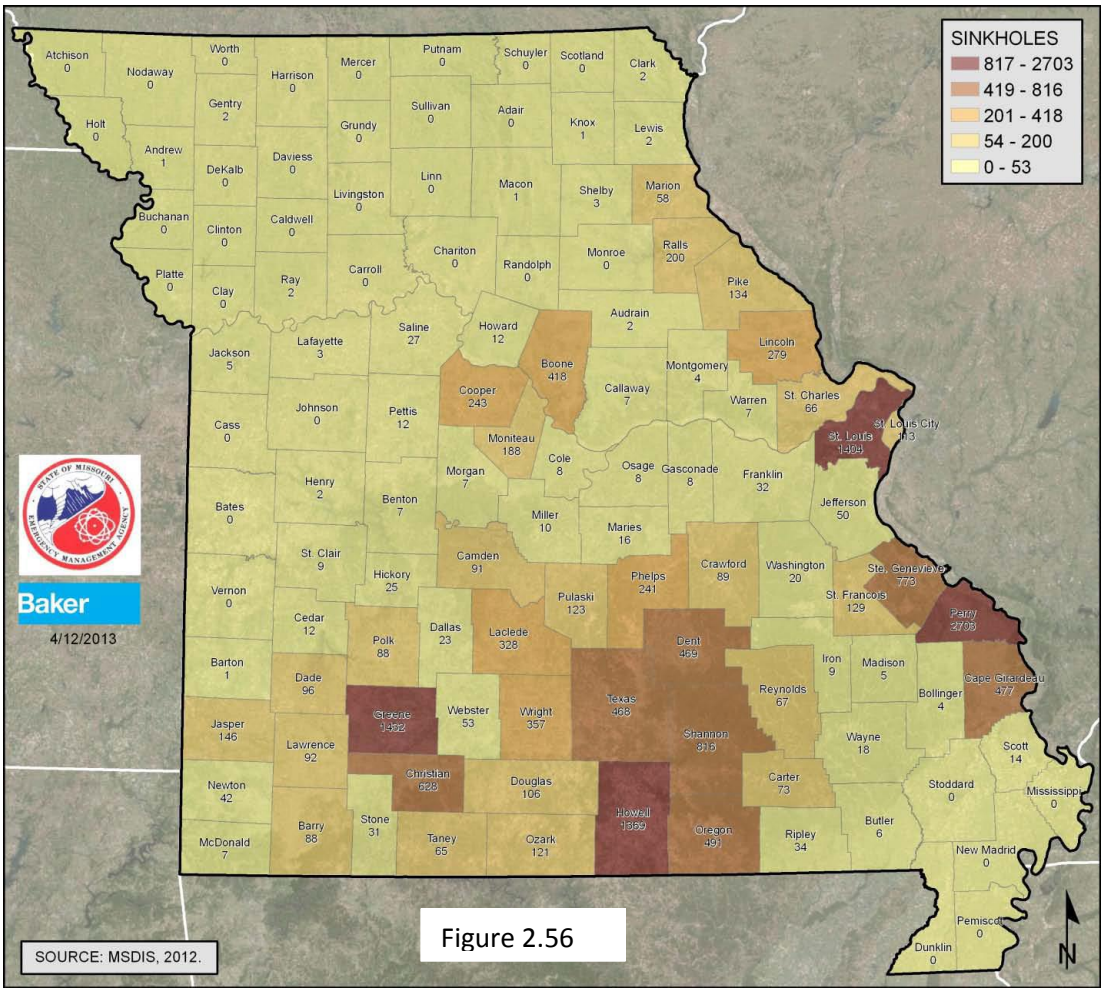

Figure 2.56

Vulnerability

The risk of sinkholes in the two-county region and their jurisdictions is fairly significant, particularly when compared with other areas of the state and the nation (Figure 2.56). Sinkholes are most likely to occur in areas associated with mining, particularly the southwest region of Jasper County, the northeast region of Newton County, and the City of Granby. The data for sinkholes at this time is insufficient to craft a successful loss model. For the purposes of this plan and based on the vulnerability assessment completed by the State of Missouri, it is estimated that less than 1% of any given jurisdiction may be at risk for losses related to sinkholes due to their restricted locations. Resulting damages would most likely be light, weighing in at less than 2% for any impacted land or structure. Only jurisdictions with identified mines have been included in this assessment for potential damages.

Section 3 - City / County Capability Assessment

Mitigation Management Policies

The Joplin/Jasper County Emergency Management Agency and the Newton County Emergency Management Agency are in charge of preparation for emergency and/or disastrous incidents and events. This duty includes the writing of Emergency Operations Plans (EOPs), coordinating intergovernmental emergency response and preparedness agencies, and implementing measures identified in the EOPs that increase preparedness and reduce response times. Both agencies encourage the cooperation and participation of jurisdictions, county agencies, and neighboring jurisdictions for all disaster responses and preparedness measures.

The Emergency Managements Director (EMD) in each county answers directly to their respective County Commission and are responsible for coordinating emergency response efforts between the various municipalities, county organizations, interested private parties, and volunteer organizations. The EMD's duties include:

- Plan, organize, and direct County's emergency management plan with other government and business officials.
- Outreach, including speaking before various groups to promote interest and cooperation in emergency situations.
- Advise and assist businesses and industries with emergency management programs.
- Meet with state and federal officials to coordinate County program.
- Prepare necessary documentation for affected agencies.
- Responsible for co-sponsoring the planning and coordination of disaster drills.

Additionally, the EMDs, working with others, advise the County Commissions on mitigation measures and implementing those measures deemed appropriate by the Commission. Each county also utilizes a Local Emergency Planning Committee (LEPC), which meets quarterly, to facilitate disaster preparedness and response.

Existing Emergency Plans

The Emergency Operation Plan (EOP) of each county is approved by its respective County Commission. The plan identifies critical facilities and key resources that require special consideration during a disaster, identifies key offices and personnel, defines the scope and responsibilities involved in mutual aid agreements with neighboring jurisdictions, promotes the development and maintenance of mutual aid agreements with nearby agencies, and requires participation in drills and exercises. In addition, each EOP identifies vulnerabilities in the county relating to civic infrastructure, particularly transportation, water, and wastewater facilities. Each plan also includes an evacuation plan should the need arise. During a natural hazard event, the EOP provides detailed information to emergency responders.

The National Incident Management System (NIMS) has been adopted by both Jasper and

Newton Counties as well as all cities and villages within the County. All emergency responses to disasters, large or small, are conducted utilizing NIMS procedures.

A number of Emergency Operations Plans exist in the two-county region beyond the county plan. Local school districts, Missouri Southern State University, Ozark Christian College, Crowder College, Vatterott College, Newton County Health Department, Jasper County Health Department, Mercy Hospital, Freeman Health Systems, and a number of large manufacturers have also developed EOPs. Many of these agencies and organizations participate in the county's LEPC group quarterly.

Many cities have developed comprehensive plans which reference the county's Hazard Mitigation Plan. All entities have budgets and implement their plans minimally through the budget process, adding in additional costs for implementation of the Hazard Mitigation Plan actions from their council approved action list.

Mitigation Programs

Mitigation entails taking actions to lessen or eliminate injury, loss of life, and property damage from natural hazards. The most common types of disasters historically are regional occurrences such as flooding, thunderstorms, and tornadoes. As such, the majority of each county's mitigation efforts focus on floodplain management, efficient warning systems, and public education towards disaster preparedness.

The first Jasper and Newton County Natural Hazards mitigation plans were adopted in 2005, with an update for each plan completed in 2010. Since the adoption of the initial plan, a number of mitigation efforts have been implemented:

- Following the 2011 tornado, tornado safe rooms were installed or are currently being installed in nearly every school in the two-county region.
- Both Jasper County and Newton County receive National Weather Service (NWS) warnings, and each county's sheriff department is staffed on a 24-hour basis by dispatch personnel. Warning equipment is limited to some municipalities and the means used to alert each respective community varies. For those outside of the incorporated areas, the use of local media remains prevalent as an effective warning system. The distribution, sale, and use of NOAA weather radios has also been pursued on multiple occasions within the two counties.
- Each county works collaboratively with all municipalities in identifying critical infrastructure as well as high-risk populations during hazard events in each incorporated area. Information is continuously shared regarding any / all natural threats with those entities that are responsible for hazard response and mitigation.
- Each county works with local media (newspapers, radio, cable providers, and Internet service providers) to both provide information to the public and highlight potential disasters in an effort to raise public awareness about natural hazards and the planned responses. Various trainings, including weather spotting courses, are routinely offered to help mitigate the effects of severe weather upon the county's citizenry.
- Community Emergency Response Team training for the general public has been a

continuous effort in both counties. This program has been very effective in increasing public awareness and preparedness by providing training in first aid, basic firefighting, basic search and rescue, and disaster psychology.

- Each EMD keeps a working reference library of all materials regarding disaster response and natural hazard mitigation plans. The reference material is freely shared with the public as well as interested municipal officials
- Flood insurance policies are available to citizens of Jasper County and Newton County, as well as the jurisdictions mentioned in Sections 1 and 2, through participation in the NFIP. All citizens are encouraged to choose building sites outside of the 100 year flood plain. Those wishing to build structures in the 100 year floodplain must meet the established floodplain regulations to elevate structures one foot above the base flood elevation (BFE).

City/County Capabilities

The Emergency Operations Center (EOC) in Jasper County is located in Joplin, while the Newton County EOC is located in Neosho. Both EOCs meet FEMA established guidelines for such a center. In addition, each county's Sheriff's Department and other relevant county government offices can be found in the same physical vicinity as the EOC. Readiness capability is tested annually through simulated disasters and tabletop exercises for emergencies unique to the area which provide analysis and instruction for participating partners. Local risk assessments are incorporated into the Local Emergency Operations Plan and factored into these planned exercises throughout the year. Local planning incorporates risk assessments as they are identified.

The EOC has survivable communications from primary and secondary forces. The Emergency Alert System, commercial and public broadcast stations, SEMA, adjacent jurisdictions, incorporated areas within the two county region, and MoDOT all work together to create a communications system that is effective during a hazard event. The communications and warning equipment in each city are tested on a scheduled basis. Neither Jasper nor Newton County currently have any of their own warning sirens, but warning sirens are located in communities throughout the counties.

The cities and county have extensive communication abilities, both fixed and mobile, to coordinate the scene of an emergency. Mobile communication between departments is limited, but the Regional Homeland Security Oversight Committee (RHSOC) and Southwest MODOT district have mobile communication equipment which is available to enable interoperability between departments.

Responsibilities and Authorities

The chief elected official (CEO) is ultimately responsible for emergency management activities within the jurisdiction. He/she is responsible for activities in unincorporated areas. The CEO in both Jasper and Newton counties is the presiding commissioner, while the chief elected official for municipalities is the mayor or chairman. The CEO of each

municipality has a similar responsibility within their corporate boundaries. The commissioner's authority may never supersede the authority of those elected officials in municipal areas unless asked to do so by local citizens, the municipal government structure becomes incapacitated, or granted such authority by the Governor. Using these definitions, the Presiding Commissioner has the legal basis for the following:

- Authorization to order an evacuation
- Redirection of funds for emergency use
- Order a curfew
- Commandeer facilities and/or equipment and materials
- Oversee authorized lines of succession for the CEOs
- Ensure records protection
- Analyze the possible impacts of potential disasters
- Approve the multi-hazard emergency operations plan,
- Approval mutual aid agreements with neighboring jurisdictions
- Protection of people with special needs.

The Governor of Missouri, SEMA, and FEMA may supersede the local CEO.

Intergovernmental and Interagency Coordination

The Jasper County and Newton County Local Emergency Planning Committees (LEPC) meet quarterly and serve to maintain coordination among fire, law enforcement, emergency medical, and public health officers from the county, incorporated areas, and adjacent jurisdictions. LEPCs are crucial to the success of Emergency Planning. The LEPCs are appointed by the State Emergency Response Commissions (SERCs). LEPC committees must consist of representatives of all of the following groups and organizations:

- elected state and local officials
- law enforcement
- civil defense
- firefighting
- first aid and health
- local groups
- representatives of facilities subject to the emergency planning and community right-to-know requirements.

In Missouri, the SERC is known as the Missouri Emergency Response Commission, or MERC.

The LEPC's initial task was to develop an emergency plan to prepare for and respond to chemical emergencies. The Environmental Protection Agency's list of extremely hazardous substances provides focus for setting priorities. The plan must be annually reviewed, tested, and updated. Because the LEPC's members represent the community, they are to be familiar with factors that affect public safety, the environment, and the economy of the community.

An emergency plan must include the identity and location of hazardous materials,

procedures for immediate response to chemical accidents, ways to notify the public about actions they must take, names of coordinators at plants, testing schedules, and procedures for testing the plan. The MERC reviews the plan, and the LEPC must test the plan through emergency exercises. The plan must also be updated at least annually.

Along with EOP maintenance, the LEPC receives emergency release and hazardous chemical inventory information submitted by local facilities. The LEPC must make this information available upon request. LEPCs have the authority to request additional information from the facilities for their own planning purposes or on behalf of others. In addition, LEPCs may visit facilities in the community to assess existing methods of reducing hazards, preparing for accidents, and reducing hazardous inventories and releases. Finally, LEPCs may take civil action against facilities if they fail to provide the information required under the act.

In addition to its formal responsibilities, the LEPC serves as a focal point in the community for information and discussions about hazardous substances, emergency planning, and health/environmental risks due to hazardous substances. The LEPC can most effectively carry out its responsibilities as a community forum by taking steps to educate the public about chemical risks, and working with facilities to minimize those risks. However, the LEPC's ability to improve the safety and health of its community is only as effective as the support it receives from an informed and active citizenry.

While each county has its own independent LEPC, the Jasper County LEPC and the Newton County LEPC often work in conjunction and cooperation with one another, particularly during disaster events.

County Policies and Development Trends

Commitments to a Comprehensive Mitigation Program

Jasper County and Newton County have a history of striving to protect the life and property of the public. In the aftermath of the 2011 tornado, both counties have strengthened mitigation measures and policies as well as response coordination. This is best evidenced by the continued cooperation between the two counties in planning and disaster response.

Jasper County and Newton County implemented their first natural hazards mitigation plan in 2010. An update was completed in 2010. The 2015 revision of the plan seeks to further decrease the impact of natural hazards through continued and improved mitigation efforts. Existing programs, such as the county's participation in the National Flood Insurance Program and building of tornado safe rooms, reduce some of this vulnerability, but a comprehensive mitigation strategy which is incorporated into all aspects of planning may help to decrease the overall impact of a natural hazard occurrence.

On a comprehensive basis, both Jasper County and Newton County maintain and regularly update the Emergency Operation Plans that includes mitigation measures for all hazards,

both natural and manmade. In addition, the counties have demonstrated a desire to safeguard the lives and property of their residents by completing this hazard mitigation plan.

County Laws, Regulations, and Policies Related to Development in Hazard Prone Areas

As part of NFIP participation, floodplain regulations exist in the unincorporated areas of Jasper and Newton Counties as well as the cities of Airport Drive, Carl Junction, Carthage, Duenweg, Duquesne, Granby, Joplin, Loma Linda, Neosho, Oronogo, Redings Mill, Saginaw, Sarcoxie, Seneca, and Webb City. Any new construction in the floodplain requires structures to be elevated a minimum of one foot above the base flood elevation, but it is the general policy of each local government to discourage building in flood-prone areas.

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

Each county has both floodplain ordinances and stormwater regulations. Each floodplain ordinance is based on policies to protect the general welfare and health of county residents and visitors. The ordinances are designed to safeguard health, safety, and property in times of flood by regulating construction in the floodplain. Stormwater regulations are designed to minimize the negative effects of stormwater runoff caused by development. The regulations outline proper mitigation measures for erosion, detention, discharge, and conveyance of stormwater.

Jasper County has also established an Environmental Contamination ordinance based upon recommendations of the Environmental Protection Agency in areas of Superfund cleanup. The ordinance requires soil testing for regulated contaminants on Superfund designated properties associated with new construction of a dwelling, dwelling unit, or other child-occupied facility or recreational area. The ordinance also requires that all existing wells be tested for metals when the property is transferred or sold. One such site is the tri-state Oronogo-Duenweg Mining Belt. Composed of 6,400 acres and impacting a population of 10,000, the area is spotted with mine shafts, waste piles, and abandoned underground mines. Water in the region has been found to contain lead and four toxic chemicals have been identified.[27] Many of the cities in the two-county region have ordinances in place as well regarding planning and zoning, floodplain regulations, and stormwater regulation (see Table 3.1).

How Local Risk Assessments are Incorporated and Prioritized into Local Planning

Jasper County and Newton County have recognized the danger and detrimental economic impact of severe storms and other natural disasters. Local risk assessments direct and guide the planning process dependent upon available funding and immediacy of need. Those hazards which are deemed to be high risk for each county are continuously assessed and addressed through the local emergency management director. Mid- and lower-level hazards are included in the mitigation planning, but addressed on a funding-contingent

[27] http://www.thedailybeast.com/articles/2010/05/19/americas-28-most-polluted-places.html

basis. The county works closely with schools and businesses to prepare for all types of natural disasters (i.e. tornados, blizzards, floods).

Current Criteria Used to Prioritize Mitigation Funding

Mitigation funding is based primarily upon the combination of expected damage, death/injury impacts, scope of public benefit, and available funding. For example, buildings without appropriate storm shelters will receive special mitigation consideration when the county prioritizes mitigation projects.

Another facet of each counties' mitigation concerns is development pressure. Economic development in and around higher-density areas provides greater access to infrastructures and emergency measures. The availability of services allows local governments to expand emergency services with little or no cost. Out-lying development requires more monetary consideration regarding infrastructure and the need for efficient emergency services.

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

Each county's EOP dictates that there shall be representation from all local fire departments, law enforcement, emergency medical, and health services agencies in the LEPC. Members of these organizations were also vital in creating the Jasper-Newton Bi-County Hazard Mitigation Committee. Each individual office within the county government has a specific role to play in disaster planning. The two-county region's cities rely on their county's EOP, but some have devised their own EOPs based on the county plan. These EOPs call for extensive consideration of emergency response and preparedness. Their intentions are reflected in city and county buildings, development, street, signage, land use, and floodplain codes and ordinances.

Other planning mechanisms under local jurisdictions are updated as needed. The governing bodies of each jurisdiction will encourage all other relevant planning groups and local school districts within their authority to coordinate mitigation efforts through the LEPC and in consultation with the Jasper-Newton Bi-county Hazard Mitigation Plan. A list of the two-county region's jurisdictions and relevant planning mechanisms is presented as Table 3.1. Each of the region's school districts incorporates mitigation as part of their all-hazard plans as well, holding regular fire and tornado drills as well as educating students, parents or guardians, and staff about procedures in place for disaster events.

How the County Determines Cost-Effectiveness of Mitigation Programs

The State's administrative plan governs how projects are selected for funding. However, proposed projects must meet certain minimum criteria. These criteria are designed to ensure that the most cost-effective and appropriate projects are selected for funding. Both the law and the regulations require that the projects are part of an overall mitigation strategy for the disaster area.

The State prioritizes and selects project applications developed and submitted by local jurisdictions. The State forwards applications consistent with State mitigation planning objectives to FEMA for eligibility review. Funding for this grant program is limited and States and local communities must make difficult decisions as to the most effective use of grant funds.

Each county examines each mitigation program on a case-by-case basis. The determination depends on 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. FEMA-funded mitigation projects must meet the benefit/cost analysis criteria required by FEMA. FEMA has established five issues a community must consider when determining the eligibility of a proposed project:

- Does your project conform to your State's Hazard Mitigation Plan?
- Does your project provide a beneficial impact on the disaster area?
- Does your application meet the environmental requirements?
- Does your project solve a problem independently?
- Is your project cost-effective?

Mitigation programs for Jasper County and Newton County have included a wide variety of projects, including public education, information and specialized training for first responders, and brick-and-mortar projects like tornado safe rooms. The cost for the first two types of mitigation projects is relatively minimal, but has a wide impact potential. Brick-and-mortar projects, however, must consider the impacted population, project cost, and likelihood of recurrence. Cost-effectiveness, like mitigation prioritization, is determined by identifying the number of citizens susceptible to the appropriate hazard in the county and correlating the likelihood of that disaster to the potential losses. Potential losses from an unmitigated hazard are compared with the potential losses expected after mitigation. This monetary amount is then considered in light of the number of citizens which may be impacted by the mitigation effort. The larger the identified population, the better the cost- effectiveness of the action. In summation, each county prioritizes mitigation funding based on the likelihood of occurrence of a particular disaster compared to the expected dollar (property) loss and harm to humans.

Mitigation Funding Options Including Current and Potential Sources of Federal, State, Local, and Private

Jasper and Newton counties and their incorporated areas have historically relied upon federal disaster declarations in cases of heavy widespread damages. Historic sources of response and recovery funding have included: FEMA, SEMA, USDA-Rural Development, the Missouri Department of Natural Resources, Department of Economic Development (DED), and various other grant programs. In addition, investments in infrastructure with mitigating effects have been funded from sources such as local tax revenues.

Since the 2010 updates to the Jasper and Newton county plans, both counties have been successful in utilizing grant funding to help expand their readiness for natural disasters.

The installation of tornado saferooms, enhancements to communications, and public education and awareness campaigns regarding hazard mitigation continue to be important in encouraging residents to pay for mitigation activities. A complete listing of possible state and federal grants is included in Appendix C.

How County Government Meets Requirements for Hazard Mitigation Funding Programs

Each county's EOP and municipalities work towards meeting the requirements set forth by both FEMA and SEMA in regards to Hazard Mitigation funding programs. Jasper County and Newton County continually strive to become more disaster resistant and they encourage local governments to decrease their vulnerability to disasters through early warning systems, joint planning, and other preparation efforts. Both counties and their jurisdictions have successfully utilized federal and state grant funds in the past for a variety of projects including mitigation funds for tornado saferooms and communication enhancements. The counties have several capable full-time administrators with extensive knowledge in using federal dollars in a manner consistent with federal law. Jasper and Newton counties have worked collaboratively with SEMA and FEMA during times of disaster response in the past. Therefore, both counties have both the administrative capacity and willingness to meet all necessary requirements associated with hazard mitigation funding programs.

Recommendations for Improvement

During the course of three planning meetings, the Jasper-Newton County Hazard Mitigation Committee identified a number of recommendations for improving mitigation efforts in both the local jurisdictions and countywide.

Recommended improvements include expanded public education programs particularly encompassing sheltering in place, working towards Storm Ready status, and the expansion of stormwater regulations. Formalization of mutual aid agreements, expanded or improved outdoor warning systems, back-up residential electrical generators, promoting drought-resistant farming techniques, and designing methods to reduce impervious surfaces are all improvement techniques the counties may implement in the future.

Jasper and Newton counties will continue to comply with and implement the regulations of the NFIP. The implementation of the NFIP creates a need for floodplain policy and management. In addition, working with MoDNR to promote dam maintenance and increasing education to the general public are ways to begin mitigating possible damage.

One method of helping communities respond to disasters is to ask Missouri's Structural Assessment and Visual Evaluation (SAVE) Coalition for assistance. SAVE facilitates the use of volunteer engineers, architects, and qualified building inspectors who perform damage assessments of homes following disasters such as earthquakes, floods, and tornadoes. The SAVE Coalition can provide sound advice to communities and citizens concerning the safety of returning to their homes following a disaster, with the added intent

of minimizing the need for sheltering by allowing people back to their homes as soon as safely feasible.

The Missouri Seismic Safety Commission (under Missouri statutes RSMo 44.227, 44.229, 44.231, 44.223, and 44.235) has developed a Strategic Plan for Earthquake Safety in Missouri that contains a number of recommendations for earthquake mitigation. The commission also sponsors Earthquake Awareness activities each year, including exhibitions at the State Capitol. The Jasper-Newton Bi-County Hazard Mitigation Committee may investigate bringing these programs to a local venue in the future.

Municipal Policies and Development Trends

Jasper and Newton counties have continued to grow in population during the last 50 years, unlike many counties in Missouri. Most of the local jurisdictions have also witnessed continued growth, though there are a few exceptions. (See Section 1 for demographic information.) The primary source for growth in the two-county region is largely centered in the city of Joplin, its suburbs, and the county seats of Neosho (Newton County) and Carthage (Jasper County). With a strong commercial base, expanded manufacturing, a number of higher education institutions, multiple hospitals, the two-county region continues to develop new housing and witness new business ventures. Each municipality is responsible for developing its own respective regulations regarding the construction of new structures, subdivision development, and any new annexation. Information concerning land use, zoning, and other types of municipal planning is summarized in Table 3.1.

Community Policies and Development Trends

Table 3.1 Community Regulations

Jurisdiction	Master Plan	Zoning	Building Codes	EOP	Subdivision Regulations	Storm Water Regulations	Flood Plain Regulations
Jasper County	Yes	Yes	NO	Yes	No	No	Yes
Airport Drive	Yes	Yes	Yes	No	Yes	Yes	Yes
Alba	No	Yes	Yes	No	Yes	No	No
Asbury	Yes	No	Yes	No	No	No	No
Avilla	No	No	No	No	No	No	No
Brooklyn Heights	No	No	No	No	No	No	No
Carl Junction	Yes	Yes	Yes	No	Yes	Yes	Yes
Carterville	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Carthage	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Carytown	Yes	No	No	No	No	No	No
Duenweg	Yes	Yes	Yes	Yes	No	Yes	Yes
Duquesne	No	Yes	Yes	Yes	Yes	Yes	No
Fidelity	No	No	No	No	No	No	No
Jasper	No	Yes	Yes	Yes	Yes	Yes	No
Joplin	Yes	Yes	Yes	Yes	Yes	Yes	Yes
La Russell	No	No	No	No	No	No	No
Neck City	No	No	No	No	No	No	Yes
Oronogo	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Purcell	No	No	No	No	No	No	No
Reeds	No	No	No	No	No	No	No
Sarcoxie	Yes	No	Yes	Yes	No	No	Yes
Waco	No	No	No	No	No	No	No
Webb City	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Newton County	No	No	No	No	No	No	No
Cliff Village	No	Yes	Yes	No	No	No	No
Dennis Acres	No	No	Yes	No	No	Yes	Yes
Diamond	No	Yes	Yes	No	Yes	Yes	No
Fairview	No	No	No	No	No	No	No
Granby	No	No	No	No	Yes	No	Yes
Grand Falls Plaza	No	No	Yes	No	No	No	Yes
Joplin	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Leawood	Yes	Yes	Yes	No	No	Yes	Yes
Loma Linda	No	Yes	Yes	No	No	No	No
Neosho	Yes	Yes	Yes	No	Yes	Yes	Yes
Newtonia	No	Yes	No	No	No	No	Yes
Redings Mill	No	No	Yes	No	No	No	Yes
Ritchey	No	No	No	No	No	No	No
Saginaw	No	Yes	Yes	No	Yes	No	Yes
Seneca	No	Yes	Yes	No	Yes	No	Yes
Shoal Creek Drive	No	Yes	Yes	No	No	No	No
Shoal Creek Estates	No	No	Yes	No	No	No	No
Stark City	No	No	No	No	No	No	No
Stella	Yes	No	No	No	No	No	No
Wentworth	No	No	No	No	No	No	No

Section 4 – Mitigation Strategy

Introduction to Mitigation

Disasters occur somewhere every day. Floods, hurricanes, fires, ice storms, earthquakes, and tornadoes are just a few examples of natural calamities that have the potential for large-scale negative effects on a community. To be sure, some of the aforementioned events are much more likely to occur somewhere far from the Midwestern United States. However, many from the same list have occurred in rural northwest Missouri. Disasters occur when human activity and development meets with sudden destruction due to natural or man-made occurrences. Certainly, these occurrences are not avoidable; however, there can be steps taken that will lessen the effects of the disaster or nullify them altogether. For example, building a flood wall around a business, raising the structure's foundation, or moving out of the floodplain altogether would certainly reduce or remove the damage potential associated with flooding to that particular building. Flooding cannot be prevented, but managing its results can be achieved with some forethought and planning.

Definition of Mitigation

The Federal Emergency Management Agency (FEMA) defines mitigation as "sustained action taken to reduce or eliminate the long-term risk to people and property from hazards and their effects." The jurisdictions within Jasper County and Newton County that participated in this process have the goal of taking the appropriate level of mitigation actions to meet their responsibilities for the health and safety of the residents of their counties. The goals of disaster mitigation planning, like those of disaster preparedness and disaster response, are to reduce or eliminate loss of lives and property in the next event. The first action that is necessary to reduce the effects of a disaster is the preparation and implementation of a mitigation strategy. This strategy encompasses recognition that mitigation costs are ultimately more cost-effective than disaster losses. "Cost" indicates an investment that can or may be recouped and "loss" are those expenses that will never be recovered.

Categories of Mitigation

Mitigation includes any activities that prevent an emergency, reduce the occurrence of emergencies, or lessen their damaging effects. Efforts by federal, state, and local governments can restrict development in vulnerable areas, direct new development to less vulnerable areas, and promote ways to safeguard existing development in hazard-prone areas. Individuals can also participate by practicing sound personal safety and property damage prevention measures. Actions to reduce or eliminate injury, loss of life, and property damage from natural or man-made disasters must consider the characteristics of the hazard, human activity and development in the hazard area, and cost effectiveness. The most basic type of mitigation is avoidance of the convergence of spatially predictable natural hazards and human activity and development. For example, disasters caused by

flooding can be reduced or completely avoided by limiting or regulating development and human activity in areas known to be flood prone. Another approach to mitigation includes recognizing that some hazards do not occur in predictable intervals or spatial areas like floods. Consequently, mitigation efforts should produce development guidelines that result in a reduced exposure to natural disasters. For example, building codes that require retrofitting buildings with reinforced roofs to withstand high winds is a regulatory mitigation action that will reduce the number of high-wind damage claims in an area. Another example strategy may include shielding highly developed areas from the hazard, thus deflecting its detrimental effects away from the area of high-intensity development and investment to areas of less human activity. An example of this strategy would include flood retention walls and lessening flow restrictions.

There are six categories of mitigation that can produce safer environments:

Prevention: Prevention tools include regulatory methods such as: planning and zoning, building regulations, open space planning, land development regulations, and stormwater management.

Property Protection: Property protection measures reduce the risk of building damage through acquisition of land, relocation of buildings, modification of at-risk structures, and flood proofing at-risk structures.

Natural Resource Protection: Natural resource protection can reduce hazard impacts through measures such as erosion and sediment control or wetlands protection.

Emergency Services: Emergency services measures include: warning, response capacity, critical facilities protection, and health and safety measures.

Structural Projects: Structural mitigation controls natural hazards through projects such as reservoirs, levees, diversions, channel modifications, and storm sewers.

Public Information: Public information includes providing hazard maps and information, outreach programs, real estate disclosure, technical assistance, and education.

Mitigation versus Preparedness, Response, and Recovery

Mitigation involves any activity that manipulates the human environment or affects development in an area that may involve the intersection of natural or man-made disasters. As previously mentioned, the most effective form of mitigation is avoidance of the intersection. However, many hazards and existing development patterns are not conducive to this type of mitigation strategy, and consequently, other means of reducing the damage must be sought. For example, a community cannot stop a tornado from crossing the city limits, but new construction strategies, safe rooms, and an expanded warning system would certainly reduce the effects of such an unfortunate occurrence. Further, while it

may be unreasonable to expect concentrations of human activity and development to move out of the path of predictable hazards (i.e. moving out of the inundation zone of a major dam.), reexamining existing plans and reviewing the quality of the warning system could certainly reduce the effect of this event.

Emergency management consists of four phases: 1) hazard mitigation, 2) preparedness, 3) response, and 4) recovery. Hazard mitigation is an ongoing process – one that is included in all three other phases. Hazard mitigation is intended to be proactive in that it will save valuable resources and prevent hardship in future disasters by reducing the long-term risk to property and life through planning, review, and analysis. To be most effective, mitigation must be an inherent part of the second phase, preparedness. Mitigation efforts taken during this phase will ensure that mistakes made in the past (e.g. poor building design, etc.) will not be repeated. Mitigation should also be an important part of the third phase, response, in that weaknesses and strengths of the response efforts are reviewed and analyzed so that a more appropriate course of action will occur during future disaster occurrences. Finally, the recovery phase should implement the mitigation strategies and actions previously identified to lessen the impacts of similar disasters in the future.

Plan development and maintenance

The individual Jasper County and Newton County Natural Hazards Mitigation Plans were first adopted in 2005. An update was completed for both counties in 2010. During the 2010 plans' development, a Hazard Mitigation Committee was formed in each county to review existing mitigation efforts and propose a county-wide plan with goals, objectives, and actions. Several mitigation actions were proposed at public meetings throughout each county. Participants received copies of the capabilities, vulnerabilities, and mitigation section of the plan prior to the meetings. All of those in attendance had the opportunity to question and make remarks regarding the documents. The committee held a discussion regarding the suggested actions. They made suggestions, and in turn, approved all the actions suggested in the proposed plan. The final mitigation recommendations included the two broad goals and the six categories of mitigation listed above. After receiving approval from SEMA and FEMA, the plans were adopted in each county and all associated jurisdictions in 2010. Table 4.1 summarizes the 2010 plans' proposed mitigation goals and objectives. Goals and objectives were listed together in the 2010 plan, but action items were divided into two categories - general and jurisdiction specific. General actions were not connected to the goals and objectives, but jurisdiction-specific actions were connected. Table 4.2 summarizes the general action items. Jurisdiction-specific action items are summarized, with their goal/objective connections in Table 4.3.

Table 4.1 Jasper County and Newton County Mitigation Goals and Objectives, 2010
Goal 1: Increase entities' internal capabilities to mitigate the effects of natural hazards.
Objective 1.1: Promote enhancement of floodplain management activities.
Objective 1.2: Promote the entities' capability to conduct hazard risk assessments, demonstrate funding needs, and track mitigation activities throughout the entity.
Objective 1.3: Track adequacy of emergency services to protect public health and safety.
Goal 2: Enhance existing or design new entity policies that will reduce the potential damaging effects of hazards without hindering other community goals through punitive constraints.
Objective 2.1: Increase the entities' control over development in the floodplain to ensure lives and properties are not at risk to future flood conditions.
Objective 2.2: Preserve the natural and beneficial functions of the entities' floodplain to ensure lives and properties are not at risk to flood conditions.
Objective 2.3: Encourage new construction is completed using severe weather / high wind resistant design techniques and materials in accordance with the minimum requirements of the International Building Codes or Building Officials and Code Administrators International Code that will limit damage caused by high winds and reduce the amount of windborne debris.
Goal 3: Protect entities' most vulnerable populations, buildings, and critical facilities through implementations of cost-effective and technically feasible mitigation projects.
Objective 3.1: Maximize the use of available hazard mitigation grant programs to protect the entities' most vulnerable populations and structures.
Objective 3.2: Decrease the number of FEMA identified "repetitive loss properties" located in Jasper / Newton County by 25% by the year 2015.
Objective 3.3: Ensure that all vital / critical facilities are protect from the effects of natural hazards to the maximum extent possible.
Objective 3.4: Increase the amount and range of community severe weather / tornado community shelters and private safe rooms throughout the County.
Goal 4: Protect public health, safety, and welfare by increasing the public awareness of existing hazards and by fostering both individual and public responsibility in mitigating risks due to those hazards.
Objective 4.1: Increase the level of knowledge and awareness of residents on the hazards that routinely threaten the area.
Objective 4.2: Promote the number of entities' residents that maintain an active NFIP flood insurance policy.

Table 4.2 Jasper and Newton County General Action Items, 2010 plan
Action 1: Create a Countywide Hazard Mitigation Committee to coordinate and prioritize goals, objectives, and actions identified in this plan and its subsequent updates.
Action 2: Establish a local reserve fund for repairing and/or incorporating hazard mitigation measures for public facilities and infrastructure damaged by natural hazards.
Action 3: Conduct and inventory survey for the County's emergency response services to identify any existing needs or shortfalls in terms of personnel, equipment, or required resources.
Action 4: Require community tornado shelters for any new manufacture / mobile home parks.
Action 5: Promote community shelters in existing manufactured / mobile home parks.
Action 6: Promote a mutual agreement among the County and all incorporated areas that establishes the minimum requirements of the International Building Codes.
Action 7: Incorporate a Geographic Information System (GIS) to maintain current building and parcel data for purposes of conducting more detailed hazard risk assessments, for tracking permitting and land use patterns in hazard prone areas.
Action 8: Identify the County's most at-risk key community facilities, and execute the potential mitigation techniques for protecting each facility to the maximum extent possible.
Action 9: Increase Warning System coverage to the most feasible extent.
Action 10: Develop and adopt a "no-rise (in base flood elevation)" clause for the County's Floodplain Ordinances.
Action 11: Advertise and promote the availability of flood insurance to county property owners by direct mail annually.
Action 12: Investigate the feasibility and funding availability for the construction of Structural Projects to alleviate future flood hazard conditions.
Action 13: Seek funding to complete a stormwater drainage study / plan for needy communities.
Action 14: Acquire and preserve parcels of land subject to repetitive flooding from willing and voluntary property owners.
Action 15: Regularly calculate and document the amount of flood prone property that is preserved as open space for additional credit points under the Community Rating System (CRS).
Action 16: Revise the County's Floodplain Ordinances to be in compliance with the new SEMA and FEMA standards.
Action 17: Develop an educational flyer targeting NFIP policyholders on the Increase Costs of Compliance (ICC) coverage, to be disseminated following a flood event that results in substantial damage determinations by the County.
Action 18: Incorporate the inspections and management of hazardous natural debris into the County's routine drainage system maintenance process.
Action 19: On an annual basis, contact all owners of FEMA identified repetitive loss properties and inform them of the assistance available through the federal Flood Mitigation Assistance Program, in addition to their flood protection measures.
Action 20: Research and design an appropriate stream bugger ordinance to further protect Jasper County / Newton County's resources and to limit future flood damage adjacent to waterways.
Action 21: Coordinate and conduct stream cleanup programs in populated flood hazard prone areas.
Action 22: Promote a policy for slope stabilization efforts to prevent erosion and slippage of hills located near populated areas either up or down slope.
Action 23: Coordinate seasonal educational materials on individual and family preparedness / mitigation measures, and display and distribute routinely to county citizens and officials alike.
Action 24: Annually host a public hazards workshop for the residents of Jasper / Newton County in combination with another large-scale community / regional festival or event.

Table 4.3 2010 Jurisdiction-Specific Actions, Jasper and Newton Counties

Jurisdiction	County	Action	Goals/ Objective Connection
Airport Drive	Jasper	1. NFIP – Enforce floodplain ordinance	1.1
		2. Active Building Code Enforcement	2.3
		3. Active Code enforcement	2.3
		4. NIMS Training	1.1
		5. Portable Electric Generators	3.1, 3.1
		6. Public Education of Businesses and residents by Newsletter	4.1
		7. Promote private insurance	4.2
		8. Continue Stormwater Drainage Projects	3.1, 3.3
		9. Promote Stormwater regulations and practices	2.1-2.3, 4.2
		10. Promote NOAA weather radios and safe rooms	3.4, 4.1
		11. Encourage residents and businesses to clean up creeks	4.1
		12. Develop Emergency Management Plan	1.2, 1.3
		13. Plan for future increase of fire hydrants	3.1
Alba	Jasper	1. Enforce floodplain ordinance	2.1
		2. Apply for grant funding for a safe room/shelter for Alba residents.	3.1
		3. Apply for grant funding for a back up power source to operate the water system / sewer systems.	3.1, 3.3
		4. Storm Siren Expansion	3.4
		5. Apply for grant funding for a back up power source to operate city hall.	
		6. All-Hazards education for mitigation, preparedness, response, and recovery	4.1
		7. Portable Electric Generators	3.1, 3.3
		8. Public Education of Businesses, homeowners, and residents through continued dispersement of pamphlets and website.	4.1
		9. Expanded training for all city departments in regards to emergency management.	1.2
Asbury	Jasper	1. Update Emergency Plan, including evacuation component	1.2, 1.3
		2. Promote Reverse 911 and NOAA radios	4.1
		3. Distribute Hazard Flyers will bills	4.1
		4. Apply for funding for Saferoom	3.1, 3.4
Avilla School District	Jasper	1. Saferoom for each location	3.4
		2. Educate students and parents of hazards with informational flyers	4.1
		3. Increase awareness of students and teachers with campus drills and training	1.2, 4.1
		4. Educate staff and students on Shelter-in-place procedures	1.2, 4.1
		5. Educate staff and students on building evacuation procedures	1.2, 4.1
		6. Educate staff and students on lock-down procedures	1.2, 4.1
		7. Educate staff on bomb threat assessment and response	1.2, 1.3
		8. An emergency response team made up of school staff members for each location	1.2
Carl Junction	Jasper	1. NFIP – Enforce floodplain ordinance	2.1
		2. Active Building Code Enforcement	2.3
		3. Active Code enforcement	2.3
		4. NIMS Training	1.2
		5. Public education of businesses and residents with flyers	4.1
		6. Do Fire Safety Checks	3.3

Table 4.3 2010 Jurisdiction-Specific Actions, Jasper and Newton Counties (continued)

Jurisdiction	County	Action	Goals/ Objective Connection
Carl Junction School District	Jasper	1. Conduct safety drills and educational programs for fire, tornado, shelter-in-place, and bus evacuations	1.2, 4.1
		2. Educate staff on lock down procedures and safety of students in the event of a lock down.	1.2, 4.1
		3. Provide CPR and general first aid training to staff; create a list of designated individuals in all buildings	1.2, 4.1
		4. Educate students and staff on infectious diseases and how to prevent the spreading of germs	1.2, 4.1
Carterville	Jasper	1. Enforce floodplain ordinance	2.1
		2. Apply for grant funding for a safe room / shelter for Carterville residents	3.1, 3.4
		3. Apply for grant funding for a back up power source to operate the water system	3.1
		4. Apply for grant funding for a back up power source to operate city hall / police department	4.1
		5. Public education of businesses, homeowners, and residents through continued dispersement of pamphlets and website.	4.1
		6. All-hazards education for mitigation, preparedness, response, and recovery	4.1
		7. Storm siren expansion	3.4
		8. Portable electric generators	3.3
		9. Expanded training for all city departments in regards to emergency management.	1.2
		10. Increase training with students and teachers using campus drills and training	1.2, 4.1
Carthage	Jasper	1. Enforce Floodplain ordinance to prevent future flooding	2.1
		2. Active Building Code Enforcement	2.3
		3. Active Code Enforcement	2.3
		4. Promote Private Insurance	4.2
		5. Continue Stormwater drainage projects	3.3
		6. Promote stormwater regulations and practices	2.1, 2.1, 2.3, 4.1, 4.2
		7. Promote NOAA weather radios and safe rooms	3.4, 4.1
Carthage School District	Jasper	1. Educate students and staff members regarding buddy room system	1.2, 4.1
		2. Educate students and staff members regarding tornado safety procedures	1.2, 4.1
		3. Educate students and staff members regarding intruder lock-down safety procedures	1.2, 4.1
		4. Educate students and staff members regarding family reunification procedures	1.2, 4.1
		5. Actively participate in REMS training	1.2
		6. Improve safety/emergency lighting throughout each building	3.3
		7. Construct safe rooms / shelter at each school	3.4
Carytown	Jasper	1. Increase awareness of hazards with informational flyers	4.1
		2. Portable electric generators for saferoom	3.4
		3. Encourage reverse 911	4.1

Table 4.3 2010 Jurisdiction-Specific Actions, Jasper and Newton Counties

Jurisdiction	County	Action	Goals/ Objective Connection
Crowder College	Jasper / Newton	1. All-Hazards education for mitigation, preparedness, response and recovery	4.1
		2. Additional outdoor warning sirens	3.3, 4.1
		3. Saferoom for each location	3.3, 3.4
		4. Backup generator for dorms, classrooms, and offices	1.2, 3.3
		5. Increase awareness of students and teachers with campus drills and training	4.1
		6. Educate staff and students on Lock-Down procedures	4.1
		7. Revise and update hazard planning and training on a continual basis	1.2
		8. Create an emergency response team for each location	1.2
Dennis Acres	Newton	1. Promote Reverse 911 to residents	4.1
		2. Hazard Information flyers	4.1
Diamond	Newton	1. Adopt new floodplain ordinance to meet FEMA requirements	1.1
		2. Apply for grant funding for a safe room / shelter for Diamond residents.	3.1, 3.4
		3. Apply for grant funding for a backup power source to operate the water system	3.3
		4. Apply for grant funding for a backup power source to operate city hall / police department	3.3
		5. Public Education of businesses, homeowners, and residents though continued disbursement of pamphlets and website.	4.1
		6. All-hazards education for mitigation, preparedness, response, and recovery	4.1
		7. Storm siren expansion	3.4
		8. Portable electric generators	3.3
		9. Expanded training for all city departments in regards to emergency mgmt	1.2
		10. Increase training with students and teachers using campus drills and training	1.2, 4.1
Diamond School	Newton	1. Safe spot for each location	1.2, 3.3, 3.4
		2. Educate students and parents of hazards with informational flyers	4.1
		3. Increase awareness of students and teachers with campus drills and training	1.2, 4.1
Duenweg	Jasper	1. Acquire flooding areas on Turkey Creek	3.2
		2. Restrict building – Lead & Zinc mining waste, open pits, and shafts	1.2
		3. Training for Hazardous / Explosive Materials	1.2
		4. Hazardous Weather – Build safe room / storm shelter	3.4
		5. Active Building Code enforcement	2.3
		6. Stormwater study	1.1
		7. Emergency generator for City Hall / Police Department	3.3
		8. Public Education	4.1
Duquesne	Jasper	1. Enforce Stormwater ordinance to prevent runoff flooding	2.1, 2.2
		2. Actively Enforce Building Codes	2.3
		3. Actively Enforce Codes	2.3
		4. Promote Private Insurance	4.2
		5. Plan for road cleanup and clearance after winter and severe storms	3.3
		6. Expand fire hydrant coverage	3.3

Table 4.3 2010 Jurisdiction-Specific Actions, Jasper and Newton Counties (continued)

Jurisdiction	County	Action	Goals/ Objective Connection
East Newton School	Newton	1. Saferoom for each location	3.3, 3.4
		2. Educate students and parents of hazards with informational flyers	4.1
		3. Increase awareness of students and teachers with campus drills and training	1.2, 4.1
		4. Educate staff and students on Shelter-in-place procedures	1.2, 4.1
		5. Educate staff and students on Lock-down procedures	1.2, 4.1
		6. Educate staff on bomb threat assessment and response	1.2
		7. Emergency response team made up of school staff members for each location	1.2
Fairview	Newton	1. Stormwater improvement on streets	3.3
		2. Do fire safety checks	3.3
		3. Weather flyers	4.1
		4. Promote the purchase of insurance	4.2
Fidelity	Jasper	1. Active Building Code Enforcement	2.3
		2. Active Code enforcement	2.3
		3. Portable Electric Generators	3.3
		4. Promote private insurance	4.2
		5. Promote NOAA weather radios and safe rooms	3.4, 4.1
		6. Develop Emergency Management plan	1.2, 1.3
Granby	Newton	1. Adopt new floodplain ordinance to meet FEMA requirements	1.1
		2. Apply for grant funding for a safe room / shelter for Granby residents	3.1
		3. Apply for grant funding for a backup power source to operate the water system	3.3
		4. Public Education of businesses, homeowners, and residents through continued disbursement of pamphlets	4.1
		5. All-hazards education for mitigation, preparedness, response, and recovery.	4.1
		6. Storm-siren expansion	3.4
		7. Expanded training for all city departments in regards to emergency management	1.2
		8. Increase training with students and teachers using campus drills and training	1.2, 4.1
Jasper	Jasper	1. Adopt FEMA Floodplain program by ordinance	1.1
		2. Apply for funding to assist with building tornado shelter	3.1, 3.4
		3. Active Building Code enforcement	2.3
Jasper School District	Jasper	1. Apply for funding to assist with providing a saferoom for the school district	3.1, 3.4
		2. Educate students and parents of hazards with informational flyers	4.1
		3. Backup generator to provide electricity to central office, cafeteria, and sump pumps	3.3
		4. Increase awareness of students and teachers with campus drills and training	1.2. 4.1
Jasper County	Jasper	1. NFIP – Enforce floodplain ordinance	2.2
		2. Increase ability of GIS to maintain current building a parcel data for hazard risk assessment	1.2, 1.3
		3. Inventory of County emergency response services	1.3
		4. Educate public on the impacts of major disease outbreak	4.1
		5. Promote community shelters in existing manufactured / mobile home parks	3.4
		6. All-hazards education for mitigation, preparedness, response, and recovery	4.1
		7. Educate the impacts of severe weather	4.1
		8. Increase warning system coverage to the most feasible extent	1.2, 3.4
		9. Reverse 911	3.4

Table 4.3 2010 Jurisdiction-Specific Actions, Jasper and Newton Counties (continued)

Jurisdiction	County	Action	Goals/ Objective Connection
Joplin	Jasper / Newton	1. Develop and adopt a "no-rise (in base flood elevation)" clause for the City's Floodplain Ordinances	1.1
		2. Inventory of Joplin emergency response services	1.3
		3. Educate Public on the Impacts of Major Disease Outbreak	4.1
		4. Promote community shelters in existing manufactured / mobile home parks	3.4, 4.1
		5. All-Hazards education for mitigation, preparedness, response, and recovery	1.1, 4.1
		6. Educate about the impacts of severe weather	4.1
		7. Increase warning system coverage to the most feasible extent	3.4
		8. Reverse 911	1.2
Joplin School District	Jasper / Newton	1. Saferoom for each location	3.3, 3.4
		2. Educate students and parents of hazards with informational flyers	4.1
		3. Increase awareness of students and teachers with campus drills and training	1.2, 4.1
		4. Educate staff and students on Shelter-in-place procedures	1.2, 4.1
		5. Educate staff and students on Building Evacuation procedures	1.2, 4.1
		6. Educate staff and students on lock-down procedures	1.2, 4.1
		7. Educate staff on bomb threat assessment and response	1.2
		8. Emergency Response Team made up of school staff members for each location	1.2
La Russell	Jasper	1. Apply for grant funding for siren	3.1
		2. Arrange for storm shelter	3.4
		3. Adopt an Emergency manual	1.2
Leawood	Newton	1. NFIP – Review and join	1.1
		2. Building Code revision	2.3
		3. Add all-hazards education for mitigation, preparedness, response, and recovery information to webpage	4.1
		4. Apply for grant funding for storm siren for Southern Hills	3.1
		5. Promote basement sharing for tornado warnings	3.4
		6. Promote reverse 911 and weather radios to residents	4.1
		7. Revise emergency operations plan	1.2
		8. Do NIMS training and coordinate with area agencies	1.2
Loma Linda	Newton	1. Active Building Code enforcement	2.3
		2. All-hazards education for mitigation and preparedness	4.1
		3. Put warning signs at Low Water Bridge and Cones out during floods	4.1
		4. Promote Reverse 911 and NOAA radios	4.1
		5. Obtain emergency generator backup	3.3
Missouri Southern State University	Jasper	1. Mass notification	1.2, 4.1
		2. Update EOP	1.2, 1.3
		3. Education	4.1
		4. Engineering and design	3.3
Neck City	Jasper	1. Adopt FEMA Floodplain program by ordinance	1.1, 2.1
		2. Apply for funding to assist with building tornado shelter	3.1, 3.4
		3. Promote NOAA weather radios and Reverse 911	4.1
		4..Public Education of businesses, homeowners, and residents through a community newsletter	4.1
		5. Develop Public Works Department	1.2
		6. Portable Electric Generators	3.3

Table 4.3 2010 Jurisdiction-Specific Actions, Jasper and Newton Counties (continued)

Jurisdiction	County	Action	Goals/ Objective Connection
Neosho	Newton	1. Active code enforcement of floodplain regulations	1.1, 2.1
		2. Adopt required revision of floodplain ordinance to comply with FEMA standards	1.1, 2.1
		3. Active Building Code enforcement	2.3
		4. Seek funding for stormwater master planning and structural upgrades and mitigation projects	1.1-1.3, 2.1, 2.2. 2.3, 3.2
		5. Present stream bugger ordinance for adoption by city council	1.1, 2.1
		6. Encourage plans and drills for private dwellings and public facilities	1.3, 4.1
		7. Promote weather warning awareness	3.3, 4.1
		8. First Responder training	1.2
Neosho School District	Newton	1. Safe-room for each location	3.3, 3.4
		2. Educate students and parents of hazards with informational flyers	4.1
		3. Increase awareness of students and teachers with campus drills and training	1.2, 4.1
		4. Educate staff and students on Shelter-in-place procedures	1.2, 4.1
		5. Educate staff and students on Building Evacuation procedures	1.2, 4.1
		6. Educate staff and students on Lock-down procedures	1.2, 4.1
		7. Educate staff on Bomb Threat Assessment and Response	1.2
		8. An Emergency Response Team made up of school staff members for each location	1.2
Newton County	Newton	1. Continue compliance with NFIP and floodplain management by adopting new ordinance	1.1, 2.1. 2.2
		2. Habitable building buyout	1.1, 3.2
		3. Reverse 911	1.2, 4.1
		4. All-hazards education for mitigation, preparedness, response, and recovery	1.2. 4.1
		5. Educate on the impacts of lightning	3.3, 4.1
		6. Low-water crossing elimination	1.1
		7. Additional outdoor warning sirens	4.1
		8. Promote crop insurance	3.2, 3.3
		9. Educate the public on the impacts of a major disease outbreak	3.3, 4.1
Newtonia	Newton	1. Adopt new floodplain ordinance to meet FEMA requirements	1.1
		2. Promote the use of NOAA weather radios	4.1
		3. Reverse 911	4.1
		4. Provide generators for community building and church shelter	3.3
		5. Weather flyers	4.1
		6. Support the coordination of interagency debris removal	1.2
		7. Plan checking on homebound or injured	1.2
Oronogo	Jasper	1. Enforce new floodplain ordinance to prevent future flooding damages	2.1
		2. Active Building Code enforcement	2.3
		3. Active code enforcement	2.3
		4. NIMS training	1.2
		5. Apply for assistance – portable electric generators	3.1, 3.3
		6. Public education of businesses and residents by newsletter	4.1
		7. Promote private insurance	4.2
		8. Apply for stormwater drainage project funding	3.1
		9. Promote NOAA weather radios and reverse 911	4.1
		10. Encourage residents and businesses to clean up creeks	4.1

Table 4.3 2010 Jurisdiction-Specific Actions, Jasper and Newton Counties (continued)

Jurisdiction	County	Action	Goals/ Objective Connection
Purcell	Jasper	1. NIMS training and coordination with other agencies	1.2
		2. Public Education through disbursement of flyers and put on yearly open house safety forum	4.1
		3. Promote Reverse 911	4.1
		4. Apply for grant funding for a backup power source to operate the water system / sewer systems	3.1, 3.3
		5. Storm siren expansion	3.4
Redings Mill	Newton	1. Revise and adopt new Floodplain ordinance to meet new FEMA req.'s	1.1, 2.1, 2.2
		2. Apply for grant funding for a backup power source to operate the water system	3.1, 3.3
		3. Apply for funding to construct a saferoom	3.1, 3.4
		4. Continue with drainage improvements	1.1, 3.2
		5. Promote weather radios	4.1
Ritchey	Newton	1. Public Education of businesses, homeowners, and residents	4.1
		2. Encourage participation of reverse 911 and weather radios	4.1
Saginaw	Newton	1. NFIP – Adopt new ordinance to meet FEMA requirements	1.1, 2.1, 2.2
		2. Streambed cleanup	3.2
		3. Develop emergency management plan	1.2
Sarcoxie	Jasper	1. Reverse 911 awareness and access	4.1
		2. Emergency shelter / fire station	3.3, 3.4
		3. Emergency power supply water towers	3.3
		4. Emergency power supply sewer system	3.3
		5. Emergency power supply city hall / police department	3.3
		6. NIMS Training continuation	1.2
		7. Emergency Operation Plan update and implementation	1.2, 1.3
		8. Stormwater program implementation	1.1
		9. Emergency shelter at local mobile home park	3.4
		10. Emergency power supply nursing home	3.3
		11. Enforce floodplain ordinance	2.1
Sarcoxie School District	Jasper	1. Saferoom for each location	3.4
		2. Educate students and parents of hazards with informational flyers	4.1
		3. Increase awareness of students and teachers with campus drills and training.	1.2, 4.1
Seneca	Newton	1. Continue compliance with NFI and floodplain management by enforcing ordinance	1.1, 2.1, 2.2
		2. Habitable building buyout	1.2, 3.2
		3. Reverse 911	1.2, 4.1
		4. All-hazards education for mitigation preparedness, response, and recovery	1.2, 4.1
		5. Education on the impacts of lightning	3.3, 4.1
		6. Low-water crossing elimination	1.1
		7. Additional outdoor warning sirens	4.1
		8. Educate the public on the impacts of a major disease outbreak	3.3, 4.1
Seneca School District	Newton	1. Safe room / tornado shelter built	3.3, 3.4
		2. Increase awareness of students and teachers with campus drills and training	1.2, 4.1
		3. Educate staff and students on Shelter-in-Place procedures	1.2, 4.1
		4. Educated staff and students on Building Evacuation procedures	1.2, 4.1
		5. Educate staff and students on Lock-down procedures	1.2, 4.1
		6. Educate staff on Bomb Threat Assessment and Response	1.2
		7. An Emergency Response Team made up of school staff members for each location	1.2

Table 4.3 2010 Jurisdiction-Specific Actions, Jasper and Newton Counties (continued)

Jurisdiction	County	Action	Goals/ Objective Connection
Silver Creek	Newton	1. Join NFIP	1.1
		2. Active Building Code Enforcement	2.3
		3. All-Hazards education for Mitigation, Preparedness, Response and Recovery	4.1
		4. Put warning signs at Low Water Bridge	3.2
		5. Apply for grant funding for storm siren for east side	3.1, 4.1
		6. Promote Basement sharing for tornado warnings	4.1
		7. Promote Reverse-911 to residents	4.1
		8. Obtain Emergency Generator Backup	3.3
		9. Obtain Emergency Communication System	3.3
Stark City	Newton	1. Develop emergency management plan	1.2
		2. NIMS Training	1.2
		3. Promote Reverse-911	4.1
		4. Distribute Hazard Flyers	4.1
Stella	Newton	1. Establish a Village of Stella Emergency Management Team	1.2
		2. Fix drainage ditches for erosion control	3.2
		3. Continue to develop Indian Creek for bank stabilization and beautification	3.2
		4. Educate the public of hazards with informational flyers	4.1
		5. Promote public on NOAA weather radios and Reverse 911	4.1
		6. Obtain a generator for powering saferoom	3.3
Waco	Jasper	1. Apply for funding for a Saferoom	3.1
		2. Promote Reverse 911 and NOAA radios	4.1
		3. Distribute hazard flyers during yearly cleanup	4.1
Webb City	Jasper	1. NFIP – Continue compliance by enforcing ordinance	2.1
		2. Apply for funding assistance for a saferoom	3.1, 3.4
		3. Apply for funding assistance for Portable Electric Generators	3.3
		4. Apply for funding assistance for storm siren expansion	3.1, 3.4
		5. Stormwater study	3.2
		6. Public Education of businesses, homeowners, and residents	4.1
		7. Apply for Funding assistance for flood control projects and stormwater upgrades	3.1
		8. Apply for funding assistance for emergency power backup for City Hall	3.1, 3.3
		9. Apply for funding assistance for saferoom for trailer park	3.1, 3.4
		10. Active code enforcement	2.3
Webb City School District	Jasper	1. Apply for grant funding for saferoom for each location	3.1, 3.4
		2. Educated students and parents of hazards with informational flyers	4.1
		3. Increase awareness of students and teachers with campus drills and training	1.2, 4.1
		4. Educate staff and students on shelter-in-place procedures	1.2, 4.1
		5. Educate staff and students on building evacuation procedures	1.2, 4.1
		6. Educate staff and students on lock-down procedures	1.2, 4.1
		7. Educate staff on bomb threat assessment and response	1.2
		8. An Emergency Response Team made up of school staff members for each location	1.2
Wentworth	Newton	1. Adopt FEMA floodplain program by ordinance	1.1
		2. Do a stormwater project to reduce flooding	3.2
		3. Develop emergency management plan	1.2
		4. Enforce building codes on mobile homes	1.2
		5. Promote NOAA weather radios and Reverse 911	4.1
		6. Provide informational flyers on weather hazards	4.1

Table 4.3 2010 Jurisdiction-Specific Actions, Jasper and Newton Counties (continued)

Jurisdiction	County	Action	Goals/ Objective Connection
Westview School District	Newton	1. Educate staff and students on Building Evacuation procedures	1.2, 4.1
		2. Educate students and parents of hazards with informational flyers	4.1
		3. Increase awareness of students and teachers with campus drills and training	1.2, 4.1
		4. Educate staff and students on lock-down procedures	1.2, 4.1
		5. An emergency Response Team made up of school staff members for each location	1.2
		6. Apply for funding to incorporate a safe room in the school building	3.1, 3.3, 3.4

Throughout the spring and summer of 2015, Jasper and Newton counties hosted a number of public meetings to solicit assessments of the 2010 mitigation plan. The original goals, objectives, and actions were discussed and graded based on completion, implementation, and applicability to the two-county region. After extensive review, the Bi-County Hazard Mitigation Committee voted to maintain all existing goals as they continue to be applicable across the two-county region. The objectives and actions of the previous Jasper and Newton individual county plans were fully revised to meet the needs of a two-county plan. Each goal's associated objectives were revisited, revised, combined, and/or eliminated from this plan. Table 4.4 summarizes the 2010 goals and objectives and explains their inclusion, alteration, or elimination from the 2015 plan.

Table 4.4 2010 Goals and Objectives Assessment

Goal / Objective	Maintained	Altered	Eliminated	Justification for 2015 changes
Goal 1: Increase entities' internal capabilities to mitigate the effects of natural hazards.	X			N/A
Objective 1.1: Protect enhancement of floodplain management activities.		X		Combined with Objective 2.3 to create a wider overarching objective.
Objective 1.2: Promote the entities' capability to conduct hazard risk assessments, demonstrate funding needs, and track mitigation activities throughout the entity.	X			N/A
Objective 1.3: Track adequacy of emergency services to protect public health and safety.	X			N/A
Goal 2: Enhance existing or design new entity policies that will reduce the potential damaging effects of hazards without hindering other community goals through punitive constraints.		X		Goal simplified to fit more appropriately with a bi-county plan.
Objective 2.1: Increase the entities' control over development in the floodplain to ensure lives and properties are not at risk to future flood conditions.		X		Objective reworded to fit more appropriately in a bi-county plan.
Objective 2.2: Preserve the natural and beneficial functions of the entities' floodplains and wetlands through continued support of natural resource protection policies and by discouraging growth in environmentally sensitive areas.			X	Deleted to accommodate new objectives which both counties support.
Objective 2.3: Encourage new construction is completed using severe weather / high wind restraint design techniques and materials in accordance with the minimum requirements of the International Building Codes or Building Officials and Code Administrators International Code that will limit damage caused by high winds and reduce the amount of windborne debris.		X		Combined with Objective 1.1 to create a wider overarching objective.
Goal 3: Protect entities' most vulnerable populations, buildings, and critical facilities through the implementation of cost-effective and technically feasible mitigation projects.	X			N/A
Objective 3.1: Maximize the use of available hazard mitigation grant program to protect the entities' most vulnerable populations and structures.				Deleted to accommodate new objectives which both counties support.
Objective 3.2: Decrease the number of FEMA identified repetitive loss properties located in Jasper / Newton County by 25% by the year 2015.			X	Deleted to accommodate new objectives which both counties support.
Objective 3.3: Ensure that all vital / critical facilities are protected from the effects of natural hazards to the maximum extent possible.	X			
Objective 3.4: Increase the amount and range of community service weather / tornado community shelters and private safe rooms through the County.		X	X	Included as an action item instead of a separate objective
Goal 4: Protect public health, safety, and welfare by increasing the public awareness and by fostering both individual and public responsibility in mitigating risks due to those hazards.	X			
Objective 4.1: Increase the level of knowledge and awareness of residents on the hazards that routinely threaten the area.			X	Deleted to accommodate new objectives which both counties support.
Objective 4.2: Promote the number of entitites' residents that maintain an active flood insurance policy.			X	Deleted to accommodate new objectives which both counties support.

The committee thoroughly discussed the action items included in the 2010 Jasper and Newton plans. The lack of direct connection between goals, objectives, and actions was particularly concerning to the committee. Particular focus came with the general mitigation actions which were not assigned to any jurisdiction (See Table 4.2). Additionally, many committee members saw a great deal of repetition between individual jurisdictions' actions and were troubled by the specificity of each action. The biggest concern expressed was that many committee members felt that this level of specificity tied the hands of most communities, forcing them to stick to the planned objectives and ignore potentially developing mitigation strategies. The lack of connection and the level of specificity were considered to be problematic for the 2015 plan which seeks to be more inclusive of smaller entities without burdening them while creating a bi-county plan which focuses on cooperation and support. Collectively, the committee elected to overhaul action items to eliminate repetition and create a new action strategy which is applicable to more than a single jurisdiction as in the previous plan. This decision was based upon implementation progress over the previous five years, each county's ability to implement or support actions in the future, and general public response to the action itself. Table 4.5 summarizes the previous actions and their level of completion from the 2015 plan as reported by each jurisdiction. All 2010 action items were removed from the 2015 plan. All action items included in the 2015 plan are compilations of action items from multiple entities or newly formed action items which meet the needs and wants of the two-county region.

Table 4.5 2010 Jurisdiction-Specific Actions Review, Jasper and Newton Counties			
Jurisdiction	County	Action Number	Completion status
Airport Drive	Jasper	1	Passed by Trustees in 2012; Adopted new FEMA rules
		2	Adopted by ordinance in 2006
		3	Adopted by ordinance in 2006
		4	Contract with Carl Junction FD which follows all NIMS training guides
		5	Transfer switches installed in 2009; no generators purchased to date
		6	Began crafting an Emergency Preparedness plan; provided articles to the public
		7	Advertised in newsletter
		8	Village Engineer constantly monitor's water situations, acting when needed
		9	Adopted by ordinance in 2008
		10	Articles included in newsletter suggesting preparation plans
		11	Articles included in newsletters
		12	Currently working with HSTCC, Carl Junction FD, and Jasper County Sheriff to have plans of action in times of disaster
		13	Have requested larger water supply lines from water company since 2007, but response has been negative to date.
Alba	Jasper	1	Not achieved. Alba is not in a flood zone.
		2	In progress. City secured property for construction of safe room / shelter.
		3	In progress. Applied for funding.
		4	Completed. Two sirens installed in 2014.
		5	Not achieved.
		6	Not achieved.
		7	Not achieved
		8	Not achieved
		9	Not achieved.
Asbury	Jasper	N/A	Not participating in the 2015 plan. No response received.
Avilla School District	Jasper	1	Completed September 2015
		2	Continuous process
		3	Continuous process.
		4	Continuous process.
		5	Continuous process.
		6	Continuous process.
		7	Continuous process.
		8	Continuous process.
Carl Junction	Jasper	1	Part of platting process for new plats
		2	Full-time building inspector
		3	Full time Code Enforcement Officer
		4	Personnel sent to training
		5	Mailings and website
		6	Cities undergo annual fire inspections; Private facilities inspected by CJFD
Carl Junction School District	Jasper	1	Continuous. Two per school year completed.
		2	Continuous. Two per school year.
		3	Completed June 2015. CPR classes offered to all employees.
		4	Continuous. All staff is required to review and sign off yearly.

Table 4.5 2010 Jurisdiction-Specific Actions Review, Jasper and Newton Counties (continued)

Jurisdiction	County	Action Number	Completion status
Carterville	Jasper	1	City has adopted the national code and enforces through planning and zoning
		2	Webb City school district built a community safe room in Carterville (2015)
		3	Not completed. Lack of funding
		4	City purchased a 65kW generator in 2013
		5	Quarterly newsletters to all citizens. Information included on website.
		6	All employees encouraged to utilize training when available.
		7	City purchased a surplus secondary siren in 2015.
		8	Two small 5500 gensets were purchased for the police and public works.
		9	All employees and elected officials are required to participate in NIMS training.
		10	Police department has multiple training days per school year, including storm and intruder drills
Carthage	Jasper	1	Implemented through city ordinance (2012) and administered by the City's floodplain manager
		2	Implemented through city ordinance (2010) and enforced by building inspectors.
		3	Implemented through city ordinance (2010) and enforced by code officials.
		4	Citizens who live in floodplains are encouraged to purchase insurance. The city participates in NFIP
		5	Plan is implemented and administered through the city's annual budget and 5-Year capital outlay plan
		6	Implemented through city ordinance and enforced by the city public works department on a continuous basis.
		7	Action is handled by the Carthage fire department.
Carthage School District	Jasper	1	Continuous process. Principals assign buddy teachers.
		2	Continuous process. Drills are discussed and practiced annually.
		3	Continuous. Completed annually.
		4	Not achieved. Information was discussed, but not considered a priority.
		5	Not achieved. Information was discussed, but not considered a priority.
		6	Completed annually through safety checklists.
		7	In progress. Two shelters presently under construction. Three shelters will begin construction in Fall 2015. All new buildings will have a tornado shelter.
Carytown	Jasper	1-3	No mitigation actions completed.
Crowder College	Jasper / Newton	1	Continuous. Safety CMTE is currently reviewing.
		2	Not achieved. Currently collecting quotes to install additional sirens.
		3	Not achieved due to lack of funding.
		4	Not achieved. Currently working on a plan for an alternative location.
		5	Continuous. Drills each semester, workshops, and printing information.
		6	Continuous. Staff development and printed material.
		7	Continuous. Safety CMTE reviews annually.
		8	Continuous. Safety CMTE is working with offsite partners to develop plan.
Dennis Acres	Newton	1	Not achieved. Need more information on Reverse 911.
		2	Completed August 2011. Handed out flyers.

Table 4.5 2010 Jurisdiction-Specific Actions Review, Jasper and Newton Counties (continued)

Jurisdiction	County	Action Number	Completion status
Diamond	Newton	1	Not achieved. Still working towards ordinance.
		2	Continuous process. Local school district applied for and was awarded a grant. Safe room in under construction at this time.
		3	Completed November 2014. Local fire district placed a generator at the water tower to use for backup power source. The city is responsible for maintenance.
		4	Continuous process.
		5	Continuous process. Information in monthly newsletters and website.
		6	Not achieved. Currently still in preparation stages.
		7	Not achieved. Currently looking for additional funding.
		8	Not achieved. Currently looking for additional funding.
		9	Continuous process.
		10	Continuous process.
Diamond School	Newton	1	Currently in progress. Estimated completion September / October 2015.
		2	Continuous process.
		3	Continuous process.
Duenweg	Jasper	1	Not completed. Lack of time and funds
		2	Completed 2012 via EPA projects
		3	Not completed
		4	Joplin School District Built a community safe room in 2014
		5	Continuing to learn more with each project
		6	Not completed. Lack of time and funds
		7	Completed in 2015 with installations in municipal building and fellowship hall to help with emergencies.
		8	Not completed.
Duquesne	Jasper	1	Implemented by city ordinance. If in violation of ordinance, a summons is sent to the resident.
		2	Inspections completed in accordance with the ICC 2006.
		3	Implemented. Summons or inspections for enforcement.
		4	For building purposes, to receive a building permit or a contractors license, workers comp and liability insurance must be presented.
		5	The City of Duquesne has a contract with Joplin Special Roads District to clear main streets after a winter storm.
		6	Installed six new hydrants in the last five years. Plans to continue to add hydrants as the city grows.
East Newton School	Newton	1	Continuous. Still seeking funding.
		2	Continuous. Update website every year.
		3	Continuous. Trained and drilled yearly
		4	Continuous. Trained and drilled yearly
		5	Continuous. Trained and drilled yearly
		6	Continuous. Trained and drilled yearly
		7	Continuous. Each building assigns members to these teams.
Fairview	Newton	1	In progress. Working on ditches.
		2	Monthly fire meetings are taking place.
		3	Not completed.
		4	Not completed.
Fidelity	Jasper	1	Completed through Jasper County.
		2	Completed through Jasper County.
		3	Promoted in newsletter.
		4	Promoted in newsletter.
		5	Promoted in newsletter
		6	In progress. In the process of completing a new city plan with HSTCC.

Table 4.5 2010 Jurisdiction-Specific Actions Review, Jasper and Newton Counties (continued)

Jurisdiction	County	Action Number	Completion status
Granby	Newton	1	Implemented through ordinance.
		2	Continuous process
		3	Continuous process
		4	Continuous process
		5	Continuous process
		6	Continuous process
		7	Continuous process
		8	Continuous process
Jasper	Jasper	1	Currently in progress. Not yet achieved.
		2	Jasper R-V school district built a community shelter.
		3	Continuous use of building codes.
Jasper School District	Jasper	1	Completed with FEMA grant in June 2013.
		2	Continuous. Completed 3-4 times over past five years.
		3	Completed May 2011 with purchase of generator.
		4	Continuous process. Drills administered several times per year.
Jasper County	Jasper	1	Floodplain ordinance passed and enforced. Permits required for new construction in the floodplain. Promote insurance.
		2	Continuous process. Software management system added.
		3	Completed annually. Continuous process.
		4	Completed regularly in conjunction with Jasper County Health Department.
		5	Not achieved. The County has chosen to promote shelter-in-place over community shelters due to response time from citizens.
		6	Continuous process.
		7	Continuous process.
		8	Completed. $300,000 in siren upgrades completed over the last five years.
		9	Completed. Reverse 911 was implemented shortly after the passage of the last plan, but was discontinued after the discovery that it was not financially viable nor helpful in an age where mobile phones have largely replaced landlines.
Joplin	Jasper / Newton	1	Completed. Ordinance adopted and enforced. Presently monitoring for DFIRM development.
		2	Completed. Clause adopted and enforced.
		3	Continuous process. Completed annually.
		4	Completed regularly in conjunction with Jasper and Newton County health departments
		5	Not achieved. 12 tornado safe rooms were built by the school districts, but the city has chosen to support shelter-in-place over community safe rooms due to response time from citizens.
		6	Continuous process.
		7	Continuous process.
		8	Continuous process. Sirens added in Joplin. Other upgrades include 2-way radio communication, solar panels, software management, and the addition of a NOAA transmitter.
		9	Completed. Reverse 911 was implemented shortly after the passage of the last plan, but was discontinued after the discovery that it was not financially viable nor helpful in an age where mobile phones have largely replaced landlines.

Table 4.5 2010 Jurisdiction-Specific Actions Review, Jasper and Newton Counties (continued)

Jurisdiction	County	Action Number	Completion status
Joplin School District	Jasper / Newton	1	In progress. Partially completed with FEMA grants.
		2	Continuous process.
		3	Continuous process.
		4	Continuous process.
		5	Continuous process.
		6	Continuous process.
		7	Continuous process
		8	Continuous process
La Russell	Jasper	1-3	Jurisdiction chose not to participate. No response received.
Leawood	Newton	1	Not achieved
		2	Not achieved
		3	Not achieved
		4	Not achieved
		5	Not achieved
		6	Not achieved
		7	Not achieved
		8	Not achieved.
Loma Linda	Newton	1	Continuous process. Town ordinance dictates building standards.
		2	Not completed.
		3	Continuous process.
		4	Continuous process. Have NOAA radios available.
		5	Not completed.
Missouri Southern State University	Jasper	1	Completed. Campus has loud speaker mass notification system and text notification system.
		2	Continuous.
		3	Continuous. Campus training events.
		4	FEMA Safe Room completed July 2015.
Neck City	Jasper	1	Not achieved.
		2	Not achieved. Too late for application.
		3	Continuous process
		4	Continuous process
		5	Not achieved.
		6	Not achieved.
Neosho	Newton	1	Ongoing city code adoption / code enforcement
		2	Completed April 2014. City code adoption / code enforcement.
		3	Ongoing. Updated every two years.
		4	Completed March 2013 with Green Infrastructure Design Handbook
		5	Completed January 2015. City code adoption / code enforcement.
		6	Ongoing monthly during siren testing (good weather and non-threatening)
		7	Ongoing monthly during siren testing (good weather and non-threatening)
		8	Required for city fire-fighters
Neosho School District	Newton	1	Completed August 2014 with FEMA shelter construction.
		2	Continuous process. Included in all students and faculty handbooks as of August 2014.
		3	Completed ever quarter.
		4	Completed August 2014. Training and guidelines posted in every room.
		5	Completed August 2014. Training provided by safety manager.
		6	Completed August 2014. Training provided by safety manager.
		7	Completed August 2014. Training and guidelines posted in every room.
		8	Continuous process. Training provided to committee at beginning of each year.

Table 4.5 2010 Jurisdiction-Specific Actions Review, Jasper and Newton Counties (continued)

Jurisdiction	County	Action Number	Completion status
Newton County	Newton	1	Ordinance passed and enforced. Currently monitoring for DFIRM development.
		2	Not achieved. No buyouts at the county level have taken place.
		3	Not achieved.
		4	Continuous process.
		5	Continuous process.
		6	Not achieved. Low water crossings are largely dealt with by local jurisdictions or MoDOT.
		7	Completed. Sirens added in Stark City and Wentworth.
		8	Continuous process.
		9	Continuous process. Completed in conjunction with Newton County Health Department.
Newtonia	Newton	1	Ordinance in place. Completed in 2009.
		2	Continuous process.
		3	Not achieved. Not offered by county.
		4	Not completed. Church and community building did not qualify as shelters because they had no showers. City Hall was destroyed by tornado and has not been rebuilt.
		5	Completed. Hand delivered to residents.
		6	Completed. Worked with FEMA, SEMA, and the county as needed.
		7	Continuous process. Sorted by neighborhoods and divided responsibility.
Oronogo	Jasper	1	Ordinance passed September 2012. Continuous enforcement.
		2	Continuous enforcement.
		3.	Continuous process.
		4	Not achieved. Need more training.
		5	Not achieved.
		6	Continuous process.
		7	Continuous process.
		8	Completed June 2015.
		9	Not achieved
		10	Continuous process.
Purcell	Jasper	1	Completed through schooling.
		2	Not achieved. Lack of participation.
		3	Not achieved. Lack of participation.
		4	Not achieved. Lack of funds.
		5	Completed April 2014. Siren installed at city park.
Redings Mill	Newton	1	Not achieved.
		2	Not achieved
		3	Not achieved
		4	Not achieved
		5	Not achieved
Ritchey	Newton	1	Continuous process. Letters sent to citizens each year in April.
		2	Continuous process. Letters sent to citizens each year in April.
Saginaw	Newton	1	Completed 2013. Updated and included in ordinances.
		2	Continuous. Cleaned up twice in park over last three years.
		3	Not achieved. Will adopt the Newton County emergency plan once completed.

Table 4.5 2010 Jurisdiction-Specific Actions Review, Jasper and Newton Counties (continued)

Jurisdiction	County	Action Number	Completion status
Sarcoxie	Jasper	1	Not achieved. Reverse 911 proved to be ineffective and was discontinued.
		2	A combined building was not achieved, but the school district built two large storm shelters with FEMA assistance.
		3	Completed August 2014. Generator secured from MO Department of Conservation. City repaired, upgraded, and installed it.
		4	Partially completed. 2 of 4 lift stations have generators. Lagoon has switch gear installed to facilitate a loaner generator as needed.
		5	Not yet achieved. Currently in progress.
		6	Continuous process.
		7	Continuous process.
		8	Not achieved.
		9	Not achieved. The mobile home park is privately owned and not in city limits.
		10	For-profit operation is taking care of its own back-up power supply.
		11	Continuous process.
Sarcoxie School District	Jasper	1	Completed February 2015.
		2	Continuous process. City prints pamphlets
		3	Continuous process. Drills conducted throughout
Seneca	Newton	1	Completed. Ordinance passed in 2011.
		2	Not completed. The city does not purchase properties.
		3	Not achieved.
		4	Continuous process. Emergency departments within the city participate in emergency preparedness training for all hazards. Residents are encouraged to register storm shelters with Newton County for recover/rescue.
		5	Continuous process. Implemented all protective measures possible to protect all emergency communication equipment, public water towers, and municipal pumps to ensure residents have water. Generators are in place and tested on a regular basis to ensure water and wastewater facilities operate during power outages.
		6	Not achieved. City blocks off low water bridges when water levels are high. There are no plans to eliminate these bridges.
		7	Completed in April 2015. No storm sirens were added, but the Seneca Police and Fire Department are able to manually set off our sirens to warn residents sooner than Newton County would. All sirens are tested on a regular basis for operational accuracy. No plans to add more sirens.
		8	Newton County Health Department has provided information about disease outbreaks. The city would follow all guidelines for an outbreak.
Seneca School District	Newton	1	Partially completed; Still in progress. Safe room completed in intermediate school in 2010. High school safe room in design process with an estimated completion date of 2016.
		2	Continuous. Completed yearly.
		3	Continuous. Completed yearly.
		4	Continuous. Completed yearly. Added Lockdown system.
		5	Continuous. Completed yearly.
		6	Not achieved.
		7	In progress.
Silver Creek	Newton	1-9	Not achieved. Silver Creek became part of Joplin in 2012, ceasing to exist as an independent entity.
Stark City	Newton	1-4	No response received. Not participating.
Stella	Newton	1-6	No response received. Not participating.

Table 4.5 2010 Jurisdiction-Specific Actions Review, Jasper and Newton Counties			
Jurisdiction	County	Action Number	Completion status
Waco	Jasper	1	Completed June 2015. Able to buy a FEMA saferoom.
		2	Not achieved. Currently proposing buying vouchers for NOAA radios for those without one.
		3	Not achieved. Currently looking at plan.
Webb City	Jasper	1	Continuous process.
		2	Completed March 2015. Webb City School District and Crowder College acquired funding to build storm shelters at every school district building (10) and at the Webb City Campus of Crowder College.
		3	Not achieved. Funding not awarded.
		4.	Not achieved. Funding not awarded.
		5	Continuous process.
		6	Continuous process
		7	Not achieved. Funding not awarded.
		8	Not achieved. Funding not awarded.
		9	Not achieved. Funding not awarded.
		10	Continuous process.
Webb City School District	Jasper	1	Seven grants completed as of July 2013.
		2	Continuous. Yearly training.
		3	Continuous. Completed four times yearly.
		4	Continuous. Completed four times yearly.
		5	Continuous. Completed four times yearly.
		6	Continuous. Completed twice annually.
		7	Continuous. Completed four times yearly.
		8	Completed. Modified and updated each year.
Wentworth	Newton	1	Completed October 2010 with ordinance.
		2	Not achieved. Lack of funds.
		3	Completed December 2011.
		4	Completed.
		5	Continuous notification of residents on monthly basis
		6	Not completed. No money or personnel.
Westview School District	Newton	1	Continuous. Completed yearly with yearly staff meeting and practiced monthly.
		2	Continuous. Completed yearly with flyer sent home at beginning of each year.
		3	Continuous. Completed yearly.
		4	Continuous. Sheriff's office creating plan.
		5	Continuous. Sheriff's office creating plan.
		6	Not achieved. Funding application submitted in June 2015. Placed on waiting list.

Following the assessment of the 2010 goals, objectives, and actions and the ensuing discussion discussed above, the committee worked to revise the existing objectives, combine and revise existing actions, and to establish new actions for the counties and their jurisdictions which are listed below. Additionally, the committee worked to establish a method and schedule for yearly plan updates and assessments. All identified actions with infrastructure improvements will be applied to both existing and new buildings and infrastructure. A short summary based on STAPLEE requirements is provided following the narrative below in Table 4.6.

2015 Goals, Actions, and Objectives

GOAL 1: Increase internal capabilities to mitigate the effects of natural hazards.

Objective 1.1: **Promote enhancement of floodplain management activities and building code requirements.**

- *Action 1.1.1:* Revise and update regulatory floodplain maps in conjunction with state and federal agencies and monitor for DFIRM development.
- *Action 1.1.2:* Adopt and enforce the International Building Code (IBC) and International Residential Code (IRC).
- *Action 1.1.3:* Continue compliance and implementation of NFIP policies through ordinance and enforcement.

Objective 1.2: **Promote the entities' capability to conduct hazard risk assessments, demonstrate funding needs, and track mitigation activities throughout the entity.**

- *Action 1.2.1:* Incorporate risk assessment and hazard mitigation principles into comprehensive planning efforts.
- *Action 1.2.2:* Support infrastructure changes that may mitigate the impact of natural hazards (i.e. burying power lines, building reinforcements, elevation projects, stormwater drainage management, and construction of tornado safe rooms.)
- *Action 1.2.3*: Monitor for the development of inundation data for dams in the two-county region.
- *Action 1.2.4*: Monitor the development of wildfire data to better assess the potential impact on the two-county region.
- *Action 1.*2.5: Monitor the development of sinkhole data to better assess the potential impact on the two-county region.

Objective 1.3: **Track adequacy of emergency services to protect public health and safety.**

- *Action 1.3.1:* Participate in the National Weather Service StormReady program.

- *Action 1.3.2:* Continually update and monitor the Emergency Operations Plan (EOP) for each county and regional disaster responses.
- *Action 1.3.3:* Execute and maintain mutual aid agreements with all relevant agencies. Develop written agreements between agencies as documentation.
- *Action 1.3.4:* Maintain a publicly accessible list of names, positions, contract information, roles, and responsibilities for all public safety positions and departments.
- *Action 1.3.5*: Review emergency access routes and evacuation routes; mitigate any problem areas.
- *Action 1*.3.6: Continue to upgrade and expand warning systems throughout Jasper and Newton counties as necessary.
- *Action 1*.3.7: Provide training for officials, county employees, and other local jurisdictions regarding the bi-county hazard mitigation plan, emergency operations plan, and other disaster preparedness programs.

***Objective 1.4*: Increase regional economic resistance to disasters.**

- *Action 1.4.1* Encourage the development and maintenance of disaster plans for local businesses, schools, hospitals, and other entities as necessary that are coordinated with regional disaster plans.
- *Action 1.4.2* Maintain emergency lists with names and phone numbers of plant managers and other large area employers.

GOAL 2: Enhance existing policies that will help reduce the potential damaging effects of hazards.

***Objective 2.1:* Take action to minimize the effects of natural disasters on people, property, and building contents.**

- *Action 2.1.1* Encourage citizens who reside in the floodplain to purchase flood insurance and reduce their risk through mitigation actions such as structure elevation.
- *Action 2.1.2* Provide an effective warning system to alert citizens in flood-prone areas and on low-lying roadways when flash flooding is imminent.
- *Action 2.1.3* Enforce NFIP policies.
- *Action 2.1.4:* Continue to support the building of community shelters and private safe rooms throughout the two-county region.

***Objective 2.2:* Incorporate drills, education programs, and planning strategies that focus on disaster response by varying populations.**

- *Action 2.2.1* Conduct tornado drills in schools and other public buildings.
- *Action 2.2.2* Use local fire departments to conduct education programs in schools.
- *Action 2.2.3* Support schools in the development of all-hazard plans, education programs, and other strategies to prepare students and faculty for potential disasters.

- *Action 2.2.4* Plan for and maintain adequate road and debris clearing capabilities.
- *Action 2.2.5:* Develop an ongoing campaign to educate the community about seasonal hazards. Coordinate this campaign with a variety of advertising resources to maximize the number of citizens reached in a timely manner.
- *Action 2.*2.6: Expand public information campaigns to focus on sheltering-in-place preparation.

GOAL 3: Protect entities' most vulnerable populations, buildings, and critical facilities through the implementation of cost-effective and technically feasible mitigation projects.

***Objective 3.1:* Identify and protect locations vulnerable to disasters.**

- *Action 3.1.1* Take inventory of areas which were subject to damage in past natural hazards and use information in future development.
- *Action 3.1.2* Maximize the use of available hazard mitigation grant programs to protect the entities' most vulnerable population and structures.

***Objective 3.2*: Ensure that all vital / critical facilities are protected from the effects of natural hazards to the maximum extent possible.**

- *Action 3.2.1* Encourage installation of lightning protection devices and methods on communication infrastructure and critical facilities.
- *Action 3.2.2* Encourage the adoption of stormwater regulation and installation of infrastructure to aid with drainage.
- *Action 3.2.3:* Utilize grant funds and local resources to purchase and install back-up generators for critical infrastructure sites (i.e. water treatment plant, wastewater treatment facilities, sheltering sites).
- *Action 3.*2.4: Encourage all utility providers to assess their facilities and distribution systems for vulnerabilities and make improvements to ensure continued service during a disaster.

Goal 4: Protect public health, safety, and welfare by increasing the public awareness and by fostering both individual and public responsibility in mitigating risks due to those hazards.

***Objective 4.1:* Increase the level of knowledge and awareness of residents on the hazards that routinely threaten the area.**

- *Action 4.1.1* Develop and implement a multi-hazard public awareness program to educate the public concerning the risks associated with each hazard, methods to mitigate the impacts of hazards, and emergency preparedness.
- *Action 4.1.2* Promote the purchase and use of NOAA weather radios by residents.
- *Action 4.1.3* Expand public information campaigns to focus on disaster readiness, including in-place sheltering, coordinated aid to the elderly, and

other programs as they become available.

Objective 4.2: **Identify the citizens most vulnerable to disasters and plan accordingly.**

- *Action 4.2.1* Develop a coordinated response and accommodation schematic for disaster sheltering based on federal guidelines in conjunction with local and state agencies.
- *Action 4.2.2* Work with the Red Cross, National Guard, and other local agencies to develop an inventory of facilities with generators / emergency power that can be used as shelters in the event of a disaster.

Table 4.6 Social, Technical, Administrative, Political, Legal, Economic and Environmental Criteria, Jasper-Newton Bi-County Plan, 2015	S	T	A	P	L	E	E
Goal 1: Increase internal capabilities to mitigate the effects of natural hazards.							
Objective 1.1: Promote enhancement of floodplain management activities and building code requirements.							
Action 1.1.1: Revise and update regulatory floodplain maps in conjunction with state and federal agencies and monitor for DFIRM development.		X	X		X		X
Action 1.1.2: Adopt and enforce the International Building Code (IBC) and International Residential Code (IRC).		X	X		X		
Action 1.1.3: Continue compliance with and implementation of NFIP policies through ordinance and enforcement.			X		X	X	X
Objective 1.2: Promote the entities' capability to conduct hazard risk assessments, demonstrate funding needs, track mitigation activities throughout the entity.							
Action 1.2.1: Incorporate risk assessment and hazard mitigation principles into comprehensive planning efforts.		X	X	X	X	X	
Action 1.2.2: Support infrastructure changes that may mitigate the impact of natural hazards (i.e. burying power lines, building reinforcements, elevation projects, stormwater drainage management, and construction of tornado safe rooms).		X	X	X	X	X	X
Action 1.2.3: Monitor for the development of inundation data for dams in the two-county region.		X	X			X	X
Action 1.2.4: Monitor the development of wildfire data to better assess the potential impact on the two-county region.		X	X			X	X
Action 1.2.5: Monitor the development of sinkhole data to better assess the potential impact on the two-county region.		X	X			X	X
Objective 1.3: Track adequacy of emergency services to protect public health and safety.							
Action 1.3.1: Participate in the National Weather Service StormReady program.	X	X	X		X	X	X
Action 1.3.2: Continually update and monitor the Emergency Operations Plan (EOP) for each county and regional disaster responses.		X	X	X	X		
Action 1.3.3: Execute and maintain mutual aid agreements with all relevant agencies. Develop written agreements between agencies as documentation.	X		X	X	X	X	
Action 1.3.4: Maintain a publicly accessible list of names, positions, contract information, roles, and responsibilities for all public safety positions and departments.	X		X	X	X		
Action 1.3.5: Review emergency access routes and evacuation routes; mitigate any problem areas.		X	X	X	X		X
Action 1.3.6: Continue to upgrade and expand warning systems throughout Jasper and Newton counties as necessary.		X	X		X	X	
Action 1.3.7: Provide training for officials, county employees, and other local jurisdictions regarding the bi-county hazard mitigation plan, emergency operations plan, and other disaster preparedness programs.	X	X	X	X	X	X	X

Table 4.6 Social, Technical, Administrative, Political, Legal, Economic and Environmental Criteria, Jasper-Newton Bi-County Plan, 2015	S	T	A	P	L	E	E
Goal 1: Increase internal capabilities to mitigate the effects of natural hazards.							
Objective 1.4: Increase regional economic resistance to disasters.							
Action 1.4.1: Encourage the development and maintenance of disaster plans for local businesses, schools, hospitals, and other entities as necessary that are coordinated with regional disaster plans.	X	X	X	X	X	X	X
Action 1.4.2: Maintain emergency lists with names and phone numbers of plant managers and other large area employers.			X		X	X	
Goal 2: Enhance existing policies that will help reduce the potential damaging effects of hazards.							
Objective 2.1: Take action to minimize the effects of natural disasters on people, property, and building contents.							
Action 2.1.1: Encourage citizens who reside in the floodplain to purchase flood insurance and reduce their risk through mitigation actions such as structure elevation.	X	X	X	X	X	X	X
Action 2.1.2: Provide an effective warning system to alert citizens in flood-prone areas and on low-lying roadways when flash flooding is imminent.	X	X	X	X	X	X	X
Action 2.1.3: Enforce NFIP policies.	X		X	X	X	X	
Action 2.1.4: Continue to support the building of community shelters and private safe rooms throughout the two-county region.	X	X	X	X	X	X	X
Objective 2.2: Take action to minimize the effects of natural disasters on people, property, and building contents.							
Action 2.2.1: Conduct tornado drills in schools and other public buildings.	X	X	X		X		X
Action 2.2.2: Use local fire departments to conduct education programs in schools.	X	X	X		X		X
Action 2.2.3: Support schools in the development of all-hazard plans, education programs, and other strategies to prepare students and faculty for potential disasters.	X	X	X	X	X	X	X
Action 2.2.4: Plan for and maintain adequate road and debris clearing capabilities.			X	X	X	X	X
Action 2.2.5: Develop an ongoing campaign to educate the community about seasonal hazards. Coordinate this campaign with a variety of advertising resources to maximize the number of citizens reached in a timely manner.	X	X	X	X	X	X	X
Action 2.2.6: Expand public information campaigns to focus on sheltering-in-place preparation.	X	X	X	X	X	X	X
Goal 3: Protect entities' most vulnerable populations, buildings, and critical facilities through the implementation of cost-effective and technically feasible mitigation projects.							
Objective 3.1: Identify and protect locations vulnerable to disasters.							
Action 3.1.1: Take inventory of areas which were subject to damage in past natural hazards and use information in future development.	X	X	X		X	X	X
Action 3.1.2: Maximize the use of available hazard mitigation grant programs to protect the entities' most vulnerable population and structures.	X	X	X	X	X	X	X

Table 4.6 Social, Technical, Administrative, Political, Legal, Economic and Environmental Criteria, Jasper-Newton Bi-County Plan, 2015	S	T	A	P	L	E	E
Objective 3.2: Ensure that all vital / critical facilities are protected from the effects of natural hazards to the maximum extent possible.							
Action 3.2.1: Encourage installation of lightning protection devices and methods on communication infrastructure and critical facilities.		X	X	X	X	X	
Action 3.2.2: Encourage the adoption of stormwater regulations and installation of infrastructure to aid with drainage.		X	X	X	X	X	X
Action 3.2.3: Utilize grant funds and local resources to purchase and install back-up generators for critical infrastructure sites (i.e. water treatment plant, wastewater treatment facilities, sheltering sites).		X	X	X	X	X	X
Action 3.2.4: Encourage all utility providers to assess their facilities and distribution systems for vulnerabilities and make improvements to ensure continued service during a disaster.	X	X	X	X	X	X	X
Goal 4: Protect public health, safety, and welfare by increasing the public awareness and by fostering both individual and public responsibility in mitigating risks due to those hazards.							
Objective 4.1: Increase the level of knowledge and awareness of residents on the hazards that routinely threaten the area.							
Action 4.1.1: Develop and implement a multi-hazard public awareness program to educate the public concerning the risks associated with each hazard, methods to mitigate the impacts of hazards, and emergency preparedness.	X	X	X	X	X	X	X
Action 4.1.2: Promote the purchase and use of NOAA weather radios by residents	X	X	X	X	X	X	X
Action 4.1.3. Expand public information campaigns to focus on disaster readiness, including in-place sheltering, coordinated aid to the elderly, and other programs as they become available.	X	X	X	X	X	X	X
Objective 4.2: Identify the citizens most vulnerable to disasters and plan accordingly.							
Action 4.2.1: Develop a coordinated response and accommodation schematic for disaster sheltering based on federal guidelines in conjunction with local and state agencies.	X	X	X	X	X	X	X
Action 4.2.2: Work with the Red Cross, National Guard, and other local agencies to develop an inventory of facilities with generators / emergency power that can be used as shelters in the event of a disaster.	X	X	X	X	X	X	X

Plan Implementation

Strategic Implementation

The goals, objectives, and actions of this plan necessitate group involvement, including individual communities, chambers of commerce, and large employers. All actions shown above were found to be cost-effective, environmentally sound and technically feasible. The following set of underlying operating principles will improve fiscal and operational efficiency, help maintain a focus on the greater goal of overall community well-being, and ensure implementation. Each action will be implemented according to the following strategies:

- Incorporate mitigation objectives into existing and future plans, regulations, programs and projects.
- Promote and encourage collaboration between agencies and departments to create a partnership and synergy that result in benefits that would not be possible through a single agency.
- Employ sustainable principles and techniques in the implementation of each objective to attain maximum benefits.
- Create and implement a prioritization process that includes fiscal, environmental, and sociological considerations.

Ensure Implementation through Inclusion in Adoption Resolution

The Jasper – Newton Bi-County Hazard Mitigation Plan will be implemented under the direction of each county's County Commission, the governing body of each municipality, a variety of intergovernmental agencies, non-governmental cooperatives, and each of their respective staffs. The implementation process will include coordination among County departments and other relevant agencies or districts through the Counties' Emergency Management Directors. Each County will set up a system to monitor progress and evaluate the effectiveness of implemented actions with revisions as needed. Every five years, the Counties will review the plan and include any needed updates. The updated plan will be submitted for SEMA/FEMA approval. Copies of the signed adoption resolutions are included in Appendix A. In addition, the plan will be reviewed for any necessary updates following any major disasters that occur within the two-county region.

Plan Maintenance

Plan maintenance details the formal process that will ensure the Jasper-Newton Bi-County Hazard Mitigation Plan remains an active and relevant document. The plan maintenance process includes a schedule for monitoring and evaluating the plan annually and producing a plan revision every five years with cooperation between the counties. This section describes how the counties will integrate public participation throughout the plan maintenance process. Finally, this section includes an explanation of how Jasper and Newton County's governments intend to incorporate the mitigation strategies outlined

in the plan into existing planning mechanisms such as the County Local Emergency Operations Plan, the CEDS, and floodplain management.

The results of this five-year review will be summarized in a report prepared for this Mitigation Plan under direction of the each county's Emergency Management Director and the bi-county LEPC. The report will include an evaluation of the effectiveness and appropriateness of the plan, and will recommend, as appropriate, any required changes or amendments to the plan. The planning committee directed to review the plan shall be composed of representatives from each county's various governmental agencies, County officials, City employees, utility service employees, emergency responders and planners, regional planners, and any concerned county residents. The committee shall be established when the five-year review period approaches and will meet as necessary to discuss mitigation updates. Upon meeting, the committee members will also report on the status of their assigned projects. The Hazard Mitigation Committee should update the plan and submit it to the Committee members and State Hazard Mitigation Officer.

2015 Plan Update Adoption

The Jasper and Newton County Commissions and their jurisdictions will be responsible for adopting the Jasper-Newton Bi-County Hazard Mitigation Plan. These governing bodies have the authority to promote sound public policy regarding natural hazards. Once the plan has been adopted, the Regional Planning Commission, HSTCC, will be responsible for submitting it to the State Hazard Mitigation Officer at Missouri State Emergency Management Agency. Missouri State Emergency Management will then submit the plan to the Federal Emergency Management Agency (FEMA) for review. Upon acceptance by FEMA, both Jasper County and Newton County will maintain eligibility for Hazard Mitigation Grant Program funds.

Monitoring, Evaluating, and Updating

Jasper and Newton Counties have developed a method to ensure regular review and update of the Hazard Mitigation Plan. Each county's Emergency Management Director (EMD) will include hazard mitigation objectives monthly in meetings with the County Commission as needed. If there is a need for a new committee to work on the plan, the County Commission will appoint such. As planning begins for each objective, the public will be encouraged to participate. Each county will publicize the various objectives and the objective at hand by way of media coverage and published reminders. Because this is a bi-county plan, the expectation of cooperation between the two counties is maintained throughout this process. Regular communication between the EMDs has been well established over the course of the past five years, and will continue in the future.

Each County Commission and its EMD will be responsible for monitoring and evaluating the progress of the mitigation strategies in the plan within their county. They will review each goal and objective to determine their relevance to changing situations in the county, as well as changes in State or Federal policy, and to ensure they are addressing current and expected conditions. They also will review the risk assessment portion of the

plan to determine if this information should be updated or modified. The parties responsible for the various implementation actions will report on the status of their projects and will include which implementation process worked well, any difficulties encountered, how coordination efforts were proceeding, and which strategies should be revised.

The Jasper County EMD and the Newton County EMD will work together to update and make changes to the plan that are appropriate for both counties and the region as a whole. They will have three months to update and make changes to the plan before submitting it to the committee members and the State Hazard Mitigation Officer. If no changes are necessary, the State Hazard Mitigation Officer will be given a justification for this determination.

All meetings of the County Commissions, City Councils, and Boards of Aldermen are public and posted per the Sunshine Law of the State of Missouri. The Harry S Truman Coordinating Council will continue to host any hazard mitigation announcements or information, as requested, as well as a copy of the latest plan available at all times.

Implementation through Existing Programs

When possible, plan participants will use existing plans and/or programs to implement hazard mitigation actions. Based on the capability assessments of the participating jurisdictions, communities in Jasper and Newton Counties will continue to plan and implement programs to reduce loss of life and property from hazards. This plan builds upon the momentum developed through previous planning efforts in the County, completed mitigation actions/efforts following the Joplin tornado, and recommends implementing actions, where possible, through the following means:

- Jasper County / Newton County Operations Plan
- General or master plans of participating jurisdictions
- Ordinances of participating institutions
- Capital improvement plans and budgets
- Other community plans within the counties (watershed plans, stormwater management plans, parks and recreation plans, etc.)

Upon adoption, the Jasper-Newton Bi-County Hazard Mitigation Plan will serve as a baseline of information on the natural hazards that impact the county and each of its cities. These goals and objectives will help local governments and other organizations plan for natural hazard mitigation in their own planning documents. The meetings of the LEPC and Hazard Mitigation Planning Committee will provide an opportunity for committee members to report back on the progress made on the integration of mitigation planning elements into county/city planning documents and procedures. The governing bodies of the jurisdictions adopting this plan will encourage all other relevant planning mechanisms under their authority to consult this plan to ensure minimization of risk to natural hazards and coordination of activities.

Continued Public Involvement

Jasper and Newton Counties are dedicated to involving the public directly in review and updates of the Hazard Mitigation Plan. The LEPC and the Hazard Mitigation Planning Committee members are responsible for the annual review and update of the plan. (See Appendix B for assessment form.) The public will also have the opportunity to provide feedback about the plan through a variety of venues. Copies of the plan will be available through the following offices and locations to ensure public accessibility:

- Jasper County Commission Office
- Newton County Commission Office
- Jasper County Emergency Management Director
- Newton County Emergency Management Director
- City or Village Clerks
- Harry S Truman Coordinating Council

Public commentary on the plan itself, proposed revisions to, and annual assessment of the plan will be requested and encouraged through local media. During the five-year review, public involvement will additionally be solicited through press releases, public announcements, and by general invitations sponsored by Jasper and Newton Counties. All public meetings will provide the public with a forum where they can express concerns, opinions, or ideas about the plan and proposed updates. Jasper and Newton Counties will collectively be responsible for publicizing the meetings and maintaining public involvement through public access channels, webpages, and newspapers.

Key to Table 4.10 - Five Year Action Plan Matrix

Type of Strategy

Each action of the Jasper-Newton Bi-County Hazard Mitigation Plan conforms to the six categories of mitigation as established by FEMA. The following list delineates mitigation recommendations that include the six categories of mitigation and their codes:

- Prevention (P)
- Property Protection (PP)
- Natural Resource Protection (NRP)
- Emergency Services (ES)
- Structural Projects (SP)
- Public Information (PI)

Action Status; Timeframe

Because of the unique origins of the plan as a bi-county plan, each action is technically new for 2015, though many are similar to the individual county plans from 2010. Many of these actions are composed of continuous processes that cannot be completed with a single project. As such, each action has been labeled as new and/or continuous depending upon its estimated completion.

Timeframe provides the year during which these types of actions will be pursued. Some items, particularly those items which are continuous actions, may include a range of years that includes the length of this five year plan because these actions are continuously pursued by the jurisdictions and organizations associated with this plan.

Analysis and Prioritization of Mitigation Actions (Cost, Benefit = Priority)

The mitigation actions included in this plan promote and/or support the development of local hazard mitigation plans, projects, and activities. In the original plan, the STAPLEE process was used to prioritize actions. For the 2015 update, STAPLEE was used not to prioritize actions, but to provide guidance for local officials in considering the impact of actions. The prioritization of mitigation action for Jasper County, Newton County, and their juridictions is greatly impacted by available local funding. All mitigation actions are prioritized based upon available funding and the scope of public benefit. A timeline for such mitigation is not outlined by the counties or jurisdictions, but rather pursued as resources allow and urgent public needs surface. Excellent examples of this were seen following the 2011 Joplin tornado with enhanced building codes and requirements, the installation of tornado safe rooms, and other projects which aid the two-county region in natural disaster resistance.

Table 4.10 presents a matrix which provides an analysis and prioritization of the county's

natural hazard mitigation goals, objectives, and actions. Prioritization considerations for the Hazard Mitigation Committee included:

- Jasper and Newton Counties have historically been most affected by tornadoes, thunderstorms, and flooding. The threat of severe winter storms, drought, heat wave, earthquake, dam failure, and wildfire must be addressed even though neither county has experienced these hazards to any significant degree.
- Some actions may be high priorities, but will require a lengthy process of preparatory steps and/or high implementation costs. Therefore, these types of actions will show up as a "high" priority, with a somewhat distant future target date for completion.
- Some actions impact a significant portion of or specific group within the local population. The number of persons impacted by such mitigation actions helps to determine the priority level.

The Hazard Mitigation Committee chose feasible, executable goals for the two-county region. Most goals require low or no cost actions, but education, encouragement, and planning. Examples include: instituting additional environmental measures (such as watershed protection), emergency operation plans, master plans, commercial/industrial plans, and education of the public. While some actions require a monetary investment (i.e. purchase of or construction of safe rooms/community shelters), the impact of saving lives and money far exceed any one-time costs incurred.

Each action has been rated High (H), Medium (M), and Low (L) for both potential cost and benefit. The priority is then established as an average of the cost and benefit labels. Table 4.7 demonstrates the priorities for each possible combination of cost and benefit.

Table 4.7 Cost, Benefit, and Priority Key

Cost Rating (H, M, L)	Benefit Rating (H, M, L)	Overall Priority Rating (H, M, L)
L	L	L
L	M	M
L	H	H
M	L	M
M	M	M
M	H	H
H	L	L
H	M	L
H	H	M

Jurisdictions / Organizations

Table 4.8 below defines the terms used in the larger item table identifying which organizations and jurisdiction will pursue the identified mitigation action.

Table 4.8 Lead Action Agency

Code	Agency
FSD	Family Support Division
JNC-Emrg	Jasper/Newton County Emergency Services
JNC-Admin	Jasper/Newton County Commission / Administration
JNC-Shrf	Jasper/Newton County Sheriff's Department
JNC-PH	Jasper/Newton County Public Health Department
JNC-PI	Jasper/Newton County Private Industries
LEPC	Local Emergency Planning Committee
NGO	Non-Profit or other community organization
LGA-All AD, AL, BH CJ, CV, CA, CY, DA, DI, DW, DQ, FA, FI, GR, GFP, J, JO, L, LL, NC, NW, N, O, P, RM, R, S, SX, SE, SCD, W, WC, WE	Local Government Agency – All Airport Drive (AD), Alba (AL), Brooklyn Heights (BH) Carl Junction (CJ), Carterville (CV), Carthage (CA), Carytown (CY), Dennis Acres (DA), Diamond (DI), Duenweg (DW), Duquesne (DQ), Fairview (FA), Fidelity (FI), Granby (GR), Grand Falls Plaza (GFP) Jasper (J), Joplin (JO), Leawood (L), Loma Linda (LL), Neck City (NC), Newtonia (NW), Neosho(N)Oronogo (O), Purcell (P), Redings Mill (RM), Ritchey (R), Saginaw (S), Sarcoxie (SX); Seneca (SE), Shoal Creek Drive (SCD), Waco (W), Webb City (WC), Wentworth (WE)
SD/EI ASD, CJSD CHCS DSD, ENS JSD, JoSD JACSS MLS, NSD NCS, SSD SeSD, SACS WCSD, WVSD CC MSSU OCC VC	School Districts and Education Institutions – All Avilla School District (ASD), Carl Junction School District (CJSD) College Heights Christian School (CHCS); Diamond School District (DSD), East Newton School District (ENS); Jasper School District (JSD); Joplin School District (JoSD); Joplin Area Catholic School System (JACSS) Martin Luther School (MLS); Neosho School District (NSD); Neosho Christian School (NCS); Sarcoxie School District (SSD); Seneca School District (SeSD); St. Ann's Catholic School (SACS) Webb City School District (WCSD); Westview School District (WVSD); Crowder College Missouri Southern State University (MSSU) Ozark Christian College (OCC) Vatterott College

Potential Funding Sources

The majority of mitigation projects require some type of funding. Seven potential funding sources were identified by the committee:

- Local (Funds or labor)
- State
- Federal
- Private Funds
- N/A

Evaluation Methods

The following are the anticipated methods that will be used to determine completeness or review for effective establishment of action items (Table 4.9).

Table 4.9 Evaluation Method

Code	Explanation
LEPC Rev.	The LEPC will review the action item and note in their minutes if it is complete or established
Maps	Maps depicting the hazard or exclusion zone have been completed.
Reports	A report has been prepared and given to the County Commission by the lead agency.
Records	The proper records have been made and are available for inspection on this action item.
Ordinance	Ordinances are passed and/or enforced by the county or local jurisdiction.
Infrastructure	"Brick and mortar" projects completed (i.e. installation of generators, construction of safe rooms).

Table 4.10 Jasper-Newton Bi-County, Five-Year Action Plan Matrix, 2015

Action	Type of Strategy	Action Status; Timeline	Cost, Benefit = Priority (H, M, L)	Jurisdiction / Organization	Potential Funding Sources	Evaluation	Natural Hazard									
							Dam Failure	Drought	Earthquake	Flood	Heat Wave	Thunderstorm	Winter Storm	Tornado	Fire	Sinkholes
Goal 1: Increase internal capabilities to mitigate the effects of natural hazards.																
Objective 1.1. Promote enhancement of floodplain management activities and building code requirements.																
Action 1.1.1: Revise and update regulatory floodplain maps in conjunction with state and federal agencies and monitor for DFIRM development.	P PP NRP	New / Continuous 2015-2020	M, M = M	JNC-Admin; AD, CJ, CA, DW, DQ, GR, GFP, Jo, LL, N, O, RM, S, SX, SE, WC	City County State	Maps Reports				X						
Action 1.1.2: Adopt and enforce the International Building Code (IBC) and International Residential Code (IRC).	P PP SP	New / Continuous 2015-2020	L, M = M	JNC-Admin; LGA-All	City County	Ordinance Records			X	X			X	X		
Action 1.1.3: Continue compliance and implementation of NFIP policies through ordinance and enforcement.	P PP NRP	New / Continuous 2015-2020	L, H = H	JNC-Admin; LGA-All	City County	Ordinance; Records				X						
Objective 1.2. Promote the entities' capability to conduct hazard risk assessments, demonstrate funding needs, and track mitigation activities throughout the entity.																
Action 1.2.1: Incorporate risk assessment and hazard mitigation principles into comprehensive planning efforts	P PP NRP ES	New / Continuous 2015-2020	H, M = L	JNC-Emrg; JNC-Admin; LGA-All; SD/EI; LEPC; NGO	City County State	Reports Records	X	X	X	X	X	X	X	X	X	X

Table 4.10 Jasper-Newton Bi-County, Five-Year Action Plan Matrix, 2015

Action	Type of Strategy	Action Status; Timeline	Cost, Benefit = Priority (H, M, L)	Jurisdiction / Organization	Potential Funding Sources	Evaluation	Natural Hazard									
							Dam Failure	Drought	Earthquake	Flood	Heat Wave	Thunderstorm	Winter Storm	Tornado	Fire	Sinkholes
Action 1.2.2: Support infrastructure changes that may mitigate the impact of natural hazards (i.e. burying power lines, building reinforcements, elevation projects, stormwater drainage management, and construction of tornado safe rooms).	P PP SP	New / Continuous 2015-2020	H, H = M	JNC-Admin; NGO; LGA-All; SD/EI	City Schools County State Federal	Infrastructure	X	X	X	X	X	X	X	X	X	X
Action 1.2.3: Monitor for the development of inundation data for dams in the two-county region.	P PP	New 2015-2020	L, L = L	JNC – Admin; LGA-All	City County	Maps Reports	X									
Action 1.2.4: Monitor the development of wildfire data to better assess the potential impact on the two-county region.	P PP	New 2015-2020	L, L = L	JNC-Admin; LGA-All	City County	Maps Reports									X	
Action 1.2.5: Monitor the development of sinkhole data to better assess the potential impact on the two-county region.	P PP NRP	New 2015-2020	L, L = L	JNC –Admin; LGA-All	City County	Maps Reports										X
Objective 1.3. Track adequacy of emergency services to protect public health and safety.																
Action 1.3.1: Participate in the National Weather Service StormReady program.	P PP ES PI	New 2015-2016	M, M = M	JNC-Admin	County	Reports Records				X	X	X	X	X		

Table 4.10 Jasper-Newton Bi-County, Five-Year Action Plan Matrix, 2015

Action	Type of Strategy	Action Status; Timeline	Cost, Benefit = Priority (H, M, L)	Jurisdiction / Organization	Potential Funding Sources	Evaluation	Natural Hazard									
							Dam Failure	Drought	Earthquake	Flood	Heat Wave	Thunderstorm	Winter Storm	Tornado	Fire	Sinkholes
Action 1.3.2: Continually update and monitor the Emergency Operations Plan (EOP) for each county and regional disaster responses.	P ES PI	New / Continuous 2015-2020	L, H = H	JNC-Admin; LEPC	County	LEPC Rev. Reports	X	X	X	X	X	X	X	X	X	X
Action 1.3.3: Execute and maintain mutual aid agreements with all relevant agencies. Develop written agreements between agencies as documentation.	P ES	New 2015-2016	L, M = M	JNC-Admin; LGA-All; LEPC; NGO	City County	LEPC Rev. Reports Records	X		X	X	X	X	X	X	X	
Action 1.3.4: Maintain a publicly accessible list of names, positions, contract information, roles, and responsibilities for all public safety positions and departments.	ES PI	New 2015-2016	L, L = L	JNC-Admin; JNC-Emrg; JNC-Shrf; LEPC	County	Records	X	X	X	X	X	X	X	X	X	X
Action 1.3.5: Review emergency access routes and evacuation routes; mitigate any problem areas.	P ES SP	New / Continuous 2015-2020	M, M = M	JNC-Admin; LGA-All	City County State	LEPC Rev. Reports Infrastructure	X		X	X		X	X	X	X	X
Action 1.3.6: Continue to upgrade and expand warning systems throughout Jasper and Newton counties as necessary.	ES SP	New / Continuous 2015-2020	H, M = L	JNC-Admin; LGA-All	City County State Federal	Infrastructure							X	X		
Action 1.3.7: Provide training to officials, county employees, and other local jurisdictions regarding the bi-county hazard mitigation plan, emergency operations plan, and other disaster preparedness programs.	P ES PI	New / Continuous 2015-2020	L, M = M	JNC-Admin	City County	Reports Records	X	X	X	X	X	X	X	X	X	X

Table 4.10 Jasper-Newton Bi-County, Five-Year Action Plan Matrix, 2015

Action	Type of Strategy	Action Status; Timeline	Cost, Benefit = Priority (H, M, L)	Jurisdiction / Organization	Potential Funding Sources	Evaluation	Natural Hazard									
							Dam Failure	Drought	Earthquake	Flood	Heat Wave	Thunderstorm	Winter Storm	Tornado	Fire	Sinkholes
Objective 1.4 Increase regional economic resistance to disasters.																
Action 1.4.1: Encourage the development and maintenance of disaster plans for local businesses, schools, hospitals, and other entities as necessary that are coordinated with regional disaster plans.	P ES PI	New 2015-2020	L, M = M	JNC-Admin; LGA-All; JNC-PI; NGO	City County Private	Reports Records	X	X	X	X	X	X	X	X	X	X
Action 1.4.2: Maintain emergency lists with names and phone numbers of plant managers and other large area employers.	ES PI	New 2015-2016	L, L = L	JNC-Admin; LGA-All	City County	LEPC Rev. Reports Records	X	X	X	X	X	X	X	X	X	X
Goal 2: Enhance existing policies that will help reduce the potential damaging effects of hazards.																
Objective 2.1: Take action to minimize the effects of natural disasters on people, property, and building contents.																
Action 2.1.1: Encourage citizens who reside in the floodplain to purchase flood insurance and reduce their risk through mitigation actions such as structure elevation.	P PP SP PI	New / Continuous 2015-2020	L, M = M	JNC-Admin; LGA-All	City County	Reports Records Ordinance				X						
Action 2.1.2: Provide an effective warning system to alert citizens in flood-prone areas and on low-lying roadways when flash flooding is imminent.	P PI	New / Continuous 2015-2020	M, L = M	JNC-Admin; LGA-All	City County	Reports Records	X			X						
Action 2.1.3: Enforce NFIP policies	P PP	New / Continuous 2015-2020	M, M = M	JNC-Admin; LGA-All	City County	Reports Records Ordinance				X						

Table 4.10 Jasper-Newton Bi-County, Five-Year Action Plan Matrix, 2015

Action	Type of Strategy	Action Status; Timeline	Cost, Benefit = Priority (H, M, L)	Jurisdiction / Organization	Potential Funding Sources	Evaluation	Natural Hazard									
							Dam Failure	Drought	Earthquake	Flood	Heat Wave	Thunderstorm	Winter Storm	Tornado	Fire	Sinkholes
Action 2.1.4: Continue to support the building of community shelters and private safe rooms throughout the two-county region.	SP	New / Continuous 2015-2020	H, H = M	LGA-All; SD/EI	City Schools County State Federal	Infrastructure								X		
Objective 2.2. Incorporate drills, education programs, and planning strategies that focus on disaster response by varying populations.																
Action 2.2.1: Conduct tornado drills in schools and other public buildings.	P ES	New / Continuous 2015-2020	L, M = M	JNC-Admin; LGA-All; SD/EI	City Schools	Reports								X		
Action 2.2.2: Use local fire departments to conduct education programs in schools.	P ES PI	New / Continuous 2015-2020	L, M =M	LGA-All; SD/EI	City Schools County	Reports									X	
Action 2.2.3: Support schools in the development of all-hazard plans, education programs, and other strategies to prepare students and faculty for potential disasters.	P PI	New / Continuous 2015-2020	L, H =H	JNC-Admin; LGA-All; SD/EI; LEPC	City Schools County	Reports Records			X	X	X	X	X	X	X	
Action 2.2.4: Plan for and maintain adequate road and debris clearing capabilities.	PP ES	New / Continuous 2015-2020	L, L = L	JNC-Admin; LGA-All	City County	LEPC Rev. Reports	X		X	X		X	X	X		
Action 2.2.5: Develop an ongoing campaign to educate the community about seasonal hazards. Coordinate this campaign with a variety of advertising resources to maximize the number of citizens reached in a timely manner.	P PI	New / Continuous 2015-2016	L, M = M	JNC-Admin; LGA-All	City County	LEPC Rev. Reports Records		X		X	X	X	X	X		

Table 4.10 Jasper-Newton Bi-County, Five-Year Action Plan Matrix, 2015

Action	Type of Strategy	Action Status; Timeline	Cost, Benefit = Priority (H, M, L)	Jurisdiction / Organization	Potential Funding Sources	Evaluation	Natural Hazard									
							Dam Failure	Drought	Earthquake	Flood	Heat Wave	Thunderstorm	Winter Storm	Tornado	Fire	Sinkholes
Action 2.2.6: Expand public information campaigns to focus on sheltering-in-place preparation.	P PI	New 2015-2017	L, H = H	JNC-Admin; JNC- PH	City County	Reports Records			X			X	X	X		
Goal 3: Protect entities' most vulnerable populations, buildings, and critical facilities through the implementation of cost-effective and technically feasible mitigation projects.																
Objective 3.1. Identify and protect locations vulnerable to disasters.																
Action 3.1.1: Take inventory of areas which were subject to damage in past natural hazards and use information in future development.	P PP	New / Continuous 2015-2020	L, M = M	JNC-Admin; LGA-All	City County State	Reports	X	X	X	X	X	X	X	X	X	X
Action 3.1.2: Maximize the use of available hazard mitigation grant programs to protect the entities' most vulnerable populations and structures.	P PP SP	New / Continuous 2015-2020	H, H = M	JNC-Admin; LGA-All; NGO; SD/EI	City Schools County State Federal Private	Reports Infrastructure	X	X	X	X	X	X	X	X	X	X
Objective 3.2. Ensure that all vital / critical facilities are protected from the effects of natural hazards to the maximum extent possible.																
Action 3.2.1: Encourage installation of lightning protection devices and methods on communication infrastructure and critical facilities.	P PP SP	New / Continuous 2015-2020	H, M = L	JNC-Admin; LGA-All; JNC-PI	City County State Private	Records Infrastructure						X				
Action 3.2.2: Encourage the adoption of stormwater regulation and installation of infrastructure to aid with drainage.	P PP SP	New 2015-2020	M, M = M	LGA-All	City County State Federal	Ordinance Infrastructure				X						

Table 4.10 Jasper-Newton Bi-County, Five-Year Action Plan Matrix, 2015

Action	Type of Strategy	Action Status; Timeline	Cost, Benefit = Priority (H, M, L)	Probable Lead Organizer	Potential Funding Sources	Evaluation	Natural Hazard									
							Dam Failure	Drought	Earthquake	Flood	Heat Wave	Thunderstorm	Winter Storm	Tornado	Fire	Sinkholes
Action 3.2.3: Utilize grant funds and local resources to purchase and install back-up generators for critical infrastructure sites (i.e. water treatment plant, wastewater treatment facilities, sheltering sites).	P ES SP	New / Continuous 2015-2018	H, M = L	JNC-Admin; LGA-All; NGO	City County State Federal Private	Records Infrastructure			X		X	X	X	X		
Action 3.2.4: Encourage all utility providers to assess their facilities and distribution systems for vulnerabilities and make improvements to ensure continued service during a disaster.	P PP SP	New / Continuous 2015-2020	H, M = L	JNC-Admin; LGA-All; JNC-PI; NGO	City County State Federal Private	Records Infrastructure	X	X	X	X	X	X	X	X	X	X
Goal 4: Protect public health, safety, and welfare by increasing the public awareness and by fostering both individual and public responsibility in mitigating risks due to those hazards.																
Objective 4.1: Increase the level of knowledge and awareness of residents on the hazards that routinely threaten the area.																
Action 4.1.1: Develop and implement a multi-hazard public awareness program to educate the public concerning the risks associated with each hazard, methods to mitigate the impacts of hazards, and emergency preparedness.	P PP PI	New 2015-2017	L, H =H	JNC-Admin; LGA-All	City County	Reports Records	X	X	X	X	X	X	X	X	X	X
Action 4.1.2: Promote the purchase and use of NOAA weather radios by residents.	P PI	New / Continuous 2015-2020	L, H = H	JNC-Admin; LGA-All; JNC-Shrf; LEPC; NGO	City County State	Reports Records			X	X		X	X	X		

Table 4.10 Jasper-Newton Bi-County, Five-Year Action Plan Matrix, 2015

Action	Type of Strategy	Action Status; Completion Timeframe	Cost, Benefit = Priority (H, M, L)	Probable Lead Organizer	Potential Funding Sources	Evaluation	Natural Hazard									
							Dam Failure	Drought	Earthquake	Flood	Heat Wave	Thunderstorm	Winter Storm	Tornado	Fire	Sinkholes
Action 4.1.3: Expand public information campaigns to focus on disaster readiness, including in-place sheltering, coordinated aid to the elderly, and other programs as they become available.	P PI	New / Continuous 2015-2020	L, M = M	JNC-Admin; LGA-All; JNC-PH	City County State	Reports Records	X	X	X	X	X	X	X	X	X	X
Objective 4.1: Increase the level of knowledge and awareness of residents on the hazards that routinely threaten the area.																
Action 4.2.1: Develop a coordinated response and accommodation schematic for disaster sheltering based on federal guidelines in conjunction with local and state agencies.	P ES	New 2015-2017	L, M = M	JNC-Admin; JNC-PH; LGA-All; NGO	City County State Federal Private	Reports Records	X		X	X	X		X	X		
Action 4.2.2.: Work with the Red Cross, National Guard, and other local agencies to develop an inventory of facilities with generators / emergency power that can be used as shelters in the event of a disaster.	P ES	New 2015-2017	L, M = M	JNC-Admin; JNC-PH; LGA-All; NGO	City County State Private	Reports Records	X	X	X	X	X		X	X		

Appendix A:

Adoption Resolutions

JASPER-NEWTON BI-COUNTY NATURAL HAZARD MITIGATION PLAN

Resolution for the Jasper-Newton Bi-County Hazard Mitigation Plan

The following resolution was adopted by Jasper County Commission on Nov. 3, 2015.

Resolution No. 15-03

A RESOLUTION OF INTENT TO PARTICIPATE IN NATURAL HAZARD MITIGATION AND TO WORK TOWARD BECOMING A SAFER COMMUNITY.

WHEREAS, the Jasper County Commission recognizes that no community is immune from natural hazard whether it be tornado/severe thunderstorm, flood, severe winter weather, drought, heatwave, earthquake, dam failure, or wildfire, and recognizes the importance of enhancing its ability to withstand natural hazards as well as the importance of reducing the human suffering, property damage, interruption of public services and economic losses caused by those hazards; and

WHEREAS, the Jasper County Commission may have previously pursued measures such as building codes, fire codes, floodplain management regulations, zoning ordinance, and stormwater management regulations to minimize the impact of natural hazards; and

WHEREAS, the Federal Emergency Management Agency and the State Emergency Management Agency have developed a natural hazard mitigation program that assists communities in their efforts to become Disaster-Resistant Communities which are sustainable communities after a natural disaster that focus, not just on disaster relief, but also on recovery and reconstruction that brings the community to at least pre-disaster conditions in an accelerated, orderly, and preplanned manner; and

WHEREAS, by participating in the Natural Hazards Mitigation program, the Jasper County Commission will be eligible to apply for post-disaster mitigation funds; and

WHEREAS, the Jasper County Commission desires to commit to working with government partners and community partners to implement the Natural Hazards Mitigation Plan; and

WHEREAS, the Jasper County Commission will implement pertinent precepts of the mitigation plan by incorporation into other community plans and mechanisms where appropriate; and

WHEREAS, the Jasper County Commission will participate in the evaluation and review of the Plan after a disaster as well as complete mandated five-year update submitted to the State Emergency Management Agency and the Federal Emergency Management Agency for review and approval; and

NOW, THEREFORE, BE IT RESOLVED BY THE Commission OF THE Jasper County AS FOLLOWS:

The Jasper County Commission hereby adopt the Jasper-Newton Bi-County Multi-Jurisdictional Natural Hazard Mitigation Plan attached hereto for the purpose of building a safer community by reducing natural hazard vulnerability.

Primary Official — 11-03-2015 Date

Secondary Official — 11-03-2015 Date

Tertiary Official — Date

JASPER-NEWTON BI-COUNTY NATURAL HAZARD MITIGATION PLAN

Resolution for the Jasper-Newton Bi-County Hazard Mitigation Plan

The following resolution was adopted by Newton Co Comm, November 04, 2015.

Resolution No. 2015-23

A RESOLUTION OF INTENT TO PARTICIPATE IN NATURAL HAZARD MITIGATION AND TO WORK TOWARD BECOMING A SAFER COMMUNITY.

WHEREAS, the Newton Co. Comm. recognizes that no community is immune from natural hazard whether it be tornado/severe thunderstorm, flood, severe winter weather, drought, hurricane, earthquake, dam failure, or wildfire, and recognizes the importance of enhancing its ability to withstand natural hazards as well as the importance of reducing the human suffering, property damage, interruption of public services and economic losses caused by those hazards; and

WHEREAS, the Newton Co. Comm. may have previously pursued measures such as building codes, fire codes, floodplain management regulations, zoning ordinance, and stormwater management regulations to minimize the impact of natural hazards; and

WHEREAS, the Federal Emergency Management Agency and the State Emergency Management Agency have developed a natural hazard mitigation program that assists communities in their efforts to become Disaster-Resistant Communities which are sustainable communities after a natural disaster that focus, not just on disaster relief, but also on recovery and reconstruction that brings the community to at least pre-disaster conditions in an accelerated, orderly, and preplanned manner; and

WHEREAS, by participating in the Natural Hazards Mitigation program, the Newton Co. Comm. will be eligible to apply for post-disaster mitigation funds; and

WHEREAS, the Newton Co. Comm. desires to commit to working with government partners and community partners to implement the Natural Hazards Mitigation Plan; and

WHEREAS, the Newton Co. Comm. will implement pertinent precepts of the mitigation plan by incorporation into other community plans and mechanisms where appropriate; and

WHEREAS, the Newton Co. Comm. will participate in the evaluation and review of the Plan after a disaster as well as complete mandated five-year update submitted to the State Emergency Management Agency and the Federal Emergency Management Agency for review and approval; and

NOW, THEREFORE, BE IT RESOLVED BY THE Commission OF THE Newton Co. AS FOLLOWS:

The Newton Co. Comm. hereby adopt the Jasper-Newton Bi-County Multi-Jurisdictional Natural Hazard Mitigation Plan attached hereto for the purpose of building a safer community by reducing natural hazard vulnerability.

Presiding Official — Date: 11-4-15

Secretary/Official — Date: 11-4-15

Further Official — Date: 11-4-15

Appendix B:

Public Involvement Documentation

Jasper-Newton Bi-County Annual Natural Hazard Mitigation Analysis and Report **Date of Plan Review:** _____		
Goal 1: Increase internal capabilities to mitigate the effects of natural hazards.		
Objective 1.1: Promote enhancement of floodplain management activities and building code requirements.		
Action Items	**Status: (Continuous, in progress, deferred, or eliminated)**	**Comments:**
1.1.1: Revise and update regulatory floodplain maps in conjunction with state and federal agencies and monitor for DFIRM development.		
1.1.2: Adopt and enforce the International Building Code (IBC) and International Residential Code (IRC).		
1.1.3: Continue compliance and implementation of NFIP policies through ordinance and enforcement.		
Objective 1.2: Promote the entities' capability to conduct hazard risk assessments, demonstrate funding needs, and track mitigation activities throughout the entity.		
Action Items	**Status: (Continuous, in progress, deferred, or eliminated)**	**Comments:**
1.2.1: Incorporate risk assessment and hazard mitigation principles into comprehensive planning efforts.		
1.2.2: Support infrastructure changes that may mitigate the impact of natural hazards (i.e. burying power lines, building reinforcements, elevation projects, stormwater drainage management, and construction of tornado safe rooms.)		
1.2.3: Monitor for the development of inundation data for dams in the two-county region.		

Action Items	Status: (Continuous, in progress, deferred, or eliminated)	Comments:
1.2.4: Monitor the development of wildfire data to better assess the potential impact on the two-county region.		
1.2.5: Monitor the development of sinkhole data to better assess the potential impact on the two-county region.		
Objective 1.3: Track adequacy of emergency services to protect public health and safety.		
Action Items	**Status: (Continuous, in progress, deferred, or eliminated)**	**Comments:**
1.3.1: Participate in the National Weather Service StormReady program.		
1.3.2: Continually update and monitor the Emergency Operations Plan (EOP) for each county and regional disaster responses.		
1.3.3: Execute and maintain mutual aid agreements with all relevant agencies. Develop written agreements between agencies as documentation.		
1.3.4: Maintain a publicly accessible list of names, positions, contract information, roles, and responsibilities for all public safety positions and departments.		
1.3.5: Review emergency access routes and evacuation routes; mitigate any problem areas.		
1.3.6: Continue to upgrade and expand warning systems throughout Jasper and Newton counties as necessary.		
1.3.7: Provide training for officials, county employees, and other local jurisdictions regarding the bi-county hazard mitigation plan, emergency operations plan, and other disaster preparedness programs.		
Objective 1.4: Increase regional economic resistance to disasters		

Action Items	Status: (Continuous, in progress, deferred, or eliminated)	Comments:
1.4.1: Encourage the development and maintenance of disaster plans for local businesses, schools, hospitals, and other entities as necessary that are coordinated with regional disaster plans.		
1.4.2: Maintain emergency lists with names and phone numbers of plant managers and other large area employers.		
Goal 2: Enhance existing policies that will help reduce the potential damaging effects of hazards.		
Objective 2.1: Take action to minimize the effects of natural disasters on people, property, and building contents.		
Action Items	**Status: (Continuous, in progress, deferred, or eliminated)**	**Comments:**
2.1.1: Encourage citizens who reside in the floodplain to purchase flood insurance and reduce their risk through mitigation actions such as structure elevation.		
2.1.2: Provide an effective warning system to alert citizens in flood-prone areas and on low-lying roadways when flash flooding is imminent.		
2.1.3: Enforce NFIP policies.		
2.1.4: Continue to support the building of community shelters and private safe rooms throughout the two-county region.		

Objective 2.2: Incorporate drills, education programs, and planning strategies that focus on disaster response by varying populations.		
Action Items	**Status: (Continuous, in progress, deferred, or eliminated)**	**Comments:**
2.2.1: Conduct tornado drills in schools and other public buildings.		
2.2.2: Use local fire departments to conduct education programs in schools.		
2.2.3: Support schools in the development of all-hazard plans, education programs, and other strategies to prepare students and faculty for potential disasters.		
2.2.4: Plan for and maintain adequate road and debris clearing capabilities.		
2.2.5: Develop an ongoing campaign to educate the community about seasonal hazards. Coordinate this campaign with a variety of advertising resources to maximize the number of citizens reached in a timely manner.		
2.2.6: Expand public information campaigns to focus on sheltering-in-place preparation.		
Goal 3: Protect entities' most vulnerable populations, buildings, and critical facilities through the implementation of cost-effective and technically feasible mitigation projects.		
Objective 3.1: Identify and protect locations vulnerable to disasters.		
Action Items	**Status: (Continuous, in progress, deferred, or eliminated)**	**Comments:**
3.1.1: Take inventory of areas which were subject to damage in past natural hazards and use information in future development.		
Objective 3.1: Identify and protect locations vulnerable to disasters.		

Action Items	Status: (Continuous, in progress, deferred, or eliminated)	Comments:
3.1.2: Maximize the use of available hazard mitigation grant programs to protect the entities' most vulnerable population and structures.		
Objective 3.2: Ensure that all vital / critical facilities are protected from the effects of natural hazards to the maximum extent possible.		
Action Items	**Status: (Continuous, in progress, deferred, or eliminated)**	**Comments:**
3.2.1: Encourage installation of lightning protection devices and methods on communication infrastructure and critical facilities.		
3.2.2: Encourage the adoption of stormwater regulation and installation of infrastructure to aid with drainage.		
3.2.3: Utilize grant funds and local resources to purchase and install back-up generators for critical infrastructure sites (i.e. water treatment plant, wastewater treatment facilities, sheltering sites).		
3.2.4: Encourage all utility providers to assess their facilities and distribution systems for vulnerabilities and make improvements to ensure continued service during a disaster.		

Goal 4: Protect public health, safety, and welfare by increasing the public awareness and by fostering both individual and public responsibility in mitigating risks due to those hazards.		
Objective 4.1: Increase the level of knowledge and awareness of residents on the hazards that routinely threaten the area.		
Action Items	**Status: (Continuous, in progress, deferred, or eliminated)**	**Comments:**
4.1.1: Develop and implement a multi-hazard public awareness program to educate the public concerning the risks associated with each hazard, methods to mitigate		
4.1.2: Promote the purchase and use of NOAA weather radios by residents		
4.1.3: Expand public information campaigns to focus on disaster readiness, including in-place sheltering, coordinated aid to the elderly, and other programs as		
Objective 4.2: Identify the citizens most vulnerable to disasters and plan accordingly.		
Action Items	**Status: (Continuous, in progress, deferred, or eliminated)**	**Comments:**
4.2.1: Develop a coordinated response and accommodation schematic for disaster sheltering based on federal guidelines in conjunction with		
4.2.2: Work with the Red Cross, National Guard, and other local agencies to develop an inventory of facilities with generators / emergency power that can be used as shelters in the event of a disaster.		

The annual assessment and report of the Jasper-Newton Bi-County Natural Hazard Mitigation Plan for the year_____was presented by the Emergency Management Director to the county commissioners on_____,_____.

The _____ County Commissioners hereby accept and approve the annual report.

_____
Presiding Commissioner

_____
Emergency Management Director

Harry S Truman Coordinating Council

800 E. Pennell
Carl Junction, MO 64834

Office: (417)649-6400
Fax: (417)649-6409
www.hstcc.org

April 6, 2015

To: Incorporated Jurisdictions in Jasper and Newton Counties
Subject: Jasper and Newton Bi-County Hazard Mitigation Plan Update

The Harry S Truman Coordinating Council (HSTCC) has been contracted by SEMA to update the federally-mandated multi-jurisdictional Hazard Mitigation Plan for Jasper and Newton Counties. Jasper and Newton Counties are susceptible to many types of natural hazards. Tornadoes, winter storms, and other natural disasters have shaped the landscape, history, and economy of the county. Hazard mitigation planning is the process of devising strategies to lessen the impact. Potential project funded through mitigation funds include tornado safe rooms, placing utility lines underground, and a host of other projects.

Section 322 of the Disaster Mitigation Act of 2000 (DMA 2000) requires any public entity seeking federal disaster relief mitigation funds to have in place a local Hazard Mitigation Plan before mitigation funding can be accessed. This legislation strengthens the importance of mitigation planning and stresses planning for disasters before they occur. Federal regulations also require all incorporated jurisdictions and school districts participate in updating the Plan. **Minimum participation requirements are defined as:**

- Providing information to support plan update through **at least one** of the following methods:
  - Completion of data worksheets regarding hazard mitigation; or
  - Attendance at public meetings specific to this planning process.
- Formal adoption of the final Bi-County Hazard Mitigation Plan after its approval from SEMA and FEMA.

The first data worksheet is enclosed with this letter. Please fill out the worksheet for your jurisdiction or school and return it to HSTCC no later than May 15, 2015. You may return it via mail, email, or fax. Instructions are provided on the worksheet. A second worksheet will be sent out in June in conjunction with our next meeting on June 17, 2015. More details will provided as we approach that date.

In addition, the counties and jurisdictions are required to provide in-kind match through participation by local entities and individuals who work on this project. Please invite any residents or citizens that you believe would be interested in participating in this planning effort. Enclosed is a time sheet to help your jurisdiction track time and mileage spent while participating in this plan update. Each individual must record their own timesheet, using their hourly wage plus benefits. If you make more than $19 per hour, including benefits, please list that amount as your hourly rate. For all other individuals, please list $19 as your hourly rate. This information will be kept strictly confidential and will not be used for any other purpose except to track in-kind match. Mileage traveled and travel time to meetings can also be used for in-kind match.

If you have any questions, please don't hesitate to contact HSTCC. We are working to ensure eligibility for all jurisdictions in the county and appreciate your participation!

AGENDA

Jasper – Newton Bi-County Hazard Mitigation Plan

Meeting #1

I. Welcome and Introductions

II. Hazard Mitigation Plan Review
   a. Purpose and Benefits
   b. Review of Existing Plans
   c. Past goals, objectives, and actions

III. Bi-County Plan Development – Thinking Regionally
   a. Timeline
   b. Requirements for participating jurisdictions
   c. Data collection needs

IV. 2010-2015 Review
   a. Hazards
   b. Mitigation efforts
   c. Changes in local jurisdictions

V. Adjournment
   a. Next meeting date: June 2015, Date TBD.

Jasper and Newton Bi-County Hazard Mitigation Plan Update

Spring 2015

Jurisdiction Name: _____

Name and Title of Person Completing This Form:

Name: _____

Title: _____

Community Information:

Service Providers: Please list all providers of the following service in your jurisdiction.

Water _____

Sewer _____

Electricity _____

Fire Protection _____

Ambulance _____

Telephone _____

Internet _____

Cable / Satellite _____

Trash _____

Other _____

Does your jurisdiction utilize any community planning efforts (zoning, etc.)? Yes No

If yes, please describe: _____

_____

_____

Please list any licensed Day Care facilities that reside in your jurisdiction:

_____

_____

_____

Please list any Long Term facilities (nursing homes, etc.) known to exist in your jurisdiction:

_____

_____

_____

Please list any recreational facilities located in your jurisdiction (recreation centers, parks, etc.):

_____

_____

_____

Of the following natural hazards, which do you consider to be the most dangerous for Jasper and Newton County residents? (Please identify the top three.)

___ Tornado	___ Thunderstorm / Hail / Wind	___ Severe Winter Weather
___ Drought	___ Flooding	___ Heat Wave
___ Earthquake	___ Wildfire	___ Dam / Levee Failure

Has your jurisdiction implemented any mitigation actions in the past five years? Examples might include improved disaster education, tornado/fire drills, construction of tornado safe rooms, etc.

___ Yes ___ No

If yes, please explain: _____

_____

_____

_____

Please return this form to the Harry S Truman Coordinating Council no later than **May 15, 2015**. You may return this form by mail, fax or email.

Mailing Address: 800 East Pennell, Carl Junction, MO 64834

Fax: (417) 649-6409

Email: kpodleski@hstcc.org

Jasper and Newton Bi-County Hazard Mitigation Plan Update

Spring 2015

School District / College Name: _____

School Name(s): _____

Name and Title of Person Completing This Form:

Name: _____

Title: _____

School Enrollment and Staff: Please complete the following chart with enrollment and staff number information.

School	Enrollment	Certified Staff	Uncertified Staff	College Faculty and Staff
Elementary School				
Middle School				
High School				
College / University				
Totals				

Does your district / institution currently have an emergency plan in force? Yes No

If yes, please answer the following questions:

A) Which of the following types of emergencies does your plan address? Select all that apply.

___ Earthquake ___ Tornado ___ Severe Winter Weather

___ School Intruder / Shooter ___ Bomb Threat ___ Fire

___ Other _____

B) How often is your plan reviewed and/or updated? _____

C) Is the plan created by the administration or by committee? _____

Of the following natural hazards, which do you consider to be the most dangerous for Jasper and Newton County residents? (Please identify the top three.)

___ Tornado	___ Thunderstorm / Hail / Wind	___ Severe Winter Weather
___ Drought	___ Flooding	___ Heat Wave
___ Earthquake	___ Wildfire	___ Dam / Levee Failure

Has your school implemented any mitigation actions in the past five years? Examples might include improved disaster education, tornado/fire drills, construction of tornado safe rooms, etc.

___ Yes ___ No

If yes, please explain: _____

_____

_____

_____

Please return this form to the Harry S Truman Coordinating Council no later than **May 15, 2015**. You may return this form by mail, fax or email.

Mailing Address: 800 East Pennell, Carl Junction, MO 64834

Fax: (417) 649-6409

Email: kpodleski@hstcc.org

Meeting #1

HSTCC

Jasper/Newton County Hazard Mitigation Plan

HSTCC SIGN IN SHEET 3/27/15 Parkwood Junior Bowling Complex

PRINTED NAME:	TITLE/AGENCY:	CONTACT INFORMATION/ email
Jason Ray	HSTCC	jray@hstcc.org
Don Daniel	City of Neosho	ddaniels@neoshomo.org
John Harrington	City of Neosho	jharrington@neoshomo.org
Jason Snyder	MOARNG	JASON.A.SNYDER.MIL@MAIL.MIL
Scott Macke	MOARNG	SCOTT.D.MACKE.MIL@MAIL.MIL
Mike Johnson	Joplin Schools	MIKE JOHNSON@JOPLINSCHOOLS.ORG
Debbie Cornell	City of Carterville	CORNELLDEBBIE55@YAHOO.COM
KEITH STAMMER	JOPLIN/JASPER CO OEM	KSTAMMER@JOPLINMO.ORG
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JIM JACKSON	NEWTON CO. COMM	JJACKSONCC2@GMAIL.COM
Jill Garnett	HSTCC	jgarnett@hstcc.org
Dana Ternus	Ternus Consulting	danaternus@gmail.com
Kelli Podlesak	HSTCC	kpodlesak@hstcc.org

Harry S Truman Coordinating Council

800 E. Pennell
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Office: (417)649-6400
Fax: (417)649-6409
www.hstcc.org

May 15, 2015

To: Incorporated Jurisdictions in Jasper and Newton Counties, Schools, and Public Entities

Subject: Jasper and Newton Bi-County Hazard Mitigation Plan Update

The Harry S Truman Coordinating Council (HSTCC) will host the second of four public meetings concerning the Jasper-Newton Bi-county Hazard Mitigation Plan on Wednesday, June 17, 2015 at 2pm at the Jasper County Command Center in Joplin (303 East Third Street). An agenda is attached. Please RSVP to Kelli Podleski by Monday, June 15, 2015 at 5pm to ensure an accurate count (kpodleski@hstcc.org or 417-649-6400).

In order to be eligible for mitigation funds, all incorporated jurisdictions and school districts must participate in the process. **Minimum participation requirements are defined as:**

- Providing information to support plan update through **at least one** of the following methods:
  - Completion of data worksheets regarding hazard mitigation; or
  - Attendance at public meetings specific to this planning process.
- Formal adoption of the final Bi-County Hazard Mitigation Plan after its approval from SEMA and FEMA.

The second data worksheet is enclosed with this letter. Please fill out the worksheet for your jurisdiction or school and bring it to the June meeting. We will be discussing past hazard mitigation actions as well as beginning to establish mitigation actions for the upcoming plan. If your jurisdiction is unable to attend the meeting, you may return the worksheet via mail, email, or fax.

Please remember that the counties and jurisdictions are required to provide in-kind match through participation by local entities and individuals who work on this project. Enclosed is a time sheet to help your jurisdiction continue to track time and mileage spent while participating in this plan update. Each individual must record their own timesheet, using their hourly wage plus benefits. If you make more than $19 per hour, including benefits, please list that amount as your hourly rate. For all other individuals, please list $19 as your hourly rate. This information will be kept strictly confidential and will not be used for any other purpose except to track in-kind match. Mileage traveled and travel time to meetings can also be used for in-kind match. Please remember to invite any and all citizens that would be interested in participating in this planning process.

If you have any questions, please don't hesitate to contact HSTCC or Dana Ternus, our contractor for this project. You can reach her via email (danaternus@gmail.com) or by phone at 660-853-8477. We look forward to seeing you at our next meeting!

AGENDA
Jasper – Newton Bi-County Hazard Mitigation Plan
Meeting #2

I. Welcome

II. Hazard Review
   a. Existing hazards
   b. Hazard history of Jasper and Newton County
      i. Computing vulnerability

III. Mitigation Actions
   a. Existing actions
   b. Actions of interest by jurisdiction

IV. Local development
   a. Revised flood maps
   b. Changes in local jurisdictions
      i. Areas of housing development
      ii. Areas of business development
   c. Vulnerable locations
      i. Trailer parks
      ii. Hospitals, nursing homes, and licensed daycares
      iii. Low-water crossings
      iv. Areas without outdoor siren coverage
      v. Critical facilities

V. Adjournment
   a. Next meeting date: July 2015, Date TBD.

Jasper-Newton Bi-County Hazard Mitigation Plan Update

Summer 2015

Jurisdiction Name: _____

Name and Title of Person Completing This Form: _____

Mitigation Actions (2010-2015)

YES NO Has your local government encouraged residents to purchase weather radios to ensure that everyone has sufficient access to information in times of severe weather?

If yes, please explain the process used (i.e. newspaper articles, free distribution, word of mouth, flyers, mailing, etc.)

_____
_____
_____
_____

YES NO Has your jurisdiction assessed existing public facilities for the location of suitable "safe areas" during a natural hazard event (i.e. tornado, winter storm, etc.)?

If yes, are those safe areas clearly marked? Are employees and visitors able to find these safe areas? _____
_____

YES NO Does your jurisdiction require by ordinance a NOAA weather radio in continuous operation in all facilities offering public accommodations?

YES NO Does your jurisdiction possess an outdoor warning system (siren)?

If yes, please answer the following questions:

What year was your siren installed? _____
Is your siren manually or remotely controlled? _____
Is your siren activated by a local resident or the Sherriff's Department? _____
_____

YES NO Has your jurisdiction passed an ordinance restricting development in flood plains and hazard prone areas?

YES NO Has your jurisdiction developed an ongoing "buyout" program for properties located in the highest-risk flood areas.

YES NO Does your jurisdiction provide an effective warning system to alert citizens in flood prone areas and on low-lying roadways when flooding is imminent?

YES NO Does your jurisdiction inform and educate all city/county department heads and major employers about the county mitigation plan?

YES NO Does your jurisdiction maintain copies of critical records? Are those copies stored ina separate location from the originals?

YES NO Does your jurisdiction encourage tree trimming by utility lines to offset damages from tree limbs?

Mitigation Actions 2015-2020:

Which of the following mitigation actions would your jurisdiction support in Jasper and Newton counties? (Please check all that apply.)

Drought:

____ Identify factors affecting and available water supplies for times of drought.
____ Determine the impact of past droughts on the community.
____ Develop a drought emergency plan.
____ Developing agreements for secondary water sources that may be used during drought conditions.
____ Developing ordinances to restrict the use of public water resources for non-essential usage (landscaping, washing cars, filling pools, etc.)
____ Encourage farmers to implement soil and water conservations through practices like rotating crops, contour farming, cover crops, collecting rainwater, and constructing windbreaks.

Earthquake:

____ Incorporate structural and non-structural seismic strengthening actions into ongoing building plans.
____ Develop an inventory of public and commercial buildings particularly vulnerable to earthquake damage.
____ Establish a school survey procedure and guidance document to inventory structural and non-structural hazards in and around school buildings.
____ Increase public awareness of the importance of earthquake risk and mitigation activities in homes, schools, and businesses.

Extreme Temperatures (Heat Wave, Intense Cold):

____ Increase tree plantings.
____ Organizing outreach to vulnerable populations, including heating and cooling centers.
____ Encouraging utility companies to offer special arrangements for paying heating billins.

Flood:

____ Developing a storm water committee that meets to discuss issues and recommend projects.
____ Forming a regional watershed council.
____ Prohibiting or limiting floodplain development through regulatory and incentive-based measures.
____ Requiring that floodplains be kept as open space.
____ Prohibiting all first floor enclosures below base flood elevations for all structures in the flood

hazard areas.

____ Prepare and adopt a community-wide storm water management master plan.
____ Design a "natural runoff" or "zero discharge" policy for stormwater in design.
____ Develop a dam failure study and emergency action plan.
____ Revise and update regulatory floodplain maps in conjunction with state and federal agencies.
____ Continue participating in NFIP (National Flood Insurance Program).
____ Conduct NFIP community workshops to provide information for property owners to acquire flood insurance.
____ Advise the public about the local flood hazard, flood insurance, and flood protection measures.
____ Take action to minimize the effects of flooding on people, property, and building contents through measures including flood warning, emergency response, and evacuation planning.
____ Routinely clean and repair stormwater drains, bridge support bracings, and clear sediment build-up.
____ Elevate roads and bridges above the base flood elevation.

Hail, Lightning, Wind, and Thunderstorm:

____ Encourage installation of lightning protection devices and methods on communications infrastructure and other critical facilities.

Severe Winter Weather:

____ Plan for and maintain adequate road and debris clearing capabilities.
____ Identify specific at-risk populations that may be exceptionally vulnerable in the event of long-term power outages.
____ Organize outreach to vulnerable populations, including heating centers, in the community.

Tornado:

____ Conduct tornado drills in schools and other public buildings.
____ Support severe weather awareness week.
____ Promote the use of NOAA weather radios.

Wildfire:

____ Use local fire departments to conduct education programs in schools.
____ Work with insurance companies, utility providers, and others to include wildfire safety information in materials provided to area residents.

General Actions:

____ Incorporate risk assessment and hazard mitigation principles into comprehensive planning efforts.
____ Adopting the International Building Code (IBC) and International Residential Code (IRC).
____ Prepare and submit an annual plan implementation progress report to the local elected body to monitor the implementation and progress of the local mitigation plan.
____ Support infrastructure changes that may mitigate the impact of natural hazards. (i.e. burying power lines, reinforcements to masonry buildings, building elevation in the floodplain, construction of safe rooms for tornado or earthquake, etc.)
____ Develop and implement a multi-hazard public awareness program. Educate the public concerning the risks associated with each hazard, methods to mitigate the impacts of hazards, and emergency preparedness. (i.e. Risk of driving on flooded roads, in-place sheltering requirements, pipe protection, earthquake impacts.)

____ Establish a "hazard awareness week" in coordination with the media to promote hazard awareness.
____ Provide information on all types of hazards, preparedness and mitigation measures, and responses during hazard events.
____ Encouraging residents to prepare by stocking up the necessary items and planning for how family members should respond during a disaster.
____ Promoting the purchase and use of NOAA weather radios by residents.
____ Participating in National Weather Service StormReady program.
____ Mitigate hazards during infrastructure planning.
____ Work with utility companies to maximize benefit of vegetation removal around service lines.

Which of those potential actions selected for 2015-2020 would your community or jurisdiction be willing to implement and/or work with the county to ensure implementation?

_____
_____
_____
_____
_____

Does your jurisdiction have any plans to make infrastructure changes that may be considered mitigation in the next 5 years? For example, is your school or community interested in the construction of a tornado/earthquake safe room? Is your jurisdiction interested in developing written mutual support agreements? Is your jurisdiction seeking solutions to flash flooding through stormwater management?**

_____
_____
_____
_____
_____

**The answer to the question above does not require your community to complete any type of infrastructure project, but provides the committee with information that can be used to establish the final actions for Jasper and Newton County. Currently, FEMA and SEMA will not fund any type of "brick-and- mortar project" (infrastructure project) that is not included in the county hazard mitigation plan. If your jurisdiction is even slightly interested in completing some type of mitigation action in the next 5 years, please include it here.

Please return this form to the Harry S Truman Coordinating Council no later than **June 17, 2015**. You may return this form by mail, fax or email.

Mailing Address: 800 East Pennell, Carl Junction, MO 64834
Fax: (417) 649-6409
Email: kpodleski@hstcc.org

HSTCC

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PRINTED NAME:	TITLE/AGENCY:	CONTACT INFORMATION:
Cotton Roy	MO Dot	417 7664891
Jason Smith	METS Ambulance-Chief	417-850-5894
Bill Dunn	CARL JCT. FIRE	417-437-6090
Andrew Boughton	Chief/Webb City Fire Dept	ABOUGHTON@WEBBCITYFD.ORG 417-673-2254
Roger Williams	FireChief/EMA City of Carthage	417-237-7100
Don Melton	Webb City Asst Police Chief/EMA	417 673-1911
Rick Schmoller	Carthage/GIS	417-237-7010
Megan Housh	Admin/City of Carthage	417-237-7100
Joe Perkins	Carl Junction Fire Dept.	417-[illegible] 649-6062
Sue Hershey	Village of Airport Drive	417 623-6744
FRANK STONE	Village of Airport Drive	417 623 6744
LEIGH KELLEY	JC JOPLIN Emer. Man.	417-235-9767 (C) 624-0820 ext 201
Teri Neil	City of Fidelity, City Clerk	(417) 437-4275
Jim Hounschell	Joplin Schools	417) 625-5230 EXT 3008
Joyce Mann	City of Granby	417-472-6556 City Hall / 417-825-2096 cell

[illegible]

HSTCC

HSTCC SIGN IN SHEET

PRINTED NAME:	TITLE/AGENCY:	CONTACT INFORMATION:
MARK KALMBACH	DIRECTOR OF [illegible] / CROWDER COLLEGE	417-455-6392 MARKKALMBACH@CROWDER.EDU
Debbie Cornell	city Clerk Carterville	417-673-1341 Cornell64855@yahoo.com
JIM JACKSON	NEWTON CO COMMISSION	JJACKSON002@GMAIL.COM
Alan Griffin	Sales Supervisor / Java Dave's	alangriffin@cableone.net
William Cline	City Admin, City of Carterville	chief@cartervillemo.com
Skip Harper	EM-Freeman Health System	cmharper@freemanhealth.com
[illegible] Rogetio		
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TROY ROYER	CITY MANAGER / CITY OF NEOSHO	troyer@neoshomo.org
Brenda Schmitt	Mayor City of Diamond	mayor@diamondmo.net
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Dana Daniel	City of Neosho	DDANIELS@NEOSHOMO.ORG
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[illegible]

Harry S Truman Coordinating Council

800 E. Pennell
Carl Junction, MO 64834

Office: (417)649-6400
Fax: (417)649-6409
www.hstcc.org

July 1, 2015

To: Incorporated Jurisdictions in Jasper and Newton Counties, Schools, and Public Entities

Subject: Jasper and Newton Bi-County Hazard Mitigation Plan Update

As we continue through the process of planning for the Jasper-Newton Bi-county Hazard Mitigation Plan, we are in need of your help. Enclosed, you will find a number of documents: worksheets not yet completed by your jurisdiction, a map of your jurisdiction (towns and counties only), and a list of mitigation actions chosen by your jurisdiction in the previous plan.

Please follow these instructions:

1) Worksheets from meetings 1 and 2 are needed as soon as possible.
    a. Please complete and submit them to Kelli Podleski no later than July 11, 2015. These provide the basis for meeting 3, set to be held on July 21st. This information is **critical** to the development of the plan and mitigation actions.

2) Using the map provided, please mark and identify the following:
    a. Areas of growth and development over the last five years (Residential, commercial, etc.)
    b. Location of trailer parks
    c. Areas of projected / future growth over the next five years (Residential, commercial, etc.)

3) Complete the spreadsheet concerning your jurisdiction's mitigation actions from the previous plan. Consider the following:
    a. Was this action completed by your jurisdiction in the past five years?
        i. If yes, please provide the date of completion.
    b. Is this an action which your jurisdiction pursues regularly or on an ongoing basis?
    c. Was this action not completed in the past five years?
        i. If not, please explain the reason that it was not completed (i.e. lack of funding, lack of technology,

Please return your maps and mitigation actions no later than August 1, 2015 to Kelli Podleski. If you have any questions, please don't hesitate to contact HSTCC or Dana Ternus, our contractor for this project. You can reach her via email (danaternus@gmail.com) or by phone at 660-853-8477. Our next meeting is scheduled for July 21st at 2:30. Please save the date on your calendar. An agenda will be provided approximately two weeks before the meeting.

Thank you for your participation and help!

Harry S Truman Coordinating Council

800 E. Pennell
Carl Junction, MO 64834

Office: (417)649-6400
Fax: (417)649-6409
www.hstcc.org

July 13, 2015

To: Incorporated Jurisdictions in Jasper and Newton Counties, Schools, and Public Entities

Subject: Jasper and Newton Bi-County Hazard Mitigation Plan Update

The Harry S Truman Coordinating Council (HSTCC) will host the second of four public meetings concerning the Jasper-Newton Bi-county Hazard Mitigation Plan on Wednesday, July 21, 2015 at 2:30pm at the Freeman Business Center, 3201 McClellan Blvd in Joplin. An agenda is attached. Please RSVP to Kelli Podleski by Monday, July 20, 2015 at 5pm to ensure an accurate count (kpodleski@hstcc.org or 417-649-6400).

In order to be eligible for mitigation funds, all incorporated jurisdictions and school districts must participate in the process. **Minimum participation requirements are defined as:**

- Providing information to support plan update through **at least one** of the following methods:
  - Completion of data worksheets regarding hazard mitigation; or
  - Attendance at public meetings specific to this planning process.
- Formal adoption of the final Bi-County Hazard Mitigation Plan after its approval from SEMA and FEMA.

This is the final planned meeting, though one additional meeting may be required following the plan's submission to SEMA and FEMA depending on comments and suggestions. Please plan to attend if at all possible.

We will be discussing submitted jurisdiction information, development trends, and revised hazard mitigation actions for the new bi-county plan. This meeting will also continue to provide match for your jurisdiction. Time sheets are available through Kelli at HSTCC. Please remember to invite any citizens that you believe would be interested in participating in this planning process.

If you have any questions, please don't hesitate to contact HSTCC or Dana Ternus, our contractor for this project. You can reach her via email (danaternus@gmail.com) or by phone at 660-853-8477. We look forward to seeing you!

AGENDA

Jasper – Newton Bi-County Hazard Mitigation Plan

Meeting #3

I. Welcome

II. Section 1 information review
   a. Jurisdiction information

III. Section 2 hazard review and vulnerability analysis

IV. Mitigation Action Revisions
   a. Existing actions
   b. Revisions and New Focus
      i. Goals
      ii. Objectives
      iii. Actions

V. Local development
   a. Maps review
   b. Changes in local jurisdictions
   c. Vulnerable locations

VI. Adjournment
   a. Jurisdiction assignments

July 2[illegible], 2015

HSTCC

HSTCC SIGN IN SHEET

3200 McClelland
Joplin MO

PRINTED NAME:	TITLE/AGENCY:	CONTACT INFORMATION:
Clinton Worley	Chief of Police City of Carterville	1700 E 1st Carterville MO.
William Cline	City Admin Carterville	417 793-2450
Patsy Mulvaney	Director Custom Serv/Empire District Electric	417-625-6569
MARK KALMBACH	DIRECTOR OF PHYSICAL PLANT	417-455-5392
Sue Hershey	Village of Airport Drive	417-623-6744
Clyde R Stephens	Village of Wentworth	417 548 2224
Joe Perkins	CJ Fire Dept.	417-649-60[illegible]
Bill Dunn	" " "	" " "
FRANK STINE	VILLAGE OF AIRPORT DR	417-623-6744
Alan Griffin	City of Carterville/Tara Dawes	417-438-8996
Rick Stark	Jasper R-IV	rick.stark@jasper.k12.mo.us
JED SCHLEGEL	SAGINAW	CLAYMAN@CABLEONE.NET
GARY ROARK	NEWTON COUNTY EMA	g.roark@nc-em.org
Cindy Hutchings	City Clerk - Seneca	cityseneca@netins.net
JIM CUMMINS	SUPT. / SENECA	jcummins@senecar7.com

July 21 2015

HSTCC SIGN IN SHEET

3220 McClelland Blvd.
Joplin MO

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Jim Jackson	Newton Co. Comm.	JJACKSONCC2@GMAIL.COM
Chuck Niess	Joplin Police	CNIESS@JOPLINMO.ORG
Jeremiah Taylor	New-Mac Electric Coop.	SICSIK@newmac.com
Harold D. Johnston	Shoal Creek Drive Village	Haroldandde10@yahoo.com
Brenda Schmitt	City of Diamond	mayor@diamondmo.net
Dana Daniels	ddaniels@neosho.mo.gov	
Roger Williams	Fire Chief/Carthage Fire	r.williams@carthagemo.gov
Mark Baker	Carthage R-9 School District	bakerm@carthagetigers.org
Marsha Wallace	Bus Dev/Empire	mwallace@empiredistrict.com

Harry S Truman Coordinating Council

800 E. Pennell
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NEWS

For Immediate Release
October 1, 2015

Kelli Podleski, Program Assistant
417-649-6400

Public Comment Invited for the Jasper-Newton Bi-County Natural Hazard Mitigation Plan

Since 1993, the State of Missouri has received thirty-three Presidential Declarations for disaster related assistance. The assistance, as set forth in the Stafford Act is comprised of three basic programs: 1) individual assistance; 2) public assistance; and 3) Hazard Mitigation Grant Program (HMGP). Effective November 1, 2003, any public body must have an approved Hazard Mitigation Plan in place to be eligible for HMGP funding. Hazard mitigation, as defined by the Federal Emergency Management Agency (FEMA), is any action taken to eliminate or reduce the loss of life or property as the result of a disaster event. HMGP funds may be used to fund projects that will reduce or eliminate the losses from future disasters as well as provide a long term solution to a problem. Many types of projects can be funded through the Hazard Mitigation Grant Program including retrofitting structures and facilities, the construction of storm shelters, and other projects designed to minimize damage from natural hazards. Over the past several months, members of a planning committee, comprised of local officials, first responders, and other interested parties, have developed the plan, including its goals, objectives, and actions.

The Jasper-Newton Bi-County Natural Hazard Mitigation Plan requires the opportunity for public involvement in the development and review of the plan during the drafting process. All members of the public are invited to provide comments and input on the first draft of the completed plan. Copies of the plan may be accessed virtually through the Harry S Truman Coordinating Council (HSTCC) website (http://www.hstcc.org) or in printed form at the office in Carl Junction, located at 800 E. Pennell. **The deadline for receipt of public comments is October 20, 2015.** All comments may be returned to Kelli Podleski via mail to HSTCC, 800 E. Pennell, Carl Junction, MO 64834 or by email to kpodleski@hstcc.org.

###

Gmail

Podleski, Kelli <kpodleski@hstcc.org>

Hazard Mitigation Draft Review Process

Podleski, Kelli <kpodleski@hstcc.org> Mon, Oct 5, 2015 at 2:34 PM
Cc: Dana Temus <danatemus@gmail.com>
Bcc: cityofalba@ckt.net, cityofasbury@ckt.net, Brad Byers <bbyers@avilleperthers.org>, Jennifer Kennedy <jkennedy@cjr1.org>, Mark Baker <bakerm@carthagetigers.org>, cjmayor@carljunction.org, cjcityadm@carljunction.org, cjcityhall@carljunction.org, will cline <chief@cartervillemo.com>, council@carthage-mo.gov, staff@carthage-mo.gov, Brenda Schmitt <mayor@diamondmo.net>, cityclerk@diamondmo.net, Shirley Lewis <cityclerk@duenwegmo.com>, dugclk@hotmail.com, Gina Taylor <g.taylor@duquesnemo.org>, mayor@joplinmo.org, sanselm@joplinmo.org, "Stammer, Keith" <kstammer@joplinmo.org>, rdavidson@neoshomo.org, "Daniels, Dana" <ddaniels@neoshomo.org>, citymanager@neoshomo.org, nhoudyshell@neoshomo.org, Don Triplett <mayor@sarcoxiemo.com>, clerk@sarcoxiemo.com, Cyndy Hutchings <citysene@netins.net>, john biggs <john@biggs@yahoo.com>, kdemoss@webbcity.org, Don Melton <dmelton@webbcitypd.org>, Nelson Horton <nhorton@collegeheights.org>, jennifermathvin@crowder.edu, mmabe@diamondwildcats.org, Todd McCrackin <mccrackint@mail.enr6.k12.mo.us>, cityoffairview@yahoo.com, Granby Court <granbymocourt@jscomm.net>, jcityhall@keinet.net, Rick Stark <rick.stark@jasper.k12.mo.us>, Jeremy Schamber <jschamber@martinlutherjoplin.com>, marble-A@mssu.edu, donhole@ckt.net, razrbk74@yahoo.com, Tim Crawley <crawleytim@neoshor5.org>, Jeff Fries <j.fries78@yahoo.com>, normidder@joplinschools.org, pres@occ.edu, cityofpurcell@yahoo.com, kgoddard@sarcoxie.k12.mo.us, Jim Cummins <jcummins@senecar7.com>, Bonnie Schaefer <bschaefer26@yahoo.com>, Monty Caywood <monty.caywood@vatterott.edu>, Village of Airport Drive <apdrive@att.net>, Clerk Jamison <cityofavilla@outlook.com>, vera.rector@leggett.com, ja.moore@ecarthage.com, Teri Neil <terineil@yahoo.com>, fredgpugh@hotmail.com, DebraBurton749@centurytel.net, the_desmonds@msn.com, Jeannette <jkleindl@jscomm.net>, villageofwentworth@yahoo.com, clayman@cableone.net, d d <waco-gal@hotmail.com>, Tony Rossetti <trossetti@wcr7.org>, Mark Fitch <mfitch@wc6.org>, honeyjim@ecarthage.com, dadams@ecarthage.com, Newton County <commission@swbell.net>, Jarid Davis <jaridddavis81@gmail.com>, Debbie cornell <cornell64855@yahoo.com>, Roger Williams <r.williams@carthagemo.gov>, Brenda Schmitt <brendaschmitt@joplinschools.org>, "Kelley, Leigh" <lkelley@joplinmo.org>, jasperassessor@ecarthage.com, CK Chappell <gis@jaspercounty.org>, aroughton@webbcityfd.org, mark kalmbach <markkalmbach@crowder.edu>, Rusty McDermott <mcdermottr@mail.enr6.k12.mo.us>, granbyfd@jscomm.net, Jim Hounschell <jimhounschell@joplinschools.org>, gibson-j@mssu.edu, shoemake.monte@occ.edu, rufusls@yahoo.com, leewoodvillage@msn.com, lomalinda@lomalinda-mo.us, Kevin Cooper <kcooper@wcr7.org>, Misty Hailey <mhailey@wc6.org>, Carolyn Jackson <carolyn@nc-em.org>, Jlurgers@joplinmo.org, jburns@joplinmo.org, mets@metsambulance.com, d.myers@carthagemo.gov, cjpolice@carljunction.org, chiefreding_dfdfire71@yahoo.com, t.kitch@duquesnemo.org, "Harper,Carl M" <CMHarper@freemanhealth.com>, mmallory@neoshomo.org, d.kennedy@neoshomo.org, swcosts@mfd.org

Good Afternoon,

The first draft of the Jasper/Newton Bi-County Hazard Mitigation plan is now completed! Thank you to everyone for your continued participation during this process!

We are now in the public review period of the draft process. This will be open from October 2 to October 20. The Plan can be found here on the HSTCC website or by going to hstcc.org--->planning--->hazard mitigation. **Please pay close attention to the goals, objectives, and actions listed in Section 4 as they will provide the basis for mitigation actions over the next five years.**

A letter was sent out on Friday,October 2, providing a brief update on the draft process, I've attached it for your convenience. I've also included a timesheet, please continue to track your time spent reviewing the plan and submit it with your comments.

Please send all comments regarding the draft to me before October 20.

If you have any questions, please let me know!

Thank you!

--

Kelli Podleski
Program Assistant
Harry S Truman Coordinating Council
800 E. Pennell, Carl Junction, MO 64834
T: (417) 649-6400

2 attachments

Draft Review letter.docx
44K

TIMESHEET Template.xlsx
22K

Harry S Truman Coordinating Council

800 E. Pennell
Carl Junction, MO 64834

Office: (417)649-6400
Fax: (417)649-6409
www.hstcc.org

October 2, 2015

To: Incorporated Jurisdictions in Jasper and Newton Counties
Subject: Jasper and Newton Bi-County Hazard Mitigation Plan Update

The Harry S Truman Coordinating Council (HSTCC) has been contracted by SEMA to update the federally-mandated multi-jurisdictional Hazard Mitigation Plan for Jasper and Newton Counties. Jasper and Newton Counties are susceptible to many types of natural hazards. Tornadoes, winter storms, and other natural disasters have shaped the landscape, history, and economy of the county. Hazard mitigation planning is the process of devising strategies to lessen the impact. Potential project funded through mitigation funds include tornado safe rooms, placing utility lines underground, and a host of other projects.

We owe many thanks to the jurisdictions that have participated in the planning process through attendance at meetings and communication through worksheets. Your participation has made this all possible. Thank you!

The first draft of the plan is now completed, but we still need your help. The plan has been streamlined and all actions have been generalized to make mitigation activities more inclusive for each jurisdiction and school district. All jurisdictions within the counties are invited to review the draft plan and comment on its contents. This public review of the draft will be open from October 2 through October 20, 2015. Please pay particular attention to the goals, objectives, and actions listed in Section 4 as they will provide the basis for mitigation actions over the next five years.

You can view the plan online at HSTCC's website (www.hstcc.org) or on paper at our office in Carl Junction. Comments may be submitted to Kelli Podleski via email at kpodleski@hstcc.org or by mail to our office. The address is listed above.

If you have any questions, please don't hesitate to contact HSTCC. We are working to create a plan which is beneficial for all jurisdictions. We appreciate your participation!

AFFIDAVIT OF PUBLICATION

Date: 10-12-15

STATE OF MISSOURI)ss.
COUNTY OF JASPER)

I, John Hacker, being duly sworn according to law, state that I am the Managing Editor of The Carthage Press, a weekly/daily newspaper of general circulation in the County of Jasper, State of Missouri, where located; which newspaper has been admitted to the Post Office as periodical class matter in the City of Carthage, Missouri, the city of publication; which newspaper has been published regularly and consecutively for a period of three years and has a list of bona fide subscribers, voluntarily engaged as such who have paid or agreed to pay a stated price for a subscription for a definite period of time, and that such newspaper has complied with the provisions of Section 493.050, Revised Statutes of Missouri 2000, and Section 59.310, Revised Statutes of Missouri 2000., The affixed notice appeared in said newspaper in the following consecutive issues:

1st Insertion: Vol. 131 No. 90, 1 day of Oct 2015

2nd Insertion: Vol. _____ No. ____, ___ day of _____ 2015

3rd Insertion: Vol. _____ No. ____, ___ day of _____ 2015

4th Insertion: Vol. _____ No. ____, ___ day of _____ 2015

John T. Hacker

John Hacker, Managing Editor

Subscribed and sworn to before me on this 12 day of October, 2015

ROBIN R. BURTIS
Notary Public, Notary Seal
State of Missouri
Newton County
Commission # 14399403
My Commission Expires August 26, 2018

Notary Public- Robin Burtis

My commission expires 8-26-18

PUBLIC COMMENT Invited for the Jasper-Newton Bi-County Natural Hazard Mitigation Plan

Since 1993, the State of Missouri has received thirty-three Presidential Declarations for disaster related assistance. The assistance, as set forth in the Stafford Act is comprised of three basic programs: 1) individual assistance; 2) public assistance; and 3) Hazard Mitigation Grant Program (HMGP). Effective November 1, 2003, any public body must have an approved Hazard Mitigation Plan in place to be eligible for HMGP funding. Hazard mitigation, as defined by the Federal Emergency Management Agency (FEMA), is any action taken to eliminate or reduce the loss of life or property as the result of a disaster event. HMGP funds may be used to fund projects that will reduce or eliminate the losses from future disasters as well as provide a long term solution to a problem. Many types of projects can be funded through the Hazard Mitigation Grant Program including retrofitting structures and facilities, the construction of storm shelters, and other projects designed to minimize damage from natural hazards. Over the past several months, members of a planning committee, comprised of local officials, first responders, and other interested parties, have developed the plan, including its goals, objectives, and actions.

The Jasper-Newton Bi-County Natural Hazard Mitigation Plan requires the opportunity for public involvement in the development and review of the plan during the drafting process. All members of the public are invited to provide comments and input on the first draft of the completed plan. Copies of the plan may be accessed virtually through the Harry S Truman Coordinating Council (HSTCC) website (http://www.hstcc.org) or in printed form at the office in Carl Junction, located at 800 E. Pennell. **The deadline for receipt of public comments is October 20, 2015.** All comments may be returned to Kelli Podleski via mail to HSTCC, 800 E. Pennell, Carl Junction, MO 64834 or by email to kpodleski@hstcc.org.

THE JOPLIN
GLOBE

P.O.Box 7, Joplin, Missouri 64802
Phone(417)623-3480
Fax(417)623-1188

HARRY S TRUMAN
COORDINATING CO
800 E PENNELL
CARL JUNCTION MO 64834-0388

AFFIDAVIT OF PUBLICATION

State Of Missouri:
Counties Of Jasper/Newton
I, CARRIE B. BALL, being duly sworn according to law, STATE that I am Business Manager of THE JOPLIN GLOBE.

The Joplin Globe is a daily newspaper of general circulation in the counties of Jasper/Newton, which has been admitted to the post office as second-class matter in city of Joplin, the city of publication: which newspaper has been published regularly and consecutively for a period of three years and has a list of bonafide subscribers voluntarily engaged as such, who have paid or agreed to pay a stated price for a subscription for a definite period of time, and that such newspaper has complied with the provisions of section 493.050, Missouri Revised Statutes, 1959. The below listed advertisement appeared in the following issue(s):

PUBLICATION	EXPIRED DATE	AD CAPTION	#TIMES	AMOUNT
THE JOPLIN GLOBE 10/13/2015	10/13/2015	LEGAL 159/PUBLI	1	222.81

Carrie B. Ball
(Business Manager)
Carrie B. Ball

Subscribed and sworn to before me this 13th day of

October, 2015

Diana J. Crouch
Notary Public
Diana J. Crouch/18146002
02/21/2019

(Not Published October 13, 2015)
Public Comment Invited for the
Jasper-Newton Bi-County
Natural Hazard Mitigation Plan

Since 1993, the State of Missouri has requested thirty-three Presidential Declaration for disaster related assistance. The assistance, as set forth in the Stafford Act is comprised of three basic programs: 1) individual assistance; 2) Public assistance; and 3) Hazard Mitigation Grant Program (HMGP). Effective November 1, 2003, any public body must have an approved Hazard Mitigation Plan in place to be eligible for HMGP funding. Hazard mitigation, as defined by the Federal Emergency Management Agency (FEMA), is any physical action to eliminate or reduce the losses of life or property as the result of a disaster event. HMGP funds may be used to fund projects that will reduce or eliminate the losses from future disasters as well as provide a long term solution to a problem. Many types of projects can be funded through the Hazard Mitigation Grant Program including retrofitting structures and facilities, the construction of storm shelters, and other projects designed to minimize damage from natural hazards. Over the past several months, members of a planning committee, comprised of local officials, first responders, and other interested parties, have developed the plan, including its goals, objectives, and actions.

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(159)

Public Comment Invited for the Jasper-Newton Bi-County Natural Hazard Mitigation Plan

Since 1993, the State of Missouri has received thirty-three Presidential Declarations for disaster related assistance. The assistance, as set forth in the Stafford Act is comprised of three basic programs: 1) individual assistance; 2) public assistance; and 3) Hazard Mitigation Grant Program (HMGP). Effective November 1, 2003, any public body must have an approved Hazard Mitigation Plan in place to be eligible for HMGP funding. Hazard mitigation, as defined by the Federal Emergency Management Agency (FEMA), is any action taken to eliminate or reduce the loss of life or property as the result of a disaster event. HMGP funds may be used to fund projects that will reduce or eliminate the losses from future disasters as well as provide a long term solution to a problem. Many types of projects can be funded through the Hazard Mitigation Grant Program including retrofitting structures and facilities, the construction of storm shelters, and other projects designed to minimize damage from natural hazards. Over the past several months, members of a planning committee, comprised of local officials, first responders, and other interested parties, have developed the plan, including its goals, objectives, and actions.

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kpodleski@hstcc.org.

Jasper County Citizen • October 7, 2015

AFFIDAVIT OF PUBLICATION

STATE OF MISSOURI,
COUNTY OF JASPER, ss.

...awful age being duly sworn according to law, says that ...of the *Jasper County Citizen*, a weekly newspaper, pub... ...n, Jasper County, Missouri, that the Notice, a true copy ...attached, was published in said newspaper for __ weeks ...the following numbers and on the following dates, to

this	7th	day of	October	2015
this		day of		
this		day of		
this		day of		
this		day of		

...is located in Jasper County, Missouri, and is of general ...and has been and is admitted to the United States Post ...Missouri, the city of publication, as second class matter, ...aper has been published regularly, consecutively, and ...County for a period of more than three years prior to the ...said notice, that said newspaper has a list of bona fide ...ily engaged as such who have paid or have agreed to pay ...subscription for a definite period of time, and that said ...hed according to and has complied with all provisions of ...the laws of Missouri, as passed by the 59th General ...oved April 28, 1937.

_______________________, Publisher
Paul E. Donley

Subscribed and sworn before me this 28th day of October, 2015

____
Katrina Keys
Notary Public State of Missouri
County of Lawrence
My Commission Expires October 14, 2017

KATRINA KEYS
NOTARY PUBLIC
NOTARY SEAL
COMMISSION #13487658
STATE OF MISSOURI

Publication Fee $ 35.75

Notary Fee $ 2.00

AFFIDAVIT OF PUBLICATION

STATE OF MISSOURI,
COUNTY OF JASPER, ss.

Public Comment Invited for the Jasper-Newton Bi-County Natural Hazard Mitigation Plan

Since 1993, the State of Missouri has received thirty-three Presidential Declarations for disaster related assistance. The assistance, as set forth in the Stafford Act is comprised of three basic programs: 1) individual assistance; 2) public assistance; and 3) Hazard Mitigation Grant Program (HMGP). Effective November 1, 2003, any public body must have an approved Hazard Mitigation Plan in place to be eligible for HMGP funding. Hazard mitigation, as defined by the Federal Emergency Management Agency (FEMA), is any action taken to eliminate or reduce the loss of life or property as the result of a disaster event. HMGP funds may be used to fund projects that will reduce or eliminate the losses from future disasters as well as provide a long term solution to a problem. Many types of projects can be funded through the Hazard Mitigation Grant Program including retrofitting structures and facilities, the construction of storm shelters, and other projects designed to minimize damage from natural hazards. Over the past several months, members of a planning committee, comprised of local officials, first responders, and other interested parties, have developed the plan, including its goals, objectives, and actions.

The Jasper-Newton Bi-County Natural Hazard Mitigation Plan requires the opportunity for public involvement in the development and review of the plan during the drafting process. All members of the public are invited to provide comments and input on the first draft of the completed plan. Copies of the plan may be accessed virtually through the Harry S Truman Coordinating Council (HSTCC) website (http://www.hstcc.org) or in printed form at the office in Carl Junction, located at 800 E. Pennell. The deadline for receipt of public comments is October 20, 2015. All comments may be returned to Kelli Podleski via mail to HSTCC, 800 E. Pennell, Carl Junction, MO 64834 or by email to:
kpodleski@hstcc.org.

The Neosho Record • October 7, 2015

age being duly sworn according to law, says that
Neosho Record, a weekly newspaper, published
, Missouri, that the Notice, a true copy of which
ublished in said newspaper for __ weeks succes-
; numbers and on the following dates, to wit:

this	7th	day of	October	2015
this		day of		
this		day of		
this		day of		
this		day of		

ted in Jasper County, Missouri, and is of general
s been and is admitted to the United States Post
ri, the city of publication, as second class matter,
as been published regularly, consecutively, and
y for a period of more than three years prior to the
otice, that said newspaper has a list of bona fide
paged as such who have paid or have agreed to pay
iption for a definite period of time, and that said
cording to and has complied with all provisions of
as of Missouri, as passed by the 59th General
pril 28, 1937.

_____, Publisher
Paul E. Donley

ore me this 28th day of October, 2015

_____
Katrina Keys
Notary Public State of Missouri
County of Lawrence
My Commission Expires October 14, 2017

KATRINA KEYS NOTARY PUBLIC NOTARY SEAL COMMISSION EXPIRES STATE OF MISSOURI

Publication Fee $ 35.75

Notary Fee $ 2.00

Appendix C:

HAZUS Data

Hazus-MH: Flood Event Report

Region Name: JasperCounty_2013SHMP

Flood Scenario: JasperCounty_Flood100yr

Print Date: Thursday, March 14,2013

Disclaimer:

Totals only reflect data for those census tracts/blocks included in the user's study region.

The estimates of social and economic impacts contained in this report were produced using Hazus loss estimation methodology s oftware which is based on current scientific and engineering knowledge. There are uncertainties inherent in any loss estimation technique. Therefore, there may be significant differences between the modeled results contained in this report and the actual social

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General Description of the Region

Hazus is a regional multi-hazard loss estimation model that was developed by the Federal Emergency Management Agency (FEMA) and the National Institute of Building Sciences (NIBS). The primary purpose of Hazus is to provide a methodology and software application to develop multi -hazard losses at a regional scale. These loss estimates would be used primarily by local, state and regional officials to plan and stimulate efforts to reduce risks from multi-hazards and to prepare for emergency response and recovery.

The flood loss estimates provided in this report were based on a region that included 1 county(ies) from the following state(s):

- Missouri

Note:
Appendix A contains a complete listing of the counties contained in the region.

The geographical size of the region is 640 square miles and contains 4,902 census blocks. The region contains over 41 thousand households and has a total population of 104,686 people (2000 Census Bureau data). The distribution of population by State and County for the study region is provided in Appendix B.

There are an estimated 52,680 buildings in the region with a total building replacement value (excluding contents) of 7,300 million dollars (2006 dollars). Approximately 92.57% of the buildings (and 62.02% of the building value) are associated with residential housing.

Building Inventory

General Building Stock

Hazus estimates that there are 52,680 buildings in the region which have an aggregate total replacement value of 7,300 million (2006 dollars). Table 1 and Table 2 present the relative distribution of the value with respect to the general occupancies by Study Region and Scenario respectively. Appendix B provides a general distribution of the building value by State and County.

Table 1
Building Exposure by Occupancy Type for the Study Region

Occupancy	Exposure ($1000)	Percent of Total
Residential	4,527,406	62.0%
Commercial	1,443,518	19.8%
Industrial	438,005	6.0%
Agricultural	45,571	0.6%
Religion	172,749	2.4%
Government	67,918	0.9%
Education	604,383	8.3%
Total	**7,299,550**	**100.00%**

Table 2
Building Exposure by Occupancy Type for the Scenario

Occupancy	Exposure ($1000)	Percent of Total
Residential	1,122,462	56.0%
Commercial	438,791	21.9%
Industrial	104,177	5.2%
Agricultural	16,126	0.8%
Religion	31,387	1.6%
Government	12,705	0.6%
Education	276,996	13.8%
Total	**2,002,644**	**100.00%**

Essential Facility Inventory

For essential facilities, there are 2 hospitals in the region with a total bed capacity of 419 beds. There are 57 schools, 23 fire stations, 14 police stations and 1 emergency operation center.

Flood Scenario Parameters

Hazus used the following set of information to define the flood parameters for the flood loss estimate provided in this report.

Study Region Name:	JasperCounty_2013SHMP
Scenario Name:	JasperCounty_Flood100yr 100
Return Period Analyzed: Analysis	No What-Ifs
Options Analyzed:	

Building Damage

General Building Stock Damage

Hazus estimates that about 174 buildings will be at least moderately damaged. This is over 26% of the total number of buildings in the scenario. There are an estimated 79 buildings that will be completely destroyed. The definition of the 'damage states' is provided in Volume 1: Chapter 5.3 of the Hazus Flood Technical Manual. Table 3 below summarizes the expected damage by general occupancy for the buildings in the region. Table 4 summarizes the expected damage by general building type.

Table 3: Expected Building Damage by Occupancy

1-10			11-20		21-30		31-40		41-50		Substantially	
Occupancy	**Count**	**(%)**	**Count**	**(%)**	**Count**	**(%)**	**Count**	**(%)**	**Count**	**(%)**	**Count**	**(%)**
Agriculture	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Commercial	0	0.00	1	100.00	0	0.00	0	0.00	0	0.00	0	0.00
Education	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Government	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Industrial	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Religion	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Residential	0	0.00	1	0.58	8	4.62	36	20.81	49	28.32	79	45.66
Total	**0**		**2**		**8**		**36**		**49**		**79**	

Table 4: Expected Building Damage by Building Type

Building	1-10		11-20		21-30		31-40		41-50		Substantially	
Type	**Count**	**(%)**	**Count**	**(%)**	**Count**	**(%)**	**Count**	**(%)**	**Count**	**(%)**	**Count**	**(%)**
Concrete	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
ManufHousing	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	9	100.00
Masonry	0	0.00	0	0.00	0	0.00	1	10.00	4	40.00	5	50.00
Steel	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Wood	0	0.00	1	0.65	8	5.19	35	22.73	45	29.22	65	42.21

Essential Facility Damage

Before the flood analyzed in this scenario, the region had 419 hospital beds available for use. On the day of the scenario flood event, the model estimates that 419 hospital beds are available in the region.

Table 5: Expected Damage to Essential Facilities

		# Facilities		
Classification	Total	At Least Moderate	At Least Substantial	Loss of Use
Fire Stations	23	1	0	1
Hospitals	2	0	0	0
Police Stations	14	1	0	1
Schools	57	1	0	0

If this report displays all zeros or is blank, two possibilities can explain this.

(1) None of your facilities were flooded. This can be checked by mapping the inventory data on the depth grid.

(2) The analysis was not run. This can be tested by checking the run box on the Analysis Menu and seeing if a message box asks you to replace the existing results.

Induced Flood Damage

Debris Generation

Hazus estimates the amount of debris that will be generated by the flood. The model breaks debris into three general categories: 1) Finishes (dry wall, insulation, etc.), 2) Structural (wood, brick, etc.) and 3) Foundations (concrete slab, concrete block, rebar, etc.). This distinction is made because of the different types of material handling equipment required to handle the debris.

Analysis has not been performed for this Scenario.

Social Impact

Shelter Requirements

Hazus estimates the number of households that are expected to be displaced from their homes due to the flood and the associated potential evacuation. Hazus also estimates those displaced people that will require accommodations in temporary public shelters. The model estimates 1,623 households will be displaced due to the flood. Displacement includes households evacuated from within or very near to the inundated area. Of these, 2,280 people (out of a total population of 104,686) will seek temporary shelter in public shelters.

Economic Loss

The total economic loss estimated for the flood is 161.20 million dollars, which represents 8.05 % of the total replacement value of the scenario buildings.

Building-Related Losses

The building losses are broken into two categories: direct building losses and business interruption losses. The direct building losses are the estimated costs to repair or replace the damage caused to the building and its contents. The business interruption losses are the losses associated with inability to operate a business because of the damage sustained during the flood. Business interruption losses also include the temporary living expenses for those people displaced from their homes because of the flood.

The total building-related losses were 158.78 million dollars. 1% of the estimated losses were related to the business interruption of the region. The residential occupancies made up 42.84% of the total loss. Table 6 below provides a summary of the losses associated with the building damage.

Table 6: Building-Related Economic Loss Estimates

(Millions of dollars)

Category	Area	Residential	Commercial	Industrial	Others	Total
Building Loss						
	Building	44.16	8.88	3.07	6.13	62.24
	Content	24.86	24.45	7.19	37.93	94.43
	Inventory	0.00	0.37	1.48	0.27	2.12
	Subtotal	**69.02**	**33.70**	**11.74**	**44.33**	**158.78**
Business Interruption						
	Income	0.00	0.13	0.00	0.39	0.53
	Relocation	0.02	0.03	0.00	0.15	0.19
Rental Income		0.00	0.01	0.00	0.01	0.02
	Wage	0.01	0.18	0.00	1.49	1.68
	Subtotal	**0.03**	**0.35**	**0.00**	**2.03**	**2.42**
ALL	**Total**	**69.05**	**34.05**	**11.74**	**46.36**	**161.20**

Appendix A: County Listing for the Region

Missouri

- Jasper

Appendix B: Regional Population and Building Value Data

Building Value (thousands of dollars)

	Population	Residential	Non-Residential	Total
Missouri				
Jasper	104,686	4,527,406	2,772,144	7,299,550
Total	**104,686**	**4,527,406**	**2,772,144**	**7,299,550**
Total Study Region	**104,686**	**4,527,406**	**2,772,144**	**7,299,550**

Hazus-MH: Flood Event Report

Region Name: NewtonCounty_2013SHMP

Flood Scenario: Newton_Flood100yr

Print Date: Saturday, February 16, 2013

Disclaimer:

Totals only reflect data for those census tracts/blocks included in the user's study region.

The estimates of social and economic impacts contained in this report were produced using Hazus loss estimation methodology software which is based on current scientific and engineering knowledge. There are uncertainties inherent in any loss estimation techn ique. Therefore, there may be significant differences between the modeled results contained in this report and the actual social

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General Description of the Region

Hazus is a regional multi-hazard loss estimation model that was developed by the Federal Emergency Management Agency (FEMA) and the National Institute of Building Sciences (NIBS). The primary purpose of Hazus is to provide a methodology and software application to develop multi-hazard losses at a regional scale. These loss estimates would be used primarily by local, state and regional officials to plan and stimulate efforts to reduce risks from multi-hazards and to prepare for emergency response and recovery.

The flood loss estimates provided in this report were based on a region that included 1 county(ies) from the following state(s):

- Missouri

Note:
Appendix A contains a complete listing of the counties contained in the region.

The geographical size of the region is 626 square miles and contains 2,766 census blocks. The region contains over 20 thousand households and has a total population of 52,636 people (2000 Census Bureau data). The distribution of population by State and County for the study region is provided in Appendix B.

There are an estimated 25,543 buildings in the region with a total building replacement value (excluding contents) of 3,418 million dollars (2006 dollars). Approximately 92.29% of the buildings (and 61.72% of the building value) are associated with residential housing.

Building Inventory

General Building Stock

Hazus estimates that there are 25,543 buildings in the region which have an aggregate total replacement value of 3,418 million (2006 dollars). Table 1 and Table 2 present the relative distribution of the value with respect to the general occupancies by Study Region and Scenario respectively. Appendix B provides a general distribution of the building value by State and County.

Table 1
Building Exposure by Occupancy Type for the Study Region

Occupancy	Exposure ($1000)	Percent of Total
Residential	2,109,962	61.7%
Commercial	747,605	21.9%
Industrial	163,775	4.8%
Agricultural	21,072	0.6%
Religion	77,425	2.3%
Government	39,103	1.1%
Education	259,532	7.6%
Total	**3,418,474**	**100.00%**

Table 2
Building Exposure by Occupancy Type for the Scenario

Occupancy	Exposure ($1000)	Percent of Total
Residential	918,575	63.0%
Commercial	270,113	18.5%
Industrial	103,023	7.1%
Agricultural	13,484	0.9%
Religion	34,932	2.4%
Government	11,387	0.8%
Education	107,547	7.4%
Total	**1,459,061**	**100.00%**

Essential Facility Inventory

For essential facilities, there are 4 hospitals in the region with a total bed capacity of 395 beds. There are 24 schools, 21 fire stations, 5 police stations and 1 emergency operation center.

Flood Scenario Parameters

Hazus used the following set of information to define the flood parameters for the flood loss estimate provided in this report.

Study Region Name:	NewtonCounty_2013SHMP
Scenario Name:	Newton_Flood100yr 100
Return Period Analyzed: Analysis	No What-Ifs
Options Analyzed:	

General Building Stock Damage

Hazus estimates that about 139 buildings will be at least moderately damaged. This is over 28% of the total number of buildings in the scenario. There are an estimated 47 buildings that will be completely destroyed. The definition of the 'damage states' is provided in Volume 1: Chapter 5.3 of the Hazus Flood Technical Manual. Table 3 below summarizes the expected damage by general occupancy for the buildings in the region. Table 4 summarizes the expected damage by general building type.

Table 3: Expected Building Damage by Occupancy

1-10			11-20		21-30		31-40		41-50		Substantially	
Occupancy	**Count**	**(%)**	**Count**	**(%)**	**Count**	**(%)**	**Count**	**(%)**	**Count**	**(%)**	**Count**	**(%)**
Agriculture	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Commercial	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Education	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Government	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Industrial	0	0.00	0	0.00	0	0.00	0	0.00	1	100.00	0	0.00
Religion	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Residential	0	0.00	5	3.62	9	6.52	34	24.64	43	31.16	47	34.06
Total	**0**		**5**		**9**		**34**		**44**		**47**	

Table 4: Expected Building Damage by Building Type

Building	1-10		11-20		21-30		31-40		41-50		Substantially	
Type	**Count**	**(%)**	**Count**	**(%)**	**Count**	**(%)**	**Count**	**(%)**	**Count**	**(%)**	**Count**	**(%)**
Concrete	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
ManufHousing	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	7	100.00
Masonry	0	0.00	0	0.00	1	7.14	4	28.57	5	35.71	4	28.57
Steel	0	0.00	0	0.00	0	0.00	0	0.00	1	100.00	0	0.00
Wood	0	0.00	5	4.27	8	6.84	30	25.64	38	32.48	36	30.77

Essential Facility Damage

Before the flood analyzed in this scenario, the region had 395 hospital beds available for use. On the day of the scenario flood event, the model estimates that 395 hospital beds are available in the region.

Table 5: Expected Damage to Essential Facilities

		# Facilities		
Classification	Total	At Least Moderate	At Least Substantial	Loss of Use
Fire Stations	21	1	0	1
Hospitals	4	0	0	0
Police Stations	5	1	0	1
Schools	24	4	0	3

If this report displays all zeros or is blank, two possibilities can explain this.

(1) None of your facilities were flooded. This can be checked by mapping the inventory data on the depth grid.

(2) The analysis was not run. This can be tested by checking the run box on the Analysis Menu and seeing if a message box asks you to replace the existing results.

Induced Flood Damage

Debris Generation

Hazus estimates the amount of debris that will be generated by the flood. The model breaks debris into three general categories: 1) Finishes (dry wall, insulation, etc.), 2) Structural (wood, brick, etc.) and 3) Foundations (concrete slab, concrete block, rebar, etc.). This distinction is made because of the different types of material handling equipment required to handle the debris.

Analysis has not been performed for this Scenario.

Social Impact

Shelter Requirements

Hazus estimates the number of households that are expected to be displaced from their homes due to the flood and the associated potential evacuation. Hazus also estimates those displaced people that will require accommodations in temporary public shelters. The model estimates 1,128 households will be displaced due to the flood. Displacement includes households evacuated from within or very near to the inundated area. Of these, 1,423 people (out of a total population of 52,636) will seek temporary shelter in public shelters.

Economic Loss

The total economic loss estimated for the flood is 92.22 million dollars, which represents 6.32 % of the total replacement value of the scenario buildings.

Building-Related Losses

The building losses are broken into two categories: direct building losses and business interruption losses. The direct building losses are the estimated costs to repair or replace the damage caused to the building and its contents. The business interruption losses are the losses associated with inability to operate a business because of the damage sustained during the flood. Business interruption losses also include the temporary living expenses for those people displaced from their homes because of the flood.

The total building-related losses were 91.37 million dollars. 1% of the estimated losses were related to the business interruption of the region. The residential occupancies made up 36.11% of the total loss. Table 6 below provides a summary of the losses associated with the building damage.

Table 6: Building-Related Economic Loss Estimates

(Millions of dollars)

Category	Area	Residential	Commercial	Industrial	Others	Total
Building Loss						
	Building	21.89	4.95	3.68	3.63	34.14
	Content	11.40	15.56	8.31	19.24	54.51
	Inventory	0.00	0.53	2.10	0.09	2.72
	Subtotal	**33.28**	**21.04**	**14.09**	**22.96**	**91.37**
Business Interruption						
	Income	0.00	0.05	0.00	0.07	0.12
	Relocation	0.01	0.01	0.00	0.03	0.05
Rental Income		0.00	0.00	0.00	0.00	0.00
	Wage	0.00	0.05	0.00	0.63	0.68
	Subtotal	**0.02**	**0.10**	**0.00**	**0.73**	**0.85**
ALL	**Total**	**33.30**	**21.15**	**14.09**	**23.68**	**92.22**

Appendix A: County Listing for the Region

Missouri

- Newton

Appendix B: Regional Population and Building Value Data

Building Value (thousands of dollars)

	Population	Residential	Non-Residential	Total
Missouri				
Newton	52,636	2,109,962	1,308,512	3,418,474
Total	**52,636**	**2,109,962**	**1,308,512**	**3,418,474**
Total Study Region	**52,636**	**2,109,962**	**1,308,512**	**3,418,474**

Hazus-MH: Earthquake Event Report

Region Name: Earthquake JasperCounty_2013SHMP

Scenario: Print Date: JasperCounty_eq2pctExceedance50yr

March 02, 2013

Totals only reflect data for those census tracts/blocks included in the user's study region.

Disclaimer:

The estimates of social and economic impacts contained in this report were produced using Hazus loss estimation methodology software which is based on current scientific and engineering knowledge. There are uncertainties inherent in any loss estimation technique. Therefore, there may be significant differences between the modeled results contained in this report and the actual social and economic losses following a specific earthquake. These results can be improved by using enhanced inventory, geotechnical, and observed ground motion data.

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General Description of the Region

Hazus is a regional earthquake loss estimation model that was developed by the Federal Emergency Management Agency and the National Institute of Building Sciences. The primary purpose of Hazus is to provide a methodology and software application to develop earthquake losses at a regional scale. These loss estimates would be used primarily by local, state and regional officials to plan and stimulate efforts to reduce risks from earthquakes and to prepare for emergency response and recovery.

The earthquake loss estimates provided in this report was based on a region that includes 1 county(ies) from the following state(s):

Missouri

Note:
Appendix A contains a complete listing of the counties contained in the region.

The geographical size of the region is 640.88 square miles and contains 22 census tracts. There are over 45 thousand households in the region which has a total population of 117,404 people (2002 Census Bureau data). The distribution of population by State and County is provided in Appendix B.

There are an estimated 54 thousand buildings in the region with a total building replacement value (excluding contents) of 10,870 (millions of dollars). Approximately 93.00 % of the buildings (and 74.00% of the building value) are associated with residential housing.

The replacement value of the transportation and utility lifeline systems is estimated to be 1,728 and 1,130 (millions of dollars) , respectively.

Building and Lifeline Inventory

Building Inventory

Hazus estimates that there are 54 thousand buildings in the region which have an aggregate total replacement value of 10,870 (millions of dollars) . Appendix B provides a general distribution of the building value by State and County.

In terms of building construction types found in the region, wood frame construction makes up 67% of the building inventory. The remaining percentage is distributed between the other general building types.

Critical Facility Inventory

Hazus breaks critical facilities into two (2) groups: essential facilities and high potential loss facilities (HPL). Essential facilities include hospitals, medical clinics, schools, fire stations, police stations and emergency operations facilities. High potential loss facilities include dams, levees, military installations, nuclear power plants and hazardous material sites.

For essential facilities, there are 2 hospitals in the region with a total bed capacity of 419 beds. There are 57 schools, 23 fire stations, 14 police stations and 1 emergency operation facilities. With respect to high potential loss facilities (HPL), there are 13 dams identified within the region. Of these, 2 of the dams are classified as 'high hazard'. The inventory also includes 54 hazardous material sites, 0 military installations and 0 nuclear power plants.

Transportation and Utility Lifeline Inventory

Within Hazus, the lifeline inventory is divided between transportation and utility lifeline systems. There are seven (7) transportation systems that include highways, railways, light rail, bus, ports, ferry and airports. There are six (6) utility systems that include potable water, wastewater, natural gas, crude & refined oil, electric power and communications. The lifeline inventory data are provided in Tables 1 and 2.

The total value of the lifeline inventory is over 2,858.00 (millions of dollars). This inventory includes over 242 kilometers of highways, 377 bridges, 6,970 kilometers of pipes.

Table 1: Transportation System Lifeline Inventory

System	Component	# Locations/ # Segments	Replacement value (millions of dollars)
Highway	Bridges	377	287.10
	Segments	67	1,143.30
	Tunnels	0	0.00
		Subtotal	**1,430.40**
Railways	Bridges	1	0.10
	Facilities	1	2.70
	Segments	134	168.70
	Tunnels	0	0.00
		Subtotal	**171.50**
Light Rail	Bridges	0	0.00
	Facilities	0	0.00
	Segments	0	0.00
	Tunnels	0	0.00
		Subtotal	**0.00**
Bus	Facilities	2	2.20
		Subtotal	**2.20**
Ferry	Facilities	0	0.00
		Subtotal	**0.00**
Port	Facilities	0	0.00
		Subtotal	**0.00**
Airport	Facilities	1	10.70
	Runways	3	113.90
		Subtotal	**124.50**
		Total	**1,728.80**

Table 2: Utility System Lifeline Inventory

System	Component	# Locations / Segments	Replacement value (millions of dollars)
Potable Water	Distribution Lines	NA	69.70
	Facilities	1	34.30
	Pipelines	0	0.00
		Subtotal	**104.00**
Waste Water	Distribution Lines	NA	41.80
	Facilities	11	754.60
	Pipelines	0	0.00
		Subtotal	**796.40**
Natural Gas	Distribution Lines	NA	27.90
	Facilities	0	0.00
	Pipelines	0	0.00
		Subtotal	**27.90**
Oil Systems	Facilities	0	0.00
	Pipelines	0	0.00
		Subtotal	**0.00**
Electrical Power	Facilities	3	339.90
		Subtotal	**339.90**
Communication	Facilities	16	1.60
		Subtotal	**1.60**
		Total	**1,269.80**

Earthquake Scenario

Hazus uses the following set of information to define the earthquake parameters used for the earthquake loss estimate provided in this report.

Scenario Name Type of	JasperCounty_eq2pctExceedance50yr Probabilistic
Earthquake Fault Name	NA NA
Historical Epicenter ID #	2,500.00
Probabilistic Return Period	
Longitude of Epicenter Latitude	NA
of Epicenter Earthquake	NA 7.70 NA
Magnitude Depth (Km)	
Rupture Length (Km)	NA
Rupture Orientation (degrees)	NA
Attenuation Function	NA

Building Damage

Hazus estimates that about 3,233 buildings will be at least moderately damaged. This is over 6.00 % of the buildings in the region. There are an estimated 46 buildings that will be damaged beyond repair. The definition of the 'damage states' is provided in Volume 1: Chapter 5 of the Hazus technical manual. Table 3 below summarizes the expected damage by general occupancy for the buildings in the region. Table 4 below summarizes the expected damage by general building type.

Table 3: Expected Building Damage by Occupancy

	None		Slight		Moderate		Extensive		Complete	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Agriculture	157	0.36	32	0.44	21	0.78	5	1.10	0	0.80
Commercial	1,941	4.44	396	5.39	217	7.93	47	10.50	4	8.59
Education	45	0.10	9	0.12	5	0.19	1	0.21	0	0.28
Government	71	0.16	14	0.20	8	0.31	1	0.31	0	0.49
Industrial	516	1.18	105	1.43	65	2.37	14	3.24	1	2.34
Other Residential	8,926	20.42	1,680	22.89	798	29.09	119	26.65	9	19.57
Religion	181	0.41	33	0.45	18	0.64	4	0.85	0	0.80
Single Family	31,881	72.92	5,070	69.07	1,609	58.69	254	57.15	31	67.12
Total	**43,719**		**7,340**		**2,742**		**445**		**46**	

Table 4: Expected Building Damage by Building Type (All Design Levels)

	None		Slight		Moderate		Extensive		Complete	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Wood	30,969	70.84	4404	60.00	919	33.52	65	14.66	2	4.72
Steel	827	1.89	184	2.50	150	5.47	34	7.75	2	4.83
Concrete	232	0.53	42	0.57	23	0.83	3	0.65	0	0.30
Precast	228	0.52	35	0.47	32	1.17	10	2.22	0	0.39
RM	175	0.40	18	0.25	14	0.52	3	0.63	0	0.06
URM	8,850	20.24	2005	27.31	1,139	41.54	265	59.41	39	83.64
MH	2,437	5.57	653	8.90	464	16.94	65	14.68	3	6.05
Total	**43,719**		**7,340**		**2,742**		**445**		**46**	

*Note:
RM Reinforced Masonry
URM Unreinforced Masonry
MH Manufactured Housing

Essential Facility Damage

Before the earthquake, the region had 419 hospital beds available for use. On the day of the earthquake, the model estimates that only 270 hospital beds (65.00%) are available for use by patients already in the hospital and those injured by the earthquake. After one week, 78.00% of the beds will be back in service. By 30 days, 94.00% will be operational.

Table 5: Expected Damage to Essential Facilities

Classification	Total	# Facilities		
		At Least Moderate Damage > 50%	Complete Damage > 50%	With Functionality > 50% on day 1
Hospitals	2	0	0	2
Schools	57	0	0	57
EOCs	1	0	0	1
PoliceStations	14	0	0	14
FireStations	23	0	0	23

Transportation and Utility Lifeline Damage

Table 6 provides damage estimates for the transportation system.

Table 6: Expected Damage to the Transportation Systems

System	Component	Number of Locations				
		Locations/ Segments	With at Least Mod. Damage	With Complete Damage	With Functionality > 50%	
					After Day 1	After Day 7
Highway	Segments	67	0	0	67	67
	Bridges	377	0	0	377	377
	Tunnels	0	0	0	0	0
Railways	Segments	134	0	0	134	134
	Bridges	1	0	0	1	1
	Tunnels	0	0	0	0	0
	Facilities	1	0	0	1	1
Light Rail	Segments	0	0	0	0	0
	Bridges	0	0	0	0	0
	Tunnels	0	0	0	0	0
	Facilities	0	0	0	0	0
Bus	Facilities	2	0	0	2	2
Ferry	Facilities	0	0	0	0	0
Port	Facilities	0	0	0	0	0
Airport	Facilities	1	0	0	1	1
	Runways	3	0	0	3	3

Note: Roadway segments, railroad tracks and light rail tracks are assumed to be damaged by ground failure only. If ground failure maps are not provided, damage estimates to these components will not be computed.

Tables 7-9 provide information on the damage to the utility lifeline systems. Table 7 provides damage to the utility system facilities. Table 8 provides estimates on the number of leaks and breaks by the pipelines of the utility systems. For electric power and potable water, Hazus performs a simplified system performance analysis. Table 9 provides a summary of the system performance information.

Table 7 : Expected Utility System Facility Damage

System	# of Locations				
	Total #	With at Least Moderate Damage	With Complete Damage	with Functionality > 50 %	
				After Day 1	After Day 7
Potable Water	1	0	0	1	1
Waste Water	11	0	0	11	11
Natural Gas	0	0	0	0	0
Oil Systems	0	0	0	0	0
Electrical Power	3	0	0	3	3
Communication	16	0	0	16	16

Table 8 : Expected Utility System Pipeline Damage (Site Specific)

System	Total Pipelines Length (kms)	Number of Leaks	Number of Breaks
Potable Water	3,485	162	41
Waste Water	2,091	81	20
Natural Gas	1,394	28	7
Oil	0	0	0

Table 9: Expected Potable Water and Electric Power System Performance

	Total # of Households	Number of Households without Service				
		At Day 1	At Day 3	At Day 7	At Day 30	At Day 90
Potable Water	45,639	10	0	0	0	0
Electric Power		0	0	0	0	0

Induced Earthquake Damage

Fire Following Earthquake

Fires often occur after an earthquake. Because of the number of fires and the lack of water to fight the fires, they can often burn out of control. Hazus uses a Monte Carlo simulation model to estimate the number of ignitions and the amount of burnt area. For this scenario, the model estimates that there will be 0 ignitions that will burn about 0.00 sq. mi 0.00 % of the region's total area.) The model also estimates that the fires will displace about 0 people and burn about 0 (millions of dollars) of building value.

Debris Generation

Hazus estimates the amount of debris that will be generated by the earthquake. The model breaks the debris into two general categories: a) Brick/Wood and b) Reinforced Concrete/Steel. This distinction is made because of the different types of material handling equipment required to handle the debris.

The model estimates that a total of 0.08 million tons of debris will be generated. Of the total amount, Brick/Wood comprises 65.00% of the total, with the remainder being Reinforced Concrete/Steel. If the debris tonnage is converted to an estimated number of truckloads, it will require 3,360 truckloads (@25 tons/truck) to remove the debris generated by the earthquake.

Social Impact

Shelter Requirement

Hazus estimates the number of households that are expected to be displaced from their homes due to the earthquake and the number of displaced people that will require accommodations in temporary public shelters. The model estimates 73 households to be displaced due to the earthquake. Of these, 49 people (out of a total population of 117,404) will seek temporary shelter in public shelters.

Casualties

Hazus estimates the number of people that will be injured and killed by the earthquake. The casualties are broken down into four (4) severity levels that describe the extent of the injuries. The levels are described as follows;

- Severity Level 1: Injuries will require medical attention but hospitalization is not needed.
- Severity Level 2: Injuries will require hospitalization but are not considered life-threatening
- Severity Level 3: Injuries will require hospitalization and can become life threatening if not promptly treated.
- Severity Level 4: Victims are killed by the earthquake.

The casualty estimates are provided for three (3) times of day: 2:00 AM, 2:00 PM and 5:00 PM. These times represent the periods of the day that different sectors of the community are at their peak occupancy loads. The 2:00 AM estimate considers that the residential occupancy load is maximum, the 2:00 PM estimate considers that the educational, commercial and industrial sector loads are maximum and 5:00 PM represents peak commute time.

Table 10 provides a summary of the casualties estimated for this earthquake

Table 10: Casualty Estimates

		Level 1	Level 2	Level 3	Level 4
2 AM	Commercial	0	0	0	0
	Commuting	0	0	0	0
	Educational	0	0	0	0
	Hotels	0	0	0	0
	Industrial	1	0	0	0
	Other-Residential	9	1	0	0
	Single Family	34	5	0	1
	Total	**44**	**6**	**1**	**1**
2 PM	Commercial	21	3	0	1
	Commuting	0	0	0	0
	Educational	36	6	1	1
	Hotels	0	0	0	0
	Industrial	4	1	0	0
	Other-Residential	2	0	0	0
	Single Family	8	1	0	0
	Total	**71**	**11**	**1**	**2**
5 PM	Commercial	16	2	0	0
	Commuting	1	1	2	0
	Educational	5	1	0	0
	Hotels	0	0	0	0
	Industrial	2	0	0	0
	Other-Residential	4	0	0	0
	Single Family	13	2	0	0
	Total	**41**	**7**	**2**	**1**

Economic Loss

The total economic loss estimated for the earthquake is 236.90 (millions of dollars), which includes building and lifeline related losses based on the region's available inventory. The following three sections provide more detailed information about these losses.

Building-Related Losses

The building losses are broken into two categories: direct building losses and business interruption losses. The direct building losses are the estimated costs to repair or replace the damage caused to the building and its contents. The business interruption losses are the losses associated with inability to operate a business because of the damage sustained during the earthquake. Business interruption losses also include the temporary living expenses for those people displaced from their homes because of the earthquake.

The total building-related losses were 211.17 (millions of dollars); 23 % of the estimated losses were related to the business interruption of the region. By far, the largest loss was sustained by the residential occupancies which made up over 57 % of the total loss. Table 11 below provides a summary of the losses associated with the building damage.

Table 11: Building-Related Economic Loss Estimates

(Millions of dollars)

Category	Area	Single Family	Other Residential	Commercial	Industrial	Others	Total
Income Losses							
	Wage	0.00	0.31	7.89	0.45	1.29	9.94
	Capital-Related	0.00	0.13	6.11	0.27	0.34	6.86
	Rental	2.60	1.54	3.72	0.20	0.40	8.46
	Relocation	9.64	1.70	6.38	0.89	4.45	23.07
	Subtotal	**12.24**	**3.68**	**24.10**	**1.82**	**6.48**	**48.32**
Capital Stock Losses							
	Structural	17.49	2.87	6.42	1.87	3.66	32.30
	Non_Structural	54.41	11.60	15.24	4.49	11.11	96.85
	Content	14.57	2.52	7.43	2.90	5.30	32.72
	Inventory	0.00	0.00	0.24	0.69	0.04	0.97
	Subtotal	**86.46**	**16.99**	**29.34**	**9.95**	**20.11**	**162.85**
Total		**98.71**	**20.66**	**53.44**	**11.76**	**26.59**	**211.17**

Transportation and Utility Lifeline Losses

For the transportation and utility lifeline systems, Hazus computes the direct repair cost for each component only. There are no losses computed by Hazus for business interruption due to lifeline outages. Tables 12 & 13 provide a detailed breakdown in the expected lifeline losses.

Hazus estimates the long-term economic impacts to the region for 15 years after the earthquake. The model quantifies this information in terms of income and employment changes within the region. Table 14 presents the results of the region for the given earthquake.

Table 12: Transportation System Economic Losses

(Millions of dollars)

System	Component	Inventory Value	Economic Loss	Loss Ratio (%)
Highway	Segments	1,143.35	$0.00	0.00
	Bridges	287.09	$2.65	0.92
	Tunnels	0.00	$0.00	0.00
	Subtotal	**1430.40**	**2.70**	
Railways	Segments	168.74	$0.00	0.00
	Bridges	0.14	$0.00	0.07
	Tunnels	0.00	$0.00	0.00
	Facilities	2.66	$0.17	6.30
	Subtotal	**171.50**	**0.20**	
Light Rail	Segments	0.00	$0.00	0.00
	Bridges	0.00	$0.00	0.00
	Tunnels	0.00	$0.00	0.00
	Facilities	0.00	$0.00	0.00
	Subtotal	**0.00**	**0.00**	
Bus	Facilities	2.25	$0.14	6.30
	Subtotal	**2.20**	**0.10**	
Ferry	Facilities	0.00	$0.00	0.00
	Subtotal	**0.00**	**0.00**	
Port	Facilities	0.00	$0.00	0.00
	Subtotal	**0.00**	**0.00**	
Airport	Facilities	10.65	$0.64	6.03
	Runways	113.89	$0.00	0.00
	Subtotal	**124.50**	**0.60**	
	Total	**1728.80**	**3.60**	

Table 13: Utility System Economic Losses

(Millions of dollars)

System	Component	Inventory Value	Economic Loss	Loss Ratio (%)
Potable Water	Pipelines	0.00	$0.00	0.00
	Facilities	34.30	$0.62	1.82
	Distribution Lines	69.70	$0.73	1.05
	Subtotal	**104.00**	**$1.35**	
Waste Water	Pipelines	0.00	$0.00	0.00
	Facilities	754.60	$13.87	1.84
	Distribution Lines	41.80	$0.37	0.88
	Subtotal	**796.40**	**$14.24**	
Natural Gas	Pipelines	0.00	$0.00	0.00
	Facilities	0.00	$0.00	0.00
	Distribution Lines	27.90	$0.13	0.45
	Subtotal	**27.88**	**$0.13**	
Oil Systems	Pipelines	0.00	$0.00	0.00
	Facilities	0.00	$0.00	0.00
	Subtotal	**0.00**	**$0.00**	
Electrical Power	Facilities	339.90	$6.38	1.88
	Subtotal	**339.90**	**$6.38**	
Communication	Facilities	1.60	$0.03	1.83
	Subtotal	**1.65**	**$0.03**	
	Total	**1,269.84**	**$22.13**	

Table 14. Indirect Economic Impact with outside aid

(Employment as # of people and Income in millions of $)

LOSS	Total	%

Appendix A: County Listing for the Region

Jasper,MO

Appendix B: Regional Population and Building Value Data

State	County Name	Population	Building Value (millions of dollars)		
			Residential	Non-Residential	Total
Missouri					
	Jasper	117,404	8,040	2,830	10,870
Total State		**117,404**	**8,040**	**2,830**	**10,870**
Total Region		**117,404**	**8,040**	**2,830**	**10,870**

Hazus-MH: Earthquake Event Report

Region Name Earthquake NewtonCounty_2013SHMP

Scenario: Print Date: NewtonCounty_eq2pctExceedance50yr

February 16, 2013

Totals only reflect data for those census tracts/blocks included in the user's study region.

Disclaimer:

The estimates of social and economic impacts contained in this report were produced using Hazus loss estimation methodology software which is based on current scientific and engineering knowledge. There are uncertainties inherent in any loss estimation technique. Therefore, there may be significant differences between the modeled results contained in this report and the actual social and economic losses following a specific earthquake. These results can be improved by using enhanced inventory, geotechnical, and observed ground motion data.

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General Description of the Region

Hazus is a regional earthquake loss estimation model that was developed by the Federal Emergency Management Agency and the National Institute of Building Sciences. The primary purpose of Hazus is to provide a methodology and software application to develop earthquake losses at a regional scale. These loss estimates would be used primarily by local, state and regional officials to plan and stimulate efforts to reduce risks from earthquakes and to prepare for emergency response and recovery.

The earthquake loss estimates provided in this report was based on a region that includes 1 county(ies) from the following state(s):

Missouri

Note:
Appendix A contains a complete listing of the counties contained in the region.

The geographical size of the region is 626.27 square miles and contains 10 census tracts. There are over 22 thousand households in the region which has a total population of 58,114 people (2002 Census Bureau data). The distribution of population by State and County is provided in Appendix B.

There are an estimated 26 thousand buildings in the region with a total building replacement value (excluding contents) of 5,027 (millions of dollars). Approximately 92.00 % of the buildings (and 74.00% of the building value) are associated with residential housing.

The replacement value of the transportation and utility lifeline systems is estimated to be 1,246 and 584 (millions of dollars) , respectively.

Building and Lifeline Inventory

Building Inventory

Hazus estimates that there are 26 thousand buildings in the region which have an aggregate total replacement value of 5,027 (millions of dollars) . Appendix B provides a general distribution of the building value by State and County.

In terms of building construction types found in the region, wood frame construction makes up 60% of the building inventory. The remaining percentage is distributed between the other general building types.

Critical Facility Inventory

Hazus breaks critical facilities into two (2) groups: essential facilities and high potential loss facilities (HPL). Essential facilities include hospitals, medical clinics, schools, fire stations, police stations and emergency operations facilities. High potential loss facilities include dams, levees, military installations, nuclear power plants and hazardous material sites.

For essential facilities, there are 4 hospitals in the region with a total bed capacity of 395 beds. There are 24 schools, 21 fire stations, 5 police stations and 1 emergency operation facilities. With respect to high potential loss facilities (HPL), there are 13 dams identified within the region. Of these, 9 of the dams are classified as 'high hazard'. The inventory also includes 13 hazardous material sites, 0 military installations and 0 nuclear power plants.

Transportation and Utility Lifeline Inventory

Within Hazus, the lifeline inventory is divided between transportation and utility lifeline systems. There are seven (7) transportation systems that include highways, railways, light rail, bus, ports, ferry and airports. There are six (6) utility systems that include potable water, wastewater, natural gas, crude & refined oil, electric power and communications. The lifeline inventory data are provided in Tables 1 and 2.

The total value of the lifeline inventory is over 1,830.00 (millions of dollars). This inventory includes over 232 kilometers of highways, 237 bridges, 6,399 kilometers of pipes.

Table 1: Transportation System Lifeline Inventory

System	Component	# Locations/ # Segments	Replacement value (millions of dollars)
Highway	Bridges	237	138.20
	Segments	57	936.60
	Tunnels	0	0.00
		Subtotal	**1,074.80**
Railways	Bridges	3	0.40
	Facilities	0	0.00
	Segments	58	121.20
	Tunnels	0	0.00
		Subtotal	**121.60**
Light Rail	Bridges	0	0.00
	Facilities	0	0.00
	Segments	0	0.00
	Tunnels	0	0.00
		Subtotal	**0.00**
Bus	Facilities	1	1.10
		Subtotal	**1.10**
Ferry	Facilities	0	0.00
		Subtotal	**0.00**
Port	Facilities	0	0.00
		Subtotal	**0.00**
Airport	Facilities	1	10.70
	Runways	1	38.00
		Subtotal	**48.60**
		Total	**1,246.10**

Table 2: Utility System Lifeline Inventory

System	Component	# Locations / Segments	Replacement value (millions of dollars)
Potable Water	Distribution Lines	NA	64.00
	Facilities	1	34.30
	Pipelines	0	0.00
		Subtotal	**98.30**
Waste Water	Distribution Lines	NA	38.40
	Facilities	8	548.80
	Pipelines	0	0.00
		Subtotal	**587.20**
Natural Gas	Distribution Lines	NA	25.60
	Facilities	1	1.10
	Pipelines	0	0.00
		Subtotal	**26.70**
Oil Systems	Facilities	0	0.00
	Pipelines	0	0.00
		Subtotal	**0.00**
Electrical Power	Facilities	0	0.00
		Subtotal	**0.00**
Communication	Facilities	5	0.50
		Subtotal	**0.50**
		Total	**712.70**

Earthquake Scenario

Hazus uses the following set of information to define the earthquake parameters used for the earthquake loss estimate provided in this report.

Scenario Name Type of	NewtonCounty_eq2pctExceedance50yr Probabilistic
Earthquake Fault Name	NA NA
Historical Epicenter ID #	2,500.00
Probabilistic Return Period	
Longitude of Epicenter Latitude	NA
of Epicenter Earthquake	NA 7.70 NA
Magnitude Depth (Km)	
Rupture Length (Km)	NA
Rupture Orientation (degrees)	NA
Attenuation Function	NA

Building Damage

Hazus estimates that about 1,951 buildings will be at least moderately damaged. This is over 7.00 % of the buildings in the region. There are an estimated 26 buildings that will be damaged beyond repair. The definition of the 'damage states' is provided in Volume 1: Chapter 5 of the Hazus technical manual. Table 3 below summarizes the expected damage by general occupancy for the buildings in the region. Table 4 below summarizes the expected damage by general building type.

Table 3: Expected Building Damage by Occupancy

	None		Slight		Moderate		Extensive		Complete	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Agriculture	124	0.61	28	0.73	20	1.18	5	1.73	0	1.44
Commercial	885	4.37	196	5.10	113	6.84	25	9.27	2	8.38
Education	19	0.09	4	0.11	2	0.15	0	0.17	0	0.26
Government	43	0.21	10	0.25	6	0.36	1	0.39	0	0.67
Industrial	269	1.33	60	1.56	38	2.28	9	3.17	1	2.66
Other Residential	4,144	20.47	1,012	26.34	646	39.15	100	36.66	6	22.25
Religion	82	0.41	16	0.43	9	0.55	2	0.73	0	0.76
Single Family	14,682	72.51	2,516	65.48	817	49.50	131	47.88	17	63.57
Total	**20,248**		**3,842**		**1,651**		**273**		**27**	

Table 4: Expected Building Damage by Building Type (All Design Levels)

	None		Slight		Moderate		Extensive		Complete	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Wood	13,097	64.68	2022	52.62	438	26.49	31	11.41	2	6.42
Steel	395	1.95	97	2.52	84	5.09	21	7.55	2	5.70
Concrete	120	0.59	24	0.62	14	0.84	2	0.69	0	0.38
Precast	119	0.59	19	0.51	19	1.13	6	2.16	0	0.44
RM	60	0.29	7	0.17	5	0.33	1	0.41	0	0.04
URM	3,766	18.60	906	23.58	527	31.93	126	45.99	19	70.86
MH	2,692	13.29	767	19.97	565	34.20	87	31.78	4	16.16
Total	**20,248**		**3,842**		**1,651**		**273**		**27**	

*Note:
RM Reinforced Masonry
URM Unreinforced Masonry
MH Manufactured Housing

Essential Facility Damage

Before the earthquake, the region had 395 hospital beds available for use. On the day of the earthquake, the model estimates that only 254 hospital beds (65.00%) are available for use by patients already in the hospital and those injured by the earthquake. After one week, 78.00% of the beds will be back in service. By 30 days, 94.00% will be operational.

Table 5: Expected Damage to Essential Facilities

Classification	Total	# Facilities		
		At Least Moderate Damage > 50%	Complete Damage > 50%	With Functionality > 50% on day 1
Hospitals	4	0	0	4
Schools	24	0	0	24
EOCs	1	0	0	1
PoliceStations	5	0	0	5
FireStations	21	0	0	21

Transportation and Utility Lifeline Damage

Table 6 provides damage estimates for the transportation system.

Table 6: Expected Damage to the Transportation Systems

System	Component	Number of Locations				
		Locations/ Segments	With at Least Mod. Damage	With Complete Damage	With Functionality > 50 %	
					After Day 1	After Day 7
Highway	Segments	57	0	0	57	57
	Bridges	237	0	0	237	237
	Tunnels	0	0	0	0	0
Railways	Segments	58	0	0	58	58
	Bridges	3	0	0	3	3
	Tunnels	0	0	0	0	0
	Facilities	0	0	0	0	0
Light Rail	Segments	0	0	0	0	0
	Bridges	0	0	0	0	0
	Tunnels	0	0	0	0	0
	Facilities	0	0	0	0	0
Bus	Facilities	1	0	0	1	1
Ferry	Facilities	0	0	0	0	0
Port	Facilities	0	0	0	0	0
Airport	Facilities	1	0	0	1	1
	Runways	1	0	0	1	1

Note: Roadway segments, railroad tracks and light rail tracks are assumed to be damaged by ground failure only. If ground failure maps are not provided, damage estimates to these components will not be computed.

Tables 7-9 provide information on the damage to the utility lifeline systems. Table 7 provides damage to the utility system facilities. Table 8 provides estimates on the number of leaks and breaks by the pipelines of the utility systems. For electric power and potable water, Hazus performs a simplified system performance analysis. Table 9 provides a summary of the system performance information.

Table 7 : Expected Utility System Facility Damage

System	# of Locations				
	Total #	With at Least Moderate Damage	With Complete Damage	with Functionality > 50 %	
				After Day 1	After Day 7
Potable Water	1	0	0	1	1
Waste Water	8	0	0	8	8
Natural Gas	1	0	0	1	1
Oil Systems	0	0	0	0	0
Electrical Power	0	0	0	0	0
Communication	5	0	0	5	5

Table 8 : Expected Utility System Pipeline Damage (Site Specific)

System	Total Pipelines Length (kms)	Number of Leaks	Number of Breaks
Potable Water	3,200	159	40
Waste Water	1,920	80	20
Natural Gas	1,280	27	7
Oil	0	0	0

Table 9: Expected Potable Water and Electric Power System Performance

	Total # of Households	Number of Households without Service				
		At Day 1	At Day 3	At Day 7	At Day 30	At Day 90
Potable Water	22,021	6	0	0	0	0
Electric Power		0	0	0	0	0

Induced Earthquake Damage

Fire Following Earthquake

Fires often occur after an earthquake. Because of the number of fires and the lack of water to fight the fires, they can often burn out of control. Hazus uses a Monte Carlo simulation model to estimate the number of ignitions and the amount of burnt area. For this scenario, the model estimates that there will be 0 ignitions that will burn about 0.00 sq. mi 0.00 % of the region's total area.) The model also estimates that the fires will displace about 0 people and burn about 0 (millions of dollars) of building value.

Debris Generation

Hazus estimates the amount of debris that will be generated by the earthquake. The model breaks the debris into two general categories: a) Brick/Wood and b) Reinforced Concrete/Steel. This distinction is made because of the different types of material handling equipment required to handle the debris.

The model estimates that a total of 0.05 million tons of debris will be generated. Of the total amount, Brick/Wood comprises 64.00% of the total, with the remainder being Reinforced Concrete/Steel. If the debris tonnage is converted to an estimated number of truckloads, it will require 1,800 truckloads (@25 tons/truck) to remove the debris generated by the earthquake.

Social Impact

Shelter Requirement

Hazus estimates the number of households that are expected to be displaced from their homes due to the earthquake and the number of displaced people that will require accommodations in temporary public shelters. The model estimates 30 households to be displaced due to the earthquake. Of these, 20 people (out of a total population of 58,114) will seek temporary shelter in public shelters.

Casualties

Hazus estimates the number of people that will be injured and killed by the earthquake. The casualties are broken down into four (4) severity levels that describe the extent of the injuries. The levels are described as follows;

- Severity Level 1: Injuries will require medical attention but hospitalization is not needed.
- Severity Level 2: Injuries will require hospitalization but are not considered life-threatening
- Severity Level 3: Injuries will require hospitalization and can become life threatening if not promptly treated.
- Severity Level 4: Victims are killed by the earthquake.

The casualty estimates are provided for three (3) times of day: 2:00 AM, 2:00 PM and 5:00 PM. These times represent the periods of the day that different sectors of the community are at their peak occupancy loads. The 2:00 AM estimate considers that the residential occupancy load is maximum, the 2:00 PM estimate considers that the educational, commercial and industrial sector loads are maximum and 5:00 PM represents peak commute time.

Table 10 provides a summary of the casualties estimated for this earthquake

Table 10: Casualty Estimates

		Level 1	Level 2	Level 3	Level 4
2 AM	Commercial	0	0	0	0
	Commuting	0	0	0	0
	Educational	0	0	0	0
	Hotels	1	0	0	0
	Industrial	0	0	0	0
	Other-Residential	6	1	0	0
	Single Family	18	3	0	1
	Total	**26**	**4**	**0**	**1**
2 PM	Commercial	9	1	0	0
	Commuting	0	0	0	0
	Educational	20	3	0	1
	Hotels	0	0	0	0
	Industrial	2	0	0	0
	Other-Residential	1	0	0	0
	Single Family	4	1	0	0
	Total	**36**	**6**	**1**	**1**
5 PM	Commercial	8	1	0	0
	Commuting	1	1	1	0
	Educational	2	0	0	0
	Hotels	0	0	0	0
	Industrial	1	0	0	0
	Other-Residential	2	0	0	0
	Single Family	7	1	0	0
	Total	**22**	**4**	**2**	**1**

Economic Loss

The total economic loss estimated for the earthquake is 126.56 (millions of dollars), which includes building and lifeline related losses based on the region's available inventory. The following three sections provide more detailed information about these losses.

Building-Related Losses

The building losses are broken into two categories: direct building losses and business interruption losses. The direct building losses are the estimated costs to repair or replace the damage caused to the building and its contents. The business interruption losses are the losses associated with inability to operate a business because of the damage sustained during the earthquake. Business interruption losses also include the temporary living expenses for those people displaced from their homes because of the earthquake.

The total building-related losses were 111.17 (millions of dollars); 24 % of the estimated losses were related to the business interruption of the region. By far, the largest loss was sustained by the residential occupancies which made up over 56 % of the total loss. Table 11 below provides a summary of the losses associated with the building damage.

Table 11: Building-Related Economic Loss Estimates

(Millions of dollars)

Category	Area	Single Family	Other Residential	Commercial	Industrial	Others	Total
Income Losses							
	Wage	0.00	0.34	5.07	0.19	0.75	6.35
	Capital-Related	0.00	0.14	3.21	0.11	0.17	3.63
	Rental	1.38	0.76	1.72	0.08	0.20	4.13
	Relocation	5.12	1.25	4.07	0.39	2.23	13.05
	Subtotal	**6.50**	**2.49**	**14.06**	**0.77**	**3.35**	**27.17**
Capital Stock Losses							
	Structural	9.04	1.61	3.70	0.77	1.85	16.96
	Non_Structural	28.44	5.23	8.67	1.86	5.41	49.62
	Content	7.75	0.98	4.51	1.16	2.57	16.96
	Inventory	0.00	0.00	0.15	0.28	0.02	0.45
	Subtotal	**45.23**	**7.81**	**17.03**	**4.08**	**9.85**	**84.00**
Total		**51.73**	**10.30**	**31.09**	**4.85**	**13.20**	**111.17**

Transportation and Utility Lifeline Losses

For the transportation and utility lifeline systems, Hazus computes the direct repair cost for each component only. There are no losses computed by Hazus for business interruption due to lifeline outages. Tables 12 & 13 provide a detailed breakdown in the expected lifeline losses.

Hazus estimates the long-term economic impacts to the region for 15 years after the earthquake. The model quantifies this information in terms of income and employment changes within the region. Table 14 presents the results of the region for the given earthquake.

Table 12: Transportation System Economic Losses

(Millions of dollars)

System	Component	Inventory Value	Economic Loss	Loss Ratio (%)
Highway	Segments	936.59	$0.00	0.00
	Bridges	138.20	$0.88	0.63
	Tunnels	0.00	$0.00	0.00
	Subtotal	**1074.80**	**0.90**	
Railways	Segments	121.22	$0.00	0.00
	Bridges	0.37	$0.00	0.08
	Tunnels	0.00	$0.00	0.00
	Facilities	0.00	$0.00	0.00
	Subtotal	**121.60**	**0.00**	
Light Rail	Segments	0.00	$0.00	0.00
	Bridges	0.00	$0.00	0.00
	Tunnels	0.00	$0.00	0.00
	Facilities	0.00	$0.00	0.00
	Subtotal	**0.00**	**0.00**	
Bus	Facilities	1.12	$0.08	6.72
	Subtotal	**1.10**	**0.10**	
Ferry	Facilities	0.00	$0.00	0.00
	Subtotal	**0.00**	**0.00**	
Port	Facilities	0.00	$0.00	0.00
	Subtotal	**0.00**	**0.00**	
Airport	Facilities	10.65	$0.72	6.72
	Runways	37.96	$0.00	0.00
	Subtotal	**48.60**	**0.70**	
	Total	**1246.10**	**1.70**	

Table 13: Utility System Economic Losses

(Millions of dollars)

System	Component	Inventory Value	Economic Loss	Loss Ratio (%)
Potable Water	Pipelines	0.00	$0.00	0.00
	Facilities	34.30	$0.72	2.11
	Distribution Lines	64.00	$0.72	1.12
	Subtotal	**98.29**	**$1.44**	
Waste Water	Pipelines	0.00	$0.00	0.00
	Facilities	548.80	$11.77	2.14
	Distribution Lines	38.40	$0.36	0.94
	Subtotal	**587.18**	**$12.13**	
Natural Gas	Pipelines	0.00	$0.00	0.00
	Facilities	1.10	$0.02	1.90
	Distribution Lines	25.60	$0.12	0.48
	Subtotal	**26.72**	**$0.14**	
Oil Systems	Pipelines	0.00	$0.00	0.00
	Facilities	0.00	$0.00	0.00
	Subtotal	**0.00**	**$0.00**	
Electrical Power	Facilities	0.00	$0.00	0.00
	Subtotal	**0.00**	**$0.00**	
Communication	Facilities	0.50	$0.01	2.12
	Subtotal	**0.52**	**$0.01**	
	Total	**712.70**	**$13.72**	

Table 14. Indirect Economic Impact with outside aid

(Employment as # of people and Income in millions of $)

LOSS		Total	%

Appendix A: County Listing for the Region

Newton,MO

Appendix B: Regional Population and Building Value Data

State	County Name	Population	Building Value (millions of dollars)		
			Residential	Non-Residential	Total
Missouri					
	Newton	58,114	3,708	1,319	5,027
Total State		**58,114**	**3,708**	**1,319**	**5,027**
Total Region		**58,114**	**3,708**	**1,319**	**5,027**

Appendix D:

Local Emergency Operations Plans