

## **Part IV: City/County Capability Assessment**

### **Mitigation Management Policies**

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

### **Existing Plans**

#### ***Christian County Emergency Operations Plan***

Christian County's *Emergency Operation Plan* (EOP), approved by the county commission, includes all-hazard mitigation measures. The EOP identifies facilities and resources that require special security during a disaster; promotes the development and maintenance of mutual aid agreements with nearby agencies; requires participation in drills and exercises; identifies vulnerabilities in the county; includes an evacuation plan. The EOP also includes all-hazard mitigation measures, a drought plan, a plan to deal with animals in emergencies and various other support functions. The plan is reviewed and updated annually and approved by SEMA.

#### ***Christian County Comprehensive Plan***

The *Christian County Comprehensive Plan*, adopted in 1992 and updated in 2009, provides guidance for the future development of the unincorporated areas of Christian County. Several of the goals and objectives in the comprehensive plan related to the physical environment and land use address storm water management and development in environmentally sensitive areas. Strategies identified to protect and preserve the quality of the natural landscape include:

- Encourage preservation of stream drainage ways.
- Discourage development in floodplains and floodways.
- Require soil erosion controls for all new development.
- Protect sinkhole drainage systems from surface grading, filling or other alteration during the land development process.
- Establish storm water regulations in the county's land development controls.

#### ***City of Nixa Comprehensive Plan***

The *2003 Nixa Comprehensive Plan* was originally adopted in 2003 and updated in 2006. It includes future growth boundaries that allow for a reasonable amount of land areas for growth, while also concentrating improvements near the core that achieves a more urban compact form of the community, which promotes a more efficient use of city utilities and service delivery.

Nixa has its own E-911 Center which has been experiencing an ever-increasing call load. The City plans to increase technology budgets and is planning for expansion or remodeling of existing Police, E-911, and other emergency facilities.

### ***City of Ozark Comprehensive Plan***

The *City of Ozark's Comprehensive Plan* was adopted in 1993 and updated in 2007. It applies to all land use and circulation systems, it covers the entire geographic area affected by common challenges of development – including an “Urban Service Area” outside the City, and it is designed to meet long-range planning needs and opportunities in the next 10-20 years; and in some cases, 50 years.

The plan’s underlying purpose is to preserve and enhance investment by all citizens while providing the foundation for quality economic growth and stability; resulting in a safe and healthful environment for future generations; ‘a city that is sustainable.’

## **Mitigation Programs**

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

### ***Tornado***

The National Weather Service monitors atmospheric conditions and issues weather forecasts. When threatening conditions are detected, the Weather Service will issue either a tornado watch to indicate when conditions are favorable for tornadoes to develop, or a tornado warning when a tornado is sighted or indicated by radar. The burden of heeding warnings and taking proper action rests with individual communities and citizens. Local Emergency Management entities have developed effective community warning systems that include: the Reverse 911 system and the IRIS notification system for public safety and government agencies. The County Emergency Management has also developed standards and procedures for Severe Weather response, siren activation and storm spotter activation. Christian County is also designated by the National Weather Service as a “Storm Ready Community”.

### ***Riverine Flooding***

Christian County Emergency Management operations have established a plan for the onset of floods. It contains an extensive plan and management practices for any flood hazards that may affect the entire county or smaller secluded areas. Waterways include the James River, Finley River, and various creeks and branches. Flooding could potentially occur anywhere in the county along these waterways. However, riverine flooding potential in much of Christian County is limited. The most frequent danger is from flash flooding of low water bridges and

crossings. Most of these sites in the county are marked with water depth indicators to warn citizens of the depth of the water.

- a. Protect human life and health and property
- b. National Weather Service will give advanced notice of flooding conditions to the public to minimize loss of life and property
- c. Establish and designate areas to be evacuated
- d. Local authorities will take immediate steps to warn and evacuate citizens
- e. Local authorities will commit available resources before requesting assistance from the next higher level of government
- f. Establish a secure perimeter to limit access to looters and sightseers
- g. Establish shelters and relief services for victims
- h. Establish a search and rescue for those victims where early warning was not effective
- i. Establish a support system for those victims, whom are returned and require assistance with the reestablishment of their homes

### ***Severe Winter Weather***

Utility companies in Christian County engage in right-of-way tree trimming programs to mitigate problems caused by severe winter weather. Tree near power lines are trimmed to prevent ice covered limbs from falling and breaking power lines. Utility companies also have programs for placement of underground utility lines, with such programs implemented through agreements between the utilities and private developers.

### ***Heat Wave/Extreme Cold***

The National Oceanic and Atmospheric Administration (NOAA) outlines safety measures that can be taken and are broadcast during times of excessive heat/cold from local and regional radio and television stations. Information on safety measures is also routinely distributed to the public through the various media serving the county. Christian County Emergency Management has agreements with several area churches and fire stations throughout the county to serve as temporary warming and cooling stations.

### ***Drought***

During times of drought the NOAA monitors precipitation conditions throughout the United States and provides the first warning to the onset of a drought. The NOAA has established guidelines for water conservation, agriculture, and livestock preservation. It is the responsibility of local and regional governmental agencies to alert the public to the onset of drought and conservation practices to alleviate further water depletion. Examples of conservation are based on essential water uses and the *Christian County Emergency Operations Plan* has an outline of essential uses, listed below:

- a. Domestic Use: Water in amounts reasonably needed to sustain human life, and to maintain reasonable standards of hygiene, cleanliness, and sanitation.
- b. Health Care Facilities: Patient care and rehabilitation
- c. Public Use: Firefighting -local authorities should institute a "burn ban" at this time, allowing no outside burning.
- d. Water that is necessary for health and public protection purposes, as specifically approved by the health official and the municipal governing body, should include public water supply and wastewater treatment.
- e. Water is necessary for the operation of electric power generation, essential for the operation of key military facilities the operation of telephone communications, water and wastewater systems and other health-related needs.

### ***Earthquake***

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

- a. Save lives and eliminate hazards which pose an immediate threat
- b. Establish reliable lines of communication between state and federal governmental agencies
- c. Mobilize emergency medical services
- d. Maintain access to and from damaged areas (i.e. debris removal)
- e. Maintain communications and life support systems
- f. Mobilize search and rescue operations
- g. Evacuation of hazardous structures (after inspection)

- h. Establish and maintain public health (potable water and disease control)
- i. Establish and maintain public works (restore utilities)
- j. Open shelters and establish feeding centers for persons unable to return home

### ***Dam Failure***

Dam failure is associated with intense rainfall and prolonged flood conditions. However, dam breaks may also occur during dry periods as a result of progressive erosion of an embankment caused by seepage leaks. Dam failure may also be caused by earthquake. The greatest threat from dam breaks is to areas immediately downstream. The seriously affected population would be located in the potential downstream inundation area as identified by the Corps of Engineers or state agencies.

### ***Wildfires***

The Missouri Department of Conservation works closely with each county by supplying support to prevent wildfires. This support is an outreach program mainly for private property owners on grounds maintenance. The program teaches safe practices for leaf and rubbish burning and clearing the ground around wooded areas. The Department also encourages planting diverse species that are more resistant to fires. The U.S. Forest Service also removes brush and diseased trees from the Mark Twain National forest to mitigate the spread of wildfire.

## **Capabilities and Responsibilities**

Christian County is actively engaged in implementing programs and activities to mitigate the effects of natural disasters on the people of Christian County. The *Christian County Emergency Operations Plan* has a specific outline of emergency functions for most of the departments within the county government. The emergency management organization has set up the following functional lines and definitions:

- **Direction and Control:** To direct and control emergency support personnel from a centralized facility in the event of an emergency.
- **Communications and Warning:** To provide information and guidance concerning available communications and warning capabilities,
- **Emergency Public Information:** to provide the timely release of accurate information in the event of a disaster or emergency.
- **Damage Assessment:** To organize existing personnel and communities so that repair, outside assistance, safety and mitigation efforts are carried out in a timely manner.

- Law Enforcement: To organize local personnel and develop procedures that will enable Christian County and its municipalities to provide Law Enforcement services regardless of the situation.
- Fire and Rescue: To organize local firefighting resources and establish procedures that will enable these resources to meet demands of a disaster situation.
- Resource and Supply: To give local officials the ability to maintain a continuous inventory of resources and to allocate these resources in a prompt and orderly manner.
- Public Works: To organize public works resources so that they will be able to perform the many tasks that is essential to an effective emergency (disaster) response.
- Evacuation: To establish an organization and procedures for evacuation operations.
- In-place Shelter: To establish an option of sheltering residents to protect them from the effects of a disaster that threatens the county.
- Reception and Care: To provide the temporary reception and care of people displaced or evacuated from their residence because of an emergency or disaster situation.
- Health and Medical: To establish an organization and procedures to provide needed health and medical services following a disaster of any type.
- Volunteer Labor: People who are not county employees will volunteer to assist the department. It is Christian County Emergency Management policy to use volunteers, when feasible, to help fulfill the department's post-disaster responsibilities, following a locally declared disaster.
- CERT: Community Emergency Response Teams: are trained to take care of themselves and then help others in their communities for the first three days following a disaster. Christian County Emergency Management actively recruits and trains CERT Volunteers regularly. Currently, the agency has trained over 500 in the CERT Program. Once a person has undergone training in CERT, they are able to become “certified volunteers” in the Citizen Corps program. These volunteers then under go advanced training and regularly volunteer to assist county agencies in various functions. The Citizen Corps program includes the following programs: CERT, Fire Corps, VIPS, Neighborhood Watch, Amateur Radio Services and the Sheriff’s Cadet Program.
- Drought Plan: to address the need for coordinated response and advanced emergency planning. The drought plan outlines proactive strategic and tactical measures designed to better prepare Christian County for drought.
- Animals in Disaster: to provide the safe rescue and return of domesticated animals. This includes livestock as well as pets.

The *Emergency Operations Plan* also has functions for Hazardous Materials Response and Terrorism that are not covered in this mitigation plan. The following sections outline the responsibilities and capabilities of local governments and private and public organizations in Christian County.

### ***County Commission***

The county commission's primary responsibilities are Direction and Control. Emergency Public Information and Public Works are joint responsibilities. The commission also shares the responsibility for Damage Assessment, Resource and Supply, Evacuation, Reception and Care, Volunteer Labor, CERT, and Drought Plan.

### ***Law Enforcement/Sheriff's Department***

The Sheriff's Department has the primary responsibility of Law Enforcement. They share primary responsibility of Evacuation. They also serve as support in the responsibilities of Direction and Control, Communications and Warnings, Emergency Public Information, Damage Assessment, Resource and Supply, In-place Shelter, and Reception and Care. Several organizations provide law enforcement in Christian County and share the burden of all of these tasks.

- Christian County Sheriff's Department
- Ozark Police Department
- Nixa Police Department
- Billings Police Department
- Clever Police Department
- Highlandville Police Department
- Sparta Police Department
- Missouri Highway Patrol
- Missouri National Guard
- Missouri Water Patrol
- Missouri Department of Conservation
- Surrounding Law Enforcement Agencies, including the Taney County Sheriff's Department and the Stone County Sheriff's Department

### ***Common Road Districts/Special Road Districts***

The Christian County Road and Bridge Department, municipal public works departments, and the Special Road Districts have the shared primary responsibility of Damage Assessment, Resource and Supply, and Public Works. They also share responsibilities for support with Direction and Control, Fire and Rescue, In-place Shelter, and Reception and Care. The Christian County Road and Bridge Department, under the supervision of the county commission, is responsible for county roads and bridges in the two Common Road Districts. The municipal public works departments and the special road districts are responsible for the public works activities within their respective jurisdictions and districts. The special road districts operate under the direction of their respective board of commissioners. The Missouri Department of Transportation is responsible for state roads and bridges.

Responsibilities include, but are not limited to, providing for debris removal, making emergency road repairs, and coordinating restoration of utility services, especially for critical and essential facilities. They also assist with search and heavy rescue operations, survey public works damage and report the information to the EOC, and participate in clean-up and recovery activities.

### ***Fire Protection Districts***

The Fire Protection Districts have the primary responsibility of Fire and Rescue and share the responsibility of Communications and Warning, and Damage Assessment. They also are asked to support Direction and Control, Emergency Public Information, Law Enforcement, Resource and Supply, Evacuation, In-place Shelter, Reception and Care, Health and Medical, and CERT.

### ***Emergency Management Director***

The Emergency Management Director has the primary responsibility of CERT and Animals in Disaster. The EMD also has the shared primary responsibility of Communications and Warning, Emergency Public Information, Damage Assessment, Resource and Supply, Evacuation, In-place Shelter, Reception and Care, and Volunteer Labor. The EMD is also to support in the aid of Direction and Control, Law Enforcement, Fire and Rescue, and Health and Medical.

### ***County Health Department***

The county health department has the primary responsibility of Health and Medical. The health department also has the shared primary responsibility of Communications and Warning, Emergency Public Information, In-place Shelter, and Volunteer Labor. They are to support in Direction and Control, Damage Assessment, Resource and Supply, Reception and Care, Drought Plan, and Animals in Disaster.

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

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

### ***County Clerk***

The county clerk is to support in the aid of Direction and Control, Resource and Supply, Evacuation, In-place Shelter, Reception and Care, and Health and Medical.

### ***County Assessor***

The county assessor has the shared primary responsibility of Damage Assessment and is to support in the assistance of Direction and Control and Resource and Supply.

### ***County Coroner***

The county coroner has no primary responsibility but is to assist in the support of Direction and Control, Resource and Supply, and Health and Medical.

### ***Ambulance Services and Hospitals***

The ambulance services and hospitals do not have a primary responsibility but are to aid in the support of Direction and Control, Fire and Rescue, Resource and Supply, and Health and Medical.

Several hospitals serve the Christian County community. These hospitals have developed emergency plans in accordance with State and Federal regulations. Such plans are tested and exercised regularly. Hospital facilities serving Christian County residents include:

- Cox South, 561-bed, full-service care facility, located in Springfield, Greene County.
- St. John's Hospital, 866-bed, state designated Level 1 trauma care facility, located in Springfield, Greene County.
- Cox-Monett, 46-bed community hospital, located in Monett, Lawrence County.
- St. John's Hospital-Aurora, 53-bed community hospital, located in Aurora, Lawrence County.
- Skaggs Community Health Center, 132-bed community hospital, located in Branson, Taney County.

Most of Christian County is part of a tax supported ambulance district which is served by Cox Ambulance Service. The panhandle area of the county, including the Billings and Clever area, is not part of the tax supported district. This area receives ambulance service from Cox Ambulance Service, Cox Paramedics-Republic, and St. John's Paramedics. Air ambulance is provided by Cox Air Care and St. John's Life Line.

### ***Missouri Department of Social Services***

The Missouri Department of Social Services--County Division of Child Services (formerly Division of Family Services), does not have any primary responsibilities, but is to assist in the support of Direction and Control, Resource and Supply, Evacuation, In-place Shelter, and Reception and Care.

### ***American Red Cross***

The Christian County Emergency Operations Plan actually delegates shared primary responsibilities of Resource and Supply, Reception and Care, and Volunteer Labor. They are also to support in the aid of Direction and Control, Damage Assessment, Evacuation, In-place Shelter, Health and Medical, and CERT.

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

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

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

### ***911 Emergency Communications Center/Mobile Command Center***

Christian County's EOP designates the shared primary responsibility of Communications and Warning to the county 911. They are also to support in the aid of Direction and Control, Emergency Public Information, Evacuation, and In-place Shelter. Recently, voters in Christian County voted to consolidate all 911 services into one agency. Currently, there are 3 dispatch centers in the county. In the future, all 3 centers will be integrated into one central dispatch

center. Christian County public safety agencies operated in the VHF radio frequency spectrum. The central dispatch center in Ozark has an 800mghz radio installed to communicate with Greene County dispatch. Christian County has a mobile communications vehicle. This vehicle has communication equipment that can be taken to any location in the county. It also has a portable VHF-800mghz repeater to support and augment communications.

Christian County has gained a reverse 911 system that allows the county to send out important or emergency information directly to affected households, such as tornado warnings. A newly added addition to the system will allow cell phone users to add their contact information via a web page.

### ***Advanced Warning Systems***

Warning systems available in Christian County to provide advanced warning to the public on hazardous weather conditions or other natural hazards include NOAA weather radio broadcasts, outdoor warning sirens and weather spotters.

### **Outdoor Warning Sirens**

The cities of Ozark, Nixa, Billings, Sparta and Clever, and the Nixa Fire Protection District have outdoor warning sirens. These warning devices are activated by the police and fire departments in their respective cities and tested approximately three to four times each year. There are no outdoor warning devices in the rural parts of Christian County and in Fremont Hills. The various fire departments would spread warning to these areas with assistance from police departments and the sheriff's department by using car sirens, bullhorns and/or going door to door. Current outdoor warning sirens in Christian County include:

- City of Billings has one outdoor warning siren activated by the police or fire department.
- City of Clever has one outdoor warning siren activated by the police chief, fire chief or county EMA director.
- City of Nixa has added two storm sirens to bring the total in the city to eight. At the time new sirens were added all units were upgraded to include digital voice messaging.
- Nixa Fire Protection District has eight outdoor warning sirens that are activated through the police and fire Department.
- City of Ozark has five outdoor warning sirens which are activated by radio tone through the city emergency management director, assistant emergency management director, city police and city administrator. The sirens are activated for weather warnings. Sirens can be activated inside Ozark Fire Station #1 individually or all at once.
- City of Sparta has one outdoor warning siren activated by the police chief, fire chief or the county EMA director.

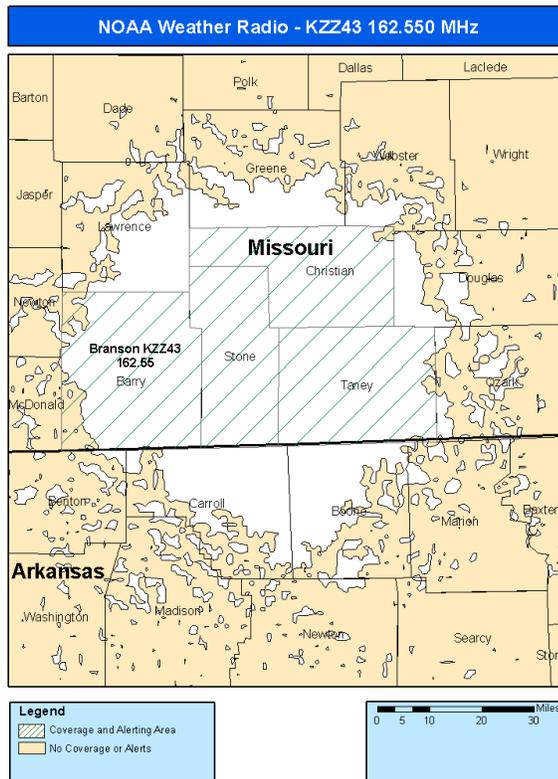
### **NOAA Weather Radios**

Figure 4-1 below shows the availability of NOAA weather radio transmissions from the Branson, Missouri transmission station. The coverage statistics and maps calculated using a computer model and station data assuming ideal conditions. Coverage may be 5 to 10 percent below the computer predicted coverage. As shown on the map, coverage is available to all of Christian County.

**Reverse 911 System**

The Reverse 911 System is a County owned and operated warning communication system housed in the EOC. It consists of a server, proprietary software program and is connected to 18 analog phone lines. The system gets its information from the local telephone company database as well as the county’s GIS system. In the event of an emergency, the user can select recipients by a polygon, circle, by zip code or by many other geographical means. Once selected, a warning message can be sent to all the pre-selected recipients.

**Figure 4-1: NOAA Weather Radio Transmissions Availability**



Source: <http://www.nws.noaa.gov/nwr/Maps/PHP/site.php?State=MO&Site=KZZ43>

**IRIS Notification System**

The IRIS notification system is primarily aimed at public safety agencies and government agencies. County emergency management manages the program and uploads recipient information to the central server. The system can send text messages, e-mails and voice messages to recipients. The system also has the capability to do “mass conference calls” to pre-selected groups.

**Weather Spotters**

The communities of Ozark, Nixa, Billings, Clever, Sparta, Chadwick and Highlandville have weather spotters available through their fire protection districts to monitor severe weather situations in their respective districts from the field. The spotters are stationed at designated locations in their area to monitor and report the weather conditions to the dispatch center. Each district follows guidelines set forth by the National Weather Service regarding reporting

procedures and uses their private channel radio frequency for fire ground communication. Spotters relay reports to an Incident Commander. The incident commander then relays severe reports to Christian County E-911 dispatch who then relays pertinent information to the emergency management director or the National Weather Service as needed. The county Emergency Management Agency has formulated a “Basic Plan for Spotters” that each district has adopted.

### **Citizen Corps Volunteers**

The Citizen Corps program was developed to recruit and train volunteers to assist the community with delivery of emergency services. These volunteers assist with a myriad of activities including: response to emergencies, public relations campaigns, mitigation programs, tradeshow booths and displays, outdoor search and rescues, long term recovery, assistance at special events and other activities.

## **Assessment of Policies and Programs**

### ***Commitments to a Comprehensive Mitigation Program***

Although Christian County does not currently have a comprehensive mitigation program, it is committed to the safety of its residents. The county currently participates in the National Flood Insurance Program and has a floodplain management ordinance, reducing some of the vulnerability to hazard events in flood prone areas. On a comprehensive basis, Christian County also maintains and regularly updates the *Emergency Operations Plan* that includes all-hazard mitigation measures.

Christian County’s commitment to a comprehensive mitigation program is further evidenced by the active engagement of its emergency management agency and emergency services partners in promoting emergency preparedness and implementing mitigation programs and projects. Some of the programs and projects already accomplished or underway include:

- On June 10, 2005, Christian County received recognition from the National Weather Service as a “Storm Ready” community.
- Christian County Emergency Management Agency is one of 16 southwest Missouri counties participating in Project Community Alert (PCA). PCA’s goal is public education and to place 10,000 all-hazard weather radios with S.A.M.E. technology in homes, schools and businesses throughout the region.
- In August 2005, repeaters were obtained to improve communications systems for the Christian County Sheriff’s Department, the City of Chadwick and the City of Sparta.
- On November 8, 2004, Christian County established a Citizens Corps commission, charged with the responsibility to mobilize the citizens of Christian County to volunteer to help prepare for local and national emergencies and to coordinate the activities of the various units of local government and first responders.

- Christian County has purchased a mobile command trailer. It serves as a command post at emergencies and has the ability to be a mobile communications trailer if needed. It is equipped with laptops, printers, fax machine, TV, VHF radios, portable VHF-800mhz repeater and a wireless network.
- As part of the Citizens Corps initiative, the county is conducting on-going Community Emergency Response Team (CERT) training. To date, over 500 volunteers have completed the CERT training.
- Christian County has purchased a CERT trailer for use in disaster response as well as a CERT training trailer that houses the necessary equipment to teach CERT classes at any location.
- Christian County has purchased the Reverse 911 system for another tool to aid in the warning of residents.
- Christian County has purchased the IRIS notification system to quickly contact emergency responders and government agency personnel.
- Christian County has a special needs registry to identify residents with special challenges (such as not being able to drive, requiring advanced medical care, etc.) and to be able meet those challenges in a timelier manner in the event of a disaster.
- Christian County has taken the first steps to comprehensive mitigation as well as procedures to follow in the event of a crisis.

### ***Laws, Regulations, & Policies Related to Development in Hazard-Prone Areas***

The Christian County Commission has adopted a floodplain management ordinance to maintain the county's eligibility for participation in the National Flood Insurance Program (NFIP). The county Planning and Zoning Administrator is designated as the administrator of the Floodplain Management Program. The county's ordinance specifies the requirements for development in identified special flood hazard areas, permit and approval requirements, and penalties for violation of the ordinance.

Christian County's *Emergency Operations Plan* includes a drought plan for the county. The plan was developed to maintain continuity of government throughout the disaster and response to the needs of the community. First, the plan identified essential and nonessential uses of water throughout the county. Second, it discusses conservation methods that would be employed during time of drought. These conservation methods are outlined and discussed in the State Emergency Operations Plan and the State Consolidated Plan.

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

Christian County's *Unified Development Code*, first adopted in January 1993, establish approval procedures and performance standards for land development in the unincorporated areas of the county. Performance standards related to hazard mitigation in general include storm drainage management, plant and groundcover re-vegetation and maintenance, road construction standards, wastewater disposal and water service.

All the incorporated communities, with the exception of the Village of Saddlebrooke, have adopted subdivision regulations which establish procedures for platting and minimum standards for design and installation of public infrastructure. Except for Saddlebrooke and Sparta, all communities have also adopted zoning regulations which regulate land use location and intensity of development.

Christian County has organized a Community Organizations Active in Disaster committee. As part of its long term recovery guidelines, the COAD has adopted guidelines and policies for giving assistance to the victims of disasters. These guidelines stipulate that in order for the victims to receive assistance, they have to agree to carry out certain mitigation activities.

### ***How County Determines Cost-Effectiveness and Manages/Implements Programs***

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

### ***Current Criteria Used to Prioritize Mitigation Funding***

Mitigation funding priority is primarily based upon a combination of anticipated damage and injury/death impacts. It is a current county priority to improve communications systems for emergency management and services personnel and to upgrade low water crossings.

### ***Mitigation Funding Options Including Federal, State, Local, and Private Sources***

Christian County and the incorporated areas have historically relied upon federal disaster declarations in cases of significant widespread damages. Funding sources have included FEMA, SEMA, the Missouri Department of Natural Resources and Department of Economic Development (DED), and various other grant programs. In addition, investments in infrastructures that have mitigating effects have been funded from sources such as local tax revenues.

### ***How Participating Jurisdictions Meet Requirements for Hazard Mitigation Funding***

Local jurisdictions in Christian County primarily meet requirements for hazard mitigation funding through participation in the *Christian County Multi-Jurisdictional Natural Hazards Mitigation Plan*. All FEMA hazard mitigation funding requires sub-applicants to be covered by

an active local hazard mitigation plan. Other funding requirements include participation in the National Flood Insurance Program (NFIP) and implementation of its floodplain management ordinance and development codes.

### ***Recommendations for Improvement***

Recommended improvements include expanding mutual aid agreements among neighboring jurisdictions, locating outdoor warning sirens in areas of population concentration in rural portions of the county, adopting storm water regulations in all jurisdictions, and continuing current efforts to educate the public concerning hazard risks and ways to eliminate or reduce possible adverse impacts.

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

The Missouri Seismic Safety Commission (under Missouri statutes RSMo 44.227, 44.229, 44.231, 44.233, and 44.235) has developed a Strategic Plan for Earthquake Safety in Missouri that contains a number of recommendations for earthquake mitigation. Although Christian County's vulnerability to damages from an earthquake is limited, the Christian County emergency management director may want to consider the possibility of bringing some of these programs to a local venue for public information/education purposes.

***How Local Risk Assessments are Incorporated into Local Planning Mechanisms***

The *Christian County Emergency Operations Plan* outlines the departments and entities responsible for implementing plans, actions and specific duties prescribed in the EOP. The Christian County Commission has overall responsibility for integration of hazard mitigation into county plans. The county emergency management director advises the commission on hazard mitigation and coordinates those activities with the various county organizations and municipal emergency management organizations. The Emergency Management Agency meets regularly with the various organizations and municipal entities in the county. The local emergency planning committee also meets quarterly to address mitigation activities.

The most notable local planning mechanism is a community’s comprehensive or master plan. The purpose of the comprehensive plan is goal oriented document that serves as a policy guide for the future growth and physical development of the community. The plan itself is not law but serves as the foundation for further ordinances and regulations necessary to implement the plan. The mechanisms for implementing the comprehensive plan are zoning ordinances, subdivision regulations, building codes, storm water and floodplain management regulations and capital improvement programs.

The review, revision, update and adoption of local government land use controls, as listed above, serve as the process by which multi-jurisdictional risk assessments are integrated into local planning mechanisms that are ultimately administered through site plan review, evaluation of development and redevelopment proposals and resource allocation for local government. Table 4-1 and Table 4-2 list the plans and land development regulations adopted by the incorporated communities in Christian County.

The local government floodplain management ordinance and development code provide the primary means for incorporating risk assessment and mitigation into local planning. Stormwater regulations and building codes are also in effect in the county and several of the incorporated communities. In terms of school districts, long-range strategic, facilities, storm sheltering and evacuation plans are the mechanisms through which jurisdictional risk assessments are incorporated.

<b>Jurisdiction</b>	<b>Master Plan</b>	<b>Zoning</b>	<b>Building Code</b>	<b>Earthquake Design</b>	<b>Subdivision Regulations</b>	<b>Stormwater Regulations</b>	<b>Floodplain Regulations</b>
Billings	Yes	Yes	Yes	No	Yes	Yes	No
Clever	Yes	Yes	Yes	No	Yes	Yes	Yes
Fremont Hills	No	Yes	Yes	No	Yes	Yes	Yes
Highlandville	Yes	Yes	Yes	No	Yes	Yes	Yes
Nixa	Yes	Yes	Yes	No	Yes	Yes	Yes
Ozark	Yes	Yes	Yes	No	Yes	Yes	Yes
Sparta	No	No	No	No	Yes	Yes	No

<b>Table 4-2: Christian County Capability Assessment</b>			
<b>Policies and Programs (ex. Zoning Ordinance)</b>	<b>Document Reference (ex. Comprehensive Plan &amp; page number)</b>	<b>Effectiveness for Mitigation (ex. low, medium, high)</b>	<b>Rationale for Effectiveness (ex. low because allows development in floodplain)</b>
Floodplain Management	Christian County Floodplain Management Ordinance Adopted 3/15/1999	High	New construction and improvements not allowed without mitigation requirements.
Flood Insurance	National Flood Insurance Program Entry into Regular Program 4/01/2004	High	The county administers and participates in the NFIP.
Zoning and Subdivision Regulations	Unified Development Codes Amended and adopted July 2010	Medium	Performance standards for infrastructure development have been amended to improve compatibility with standards adopted by the municipalities.
Multi-Hazard Emergency Plan	Christian County Emergency Operations Plan	High	Plan includes effective strategies for mitigation and EMA actively engaged in public preparedness education and training. Need support tools such as storm water regulations.
Building Regulations	IBC 2006	Medium	Building Regulations require that homes built in floodplains have their footings placed one foot above floodplain elevation and require “break away” walls in order to limit damage caused by a current of water
Stormwater Regulations	N/A	Low	Christian County storm water and erosion control regulations require construction of detention/ sedimentation basins shall be completed prior to any work on the site, including clearing & grubbing for new construction.

### ***How Local Jurisdictions Have Incorporated Mitigation Strategies and Risk Assessment into Planning Mechanisms***

After adopting the original *2005 Christian County Natural Hazards Mitigation Plan*, several mitigation strategies and risk assessment have been incorporated into planning mechanisms. The Cities of Highlandville and Fremont Hills have become participants in the NFIP and have adopted floodplain management regulations. The City of Nixa requires the identification and inspection by a certified geologist of sink holes on site plans before permitting the proposed construction of any use greater than one single family dwelling. All incorporated communities and the County, with the exception of the Village of Saddlebrooke, have adopted stormwater regulations for new development which are incorporated into either the subdivision regulations or in separate public infrastructure design standards to control runoff and erosion in areas outside of the 100 year floodplain.

Rapid urbanization in north central Christian County is significantly affecting the cities of Nixa, Ozark and Fremont Hills. Nixa and Ozark in particular have seen substantial population growth since the early 1990s and corresponding expansion of their municipal boundaries through annexation. The City of Fremont Hills, which lies between Nixa and Ozark, is also experiencing development within newly annexed areas and around its perimeter. Storm water management is also a priority concern for Nixa and Ozark. Both communities have recently updated elements of their zoning and/or subdivision regulations to mitigate the impact of excessive storm water runoff. Christian County has implemented a storm water and erosion control program to mitigate the impact of flash flooding and improve water quality throughout the development process and unified development code, which also applies to the City of Fremont Hills through an intergovernmental agreement.

In addition, with the exception of the cities of Clever, Billings and Sparta, all incorporated areas have adopted the latest edition (2006) of the International Building Code. OTC Richwood Valley Campus, Clever Schools and Nixa Schools have incorporated safe room design standards for recently or planned construction of new facilities.