

WHY DEVELOP A MITIGATION PLAN?

The Five County region of southwest Utah is vulnerable to natural hazards that have the possibility of causing serious threat to the health, safety, and welfare of our citizens. The cost of response to and recovery from potential disasters can be lessened when attention is turned to mitigating their impacts and effects. This Natural Hazard Mitigation Plan (NHMP) is a fundamental step in identifying natural hazards and the impacts they may have on the residents of southwest Utah.

A mitigation plan seeks to provide resources, information and strategies for risk reduction, while helping to guide and coordinate mitigation activities. The plan provides a set of action items to reduce risk from natural hazards through education, outreach programs, the development of partnerships, and the implementation of preventative activities.

The resources and information within the mitigation plan establish: a foundation for coordination and collaboration among agencies and the public in the Five County region of southwest Utah; identify and prioritize future mitigation measures; and, assist in meeting qualifications for federal assistance programs.

NHMP
Mission: to substantially reduce the vulnerability of communities, within the region, to natural hazards.

METHODOLOGY: NHMP UPDATE

This NHMP was developed and organized with adherence to Part 201.6 of the Disaster Mitigation Act of 2000. The NHMP is required to be updated every five years to comply with the aforementioned regulations. The 2010 NHMP update is developed following the same standards and guidelines that were used in the development of the original 2004 NHMP. This being said the 2004 NHMP has been incorporated into the 2010 NHMP, alongside updated materials, and is provided as a seamless planning document.

The information used in the development of this NHMP is based on research from a variety of sources. The research methods and various contributions to the plan are as follows:

- Army Corps of Engineers *Flood Hazard Identification Study*, August, 2003.
- *A Strategic Plan for Earthquake Safety in Utah*, Utah Seismic Safety Commission, 1995
http://ussc.utah.gov/publications/strategic_plan.pdf
- *Conjunctive Management of Surface and Ground Water in Utah*, State of Utah, Division of Water Resources, 2005 <http://www.water.utah.gov/CMReport/CMReport1bCC.pdf>
- *Disaster Mitigation Act of 2000*
- *Drought in Utah, Learning from the Past- Preparing for the Future*, State of Utah, Division of Water Resources, 2007 <http://www.water.utah.gov/DroughtReport/binder2a.pdf>

- *Earthquake Safety in Utah- Progress Report: July 2000 to June 2007*, Utah Seismic Safety Commission, 2008 http://ussc.utah.gov/publications/progress_rpts/ussc2007progressreport.pdf
- *Emergency Operations Plans* for Beaver, Garfield, Iron, Kane, and Washington Counties.
- FEMA *Blue Book*, July 2008
- FEMA Publication 386-5, *Using Benefit-Cost Review in Mitigation Planning*, May 2007
- FEMA Region VIII "*Crosswalk*"
- Five County Association of Governments, *Natural Hazard Mitigation Plan: A Regional Approach for Southwestern Utah*, 2004
- *Natural Hazard Mitigation Action Plan*, Jackson County, Oregon, November 2005 <http://www.co.jackson.or.us/Page.asp?NavID=1514>
- *Southwest Utah Regional Wildfire Protection Plan*, October 2007 <http://www.fcaog.state.ut.us/wildfire.html>
- State of Utah, *Hazard Mitigation Plan*, November 2007 http://site.utah.gov/dps/homelandsecurity/MitigationPlan_MMttmp24d95a3b/MitigationPlan.html

THE PLANNING PROCESS

Requirement §201.6(b): In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process **shall** include:

- (1) An opportunity for the public to comment on the plan during the drafting stage and prior to plan approval;
- (2) An opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia and other private and non-profit interests to be involved in the planning process; and
- (3) Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.

Requirement §201.6(c)(1): [The plan **shall** document] the planning process used to develop the plan, including how it was prepared, who was involved in the process, and how the public was involved.

The Five County Association of Governments NHMP incorporates a variety of citizen input representing a diverse cross-section of our regional population. To this end, the following planning process was developed: (1) development, coordination, and implementation of County level NHMP Planning Teams; (2) soliciting information from a ‘sampling’ of citizens through a *Natural Hazards Questionnaire*; and (3) conducting stakeholder interviews to target the specialized knowledge of individuals working with populations or areas at risk from natural hazards. Within these planning process parameters, 10 steps are identified and outlined below.

DOCUMENTATION OF THE PLANNING PROCESS

This plan was prepared in the offices of the Five County Association of Governments by appointed staff members: Gary Zabriskie, Community and Economic Development Planning Manager, Curt Hutchings, Transportation Planning Manager, Darren Janes, Community Planner, Doni Pack, Program Specialist, and Ken Richards, GIS Intern, and was supported by Brad Bartholomew of State of Utah Division of Homeland Security. Other local agencies that aided in the process include: city and county GIS departments, elected officials, local officials, emergency

managers, police and fire staff members, planning departments, and local governmental agencies. The planning process included the following steps:

STEP L: ORGANIZE RESOURCES

Five County Association of Governments established, coordinated, and implemented County level NHMP Planning Teams. The planning teams, shown in the table below, were the main constituents of the planning process and provided guidance/direction from inception to eventual plan adoption.

NHMP County-level Planning Teams

<i>Name</i>	<i>Organization</i>	<i>County</i>
Mayor Bryan Sherwood	Milford City Corporation	Beaver
Commissioner Chad Johnson	Beaver County Commission	Beaver
Les Whitney	LEPC-Beaver County	Beaver
Craig Davis	Building Official-Beaver Co.	Beaver
Corrina Bow	Paiute Tribe-Kanosh Band	Five County Region/ Beaver
Robert Borchardt	Paiute Tribe-Indian Peaks Band	Beaver
Commissioner Clare Ramsay	Garfield County Commission	Garfield
Brian Bremner	Public Works/Engineer- Garfield Co.	Garfield
Mayor Lowell Mecham	Tropic Town Corporation	Garfield
Rob Wolfley	Garkane Energy Cooperative	Five County Region/ Garfield
Sandrea Francisco	LEPC-Garfield County	Garfield
Justin Fischer	Planner-Garfield County	Garfield
Reed Erickson	Iron County Administrator	Iron
Todd Stowell	Planner- Iron County	Iron
Mayor Connie Robinson	Town of Paragonah	Iron
Charlie Morris	LEPC-Iron County	Iron
Anthonia Tom	Paiute Tribe- Indian Peaks Band	Iron
Steve Platt	Engineer- Iron Co.	Iron
Mike Worthen	Natural Resource Management Specialist-Iron Co.	Iron
Alan Alldredge	LEPC-Kane County	Kane
Commissioner Douglas Heaton	Kane County Commission	Kane
Mayor Nina Laycook	Kanab City Corporation	Kane
Gary Smith	Land Use Authority-Administrator	Kane
Lou Pratt	Transportation/GIS- Kane Co.	Kane

Linda Little	Assessor- Kane Co.	Kane
Mayor Allen Brown	Rockville Town Corporation	Washington
David Hatfield	Rockville Town Corporation	Washington
Jeff Ballard	Rockville Town Corporation	Washington
Deon Goheen	Planner-Washington Co.	Washington
Commissioner James Eardley	Washington County Commission	Washington
Ron Whitehead	Public Works- Washington Co.	Washington
Dean Cox	LEPC-Washington County	Washington
Charlotte Lomeli	Paiute Tribe-Shivwits Band	Washington
Nyal Littlefield	Questar Gas	Five County Region/ Washington
Wes HATHENBRUCK	Rocky Mountain Power	Five County Region/ Washington
Colin Jack	Dixie Escalante Electric	Five County Region/ Washington
Russ Condie	Dixie Escalante Electric	Five County Region/ Washington
Lloyd Watkins	LaVerkin City	Washington
Bill Lund	Utah Geographical Survey	Five County Region
Ryan Pietramali	FEMA	Five County Region
Brad Bartholomew	Utah Division of Emergency Services and Homeland Security	Five County Region
Kenneth Sizemore	Five County Association of Governments	Five County Region
Curt Hutchings	Five County Association of Governments	Five County Region
Gary Zabriskie	Five County Association of Governments	Five County Region
Darren Janes	Five County Association of Governments	Five County Region
Doni Pack	Five County Association of Governments	Five County Region
Kenneth Richards	Five County Association of Governments/ Southern Utah University	Five County Region

STEP 2: PUBLIC OFFICIALS OUTREACH

To ensure the planning process had support from elected officials, a member from each County Commission, or their assign, was appointed to their respective County NHMP planning team. The intent of this appointment is that it establishes the need for the NHMP and focuses on how it can better help the communities within each respective County.

STEP 3: COORDINATION WITH COUNTY EMERGENCY MANAGERS

Each County NHMP planning team consisted of an emergency manager. These individuals proved to be valuable members of each planning team because of their overall interest and technical expertise in mitigation planning.

STEP 4: DATA ACQUISITION

Five County AOG employed a geographic information system (GIS) intern to collect data and generate mapping sufficient to quantitatively assess regional natural hazards. Contact was made with applicable personnel in each city and county to access GIS data available at the local level. Further, current GIS data was retrieved from the State of Utah Automated Geographic Reference Center (AGRC) website: <http://agrc.its.state.ut.us/>. Data layers were generated which included some or all of the following: local roads, plot maps, county assessor's tax assessment data, hazard data, flood maps, topographic data, aerial photographs, and land development data. The GIS software then quantified the number of units and total market value for all structures located within each defined hazard area.

In addition to GIS data, Five County AOG utilized numerous resources/data to craft this NHMP. These data resources were formally noted earlier in this section.

STEP 5: HAZARD RISK IDENTIFICATION AND ANALYSIS

This step was conducted by gathering data on the hazards that occurred in each respective County. This information was gathered from local, state, and federal agencies and organizations, as well as, from newspaper and other local media accounts, state and local weather records, conversations, surveys, interviews, and meetings with key informants within the planning area. From here, maps were generated using GIS and hazard data was presented to the NHMP planning teams in each County. Additionally, valuable public insight was generated from the *Natural Hazards Questionnaire*. The aforementioned resources resulted in a comprehensive, quantitative hazard risk identification and analysis.

STEP 6: VULNERABILITY ASSESSMENT

This step was conducted through a review of local base maps, topographical maps, floodplain maps, and other data. Through utilization of GIS, a detailed vulnerability analysis was completed for each county. GIS layers were created to determine vulnerability to hazards including: earthquakes, problem soils, severe weather, floods, landslides, and wildfire. GIS was used as the basic analysis tool to complete the hazard analysis. The paramount goal of the vulnerability assessment is to estimate the number of structures vulnerable to each hazard and assign a dollar value to this built environment. All the analysis takes place within the spatial context of a GIS. With the information available in spatial form, it is a simple task to overlay the natural hazards with county assessor's tax assessment data to extract the desired information. This is to say, the GIS software joins: 1) County Property Tax data as it relates to 2) structures located with a defined hazard area. The values shown are based upon utilizing the *market value* for structures in each defined severe weather hazard area. The GIS software then quantified the number of units

and total market value for all structures located within each defined hazard area, relative to specific hazards, in order to assess vulnerability.

STEP 7: COMMUNITY GOALS ASSESSMENT

This step was conducted through a review of the governing documents of the planning area, as well as, conversations, interviews, and meetings with key individuals within the planning area. This step identified what goals are already established and adopted for the planning area and whether or not they promote or deter mitigation activities.

STEP 8: MITIGATION STRATEGY DEVELOPMENT

Developing the mitigation strategies was a process in which all of the previous steps were taken into account. Specifically, through performance of the vulnerability assessment a total market value of structure loss was determined for each respective hazard. The resulting mitigation strategies were listed in accordance to their respective natural hazard, and presented in an effort to provide macro-level risk reduction. Although each mitigation measure is important and achievable, they were prioritized and listed in order of:

- 1) Respective amount of potential loss of life/property value as a result of a natural hazard occurrence (as quantified through GIS analysis) ; and
- 2) Implementation priority through utilization of the STAPLEE process (as explained in Chapter 3 of this Plan and in FEMA 386-3).

STEP 9: PRIORITIZATION OF MITIGATION STRATEGIES

The Disaster Mitigation Act of 2000 requires that a NHMP demonstrate how mitigation strategies were evaluated and prioritized. Prioritization was accomplished under the premise of total loss as it relates to each natural hazard. The underlying reason for this approach is based upon the fact that it is impossible to predict the future location, intensity, and severity of damage of any specific natural hazard. This being said, the total market value of structure loss for each respective natural hazard was used to prioritize mitigation strategies; ultimately the strategies are listed at the county level with the natural hazard containing the highest amount of total market value of structure loss being listed first with subsequent hazards following.

The STAPLEE method, explained in the FEMA *Blue Book* (July 2008), provided a technique for identifying, evaluating, and prioritizing mitigation actions based on existing local conditions; namely, Social, Technical, Administrative, Political, Legal, Economic, and Environmental. In terms of mitigation strategy implementation, careful attention was afforded to those mitigation strategies that have the highest likelihood of being implemented over the course of the next 5 years. It is the sincere intent of the authors of this Plan to provide mitigation strategies that will reach the greatest amount of people despite scarce funding resources.

STEP 10: ADOPTION

Requirement §201.6(c)(5): For multi-jurisdictional plans, each jurisdiction requesting approval of the plan **must** document that it has been formally adopted.

Requirement §201.6(a)(3): Multi-jurisdictional plans may be accepted, as appropriate, as long as each jurisdiction has participated in the process...Statewide plans will not be accepted as multi-jurisdictional plans.

The plan went through a public adoption process on (dates to be inserted) and was adopted by:

- Beaver County jurisdictions:
 - Beaver County, Beaver City, Town of Minersville, and Milford City.
- Garfield County jurisdictions:
 - Garfield County, Panguitch City, Escalante City, Town of Cannonville, Town of Hatch, Town of Tropic, Town of Henrieville, Town of Boulder, and Town of Antimony.
- Iron County jurisdictions:
 - Iron County, Cedar City, Parowan City, Town of Paragonah, Town of Brian Head, Town of Kanarrville, and Enoch City.
- Kane County jurisdictions:
 - Kane County, City of Kanab, Town of Alton, Town of Glendale, Town of Orderville, and Town of Big Water.
- Washington County jurisdictions:
 - Washington County, City of St. George, Washington City, Santa Clara City, Town of Springdale, Town of Rockville, Town of New Harmony, Town of Leeds, Hildale City, Hurricane City, Ivins City, Toquerville City, Enterprise City, LaVerkin City, and the Town of Virgin.

It should be noted that a separate, stand-alone NHMP will be prepared for the three Bands of the Paiute Indian Tribe of Utah once the tribal participation is formally secured and the State of Utah and FEMA approve the process. That plan will comply with 44 CFR §201.7.

PUBLIC INVOLVEMENT

Public involvement opportunities were available throughout the design and completion of the NHMP. Such opportunities included: soliciting information from a sampling of citizens through a *Natural Hazards Questionnaire*; various meetings with each county emergency manager; meetings with elected officials from each respective County; and public/private review of the NHMP at draft stage. These public involvement opportunities resulted in valuable guidance/direction in crafting the NHMP. As a whole, broad and diverse representations from each County constitute the planning process. The sincere hope is that this public representation affords the opportunity for a greater segment of the population, and its unique interests, to be represented herein.

At the Plan draft review level, comments were formally elicited from public and private constituents alike. Five County staff formally requested draft level review of the Plan by appearing before each of the five southwestern Utah County Commission's at their monthly

commission meetings. Additionally, press releases were submitted to newspapers of general circulation in each of the five southwestern Utah counties. Lastly, a Draft NHMP was made available at the offices of Five County Association of Governments and an electronic copy was made available on the Five County website. The comments generated from these efforts were carefully addressed and incorporated into this Plan accordingly.

Integrating public participation during the development of the Five County Association of Governments Natural Hazard Mitigation Plan has ultimately resulted in increased public awareness. Through citizen involvement, the mitigation plan reflects community issues, concerns, and new ideas and perspectives on mitigation opportunities and plan action items.

PLAN MAINTENANCE PROCESS

Requirement §201.6(c)(4)(i): [The plan maintenance process shall include a] section describing the method and schedule of monitoring, evaluating and updating the mitigation plan within a five-year cycle.

The plan maintenance portion of this document details the formal process that will ensure that the Five County NHMP 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. This chapter describes how Five County will integrate public participation throughout the plan maintenance process. Finally, this chapter includes an explanation of how Five County intends to incorporate the mitigation strategies outlined in this Plan into existing planning mechanisms such as: County comprehensive land use plans, capital improvement plans, and building codes.

ADOPTING, COORDINATING AND IMPLEMENTING THE PLAN

The success of the Five County NHMP depends on how well the outlined action items are implemented. Periodic monitoring of the plan is required to ensure that the goals and objectives are kept current and mitigation efforts are being carried out. In an effort to ensure that the activities identified are implemented, the following steps will be taken. Each participating jurisdiction will formally adopt and promulgate the NHMP. From here, each jurisdiction will have overall responsibility for ensuring that the plan is being implemented accordingly. In so doing, they will gain eligibility for Flood Mitigation Assistance, Hazard Mitigation Grant Program and Pre-Disaster Mitigation program funds.

Five County Association of Governments staff will ensure that a regular review and update of the Plan occurs annually. Each jurisdiction adopting the Plan will be engaged in monitoring and evaluating the progress of the mitigation strategies in their area of expertise. This is to say that they will review each goal and objective to determine their relevance to changing situations at the jurisdiction level to ensure they are addressing current and expected conditions. They will also review the risk assessment portion of the Plan to determine if this information should be updated or modified. From here, Five County Association of Governments will be responsible for incorporating the changes and updates to the Plan.

Requirement §201.6(c)(4)(ii): [The plan shall include a] process by which local governments incorporate the requirements of the mitigation plan into other planning mechanisms such as comprehensive or capital improvement plans.

Each participating jurisdiction addresses planning goals and legislative requirements through its comprehensive land use plan and associated zoning regulations, capital improvement plans, and building codes. The Natural Hazard Mitigation Plan is non-regulatory in nature and provides a series of recommendations; many of which are closely related to the goals and objectives of existing planning programs. The overall intent of the NHMP is that each jurisdiction will incorporate the recommended mitigation action items into existing programs and procedures in a variety of ways. In so doing, it will help address land-use planning goals which are developed to protect life and property. Ultimately, the NHMP can be used as an avenue to update their associated planning documents to address natural hazards.

Many of the mitigation strategies provided herein are directly related in context to the built environment. This being said, it will become very important for each respective county building, planning, and engineering departments to be diligent in their administration/enforcement of applicable building standards. Another significant opportunity for proliferation of hazard mitigation efforts is at the capital improvement level. The authors of this plan sincerely hope that jurisdictions will use the planning, research, and mapping materials provided herein, in their capital improvement due-diligence efforts. This continued diligence will undoubtedly enable risk reduction measures to be implemented at the time of development, which is the most optimal time for natural hazard mitigation.

Ultimately, this Plan shall serve as the impetus for jurisdictions to further evaluate natural hazards within their respective community. Ideally, this evaluation will translate into more stringent legislative actions being adopted which will provide the legal authority for hazard risk analysis and mitigation efforts.

Requirement §201.6(c)(4)(iii): [The plan maintenance process shall include a] discussion on how the community will continue public participation in the plan maintenance process.

Five County Association of Governments is dedicated to involving the public directly in the continual reshaping and updating of the Hazard Mitigation Plan. The financial and personnel resources, however, for an extensive public involvement process make this endeavor extremely difficult. Nevertheless, every five years, during the process of updating the plan, Five County staff will enable opportunities for the general public to be involved with the Plan. This involvement will be through notification in area newspapers of general circulation, postings on the Five County web site, and an online Natural Hazards Questionnaire. These opportunities will enable the public to be involved in the process and to provide feedback. Copies of the Plan will be accessible to all members of the public; they will be catalogued and kept at each respective jurisdiction's public offices. The Plan includes the address and phone number of Five

County Association of Governments, who will be responsible for keeping track of public comments and concerns with regard to the Plan.

WHO WILL BENEFIT FROM THIS MITIGATION PLAN?

All mitigation occurs at the local level, and the primary responsibility for development and implementation of risk reduction strategies and policies lies with the local jurisdictions. This Natural Hazard Mitigation Plan affects the jurisdictions in the Five County region, including all rural, unincorporated communities. While this Plan has no direct influence over the affiliated jurisdictions, it provides the framework for planning for natural hazards in the region. The resources and information provided pertain to all areas within the region and the recommendations can lay groundwork for localized mitigation plans and partnerships.