

Resolution 05-02

WHEREAS, the Disaster Mitigation Act of 2000 (DMA 2000)-Public Law 106-390 reinforces the importance of pre-disaster infrastructure mitigation planning to reduce disaster losses nationwide. The mitigation planning provisions outlined in Section 322 of the Act, establishes performance -based standards for mitigation plans and requires states to develop County Government Hazard Mitigation Plans, and

WHEREAS, a collaborative effort between the Kentucky Division of Emergency Management and Bluegrass Area Development District has resulted in the development of the Madison County Hazard Mitigation Plan, thus fulfilling the stipulations of DMA 2000,

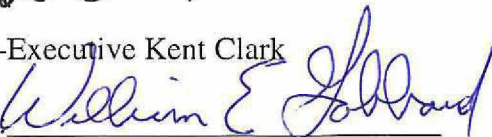
NOW THEREFOR, BE IT RESOLVED, that Madison County Fiscal Court hereby authorizes;

The adoption of the attached Madison County Hazard Mitigation Plan as the official County Hazard Mitigation Plan of Madison County.

Approved this 11th day of October 2005, by the Madison County Fiscal Court



Judge-Executive Kent Clark

Attest: 

Bluegrass Area Development District



699 PERIMETER DR. • LEXINGTON, KENTUCKY 40517-4120
PHONE: (859) 269-8021 • FAX: (859) 269-7917
WWW.BGADD.ORG

ANDERSON • BOURBON • BOYLE • CLARK • ESTILL • FAYETTE • FRANKLIN • GARRARD • HARRISON • JESSAMINE • LINCOLN • MADISON • MERCER • NICHOLAS • POWELL • SCOTT • WOODFORD

October 4, 2005

Judge-Executive Kent Clark
Madison County Courthouse
101 W. Main St.
Richmond, KY 40475

Dear Judge Clark:

The Bluegrass Area Development District has recently completed and published your Local County Hazard Mitigation Plan. Please find enclosed your mitigation document along with a prepared resolution awaiting approval at your next Fiscal Court Meeting on October 11, 2005. Please return the resolution, once it is passed, to Travis Weber at the Bluegrass Area Development District by **October 17, 2005**.

Upon my receipt of the approved resolution it will be incorporated into your Local Plan, which will then be forwarded to the county, each city, the public library, and the county DES. A copy of the Bluegrass ADD Regional Hazard Mitigation Plan on CD will also be transmitted to each of these entities. Please feel free to contact me if you have further questions.

Sincerely,

A handwritten signature in black ink, appearing to read "Travis Weber", with a stylized flourish at the end.

Travis Weber
Community Development Assistant

Madison County/City of Richmond/
City of Berea
Natural Hazard Mitigation Plan

Madison County Natural Hazard Mitigation Plan

Table of Contents

I.	Identifying Hazards.....	2
II.	Natural Hazard Assessment (Goals & Objectives & Mitigation, Actions, and/or Projects)	
	Earthquakes.....	4
	Floods.....	8
	Tornadoes/Severe Thunderstorms	14
	Severe Winter Storms	19
III.	Implementation of Mitigation Measures.....	21
IV.	Multi-Jurisdictional Mitigation Strategy.....	22
V.	Plan Maintenance Procedures	22
VI.	Monitoring, Evaluating, and Updating the Plan	23
VII.	Implementation Through Existing Programs.....	23
VIII.	Continued Public Involvement	23
IX.	Appendix A-List of Potential Projects by Jurisdiction	25
X.	Appendix B-County Critical & Essential Facilities Map	27
XI.	Appendix C-County Floodplain Map	28
XII.	Appendix D-County Tornado Touchdown Map.....	29
XIII.	Appendix E-Landslide Susceptibility & Incidence in Kentucky as well as in Bluegrass Area Development District.....	30
XIV.	Appendix F-Earthquake Maps; New Madrid Hypothetical Magnitudes, Seismic Hazards of Kentucky, & Peak Ground Acceleration/Faults/Historic Earthquakes	32

Identifying Hazards

The Madison County area is vulnerable to a wide variety of natural hazards that threaten life and property. Based on the best available data at the time this plan was developed these natural hazards include:

- Earthquakes
- Flooding/Flash Flooding
- Severe Thunderstorms/Lightning/Wind/Hail
- Tornadoes
- Severe Winter Storms

The Madison County plan addresses only those hazards found to affect the Madison County planning area. The Madison County Hazard Mitigation Plan Development Team (HMPDT) identified these hazards based on historical evidence gathered from the Kentucky State Climatology Center, the National Climatic Data Center, FEMA's Hazard Mapping website, and the Kentucky Geological Survey.

The appendices contain maps utilized by the Madison County HMPDT in identifying and profiling potential hazards for the Madison County planning area.

Mitigation Strategy

The Madison County Hazard Mitigation Plan Development Team was created to develop a hazard mitigation plan for the county and its jurisdictions. Committee members include or represent the county judge-executive, mayors, emergency management, city and county fire departments, the health department, and others. The committee looked at hazard data provided by staff of the Bluegrass Area Development District (BGADD). ADD staff also developed and provided a risk assessment for each hazard.

Utilizing background hazard information and hazard historical data, the committee responded with overall goals and objectives relative to each hazard. Upon identification of these goals and objectives, the committee looked at specific measures aimed at fulfilling these goals and meeting stated objectives. Various methods are used to identify desirable hazard mitigation projects such as proven success in other jurisdictions, consultation with mitigation experts, and suggestions from ADD staff. After inclusion of projects in the plan, review and approval of the overall plan is required at the local, regional, and state levels in addition to review and acceptance by FEMA. Implementation of any mitigation projects will be dealt with when the necessity arises.





Earthquakes

Earthquakes

Mitigation Goals & Objectives

The Madison County Hazard Mitigation Development Team identifies the following goals and objectives for Madison County and the cities of Richmond and Berea based upon the risk assessment for the earthquake hazard:

Goal 1: Educate the general public about earthquakes.

Objective A: Educate local residents, through an information campaign, about the risks and dangers earthquakes in the Bluegrass Area.

Goal 2: Request the Army to inform the community of the potential impact of an earthquake on the Blue Grass Army Depot

Identification and Analysis of Mitigation Measures

The Madison County Hazard Mitigation Plan Development Team, based on the risk assessment for the hazards associated with earthquakes and in line with the stated goals and objectives, proposes the following projects.

- Seek funding to develop a public information campaign (through the printing of brochures, pamphlets, or booklets) to educate the public about earthquakes in Madison County, informing them of the dangers and risks associated with earthquakes.
- Seek funding to develop an information campaign in local schools to educate students about the risks and dangers of earthquakes (and other natural hazards) and what they should do in the event of an earthquake.

Table of Mitigation Projects/Actions for Madison County and the Cities of Berea and Richmond

Hazard—Earthquakes

Jurisdiction	County of Madison	City of Berea	City of Richmond
Project			
Seek funding to develop a public information campaign / public education	X	X	X

Implementation of Mitigation Measures

Prioritization will be based on the following: 1.) Critical need, 2.) Availability of funds, and/or 3.) Schedule of project (e.g., 0-2 years, 3-10 years, or 11-20 years). Projects *should* be, but are not limited to being prioritized based on a cost benefit review, environmental soundness, and/or technical feasibility. Implementation will be done through the cooperation of agencies both within Madison County and the cities of Richmond and Berea. Funds and resources (i.e. human, technical, and logistical) should be continuously sought for the implementation of these projects. With respect to implementation, projects should be administered by the agency that has applied for the funds needed to complete the desired mitigation task or project. However, county and city officials have the authority to establish administration guidelines, timetables, and funding allocations with respect to mitigation project implementation within their respective jurisdictions. Implementation efforts are based on project/action plans drafted by the Bluegrass ADD derived from the input of subcommittees and the Madison County Hazard Mitigation Plan Development Team.

Multi-Jurisdictional Mitigation Strategy

The Madison County Hazard Mitigation Plan Development Team identified a number of projects based on the risk assessment for the hazard of earthquakes and in line with the stated goals and objectives that were previously noted. These projects were developed based on information presented to the planning committee by Bluegrass ADD staff and are detailed in this section. Consideration (to the greatest extent possible) has been given to feasibility, acceptability, cost effectiveness, and environmental soundness.

Plan Maintenance Procedures

The hazard mitigation plan requires a plan maintenance process. The following sections address how the Madison County Hazard Mitigation Plan will be updated and maintained as necessary.

Monitoring, Evaluating, and Updating the Plan

In order to provide monitoring, evaluation, and updates to the mitigation plan every five years, Madison County and its jurisdictions will rely on their emergency management personnel for the review and maintenance of the hazard mitigation plan. The document will be reviewed once every five years and amended as necessary.

Implementation Through Existing Programs

Madison County and the cities of Richmond and Berea should incorporate mitigation plan goals and objectives, as well as mitigation actions/projects into existing plans (i.e. comprehensive plans, transportation plans, emergency response plans, etc.) as feasible and practical. This ensures a cooperative approach to planning, when and if the decision is made to construct or implement a particular mitigation project.

Continued Public Involvement

The Madison County Hazard Mitigation Plan Development Team and Bluegrass Regional Hazard Mitigation Planning Committee have set out the following procedures for inclusion of public participation in the mitigation plan maintenance process. When updates are required, whether by five-year cycle or extenuating circumstances, public input will be solicited primarily via a public notice. A committee (to be chosen at a later date) will review public input once it is received by a set deadline. Upon review by the committee, which will include a vote to determine relevance of public comments, public input will be considered on a case-by-case basis for inclusion in any updates to the hazard mitigation plan.



Floods

Flooding/Flash Flooding

Mitigation Goals & Objectives

The following goals are identified for Madison County and the Cities of Richmond, and Berea, based upon the risk assessment for the hazard of floods:

Goal 1: To increase Madison County's capabilities to mitigate the effects of flooding.

Objective A: Reestablish the floodplain by updating floodplain maps.

Objective B: Enforce floodplain management practices and ordinances.

Objective C: Enhance the County's capability to gather historical data to conduct mitigation project cost benefit analyses.

Goal 2: To minimize the number of deaths and injuries caused by flooding.

Objective A: Enforce floodplain management practices and ordinances.

Objective B: Protect people from floodprone areas.

Objective C: Educate people on the effects and dangers of flooding.

Goal 3: To minimize financial costs due to damage caused by flooding.

Objective A: Enforce floodplain management practices and ordinances.

Objective B: Identify

Goal 4: To increase the capability of Madison County residents to mitigate losses due to flooding.

Objective A: Increase awareness among the residents of Madison County about the availability of NFIP flood insurance.

Goal 5: To Increase local emergency management's capacity to help individuals, businesses and public entities cope with their losses and restore their structures and operations.

Objective A: Ensure emergency management personnel have access to adequate resources such as information, planning tools, equipment and personnel.

Identification and Analysis of Mitigation Measures

The Madison County Hazard Mitigation Plan Development Team, based on the risk assessment for the hazards associated with flooding and in line with the stated goals and objectives, proposes the following projects.

Madison County proposes the following projects:

- Identify the county's most at-risk critical facilities and evaluate the potential mitigation techniques for protecting each facility to the maximum extent feasible.
- Seek funding to acquire homes in identified floodprone areas of the county.
- Seek funding and other resources for the re-establishment of the floodplain map.
- Advertise and promote the availability of flood insurance.
- Seek funding for public information and education campaigns regarding flooding and personal safety.

The City of Richmond proposes the following projects.

- Seek funding to construct retention/detention basins in designated areas of the city.
- Identify storm sewer infrastructure adversely affected by flooding and seek funding to implement projects to mitigate those effects.
- Seek funding for the upgrade of city storm drainage systems
- Identify the city's most at-risk critical facilities and evaluate the potential mitigation techniques for protecting each facility to the maximum extent feasible.
- Seek funding to acquire homes in identified floodprone areas of the city.
- Seek funding for public information and education campaigns regarding flooding and personal safety.

The City of Berea proposes the following projects.

- Seek funding to acquire homes and land in identified floodprone areas of the city to be preserved as open space and conservation areas.
- Identify the city's most at-risk critical facilities and evaluate the potential mitigation techniques for protecting each facility to the maximum extent feasible.
- Seek funding to dredge, clean and deepen significant drainage channels throughout the city.
- Seek funding to reconstruct bridges throughout the city that obstruct the floodway.
- Seek funding to conduct a comprehensive storm drainage study including flood profiles and potential flash flood areas.
- Seek funding and other resources to construct levees in appropriate areas of the city.
- Enforce proper construction of drainage and erosion control measures developments in new developments.
- Seek funding for public information and education campaigns regarding flooding and personal safety.

Table of Mitigation Projects/Actions for Madison County and the Cities of Berea and Richmond

Hazard—Flooding/ Flash Flooding

Project \ Jurisdiction	County of Madison	City of Berea	City of Richmond
Seek funding to develop a public information campaign / public education	X	X	X
Identify the county's most at-risk critical facilities and evaluate the potential mitigation techniques for protecting each facility	X	X	X
Seek funding to acquire homes in identified floodprone areas	X	X	X
Seek funding and other resources for the re-establishment of the floodplain map	X		
Seek funding to construct retention/detention basins in designated areas of the city			X
Seek funding for the upgrade of city storm drainage systems			X
Identify storm sewer infrastructure adversely affected by flooding and seek funding to implement projects to mitigate those effects			X
Seek funding to dredge, clean and deepen significant drainage channels throughout the city		X	
Seek funding to reconstruct bridges throughout the city that obstruct the floodway		X	
Seek funding to conduct a comprehensive storm drainage study including flood profiles and potential flash flood areas		X	
Seek funding and other resources to construct levees in appropriate areas of the city		X	
Enforce proper construction of drainage and erosion control measures developments in new developments		X	

Implementation of Mitigation Measures

Prioritization will be based on the following: 1.) Critical need, 2.) Availability of funds, and/or 3.) Schedule of project (e.g., 0-2 years, 3-10 years, or 11-20 years). Projects *should* be, but are not limited to being prioritized based on a cost benefit review, environmental soundness, and/or technical feasibility. Implementation will be done through the cooperation of agencies both within Madison County and the cities of Richmond and Berea. Funds and resources (i.e. human, technical, and logistical) should be continuously sought for the implementation of these projects. With respect to implementation, projects should be administered by the agency that has applied for the funds needed to complete the desired mitigation task or project. However, Madison County officials have the authority to establish administration guidelines, timetables, and funding allocations with respect to mitigation project implementation. Implementation efforts are based on project/action plans drafted by the Bluegrass ADD derived from the input of subcommittees and the Madison County Hazard Mitigation Plan Development Team.

Multi-Jurisdictional Mitigation Strategy

The Madison County Hazard Mitigation Plan Development Team identified a number of projects based on the risk assessment for the hazard of flooding and in line with the stated goals and objectives that were previously noted. These projects were developed based on information presented to the planning committee by Bluegrass ADD staff and are detailed in this section. Projects range from education to structural projects to expansion of existing projects intended to mitigate against flooding. Consideration (to the greatest extent possible) has been given to feasibility, acceptability, cost effectiveness, and environmental soundness.

Plan Maintenance Procedures

The hazard mitigation plan requires a plan maintenance process. The following sections address how the Madison County Hazard Mitigation Plan will be updated and maintained as necessary.

Monitoring, Evaluating, and Updating the Plan

In order to provide monitoring, evaluation, and updates to the mitigation plan every five years, Madison County and its jurisdictions will rely on their emergency management personnel for the review and maintenance of the hazard mitigation plan. The document will be reviewed once every five years and amended as necessary.

Implementation Through Existing Programs

Madison County and the cities of Richmond and Berea should incorporate mitigation plan goals and objectives, as well as mitigation actions/projects into existing plans (i.e. comprehensive plans, transportation plans, emergency response plans, etc.) as feasible and practical. This ensures a cooperative approach to planning, when and if the decision is made to construct or implement a particular mitigation project.

Continued Public Involvement

The Madison County Hazard Mitigation Plan Development Team and Bluegrass Regional Hazard Mitigation Planning Committee have set out the following procedures for inclusion of public participation in the mitigation plan maintenance process. When updates are required, whether by five-year cycle or extenuating circumstances, public input will be solicited primarily via a public notice. A committee (to be chosen at a later date) will review public input once it is received by a set deadline. Upon review by the committee, which will include a vote to determine relevance of public comments, public input will be considered on a case-by-case basis for inclusion in any updates to the hazard mitigation plan.



Tornadoes

Tornadoes

Mitigation Goals & Objectives

The following goals and objectives are identified for Madison County and the cities of Richmond and Berea based upon the risk assessment for the hazard of Tornadoes.

Goal 1: To minimize the number of deaths and injuries caused by tornadoes.

- Objective A: Enforce established building codes and ordinances.
- Objective B: Evaluate and establish tornado shelters in areas of greatest need.
- Objective C: Educate people on the effects and dangers of tornadoes.
- Objective D: Maximize the use of hazard mitigation grants to protect vulnerable populations.

Goal 2: To minimize damage to and loss of property caused by tornadoes

- Objective A: Enforce established building codes and ordinances.
- Objective B: Maximize the use of hazard mitigation grants to protect vulnerable structures

Goal 3: To Increase local emergency management's capacity to help individuals, businesses and public entities cope with their losses and restore their structures and operations.

- Objective A: Ensure emergency management personnel have access to adequate resources such as information, planning tools, equipment and personnel.

Identification and Analysis of Mitigation Measures

The Madison County Hazard Mitigation Plan Development Team, based on the risk assessment for the hazards associated with tornadoes and in line with the stated goals and objectives, proposes the following projects:

Madison County proposes the following mitigation actions.

- Encourage local building code enforcement personnel to emphasize the availability of FEMA manuals to the public
- Seek funding for the construction of tornado shelters in existing mobile home parks and other such areas where concentrations of vulnerable populations exist.
- Seek funding for the development of a GIS based inventory of structures that can be utilized by local emergency management personnel to expedite damage/loss estimates
- Seek funding to provide well stocked, ready to be occupied shelters

The City of Richmond proposes the following mitigation actions.

- Seek funding for the construction of tornado shelters in existing mobile home parks and other such areas where concentrations of vulnerable populations exist
- Develop and implement a public education campaign on tornadoes and personal safety
- Seek funding to provide well stocked, ready to be occupied shelters

The City of Berea proposes the following mitigation actions.

- Identify the city's at-risk critical facilities and evaluate the potential mitigation techniques for protecting each facility to the maximum extent feasible
- Seek funding for the construction of tornado shelters in existing mobile home parks and other such areas where concentrations of vulnerable populations exist
- Seek funding to develop and implement a public education campaign on tornadoes and personal safety
- Seek funding for the development of an advanced warning system
- Seek funding for equipment to handle major debris cleanup
- Seek funding to provide well stocked, ready to be occupied shelters

Table of Mitigation Projects/Actions for Madison County and the Cities of Berea and Richmond

Hazard—Tornadoes/ Severe Thunderstorm

Project \ Jurisdiction	County of Madison	City of Berea	City of Richmond
Seek funding to provide well stocked, ready to be occupied shelters	X	X	X
Develop and implement a public education campaign on tornadoes and personal safety	X	X	X
Seek funding for the construction of tornado shelters in existing mobile home parks	X	X	X
Encourage local building code enforcement personnel to emphasize the availability of FEMA manuals to the public	X		
Seek funding for the development of a GIS based inventory of structures to expedite damage/loss estimates	X		

Seek funding for the development of an advanced warning system		X	
Seek funding for equipment to handle major debris cleanup		X	
Identify the city's at-risk critical facilities and evaluate the potential mitigation techniques for protecting each facility		X	

Implementation of Mitigation Measures

Prioritization will be based on the following: 1.) Critical need, 2.) Availability of funds, and/or 3.) Schedule of project (e.g., 0-2 years, 3-10 years, or 11-20 years). Projects *should* be, but are not limited to being prioritized based on a cost benefit review, environmental soundness, and/or technical feasibility. Implementation will be done through the cooperation of agencies both within Madison County and the cities of Richmond and Berea. Funds and resources (i.e. human, technical, and logistical) should be continuously sought for the implementation of these projects. With respect to implementation, projects should be administered by the agency that has applied for the funds or a qualified administrator deemed appropriate by the applicant. However, county and city officials have the authority to establish administration guidelines, timetables, and funding allocations with respect to mitigation project implementation within their respective jurisdictions. Implementation efforts are based on project/action plans drafted by the Bluegrass ADD derived from the input of subcommittees and the Madison County Hazard Mitigation Plan Development Team.

Multi-Jurisdictional Mitigation Strategy

The Madison County Hazard Mitigation Plan Development Team identified a number of projects based on the risk assessment for the hazard of tornadoes and in line with the stated goals and objectives. These projects were developed based on information presented to the multi-jurisdictional planning committee by Bluegrass ADD staff and are detailed in this section. Where practical, consideration was given to projects that could be undertaken cooperatively. In addition, the committee considered feasibility, acceptability, cost effectiveness, and environmental soundness of proposed projects.

Plan Maintenance Procedures

The hazard mitigation plan requires a plan maintenance process. The following sections address how the Madison County Hazard Mitigation Plan will be updated and maintained as necessary.

Monitoring, Evaluating, and Updating the Plan

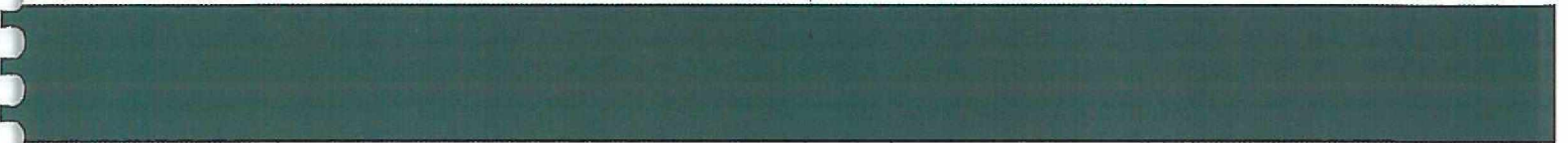
In order to provide monitoring, evaluation, and updates to the mitigation plan every five years, Madison County and its jurisdictions will rely on their emergency management personnel for the review and maintenance of the hazard mitigation plan. The document will be reviewed once every five years and amended as necessary.

Implementation Through Existing Programs

Madison County and the cities of Richmond and Berea should incorporate mitigation plan goals and objectives, as well as mitigation actions/projects into existing plans (i.e. comprehensive plans, transportation plans, emergency response plans, etc.) as feasible and practical. This ensures a cooperative approach to planning, when and if the decision is made to construct or implement a particular mitigation project.

Continued Public Involvement

The Madison County Hazard Mitigation Plan Development Team and Bluegrass Regional Hazard Mitigation Planning Committee have set out the following procedures for inclusion of public participation in the mitigation plan maintenance process. When updates are required, whether by five-year cycle or extenuating circumstances, public input will be solicited primarily via a public notice. A committee (to be chosen at a later date) will review public input once it is received by a set deadline. Upon review by the committee, which will include a vote to determine relevance of public comments, public input will be considered on a case-by-case basis for inclusion in any updates to the hazard mitigation plan.



Severe Winter Storms

Winter Storms

Mitigation Goals & Objectives

The following goals and objectives are identified for Madison County and the cities of Richmond and Berea based upon the risk assessment for the hazard of severe winter storms.

Goal 1: To lessen the number of injuries and deaths in the event of a severe winter storm event.

Objective A: Ensure that local emergency response personnel, local fire departments and law enforcement officials have all the necessary resources available to them in the event Madison County experiences a severe winter storm.

Objective B: Ensure that local utilities are capable of maintaining service in the event of a severe winter storm.

Goal 2: Educate the general public about the dangers of severe winter storms.

Objective A: Educate local residents, through an information campaign, about the risks and dangers of winter storms.

Goal 3: To lessen the future fiscal costs upon units of government as well as lessen the amount of property damage in the event Madison County experiences a severe winter storm.

Objective A: Ensure that local infrastructure (water, sewer, gas, electrical, and telecommunications) is protected as much as possible in the event of a severe winter storm.

Identification and Analysis of Mitigation Measures

The Madison County Hazard Mitigation Plan Development Team, based on the risk assessment for the hazards associated with winter storms and in line with the stated goals and objectives proposes the following projects.

Madison County and the cities of Richmond and Berea propose the following mitigation projects:

- Seek funding to develop an integrated special needs database which will be used to target special needs populations in an information campaign about the county's and city's ability to provide transportation/emergency services in an emergency such as a winter storm or other hazard event.

- Seek funding for an information campaign in the schools to educate students about the risks and dangers of winter storms.
- If practical, amend the Comprehensive Plan to encourage the practice of burying residential utility service(s).
- Seek funding to equip emergency response personnel to keep critical transportation routes passable.
- Survey the ability of the County and the jurisdictions to provide emergency energy needs in the face of a natural hazard event
- Encourage neighborhood based initiatives that seek to identify mitigation actions

Table of Mitigation Projects/Actions for Madison County and the Cities of Berea and Richmond

Hazard—Severe Winter Storms

Jurisdiction Project	County of Madison	City of Berea	City of Richmond
Special needs assessment	X	X	X
Seek funding for an information campaign	X	X	X
Burying residential utility service(s)	X	X	X
Emergency response equipment	X	X	X
Provide emergency energy	X	X	X
Encouragement to neighborhoods	X	X	X

Implementation of Mitigation Measures

Prioritization will be based on the following: 1.) Critical need, 2.) Availability of funds, and/or 3.) Schedule of project (e.g., 0-2 years, 3-10 years, or 11-20 years). Projects *should* be, but are not limited to being prioritized based on a cost benefit review, environmental soundness, and/or technical feasibility. Implementation will be done through the cooperation of agencies both within Madison County and the cities of Richmond and Berea. Funds and resources (i.e. human, technical, and logistical) should be continuously sought for the implementation of these projects. With respect to

implementation, projects should be administered by the agency that has applied for the funds needed to complete the desired mitigation task or project. However, county and city officials have the authority to establish administration guidelines, timetables, and funding allocations with respect to mitigation project implementation within their respective jurisdictions. Implementation efforts are based on project/action plans drafted by the Bluegrass ADD derived from the input of subcommittees and the Madison County Hazard Mitigation Plan Development Team.

Multi-Jurisdictional Mitigation Strategy

The Madison County Hazard Mitigation Plan Development Team identified a number of projects based on the risk assessment for the hazard of winter storms and in line with the stated goals and objectives. These projects were developed based on information presented to the multi-jurisdictional planning committee by Bluegrass ADD staff and are detailed in this section. Where practical, consideration was given to projects that could be undertaken cooperatively. In addition, the committee considered feasibility, acceptability, cost effectiveness, and environmental soundness of proposed projects.

Plan Maintenance Procedures

The hazard mitigation plan requires a plan maintenance process. The following sections address how the Madison County Hazard Mitigation Plan will be updated and maintained as necessary.

Monitoring, Evaluating, and Updating the Plan

In order to provide monitoring, evaluation, and updates to the mitigation plan every five years, Madison County and its jurisdictions will rely on their emergency management personnel for the review and maintenance of the hazard mitigation plan. The document will be reviewed once every five years and amended as necessary.

Implementation Through Existing Programs

Madison County and the cities of Richmond and Berea should incorporate mitigation plan goals and objectives, as well as mitigation actions/projects into existing plans (i.e. comprehensive plans, transportation plans, emergency response plans, etc.) as feasible and practical. This ensures a cooperative approach to planning, when and if the decision is made to construct or implement a particular mitigation project.

Continued Public Involvement

The Madison County Hazard Mitigation Plan Development Team and Bluegrass Regional Hazard Mitigation Planning Committee have set out the following procedures for inclusion of public participation in the mitigation plan maintenance process. When updates are required, whether by five-year cycle or extenuating circumstances, public input will be solicited primarily via a public notice. A committee (to be chosen at a later date) will review public input once it is received by a set deadline. Upon review by the committee, which will include a vote to determine relevance of public comments, public input will be considered on a case-by-case basis for inclusion in any updates to the hazard mitigation plan.

APPENDIX

CITY OF RICHMOND
POTENTIAL HAZARD MITIGATION PROJECTS

1. Water Street storm sewer infrastructure and detention basins.
2. Detention basins on northern end of the unnamed tributary of Taylors Fork.
3. Windsor Drive Storm sewer infrastructure, sanitary sewer infrastructure and pump station.
4. New flood maps and 100 year flood elevation established though out the city's drainage basins.
5. Storm shelters for our existing mobile home parks.
6. Parrish Ave. storm sewer infrastructure and detention basin.
7. Jones Crt. storm sewer infrastructure and storm and sanitary separations.
8. Spring Street storm sewer infrastructure and detention basin.
9. Richmond cemetery storm sewer infrastructure and detention basin.
10. Irvin-McDowell City Park storm sewer infrastructure and retention.
11. Second street storm sewer infrastructure.
12. Third Street storm sewer infrastructure.
13. First Street storm sewer infrastructure.
14. Whicker Ln. storm sewer infrastructure.
15. College View Dr. storm sewer infrastructure replacement.
16. Rice Crt. storm sewer infrastructure.
17. South Porter Drive storm sewer infrastructure.
18. High Street storm sewer infrastructure.
19. Oak Street storm sewer infrastructure.
20. Prewitt Drive storm sewer infrastructure.
21. Lancaster Drive in city close to RAAC storm sewer infrastructure.
22. University Drive storm sewer infrastructure.
23. Catalpa Look on State Route 52 storm sewer infrastructure.
24. Irvine View storm sewer infrastructure.
25. Ballard Drive sanitary sewer pump station.
26. Southland sanitary sewer pump station.
27. College View sanitary sewer pump station.

CITY OF BEREA
POTENTIAL HAZARD MITIGATION PROJECTS

FLOOD:

- 1) Dredge, clean, deepen Brushy Fork Creek from the Slate Lick area to Sliver Creek.
- 2) Reconstruct Bridge over Brushy Fork Creek on U.S. 21 (Prospect Street) to lessen restrictions.
- 3) Dredge, clean, deepen drainage channel originating on the south side of the Berea Community Park and proceeding under the railroad tracks and through the Apple grove subdivision eventually emptying into the Walnut Meadow Branch.
- 4) Construct levees along the residential side of Brushy Fork Creek in the Boones Street and Bridge Avenue areas.
- 5) Clean and deepen drainage channel originating in the Maple Street area, flowing northerly under Jefferson Street and continuing North and adjoining with the drainage flowing through Apple Grove Subdivision. (see #3).
- 6) Preserving and purchasing flood prone areas for open space and conservation areas.
- 7) Strong enforced drainage and erosion control methods and properly constructed developments.
- 8) Extensive and comprehensive storm drainage study including flood profiles and potential flash flood areas.
- 9) Public Education
- 10) Required engineering analysis of potential flood prone areas.

TORNADOES:

- 1) Public education and awareness programs.
- 2) Advanced warning system.
- 3) Equipment to handle major debris.
- 4) Well stocked, ready to be occupied shelters

WILDFIRES:

- 1) Cleared buffer areas around all structures, public areas, and park areas adjacent to forestland and otherwise potential fire hazards.
- 2) Wetland preservation and restoration.

KARST/SINKHOLES:

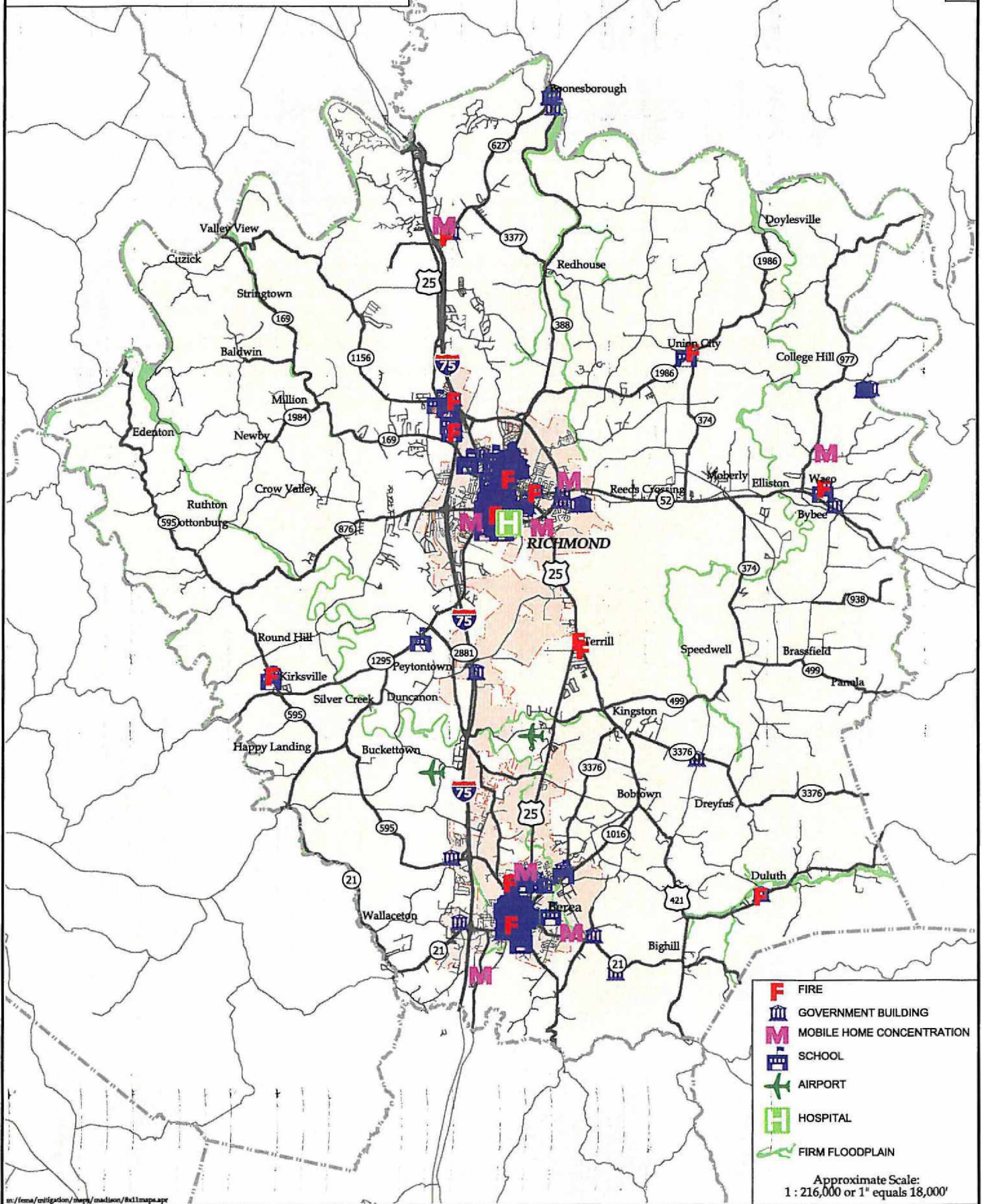
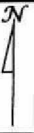
- 1) Required geo-technical data for any suspect areas.

WINTER STORMS:

- 1) Additional snow removal equipment along with other equipment to handle winter mayhem.
- 2) Well Stocked, ready to be occupied shelters.

Madison County

Critical and Essential Facilities



- F** FIRE
- GOVERNMENT BUILDING
- M** MOBILE HOME CONCENTRATION
- SCHOOL
- AIRPORT
- H** HOSPITAL
- FIRM FLOODPLAIN

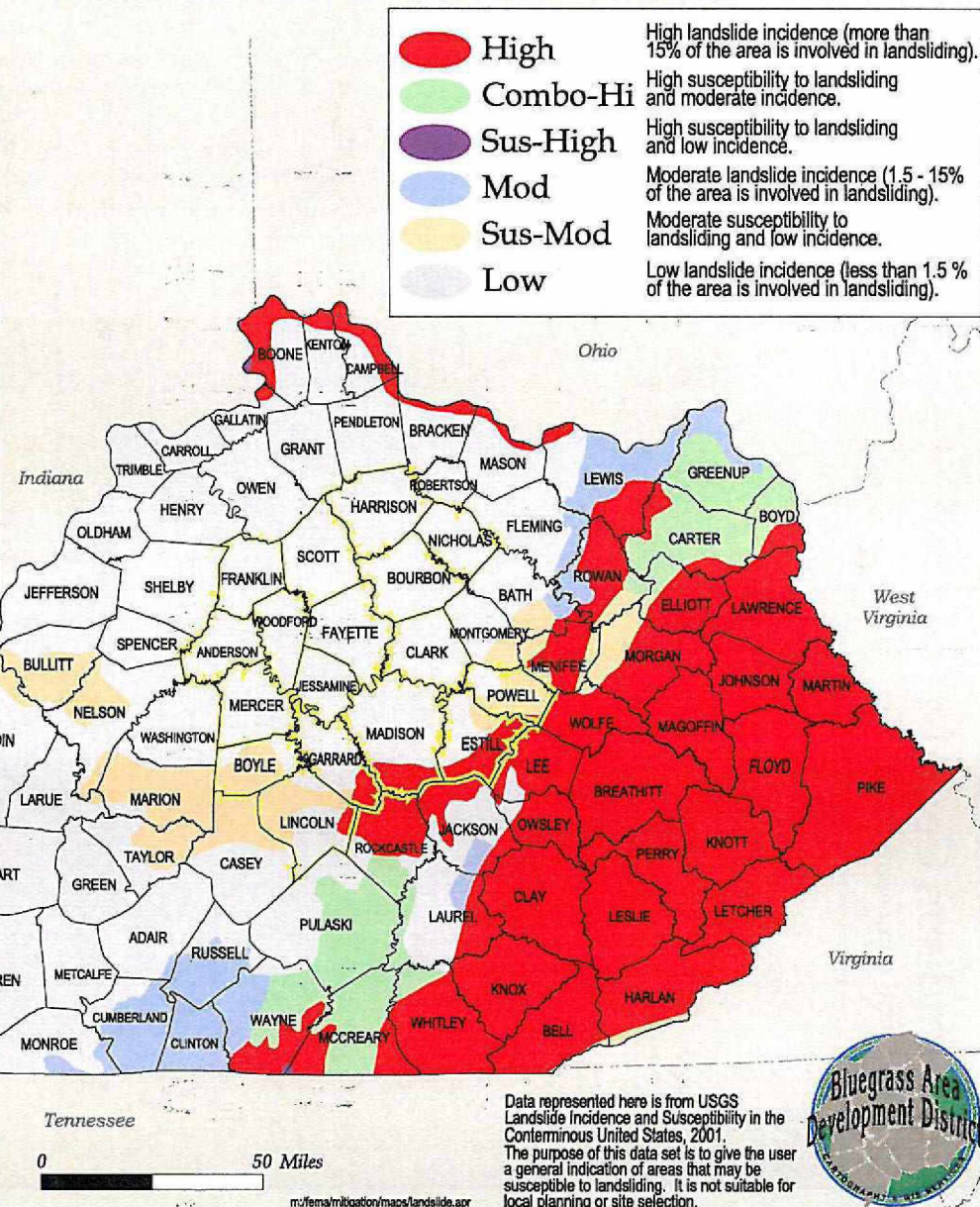
Approximate Scale:
1 : 216,000 or 1" equals 18,000'

N
4

A map of Missouri showing its counties. The counties are color-coded into four regions:

- Yellow:** Henderson, Union, Webster, Crittenden, Caldwell, Lyon, Marshall, Calloway, Trigg, Christian, Todd, Logan, Simpson, Allen, Warren, Edmonson, Butler, Grayson, Hancock, Breckinridge, Meade.
- Orange:** Daviess, McLean, Muhlenberg.
- Green:** Ballard, Carlisle, Hickman, Fulton.
- Purple:** Mccracken, Graves.

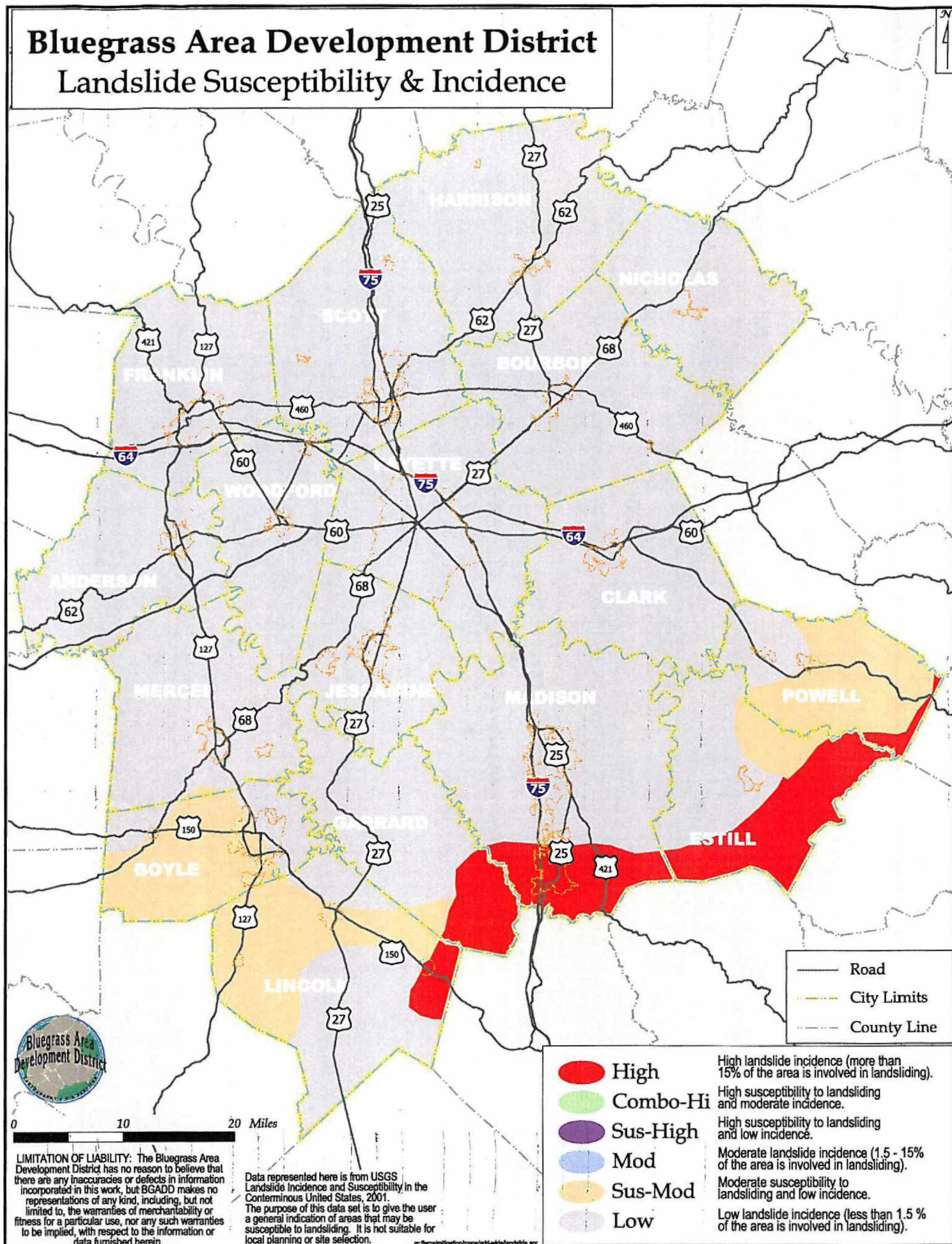
 The map also shows the state boundaries of Illinois to the west and north, and Arkansas to the south and east.



Map prepared by Bluegrass Area Development District (2004) for FEMA-HAZUS Mitigation Planning

m/fema/mitigation/maps/landslide.asp

Bluegrass Area Development District Landslide Susceptibility & Incidence



LIMITATION OF LIABILITY: The Bluegrass Area Development District has no reason to believe that there are any inaccuracies or defects in information incorporated in this work, but BGADD makes no representations of any kind, including, but not limited to, the warranties of merchantability or fitness for a particular use, nor any such warranties to be implied, with respect to the information or data furnished herein.

Data represented here is from USGS Landslide Incidence and Susceptibility in the Conterminous United States, 2001. The purpose of this data set is to give the user a general indication of areas that may be susceptible to landsliding. It is not suitable for local planning or site selection.

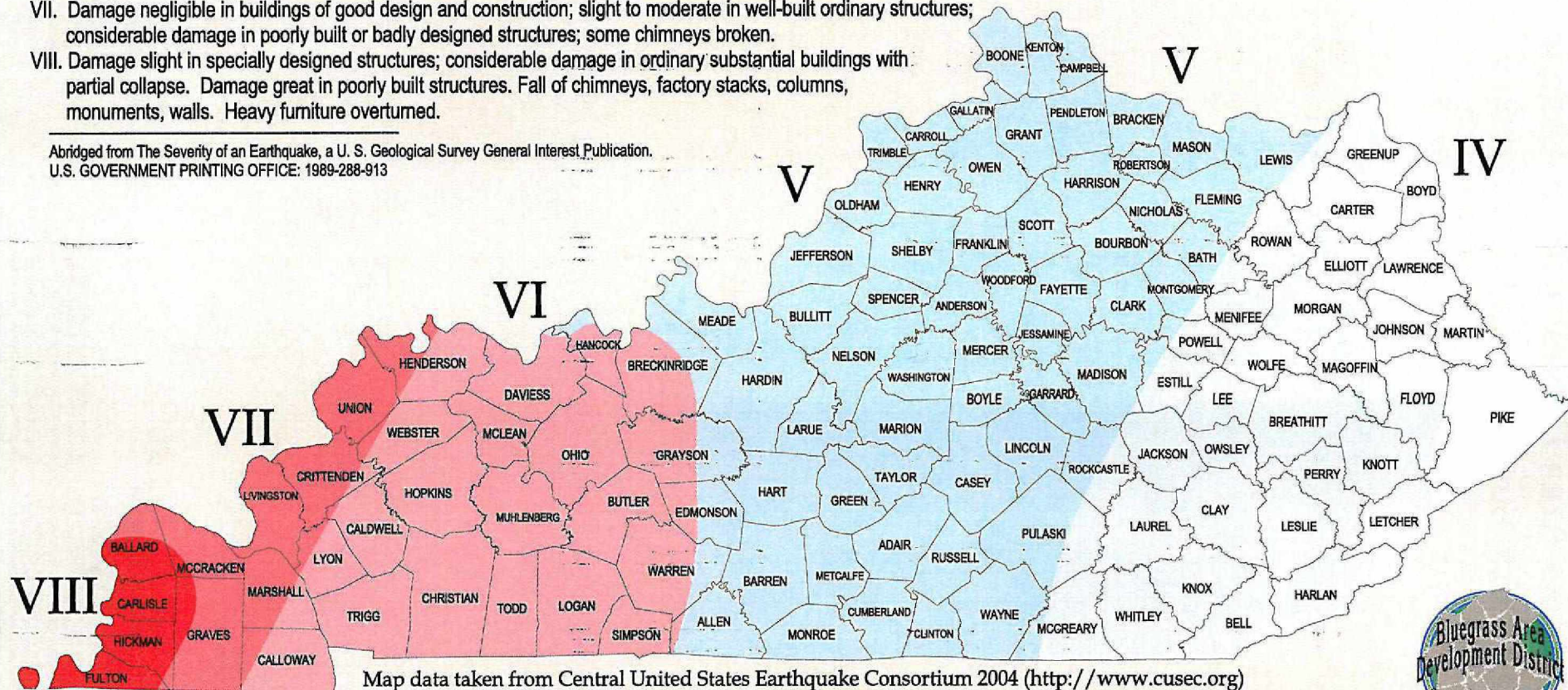
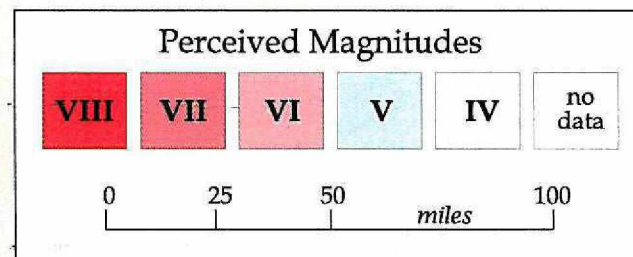
New Madrid Hypothetical Magnitudes

This map is a hypothetical representation of the effect of a magnitude 8.0 (Richter Scale) earthquake in the New Madrid area.

The following is an abbreviated description of the 12 levels of Modified Mercalli intensity scale.

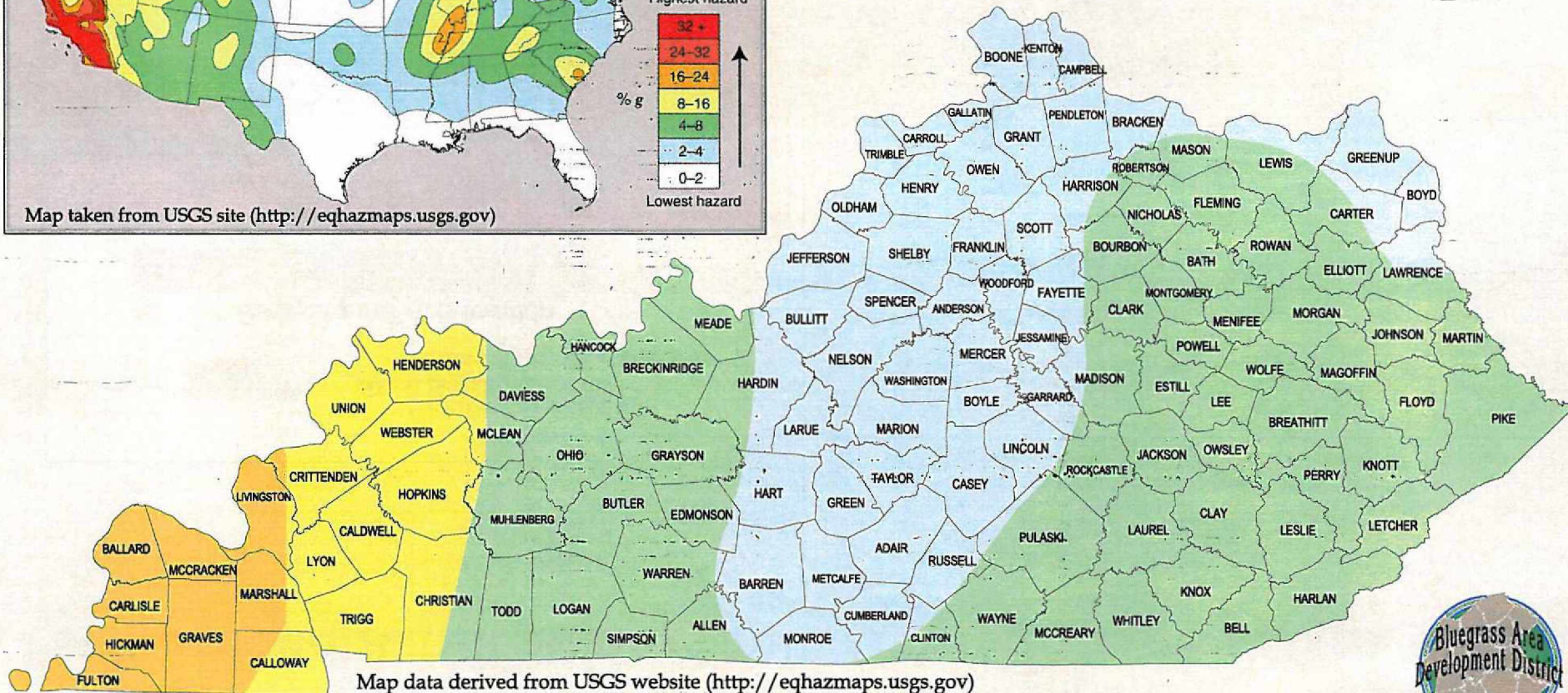
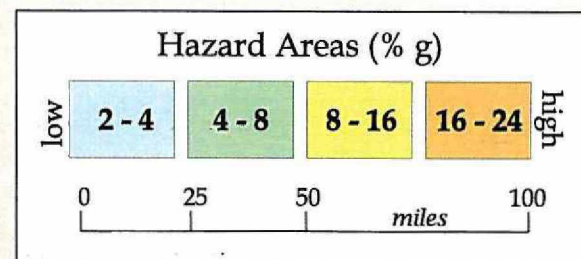
- IV. Felt indoors by many, outdoors by few during the day. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motor cars rocked noticeably.
- V. Felt by nearly everyone; many awakened. Some dishes, windows broken. 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.

Abridged from *The Severity of an Earthquake*, a U. S. Geological Survey General Interest Publication.
U.S. GOVERNMENT PRINTING OFFICE: 1989-288-913



$\mathcal{N}$
4

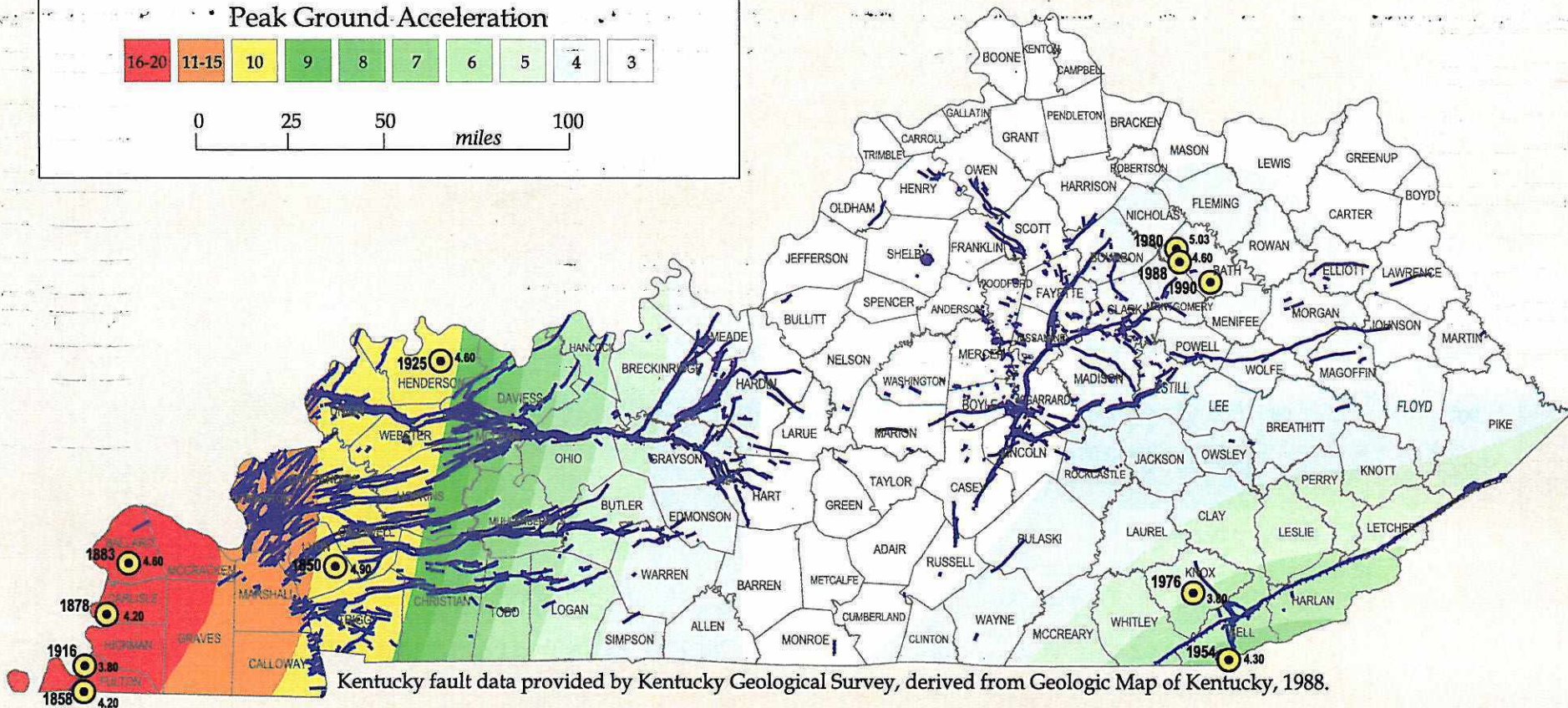
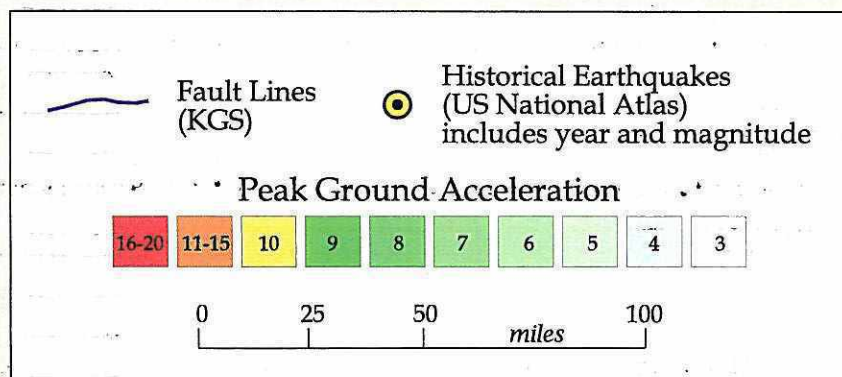
Map taken from USGS site (<http://eqhazmaps.usgs.gov>)



Map data derived from USGS website (<http://eqhazmaps.usgs.gov>)



Peak Ground Acceleration/Faults/Historic Earthquakes



Kentucky fault data provided by Kentucky Geological Survey, derived from Geologic Map of Kentucky, 1988.



