

Preliminary Draft
HAZARD MITIGATION PLAN
City of Urbana
October 2004

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Revised Plan Submitted to:

**Urbana Plan Commission
Urbana City Council**

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Chapter I

INTRODUCTION

Chapter I. Introduction

1.1 Purpose and Goals

In the past, the City of Urbana has incurred losses from natural disasters. In an attempt to alleviate future losses, the City has decided to adopt standard mitigation measures. The Federal Emergency Management Agency (FEMA) defines “mitigation” as:

sustained action taken to reduce or eliminate long-term risk to people and their property from hazards and their effects.

Standard mitigation measures help distinguish actions that have long-term impacts from those that are more closely associated with preparedness for, immediate response to, and short-term recovery from a specific event. Thus, mitigation does not mean controlling or stopping hazards. It means doing all that can be done to minimize the impact of hazards.

The mitigation measures outlined in this plan, aim to achieve the goal of protecting life and properties in the community from hazards. The mitigation strategies are designed at achieving the following objectives:

- Reduce risk, using actions that are cost-effective and feasible.
- Improve the community’s information base regarding its vulnerability.
- Ensure that mitigation activities are compatible with the community’s other development goals.
- Coordinate mitigation efforts of different agencies.

This plan is prepared on the following ten fundamental principles. They are based on the objectives of the National Mitigation Strategy developed by FEMA.

1. Mitigation measures insure long-term economic success for the community as a whole, rather than short-term benefit for special interests.
2. Mitigation measures for one natural hazard must be compatible with risk reduction measures for other natural hazards.
3. Mitigation measures must be evaluated to achieve the best mix for a given location.
4. Mitigation measures for natural hazards must be compatible with risk reduction measures for technological hazards and vice-versa.
5. All mitigation is local.
6. Emphasizing pro-active mitigation before emergency response can reduce disaster costs and the impacts of natural hazards; both pre-disaster (preventive) and post-disaster (corrective) mitigation is needed.
7. Hazard identification and risk assessment are the cornerstones of mitigation.
8. Building new federal-state-local partnerships and public-private partnerships is the most effective means of implementing measures to reduce the impacts of natural hazards.
9. Those who knowingly choose to assume greater risk must accept responsibility for that choice.

10. Mitigation measures for natural hazards must be compatible with the protection of natural and cultural resources.

This plan aims to achieve higher public safety by prioritizing mitigation projects and adopting measures that further protect citizens and businesses from the physical and economic effects of disasters.

1.2 Authority

Urbana was invited by FEMA in December 1998 to be the second Illinois community to join the program known as “Project Impact”. It is one of 200 Project Impact communities throughout the country to have this designation. Project Impact is a national initiative that encourages communities to come together to assess their vulnerabilities to natural hazards and implement strategies to save lives and limit damage to buildings, utilities, and transportation systems before disasters occur. Urbana was chosen because of its vulnerability to floods, tornadoes, earthquakes, and ice storms. In addition, the City has exhibited strong public/private sector relationships and has developed public education programs. Urbana has already started taking actions to build a disaster resistant community.

Under the Project Impact memorandum of agreement signed in August 2000, representatives of local, state, and federal government, as well as business and community leaders, pledged to work together to make the city disaster resistant. The formulation of a hazard mitigation plan was part of the City’s commitment in order to integrate its mitigation activities into a concerted effort.

A Draft of the Hazard Mitigation Plan was prepared by two graduate students in the Department of Urban and Regional Planning at the University of Illinois at Urbana-Champaign in June 2002, under the supervision of the Department and of the City of Urbana. This Draft was presented to the City’s Project Impact Steering Committee and Comprehensive Plan Steering Committee. It was submitted to FEMA and to the Illinois Emergency Management Agency for review and comment. Planning staff at the City of Urbana completed the requested revisions in 2003 and submitted it for review and approval by the Urbana Plan Commission and City Council in late 2004.

1.3 Planning Approach

This plan follows the standard 10-step process based on the guidance and requirements of FEMA. This process is summarized in *Figure 1.1*.

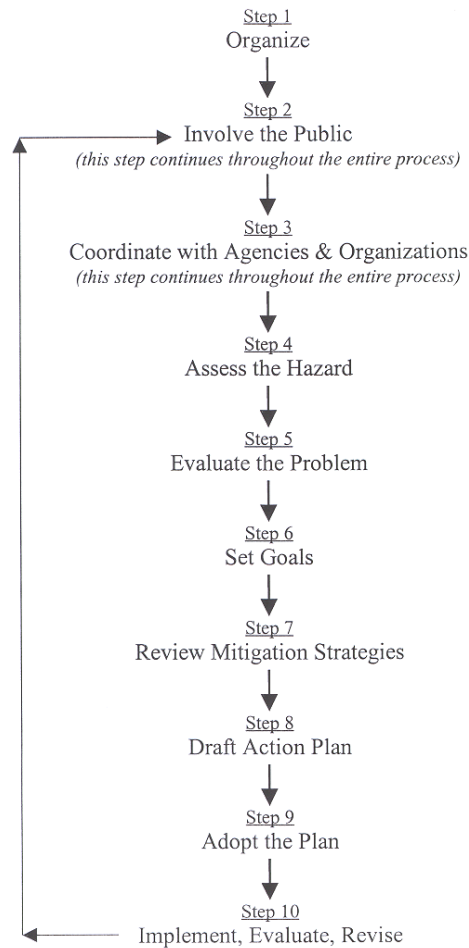


Figure 1.1 Mitigation Planning Process

Organizing for the plan involved designating responsibilities and determining the timeline and the funding for the plan. The City planning staff and Project Impact coordinator developed a sub-contract with the University of Illinois Department of Urban and Regional Planning to conduct a student project that would develop a mitigation plan for the City. Two Master’s students, supervised by a faculty member from the UIUC Planning Department, were assigned to this project. They reported their work to the Project Impact Steering Committee on a monthly basis. The City requested that the Plan be prepared as a stand-alone element of the City’s Comprehensive Plan. This involved presentation and review by the City’s Comprehensive Plan Steering Committee.

Public involvement was a continuous part of the planning process. At every major stage of the process, public input was received in the form of expert opinion from members of the Project Impact Steering Committee. This committee was formed as a part of the City’s designation by FEMA as a “Project Impact Community”. The Project Impact Steering Committee was composed of representatives of the community, including residents, business owners, city

officials (fire department, community development), City utility providers, and organizations related to emergency management at the county and national level (*Figure 1.2*). The Committee was deactivated in 2003, following completion of Project Impact related projects in Urbana. Reactivation as a broader-based group with greater representation by the City of Champaign is anticipated in the future.

Hazard assessment was done with the help of information from the City, Emergency Services and Disaster Agency (ESDA), United States Geological Survey (USGS), and other sources. Documentation of past disasters, damages, and current mitigation activities was also collected from these agencies. Information on the nature of hazards and vulnerability was collected mainly from existing FEMA literature and Internet sources.

These same sources were also used to determine the range of mitigation strategies suitable for Urbana. Costs, benefits, and feasibility were then identified for each strategy with the help of the Project Impact Coordinator (Chapter IV, *Figures 4.1-4.4*). Priorities for each of these strategies were developed during two Project Impact Steering Committee discussion sessions.

Action items for implementation were formed from the general recommendations of the mitigation strategies. Each action item identifies the appropriate agencies and suggested time frames. Following review by the Project Impact and Comprehensive Plan Steering Committees, the Draft Hazard Mitigation Plan will be presented at a public hearing of the Urbana Plan Commission. It will then be presented for adoption by the City Council of the City of Urbana as an element of the City's Comprehensive Plan. Adoption of the Hazard Mitigation Plan will help to fulfill the goals set forth in the Disaster Mitigation Act of 2000.

1.4 Disaster Mitigation Act, 2000

On October 30, 2000, President Bill Clinton signed into law the Disaster Mitigation Act of 2000 that amended the Robert T. Stafford Disaster Relief Act of 1988. Among other things, the new legislation reinforces the importance of pre-disaster infrastructure mitigation planning to reduce disaster losses nationwide, and is aimed primarily at controlling and streamlining the administration of federal disaster relief and programs to promote mitigation activities.

FEMA published an interim final rule (*Appendix A*) in the Federal Register on February 26, 2002, implementing the hazard mitigation planning sections of the Disaster Mitigation Act of 2000. These provisions provide new federal requirements for mitigation planning and offer a significant opportunity to reduce disaster losses through mitigation planning at both the State and local level. The rule addresses State mitigation planning, identifies new local mitigation planning requirements, authorizes Hazard Mitigation Grant Program (HMGP) funds for planning activities, and increases the amount of HMGP funds available to States that develop a comprehensive, enhanced mitigation plan. The City of Urbana has greater opportunities for receiving funding by having a hazard mitigation plan that meets the requirements in the interim final rule.

Figure 1.2 Urbana Project Impact Steering Committee

	Affiliation
Barbara Payne	Co-Chair, American Red Cross
Don Schlorff	Co-Chair, Busey Bank
Craig Grant	Coordinator, City of Urbana
Libby Tyler	Coordinator, City of Urbana
Debbie Albin	Illinois Power
Van Anderson	University of Illinois
Bob Bone	State Farm Insurance
Elawrence Davis	Housing Authority, Champaign County
Otta Dossett	Urbana School District 116
Tom Exton	Illinois-American Water Company
Rosemary Foster	Housing Authority
Bill Gray	Urbana Public Works
Charles Heflin	Edge-Scott Fire Department
Vicki Jarboe	Mid-America Earthquake Center
Ted Jeurissen	Champaign County Regional Planning Commission
Kate Johnston	American Red Cross
Bill Keller	Champaign County ESDA
Rick Levine	SuperValu
Robert Mann	Carle Foundation Hospital
Sandra Menke	Mid-America Earthquake Center
Rex Mundt	Urbana Fire Department
John Nichols	Mid-America Earthquake Center
Dennis Ohnstad	Riley Homes
Joe Perry	Flex-N-Gate
Joe Potts	Urbana Park District
Scott Rose	Champaign County Regional Planning Commission
William Volk	C-U Mass Transit
Randall White	Lowe's



Chapter II

COMMUNITY BACKGROUND

Chapter II. Community Background

2.1 GEOGRAPHICAL FEATURES

2.1.1 Landscape

The City of Urbana and its outlying Extra Territorial Jurisdiction (ETJ), with the exception of the minor slopes along the Yankee Ridge Moraine and the rolling countryside along the Saline Branch, is very flat. The average elevation is 730 feet above sea level according to the Illinois State Water Survey. The majority of the undeveloped and cultivated area is classified as prime farmland. The area's flat landscape allows straight-line winds to move at high speeds, making Urbana prone to wind hazards.

2.1.2 Waterways

The major waterways are the Saline Branch Drainage Ditch, Boneyard Creek, and McCullough Creek. The Saline Branch crosses the area north of Interstate 74. Boneyard Creek runs downstream through the heart of the community touching residential, commercial, industrial properties and land uses. McCullough Creek is the smallest waterway in the community and is concentrated within mainly agricultural area in southwest Urbana. A portion of the Embarrass River Basin is located in the southwestern portion of the one-and-one-half mile ETJ. Developed areas of the community that fall in the floodplain of these waterways are thus exposed to floods.

2.1.3 Hydrology

The flat landscape and poorly drained soil types that characterize the area do not facilitate proper surface drainage and puts the City at a higher risk of flooding. The hydrologic network within and around the City of Urbana consists of the several river basins mentioned above, including the Saline Drainage Ditch and Boneyard and McCullough Creeks.

2.1.4 Soil

Urbana soils are mainly upland prairie of the Drummer-Flanagan (Boneyard Basin), Drummer-Xenia (Saline Branch), and Dana-Parr-Drummer (McCullough Basin) groups. The glacial drifts consist of a heterogeneous mixture of clay, silt, sand, and gravel, with a thickness of 250 feet near Urbana. Soils found near the Saline Drainage Ditch basin and other water resources are considered low in crop production potential and severe in potential building site limitations. Maps by the Association of Central United States Earthquake Consortium (CUSEC) State Geologists illustrate that Urbana soils (upper 50 feet) have a high potential for amplifying earthquake ground motions or liquefaction.

2.1.5 Precipitation

The average yearly precipitation is 35.9 inches. The temperature ranges from an average of 26° Fahrenheit in January to 75° in July. The land surface of the area has a level or gently rolling topography, which again, generally provides inadequate drainage for storm runoff.

2.2 LAND USE PATTERN

As seen in *Figure 2.1*, Urbana can be characterized as a predominantly residential community with many neighborhoods of single-family and multi-family housing. As a highly urbanized community, Urbana has a large number of people and properties that are exposed to natural hazards. *Figures 2.2 and 2.3* show the City's 2003 Existing Land Use and Future Land Use maps. These maps can be used to help identify vulnerable properties, as well as what land use types are planned for the future.

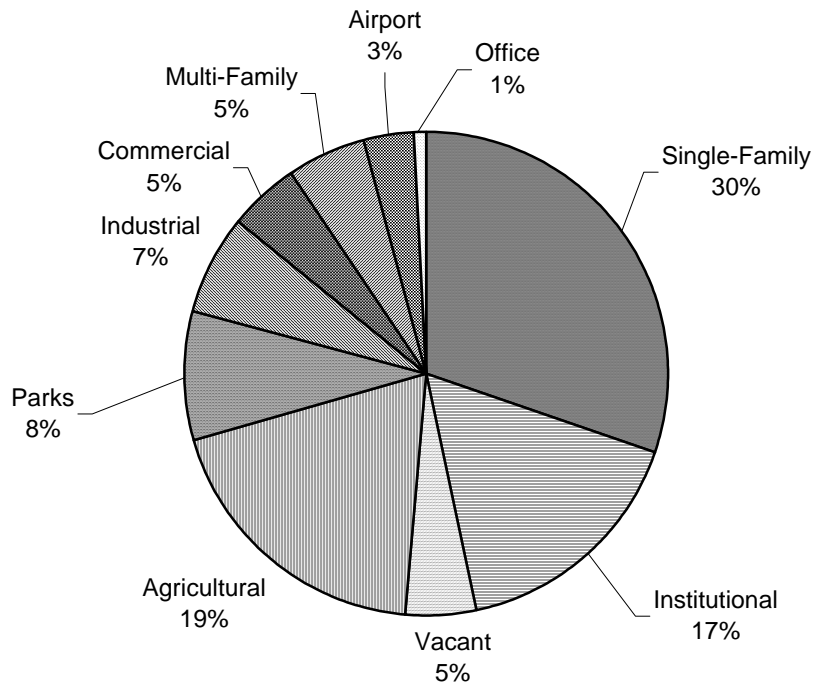


Figure 2.1 Distribution of Land Uses, City of Urbana, 2001

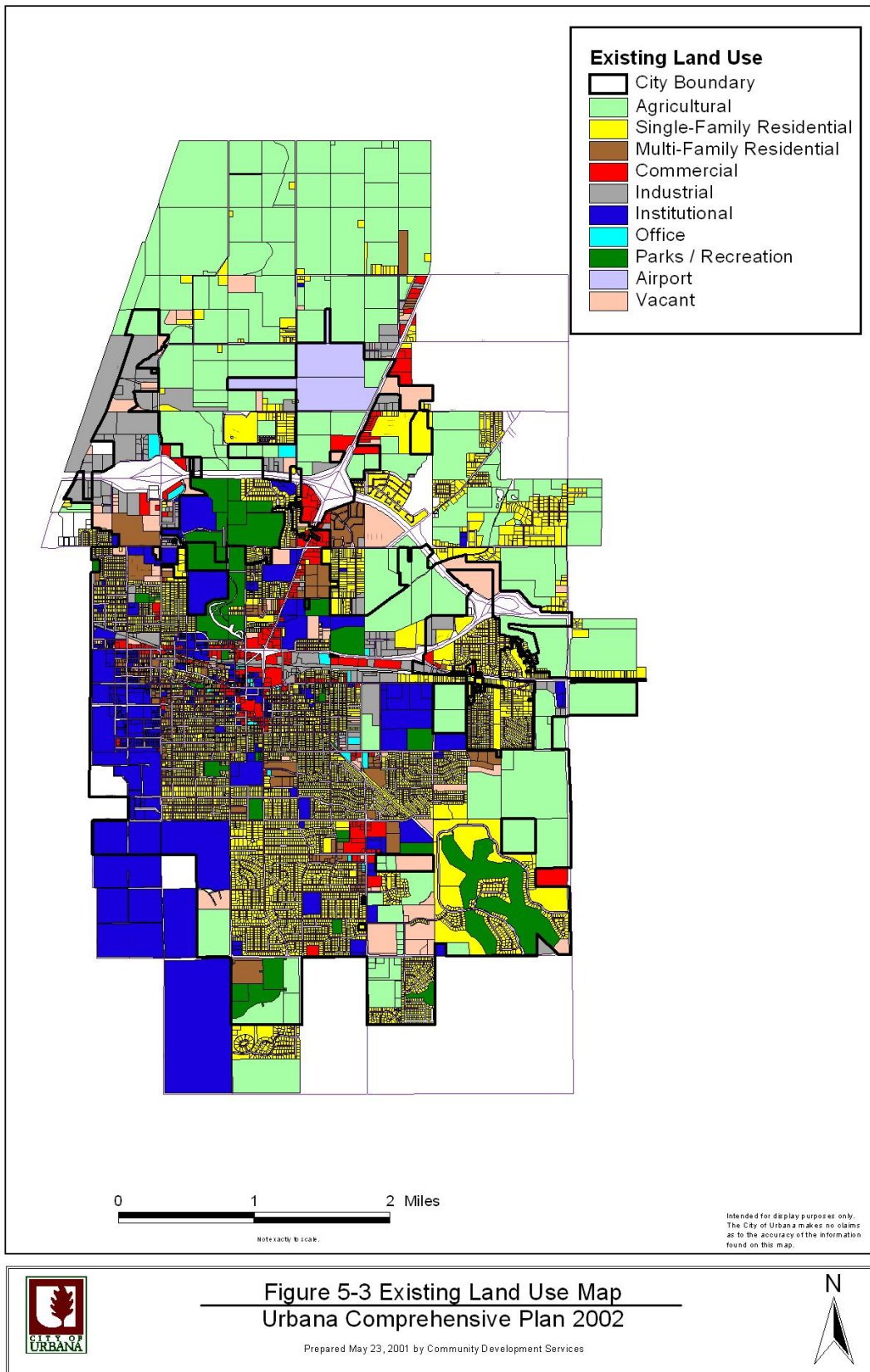


Figure 2.2 City of Urbana Land Use Map

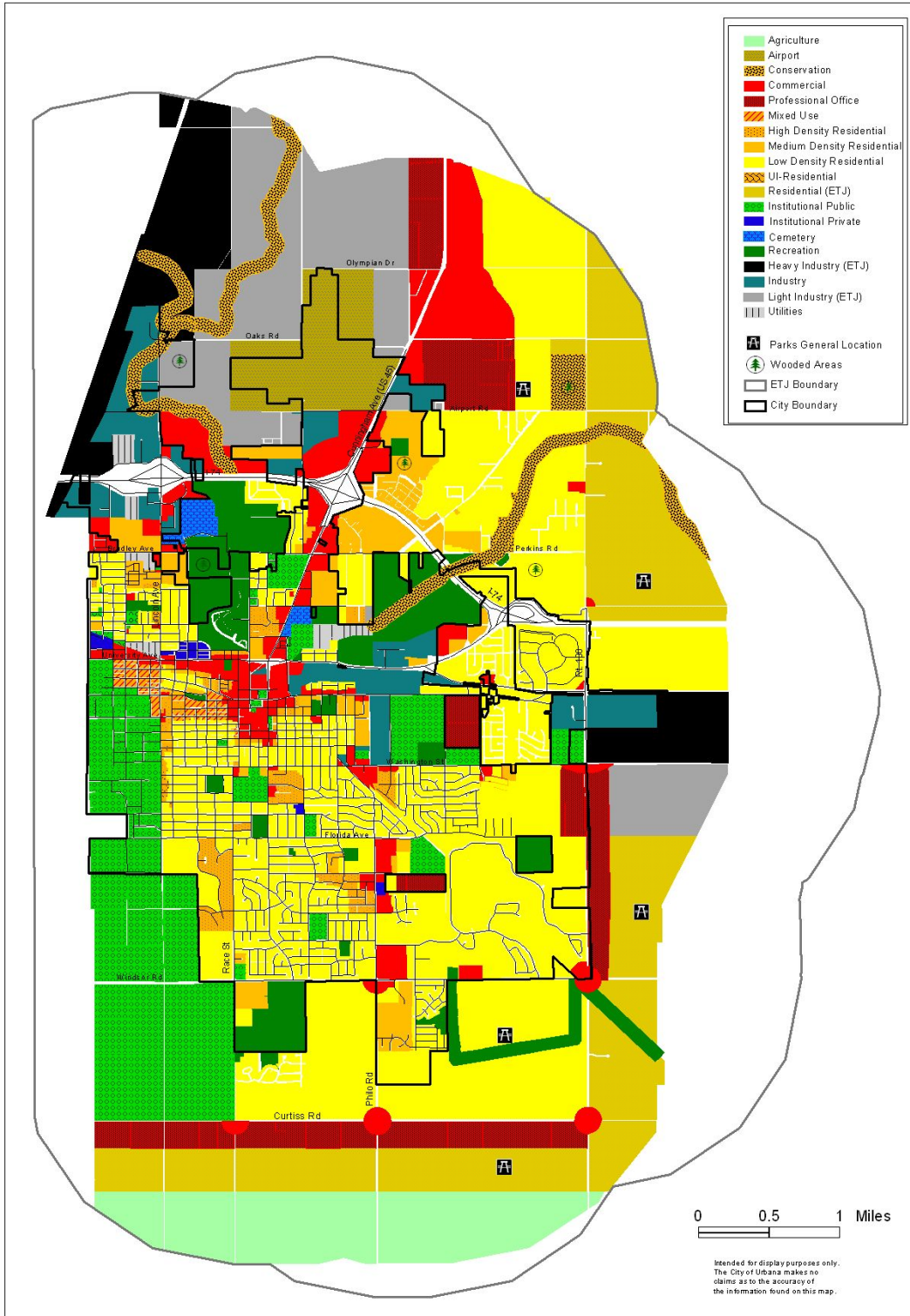


Figure 2-1 Future Land Use Plan Map
Urbana Comprehensive Plan 2002

Prepared April 10, 2002 by Community Development Services



2.3 CRITICAL COMMUNITY SERVICES

Certain parts of the community require special protection from hazards. These are called critical community services, as identified by the City, and are of the following kinds:

- Those services that can create secondary disasters (e.g. chemical plants, gas stations, storage of toxic or flammable materials).
- Transportation and utility networks (e.g. roads, airport, electric power, water supply, sewage treatment).
- Facilities that are important to the community as a whole (e.g. important businesses, schools).
- Emergency services (e.g. fire services, police services, hospitals).

2.3.1 Transportation

Interstate access to Urbana is provided by Interstate 74, which extends east to Danville and Indianapolis and west to Bloomington/Normal, Peoria, and the Quad Cities. Interstate 74 interchanges with Interstates 72 and 57 five miles west of Urbana, providing access to Chicago, Springfield, southern Illinois, and Missouri. The Champaign-Urbana Mass Transit District (C-U MTD) operates five types of transit service in the Urbana area, including fixed route bus service, demand response service, paratransit, subsidized taxis, and charter service. Three railroad lines operated by Norfolk Southern, Canadian National, and Amtrak serve the Urbana-Champaign area. Two airports provide air service for Urbana-Champaign. As of 2001, there were 4.67 miles of roadway within Urbana's 100-year floodplain that may be vulnerable to being closed due to flooding, as well as twenty-six bridges and culverts.

2.3.2 Utilities

There are approximately 40 utility facilities in Urbana. The Urbana-Champaign Sanitary District provides sanitary sewer service. The District maintains two treatment facilities, one in Urbana and the other in Champaign. The Northeast Plant, is located in Urbana along east University Avenue. A private company, Illinois-American Water, provides municipal water treatment and distribution. They have a treatment facility located on Lincoln Avenue. Also at this location are large capacity Illinois-American wells that are used to supply Urbana and Champaign with their municipal water supply. Illinois Power, a private utility company that is regulated by the Illinois Commerce Commission, provides gas and electricity. Illinois Power has a number of substations and other facilities and roughly fifty miles of electrical distribution lines located in Urbana. Other utilities including telephone, cable television, internet access, cellular telephone, and fiber optic lines are provided by a number of private carriers. Most of these utilities have overhead lines, which exposes them to wind and ice storm hazards.

2.3.3 Community Facilities

Urbana has six neighborhood elementary schools, one middle school, one high school, an early childhood center, and a special education program. There are ten public buildings in the city, including the City Hall, police and fire stations, and County Courthouse. The elementary schools are located close to residential areas and the high school and middle school are centrally located near downtown Urbana. Schools not only require protection, but can also serve as shelters in times of emergency.

Urbana has six different business neighborhoods: Downtown, North Cunningham, North Lincoln, East Urbana, Southeast Urbana, and the University of Illinois/Medical business neighborhood. In 2001, an estimated 2,520 businesses were considered at risk to damage from natural hazards. This does not include public buildings, schools, or hospitals.

The downtown business neighborhood consists of a nine-block area in the central business district. It includes the Champaign County Courthouse, the Federal District Courthouse, City of Urbana offices, Busey Bank headquarters, and many professional offices, as well as many unique small businesses. The County Courthouse and the Urbana Free Library are some of the community's oldest landmarks. Since many of the top ten private and public employers have their offices in this area, it is one of the most valuable assets to the community and thus needs special protection from hazards.

2.3.4 Emergency Services

Fire and rescue services are available from the City of Urbana Fire and Rescue Services Department and five neighboring township volunteer fire departments. The city is served by four fire stations.

Metropolitan Computer Aided Dispatch (METCAD) is a consolidated dispatch center located on east Main Street in Urbana. It answers emergency 9-1-1 calls for all of Champaign County. It also provides direct dispatch service for law enforcement agencies and fire agencies throughout the county. It has the facilities to provide for continuous operation through the most adverse of conditions.

Champaign County Emergency Services Disaster Agency (ESDA) and the City of Urbana operate Emergency Operations Centers (EOC) by which they respond to emergency situations as either a coordinating agency or a support agency. ESDA has deployed a network of Storm Spotters who provide advance warning of severe weather. EOC staff monitors the weather radar and the national Weather Service weather wire. They disseminate the information to ESDA storm spotters, amateur radio storm spotters, and other public safety agencies.

Medical services are provided by Carle Foundation Hospital and Provena Covenant Medical Center. Carle Clinic Association works in collaboration with Carle Foundation hospital and has a network of clinics serving east central Illinois. Christie Clinic Association is a multi-specialty medical group practice based in Champaign with five clinics in the area.

2.4 DEVELOPMENT TRENDS

2.4.1 Population

The 2000 Census reported a population of 37,362 for the City of Urbana. This was a gain of 1,018 persons over the 1990 count of 36,344, for a 2.8% increase in population over the last decade. Projected population for the City of Urbana is expected to steadily increase over the next three decades to 45,646 persons, according to projections generated by the C-U 2030 Plan (*Figure 2.4*). The population has grown steadily since 1970 and this trend is expected to continue in coming years. This growing population adds to the number of persons exposed to hazards in Urbana.

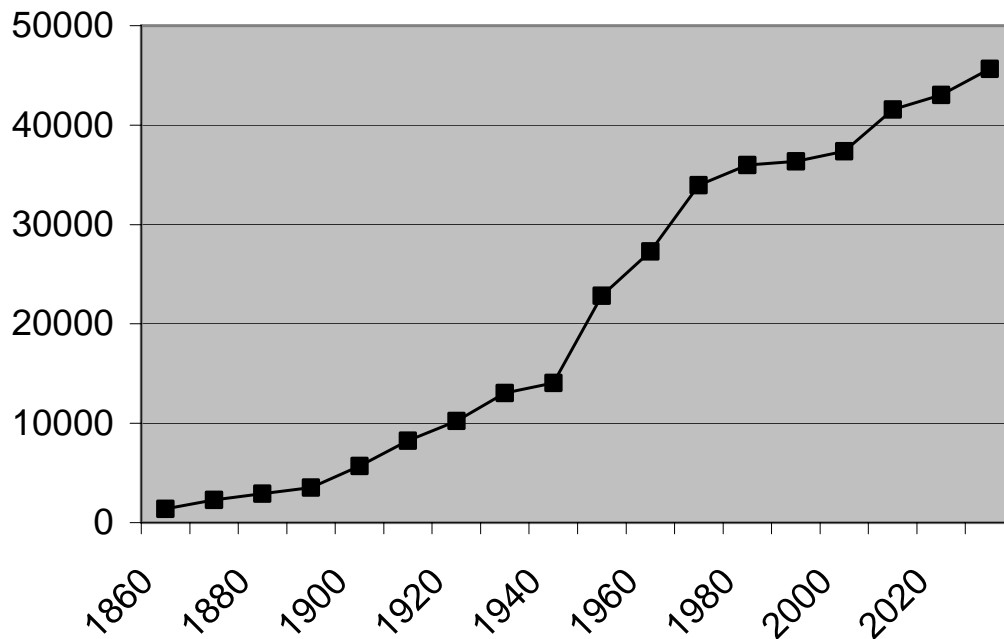


Figure 2.4 Population by Decade and Projected Population, 1860-2030

2.4.2 Housing

Housing units increased by 9% from 1990 to 2000 (13,982 units to 15,243 units) and are projected to increase an additional 19% to 18,161 units by 2030. Eight new housing subdivisions have been recently or are currently being constructed. These include Stone Creek, Eagle Ridge, South Ridge, Beringer Commons, Lincolnwood, Savannah Green, Landis Farms, and Fairway Estates. Major existing multi-family developments include Town and Country Apartment, Amber Pointe Apartments, Melrose Apartments, University Commons, and University Housing at Orchard Downs. In 2001, 8,213 homes were identified as representing buildings that may experience damage from windstorms, earthquakes, ice storms, or floods.

In 2002, the City’s Building Safety Division issued 181 permits for a total of 240 new residential units, including single-family, multi-family, and duplexes (*Figure 2.5*). In the same year, one new recreational and eleven new business permits were also granted. In 2003, a total of 167 permits were issued for 159 new single-family, 164 multi-family, and 6 duplex units. Also in 2003, there were three new industrial permits, six new commercial permits, and one new recreational permit. Similar figures are projected for 2004. New development, depending on the quality of its design, construction, and location can increase the number of Urbana residents exposed to natural hazards.

Figure 2.5 New Construction Permits in Urbana

Construction Type	Year 2002	Year 2003
Residential	181	167
Industrial	0	3
Institutional	0	0
Business	11	6
Recreational	1	1

Chapter III

HAZARD ASSESSMENT

Chapter III. Hazard Assessment

Historically, Urbana has been exposed to natural hazards, including tornadoes, windstorms, ice storms, floods, and earthquakes. Other hazards such as hurricanes, tsunamis, tidal waves, wild fires, volcanic eruptions, and landslides are not of concern for the City, because of its relatively flat topography and geographical location within the Midwest. Hazards were identified as threats to Urbana using informational sources, including historical data, newspapers, existing plans and reports, expert interviews, and United States Geological Survey (USGS) data. In this chapter, each of these hazards has been addressed under the following categories: the nature of the hazard, history, vulnerability assessment, and current mitigation measures.

Hazard assessment was done on the basis of historical records of previous hazards, City documents and publications, and interviews with key members of the Steering Committee. This involves evaluating the extent to which the community is exposed and ascertaining the risk due to these hazards. Information on the characteristics of the population at risk (age, ethnicity, income, and relevant health characteristics) and structures at risk (housing and businesses) can be used in developing a “risk reduction yardstick” to gauge the progress of future mitigation tools and techniques.

Three levels of hazard assessment can be identified from the various literatures on hazard mitigation planning. They are as follows:

1. **Hazard Identification** determines the extent and boundaries of the hazard, the nature and magnitude of the hazard, the probability of occurrence for each hazard and a historical context. The historical context will include what hazards have occurred in the community and which areas they affected.
2. **Vulnerability Assessment** estimates the number of people and the property exposed to the hazard and identifies areas or structures that are relatively more susceptible to the hazard. The potential damage to the community is determined by these factors.
3. **Risk Analysis/Risk Assessment** is the calculation of risk, i.e. the potential damage associated with the hazard defined in terms of expected probability and frequency, exposure, and consequences.

Risk analysis is the most sophisticated, costly, and data intensive level of hazard assessment, and it also provides the greatest degree of precision. Risk analysis is most appropriate for moderate to high-risk areas which are exposed to a range of natural hazards and are experiencing rapid growth and development. This plan contains hazard identification and vulnerability assessment for all hazards and results of the risk analysis for seismic risk in Urbana. *Figure 3.1* is a chart that summarizes each hazard assessment made in this chapter. It also provides an estimate of the number of events that may occur in Urbana in the next thirty years.

Figure 3.1 Summary of Hazard Assessment

Hazard	Damage from Latest Major Event	Vulnerability	High Risk Concerns	Estimated Number of Events in the Next 30 Years
Ice Storm	\$768,000 (excluding private costs) (1990)	Whole City	Conflict between trees and overhead power lines	1 to 2
Wind Storm/ Tornado	\$270,000 (excluding private costs) and 4,700 man-hours (1996)	Whole City	Mobile homes, multifamily apartment buildings	Every year (wind storm) 0 to 1 (moderate tornado)
Flood	\$771,700 (including private and public costs) (1990)	Floodplain (approximately 330 properties)	Floodplain	0 to 3 events similar to 1990. Major events are unlikely.
Earthquake	Minor damages (1987)	Whole City	URM buildings	0 to 2 m5 events. Major events are unlikely.

3.1 TORNADOES AND WIND STORMS

3.1.1 Nature of Tornadoes

Tornadoes are produced during severe thunderstorms, which are created near the junction between warm, moist air and cold, dry air. Tornadoes derive their energy from the heat contained in warm, moist air masses. A tornado path is generally less than 0.6 miles (1km.) wide. The length of the path ranges from a few hundred yards to dozens of miles. A tornado will rarely last longer than thirty minutes.

The combination of conditions that cause tornadoes are common across the central and southern U.S. in early spring, especially in April and May, but they can occur at anytime during the year. Tornadoes have been recorded as lifting and moving objects weighing more than 300 tons up to 30 feet. They can also lift homes off of their foundations. They collect an incredible amount of debris, which can whirl out of their vortices at high velocities, creating ‘missiles’. Tornadoes are

usually accompanied by heavy rain. They can cause large amounts of property damage, injury, and death.

The Fujita tornado scale is used to measure the severity of tornado damage. The Fujita scale assigns numerical values based on wind speeds and categorizes tornadoes from zero to five. *Figure 3.2* shows the Fujita scale values, intensity phrase, wind speeds, description of damages, and the national average number of tornadoes per year (1953-1989).

While violent tornadoes are few in number, they cause a very high percentage of tornado-related deaths. The Tornado Project, a small Vermont company that gathers, compiles, and makes tornado information available, has analyzed data prior to 1950 and found that the percentage of deaths from violent tornadoes was even greater in the past. This is because the death tolls prior to the introduction of the forecasting/awareness programs were enormous. In more recent times, no single tornado has killed more than fifty people since 1971, because of these forecasting and awareness improvements.

3.1.2 Tornado History

The Illinois tornado season is mainly from mid-March through June, although tornadoes can occur during any month of any season. Most of the deadly tornadoes have occurred in March, April, and May. Tornadoes typically move from southwest to northeast at 30 to 40 mph, but some can move at 60 to 70 mph, especially in the spring. Illinois' tornadoes are most often small and short-lived with winds of around 100 mph or less. A few are strong tornadoes with winds of 100 to 200 mph. Larger, long-track tornadoes with devastating winds of 200 to 300 mph are extremely rare, but they do occur in Illinois. On average number there are thirty tornadoes per year in Illinois. The most tornadoes in a month (since 1950) were fifty-three in May 1995 and forty in April 1996. In 2000, twenty-three out of the twenty-four central Illinois tornadoes were F0 and F1 intensity (in the weak, short-lived, short-path category).

There were thirty-six tornadoes in Champaign County between 1950 and 1995. *Figure 3.3* shows that while tornadoes in Champaign County causing significant damage are rare, weak tornadoes and windstorms occur relatively frequently. High winds in April 1962 caused two deaths and damages costing over one million dollars. The tornado in April 1996 caused one death in Ogden.

A tornado event near Urbana in August 1967 was reported in the local newspapers to have caused damages of around \$30,000. At least four mobile homes were destroyed in the storm when they were ripped off their foundations, landing upside down or at angles, leaning against the mobile home next to them. Other high-speed wind events occurred in 1988, 1989, 1992, 1996, 1998, and 2001. *Figure 3.4* is a picture of a cold air funnel over Urbana.

Figure 3.2 Fujita Tornado Scale

F Scale	Intensity Phrase	Wind Speed	Type of Damage Done	National Average per Year (1953-1989)
F0	Gale tornado	40-72 mph	Some damage to chimneys; breaks branches off trees; pushes over shallow-rooted trees; damages signboards.	218(29%)
F1	Moderate tornado	73-112 mph	The lower limit is the beginning of hurricane wind speed; peels surface off roofs; mobile homes pushed off foundations or overturned; moving autos pushed off the roads; attached garages may be destroyed.	301(40%)
F2	Significant tornado	113-157 mph	Considerable damage. Roofs torn off frame houses; mobile homes demolished; boxcars pushed over; large trees snapped or uprooted; light object missiles generated.	175(23%)
F3	Severe tornado	158-206 mph	Roof and some walls torn off well-constructed houses; trains overturned; most trees in forest uprooted.	43(6%)
F4	Devastating tornado	207-260 mph	Well-constructed houses leveled; structures with weak foundations blown off some distance; cars thrown and large missiles generated.	10(1%)
F5	Incredible tornado	261-318 mph	Strong frame houses lifted off foundations and carried considerable distances to disintegrate; automobile sized missiles fly through the air in excess of 100 meters; trees debarked; steel reinforced concrete structures badly damaged.	1(0.002%)

Source: Tornado Project (<http://www.tornadoproject.com>) and Clay County Mitigation Plan, Arkansas (<http://quake.ualr.edu/HazardMitigation/claymitg-plan/Tornado-Thunder.htm>)

Figure 3.3 Tornadoes in Champaign County (1950-1995)

Fujita Scale	Number of Tornadoes
F0	12
F1	11
F2	8
F3	4
F4	1
F5	0

Source: Tornado Project <http://www.tornadoproject.com/alltorns/iltorn1.htm#C>



Figure 3.4 Cold Air Funnel over Urbana

The tornado in 1996 was a major event. On April 19, 1996, at approximately 8:30 p.m., a tornado measuring F2 or F3 on the Fujita scale touched down in south Urbana and damaged 112 homes and businesses (Figure 3.5). Half of the 112 homes and businesses hit by the tornado had substantial damage. Twenty-four of the homes were completely destroyed and thirty were deemed unfit for residents to live in. This tornado caused one death in Ogden and minor injuries (ten injuries from two touch downs, one in Urbana and another in Ogden). As a result, Champaign County was proclaimed a Federal Disaster Area. Figure 3.6 is a parcel map that highlights which properties were damaged by the April 19 tornado. Figures 3.7-3.9 show examples of major, medium, and minor damages.

Figure 3.5 Damages from the Tornado in April 1996, Urbana

	Minor	Moderate	Major
Residential Structures	54	30	23
Commercial Structures	4	1	0
Total	58	31	23

Source: City of Urbana

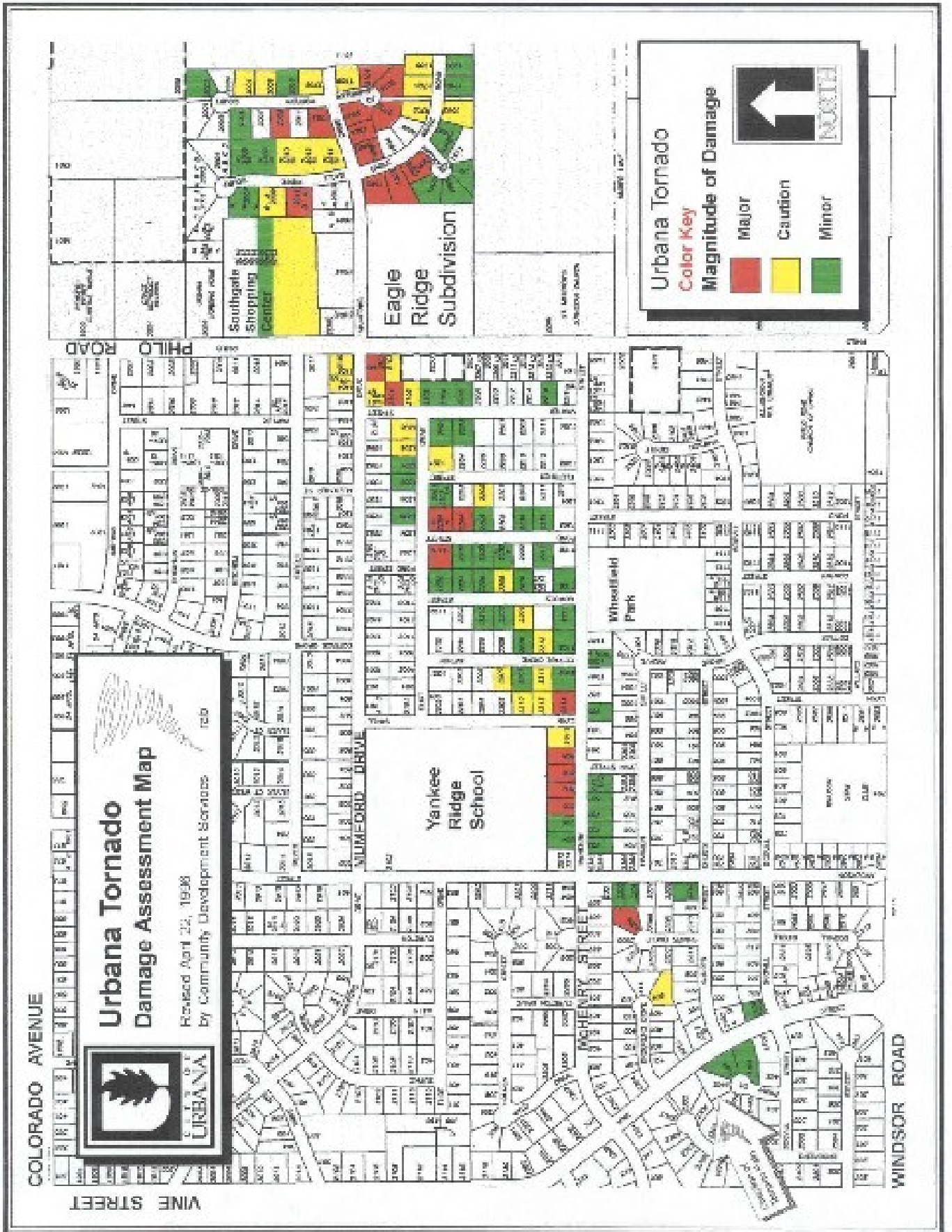


Figure 3.6 Tornado Damage Parcel Map



*Figure 3.7 Typical Major Tornado Damage,
1996, Urbana*



*Figure 3.8 Typical Medium Tornado Damage,
1996, Urbana*



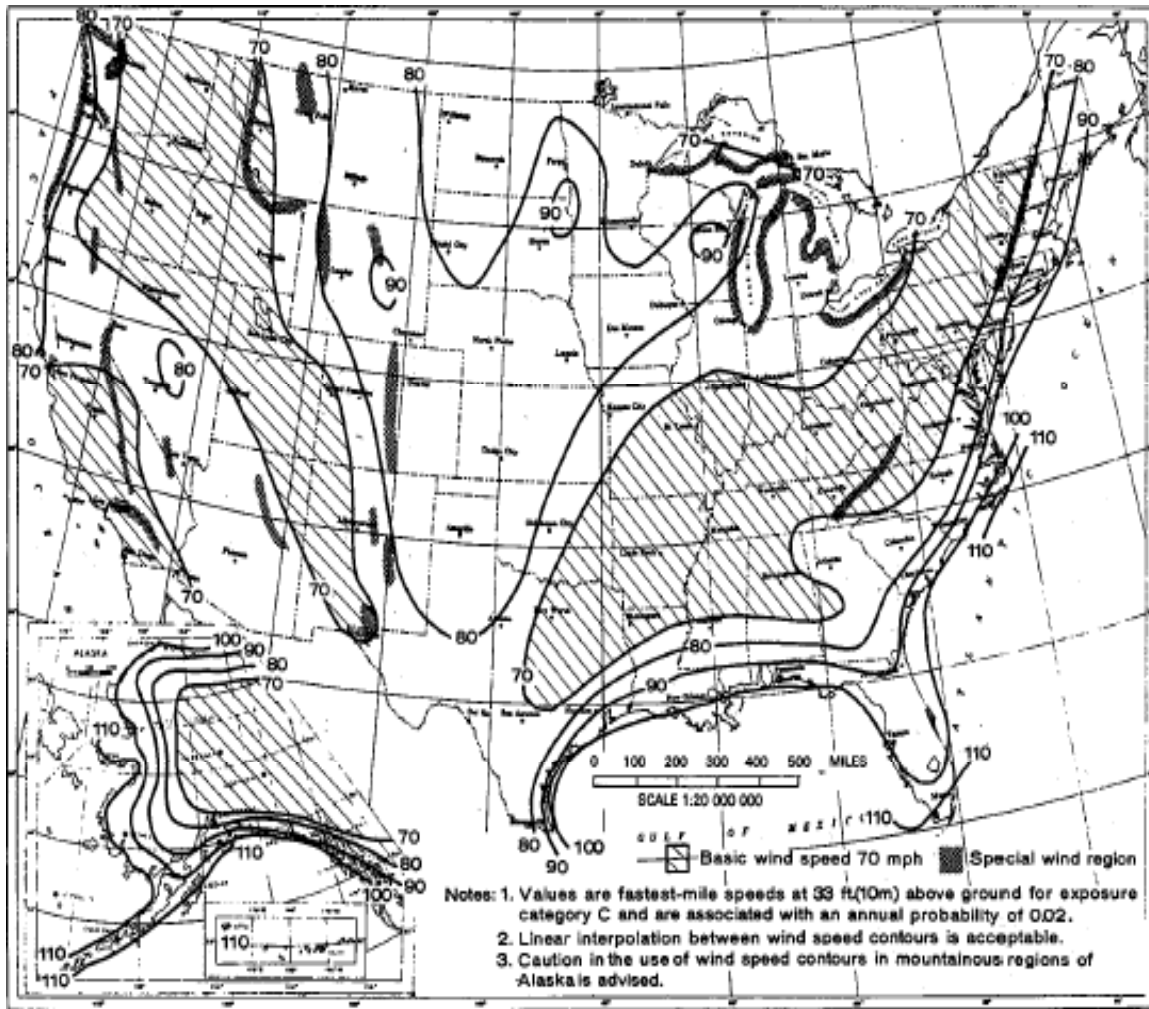
*Figure 3.9 Typical Minor
Tornado Damage
1996, Urbana*

In the hardest hit areas of east Urbana and Ogden, work crews and emergency service personnel from the City and the Emergency Services Disaster Agency (ESDA) worked to restore order. Costs to the City of Urbana from the tornado of April 1996 amounted to approximately \$230,000. If the contribution of resources from other governmental agencies that provided mutual aid during the event is included, the costs increased to nearly \$270,000, of which approximately \$170,000 was reimbursed by FEMA. The initial response and subsequent clean up effort required more than 4,700 man-hours. This total does not include any loss to private homes or businesses. In an attempt to quickly and efficiently allow for the repair of private properties that were damaged by the tornado, Urbana waived the requirement that building permits be purchased. As a result, subsequent documentation that is typically recorded and archived from those permits, including costs, was not kept.

Other high wind events occurred in 1998 and 2001. The April 1998 event resulted in power outages for several hours. The greatest damage was in areas with large trees, primarily older neighborhoods. In October 2001, strong winds destroyed a duplex, damaged about ten homes in the Champaign-Urbana area, and smashed a fabricated plant.

3.1.3 Tornado Vulnerability Assessment

The wind speed map for the United States (*Figure 3.10*) shows that Urbana falls in the area where the fastest wind speeds are 70 mph. This means that Champaign County has experienced or is expected to experience a wind speed greater than 70 mph on the average of once in fifty years. The probability of the wind speed exceeding 70 mph in Champaign County within a given year is 2%, while the probability that this wind speed will be equaled or exceeded in fifty years is 64%.



Source: ANSI/ASCE 7-93, the American Society of Civil Engineers

Figure 3.10 Basic Wind Speed Map, United States

Though the whole city is exposed to tornado damage, certain areas are most vulnerable (Figure 3.11). Factors that affect vulnerability to tornadoes include the following:

- 1) **Construction Type:** Studies¹ on previous tornado events in the states of Florida, Alabama, Arkansas and Ohio show that tornadoes result in fatalities in manufactured homes. The 'Tornado Safety Tips Brochure' from FEMA's online library says, "Mobile homes are particularly vulnerable. A mobile home can overturn very easily even if precautions have been taken to tie down the unit." Thus, people living in manufactured or mobile homes are most exposed to damage from tornadoes. Even if anchored, mobile homes do not withstand high winds. Structures made of unreinforced masonry and wood frame are typically vulnerable as well. Urbana has four mobile home parks.
- 2) **High Population Density:** The large apartment complexes located in Urbana are vulnerable due to their high concentration of residents.

¹ University of Colorado/ Natural Hazards Observer (www.colorado.edu/hazards)

- 3) **Condition of Inhabitants:** Hospitals and nursing homes are more vulnerable because of the relative immobility of the inhabitants.

3.1.4. Current Tornado Mitigation Activities

The City has prepared a video to demonstrate techniques that have been proven effective in preventing wind damage caused by separation at the structural joints of homes. The video has been shown on Urbana Public Access TV. More than 9,500 copies of this video have been distributed throughout the U.S. and abroad. Copies of the informative video can be obtained from the City's Building Safety Division and from FEMA, as supplies are available.

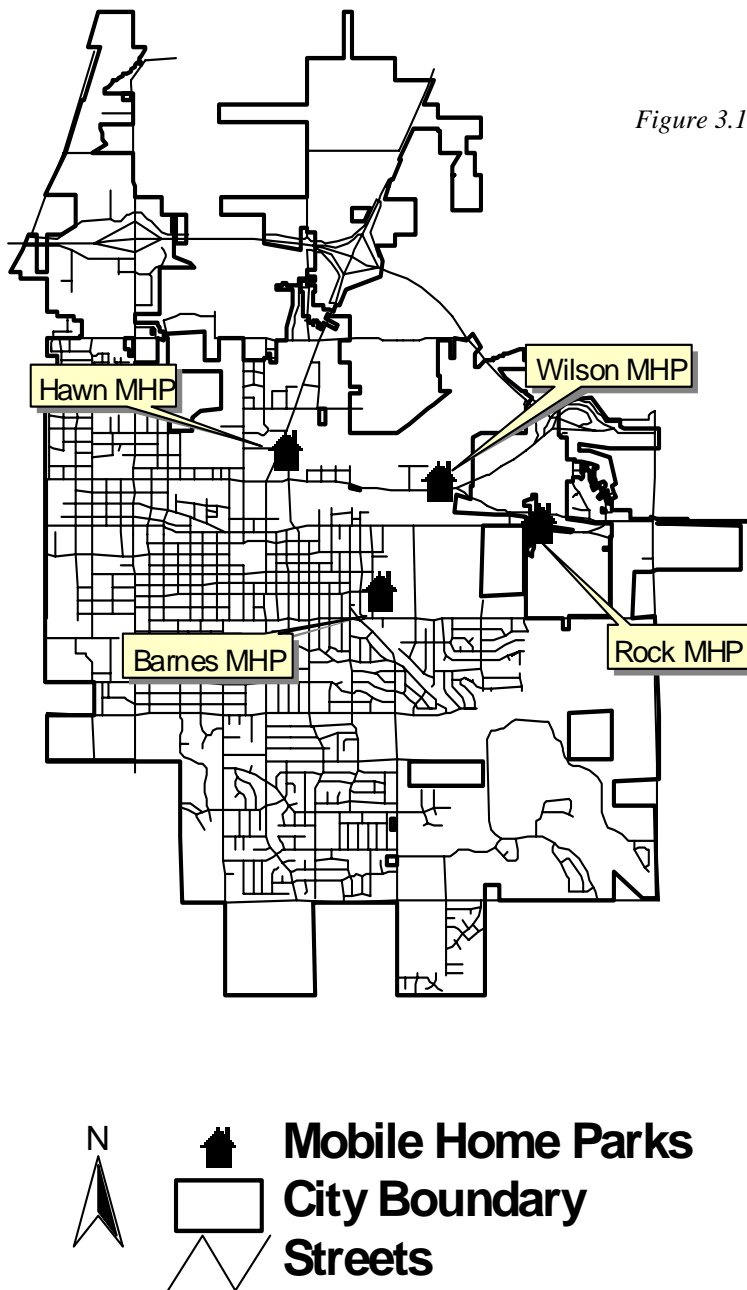


Figure 3.11 Vulnerable Areas

The City has an In-Residence Storm Shelter Demonstration Project, which is aimed at increasing the local awareness of the community's risks and assisting those community members who seek to enhance their disaster resistance. The distribution of information regarding methods to build in-residence storm shelters will offer many homeowners new opportunities to protect their families from the devastation of tornadoes and severe windstorms while remaining in their current homes. This could be expected to reduce the number of injuries and loss of life during such events.

The City has estimated costs for upgrading the construction of two typical homes to make them wind resistant. To create a 90 mph wind speed resistant design, an upgrade would cost about 7% of the total cost of a small, one story home with modest finishes and a simple floor plan. For a bigger house with a more complex plan and a higher level of upgrade, an upgrade would cost 3% of the total cost of the building.

The City presently follows the 1990 BOCA code and is in the process of updating it to the International Building Code, 2003. This code has higher standards for wind and seismic resistance.

Installation of underground electrical services would make individual residences less susceptible to a loss of electrical power during an ice or windstorm. This is especially true when local utility companies help augment such efforts. Companies can trim trees from their utility easements to reduce the risk of damage during such storms. In 2001, the City of Urbana Public Works Department prepared the "Overhead to Underground Utility Conversion" report that studied the feasibility of burying utility lines. Alternative One, which includes a full conversion of all utilities, estimates costs at a minimum of \$7,000 per household. Alternative Two, which includes the conversion of the electrical facilities while maintaining the overhead telephone and cable television utilities, would cost households at least \$3,800.

Since the costs are very high, the City cannot afford to bury all utility lines, unless additional funding sources become available. Using Project Impact Funds, the City has provided a cost-sharing program with individual property owners to encourage them to bury power lines from the nearest pole to their homes. The City's subdivision ordinance requires that developers bury utilities at new construction sites. Redevelopment projects also have the opportunity to bury lines.

The 'Masters of Disaster' program in Urbana schools is being implemented with the help of many organizations, such as the City of Urbana, the Urbana School District, the Illini Prairie Chapter of the American Red Cross, and the Mid-America Earthquake Center. The main objective of this program is to seek opportunities to develop a broad-based, community-wide approach to hazard mitigation that is proactive in its focus. The program performs the following activities:

- 1) Review information / resources available from FEMA, IEMA, the American Red Cross and other Project Impact communities for use in the program.
- 2) Make presentations to the local elementary schools.

- 3) Provide each interested school with a set of mitigation education tools.
- 4) Make additional public outreach presentations with the “Masters of Disaster” curriculum as opportunities arise.

3.2. WINTER STORMS / ICE STORMS

3.2.1. Nature of the Storms

As the sun gradually lowers in the sky in the Northern Hemisphere during the fall, cold arctic and polar air masses intrude farther and farther south into the United States. Disturbances forming along the boundary between the cold polar air and the relatively warm, tropical air sometimes turn into winter storms. These are usually large, intense low-pressure systems that may cover tens of thousands of square miles. Illinois' location in the Midwest places it in the path of many of these storms. When conditions are right, these storms can strike Illinois hard, leaving snow and ice over all or parts of the state. Severe winter storms in Illinois produce more total damage than any other form of short-term severe weather, including tornadoes, lightning, and hail.

Central Illinois has the distinction of being in the nation's primary area for severe freezing rain or ice storms. However, any part of the state is apt to have a severe snowstorm or ice storm. Illinois experiences an average of five severe winter storms during the period from November to April. These storms may produce heavy snow, ice (glaze), and/or a combination of both. Although the average is five per winter, as many as eighteen severe storms have occurred in one winter (1977-1978) and as few as two in another (1921-1922). The month of January experiences the greatest number of severe winter storms, although the number of December, February, and March storms follows closely behind.

For the State of Illinois, a storm is considered severe if it produces a snowfall of six inches or more in forty-eight hours or less somewhere in the state. One inch of snow may result in minor travel delays, while ten inches can close down a city. However, the severity of a particular snowstorm is not measured solely by the amount of snow that falls, but also by the temperature at which it falls and whether or not it is accompanied by high winds.

A typical severe storm in Illinois (i.e., six inches or more of snowfall) that occurs when the temperature is near freezing will result in considerable inconvenience and disruption of daily activities, but can normally be cleared from roads and walks without too many problems. However, a six-inch snowfall at a temperature of 10° F with strong winds will likely result in considerable blowing and drifting of snow, which can choke highways, strand travelers, and isolate towns. Even after the snow stops falling, the snow on the ground may continue to blow and drift for hours, perhaps days, depending on how long the winds remain high. Conditions may continue to be just as bad as when the snow was falling, preventing snow removal from streets and highways.

Freezing rain or ice storms occur when rain developing in a relatively warm (above freezing) layer of air falls through a layer of air that is below freezing (25-32° F). The rain is "supercooled" (still liquid) as it falls through the colder layer near the surface of the earth. When

the supercooled, but still liquid, raindrops strike the ground, or an object already below freezing, they freeze on contact. The resulting coat of ice is commonly known as “glaze”.

A heavy accumulation of ice can topple power and telephone lines, television towers, and trees. Highways become impossible to travel on and even stepping outdoors on foot can be an extremely risky undertaking. The severity of an ice storm (that is, the amount of damage) depends on the amount of rain and thus, icing taking place; the strength of the wind; and whether the storm strikes an urban or rural area. Developed urban areas tend to suffer more damage than underdeveloped areas, because of the concentration of utilities and transportation systems (aircraft, trains, buses, trucks, and cars), all of which may be affected to a great degree by the icing.

3.2.2. Winter / Ice Storm History

Newspaper archives from the *Courier* and *The News-Gazette* provide records of the history of ice storms in the Champaign-Urbana area. The ice storm of 1967 is one of Champaign-Urbana’s earliest and worst storms. The winds and ice wreaked havoc on trees and power and telephone lines, leaving some 75% of the residents of the Champaign-Urbana area and the surrounding areas without electricity for more than two days. It took nearly two weeks for electrical power to be restored in some rural areas. When it was over, area power and telephone companies estimated more than \$4.5 million in damage to their lines alone.

The ice storm of 1978 was the next severe storm in the area. Power lines fell under the weight of ice, utility poles collapsed, and transformers shorted out, leaving thousands of area residents without power as temperatures fell below the freezing mark.

On February 14, 1990, an ice storm caused widespread electrical power outage and destroyed many trees (*Figure 3.12*). The phenomenon was described in Champaign-Urbana’s *The News Gazette* as follows, “The temperature was just below freezing at ground level. It was just above freezing a few hundred feet up. The rain chilled as it fell but didn’t freeze. As soon as the ‘supercooled’ rain hit anything on the ground, though, it stuck and immediately turned to ice.” The result was devastating, particularly to the communities’ trees. Some estimated at least half the trees in Champaign and Urbana – both having the designation of being a ‘Tree City USA’ - were damaged. Trees and tree branches, encased in ice and tangled in power lines, fell on houses, streets, and cars. Utility lines, blown by the wind and coated with a half-inch ice that increased their weight ten to twenty times, ‘galloped’ together and short-circuited. Electrical lights in homes went out and stayed out. One resident of rural Urbana is reported to have stayed without heat, electricity, and water for almost six days. The damage was so severe that 24 central Illinois counties, including Champaign County, were declared disaster areas making them eligible for federal and state grants. The City of Urbana incurred over \$768,000 in emergency response and clean-up costs, three times the cost incurred due to April 19, 1996 tornado. This estimate does not include private costs incurred.



Figure 3.12 Typical Damage from Ice Storm, 1990, Urbana

3.2.3. Storm Vulnerability Assessment

The State of Illinois is located within the heavy ice-loading district of the United States according to “Trees and Ice Storms: The Development of Ice Storm-Resistant Urban Tree Populations,” a 1948 map from the National Bureau of Standards, (Figure 3.13). This designation is determined by the amount of ice accumulation on surfaces.

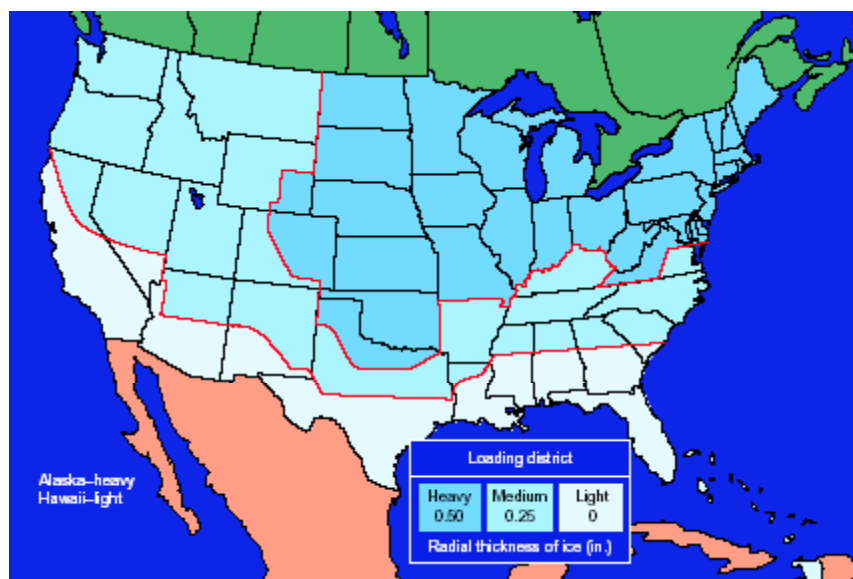


Fig. 3.13 Ice-loading Districts in the United States for Ice Accumulation on Surfaces.

The loss of electrical service to residences during a disaster is one of the most frequent results of storms in Urbana, because the City's power distribution systems are predominantly above ground. Although ice storms affect the entire City, the large number of trees, both private and public, that exist in Urbana, further aggravates the impact of ice and windstorms. Both the ice storm of 1990 and the tornado of 1996 caused power to be disrupted for many days.

3.2.4. Current Storm Mitigation Activities

The City is considering burying utility lines to reduce damages from both wind and ice storms. The feasibility study done by the City to estimate the cost of burying utility lines is explained in Section 3.1.4.

The City is also attempting to reduce storm damage by selecting proper tree species. The City Arborist oversees regular tree maintenance on public rights-of-way through many activities, such as tree trimming. Illinois Power, a private power company, also works to prevent outages and potentially dangerous situations by trimming trees near power lines with permission from private property owners.

3.3. FLOODS

3.3.1. Nature of Floods

Flooding is defined as the accumulation of water within a water body and the overflow of excess water onto adjacent floodplain lands. Small rivers and streams are susceptible to flooding from localized weather systems that cause intense rainfall over small areas.

The floodplain is the land adjoining the channel of a river, stream, lake, other watercourse, or water body that is susceptible to flooding. There are several types of floods, such as riverine flooding, flash floods, and alluvial fan floods. These can occur for a variety of reasons, such as the formation of ice jams, breaking of dams, local drainage or high groundwater level, and fluctuation of lake levels.

3.3.2. Flood History

According to the Illinois Department of Natural Resources, Illinois has one of the largest inland systems of rivers and lakes in the United States. Over 14 % of the total land area (7,400 sq. miles) is subject to flooding. In Illinois, it is estimated that there are over 214,000 buildings located in floodplains. Floods are by far the most common natural disaster in Illinois, accounting for well over 90% of the declared disasters. Annual damages in the state average nearly 300 million dollars.

Urbana has experienced few significant floods in the recent past. According to City records, there has been only one National Flood Insurance Program (NFIP) claim worth \$500 since 1978. During a flood event in May of 1990, City officials, as reported in the newspapers, estimated that Urbana suffered \$771,700 in damages to public and private properties. This rainstorm was claimed to be the worst rain in fifty years, accumulating about four inches within a six-hour

period. The approximate location of this flood event and the floodplains are shown in *Figure 3.14*. Both Urbana and Champaign applied for federal aid, but their applications were rejected.

In May of 1991 heavy rains flooded the Urbana-Champaign area. Streets were barricaded to prevent cars from flooding and getting stranded. A towing service owner in Champaign reported having received forty calls to help stalled cars. Flooding along Urbana's Vine Street at the viaduct and on University Avenue near Broadway Avenue turned the Five Points intersection at University and Cunningham into two points, both pointing in the wrong direction. A more recent flooding event in January of 1993 resulted in thirty-seven flooding complaint calls to the City. Most of these flooding events in the area were caused by severe rains and not by the overflowing of Boneyard Creek.

3.3.3. Flood Vulnerability Assessment

The low relief of Champaign County and its location atop a major drainage divide creates a poorly drained landscape with shallow areas of over-bank flooding. Ponding and minor flooding are frequently consequences of the poorly drained topography of the county. Flood depths in most parts of the county are less than five feet.

The Saline Branch, Boneyard Creek, and McCullough Creek pass through the City of Urbana. Although there have been few significant floods in Urbana, there is some risk of flooding from these water bodies.

The Boneyard is essentially an open stormwater drainage creek as it flows through the two cities. Ninety percent of the time it contains less than one foot of water. In periods of heavy rainfall, however, it floods low-lying sections. The Boneyard receives the discharge from all storm sewers in the Urbana area and is inadequate for this purpose. Because high waters in the Boneyard greatly reduce the carrying capacity of the trunk and lateral sewers connected to it, flooding is not limited to over-bank floods. There is a general surcharge of much of the drainage system throughout the flatter parts of the two cities. Since the early 1900's, various efforts have been undertaken to improve the Boneyard and help it meet the changing conditions, but these were usually localized, remedial measures. In some areas the stream has been artificially enlarged, in others it has been seriously obstructed.

Recent projects on the Boneyard have positively altered its condition. The installation of rain and stream gauges by the United States Geological Survey has allowed the City to conduct a five-year study to determine whether their construction projects have accomplished the City's goals. The information gathered will be used to make flood control decisions in the future and to verify that Urbana has had no negative impact upon these projects.

Peak flow discharges on the Boneyard Creek at Urbana can be obtained from the USGS gage (refer *Figure 3.14*).

Figure 3.14 Boneyard Gage, City of Urbana

Boneyard Creek	100-yr Discharges (cfs)	10-yr Discharges (cfs)
At mouth	2,864	1,427
At gage	1,264	596

cfs=cubic feet per second

The upstream watershed boundary of Boneyard Creek lies in northwest Champaign. Land uses in the watershed are virtually all urban (residential, commercial, industrial). The creek lies entirely within the environs of the cities of Urbana and Champaign and the University of Illinois. The watershed and the channel have been greatly modified, and the natural flood plain is highly developed.

In 1999, the City of Champaign, which lies upstream from Urbana, installed a large, 38 million gallon detention basin to curb stormwater flow at peak rainfall times. The eventual goal of this and other improvements and investments to the water surface profile is to confine the 100-year floodplain within the Boneyard's banks. This will significantly reduce the risk of flooding to Urbana and other areas downstream. *Figures 3.15-3.18* (at end of chapter) are aeriels that show the floodplain as it exists as of June 2003. *Figures 3.19-3.23* are channel section photos that help give a better understanding of the creek's relationship to the adjacent properties.

While the process of mitigating flooding is ongoing, it is hopeful that this goal can be achieved in the near future. Cooperation among both cities and the University has facilitated the most recent efforts.

None of the eight previously mentioned new subdivisions are being built within the floodplain. However, the floodplain is already heavily urbanized as it covers residential and downtown commercial areas in Urbana. The City has highlighted intensification of development in this hazardous area as a concern. In order to minimize property damage and loss in the area, the City is looking to develop a bicycle-pedestrian corridor along the Boneyard, particularly through the floodplain.

Urbana has approximately 300 properties in the floodplain (*Figure 3.24*). Less than 10% of these structures within the regulatory floodplain were insured in 2003. Two years ago, the market value (generally, three times the assessed value) of buildings on those properties was estimated around \$12 million. While it is hard to determine exactly how much damage would result from flooding within the floodplain, Equalized Assessed Value (EAV) data of each property provides monetary values for both the land and the structures in the floodplain. These figures can be used to estimate potential monetary losses at different damage levels. As of June 2003, the land EAV of the properties in floodplain was approximately \$4,118,960. The building EAV for the same properties was estimated at \$13,498,590 for a total EAV of \$17,617,550 (*Figure 3.23*). At 100% damage level, in which all properties within the floodplain are lost, total costs are projected at \$5,813,792. At a 50% damage level, total losses are predicted to be \$2,906,896 (See Chapter 2, Figure 2.2 for the Official City of Urbana Existing Land Use Map).

	EAV	50% Flood Damage	100% Flood Damage
Land	\$4,118,960	\$679,628	\$1,359,257
Building	\$13,498,590	\$2,227,267	\$4,454,535
Total	\$17,617,550	\$2,906,896	\$5,813,792

Figure 3.23 EAV Estimates for Floodplain Properties

3.3.4. Current Mitigation Activities

In 1980, FEMA conducted a Flood Insurance Study for the City of Urbana. This study investigated the existence and severity of flood hazards in the City. The flooding sources studied were the Saline Branch, Boneyard Creek, and McCullough Creek.

The City of Urbana participates in the National Flood Insurance Program (NFIP). In 1979, the Boneyard Creek District (*Figure 3.24*) was adopted as an overlay district of the official Zoning Map of the City. The Urbana Zoning Ordinance includes Special Flood Hazard Area (SFHA) regulations that are applicable to this district. These regulations require the properties in the floodplain to follow protective building practices. However, these regulations reduce, but do not necessarily eliminate, the risk of flooding to these properties.

Urbana’s floodplain regulations include methods and provisions for:

1. Restricting or prohibiting uses which are dangerous to health, safety, and property due to water or erosion hazards, or which result in damaging increases in erosion or in flood heights or velocities;
2. Requiring that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction;
3. Controlling the alteration of natural floodplains, stream channels, and natural protective barriers, which help accommodate or channel floodwaters.
4. Controlling filling, grading, dredging, and other development which may increase flood damage; and
5. Preventing or regulating the construction of flood barriers which will unnaturally divert floodwaters or which may increase flood hazards in other areas.

Any person, firm, or corporation has to obtain a development permit before commencing any development in the SFHA. Identification of the SFHA and the requirements for issuing a development permit are included in Article XI, Flood Hazard Areas of the Urbana Zoning Ordinance. These requirements include appropriate anchoring for manufactured homes, conditions for grant of variance, and height of lowest floor for residential and non-residential construction.

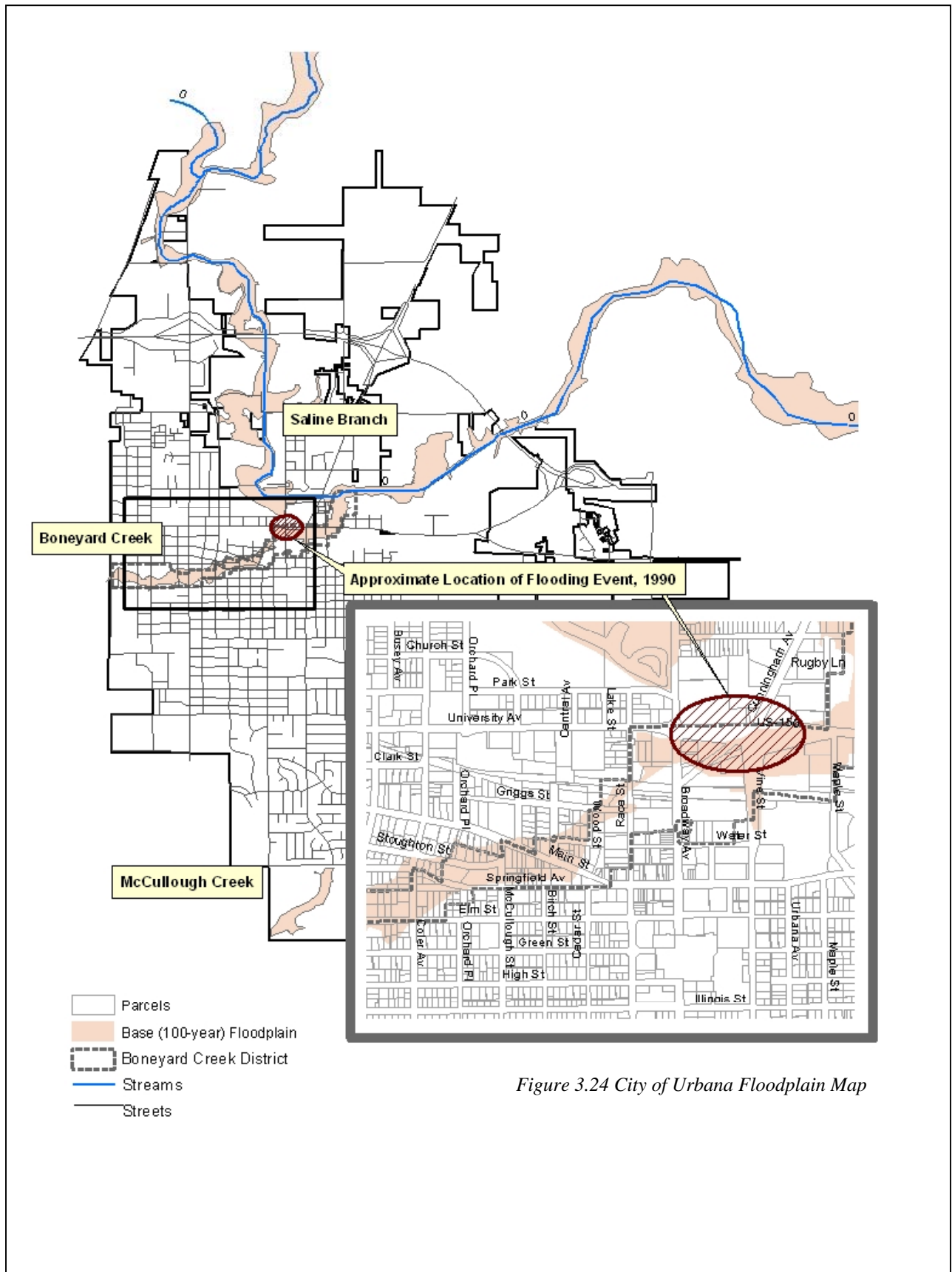


Figure 3.24 City of Urbana Floodplain Map

3.4. EARTHQUAKES

3.4.1. Nature of Earthquakes

An earthquake is a sudden motion or trembling caused by abrupt release of accumulated strain on the tectonic plates that compose the Earth's crust. As the tectonic plates move together they bump, slide, catch, and hold. Eventually, faults along or near plate boundaries slip abruptly when the stress exceeds the elastic limit of the rock, and an earthquake occurs.

Magnitude is a measure of the strength of an earthquake or the strain energy released by it, as determined by seismographic observations. On the Richter scale, magnitude is expressed in whole numbers and decimals. In qualitative terms, an earthquake with a magnitude of 5.0 is a moderate event, 6.0 characterizes a strong event, 7.0 is a major earthquake, and a great quake exceeds 8.0.

The effect of an earthquake on the Earth's surface is called the intensity. *Intensity* is a measure of the effects of an earthquake at a particular place on humans, structures, and/or the land itself. The intensity at a point depends not only upon the strength of the earthquake (magnitude), but also upon the distance from the earthquake to the point and the local geology at that point. The most commonly used intensity scale in the United States is the Modified Mercalli Intensity Scale (MMI). *Figure 3.25* shows the categorization of earthquakes by magnitude and intensity.

3.4.2. Earthquake History

In the past 200 years or so, Illinois has had approximately 160 earthquakes. According to a News-Gazette article in November 1988, Illinois State Geological Survey geophysicist, Paul Heigold, said, "There's really not a great deal of pattern to Illinois earthquakes although 80% have occurred in the southern part of the state. Most of the known faults and rifts are located in southern Illinois."

According to the USGS, seven earthquakes of intensity greater than MMI VI are known to have occurred in northern or central Illinois, in an area approximately 124 miles (200 km) from Urbana. Urbana was affected by shaking of MMI IV in September 1909 with the epicenter less than 65 miles (100 km) away from Urbana. The City was also affected in November 1968, by the largest recorded earthquake event in Illinois history. For that earthquake, Urbana experienced shaking of MMI IV. In June 1987, an earthquake measuring 5.0 on the Richter scale centered about 100 miles (160 km) southeast of Urbana-Champaign, resulted in minor damages limited to cracks in walls and basements.

Figure 3.25 Earthquake Magnitudes and Intensity

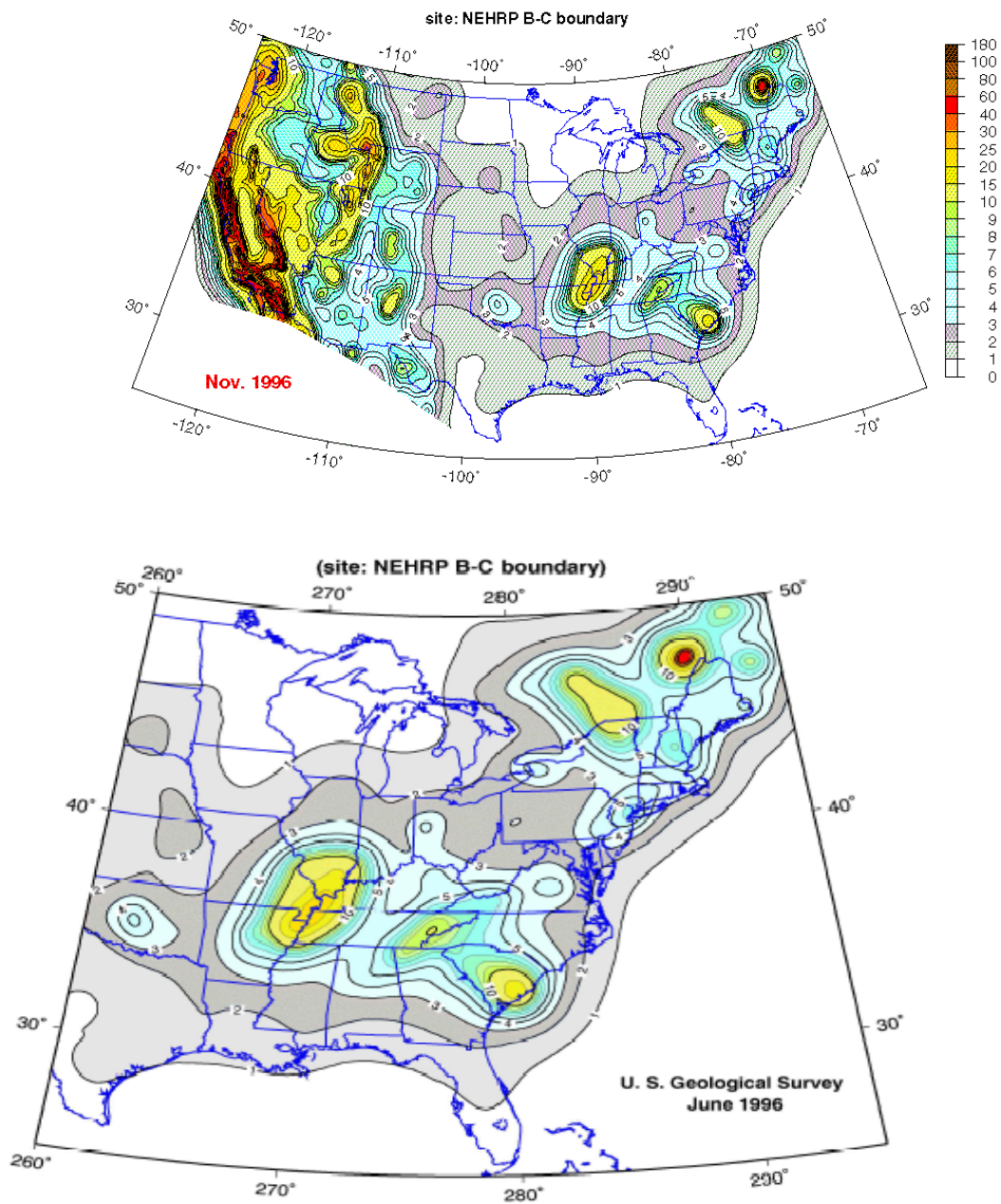
Magnitude	Intensity	Description
1.0 - 3.0	I	I. Not felt except by a very few under especially favorable conditions.
3.0 - 3.9	II – III	II. Felt only by a few persons at rest, especially on upper floors of buildings. III. Felt quite noticeably by persons indoors, especially on upper floors of buildings. Many people do not recognize it as an earthquake. Standing motorcars may rock slightly. Vibrations similar to the passing of a truck. Duration estimated.
4.0 - 4.9	IV – V	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 motorcars rocked noticeably. V. Felt by nearly everyone; many awakened. Some dishes, windows broken. Unstable objects overturned. Pendulum clocks may stop.
5.0 - 5.9	VI - VII	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.
6.0 - 6.9	VII – IX	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, and 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.
7.0 and higher	VIII or higher	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.

Source: USGS National Earthquake Information Center
(http://wwwneic.cr.usgs.gov/neis/general/handouts/mag_vs_int.html)

3.4.3. Earthquake Vulnerability Assessment

Based on 1996 USGS Seismic Hazard maps, Urbana has a 10% probability of experiencing ground shaking of 0.0368 g or greater in fifty years (*Figure 3.26*). This is a relatively low level of shaking, approximately equivalent to Modified Mercalli Intensity (MMI) V (magnitude 4.0 - 4.9).

Figure 3.26 Peak Acceleration (%g) with 10% Probability of Exceedance in 50 Years



Source: U.S. Geological Survey
National Seismic Hazard Mapping Project, 1996

The City has used the software program HAZUS to assess the risk from earthquakes. This is the first step towards mitigation. The City is currently in the process of updating its building code from the BOCA 1990 Code to the International Code 2003, which has the most current seismic provisions. Modern seismic building codes recognize varying levels of seismic hazard throughout the United States, and require localities to design buildings appropriate to the local hazard. Adoption and implementation of seismic building codes is the best way to ensure the safety of all new buildings.

In 2000, City staff in the Building Safety Division of the Community Development Services Department conducted a rapid visual survey of the buildings in the City, particularly those located in the downtown area and those that serve as critical or emergency facilities. This survey provided information on property address, use, construction type, construction year, and floor area, which could prove helpful in assessing earthquake and other disaster vulnerability. Many buildings documented were constructed with unreinforced masonry (URM). Using this survey and the 1990 edition of the BOCA code, it is estimated that less than 20% of Urbana's total building stock meets the current earthquake building code.

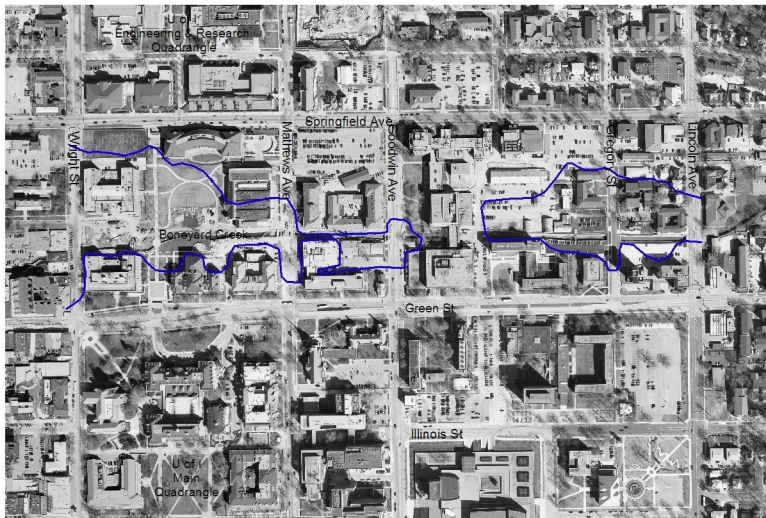
Efforts are being made to avoid similar construction in the downtown, because of the higher risk and cost factors of URM buildings during disasters. The redevelopment of the Stratford lot on Race Street involved the demolition of a URM building. New development on this lot is intended to be safer and less vulnerable to potential hazards.

Figures 3.15-3.18 (at end of chapter) are aerials that show the floodplain as it exists as of June 2003. ***Figures 3.19-3.23*** are channel section photos

PLACE HOLDER FOR THESE EXHIBITS

Floodplain Aerial 1 of 4

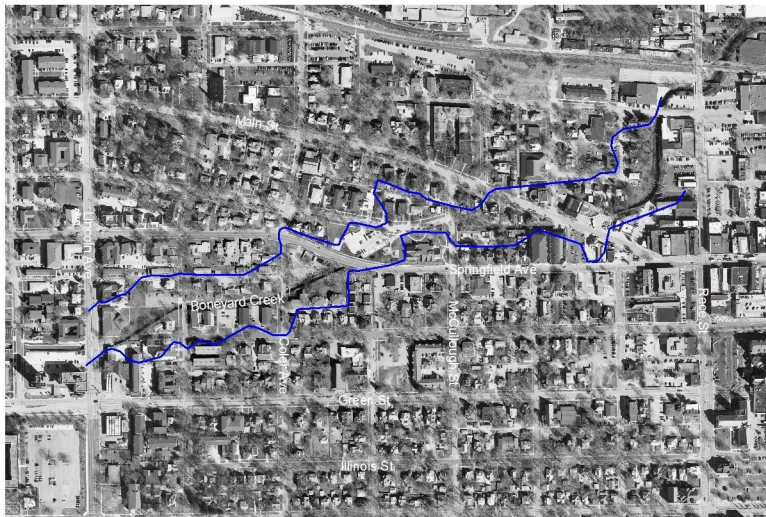
Figure 3.15



— Floodplain

Floodplain Aerial 2 of 4

Figure 3.16



— Floodplain



Figure 3.17 - View from Gregory Street



Figure 3.18 – View from Vine Street



Figure 3.19 - View from McCullough Street



Figure 3.20 – View from Springfield Avenue



Figure 3.21 – View from Courtesy Road



Chapter IV

MITIGATION STRATEGIES

Chapter IV. Mitigation Strategies

Measures to eliminate or reduce damage from natural hazards are identified in this chapter. After considering the full range of possible measures, those that are most appropriate for Urbana have been identified. These measures are prioritized according to the risk of the hazard and the cost, benefit, and feasibility of the mitigation measure.

The mitigation measures aim to achieve the goal of protecting life and properties in the community from hazards. The mitigation strategies are also aimed at achieving the following objectives:

- Reduce risk, using actions that are cost-effective and feasible.
- Improve the community's information base regarding its vulnerability.
- Ensure that mitigation activities are compatible with the community's other development goals.
- Coordinate the mitigation efforts of different agencies.

Cost-benefit estimates were difficult to determine for each hazard. Detailed analysis of mitigation strategies in this report are derived from the literature as well as the expert opinions and practical knowledge of Project Impact Steering Committee members. Where possible, monetary cost-benefit figures are outlined for strategies include burying power lines and subsidizing wind resistant construction. However, these numbers are relatively subjective and can be more easily and accurately calculated upon implementation in the future when additional information is available.

Figures 4.1-4.4 at the end of this chapter summarize the mitigation approaches, implementation strategies, costs, benefits, feasibility, and priority for each hazard.

4.1 Wind and Ice Storms

As discussed in Chapter III, Urbana has a relatively high risk of vulnerability to wind and ice storms. Since some mitigation measures are common to both wind and ice storms, they are discussed together in this section.

The loss of electrical service to residences during wind and ice storms is one of the most frequently experienced impacts in Urbana, because of the predominantly above ground power distribution systems. The large number of trees further aggravates the impact on these systems. The mitigation measures address these problems through the following approaches:

1. Power Supply Management Approach

1a. Bury Power Lines

1b. Emergency Back-Up Power Systems for Critical Facilities/Areas of the City

1a. The primary goal of burying existing overhead utility services is to minimize damage to utility lines during wind and ice storms. It is also a life safety hazard if power lines come down during the storms.

An example to illustrate the benefit of burying power lines is taken from Itasca County, Minnesota. An overhead 7,500-volt power line had a history of numerous outages and other problems prior to 1996 resulting from trees falling on the line during storms. The line serves 207 residential and 11 commercial customers, in addition to providing power to a communications tower housing radio transmitters for two rural electric cooperatives and a television transmitter. Outages were occurring seven times a year, on average, lasting anywhere from two to 24 hours. Following a federal disaster declaration the community decided to place the line underground. Since completion, any outages that have occurred on the line have not been the result of wind or falling trees. Over 4,000 residents have benefited from uninterrupted television reception that, for most of them, provides warning about hazardous weather approaching. The more-reliable radio communications have enabled the electric co-operatives to respond quicker to outages elsewhere in their systems and saved money from reduced maintenance costs for the buried line corridor.

The 'Overhead to Underground Utility Conversion' report, prepared in 2001 by the City of Urbana's Public Works Department, indicates that utility companies view burying lines as a feasible action for eliminating overhead utility and tree conflict. However, it has significant costs. For Alternative 1, which includes a full conversion of all utilities, the costs are estimated to be at least \$7,000 per household. Alternative 2, which includes the conversion of the electrical facilities while maintaining the overhead telephone and cable television utilities, would cost households at least \$3,800.

A pilot program for undergrounding electrical service lines was undertaken as a part of the City Project Impact activities. This program provided funds to the local power company for the burying of service lines. Costs to the homeowner were minor and involved only the services of an electrician and repair of any disturbed vegetation. Over 30 grants were provided by this program and a high level of customer satisfaction was conveyed.

Since the costs for major utility undergrounding efforts are very high and there are no known grants available, there is little feasibility of burying existing lines in large areas. Thus, this measure is prioritized as low. However, when considering the benefit of preventing power loss it would be to the City's advantage to pursue the matter in the long-term and look for funding opportunities. It should be noted that utilities are placed underground in newer areas of the City, as this has been mandated by the City's Development and Subdivision Ordinance for several years.

1b. Critical facilities face a higher risk from power outage. They should have back up power systems. The City has a list of critical facilities in the community.

One example is taken from Faribault County in south central Minnesota. In 1997, the power company rebuilt a 9.5-mile line directly serving about 300 rural consumers. The line also serves as a back-up source of power to an additional 600 consumers. The records indicate that between 1993 and 1997 their whole system experienced over \$605,000 in storm related damages and over 390,000 consumer outage hours. Since the rebuilding of this particular line there have been no outages due to ice storms or high winds.

Many critical facilities already have existing back-up power systems. Even though having back-up power systems incurs recurring costs of repair, it is a much less costly option than burying power lines. The City should have a system of regular checks to ensure that all critical facilities have adequate emergency power systems, whether managed privately or by the City.

2. Urban Forestry

2a. Improved Maintenance and Proper Species Selection

2b. Post-Disaster Clean Up Plan

The impact of ice storms can be minimized through proper planning, tree selection, and tree maintenance. Concerted action over many years is needed to minimize ice storm damage. Sustained efforts will undoubtedly reduce fatalities, injuries, monetary losses, tree damage, and cleanup costs to individuals and communities in regions where ice storms occur. Guidelines for mitigating the impact of natural disasters in urban forests and other information are available from the International Society of Arboriculture (headquarters in Savoy, Illinois), USDA Forest Service, and Illinois Department of Natural Resources.

2a. Proper tree placement and pruning on a regular cycle will decrease a tree's susceptibility to ice storms. Trees should be located where they can do the least amount of property damage, particularly that caused from trees broken by ice accumulation. On public property, the City Arborist should ensure that trees are not planted in locations where their growth will interfere with above-ground utilities—branches that grow into power lines and fail during ice storms create power outages and safety hazards. Trees that remain small should be planted under and adjacent to utility lines. Tree species, which are weak and brittle, should be avoided. Tree species such as silver maple, Siberian elm, and green ash are relatively weak and have been found to have a higher amount of damage than other sturdier species, such as oak, tulip, and Norway maple trees. Private property owners should be instructed on proper tree selection and maintenance in order to reduce ice storm damages on their properties.

2b. After storm damage has occurred, hazardous trees and branches require immediate removal to ensure safety and prevent additional property damage. Where severe ice storms occur, disaster plans should be developed to assist in recovery. These plans should identify priority routes for clearing streets. The City is currently continuing to work on both of these activities.

4.2 Wind Storm

The main goal of mitigation activities is to improve building construction to minimize damage from tornadoes and high winds. The mitigation measures can be categorized under the following approaches:

1. Building Practice and Material

1a. Modify building code to incorporate higher wind resistant construction methods.

1b. Provide funds for or subsidize wind resistant construction.

1c. Provide funds for or subsidize (e.g. tax break) the cost of constructing safe rooms.

1a. Building codes require that buildings be able to withstand a ‘design wind’ event. An extreme windstorm can cause winds much greater than that ‘design wind’. Having a house built to ‘code’ does not mean that it can withstand wind from any event. Therefore, safe rooms are recommended to provide a space where people can survive extreme storms with little or no injury. Some Urbana homeowners have voluntarily built safe rooms. Urbana is currently in the process of updating its building code to the 2003 International Code. This is the same code that has been adopted by the City of Champaign. Any costs associated with complying with stricter wind protection as a part of this Code will be similar in both communities and should not have a negative impact on housing starts.

1b., 1c. Building vulnerability is alleviated by these approaches, but costs can be quite high. The City conducted a ‘Cost Analysis’ study for the upgrade of two demonstration homes in Urbana. The cost of a wind resistance upgrade that would achieve a 90-mile per hour wind speed design is 3% to 7% of the total construction cost. Cost figures provided by FEMA for construction of a typical safe room (8’X8’) for a new home are \$2000 - \$6000. For existing homes, the cost would be 20% higher. If higher wind resistant construction were made mandatory, the City would incur enforcement and management costs. As a result, this approach is less feasible and given low priority. However, the City should still consider providing technical and financial support to business and homeowners who wish to participate. Further study is recommended to make such funding programs feasible.

The state of Mississippi has used the Hazard Mitigation Grant Program (HMGP) federal funds to reimburse up to 75% of the eligible cost of constructing and installing safe rooms or shelters, not to exceed \$3,500 for single-family shelters or in-residence safe rooms and \$5,000 for group shelters. Project participants and other non-federal sources provided the 25% non-federal share.

2. Shelters

2a. Provide new shelters.

2b. Provide incentives to encourage shelters in multi-family apartment complexes.

2c. Identify existing buildings as shelters, based on their accessibility, construction type, and ownership, and strengthen as necessary.

The alternative to building safe rooms is to provide shelters. The high costs of building new shelters make it more feasible to identify existing buildings as shelters. IEMA has also recommended this strategy in a previous study. This is a high priority measure for Urbana. The City should also provide incentives to encourage shelters at apartment complexes. Such incentives could include allowing additional floor area and/or ground coverage allowed. These shelters could even consist of a strengthened hallway or the first floor of a multistory residential building.

3. Mobile Homes

3a. 'Buy out' mobile homes

3b. Modify building code for stronger tie-down and anchoring method.

3c. Provide shelters in mobile home parks

3d. Provide incentives to encourage shelters in mobile home parks

The present building code has tie-down and anchoring requirements for mobile homes. As explained in Chapter III on Hazard Assessment, stronger tie-down requirements would not ensure safety of the mobile homes. Thus, modifying the building code is prioritized as low. 'Buying out' mobile homes to minimize their vulnerability is the most effective method, but it is expensive. Even though the City has relocated one mobile home park in the past, the feasibility is low and thus, this measure is also has low precedence. To protect residents in the mobile home parks, the City could provide adequate shelters or provide incentives to encourage construction of shelters. The City should consider making it mandatory for mobile home park owners to have shelters. This requirement could be added to the provisions governing the construction of mobile home parks, as set forth in the Urbana Zoning Ordinance. A process of discussion with the mobile home park owners on all these issues is recommended to arrive at mutually agreeable decisions.

4.3 Flood

To reduce damages from flooding, two sets of policies can be adopted: corrective policies and preventive policies. Corrective policies consist of structural methods, such as flood control works, including channel modifications and storm water detention storage. Master drainage plans for the whole city should provide a framework for the flood control projects. Structural projects provide spot protection, but they must be used with care, so that they do not transfer problems elsewhere. They also tend to create a false sense of security and encourage inappropriate use of the floodplain.

Preventive policies consist of non-structural methods that typically encourage natural uses in the floodplain (public park, recreation, and open-space) by regulating new development. Stormwater runoff control is encouraged, because development can increase downstream flooding, siltation, and erosion. Other methods include public acquisition of floodplain lands, acquisition of frequently damaged properties, relocation of occupants from flood-prone areas, disclosure of flood hazard information to purchasers and renters, and development of a post-flood recovery plan that includes preventive measures.

Flooding along Boneyard Creek is frequent, but the damage is usually limited to a few properties within the floodplain (see also Chapter III: Hazard Assessment). Because high costs would exceed limited benefits, no corrective policies are recommended.

1. Building Standards and Development Regulations (Zoning and Subdivision Ordinance)

1a. Identify Properties in Floodplain to Decide Appropriate Mitigation Measures for Each Property

Measures to include:

- Relocate buildings
- Acquire damaged buildings
- Acquire undeveloped lands
- Acquire development rights
- Acquire frequently damaged properties

Acquisition and relocation can be used to reduce the occupancy and value of existing exposed property in flood hazard areas. These lands could then be used for park, recreation, and open-space purposes that preserve the natural value of the floodplain. These measures are expensive and are ranked as low priorities. The City should consider these actions after a detailed cost-benefit study based on current watershed condition.

1b. Transfer Development Rights to Lower Risk Areas

To discourage new development in the floodplain, the City can provide a transfer of development rights to a lower-risk area at a very low monetary cost. Urbana tried this measure during development of the Boneyard Creek Master Plan, but it was not well received by residents. Thus, it is presently prioritized as low, but it should be considered in the future.

1c. Flood Zone Building and Siting Regulations (Specify Height, Anchoring, Flood Proofing Requirement, etc.)

A community should formulate its regulatory systems such that floodplain uses are compatible with the natural functions of conveyance and storage. They should not reduce, restrict or impede channel conveyance capacity or increase downstream velocities. Changes can take place in the floodplain that reduce storage capacities. If filling is allowed by the local flood control ordinance, compensatory storage should be encouraged. Development should be directed to areas free from flooding. All development within the floodplain should require a permit. These elements are already incorporated in the floodplain regulations for the Special Flood Hazard Area (SFHA) and should continue. If the regulation were modified to become a more stringent requirement, then it would lower the vulnerability of new buildings, but might also decrease new home starts and/or result in a reduction in property values.

The National Flood Insurance Program (NFIP) requires that new residential buildings in the floodplain must have freeboard, i.e. must be elevated above the Base Flood Elevation. The freeboard accounts for future flood fringe development, uncertainties inherent with the flood insurance study methodologies, lack of data, waves or debris that accompany the base flood, and floods higher than the base flood. Requiring a freeboard of one or two feet of additional protection above the base elevation can provide up to twice the savings that result from meeting

the minimum NFIP requirement (as measured as a percentage of the building's value). This addition to the present regulations is prioritized as high.

2. Capital Improvement Programs

Public facilities and utilities located in the floodplain require special attention. The NFIP requires that they be located and constructed to minimize flood damage. They should be sited away from the floodplain. This approach is highly feasible and a high priority.

In general, storm water runoff control is necessary, because development can increase downstream flooding, siltation, and erosion. Excess storm water runoff caused by new development should be detained and released at a rate that will not increase peak discharges above that which occurred prior to the development. Generally, regional detention basins are more effective than on-site facilities. Storm water management plans are required whenever a new development is planned.

3. Taxation & Fiscal Policies

3a. Impose impact taxes

3b. Provide tax breaks

Through the taxation policy approach, the City can discourage new hazardous development by imposing impact taxes and encourage existing property owners to move out of the floodplain by offering tax breaks. The size of Urbana's floodplain limits this approach's effectiveness and incurs considerable administrative costs. It is a low priority.

4. Improve Information

4a. A New Flood Insurance Study

4b. Monitor Rain and Stream Gage on Boneyard Creek

4c. Create Integrated Information Base (common GIS and database)

4a. The preparation of a new flood insurance study should be considered, because conditions have changed since the last flood insurance study was done in 1980. This will help to revise floodplain data, such as the height and extent of the base flood, and ensure that the regulatory mechanism is based on current watershed conditions. The City should consider applying to FEMA for a new flood insurance study or fund a private study. If the study is done to FEMA standards, it can be submitted to FEMA for a map revision. Because of the cost and revision process, the priority is medium at present, but it should be pursued in the near future.

4b. This is an ongoing project, which should be continued to improve information on the floodplain. Monitoring will also verify any impacts from the University and Champaign's Boneyard Creek's improvements. This is an ongoing activity and is prioritized as high.

4c. Spatial information on all hazards should be organized in a common GIS based database, and non-spatial information should be organized in a separate database. These together form an integrated information base that should be accessible by all the involved agencies. This will improve the efficiency in use and exchange of information so that the City and other agencies

can coordinate actions to achieve multi-hazard mitigation. Under the auspices of the Champaign County Regional Planning Commission, a Countywide GIS is currently under preparation by a consortium of interested agencies and is planned to include relevant hazards-related data.

5. Other strategies

The following actions should be pursued in the long term:

5a. Identify Properties in the Base Floodplain Once the Floodplain Has Been Revised Based on More Accurate Information

This can be done to:

- To check if properties are included in the SFHA.
- To estimate value of damage from the base flood (based on value of properties in the floodplain and vulnerable population). Compare these estimates to the cost of flood control projects or mitigation measures, such as property acquisition/relocation, building protection, flood proofing measures, etc.

5b. NFIP Communities That Use the Community Rating System (CRS) Receive A Reduction of Floodplain Insurance Premiums For Actions They Have Taken to Reduce Flood Losses.

Under this program, Urbana can apply for CRS credit. There are ten CRS classes: Class 1 requires the most credit points and gives the largest premium reduction; Class 10 receives no premium reduction. The CRS recognizes eighteen creditable activities, organized under four categories: Public Information, Mapping and Regulations, Flood Damage Reduction, and Flood Preparedness. Priority is medium because the vulnerability to flooding is not high, and thus the number of beneficiaries is low.

4.4 Earthquake

1. Building Codes and Standards: Update Current Seismic Resistance Code Requirements

The basic mitigation strategy for new buildings is the adoption of regulations requiring that new buildings should be designed to resist seismic forces. The City presently follows the 1990 BOCA code and is in the process of updating it to the 2003 International Code. The International Code has high standards for seismic resistance. The City should continue the updating process.

In 2002, the BOCA Code Effectiveness Grading System was initiated by the Insurance Services Office (ISO). Under this system, communities are assigned a classification of 1 to 10. A classification of 1 represents exemplary commitment to building code enforcement and a classification of 10 indicates no recognizable enforcement. This classification helps to distinguish between communities with effective building code enforcement and those with weak enforcement. The City of Urbana will be evaluated under this system in early 2005 once it has completed the Code Update process.

2. Technical or Financial Support to Critical Facilities

2.a. Provide Technical Support for Upgrading Structures of Critical Facilities and URM Buildings

2.b. Provide Funding or Subsidies for Upgrading Structures of Critical Facilities and URM Buildings

Some existing buildings need greater attention because of their construction type or their use, such as hospitals, fire stations, schools, and historic buildings. These also include utilities and communication systems.

The City can provide owners of URM buildings and critical facilities with technical and financial support. Since there is a finite chance of seismic events, it is feasible to provide technical support and incentives to owners of URM buildings and privately owned critical facilities. The City should provide funding for upgrading structures of critical municipal buildings, because of their value to the community. The city should also consider the feasibility of financial incentives to homeowners for upgrading their buildings. These measures are prioritized high.

4.5 Public Education and Awareness

This approach receives a high priority for all hazards, but varies by focus group. The focus groups are:

Home and Business Owners - Demonstration projects can be undertaken for increasing awareness of wind resistant construction techniques for all property owners in the city. The City residents should be informed about the costs and benefits of burying utility lines. Separate informational sessions or workshops should be held for the following groups. URM buildings owners should be provided information materials about seismic risk, lifeline response, design methods, construction practice, and retrofit techniques. Home and business owners within the floodplain should be informed about appropriate protective measures and the NFIP. Business and industry owners should be encouraged to prepare an emergency management plan for their property. Apartment and mobile home park owners should be encouraged to construct or designate storm shelters for residents.

Mortgage companies and financial institutions could be encouraged or even required to insist on hazard mitigation as a condition of financing construction. Furthermore, disincentives should be discontinued, such as those that guarantee aid for reconstruction irrespective of whether or not mitigation actions were taken. This proposal has less feasibility and is prioritized low.

Builder, Construction Companies, and City Officials (*emergency management professionals, regulatory officials*) – the City should arrange for seminars conducted by the University of Illinois Building Research Council. Video and pamphlets showing building/construction techniques to protect structures from wind and seismic events should be circulated. Builders should be encouraged to incorporate hazard mitigation concepts in design and construction of buildings.

A hazard mitigation certification system could prove very useful in motivating all these focus groups to practice voluntary mitigation measures. To motivate groups and individuals, the City could recognize homeowners who practice voluntary mitigation measures by awarding them with a plaque or certificate.

Chapter V
ACTION PLAN

Chapter V. Action Plan

General recommendations for mitigation strategies appear in Chapter IV. This chapter converts those general recommendations to specific action items. Each action item is accompanied with the appropriate agencies and tentative suggested time frames in Section 5.1. Recommendations for monitoring and updating the plan to ensure effective plan implementation are outlined in Section 5.2.

The action items are aimed at carrying out all possible mitigation activities, either immediately or in the long term. For low priority strategies, this plan suggests activities that would improve information and help determine future courses of action. Actions for low priority strategies should not be overlooked since they need to be implemented when resources become available in the future.

5.1 Actions

The action items are organized by the implementing agency. *Figure 5.1* summarizes action items with suggested time frames and is organized by agencies appropriate for implementation.

Figure 5.1. Action Plan Summary

	Action Item	Suggested Time Frame	Lead Office
1	Hazard Mitigation Coordinator	Immediately after plan adoption	City of Urbana Building Safety Division
2	Shelter designation program: identify existing buildings as shelters	Within 18 months of plan adoption	City of Urbana Fire Department and Building Safety Division
3	Consider incentives for shelters multifamily apartment complexes	1 year from plan adoption	City of Urbana Building Safety Division
4	Mobile Home Shelter Program	2 to 3 years after adoption	
5	Cost-Benefit Analysis of Buy-Mobile Homes	1 to 2 years after adoption	
6	Floodplain Study Program	1 to 2 years after adoption	
7	Community Rating System	1 year from adoption	
8	Conduct zoning study for Mobile Transfer of Development Rights	One year from adoption	City of Urbana <i>Coordinating Agency: Champaign County Regional Planning Commission</i>
9	Create integrated information for multi-hazard applications	1 year from adoption	
10	Technical Assistance Program for identifying URM buildings	6 months from adoption	
11	Feasibility study of financial assistance to improve safety of existing buildings	1 year from adoption	City of Urbana Building Safety Division
12	Financial Assistance Program for retrofitting URM buildings	1 year from adoption	
13	Certification Program for retrofitting URM buildings	1 year from adoption	
14	Ensure emergency backup power for critical facilities	3 months from adoption	
15	Improve public awareness and education	1 year from adoption	City of Urbana Fire Department <i>Coordinating Agencies: Champaign County Emergency Services and Disaster Agency (ESDA), and American Red Cross</i>

Action Item 1. Hazard Mitigation Coordinator

Designate coordination of all mitigation activities to an existing staff member or appoint a new member. This is recognized as the most critical action to ensure that mitigation activities are implemented. It is also important for maintaining continuity and interest of the involved agencies. This is to be done immediately after plan adoption.

Action Item 2. Shelter Designation Program: Identify Existing Buildings As Shelters

Buildings that are easily accessible and have a relatively safe structure, a capacity to accommodate people, and favorable ownership should be designated as shelters and strengthened, if necessary.

Refer to Mitigation Strategy 2c, Section 4.2 in Chapter IV.

Suggested Time Frame: Initiate within 18 months of plan adoption.

Action Item 3. Consider Zoning Ordinance Amendment to Develop Incentives for Shelters for Multi-Family Apartment Complexes

These shelters could even consist of a strengthened hallway or the first floor of a multistory residential building. Incentives could include greater floor space; increased ground coverage, permitting mixed use, and/or granting a density bonus.

Refer to Mitigation Strategy 2b, Section 4.2 in Chapter IV.

Suggested Time Frame: One year from plan adoption.

Action Item 4. Mobile Home Shelter Program

This program is recommended to facilitate construction of shelters in mobile home parks. Issues include lack of space for shelters in existing mobile home parks and, most likely, an increase in monthly payments associated with the cost of the shelter. These issues need to be discussed among mobile home park owners, residents, city officials, and insurance companies to improve safety of mobile home park residents.

The program's activities should include:

- Pursue funding opportunities for shelters, such as hazard mitigation grants.
- Consider cost sharing by the City through the use of special funds, such as Community Development Block Grants.
- Consider zoning ordinance amendments to require shelters for new mobile home park developments.

Refer to Mitigation Strategy 3, Section 4.2 in Chapter IV.

*Reference: A Safe Place to Go (On the Line): The Mississippi Safe Room-Storm Shelter Initiative in Natural Hazards Observer.
Lee County Zoning Ordinance (Appendix B)*

Suggested Time Frame: Two to three years from plan adoption

Action Item 5. Cost-Benefit Analysis of Buy-Out of Mobile Homes

The City should study the costs and benefits of buy-out of mobile homes. There are four small mobile home parks remaining within the City limits and several additional parks just outside of the corporate limits.

Suggested Time Frame: One to two years from plan adoption.

Action Item 6. Floodplain Study

Further identification of properties in the floodplain is recommended to improve information on vulnerability and damage estimates. This would help to evaluate options of buy out, relocation, or other flood-proofing measures.

Consider applying to FEMA for a new flood insurance study or fund a private study. If the study is done to FEMA standards, it can be submitted to FEMA for a map revision. The City has begun the process of investigating remapping in conjunction with the City of Champaign and the University of Illinois.

Refer to Mitigation Strategy 4a, Section 4.3 in Chapter IV.

Reference: Illinois Home Study Course (www.illinoisfloods.org), Chapter 4 and 7.

Suggested Time Frame: One to two years from plan adoption.

Action Item 7. Community Rating System

The City should assess the potential benefits of the Community Rating System. If it appears to be beneficial, the City should consider applying for a flood insurance premium rate discount under the Community Rating System. The application should include all flood mitigation activities being implemented by the City and other agencies. Identify additional activities that could be employed in order to receive the next higher classification.

Refer to Mitigation Strategy 5b, Section 4.3 in Chapter IV.

Reference: Subdivision Design in Flood Hazard Areas

Floodplain Management: Local Floodplain Administrator's Manual

Suggested Time Frame: One year from plan adoption.

Action Item 8. Conduct Zoning Study for Possible Transfer of Development Rights

For transferring development rights of properties in the floodplain to other parts of the city, potential areas need to be identified to which development rights can be transferred. After identified zones are mapped, the City should consider appropriate zoning ordinance amendments.

Refer to Mitigation Strategy 1.b, Section 4.3 in Chapter IV.

Suggested Time Frame: One year from plan adoption.

Action Item 9. Create Integrated Information Base for Multi-Hazard Applications

For all mitigation activities and future planning decisions to be coordinated, an integrated information base is recommended. This information should be accessible to all relevant departments in the City and outside agencies. It could be developed as a common GIS database. This data should be integrated into the countywide GIS that is currently under development.

Refer to Mitigation Strategy 4c, Section 4.3 in Chapter IV.

Suggested Time Frame: One year from plan adoption.

Coordinating Agency: Champaign County Regional Planning Commission

Action Item 10. Technical Assistance Program

Initiate a technical assistance program for supporting wind storm resistant construction and upgrade unreinforced masonry (URM) structures to minimize earthquake damage:

- Dedicate staff for answering public queries.
- Organize workshops and public meetings for interested citizens and provide them with plans and technical advice.
- Provide information on the City's website.

Refer to Mitigation Strategy 2a, Section 4.4 in Chapter IV.

Reference: Planning for a Sustainable Future: the Link Between Hazard Mitigation and Livability (Section - Federal Technical Assistance and Funding).

Suggested Time Frame: Six months from plan adoption.

Action Item 11. Feasibility Study for Financial Assistance to Improve Safety of Existing Buildings

- Study feasibility of funding for wind resistant construction and construction of safe rooms.
- Study feasibility of low interest loan program to support upgrade of URM buildings.
- Explore funding opportunities from various federal, state, and private agencies

Refer to Mitigation Strategy 1b., 1c., Section 4.2 and Mitigation Strategy 2b., Section 4.4 in Chapter IV.

Reference: Planning for a Sustainable Future: the Link Between Hazard Mitigation and Livability (Section - Federal Technical Assistance and Funding), Interagency Hazard Mitigation Team Report: Long-term hazard mitigation alternatives and funding sources for State and local Governments

Suggested Time Frame: One year from plan adoption.

Action Item 12. Financial Assistance Program for Retrofitting URM Public Buildings

- Identify URM buildings with high public usage and function and prioritize them by use, occupancy and ownership.
- Provide financial support for upgrading critical municipal facilities with URM structure, if any.

Refer to Mitigation Strategy 2, Section 4.4 in Chapter IV.

Reference: Planning for a Sustainable Future: the Link Between Hazard Mitigation and Livability (Section - Federal Technical Assistance and Funding), Interagency Hazard Mitigation Team Report: Long-term hazard mitigation alternatives and funding sources for State and local Governments

Suggested Time Frame: One year from plan adoption.

Action Item 13. Certification Program

Recognize property owners who practice voluntary mitigation measures to motivate others. An award of a plaque or certificate could be considered.

Refer to Section 4.5 in Chapter IV.

Suggested Time Frame: One year from plan adoption.

Action Item 14. Protect Critical Facilities

- Maintain the list of critical facilities and ensure that all critical facilities have adequate emergency power systems on a regular basis.
- Ensure emergency access to critical facilities.

Refer to Mitigation Strategy 1b, Section 4.2 in Chapter IV.

Suggested Time Frame: Three months from plan adoption.

Action Item 15. Improve Public Awareness and Education

Periodically inform the public about the community's risks, ongoing mitigation activities, and the voluntary mitigation options and incentives made available by the City, e.g. benefits of moving away from floodplain, availability of plans, and other information for retrofitting URM buildings.

- Make information available online.
- Organize special meetings and information sessions for the various focus groups.
- Encourage business and industry owners to prepare an emergency management plan for their property.

Refer to Section 4.5 in Chapter IV.

Reference: Emergency Management Guide for Business & Industry Hazard Mitigation Strategy Report and Planning Guidance

Suggested Time Frame: One year from plan adoption.

Coordinating Agency: Champaign County Emergency Services and Disaster Agency (ESDA), American Red Cross.

5.2 Monitoring and Evaluation

It is recommended that the plan be reviewed on a yearly basis and updated every five years. The City's Planning Division staff will be responsible for facilitating the plan update process, which can be coordinated with the Urbana Comprehensive Plan review and update process. This plan should be incorporated into the Comprehensive Plan as a stand-alone element that represents the hazard component. It is recommended that the City's Plan Commission review this plan on an annual basis along with other planning efforts. The formation of a hazard committee that meets annually or semiannually would facilitate this process and be the responsibility of Planning Division staff.

A standard survey or document review form should be created and used to easily facilitate the update each term. The updated document may be used to summarize the accomplishments of the past year and help the community to prioritize community mitigation goals for the next year. If the document results in changes to the plan, it is then subject to the standard review processes of the Plan Commission and City Council.

Revised plans should be forwarded to the Illinois Emergency Management Agency (IEMA) for review and approval for the Hazard Mitigation Grant Program and other possible funding sources.

The Mitigation Plan also should be updated when a disaster occurs in the community, whether or not it receives a Presidential Declaration. It is recommended that the update be completed as soon as possible, but by no later than the end of the calendar year following the calendar year in which the disaster occurs. The earlier the plan is amended, the sooner funding would become available.

APPENDIX A

Land Use Development Code
FEMA Interim Final Rule



Federal Register

**Tuesday,
February 26, 2002**

Part III

**Federal Emergency
Management Agency**

44 CFR Parts 201 and 206

**Hazard Mitigation Planning and Hazard
Mitigation Grant Program; Interim Final
Rule**

**FEDERAL EMERGENCY
MANAGEMENT AGENCY**

44 CFR Parts 201 and 206

RIN 3067-AD22

**Hazard Mitigation Planning and Hazard
Mitigation Grant Program**

AGENCY: Federal Emergency
Management Agency.

ACTION: Interim final rule.

SUMMARY: This rule addresses State mitigation planning, identifies new local mitigation planning requirements, authorizes Hazard Mitigation Grant Program (HMGP) funds for planning activities, and increases the amount of HMGP funds available to States that develop a comprehensive, enhanced mitigation plan. This rule also requires that repairs or construction funded by a disaster loan or grant must be carried out in accordance with applicable standards and says that FEMA may require safe land use and construction practices as a condition of grantees receiving disaster assistance under the Stafford Act.

DATES: *Effective Date:* February 26, 2002.

Comment Date: We will accept written comments through April 29, 2002.

ADDRESSES: Please send written comments to the Rules Docket Clerk, Office of the General Counsel, Federal Emergency Management Agency, 500 C Street, SW., room 840, Washington, DC 20472, (facsimile) 202-646-4536, or (email) rules@fema.gov.

FOR FURTHER INFORMATION CONTACT: Margaret E. Lawless, Federal Insurance and Mitigation Administration, Federal Emergency Management Agency, 500 C Street, SW., Washington, DC, 20472, 202-646-3027, (facsimile) 202-646-3104, or (email) margaret.lawless@fema.gov.

SUPPLEMENTARY INFORMATION:

Introduction

Throughout the preamble and the rule the terms “we”, “our” and “us” refer to FEMA.

Section 322 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act or the Act), 42 U.S.C. 5165, enacted under § 104 the Disaster Mitigation Act of 2000, (DMA 2000) P.L. 106-390, provides new and revitalized approaches to mitigation planning. This section: (1) Continues the requirement for a Standard State Mitigation plan as a condition of disaster assistance; (2) provides for States to receive an increased

percentage of HMGP funds (from 15 to 20 percent of the total estimated eligible Federal assistance) if, at the time of the declaration of a major disaster, they have in effect a FEMA-approved Enhanced State Mitigation Plan that meets the factors listed in this rule; (3) establishes a new requirement for local mitigation plans; and (4) authorizes up to 7 percent of the HMGP funds available to a State to be used for development of State, tribal, and local mitigation plans. We will give Indian tribal governments the opportunity to fulfill the requirements of § 322 either as a grantee or a subgrantee. An Indian tribal government may choose to apply for HMGP funding directly to us and would then serve as a grantee, meeting the State level responsibilities, or it may apply through the State, meeting the local government or subgrantee responsibilities.

Section 322, in concert with other sections of the Act, provides a significant opportunity to reduce the Nation’s disaster losses through mitigation planning. In addition, implementation of planned, pre-identified, cost-effective mitigation measures will streamline the disaster recovery process. The Act provides a framework for linking pre- and post-disaster mitigation planning and initiatives with public and private interests to ensure an integrated, comprehensive approach to disaster loss reduction. The language in the Act, taken as a whole, emphasizes the importance of strong State and local planning processes and comprehensive program management at the State level. The new planning criteria also support State administration of the HMGP, and contemplate a significant State commitment to mitigation activities, comprehensive State mitigation planning, and strong program management.

The planning process also provides a link between State and local mitigation programs. Both State level and local plans should address strategies for incorporating post-disaster early mitigation implementation strategies and sustainable recovery actions. We also recognize that governments are involved in a range of planning activities and that mitigation plans may be linked to or reference hazardous materials and other non-natural hazard plans. Improved mitigation planning will result in a better understanding of risks and vulnerabilities, as well as to expedite implementation of measures and activities to reduce those risks, both pre- and post-disaster.

Section 409 of the Stafford Act, 42 U.S.C. 5176, which required mitigation

plans and the use of minimum codes and standards, was repealed by the DMA 2000. These issues are now addressed in two separate sections of the law: mitigation planning is in section 322 of the Act, and minimum codes and standards are in section 323 of the Act. We previously implemented section 409 through 44 CFR Part 206, Subpart M. Since current law now distinguishes the planning from the codes and standards in separate sections, we will address them in different sections of the CFR. We address the new planning regulations in Part 201 to reflect the broader relevance of planning to all FEMA mitigation programs, while the minimum standards remain in Part 206, Federal Disaster Assistance, Subpart M. The regulations implementing the Hazard Mitigation Grant Program are in Part 206, Subpart N. This rule also contains changes to Subpart N, to reflect the new planning criteria identified in section 322 of the Act.

The administration is considering changes to FEMA’s mitigation programs in the President’s Budget for FY 2003. However, States and localities still would be required to have plans in effect, which meet the minimum requirements under this rule, as a condition of receiving mitigation assistance after November 1, 2003.

Implementation Strategy. States must have an approved hazard mitigation plan in order to receive Stafford Act assistance, excluding assistance provided pursuant to emergency provisions. These regulations provide criteria for the new two-tiered State mitigation plan process: Standard State Mitigation Plans, which allow a State to receive HMGP funding based on 15 percent of the total estimated eligible Stafford Act disaster assistance, and Enhanced State Mitigation Plans, which allow a State to receive HMGP funds based on 20 percent of the total estimated eligible Stafford Act disaster assistance. Enhanced State Mitigation Plans must demonstrate that the State has developed a comprehensive mitigation program, that it effectively uses available mitigation funding, and that it is capable of managing the increased funding. All State Mitigation Plans must be reviewed, revised, and re-approved by FEMA every three years. An important requirement of the legislation is that we must approve a completed enhanced plan *before* a disaster declaration, in order for the State to be eligible for the increased funding.

We will no longer require States to revise their mitigation plan after every disaster declaration, as under former

section 409 of the Act, 42 U.S.C. 5176. We recommend, however, that States consider revising their plan if a disaster or other circumstances significantly affect its mitigation priorities. States with existing mitigation plans, approved under former section 409, will continue to be eligible for the 15 percent HMGP funding until November 1, 2003, when all State mitigation plans must meet the requirements of these regulations. If State plans are not revised and approved to meet the Standard State Mitigation Plan requirements by that time, they will be ineligible for Stafford Act assistance, excluding emergency assistance.

Indian tribal governments may choose to apply directly to us for HMGP funding, and would therefore be responsible for having an approved State level mitigation plan, and would act as the grantee. If an Indian tribal government chooses to apply for HMGP grants through the State, they would be responsible for having an approved local level mitigation plan, and would serve as a subgrantee accountable to the State as grantee.

This rule also establishes local planning criteria so that these jurisdictions can actively begin the hazard mitigation planning process. This requirement is to encourage the development of comprehensive mitigation plans before disaster events. Section 322 requires local governments to have an approved local mitigation plan to be eligible to receive an HMGP project grant; however, this requirement will not fully take effect until November 1, 2003. FEMA Regional Directors may grant an exception to this requirement in extenuating circumstances. Until November 1, 2003, local governments will be able to receive HMGP project grant funds and may prepare a mitigation plan concurrently with implementation of their project grant. We anticipate that the Predisaster Mitigation program authorized by section 203 of the Act, 42 U.S.C. 5133, will also support this local mitigation planning by making funds available for the development of comprehensive local mitigation plans. Managing States that we approve under new criteria established under section 404 of the Act, 42 U.S.C. 5170c(c), as amended by section 204 of DMA 2000 will have approval authority for local mitigation plans. This provision does not apply to States that we approved under the Managing State program in effect before enactment of DMA 2000.

Our goal is for State and local governments to develop comprehensive and integrated plans that are coordinated through appropriate State,

local, and regional agencies, as well as non-governmental interest groups. To the extent feasible and practicable, we would also like to consolidate the planning requirements for different FEMA mitigation programs. This will ensure that one local plan will meet the minimum requirements for all of the different FEMA mitigation programs, such as the Flood Mitigation Assistance Program (authorized by sections 553 and 554 of the National Flood Insurance Reform Act of 1994, 42 U.S.C. 4104c and 42 U.S.C. 4104d), the Community Rating System (authorized by section 541 of the National Flood Insurance Reform Act of 1994, 42 U.S.C. 4022), the Pre-Disaster Mitigation Program (authorized by section 203 of the Stafford Act), the Hazard Mitigation Grant Program (authorized by section 404 of the Stafford Act), and the mitigation activities that are based upon the provisions of section 323 and subsections 406(b) and (e) of the Stafford Act. The mitigation plans may also serve to integrate documents and plans produced under other emergency management programs. State level plans should identify overall goals and priorities, incorporating the more specific local risk assessments, when available, and including projects identified through the local planning process.

Under section 322(d), up to 7 percent of the available HMGP funds may now be used for planning, and we encourage States to use these funds for local plan development. In a memorandum to FEMA Regional Directors dated December 21, 2000, we announced that this provision of section 322 was effective for disasters declared on or after October 30, 2000, the date on which the Disaster Mitigation Act of 2000 became law. Regional Directors are encouraging States to make these funds immediately available to local and Indian tribal governments, although the funds can be used for plan development and review at the State level as well.

As discussed earlier in this Supplementary Information, subsection 323(a) of the Stafford Act, 42 U.S.C. 5166(a), requires as a precondition to receiving disaster assistance under the Act that State and local governments, as well as eligible private nonprofit entities, must agree to carry out repair and reconstruction activities "in accordance with applicable standards of safety, decency, and sanitation and in conformity with applicable codes, specifications, and standards." In addition, that subsection authorizes the President (FEMA, by virtue of Executive Order 12148, as amended) to "require safe land use and construction practices,

after adequate consultation with appropriate State and local officials" in the course of the use of Federal disaster assistance by eligible applicants to repair and restore disaster-damaged facilities.

At the same time that we implement the planning mandates of section 322 of the Stafford Act, we are also implementing the Minimum Standards for Public and Private Structures provision of section 323 of the Act. This rule appears at Subpart M of Part 206 of Title 44 of the Code of Federal Regulations. As mentioned earlier, the section 322 planning regulations are in Part 201, while Part 206, Subpart M includes only the minimum codes and standards regulations mandated in § 323. The rule to implement § 323 of the Act reinforces the link between pre-disaster planning, building and construction standards, and post-disaster reconstruction efforts.

We encourage comments on this interim final rule, and we will make every effort to involve all interested parties prior to the development of the Final Rule.

Justification for Interim Final Rule

In general, FEMA publishes a rule for public comment before issuing a final rule, under the Administrative Procedure Act, 5 U.S.C. 533 and 44 CFR 1.12. The Administrative Procedure Act, however, provides an exception from that general rule where the agency for good cause finds the procedures for comment and response contrary to public interest. Section 322 of the Stafford Act allows States to receive increased post-disaster grant funding for projects designed to reduce future disaster losses. States will only be eligible for these increased funds if they have a FEMA-approved Enhanced State Mitigation Plan.

This interim final rule provides the criteria for development and approval of these plans, as well as criteria for local mitigation plans required by this legislation. In order for State and local governments to be positioned to receive these mitigation funds as soon as possible, these regulations must be in effect. The public benefit of this rule will be to assist States and communities assess their risks and identify activities to strengthen the larger community and the built environment in order to become less susceptible to disasters. Planning serves as the vital foundation to saving lives and protecting properties, having integrated plans in place can serve to both streamline recovery efforts and lessen potential future damages. Therefore, we believe it is contrary to the public interest to delay

the benefits of this rule. In accordance with the Administrative Procedure Act, 5 U.S.C. 553(d)(3), we find that there is good cause for the interim final rule to take effect immediately upon publication in the **Federal Register** in order to meet the needs of States and communities by identifying criteria for mitigation plans in order to reduce risks nationwide, establish criteria for minimum codes and standards in post-disaster reconstruction, and to allow States to adjust their mitigation plans to receive the increase in mitigation funding.

In addition, we believe that, under the circumstances, delaying the effective date of this rule until after the comment period would not further the public interest. Prior to this rulemaking, FEMA hosted a meeting where interested parties provided comments and suggestions on how we could implement these planning requirements. Participants in this meeting included representatives from the National Emergency Management Association, the Association of State Floodplain Managers, the National Governors' Association, the International Association of Emergency Managers, the National Association of Development Organizations, the American Public Works Association, the National League of Cities, the National Association of Counties, the National Conference of State Legislatures, the International City/County Management Association, and the Bureau of Indian Affairs. We took comments and suggestions provided at this meeting into account in developing this interim final rule. Therefore, we find that prior notice and comment on this rule would not further the public interest. We actively encourage and solicit comments on this interim final rule from interested parties, and we will consider them in preparing the final rule. For these reasons, we believe we have good cause to publish an interim final rule.

National Environmental Policy Act

44 CFR 10.8(d)(2)(ii) excludes this rule from the preparation of an environmental assessment or environmental impact statement, where the rule relates to actions that qualify for categorical exclusion under 44 CFR 10.8(d)(2)(iii), such as the development of plans under this section.

Executive Order 12866, Regulatory Planning and Review

We have prepared and reviewed this rule under the provisions of E.O. 12866, Regulatory Planning and Review. Under Executive Order 12866, 58 FR 51735, October 4, 1993, a significant regulatory

action is subject to OMB review and the requirements of the Executive Order. The Executive Order defines "significant regulatory action" as one that is likely to result in a rule that may:

(1) Have an annual effect on the economy of \$100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments or communities;

(2) Create a serious inconsistency or otherwise interfere with an action taken or planned by another agency;

(3) Materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or

(4) Raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in the Executive Order.

The purpose of this rule is to implement section 322 of the Stafford Act which addresses mitigation planning at the State, tribal, and local levels, identifies new local planning requirements, allows Hazard Mitigation Grant Program (HMGP) funds for planning activities, and increases the amount of HMGP funds available to States that develop a comprehensive, enhanced mitigation plan. The rule identifies local mitigation planning requirements before approval of project grants, and requires our approval of an Enhanced State Mitigation plan as a condition for increased mitigation funding. The rule also implements section 323 of the Stafford Act, which requires that repairs or construction funded by disaster loans or grants must comply with applicable standards and safe land use and construction practices. As such the rule itself will not have an effect on the economy of more than \$100,000,000.

Therefore, this rule is a significant regulatory action and is not an economically significant rule under Executive Order 12866. The Office of Management and Budget (OMB) has reviewed this rule under Executive Order 12866.

Executive Order 12898, Environmental Justice

Under Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, 59 FR 7629, February 16, 1994, we incorporate environmental justice into our policies and programs. The Executive Order requires each Federal agency to conduct its programs, policies, and activities that substantially affect human health or the

environment, in a manner that ensures that those programs, policies, and activities do not have the effect of excluding persons from participation in our programs, denying persons the benefits of our programs, or subjecting persons to discrimination because of their race, color, or national origin.

No action that we can anticipate under the final rule will have a disproportionately high or adverse human health and environmental effect on any segment of the population. Section 322 focuses specifically on mitigation planning to: Identify the natural hazards, risks, and vulnerabilities of areas in States, localities, and tribal areas; support development of local mitigation plans; provide for technical assistance to local and tribal governments for mitigation planning; and identify and prioritize mitigation actions that the State will support, as resources become available. Section 323 requires compliance with applicable codes and standards in repair and construction, and use of safe land use and construction standards. Accordingly, the requirements of Executive Order 12898 do not apply to this interim final rule.

Paperwork Reduction Act of 1995

As required by the Paperwork Reduction Act of 1995 (44 U.S.C. 3507(d)) and concurrent with the publication of this interim final rule, we have submitted a request for review and approval of a new collection of information, which is contained in this interim final rule. Under the Paperwork Reduction Act of 1995, a person may not be penalized for failing to comply with an information collection that does not display a currently valid Office of Management and Budget (OMB) control number. The request was submitted to OMB for approval under the emergency processing procedures in OMB regulation 5 CFR 1320.1. OMB has approved this collection of information for use through August 31, 2002, under OMB Number 3067-0297.

We expect to follow this emergency request with a request for OMB approval to continue the use of the collection of information for a term of three years. The request will be processed under OMB's normal clearance procedures in accordance with provisions of OMB regulation 5 CFR 1320.10. To help us with the timely processing of the emergency and normal clearance submissions to OMB, we invite the general public to comment on the collection of information. This notice and request for comments complies with the provisions of the Paperwork

Reduction Act of 1995 (44 U.S.C. 3506(c)(2)(A)).

Collection of Information

Title: State/Local/Tribal Hazard Mitigation Plans under Section 322 of the Disaster Mitigation Act of 2000.

Abstract: Section 322 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as amended by Section 104 of the Disaster Mitigation Act of 2000, provides new and revitalized approaches to mitigation planning. To obtain Federal assistance, new planning provisions require that each state, local, and tribal government prepare a hazard mitigation plan to include sections that describe the planning process, an assessment of the risks, a mitigation strategy, and identification of the plan maintenance and updating process. The Act provides a framework for linking pre- and post-disaster mitigation planning and initiatives with public and

private interests to ensure an integrated, comprehensive approach to disaster loss reduction. Under Section 322 there is a two-tiered State mitigation plan process. State mitigation plans must be reviewed, revised, and submitted to us every 3 years.

(1) A *Standard State Mitigation Plan* must be approved by us in order for States to be eligible to receive Hazard Mitigation Grant Program (HGMP) funding based on 15 percent of the total estimated eligible Federal disaster assistance. This plan demonstrates the State's goals, priorities, and commitment to reduce risks from natural hazards and serves as a guide for State and local decision makers as they commit resources to reducing the effects of natural hazards.

(2) An *Enhanced State Mitigation Plan* must be approved by us for a State to be eligible to receive HMGP funds based on 20 percent of the total

estimated eligible Federal disaster assistance. This plan must be approved by us within the 3 years prior to the current major disaster declaration. It must demonstrate that a State has developed a comprehensive mitigation program, is effectively using available mitigation funding, and is capable of managing the increased funding.

To be eligible to receive HMGP project grants, *local governments* must develop Local Mitigation Plans that include a risk assessment and mitigation strategy to reduce potential losses and target resources. Plans must be reviewed, revised, and submitted to us for approval every 5 years.

To receive HMGP project grants, *tribal governments* may apply as a grantee or subgrantee, and will be required to meet the planning requirements of a State or local government.

Estimated Total Annual Burden:

Type of collection/forms	No. of respondents	Hours per response	Annual burden hours
Update state or tribal mitigation plans (standard state mitigation plans)	18	320	5,760
State review of local plans	500 local plans	8	4,000
States develop Enhanced State Mitigation Plans	7	100	700
Local or tribal governments develop mitigation plans	500 local plans	300	150,000
Total burden	160,460

Comments: We are soliciting written comments to: (a) Evaluate whether the proposed data collection is necessary for the proper performance of the agency, including whether the information shall have practical utility; (b) evaluate the accuracy of the agency's estimate of the burden of the proposed collection of information; (c) obtain recommendations to enhance the quality, utility, and clarity of the information to be collected; and (d) evaluate the extent to which automated, electronic, mechanical, or other technological collection techniques may further reduce the respondents' burden. FEMA will accept comments through April 29, 2002.

Addressee: Interested persons should submit written comments to Muriel B. Anderson, Chief, Records Management Section, Program Services and Systems Branch, Facilities Management and Services Division, Administration and Resource Planning Directorate, Federal Emergency Management Agency, 500 C Street, Street, SW., Washington, DC 20472.

FOR FURTHER INFORMATION CONTACT: You may obtain copies of the OMB paperwork clearance package by

contacting Ms. Anderson at (202) 646-2625 (voice), (202) 646-3347 (facsimile), or by e-mail at muriel.anderson@fema.gov.

Executive Order 13132, Federalism

Executive Order 13132, Federalism, dated August 4, 1999, sets forth principles and criteria that agencies must adhere to in formulating and implementing policies that have federalism implications, that is, regulations that have substantial direct effects on the States, or on the distribution of power and responsibilities among the various levels of government. Federal agencies must closely examine the statutory authority supporting any action that would limit the policymaking discretion of the States, and to the extent practicable, must consult with State and local officials before implementing any such action.

We have reviewed this rule under E.O.13132 and have concluded that the rule does not have federalism implications as defined by the Executive Order. We have determined that the rule does not significantly affect the rights, roles, and responsibilities of States, and involves no preemption of State law nor

does it limit State policymaking discretion.

However, we have consulted with State and local officials. In order to assist us in the development of this rule, we hosted a meeting to allow interested parties an opportunity to provide their perspectives on the legislation and options for implementation of § 322. Stakeholders who attended the meeting included representatives from the National Emergency Management Association, the Association of State Floodplain Managers, the National Governors' Association, the International Association of Emergency Managers, the National Association of Development Organizations, the American Public Works Association, the National League of Cities, the National Association of Counties, the National Conference of State Legislatures, the International City/County Management Association, and the Bureau of Indian Affairs. We received valuable input from all parties at the meeting, which we took into account in the development of this rule. Additionally, we actively encourage and solicit comments on this interim final rule from interested parties, and we will

consider them in preparing the final rule.

Executive Order 13175, Consultation and Coordination With Indian Tribal Governments

We have reviewed this interim final rule under Executive Order 13175, which became effective on February 6, 2001. Under the Hazard Mitigation Grant Program (HMGP), Indian tribal governments will have the option to apply for grants directly to us and to serve as “grantee”, carrying out “State” roles. If they choose this option, tribal governments may submit either a State-level Standard Mitigation Plan for the 15 percent HMGP funding or a State-level Enhanced Mitigation Plan for 20 percent HMGP funding. In either case, Indian tribal governments would be able to spend up to 7 percent of those funds on planning. Before developing this rule, we met with representatives from State and local governments and the Bureau of Indian Affairs, to discuss the new planning opportunities and requirements of § 322 of the Stafford Act. We received valuable input from all parties, which helped us to develop this interim final rule.

In reviewing the interim final rule, we find that it does not have “tribal implications” as defined in Executive Order 13175 because it will not have a substantial direct effect on one or more Indian tribes, on the relationship between the Federal Government and Indian tribes, or on the distribution of power and responsibilities between the Federal Government and Indian tribes. Moreover, the interim final rule does not impose substantial direct compliance costs on tribal governments, nor does it preempt tribal law, impair treaty rights or limit the self-governing powers of tribal governments.

Congressional Review of Agency Rulemaking

We have sent this interim final rule to the Congress and to the General Accounting Office under the Congressional Review of Agency Rulemaking Act, Public Law 104–121. The rule is a not “major rule” within the meaning of that Act. It is an administrative action in support of normal day-to-day mitigation planning activities required by section 322 and compliance under section 323 of the Stafford Act, as enacted in DMA 2000.

The rule will not result in a major increase in costs or prices for consumers, individual industries, Federal, State, or local government agencies, or geographic regions. It will not have “significant adverse effects” on competition, employment, investment,

productivity, innovation, or on the ability of United States-based enterprises to compete with foreign-based enterprises. This final rule is subject to the information collection requirements of the Paperwork Reduction Act, and OMB has assigned Control No. 3067–0297. The rule is not an unfunded Federal mandate within the meaning of the Unfunded Mandates Reform Act of 1995, Public Law 104–4, and any enforceable duties that we impose are a condition of Federal assistance or a duty arising from participation in a voluntary Federal program.

List of Subjects in 44 CFR Part 201 and Part 206

Administrative practice and procedure, Disaster assistance, Grant programs, Mitigation planning, Reporting and recordkeeping requirements.

Accordingly, Amend 44 CFR, Subchapter D—Disaster Assistance, as follows:

1. Add Part 201 to read as follows:

PART 201—MITIGATION PLANNING

Sec.

- 201.1 Purpose.
- 201.2 Definitions.
- 201.3 Responsibilities.
- 201.4 Standard State Mitigation Plans.
- 201.5 Enhanced State Mitigation Plans.
- 201.6 Local Mitigation Plans.

Authority: Robert T. Stafford Disaster Relief and Emergency Assistance Act, 42 U.S.C. 5121–5206; Reorganization Plan No. 3 of 1978, 43 FR 41943, 3 CFR, 1978 Comp., p. 329; E.O. 12127, 44 FR 19367, 3 CFR, 1979 Comp., p. 376; E.O. 12148, 44 FR 43239, 3 CFR, 1979 Comp., p. 412; and E.O. 12673, 54 FR 12571, 3 CFR, 1989 Comp., p. 214.

§ 201.1 Purpose.

(a) The purpose of this part is to provide information on the policies and procedures for mitigation planning as required by the provisions of section 322 of the Stafford Act, 42 U.S.C. 5165.

(b) The purpose of mitigation planning is for State, local, and Indian tribal governments to identify the natural hazards that impact them, to identify actions and activities to reduce any losses from those hazards, and to establish a coordinated process to implement the plan, taking advantage of a wide range of resources.

§ 201.2 Definitions.

Grantee means the government to which a grant is awarded, which is accountable for the use of the funds provided. The grantee is the entire legal entity even if only a particular component of the entity is designated in the grant award document. Generally,

the State is the grantee. However, after a declaration, an Indian tribal government may choose to be a grantee, or may act as a subgrantee under the State. An Indian tribal government acting as grantee will assume the responsibilities of a “state”, as described in this part, for the purposes of administering the grant.

Hazard mitigation means any sustained action taken to reduce or eliminate the long-term risk to human life and property from hazards.

Hazard Mitigation Grant Program means the program authorized under section 404 of the Stafford Act, 42 U.S.C. 5170c and implemented at 44 CFR Part 206, Subpart N, which authorizes funding for certain mitigation measures identified through the evaluation of natural hazards conducted under section 322 of the Stafford Act 42 U.S.C. 5165.

Indian tribal government means any Federally recognized governing body of an Indian or Alaska Native tribe, band, nation, pueblo, village, or community that the Secretary of Interior acknowledges to exist as an Indian tribe under the Federally Recognized Tribe List Act of 1994, 25 U.S.C. 479a. This does not include Alaska Native corporations, the ownership of which is vested in private individuals.

Local government is any county, municipality, city, town, township, public authority, school district, special district, intrastate district, council of governments (regardless of whether the council of governments is incorporated as a nonprofit corporation under State law), regional or interstate government entity, or agency or instrumentality of a local government; any Indian tribe or authorized tribal organization, or Alaska Native village or organization; and any rural community, unincorporated town or village, or other public entity.

Managing State means a State to which FEMA has delegated the authority to administer and manage the HMGP under the criteria established by FEMA pursuant to 42 U.S.C. 5170c(c). FEMA may also delegate authority to tribal governments to administer and manage the HMGP as a Managing State.

Regional Director is a director of a regional office of FEMA, or his/her designated representative.

Small and impoverished communities means a community of 3,000 or fewer individuals that is identified by the State as a rural community, and is not a remote area within the corporate boundaries of a larger city; is economically disadvantaged, by having an average per capita annual income of residents not exceeding 80 percent of national, per capita income, based on

best available data; the local unemployment rate exceeds by one percentage point or more, the most recently reported, average yearly national unemployment rate; and any other factors identified in the State Plan in which the community is located.

The Stafford Act refers to the Robert T. Stafford Disaster Relief and Emergency Assistance Act, Public Law 93-288, as amended (42 U.S.C. 5121-5206).

State is any State of the United States, the District of Columbia, Puerto Rico, the Virgin Islands, Guam, American Samoa, and the Commonwealth of the Northern Mariana Islands.

State Hazard Mitigation Officer is the official representative of State government who is the primary point of contact with FEMA, other Federal agencies, and local governments in mitigation planning and implementation of mitigation programs and activities required under the Stafford Act.

Subgrantee means the government or other legal entity to which a subgrant is awarded and which is accountable to the grantee for the use of the funds provided. Subgrantees can be a State agency, local government, private non-profit organizations, or Indian tribal government. Indian tribal governments acting as a subgrantee are accountable to the State grantee.

§ 201.3 Responsibilities.

(a) *General.* This section identifies the key responsibilities of FEMA, States, and local/tribal governments in carrying out section 322 of the Stafford Act, 42 U.S.C. 5165.

(b) *FEMA.* The key responsibilities of the Regional Director are to:

(1) Oversee all FEMA related pre- and post-disaster hazard mitigation programs and activities;

(2) Provide technical assistance and training to State, local, and Indian tribal governments regarding the mitigation planning process;

(3) Review and approve all Standard and Enhanced State Mitigation Plans;

(4) Review and approve all local mitigation plans, unless that authority has been delegated to the State in accordance with § 201.6(d);

(5) Conduct reviews, at least once every three years, of State mitigation activities, plans, and programs to ensure that mitigation commitments are fulfilled, and when necessary, take action, including recovery of funds or denial of future funds, if mitigation commitments are not fulfilled.

(c) *State.* The key responsibilities of the State are to coordinate all State and

local activities relating to hazard evaluation and mitigation and to:

(1) Prepare and submit to FEMA a Standard State Mitigation Plan following the criteria established in § 201.4 as a condition of receiving Stafford Act assistance (except emergency assistance).

(2) In order to be considered for the 20 percent HMGP funding, prepare and submit an Enhanced State Mitigation Plan in accordance with § 201.5, which must be reviewed and updated, if necessary, every three years from the date of the approval of the previous plan.

(3) At a minimum, review and, if necessary, update the Standard State Mitigation Plan by November 1, 2003 and every three years from the date of the approval of the previous plan in order to continue program eligibility.

(4) Make available the use of up to the 7 percent of HMGP funding for planning in accordance with § 206.434.

(5) Provide technical assistance and training to local governments to assist them in applying for HMGP planning grants, and in developing local mitigation plans.

(6) For Managing States that have been approved under the criteria established by FEMA pursuant to 42 U.S.C. 5170c(c), review and approve local mitigation plans in accordance with § 201.6(d).

(d) *Local governments.* The key responsibilities of local governments are to:

(1) Prepare and adopt a jurisdiction-wide natural hazard mitigation plan as a condition of receiving project grant funds under the HMGP, in accordance with § 201.6.

(2) At a minimum, review and, if necessary, update the local mitigation plan every five years from date of plan approval to continue program eligibility.

(e) *Indian tribal governments.* Indian tribal governments will be given the option of applying directly to us for Hazard Mitigation Grant Program funding, or they may choose to apply through the State. If they apply directly to us, they will assume the responsibilities of the State, or grantee, and if they apply through the State, they will assume the responsibilities of the local government, or subgrantee.

§ 201.4 Standard State Mitigation Plans.

(a) *Plan requirement.* By November 1, 2003, States must have an approved Standard State Mitigation plan meeting the requirements of this section, in order to receive assistance under the Stafford Act, although assistance authorized under disasters declared prior to November 1, 2003 will continue

to be made available. In any case, emergency assistance provided under 42 U.S.C. 5170a, 5170b, 5173, 5174, 5177, 5179, 5180, 5182, 5183, 5184, 5192 will not be affected. The mitigation plan is the demonstration of the State's commitment to reduce risks from natural hazards and serves as a guide for State decision makers as they commit resources to reducing the effects of natural hazards. States may choose to include the requirements of the HMGP Administrative Plan in their mitigation plan.

(b) *Planning process.* An effective planning process is essential in developing and maintaining a good plan. The mitigation planning process should include coordination with other State agencies, appropriate Federal agencies, interested groups, and be integrated to the extent possible with other ongoing State planning efforts as well as other FEMA mitigation programs and initiatives.

(c) *Plan content.* To be effective the plan must include the following elements:

(1) Description of the *planning process* used to develop the plan, including how it was prepared, who was involved in the process, and how other agencies participated.

(2) *Risk assessments* that provide the factual basis for activities proposed in the strategy portion of the mitigation plan. Statewide risk assessments must characterize and analyze natural hazards and risks to provide a statewide overview. This overview will allow the State to compare potential losses throughout the State and to determine their priorities for implementing mitigation measures under the strategy, and to prioritize jurisdictions for receiving technical and financial support in developing more detailed local risk and vulnerability assessments. The risk assessment shall include the following:

(i) An overview of the type and location of all natural hazards that can affect the State, including information on previous occurrences of hazard events, as well as the probability of future hazard events, using maps where appropriate;

(ii) An overview and analysis of the State's vulnerability to the hazards described in this paragraph (c)(2), based on estimates provided in local risk assessments as well as the State risk assessment. The State shall describe vulnerability in terms of the jurisdictions most threatened by the identified hazards, and most vulnerable to damage and loss associated with hazard events. State owned critical or operated facilities located in the

identified hazard areas shall also be addressed;

(iii) An overview and analysis of potential losses to the identified vulnerable structures, based on estimates provided in local risk assessments as well as the State risk assessment. The State shall estimate the potential dollar losses to State owned or operated buildings, infrastructure, and critical facilities located in the identified hazard areas.

(3) A *Mitigation Strategy* that provides the State's blueprint for reducing the losses identified in the risk assessment. This section shall include:

(i) A description of State goals to guide the selection of activities to mitigate and reduce potential losses.

(ii) A discussion of the State's pre- and post-disaster hazard management policies, programs, and capabilities to mitigate the hazards in the area, including: an evaluation of State laws, regulations, policies, and programs related to hazard mitigation as well as to development in hazard-prone areas; a discussion of State funding capabilities for hazard mitigation projects; and a general description and analysis of the effectiveness of local mitigation policies, programs, and capabilities.

(iii) An identification, evaluation, and prioritization of cost-effective, environmentally sound, and technically feasible mitigation actions and activities the State is considering and an explanation of how each activity contributes to the overall mitigation strategy. This section should be linked to local plans, where specific local actions and projects are identified.

(iv) Identification of current and potential sources of Federal, State, local, or private funding to implement mitigation activities.

(4) A section on the *Coordination of Local Mitigation Planning* that includes the following:

(i) A description of the State process to support, through funding and technical assistance, the development of local mitigation plans.

(ii) A description of the State process and timeframe by which the local plans will be reviewed, coordinated, and linked to the State Mitigation Plan.

(iii) Criteria for prioritizing communities and local jurisdictions that would receive planning and project grants under available funding programs, which should include consideration for communities with the highest risks, repetitive loss properties, and most intense development pressures. Further, that for non-planning grants, a principal criterion for prioritizing grants shall be the extent to which benefits are maximized according

to a cost benefit review of proposed projects and their associated costs.

(5) A *Plan Maintenance Process* that includes:

(i) An established method and schedule for monitoring, evaluating, and updating the plan.

(ii) A system for monitoring implementation of mitigation measures and project closeouts.

(iii) A system for reviewing progress on achieving goals as well as activities and projects identified in the Mitigation Strategy.

(6) A *Plan Adoption Process*. The plan must be formally adopted by the State prior to submittal to us for final review and approval.

(7) *Assurances*. The plan must include assurances that the State will comply with all applicable Federal statutes and regulations in effect with respect to the periods for which it receives grant funding, in compliance with 44 CFR 13.11(c). The State will amend its plan whenever necessary to reflect changes in State or Federal laws and statutes as required in 44 CFR 13.11(d).

(d) *Review and updates*. Plan must be reviewed and revised to reflect changes in development, progress in statewide mitigation efforts, and changes in priorities and resubmitted for approval to the appropriate Regional Director every three years. The Regional review will be completed within 45 days after receipt from the State, whenever possible. We also encourage a State to review its plan in the post-disaster timeframe to reflect changing priorities, but it is not required.

§ 201.5 Enhanced State Mitigation Plans.

(a) A State with a FEMA approved Enhanced State Mitigation Plan at the time of a disaster declaration is eligible to receive increased funds under the HMGP, based on twenty percent of the total estimated eligible Stafford Act disaster assistance. The Enhanced State Mitigation Plan must demonstrate that a State has developed a comprehensive mitigation program, that the State effectively uses available mitigation funding, and that it is capable of managing the increased funding. In order for the State to be eligible for the 20 percent HMGP funding, FEMA must have approved the plan within three years prior to the disaster declaration.

(b) Enhanced State Mitigation Plans must include all elements of the Standard State Mitigation Plan identified in § 201.4, as well as document the following:

(1) Demonstration that the plan is integrated to the extent practicable with other State and/or regional planning

initiatives (comprehensive, growth management, economic development, capital improvement, land development, and/or emergency management plans) and FEMA mitigation programs and initiatives that provide guidance to State and regional agencies.

(2) Documentation of the State's project implementation capability, identifying and demonstrating the ability to implement the plan, including:

(i) Established eligibility criteria for multi-hazard mitigation measures.

(ii) A system to determine the cost effectiveness of mitigation measures, consistent with OMB Circular A-94, Guidelines and Discount Rates for Benefit-Cost Analysis of Federal Programs, and to rank the measures according to the State's eligibility criteria.

(iii) Demonstration that the State has the capability to effectively manage the HMGP as well as other mitigation grant programs, including a record of the following:

(A) Meeting HMGP and other mitigation grant application timeframes and submitting complete, technically feasible, and eligible project applications with appropriate supporting documentation;

(B) Preparing and submitting accurate environmental reviews and benefit-cost analyses;

(C) Submitting complete and accurate quarterly progress and financial reports on time; and

(D) Completing HMGP and other mitigation grant projects within established performance periods, including financial reconciliation.

(iv) A system and strategy by which the State will conduct an assessment of the completed mitigation actions and include a record of the effectiveness (actual cost avoidance) of each mitigation action.

(3) Demonstration that the State effectively uses existing mitigation programs to achieve its mitigation goals.

(4) Demonstration that the State is committed to a comprehensive state mitigation program, which might include any of the following:

(i) A commitment to support local mitigation planning by providing workshops and training, State planning grants, or coordinated capability development of local officials, including Emergency Management and Floodplain Management certifications.

(ii) A statewide program of hazard mitigation through the development of legislative initiatives, mitigation councils, formation of public/private

partnerships, and/or other executive actions that promote hazard mitigation.

(iii) The State provides a portion of the non-Federal match for HMGP and/or other mitigation projects.

(iv) To the extent allowed by State law, the State requires or encourages local governments to use a current version of a nationally applicable model building code or standard that addresses natural hazards as a basis for design and construction of State sponsored mitigation projects.

(v) A comprehensive, multi-year plan to mitigate the risks posed to existing buildings that have been identified as necessary for post-disaster response and recovery operations.

(vi) A comprehensive description of how the State integrates mitigation into its post-disaster recovery operations.

(c) *Review and updates.* (1) A State must review and revise its plan to reflect changes in development, progress in statewide mitigation efforts, and changes in priorities, and resubmit it for approval to the appropriate Regional Director every three years. The Regional review will be completed within 45 days after receipt from the State, whenever possible.

(2) In order for a State to be eligible for the 20 percent HMGP funding, the Enhanced State Mitigation plan must be approved by FEMA within the three years prior to the current major disaster declaration.

§ 201.6 Local Mitigation Plans.

The local mitigation plan is the representation of the jurisdiction's commitment to reduce risks from natural hazards, serving as a guide for decision makers as they commit resources to reducing the effects of natural hazards. Local plans will also serve as the basis for the State to provide technical assistance and to prioritize project funding.

(a) *Plan requirement.* (1) For disasters declared after November 1, 2003, a local government must have a mitigation plan approved pursuant to this section in order to receive HMGP project grants. Until November 1, 2003, local mitigation plans may be developed concurrent with the implementation of the project grant.

(2) Regional Directors may grant an exception to the plan requirement in extraordinary circumstances, such as in a small and impoverished community, when justification is provided. In these cases, a plan will be completed within 12 months of the award of the project grant. If a plan is not provided within this timeframe, the project grant will be terminated, and any costs incurred after

notice of grant's termination will not be reimbursed by FEMA.

(3) Multi-jurisdictional plans (e.g. watershed plans) may be accepted, as appropriate, as long as each jurisdiction has participated in the process and has officially adopted the plan. State-wide plans will not be accepted as multi-jurisdictional plans.

(b) *Planning process.* An open public involvement process is essential to the development of an effective plan. In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process shall include:

(1) An opportunity for the public to comment on the plan during the drafting stage and prior to plan approval;

(2) An opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia and other private and non-profit interests to be involved in the planning process; and

(3) Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.

(c) *Plan content.* The plan shall include the following:

(1) Documentation of the *planning process* used to develop the plan, including how it was prepared, who was involved in the process, and how the public was involved.

(2) A *risk assessment* that provides the factual basis for activities proposed in the strategy to reduce losses from identified hazards. Local risk assessments must provide sufficient information to enable the jurisdiction to identify and prioritize appropriate mitigation actions to reduce losses from identified hazards. The risk assessment shall include:

(i) A description of the type, location, and extent of all natural hazards that can affect the jurisdiction. The plan shall include information on previous occurrences of hazard events and on the probability of future hazard events.

(ii) A description of the jurisdiction's vulnerability to the hazards described in paragraph (c)(2)(i) of this section. This description shall include an overall summary of each hazard and its impact on the community. The plan should describe vulnerability in terms of:

(A) The types and numbers of existing and future buildings, infrastructure, and critical facilities located in the identified hazard areas;

(B) An estimate of the potential dollar losses to vulnerable structures identified in paragraph (c)(2)(i)(A) of this section

and a description of the methodology used to prepare the estimate;

(C) Providing a general description of land uses and development trends within the community so that mitigation options can be considered in future land use decisions.

(iii) For multi-jurisdictional plans, the risk assessment section must assess each jurisdiction's risks where they vary from the risks facing the entire planning area.

(3) A *mitigation strategy* that provides the jurisdiction's blueprint for reducing the potential losses identified in the risk assessment, based on existing authorities, policies, programs and resources, and its ability to expand on and improve these existing tools. This section shall include:

(i) A description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.

(ii) A section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with particular emphasis on new and existing buildings and infrastructure.

(iii) An action plan describing how the actions identified in paragraph (c)(2)(ii) of this section will be prioritized, implemented, and administered by the local jurisdiction. Prioritization shall include a special emphasis on the extent to which benefits are maximized according to a cost benefit review of the proposed projects and their associated costs.

(iv) For multi-jurisdictional plans, there must be identifiable action items specific to the jurisdiction requesting FEMA approval or credit of the plan.

(4) A *plan maintenance process* that includes:

(i) A section describing the method and schedule of monitoring, evaluating, and updating the mitigation plan within a five-year cycle.

(ii) A process by which local governments incorporate the requirements of the mitigation plan into other planning mechanisms such as comprehensive or capital improvement plans, when appropriate.

(iii) Discussion on how the community will continue public participation in the plan maintenance process.

(5) *Documentation* that the plan has been formally adopted by the governing body of the jurisdiction requesting approval of the plan (e.g., City Council, County Commissioner, Tribal Council). For multi-jurisdictional plans, each jurisdiction requesting approval of the plan must document that it has been formally adopted.

(d) *Plan review.* (1) Plans must be submitted to the State Hazard Mitigation Officer for initial review and coordination. The State will then send the plan to the appropriate FEMA Regional Office for formal review and approval.

(2) The Regional review will be completed within 45 days after receipt from the State, whenever possible.

(3) Plans must be reviewed, revised if appropriate, and resubmitted for approval within five years in order to continue to be eligible for HMGP project grant funding.

(4) Managing States that have been approved under the criteria established by FEMA pursuant to 42 U.S.C. 5170c(c) will be delegated approval authority for local mitigation plans, and the review will be based on the criteria in this part. Managing States will review the plans within 45 days of receipt of the plans, whenever possible, and provide a copy of the approved plans to the Regional Office.

PART 206—FEDERAL DISASTER ASSISTANCE FOR DISASTERS DECLARED ON OR AFTER NOVEMBER 23, 1988

2. The authority citation for part 206 is revised to read as follows:

Authority: Robert T. Stafford Disaster Relief and Emergency Assistance Act, 42 U.S.C. 5121–5206; Reorganization Plan No. 3 of 1978, 43 FR 41943, 3 CFR, 1978 Comp., p. 329; E.O. 12127, 44 FR 19367, 3 CFR, 1979 Comp., p. 376; E.O. 12148, 44 FR 43239, 3 CFR, 1979 Comp., p. 412; and E.O. 12673, 54 FR 12571, 3 CFR, 1989 Comp., p. 214.

2a. Revise Part 206, Subpart M to read as follows:

Subpart M—Minimum Standards

Sec.
206.400 General.
206.401 Local standards.
206.402 Compliance.

§ 206.400 General.

(a) As a condition of the receipt of any disaster assistance under the Stafford Act, the applicant shall carry out any repair or construction to be financed with the disaster assistance in accordance with applicable standards of safety, decency, and sanitation and in conformity with applicable codes, specifications and standards.

(b) Applicable codes, specifications, and standards shall include any disaster resistant building code that meets the minimum requirements of the National Flood Insurance Program (NFIP) as well as being substantially equivalent to the recommended provisions of the National Earthquake Hazards Reduction

Program (NEHRP). In addition, the applicant shall comply with any requirements necessary in regards to Executive Order 11988, Floodplain Management, Executive Order 12699, Seismic Safety of Federal and Federally Assisted or Regulated New Building Construction, and any other applicable Executive orders.

(c) In situations where there are no locally applicable standards of safety, decency and sanitation, or where there are no applicable local codes, specifications and standards governing repair or construction activities, or where the Regional Director determines that otherwise applicable codes, specifications, and standards are inadequate, then the Regional Director may, after consultation with appropriate State and local officials, require the use of nationally applicable codes, specifications, and standards, as well as safe land use and construction practices in the course of repair or construction activities.

(d) The mitigation planning process that is mandated by section 322 of the Stafford Act and 44 CFR part 201 can assist State and local governments in determining where codes, specifications, and standards are inadequate, and may need to be upgraded.

§ 206.401 Local standards.

The cost of repairing or constructing a facility in conformity with minimum codes, specifications and standards may be eligible for reimbursement under section 406 of the Stafford Act, as long as such codes, specifications and standards meet the criteria that are listed at 44 CFR 206.226(b).

§ 206.402 Compliance.

A recipient of disaster assistance under the Stafford Act must document for the Regional Director its compliance with this subpart following the completion of any repair or construction activities.

Subpart N—Hazard Mitigation Grant Program

3. Revise § 206.431 to read as follows:

§ 206.431 Definitions.

Activity means any mitigation measure, project, or action proposed to reduce risk of future damage, hardship, loss or suffering from disasters.

Applicant means a State agency, local government, Indian tribal government, or eligible private nonprofit organization, submitting an application to the grantee for assistance under the HMGP.

Enhanced State Mitigation Plan is the hazard mitigation plan approved under 44 CFR part 201 as a condition of receiving increased funding under the HMGP.

Grant application means the request to FEMA for HMGP funding, as outlined in § 206.436, by a State or tribal government that will act as grantee.

Grant award means total of Federal and non-Federal contributions to complete the approved scope of work.

Grantee means the government to which a grant is awarded and which is accountable for the use of the funds provided. The grantee is the entire legal entity even if only a particular component of the entity is designated in the grant award document. Generally, the State is the grantee. However, an Indian tribal government may choose to be a grantee, or it may act as a subgrantee under the State. An Indian tribal government acting as a grantee will assume the responsibilities of a “state”, under this subpart, for the purposes of administering the grant.

Indian tribal government means any Federally recognized governing body of an Indian or Alaska Native tribe, band, nation, pueblo, village, or community that the Secretary of Interior acknowledges to exist as an Indian tribe under the Federally Recognized Tribe List Act of 1994, 25 U.S.C. 479a. This does not include Alaska Native corporations, the ownership of which is vested in private individuals.

Local Mitigation Plan is the hazard mitigation plan required of a local or Indian tribal government acting as a subgrantee as a condition of receiving a project subgrant under the HMGP as outlined in 44 CFR 201.6.

Standard State Mitigation Plan is the hazard mitigation plan approved under 44 CFR part 201, as a condition of receiving Stafford Act assistance as outlined in § 201.4.

State Administrative Plan for the Hazard Mitigation Grant Program means the plan developed by the State to describe the procedures for administration of the HMGP.

Subgrant means an award of financial assistance under a grant by a grantee to an eligible subgrantee.

Subgrant application means the request to the grantee for HMGP funding by the eligible subgrantee, as outlined in § 206.436.

Subgrantee means the government or other legal entity to which a subgrant is awarded and which is accountable to the grantee for the use of the funds provided. Subgrantees can be a State agency, local government, private nonprofit organizations, or Indian tribal government as outlined in § 206.433.

Indian tribal governments acting as a subgrantee are accountable to the State grantee.

4. Revise § 206.432(b) to read as follows:

§ 206.432 Federal grant assistance.

* * * * *

(b) *Amounts of assistance.* The total of Federal assistance under this subpart shall not exceed either 15 or 20 percent of the total estimated Federal assistance (excluding administrative costs) provided for a major disaster under 42 U.S.C. 5170b, 5172, 5173, 5174, 5177, 5178, 5183, and 5201 as follows:

(1) *Fifteen (15) percent.* Effective November 1, 2003, a State with an approved Standard State Mitigation Plan, which meets the requirements outlined in 44 CFR 201.4, shall be eligible for assistance under the HMGP not to exceed 15 percent of the total estimated Federal assistance described in this paragraph. Until that date, existing, approved State Mitigation Plans will be accepted.

(2) *Twenty (20) percent.* A State with an approved Enhanced State Mitigation Plan, in effect prior to the disaster declaration, which meets the requirements outlined in 44 CFR 201.5 shall be eligible for assistance under the HMGP not to exceed 20 percent of the total estimated Federal assistance described in this paragraph.

(3) The estimates of Federal assistance under this paragraph (b) shall be based on the Regional Director's estimate of all eligible costs, actual grants, and appropriate mission assignments.

* * * * *

5. Section 206.434 is amended by redesignating paragraphs (b) through (g) as paragraphs (c) through (h), respectively; adding a new paragraph (b); revising redesignated paragraphs (c) introductory text and (c)(1); and revising redesignated paragraph (d) to read as follows:

§ 206.434 Eligibility.

* * * * *

(b) *Plan requirement.* (1) For all disasters declared on or after November 1, 2003, local and tribal government applicants for subgrants, must have an approved local mitigation plan in accordance with 44 CFR 201.6 prior to receipt of HMGP subgrant funding. Until November 1, 2003, local mitigation plans may be developed concurrent with the implementation of subgrants.

(2) Regional Directors may grant an exception to this requirement in extraordinary circumstances, such as in a small and impoverished community

when justification is provided. In these cases, a plan will be completed within 12 months of the award of the project grant. If a plan is not provided within this timeframe, the project grant will be terminated, and any costs incurred after notice of grant's termination will not be reimbursed by FEMA.

(c) *Minimum project criteria.* To be eligible for the Hazard Mitigation Grant Program, a project must:

(1) Be in conformance with the State Mitigation Plan and Local Mitigation Plan approved under 44 CFR part 201;

* * * * *

(d) *Eligible activities.* (1) *Planning.* Up to 7% of the State's HMGP grant may be used to develop State, tribal and/or local mitigation plans to meet the planning criteria outlined in 44 CFR part 201.

(2) *Types of projects.* Projects may be of any nature that will result in protection to public or private property. Eligible projects include, but are not limited to:

- (i) Structural hazard control or protection projects;
- (ii) Construction activities that will result in protection from hazards;
- (iii) Retrofitting of facilities;
- (iv) Property acquisition or relocation, as defined in paragraph (e) of this section;
- (v) Development of State or local mitigation standards;
- (vi) Development of comprehensive mitigation programs with implementation as an essential component;
- (vii) Development or improvement of warning systems.

* * * * *

6. Revise § 206.435(a) to read as follows:

§ 206.435 Project identification and selection criteria.

(a) *Identification.* It is the State's responsibility to identify and select eligible hazard mitigation projects. All funded projects must be consistent with the State Mitigation Plan. Hazard Mitigation projects shall be identified and prioritized through the State, Indian tribal, and local planning process.

* * * * *

7. Revise § 206.436 to read as follows:

§ 206.436 Application procedures.

(a) *General.* This section describes the procedures to be used by the grantee in submitting an application for HMGP funding. Under the HMGP, the State or Indian tribal government is the grantee and is responsible for processing subgrants to applicants in accordance with 44 CFR part 13 and this part 206. Subgrantees are accountable to the grantee.

(b) *Governor's Authorized Representative.* The Governor's Authorized Representative serves as the grant administrator for all funds provided under the Hazard Mitigation Grant Program. The Governor's Authorized Representative's responsibilities as they pertain to procedures outlined in this section include providing technical advice and assistance to eligible subgrantees, and ensuring that all potential applicants are aware of assistance available and submission of those documents necessary for grant award.

(c) *Hazard mitigation application.* Upon identification of mitigation measures, the State (Governor's Authorized Representative) will submit its Hazard Mitigation Grant Program application to the FEMA Regional Director. The application will identify one or more mitigation measures for which funding is requested. The application must include a Standard Form (SF) 424, Application for Federal Assistance, SF 424D, Assurances for Construction Programs, if appropriate, and a narrative statement. The narrative statement will contain any pertinent project management information not included in the State's administrative plan for Hazard Mitigation. The narrative statement will also serve to identify the specific mitigation measures for which funding is requested. Information required for each mitigation measure shall include the following:

- (1) Name of the subgrantee, if any;
- (2) State or local contact for the measure;
- (3) Location of the project;
- (4) Description of the measure;
- (5) Cost estimate for the measure;
- (6) Analysis of the measure's cost-effectiveness and substantial risk reduction, consistent with § 206.434(c);
- (7) Work schedule;
- (8) Justification for selection;
- (9) Alternatives considered;
- (10) Environmental information consistent with 44 CFR part 9, Floodplain Management and Protection of Wetlands, and 44 CFR part 10, Environmental Considerations.

(d) *Application submission time limit.* The State's application may be amended as the State identifies and selects local project applications to be funded. The State must submit all local HMGP applications and funding requests for the purpose of identifying new projects to the Regional Director within 12 months of the date of disaster declaration.

(e) *Extensions.* The State may request the Regional Director to extend the application time limit by 30 to 90 day

increments, not to exceed a total of 180 days. The grantee must include a justification in its request.

(f) *FEMA approval.* The application and supplement(s) will be submitted to the FEMA Regional Director for approval. FEMA has final approval authority for funding of all projects.

(g) *Indian tribal grantees.* Indian tribal governments may submit a SF 424 directly to the Regional Director.

Subpart H—Public Assistance Eligibility

* * * * *

8. Revise § 206.220 to read as follows:

§ 206.220 General.

This subpart provides policies and procedures for determinations of eligibility of applicants for public assistance, eligibility of work, and eligibility of costs for assistance under sections 402, 403, 406, 407, 418, 419,

421(d), 502, and 503 of the Stafford Act. Assistance under this subpart must also conform to requirements of 44 CFR part 201, Mitigation Planning, and 44 CFR part 206, subparts G—Public Assistance Project Administration, I—Public Assistance Insurance Requirements, J—Coastal Barrier Resources Act, and M—Minimum Standards. Regulations under 44 CFR part 9—Floodplain Management and 44 CFR part 10—Environmental Considerations, also apply to this assistance.

9. Section 206.226 is amended by redesignating paragraphs

(b) through (j) as paragraphs (c) through (k), respectively; adding a new paragraph (b); and revising redesignated paragraph (g)(5) to read as follows:

§ 206.226 Restoration of damaged facilities.

* * * * *

(b) *Mitigation planning.* In order to receive assistance under this section, as

of November 1, 2003, the State must have in place a FEMA approved State Mitigation Plan in accordance with 44 CFR part 201.

* * * * *

(g) * * *

(5) If relocation of a facility is not feasible or cost effective, the Regional Director shall disapprove Federal funding for the original location when he/she determines in accordance with 44 CFR parts 9, 10, 201, or subpart M of this part 206, that restoration in the original location is not allowed. In such cases, an alternative project may be applied for.

* * * * *

Dated: February 19, 2002.

Michael D. Brown,
General Counsel.

[FR Doc. 02-4321 Filed 2-25-02; 8:45 am]

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APPENDIX B

Terms and Definitions
References

Terms and Definitions:

ESDA - Champaign County Emergency Services Disaster Agency

FEMA - Federal Emergency Management Agency

IEMA - Illinois Emergency Management Agency

NFIP – National Flood Insurance Program

USGS - United States Geology Survey

Base Flood: The flood having a one percent chance of being equaled or exceeded in any given year. The base flood is also known as the one-hundred-year flood.

BOCA (Building Officials and Code Administrators International, Inc.): The professional association representing the full spectrum of code enforcement disciplines and construction industry interests. BOCA is the premier publishers of model codes.

CRS (Community Rating System): The National Flood Insurance Program's (NFIP) Community Rating System (CRS) was implemented in 1990 as a program for recognizing and encouraging community floodplain management activities that exceed the minimum NFIP standards.

FIRM (Flood Insurance Rate Map): The official map on which the Federal Insurance Administration has delineated both the areas of special flood hazards and the risk premium zones applicable to the community.

Flood Insurance Study: The official report in which the Federal Insurance Administration has provided flood profiles, as well as the flood boundary-floodway map and the water surface elevation of the base flood. The flood insurance study consists of the flood boundary-floodway map, the flood insurance rate map and a technical narrative.

Mitigation: Sustained action taken to reduce or eliminate long-term risk to people and their property from hazards and their effects.

Mobile Home Park (Manufactured Home Park, Manufactured Home Subdivision): A parcel of land divided into two or more manufactured home lots for rent or sale for which the construction of facilities for servicing the lot on which the manufactured home is to be affixed (including, at a minimum, the installation of utilities, either final site grading or the pouring of concrete pads, and the construction of streets) is completed before the effective date of this article. Manufactured Home (Prefabricated Building) is a structure that is transportable in one or more sections, built on a permanent chassis, and designed to be used with or without a permanent foundation when connected to the required utilities.

Special Flood Hazard Area (SFHA): Those lands within the jurisdiction of the city that are subject to inundation by the base flood. The SFHA's of the city are generally identified as such on the Flood Insurance Rate Map of the city prepared by the Federal

Insurance Administration and dated January 16, 1981, as amended, and the Flood Insurance Rate Map of the County of Champaign, dated March 1, 1984.

Shelter: A space where people can survive a tornado or hurricane with little or no injury. Shelter must be adequately anchored to the house foundation to resist overturning and uplift. The connections between all parts of the shelter must be strong enough to resist failure, and the walls, roof, and door must resist penetration by windborne missiles. A shelter located inside the house can be called a “Safe Room”.

URM (Unreinforced Masonry): Unreinforced masonry (URM) buildings consist of structures in which there is no steel reinforcing within a masonry wall. Some cities classify unreinforced infill walls within a reinforced frame as a URM, while others classify unreinforced exterior veneers on to a wood frame as URMs.

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All hazards

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www.colorado.edu/hazards

Tornado

General information about the nature of tornadoes is on

<http://205.156.54.206/om/brochures/tornado.htm>

<http://www.tornadoproject.com/alltorns/iltorn1.htm#C> has history of tornadoes by state and county.

[http://ww2010.atmos.uiuc.edu/\(Gh\)/arch/cases/960419/nxrd/urb.rxml](http://ww2010.atmos.uiuc.edu/(Gh)/arch/cases/960419/nxrd/urb.rxml) has some maps for Illinois.

<http://www.crh.noaa.gov/ilx/torstats.htm>

<http://www.disastercenter.com/illinois/tornado.html>

<http://www.nssl.noaa.gov/~brooks/essays/mobilehome.html> has information on vulnerability of mobile homes.

BOCA international - www.bocai.org

Winter/ice storms

<http://www.sws.uiuc.edu/atmos/statecli/winter.htm>

<http://il.water.usgs.gov/nwis-w/IL/data.components/nmdmap.cgi?statnum=03337000>

Floods

Association of Floodplain Managers - www.floods.org

Illinois Home Study Course - www.illinoisfloods.org

For stream flow data

http://water.usgs.gov/il/nwis/discharge?site_no=03337000&agency_cd=USGS&format=gif

Earthquake

About magnitude – intensity comparison of earthquake

http://www.neic.cr.usgs.gov/neis/general/handouts/mag_vs_int.html

Examples

North Carolina Mitigation Plan -

http://www.dem.dcc.state.nc.us/mitigation/home_protection.htm#flood

Ice storm mitigation – Canada -

<http://www.electricityforum.com/et/May99/ice.html>