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# Multi-Hazard Mitigation Plan

## 5.0 Mitigation Strategy

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The CPT reviewed and discussed formulating Mitigation Goals as part of Team Meeting #3 in preparation for identifying the goals for this plan. Each CPT member was provided with a written explanation of Goals and Objectives, the purpose they serve, and how they are developed and written. Up to this point in the planning process, the CPT has been involved in talking to agencies and organizations and collecting and recording hazard related data. From these discussions and efforts, the CPT produced three documents. The first two:

1. The Hazard Identification, and
2. The Vulnerability Assessment

which have “painted a picture” of the vulnerability of Evansville and Vanderburgh County to natural hazards. We have learned that:

1. Stream system and neighborhood flooding continues to be a significant threat to the community
2. Earthquakes pose a moderate threat
3. Most meteorological and natural biological hazards occur periodically (drought, extreme temperatures, infestations, mine subsidence, severe thunderstorms/high wind, tornadoes, and severe winter storms), and constitute a significant on-going threat. All federal disaster declarations within the County have been due to severe storms.

Through a Mitigation Capability Assessment, describing the current ability of Evansville and Vanderburgh County to counter these threats through existing policies, regulations, programs, and procedures, the CPT learned that:

1. Flood insurance is available, but only 15 percent of those structures located within the floodplain are covered.
2. Repetitive loss “areas” need to be coordinated with existing Stormwater Master for the City of Evansville.
3. Building Codes contain seismic safety elements.
4. Building Codes contain design wind elements.
5. Disaster Resistant Communities Program coinciding with Project Impact has outlined several public information and structural projects.

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6. Public information could be made available to inform residents about the risks from hazards (earthquakes, floods, and tornadoes predominantly) and appropriate risk reduction actions that they can undertake.
7. Community is seeking to improve Warning Capabilities.

## GOAL SETTING

This analysis identified areas where improvements could be made, providing the framework for the CPT to formulate planning Goals, so that the improvements would be incorporated into the Mitigation Plan. Each CPT member was provided an alphabetized list of possible goal statements. Each CPT member then received three index cards and was asked to write what they felt would be appropriate goals for the plan using the possible goal statements as a guide.

The CPT members were instructed that they could use, combine or revise the statements provided or develop new ones. The goal statements were then attached to the meeting-room wall, and grouped into similar topics, combined, rewritten, and agreed upon.

Some of the statements were determined to be better suited as objectives or actual mitigation projects, and were set aside for later use. Based upon the planning data review, and the process described above, the CPT developed the final goal statements listed below. None of the final goal statements are the same as those provided on the alphabetized list. The goals and objectives provide the direction for reducing future hazard-related losses within Evansville and Vanderburgh County.

**GOAL #1: Implement a comprehensive Public Education campaign regarding the hazards posing significant risk to Evansville and Vanderburgh County.**

*Objective 1.1: Promote awareness of Hazards and Vulnerability among citizens, business, industry, school systems, and government.*

*Objective 1.2: Provide information on Hazard Mitigation alternatives and their respective costs, benefit, and impacts.*

*Objective 1.3: Ensure that the information provided is accurate and consistent.*

*Objective 1.4: Promote hazard mitigation as a public value in recognition of its importance to the health, safety, and welfare of the population.*

*Objective 1.5: Strengthen communication and coordination between public agencies, citizens, non-profit organizations, business, industry, and school systems to create a widespread interest in hazard mitigation.*

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**GOAL #2: Reduce exposure to hazard related losses, before and after disaster strikes.**

*Objective 2.1: Implement a Pre-Disaster mitigation Program.*

*Objective 2.2: Implement a Post-Disaster mitigation Program.*

**GOAL #3: Utilize latest technology and data in hazard mitigation activities**

*Objective 3.1: Maximize “Lead-Time” provided by an all-hazards warning system*

## IDENTIFICATION OF MITIGATION MEASURES

Following the goal setting meeting, the CPT undertook a brainstorming session to generate a set of viable alternatives that would support the above goals. Each CPT member was provided with the following list of categories of mitigation measures:

- Prevention
- Property Protection
- Structural Projects
- Natural Resource Protection
- Emergency Services, and
- Public Information.

The CPT members were also provided with several lists of alternative multi-hazard mitigation actions. A facilitated discussion then took place to examine and analyze the alternatives. Once the mitigation measures were selected, the CPT members then selected and prioritized preferred mitigation measures.



**Figure 23. Mitigation Measures**

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# ACTION PLAN

The results of the planning process, the Risk Assessment, the Mitigation Strategy, and the hard work of the CPT is presented below. This Action Plan presents the prioritized recommendations for Evansville and Vanderburgh County to pursue in order to lessen the vulnerability of people, property, infrastructure, and natural and cultural resources to future disaster losses. The recommendations are presented in order of priority to the community in terms of both need and effectiveness. Each recommendation also includes a cost estimate and cost benefit to meet the regulatory requirements of DMA.

**GOAL #1: IMPLEMENT A COMPREHENSIVE PUBLIC EDUCATION CAMPAIGN REGARDING THE HAZARDS POSING SIGNIFICANT RISK TO EVANSVILLE AND VANDERBURGH COUNTY.**

*Objective 1.1: Promote awareness of Hazards and Vulnerability among citizens, business, industry, school systems, and government.*

*Objective 1.2: Provide information on Hazard Mitigation alternatives and their respective costs, benefit, and impacts.*

*Objective 1.3: Ensure that the information provided is accurate and consistent.*

*Objective 1.4: Promote hazard mitigation as a public value in recognition of its importance to the health, safety, and welfare of the population.*

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**RECOMMENDED ACTION 1:**

*Develop and Conduct a multi-hazard, seasonal Public Awareness Program that provides citizens and businesses with accurate information describing the risk and vulnerability to natural hazards, and is implemented on an annual basis.*

**Issue/Background:**

Evansville and Vanderburgh County are subject to several natural hazards, each which poses a different degree of risk and associated vulnerability. Some hazards have a combination of attributes, including a high likelihood of occurrence, a specific location which would likely be impacted, and proven approaches that can reduce the impact, such that the CPT has recommended specific actions be taken. For other hazards, where either the likelihood of occurrence is very low, or the area of likely impact is not specifically known, or there is very little that can be done to reduce the impacts, that the CPT has determined that the best approach would simply be public awareness. People should know what the CPT knows: information describing historical events and losses, the likelihood of future occurrences, the range of possible impacts, appropriate actions they can take to save lives and minimize property damage, and where additional information can be found. Any information provided through this effort should be accurate, specific, timely, and consistent with current and



accepted local emergency management procedures as promoted by the Indiana State Emergency Management Agency, Vanderburgh County Emergency Management Agency, Southwest Indiana Disaster Resistant Community Corporation, and the American Red Cross.

Among the specific activities cited by the CPT for program consideration are:

- Educate the public on the appropriate office or point of contact for hazard information;
- Develop and distribute a mailing to repetitive loss properties and potentially all properties located within the floodplain regarding the ongoing potential for flooding and flood safety information;
- Distribute Multi-Hazard Information and Emergency Preparedness pamphlets to residential sectors, specifically noting Habitat for Humanity; Local Apartment Associations; Realtor Association; Neighborhood Associations; and Evansville Housing Authority;
- Distribute information to public as received from the upcoming 5-year USGS and CUSEC Urban Hazard Earthquake Mapping update;
- Coordinate with Safety Week at Eastland Mall;
- Investigate public education opportunities for the commercial community;
- Investigate opportunities to coordinate with local churches for emergency planning;
- Utilize the newly constructed Main Library as a distribution location for multi-hazard information and access point for digital/technology information;
- Minimize the duplication of hazard information presented in the public and private school systems;
- Educate the local television, radio, and newspaper media on Multi-Hazard information, specifically noting driver safety education.

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**GOAL #2: REDUCE EXPOSURE TO HAZARD RELATED LOSSES, BEFORE AND AFTER DISASTER STRIKES.**

*Objective 2.1: Implement a Pre-Disaster mitigation Program.*

*Objective 2.2: Implement a Post-Disaster mitigation Program.*

**RECOMMENDED ACTION 2:**

*Incorporate the Hazard Identification and Management Strategies into the 2004 – 2025 Comprehensive Plan for Evansville and Vanderburgh County.*

**FLOODING**

▶ **RECOMMENDED ACTION 3:**

*Develop County-Wide Stormwater Master Plan to provide relief from run-off and flooding resulting from rainfall events.*

Generally, the plans are made for sub-watersheds, and include master drainage planning, construction, and maintenance elements. They can also propose new development regulations and drainage utility fees to pay for the necessary improvements. The overall intent is to allow the community to address increasing runoff as there are increases in impervious surfaces (roofs, sidewalks, roads, parking lots), and to plan for drainage in a comprehensive manner so that development in one area has minimal impacts on another, either up or downstream, minimizing future flood damage.

▶ **RECOMMENDED ACTION 4:**

*Based on existing City Stormwater Master Plan, develop formalized policies (level-of-service and extent-of-service) for maintenance of the storm water drainage system.*

▶ **RECOMMENDED ACTION 5:**

*Develop a property acquisition plan and associated policies to acquire prioritized properties in the repetitive loss areas.*

▶ **RECOMMENDED ACTION 6:**

*Complete a review of all historically proposed capital improvement projects and develop a priory list for implementation.*

The Stormwater Master Plan for the City of Evansville includes alternative design solutions for noted problematic flooding areas within the City. These alternatives should be prioritized based on factors such as repetitive loss structures, benefit-cost, number of homes removed from the floodplain, etc.

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In coordination, a recent watershed study of Carpenter Creek has identified potential alternatives to relieve flooding. These alternatives should be prioritized with the City of Evansville Stormwater Master plan.

▶ **RECOMMENDED ACTION 7:**

*Based upon the completed CIP priority list, initiate design and construction of high priority capital improvement projects.*

▶ **RECOMMENDED ACTION 8:**

*Update City and County Ordinances to coordinate design requirements of Detention/Retention Ponds.*

▶ **RECOMMENDED ACTION 9:**

*Develop method for record keeping of levee maintenance efforts. Task requires coordination with the Levee Authority and U.S. Army Corps of Engineers, Louisville District.*

**EARTHQUAKES**

▶ **RECOMMENDED ACTION 10:**

*Investigate financial incentives for property owners to make seismic retrofits to existing buildings, particularly un-reinforced masonry structures, located within the earthquake hazard area.*

▶ **RECOMMENDED ACTION 11:**

*Pursue alternative funding sources for structural retrofits.*

▶ **RECOMMENDED ACTION 12:**

*Investigate potential to include residential seismic requirements in the Building Code.*

▶ **RECOMMENDED ACTION 13:**

*Explore partnerships to provide retrofitting classes for homeowners, renters, building professionals, and contractors.*

▶ **RECOMMENDED ACTION 14:**

*Encourage purchase of earthquake hazard insurance*

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**SEVERE WEATHER**

▶ **RECOMMENDED ACTION 15:**

*Purchase and distribute NOAA weather radios.*

▶ **RECOMMENDED ACTION 16:**

*Develop a plan and schedule to modify and enhance the existing Building Code regulations to require hurricane clips with the intent of minimizing future damages from high winds and tornadoes.*

▶ **RECOMMENDED ACTION 17:**

*Continue program with Habitat for Humanity to provide hurricane clips and materials for strapping down hot water heaters.*

▶ **RECOMMENDED ACTION 18:**

*Continue training efforts with local contractors on appropriate tree trimming methods to minimize damages due to hazards such as high winds, thunderstorms, and ice storms.*

▶ **RECOMMENDED ACTION 19:**

*Continue coordination with Southwest Indiana Disaster Resistant Community Corporation to select location for tornado safe room within Vanderburgh County.*

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**GOAL #3: UTILIZE LATEST TECHNOLOGY AND DATA IN HAZARD MITIGATION ACTIVITIES**

*Objective 3.1: Maximize “Lead-Time” provided by an all-hazards warning system*

**RECOMMENDED ACTION 20:**

*Investigate the potential for utilizing the 211 System for Indiana.*

**RECOMMENDED ACTION 21:**

*Investigate the potential for utilizing mass e-mailing system for information distribution to residents regarding multi-hazard information.*

**RECOMMENDED ACTION 22:**

*Purchase and install stream gages and water table gages to provide flood-warning capabilities.*

**RECOMMENDED ACTION 23:**

*Expand warning siren coverage throughout Vanderburgh County as residential, commercial, and industrial development continues to grow.*

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