wetlands, or landmarks.

Benefit: Net project outcomes, usually defined in monetary terms. Benefits may include direct and indirect effects. For the purposes of conducting a benefit-cost analysis of proposed mitigation measures, benefits are limited to specific, measurable risk reduction factors, including a reduction in expected property losses (building, contents, and function) and protection of human life.

Benefit-Cost Analysis (BCA): A systematic method of comparing the projected benefits to projected costs of a project or policy. It is used as a measure of cost-effectiveness.

Building: A structure that is walled and roofed, principally above ground and permanently affixed to a site. The term includes a manufactured home on a permanent foundation on which the wheels and axles carry no weight.

Capability Assessment: An assessment that provides a description and analysis of a community or state's current capacity to address the threats associated with hazards. The capability assessment attempts to identify and evaluate existing policies, regulations, programs, and practices that positively or negatively affect the community or state's vulnerability to hazards or specific threats.

Community Emergency Response Team (CERT): CERT is the mechanism to establish, train, and maintain a local cadre of residents to act as first responders in the event of an emergency. A CERT team is especially critical in the first three days following a disaster when conditions may prevent access by emergency response personnel.

Community Rating System (CRS): CRS is a program that provides incentives for National Flood Insurance Program communities to complete activities that reduce flood hazard risk. When the community completes specified activities, the insurance premiums of the policyholders in those communities are reduced.

Comprehensive Plan: A document, also known as a "general plan," covering the entire geographic area of a community and expressing community goals and objectives. The plan lays out the vision, policies, and strategies for the future of the community, including all to the physical elements that will determine the community's future development. This plan may discuss the community's desired physical development, desired rate and quantity of growth, community character, transportation service, location of growth, and siting of public facilities and transportation. In most states, the comprehensive plan has no authority in and of itself, but serves as a guide for community decision-making.

Cost–effectiveness: Cost-effectiveness is a key evaluation criterion for federal grant programs. Cost-effectiveness has several possible definitions, although for grant-making purposes FEMA defines a cost-effective project as one whose long-term benefits exceed its cost. That is, a project should prevent more expected damages than it cost initially to fund the effort. This is done to ensure that limited public funds are used in the most efficient manner possible. Benefit-cost analysis is one way to illustrate that a project is cost-effective.

Critical facilities: Facilities vital to the health, safety, and welfare of the population and that are especially important following hazard events. Critical facilities include, but are not limited to, shelters, police and fire stations, and hospitals.

Debris: The scattered remains of assets broken or destroyed in a hazard event. Debris caused by a wind or water hazard event can cause additional damage to other assets.

Disaster Mitigation Act of 2000 (DMA 2000): DMA 2000 (Public Law 106-390) is the latest legislation to improve the planning process. It was signed into law on October 10, 2000. This new legislation reinforces the importance of mitigation planning and emphasizes planning for disasters before they occur.

Earthquake: A sudden motion or trembling that is caused by a release of strain accumulated within or along the edge of earth's tectonic plates.

Elevation of Structures: Raising structures above the base flood elevation to protect structures located in areas prone to flooding.

Emergency Response Services: The actions of first responders such as firefighters, police, and other emergency service personnel at the scene of a hazard event. The first responders take appropriate actions to contain the hazard, protect property, conduct search and rescue operations, provide mass care, and ensure public safety.

Erosion: Wearing away of the land surface by detachment and movement of soil and rock fragments, during a flood or storm or over a period of years, through the action of wind, water, or other geologic processes.

Extent: The size of an area affected by a hazard or hazard event.

Fault: A fracture in the continuity of a rock formation caused by a shifting or dislodging of the earth's crust, in which adjacent surfaces are differentially displaced parallel to the plane of fracture.

Federal Emergency Management Agency (FEMA): Independent agency created in 1979 to provide a single point of accountability for all federal activities related to disaster mitigation and emergency preparedness, response, and recovery.

Flood Depth: Height of the flood water surface above the ground surface.

Flood Hazard Area: The area shown to be inundated by a flood of a given magnitude on a map.

Flood Insurance Rate Map (FIRM): Map of a community, prepared by FEMA, shows both the special flood hazard areas and the risk premium zones applicable to the community under the National Flood Insurance Program.

Flood Mitigation Assistance (FMA) Program: A program created as part of the National Flood Insurance Reform Act of 1994. FMA provides funding to assist communities and states in implementing actions that reduce or eliminate the long-term risk of flood damage to buildings, manufactured homes, and other NFIP insurable structures, with a focus on repetitive loss properties.

Floodplain: Any land area, including watercourse, susceptible to partial or complete inundation by water from any source.

Flood-proofing: Actions that prevent or minimize future flood damage. Making the areas below the anticipated flood level watertight or intentionally allowing flood-waters to enter the interior to equalize flood pressures are examples of flood-proofing.

Flood Zone: A geographical area shown on a FIRM that reflects the severity or type of flooding in the area.

Goals: General guidelines that explain what you want to achieve. They are usually broad policy-type statements, long term in nature, and represent global visions.

Hazard: A source of potential danger or adverse condition.

Hazard Event: A specific occurrence of a particular type of hazard.

Hazard Identification: The process of identifying hazards that threaten an area.

Hazard Mitigation: Sustained actions taken to reduce or eliminate long-term risk from hazards and their effects.

Hazard Mitigation Grant Program (HMGP): authorized under Section 404 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, HMGP is administrated by FEMA and provides grants to states, tribes, and local governments to implement hazard mitigation actions after a major disaster declaration. The purpose of the program is to reduce the loss of life and property due to disasters and to enable mitigation activities to be implemented as community recovers from a disaster.

Hazard Profile: A description of the physical characteristics of hazards and a determination of various descriptions, including magnitude, duration, frequency, probability, and extent. In most cases, a community can most easily use these descriptors when they are recorded and displayed as maps.

HAZUS (Hazards U.S.): A GIS-based, nationally standardized, loss estimation tool developed by FEMA.

Infrastructure: Refers to the public services of a community that have a direct impact on the quality of life. Infrastructure includes communication technology such as phone lines or Internet access, vital services such as public water supplies and sewer treatment facilities, and includes an area's transportation system such as airports, heliports, highways, bridges, tunnels, roadbeds, overpasses, railways, bridges, rail yards, depots; and waterways, canals, locks, seaports, ferries, harbors, dry docks, piers, and regional dams.

Landslide: Downward movement of a slope and materials under the force of gravity.

Loss Estimation: Forecast of and economic impacts and property damage from future hazard events, based on current scientific and engineering knowledge.

Local Emergency Planning Committee (LEPC): LEPCs consist of community representatives and are appointed by the State Emergency Response Commissions (SERCs), as required by Superfund Amendments and Reauthorization Act (SARA), Title III. They develop an emergency plan to prepare for and respond to chemical emergencies. They are also responsible for coordinating with local facilities to find out what they are doing to reduce hazards, prepare for accidents, and reduce hazardous inventories and releases. The LEPC serves as a focal point in the community for information and discussions about hazardous substances, emergency planning, and health and environmental risks.

Magnitude: A measure of the strength of a hazard event. The magnitude (also referred to as severity) of a given hazard event is usually determined using technical measures specific to the hazard.

Memorandum of Agreement: A non-binding statement that defines the duties, responsibilities, and commitment of the different parties or individuals; provides a clear statement of values, principles, and goals; and establishes an organizational structure to assist in measuring and evaluating progress.

Mitigate: To cause something to become less harsh or hostile, to make less severe or painful.

Mitigation Actions: Activities or projects that help achieve the goals and objectives of a mitigation plan.

Mitigation Plan: Systematically evaluating community policies, actions, and tools, and setting goals for implementation over the long term that will result in a reduction in risk and minimize future losses community-wide.

National Flood Insurance Program (NFIP): Federal program created by Congress in 1968 that makes flood insurance available in communities that enact minimum floodplain management regulations as indicated in 44 CFR §60.3.

National Weather Service (NWS): Prepares and issues flood, severe weather, and coastal storm warnings and can provide technical assistance to federal and state entities in preparing weather and flood warning plans.

Objectives: Objectives define strategies or implementation steps to attain the identified goals. Unlike goals, objectives are specific and measurable.

Open Space Preservation: Preserving undeveloped areas from development through any number of methods, including low-density zoning, easements, or public or private acquisition. Open space preservation is a technique that can be used to prevent flood damage in flood-prone areas, land failures on steep slopes or liquefaction-prone soils, and can enhance that nature and beneficial functions of floodplains.

Ordinance: A term for a law or regulation adopted by a local government.

Planning: The act or process of making or carrying out plans; the establishment of goals, policies, and procedures for a social or economic unit.

Policy: A course of action or specific rule of conduct to be followed in achieving goals and objectives.

Post-Disaster Mitigation: An ordinance authorizing certain governmental actions to be taken during the immediate aftermath of a hazard event to expedite implementation of recovery and reconstruction actions identified in a pre-event plan.

Post-Disaster Recovery Planning: The purpose of planning those steps the jurisdiction will take to implement long-term reconstruction with a primary goal of mitigating its exposure to future hazards. The post- disaster recovery planning process can also involve coordination with other types of plans and agencies, but it is distinct from planning for emergency operations.

Preparedness: Actions that strengthen the capability of government, citizens, and communities to respond to disasters.

Probability: A statistical measure of the likelihood that a hazard event will occur.

Public Education and Outreach Programs: A campaign to make the public more aware of hazard mitigation programs, including hazard information centers, mailings, public meetings, etc.

Recovery: The actions taken by an individual or community after a catastrophic event to restore order and lifelines in a community.

Regulatory Power: Local jurisdictions have the authority to regulate certain activities in their jurisdiction. With respect to mitigation planning, the focus is on such things as regulating land use development and construction through zoning, subdivision regulations, design standards, and floodplain regulations.

Relocation out of Hazard Areas: A mitigation technique that features the process of demolishing or moving a building to a new location outside the hazard area.

Resources: Resources include the people, materials, technologies, money, etc., required to implement strategies or processes. The costs of these resources are often included in a budget.

Response: The actions taken during an event to address immediate life and safety needs and to minimize further damage to properties.

Risk: The estimated impact that a hazard would have on people, services, facilities, and structures in a community; the likelihood of a hazard event resulting in an adverse condition that causes injury or damage. Risk is often expressed in relative terms such as a high, moderate, or low likelihood of sustaining damage above a particular threshold due to a specific type of hazard event. It also can be expressed in terms of potential monetary losses associated with the intensity of the hazard.

Stafford Act: The Robert T. Stafford Disaster Relief and Emergency Assistance Act, PL 100-107 was signed into law November 23, 1988 and amended the Disaster Relief Act of 1974, PL 93-288. The Stafford Act is the statutory authority for most federal disaster response activities, especially as they pertain to FEMA and its programs.

Stakeholder: Individual or group that will be affected in any way by an action or policy. They include businesses, private organizations, and citizens.

State Hazard Mitigation Officer (SHMO): The representative of state government who is the primary point of contact with FEMA, other state and federal agencies, and local units of government in the planning and implementation of pre- and post-disaster mitigation activities.

Structural Retrofitting: Modifying existing buildings and infrastructure to protect them from hazards.

Subdivision: The division of a tract of land into two or more lots for sale or development.

Subdivision Regulations: Regulations and standards governing the division of land for development or sale. Subdivision regulations can control the configuration of parcels, set standards for developer-built infrastructure, and set standards for minimizing runoff, impervious surfaces, and sediment during development. They can be used to minimize exposure of buildings and infrastructure to hazards.

Substantial Damage: Damage of any origin sustained by a structure in a Special Flood Hazard Area whereby the cost of restoring the structure to its before-damaged condition would equal or exceed 50 percent of the market value of the structure before the damage.

Tectonic Plate: Torsionally rigid, thin segments of the earth's lithosphere that may be assumed to move horizontally and adjoin other plates. It is the friction between plate boundaries that cause seismic activity.

Topographic: Characterizes maps that show manmade features and indicate the physical shape of the land using contour lines.

Tornado: A violently rotating column of air extending from a thunderstorm to the ground.

Vulnerability: Describes how exposed or susceptible to damage an asset is. Vulnerability depends on an asset's construction, contents, and the economic value of its functions. Like indirect damages, the vulnerability of one element of the community is often related to the vulnerability of another. For example, since many businesses depend on uninterrupted electrical power, if an electric substation is flooded it will affect not only the substation itself, but a number of businesses as well. Often, indirect effects can be much more widespread and damaging than direct ones.

Vulnerability Assessment: The extent of injury and damage that may result from a hazard event of a given intensity in a given area. The vulnerability assessment should address impacts of hazard events on the existing and future built environment.

Water Systems: Information about drinking water systems in Missouri is maintained by the Missouri Department of Natural Resources. Water systems in Taney County listed in the Safe Drinking Water Information System are defined as:

> **Community Water Systems**. Water systems that serve the same people year around, such as homes and businesses.
>
> **Non-Transient Non-Community Water Systems**. Water systems that serve the same people, but not year around, such as schools or lodges that have their own systems.
>
> **Transient Non-Community Water Systems**. Water systems that do not consistently serve the same people, such as rest stops, gas stations and campgrounds.

Wildfire: An uncontrolled fire spreading through vegetative fuels, exposing and possibly consuming structures.

Zoning: The division of land within a local jurisdiction by local legislative regulation into zones of allowable types and intensities of land uses.

Appendix F: References

American Red Cross. *Greater Ozarks Chapter*. <http://www.redcross-ozarks.org>

American Water Works Association. Fact Sheets. *4 Stages of Drought.* <http://www.awwa.org/Advocacy/pressroom/drought.cfm> (6 August 2004).

Bayless, Mike and Vitello, Chris. Missouri Department of Conservation. n.d. *White River Watershed Inventory and Assessment*. <http://mdc.mo.gov/fish/watershed/wriver/contents/390cotxt.htm> (22 July 2004).

Branson USA Online. *Lake Taneycomo - The Mid West's Premier Rainbow Trout Fishing Lake*. 1996. <http://www.branson.com/branson/lakes/taney.htm>.

Burns & McDonnell. September 1995. *Intermodal Transportation Study for Stone County, Taney County and the City of Branson*.

Center for Earthquake Research and Information. *Earthquake Information.* <http://www.ceri.memphis.edu/>

Dodd, J.A., and E.J. Dettman. U.S. Department of Agriculture. *Soil Survey of Taney County, Missouri*. Washington, D.C.: U.S. Government Printing Office. 1996.<http://soils.missouri.edu/soils.html> (22 July 2004).

Empire District Electric Co. 1999. <http://www.empiredistrict.com/> (6 September 2004).

Federal Emergency Management Agency. Federal Insurance Administration. *Community Status Book*. <http://www.fema.gov> (10 February 2005).

Federal Emergency Management Agency. *Federally Declared Disasters by Calendar Year*. <http://www.fema.gov/library/drcys.shtm> (20 January 2005).

Federal Emergency Management Agency. National Flood Insurance Program (NFIP). *Policy Statistics by State as of 9/30/2004*. <http://www.fema.gov/nfip/10110409.shtm> (9 November 2004).

Federal Emergency Management Agency. September 1993. *Wildland Fires*. Washington, D.C.: Federal Emergency Management Agency. <http://www.fema.gov/pdf/hazards/wlfrls.pdf> (7 June 2004).

Freyermuth, R. Wilson. *The Structure of Missouri Local Government: A (Brief) Overview*. Columbia, MO: University of Missouri-Columbia School of Law. <http://www.law.missouri.edu/freyermuth/locgov/structure.htm> (3 August 2004).

Geological Survey of Alabama. *Soils Profile, Liquefaction of Sediment.* <http://www.gsa.state.al.us/gsa/EQ2/newmad.html> (13 October 2004)

Midwestern Regional Climate Center. Historical Climate Data. Snowfall Summary Station: Ozark Beach, MO 1971-2000. <http://mcc.sws.uiuc.edu/Snow/MO/236460_ssum.html>

Missouri Census Data Center. Office of Social and Economic Data Analysis. *Primary Industries.*

Missouri Department of Conservation. *Conservation Atlas Online*. <http://mdc.mo.gov/cgi-bin/atlas/search.cgi> (28 October 2004).

Missouri Department of Conservation. *Fire Danger Index*. <http://www.mdc.state.mo.us/forest/fire/adject.htm> (7 October 2004).

Missouri Department of Conservation. *Forest Fire Statistics: Causes*. <http://www.conservation.state.mo.us/forest/fire/stats.html> (7 October 2004).

Missouri Department of Conservation. Missouri Fish and Wildlife Information System. *Natural Heritage Database.* <http://www.conservation.state.mo.us/cgi-bin/heritage/search.cgi?county=Taney> (15 September 2004)

Missouri Department of Conservation. *Public Lands/Use Areas.* <http://www.conservation.state.mo.us> (15 September 2004).

Missouri Department of Economic Development. Missouri Economic Research and Information Center. *Local Area Unemployment Statistics*. <http://www.ded.mo.gov/researchandplanning/indicators/laus/current.stm> (18 January 2005).

Missouri Department of Elementary and Secondary Education. *Missouri School Directory 2004-2005.* <http://www.dese.state.mo.us/directory> (20 September 2004).

Missouri Department of Health and Senior Services. *Show Me Long Term Care in Missouri.* <http://www.health.state.mo.us/showmelongtermcare/longtermcare.html> (15 November 2004).

Missouri Department of Natural Resources. Geological Survey and Resources Assessment Division. *Dam Safety Program.* <http://www.damsafety.org/documents/pdf/Missouri.pdf>

Missouri Department of Natural Resources. Geological Survey and Resources Assessment Division. *Physiographic Map*, *Geologic Map*. DNR/GSRAD Fact Sheet No. 2. 2002.

Missouri Department of Natural Resources. Missouri Drought Plan. Water Resources Report No. 69. 2002. <http://www.dnr.state.mo.us/geology/wrp/WR69.pdf>.

Missouri Department of Natural Resources. Water Protection Program. January 12, 2005. *State Operating Permits.* <http://www.dnr.state.mo.us/wpscd/wpcp/permits/reports/wpcpermits-reports.htm>

Missouri Department of Natural Resources. Department of Waste Management. *Hazardous Waste Program* <http://www.dnr.mo.gov/alpd/hwp/index.html>.

MISSOURI Manufactured Housing Communities. *Mobile Home Information.* <http://www.mobilehome.net/communities/mo/>

Missouri Secretary of State. *Missouri History.* <http://www.sos.mo.gov/archives/history/counties.asp> (16 December 2004).

Missouri Speleological Survey Inc. 1999. *Caves in Taney County Missouri*.

Missouri State Emergency Management Agency. *General Information.* <http://www.sema.state.mo.us/semapage.htm> (7 May 2004).

Missouri State Emergency Management Agency. *Missouri Hazard Analysis.* September 2003. Jefferson City, MO: Missouri State Emergency Management Agency. <http://www.sema.state.mo.us/hazard.htm> (May 2004).

Missouri State Emergency Management Agency. 2002. *Regional Planning Commission Hazard Mitigation Planning Guide*. Jefferson City, MO: SEMA.

Missouri State Legislature. *Missouri State Statute RSMo 44.227, 44.229, 44.231, 44.233, 44.235, 46.040, 48,820, 49,010, 72,050, 79, 80.*

Missouri Watershed Information Network. *Land Cover in Taney County*. <http://outreach.missouri.edu/mowin/counties2/taney.html>

National Disaster Education Coalition. July 2004. *Talking About Disaster: Guide for Standard Messages*. Washington, D.C.: National Disaster Education Coalition. <http://www.disastereducation.org> (August 2004).

National Oceanic and Atmospheric Administration. National Climatic Data Center. *Climate Information.* <http://www.ncdc.noaa.gov/oa/ncdc.html> (4 May 2004).

National Oceanic and Atmospheric Administration National Climatic Data Center. *Storm Events*.<http://www4.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwevent~storms> (4 February 2005).

National Oceanic and Atmospheric Administration. National Weather Service. National Climate Prediction Center. Monitoring & Data Index. *November20, 1999 Palmer Drought Severity Index Map*. <http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/regional_monitoring/palmer/1999/ 11-20-1999.gif> (6 May 2004).

National Oceanic and Atmospheric Administration. National Weather Service. *NOAA Weather Radio Coverage Maps.* < http://www.nws.noaa.gov/nwr/mo/branson.gif >

National Oceanic and Atmospheric Administration. National Weather Service. *Heat Index*. <http://www.nws.noaa.gov/om/heat/index> (1 March 2005).

National Oceanic and Atmospheric Administration. National Weather Service Forecast Office-Springfield, Missouri. *Heat Wave Response Levels*. Telephone interview with Bill Davis.

National Oceanic and Atmospheric Administration. National Weather Service. Live Weather Images. *Heat Index Chart*. <http://www.weatherimages.org/data/heatindex.html> (August 2004).

National Oceanic and Atmospheric Administration. National Weather Service Forecast Office - Springfield, Missouri. 10 November 2003. *Natural Hazard Risk*

National Oceanic and Atmospheric Administration. Storm Prediction Center *Fujita Tornado Damage Scale*. <http://www.spc.noaa.gov/faq/tornado/f-scale.html>

National Oceanic and Atmospheric Administration. *Assessment Information for Taney County, Missouri.* <http://www.crh.noaa.gov/sgf/RA/Taney/index.shtml> (15 November 2004).

National Register of Historic Places. *Historic Site Information.* <http://www.nationalregisterofhistoricplaces.com/mo/state.html>

Southwest Missouri Council of Governments. 1998. *Southwest Missouri Overall Economic Development Program (CEDS)*. Springfield, Missouri: SMCOG.

Southwest Missouri Council of Governments. *Taney County Master Plan.* Adopted by the Taney County Commission, December 27, 1999. Springfield: Southwest Missouri State University. <http://www.co.taney.mo.us/TaneyCo/default.htm>.

Southwest Missouri Office on Aging. 2003. *2003 Information Directory*. Springfield, MO: SMOA. <http://www.swmoa.com>.

Taney County Regional Sewer District. 1999. *Taney County Wastewater Master Plan*.

U.S. Bureau of the Census. 2002 *County Business Patterns*.

U.S. Bureau of the Census. 1990 Census of Population and Housing.

U.S. Bureau of the Census. Population Estimates 2003.

U.S. Bureau of the Census. *Social and Economic Characteristics*, 1990, 2000.

U.S. Bureau of the Census. Summary File 1 Census 1990.

U.S. Bureau of the Census. Summary File 3 Census 1990.

U.S. Bureau of the Census. Summary File 3 Census 2000.

U.S. Bureau of the Census. Summary File 3 Census 2000.

U.S. Department of the Interior. U.S. Geological Survey. Our Science. *Natural Hazards.* < http://www.usgs.gov/science.html> (29 July 2004).

U.S. Department of the Interior. U.S. Geological Survey. *Measuring Earthquakes*. <http://pubs.usgs.gov/gip/earthq1/measure.html> (16 April 2004).

U.S. Department of the Interior. U.S. Geological Survey. News Release. 13 January 2003. *Scientists Update New Madrid Earthquake Forecasts*. <http://www.usgs.gov/newsroom/article_pf.asp?ID=215>

U.S. Department of the Interior. U.S. Geological Survey. U.S. Geological Survey Fact Sheet FS-131-02. October 2002. *Earthquake Hazard in the Heart of the Homeland*. <http://pubs.usgs.gov/fs/fs-131-02/fs-131-02.pdf> (20 September 2004).

U.S. Department of the Interior. U.S. Geological Survey. 2000. *The Severity of an Earthquake.* U.S. Geological Survey Series General Interest Publication. <http://pubs.usgs.gov/gip/earthq4/severitygip.html> (August 2004).
`

U.S. Department of the Interior. U.S. Geological Survey Interest Publication. *Twelve Levels of Modified Mercalli Intensity.* <http://pubs.usgs.gov/gip/earthq1/measure.html>

U.S. Department of the Interior, U.S. Geological Survey. Circular 1158, 1998

U.S. Department of the Interior. U.S. Geological Survey. *Water Resources Investigations.* Report 98-4164, 1998.

U.S. Environmental Protection Agency. Safe Drinking Water Information System. *List of Water Systems in SDWIS*. < http://oaspub.epa.gov/enviro> (10 January 2005).