UINTAH BASIN REGIONAL PRE-DISASTER MITIGATION PLAN 2012

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SECTION 1:

PRE-REQUISITES & ADOPTION BY THE LOCAL JURISDICTIONS

PREFACE

Hazard mitigation is any action taken before, during, or after a disaster to permanently eliminate or reduce the long-term risk to human life and property from natural and technological hazards. It is an essential element of emergency management, along with preparedness, response, and recovery. There is a cyclical relationship between the four phases of emergency management. A community prepares for a disaster, and then responds when it occurs. Following the response, there is a transition into the recovery process, during which mitigation measures are evaluated and adopted. This, in turn, improves the preparedness posture of the community for the next incident, and so on. When successful, mitigation will lessen the impacts to such a degree that succeeding incidents will remain incidents and not become disasters.

Hazard mitigation strives to reduce the impact of hazards on people and property through the coordination of resources, programs, and authorities so that, at the very least, communities do not contribute to the increasing severity of the problem by allowing repairs and reconstruction to be completed in such a way as to simply restore damaged property as quickly as possible to pre-disaster conditions. Such efforts expedite a return to "normalcy"; however, replication of pre-disaster conditions results in a cycle of damage, reconstruction, and damage again.

Hazard mitigation is needed to ensure that such cycles are broken, that post-disaster repairs and reconstruction take place after damages are analyzed, and that sounder, less vulnerable conditions are produced. Through a combination of regulatory, administrative, and engineering approaches, losses can be limited by reducing susceptibility to damage. Hazard mitigation provides the mechanism by which communities and individuals can break the cycle of damage, reconstruction, and damage again.

Recognizing the importance of reducing community vulnerability to natural and technological hazards, the Counties of Daggett, Duchesne, and Uintah are actively addressing the issue through the development of this plan in conjunction with Uintah Basin Association of Governments. Implementing this plan is the responsibility of the cities and counties with the Uintah Basin planning district. The many benefits to be realized from this effort include protection of the public health and safety, preservation of essential services, prevention of property damage, and prevention of the local economic base, to mention just a few – will help ensure that the Uintah Basin and all of its communities remain vibrant, safe, and enjoyable places in which to live, raise a family, and conduct business.

EXECUTIVE SUMMARY

Plan Mission:

The mission of the Uintah Basin Association of Governments (UBAOG) Pre-Disaster Mitigation Plan is to substantially and permanently reduce, communities within the UBAOG, vulnerability to natural hazards. The plan is intended to promote sound public policy designed to protect citizens, critical facilities, infrastructure, private property, and the natural environment. This can be achieved by increasing public awareness, documenting resources for risk reduction and loss-prevention, and identifying activities to guide the community towards the development of a safer more sustainable community.

Plan Organization:

The Uintah Basin Association of Governments plan was developed and organized within the rules and regulations established by 44 CRF 201.6. The plan contains a discussion on the purpose and methodology used to develop the plan, a profile on communities within UBAOG, as well as a hazard identification study and a vulnerability analysis of eight hazards. To assist in the explanation of the above-identified contents there are several appendices included which provide more detail on specific subjects. This is intended to improve the ability of community within the UBAOG planning district to handle disasters and will document valuable local knowledge on the most efficient and effective ways to reduce loss.

Plan Financing:

The UBAOG Pre-Disaster Mitigation Plan has been financed and developed under the Pre-Disaster Mitigation Program provided by the Federal Emergency Management Agency (FEMA) and the Department of Public Safety Division of Emergency Services and Homeland Security. The UBAOG aided in funding, providing in-kind assistance to local governments.

Plan Participation:

The UBAOG Pre-Disaster Mitigation Plan has been completed as a result of a collaborative effort between Uintah Basin Association of Governments, Department of Public Safety Division of Emergency Management, public agencies, and the citizens, elected officials, and public employees of the cities and towns within Daggett, Duchesne, and Uintah Counties, and the Uintah & Ouray Reservation. Interviews were conducted with stakeholders from the communities, and a workshop was conducted during the plan developments. Additionally, through public hearings, workshops, and draft plan displays; ample opportunity was provided for public participation. Any comments, questions, and discussions resulting from these activities were given strong consideration in the development of this plan. Completion of this multi-jurisdiction mitigation plan was completed with assistance and input from:

Daggett County

- Emergency Manager
- Roads Department
- GIS Department
- Town of Manila

Duchesne County

- Emergency Manager
- Roads Department
- Sheriff's Department
- Town of Altamont
- Duchesne City
- Myton City
- Roosevelt City
- Town of Tabiona

Uintah County

- Emergency Manager
- Roads Department
- Sheriff's Department
- Ballard City
- Naples City
- Vernal City

Uintah & Ouray Reservation

- Business Council
- Emergency Management Team

Hazards Identified

It was suggested by the Division of Emergency Services and Homeland Security that, at a minimum, the Uintah Basin Association of Governments address the hazards of: earthquake, flood, landslide, problem soils, wildfire, dam failure, severe weather, and drought. However, there are other hazards that were identified which are not in the minimum criteria established by DESHS that were added to the discussion. The hazard identification study recognized the following hazards as being the most prevalent and posing the most potential risk to the counties and towns within the UBAOG planning district:

- Dam Failure
- Drought
- Earthquake
- Flood
- Insect Infestation
- Landslide
- Wildfire
- Severe Weather

Plan Goals

In an effort to ensure that the mission of the Uintah Basin Association of Governments Pre-Disaster Mitigation Plan is met, the participants in the development of this plan defined and established a list of goals, which are directly relevant to meeting the mission of the plan. The following is a list of the goals identified by the participants of this plan:

- Protection of life before, during, and after the occurrence of a disaster.
- Preventing loss of life and reducing the impact of damage where problems cannot be eliminated.
- Protection of emergency response capabilities (critical infrastructure)
  - ./ Communication and warning systems
  - ./ Emergency medical services and medical facilities
  - ./ Mobile resources
  - ./ Critical facilities
  - ./ Government continuity
- Protection of developed property, homes and businesses, industry, education opportunities and the cultural fabric of a community, by combining hazard loss reduction with the community's environmental, social and economic needs.
- Protection of natural resources and the environment, when considering mitigation measures.
- Promoting public awareness through education of community hazards and mitigation measures.
- Preserving and/or restoring natural features that provide mitigation such as floodplains.

INTRODUCTION

The three northeastern Utah counties of Daggett, Duchesne, and Uintah comprise the Uintah Basin Region. These counties are vulnerable to natural, technological, and man-made hazards that have the possibility of causing serious threat to the health, welfare, and security of our citizens. The cost of response and recovery from potential disasters, both in terms of potential loss of life or property, can be lessened when attention is turned to mitigating their impacts before they occur or re-occur.

This plan attempts to identify the region's hazards, understand our vulnerabilities and craft solutions that can significantly reduce threat to life and property. With increased attention to managing natural hazards, communities can do much to reduce threats to existing citizens and avoid creating new problems in the future. In addition, many solutions can be implemented at minimal cost.

This is not an emergency response or management plan. Certainly, the plan can be used to identify weaknesses and refocus emergency response planning, which is an important mitigation strategy. However, the focus of this plan is to support better decision making directed toward avoiding future risks, and the implementation of activities or projects that will eliminate or reduce the risk for those that may already have exposure to a natural hazard threat.

During the initial development of the Uintah Basin Pre-disaster Hazard Mitigation Plan in 2004, all of the region's jurisdictions participated and adopted the FEMA approved plan. During this update process, all communities participated in the planning process and promulgated this plan; with the welcome addition of the Uintah & Ouray Reservation.

Table 1-1: UINTAH BASIN REGION PARTICIPATING JURISDICTIONS		
Daggett County	Duchesne County	Uintah County
Town of Manila	Town of Altamont	Ballard City
	Duchesne City	Naples City
	Myton City	Vernal City
	Roosevelt City	
	Town of Tabiona	
Uintah & Ouray Reservation		

The State of Utah is vulnerable to natural, technological, and man-made hazards that have the possibility of causing serious threat to the health, welfare, and security 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 before they occur or re-occur.

Hazard mitigation actions must be practical, cost effective, and environmentally and politically acceptable. Actions taken to limit the vulnerability of society to hazards must not in themselves be more costly than the value of anticipated damages. The primary focus of hazard mitigation actions must be at the point at which capital investment decisions are made and based on vulnerability. Capital investments, whether for homes, roads public utilities,

pipelines, power plants, chemical plants or warehouses, or public works, determine to a large extent the nature and degree of hazard vulnerability of a community. Once a capital facility is in place, very few opportunities will present themselves over the useful life of the facility to correct any errors in location or construction with respect to hazard vulnerability. It is for these reasons that zoning ordinances, which restrict development in high vulnerability areas, and building codes, which insure that new buildings are built to withstand the damaging forces of hazards, are the most useful mitigation approaches a city can implement.

What is Hazard Mitigation?

Hazard mitigation is defined as any cost-effective action(s) that have the effect of reducing, limiting, or preventing vulnerability of people, property, and the environment to potentially damaging, harmful, or costly hazards. Hazard mitigation measures, which can be used to eliminate or minimize the risk to life and property, fall into three categories. First; are those that keep the hazard away from people, property, and structures? Second; are those that keep people, property, and structures away from the hazard? Third; are those that do not address the hazard at all, but rather reduce the impact of the hazard on the victims such as insurance? This mitigation plan has strategies that fall into all three categories.

Previously, mitigation measures have been the most neglected programs within emergency management. Since the priority to implement mitigation activities is generally low in comparison to the perceived threat, some important mitigation measures take time to implement. Mitigation success can be achieved, however, if accurate information is portrayed through complete hazard identification and impact studies, followed by effective mitigation management. Hazard mitigation is the key to eliminating long-term risk to people and property living in Utah from hazards and their effects. Preparedness for all hazards includes response and recovery plans, training, development, management of resources, and the need to mitigate each jurisdictional hazard.

The State Division of Emergency Management (DEM) has identified the following hazards to be analyzed by each county. These hazards include avalanche, dam failure, debris flow, drought, earthquake, flood, flash flooding, infestation, landslide, problem soils, summer storm, tornado, urban and rural fires, and winter storm. This regional/multi-jurisdictional plan evaluates the impacts, risks and vulnerabilities of natural hazards in a jurisdictional area affected by a disaster. The plan supports, provides assistance, identifies and describes mitigation projects for each annex. The suggestive actions and plan implementation for local and tribal governments could reduce the impact of future disasters. Only through the coordinated partnership with emergency managers, political entities, public works officials, community planners and other dedicated individuals working to implement this program was it accomplished.

To develop the mitigation plan, The Utah DEM, based on the Governor's Office of Planning and Budget, the Utah League of Cities and Towns, and the U.S. Department of Housing and Urban Development, chose to use the planning services of the Utah Associations of Governments.

Seven regional Associations of Governments:

1. Bear River Association of Governments

2. Wasatch Front Association of Governments / Wasatch Front Regional Council
3. Mountainland Association of Governments
4. Six County Association of Governments
5. Southeast Utah Association of Local Governments
6. Southwestern / Five County Association of Governments
7. Uintah Basin Association of Governments

Scope

Uintah Basin Association of Governments, which encompasses all of Northeastern Utah, including the counties of Daggett, Duchesne, and Uintah, was placed under contract by the Utah Division of Emergency Services to complete a Pre-Disaster Mitigation Plan, which meets the requirements of the Disaster Mitigation Act of 2000, for the areas they serve.

This plan is applicable not only to the three counties served by the Association but also for the cities, towns, and municipalities within each county. The scope of this plan only includes natural hazards defined as a concern to local counties and jurisdictions. These natural hazards identified by stakeholders include: earthquakes, floods, landslides, wildfires, problem soils, dam failures, severe weather, and drought. Although there were the only hazards considered much of the data is applicable to other federally funded planning currently taking place. Planning included local level data for each incorporated area within the Uintah Basin Region.

Purpose

The purpose of the Uintah Basin Association of Government Natural Hazard Mitigation Plan is to fulfill federal, state, and local hazard mitigation planning responsibilities; to promote pre and post disaster mitigation measures, short/long range strategies that minimize suffering, loss of life, and damage to property resulting from hazardous or potentially hazardous conditions to which citizens and institutions within the state are exposed; and to eliminate or minimize conditions which would have an undesirable impact on our citizens, the economy, environment, and the well-being of the state of Utah. This plan is to aid in enhancing city and state officials, agencies, and public awareness to the threat hazards pose to property and life and what can be done to help prevent or reduce the vulnerability and risk to jurisdiction within the Uintah Basin planning area.

Authority

Federal: Public Law 93-288 as amended, established the basis for federal hazard mitigation activity in 1974. A section of this Act requires the identification, evaluation, and mitigation of hazards as a prerequisite for state receipt of future disaster assistance outlays. Since 1974, many additional programs, regulations, and laws have expanded on the original legislation to establish hazard mitigation as a priority at all levels of government. When PL 93-288 was amended by the Stafford Act, several additional provisions were also added that provide for the availability of significant mitigation measures in the aftermath of Presidential declared disasters. Civil Preparedness Guide 1-3, Chapter 6- Hazard Mitigation Assistance Programs places emphasis on hazard mitigation planning directed toward hazards with a high impact and threat potential.

President Clinton signed the Disaster Mitigation Act of 2000 into Law on October 30, 2000. Section 322, defines mitigation planning requirements for state, local, and tribal governments. Under Section 322 States are eligible for an increase in the Federal share of hazard mitigation (HMGP), if they submit for approval a mitigation plan, which is a summary of local and/or regional mitigation plans, which identifies natural hazards, risks, vulnerabilities, and describes actions to mitigate the hazards risks and vulnerabilities in that plan.

State:

- The Governor's Emergency Operation Directive
- The Robert T. Stafford Disaster Relief and Emergency Assistance Act, amendments to Public Law 93-288, as amended.
- Title 44, CFR, Federal Emergency Management Agency Regulations, as amended.
- State Emergency Management Act of 1981, Utah Code 53-2, 63-5.
- Disaster Response Recovery Act, 63-5A.
- Executive Order of the Governor, Executive Order 11
- Emergency Interim Succession Act, 63-5B.

Uintah Basin Association of Governments: The Associations of Governments have been duly constituted under the authority of Title XI, Chapter13, Utah Code Annotated, 1953, as amended (The Inter-local Cooperation Act) and pursuant to Section 3 of the Executive Order of the Governor of the State of Utah, dated May 27, 1970, with the authority to conduct planning studies and to provide services to its constituent jurisdictions.

Local: Local governments play an essential role in implementing effective mitigation; both before and after disaster events. Each local government will review all damages, losses, and related impacts to determine the need or requirement for mitigation action and planning whenever seriously affected by a disaster, or when applying for state or federal recovery assistance. In the counties and cities making up the Uintah Basin Association of Governments the local executive responsible for carrying out plans and policies are the County Commissioners and City Mayors. Local governments must be prepared to participate in the post disaster Hazard Mitigation Team process and the pre-mitigation planning as outlined in this document.

Goals

To coordinate with each participating local government to develop a regional planning process meeting each plan component identified in the FEMA Region VIII Crosswalk document and any additional State planning expectation, both regionally and specifically, as needed, by gathering local input; also, to reduce risk from natural hazards in Central Utah, through the implementation and updating of regional plans.

Short Term Goals

These goals form the basis for the development of the PDM Plan and are shown from highest priority, at the top of the list, to those of lesser importance nearer the bottom.

- Protection of life before, during, and after the occurrence of a disaster.
- Preventing loss of life and reducing the impact of damage where problems cannot be eliminated.
- Protection of emergency response capabilities (critical infrastructure)
  . Communication and warning systems
  . Emergency medical services and medical facilities
  . Mobile resources
  . Critical facilities
  . Government continuity
- Protection of developed property, homes and businesses, industry, education opportunities and the cultural fabric of a community, by combining hazard loss reduction with the community's environmental, social and economic needs.
- Protection of natural resources and the environment, when considering mitigation measures.
- Promoting public awareness through education of community hazards and mitigation measures.
- Preserving and/or restoring natural features that provide mitigation such as floodplains.

Long Term Goals

- Eliminate or reduce the long-term risk to human life and property from identified natural and technologic hazards.
- Aid both the private and public sectors in understanding the risks they may be exposed to and finding mitigation strategies to reduce those risks.
- Avoid risk of exposure to identified hazards.
- Minimize the impacts of those risks when they cannot be avoided
- Mitigate the impacts of damage as a result or identified hazards.
- Accomplish mitigation strategies in such a way that negative environmental impacts are minimized.
- Provide a basis for funding of projects outlined as hazard mitigation strategies.
- Establish a regional platform to enable the community to take advantage of shared goals, resources, and the availability of outside resources. If an earthquake occurs outside of the county seat it will still affect the county seat. This is similar to many natural hazards.
- Establish a framework and data base for the county seat to use to apply for aid.

Objectives

The following objectives are meant to serve as a measure upon which individual hazard mitigation projects can be evaluated. These criteria become especially important when two or more projects are competing for limited resources.

- Identification of persons, agency or organization responsible for implementation.
- Projecting a time frame for implementation.
- Explanation of how the project will be financed including the conditions for financing and implementing as information is available.
- Identifying alternative measures, should financing not be available.
- Be consistent with, support, and help implement the goals and objectives or hazard mitigation plans already in place for surrounding counties.
- Be based on the county seat Vulnerability Analysis.
- Have significant potential to reduce damages to public and/or private property and/or reduce the cost of, state, and federal recovery for future disasters.
- Be the most practical, cost-effective, and environmentally sound alternative after consideration of the options.
- Address a repetitive problem, or one that has the potential to have a major impact on an area, reducing the potential for loss of life, loss of essential services and personal.
- Property, damage to critical facilities, economic loss, and hardship or human suffering.
- Meet applicable permit requirements.
- Not encourage development in hazardous areas.
- Contribute to both the short and long term solutions to the hazard vulnerability risk problem.
- Assuring the benefits of a mitigation measure is equal to or exceeds the cost of implementation.
- Have manageable maintenance and modification costs.
- When possible, be designed to accomplish multiple objectives including improvement of life-safety risk, damage reduction, restoration of essential services, protection or critical facilities, security or economic development, recovery, and environmental enhancement.
- Whenever possible, use existing resources, agencies and programs to implement the project.

Environmental Considerations

Natural hazards are naturally occurring phenomena, only becoming natural disasters when humans and there structures become involved. The events themselves play an integral part in maintaining balance in our world. Meteorological, geological, and hydrological processes have shaped Utah for millions of years and will continue to shape the state for millions more years. Modern engineering has made it possible to prevent damage from natural hazards; however, the economic and environmental costs can be rather high. Tampering with natural systems can also create an imbalance in the natural environment. The effects of many of these imbalances are still

unknown. It is better to live will a small amount of risk, respecting the natural process where appropriate, than to construct mitigation at every chance. Nature provides its own mitigation measures that need to be identified, protected and/or strengthened. To ensure that our environment is not harmed through mitigation projects all applicable city codes; county codes, state and federal laws pertaining to the environment will and must be followed.

SECTION 2:

PLANNING PROCESS

UINTAH BASIN REGION PDM PLANNING PROCESS

This mitigation plan is the result of a comprehensive and coordinated planning process. Beyond the involvement of the general public, a great deal of effort focused on coordinating and obtaining input from the 14 jurisdictions in the Uintah Basin tri-county region. All 14 jurisdictions within the Uintah Basin Region, including the Uintah & Ouray Reservation, were invited to participate in the planning process. Those communities that were not able to attend working group meetings participated in other ways such as filling out surveys or through personal communications such as telephone or e-mail.

How the Plan was Updated

In November 2009, Brad Bartholomew, Utah State Mitigation Officer, delivered a brief overview of the requirement that FEMA has for each region to have a current Pre-disaster Hazard Mitigation Plan, and the role that said plan should play in each community within that region. Mr. Bartholomew stressed the need to update the current plan and shared his incite as to how that update process might proceed.

Prior to Mr. Bartholomew's visit, Laurie Brummond, Executive Director for the Uintah Basin Association of Governments (UBAOG), utilized the publicly scheduled UBAOG Executive Board Meetings to inform the local elected officials of the status of the UBAOG Pre-disaster Hazard Mitigation Plan. She enlisted the help of the local emergency managers to educate the Board and the public as to how the plan could and should be used, and why an update was necessary. It was determined that the UBAOG Board of Directors would serve as the PDM Plan Steering Committee, and that an update team would be selected from UBAOG staff and local agencies. This would allow for each jurisdiction and the public to be involved in the update process. While the steering committee has experienced minor changes due to local election results, the current UBAOG Board of Directors consists of the following members and the jurisdictions they represent:

Table 2-1: Uintah Basin PDM Plan Steering Committee

Name	Title	Jurisdiction
Jerry Steglich	Commissioner	Daggett County
Stewart Leith	Commissioner	Daggett County
Warren Blanchard	Commissioner	Daggett County
Chuck Dickison	Mayor	Town of Manila
Kirk Wood	Commissioner	Duchesne County
Kent Peatross	Commissioner	Duchesne County
Ron Winterton	Commissioner	Duchesne County
Clyde Watkins	Mayor	Town of Altamont
RoJean Rowley	Mayor	Duchesne City
Kathleen Cooper	Mayor	Myton City
Vaun Ryan	Mayor	Roosevelt City
Ronnie Giles	Mayor	Town of Tabiona
Darlene Burns	Commissioner	Uintah County
Mike McKee	Commissioner	Uintah County

Mark Raymond	Commissioner	Uintah County
Tom Nordstrom	Mayor	Ballard City
Dean Baker	Mayor	Naples City
Gary Showalter	Mayor	Vernal City

The following table includes the names of those that have functioned as members of the update committee at one time or another. Some have moved on due to job status or were added to tap their expertise.

Table 2-2: Uintah Basin PDM Update Team

Name	Job Title	Key Input
Lee Hill	Regional Planner, UBAOG	Planning
Cody Christensen	Deputy Director, UBAOG	Comm. & Econ. Development
Brad Bartholomew	Mitigation Officer, State of Utah	FEMA Requirements, Plan Oversight, Timetable, Funding
Michelle Dana	E.M., Uintah County	Emergency Management
Tal Ehlers	E.M., Uintah County	Emergency Management
Mike Lefler	E.M., Duchesne County	Emergency Management
Shirley Slaugh	E.M., Daggett County	Emergency Management
Tamara Twitchell	E.M., Daggett County	Emergency Management
Mechelle Miller	E.M. Liaison, State of Utah	Emergency Management
Eldora Perank	E.M., Ute Tribe	Tribal Demographics
Craig Blunt	City Manager, Naples	City Management; Roads, Utilities, Planning
Allen Parker	Asst. City Manager, Vernal	City Management; Planning
Justin Johnson	City Manager, Roosevelt	City Management
Tom Nordstrom	Mayor	City Management; Roads, Utilities, Planning
Vaun Ryan	Mayor	City Management; Roads, Utilities, Planning
Warren Blanchard	Commissioner, Daggett County	Government Leadership
Ron Winterton	Commissioner, Duchesne County	Government Leadership

Early in the process, it was determined that the emergency managers would act as the lead for data collection, hazard identification, risk assessment, and public involvement for their respective counties or jurisdictions. Local Emergency Planning Committee (LEPC) meetings created an ideal platform for public involvement. These monthly meetings allowed for unique public input and discussion regarding the hazards, risk, and mitigation strategies specific to each jurisdiction. Professionals in public safety, healthcare, education, public works, public utilities, communications, and volunteer groups often attended these meetings at various times to discuss emergency preparedness and share their expertise.

The emergency managers were then able to coordinate their efforts and discuss update strategies at the Regional Response Planning Committee (RRPC) meetings held monthly with emergency responders from each of the three counties and the Ute Tribe. Laurie Brummond and the UBAOG staff would ensure that the elected officials and members of the UBAOG Board of Directors were informed and aware of the update process and progress. The monthly UBAOG Board Meeting, and the RRPC and LEPC meeting schedules are set at the beginning of each calendar year to allow for public attendance and public input.

In February 2010, hazard identification and risk assessment surveys were mailed out to various public entities and organizations to glean their perspective and unique knowledge. These organizations included, but were not limited to: cities, towns, counties, school districts, hospitals, fire districts, water districts, tribal services, recreation districts, transportation districts, and animal control districts. The surveys solicited responses regarding natural hazards, previous disaster events, National Flood Insurance Program participation, and other questions related to risk assessment.

During the next several months, the update team reviewed the existing PDM plan, researched other mitigation publications, and compared it to recently approved PDM plans published by other regions. The Bear River Association of Governments was very helpful during this time and continued to be a valuable asset during the development of this update. Michelle Dana, emergency manager for Uintah County, prepared several articles for publication in the local newspapers to keep the public informed of the update process and the overall purpose of the PDM plan.

In September 2010, members of the update team met in Naples City. Those in attendance concurred that the risk assessment, methodology, valuation assessment, and hazard identification utilized during the previous planning effort continued to be valid and applicable. The existing PDM plan was well put together and simply needed to have certain data points updated or removed. Brad Bartholomew discussed funding options available for the update development and mitigation funding available to eligible applicants once the PDM plan update was completed, approved, and adopted. He also suggested that many members of the update team attend an upcoming training presented by FEMA in Salt Lake City. The training would focus on the PDM update process and the crosswalk used to evaluate the finished plans. Several members of the update team took advantage of that training opportunity or had attended similar training events in the past.

The UBAOG staff utilized their board meetings during the next couple of months to inform the mitigation steering committee of the decisions of the update team and the current status of the update. Those jurisdictions not in attendance were notified by email or telephone to solicit input or comment, and ensure participation. The emergency managers also continued to discuss the update during their LEPC meetings. Data collection, mitigation strategies, goals, and projects would be the priority for the next portion of the update process.

In January 2011, the update team met in Roosevelt City to discuss mitigation strategies, goals, and projects for the PDM update. The update team approved the format in which the mitigation strategies, goals, and projects would be presented in the updated PDM plan. They also concluded that the existing strategies and goals were valid and applicable. Each jurisdiction was

encouraged to study the existing mitigation projects to determine which, if any, had been completed and what projects should be added. The updated mitigation strategies, goals, and projects were compiled over the next several months and presented to the mitigation steering committee at the UBAOG Board Meeting in April 2011. A motion was made to accept the mitigation strategies, goals, and projects as presented; the motion carried.

A public hearing was scheduled for June 15, 2011, to present the mitigation strategies, goals, and projects to the public for review and comment. A public notice was published on the State website and in the local newspapers the week prior. The public hearing was well attended, comparatively speaking, and written comment was accepted through the conclusion of that business week. In August, the mitigation steering committee was informed of the PDM update status and the success of the public hearing during the UBAOG Board Meeting in the Town of Manila.

In October 2011, Brad Bartholomew organized a Hazard Mitigation Grant Program (HMGP) kickoff meeting at the UBAOG offices in Roosevelt City. Representatives from FEMA Region VIII offices in Denver, Colorado, and the Utah FEMA NFIP office provided presentations related to the Presidential Disaster Declaration for Utah Flooding in August 2011. Mr. Bartholomew explained the potential funding available and presented his timetable for eligible entities to submit their notices of interest and subsequent applications. Mr. Bartholomew also discussed a timetable for completion of the PDM update for the Uintah Basin Region to allow local entities the opportunity to apply for the available funding. FEMA representatives also discussed the unique requirements related to tribal PDM development and identified the steps necessary for the full participation of the Ute Tribe in the Uintah Basin Region PDM. In November, Julie Baxter of FEMA Region VIII emailed the tribal planning requirements and guidance regarding hazard mitigation planning as discussed during the kickoff meeting.

On December 5, 2011, members of the update team gathered in Vernal City to review the PDM plan update and determine an appropriate submission date. Brad Bartholomew provided his input and suggestions for a timetable by telephone and email. In January 2012 it was decided to wait for updated information from the Ute Tribe prior to finalization and submission of the PDM plan to FEMA.

In February 2012, members of the Ute Tribal Business Committee and its Emergency Management Team held a public meeting to present the mitigation strategies, goals, and projects related to the Tribal portion of the PDM plan and its relationship with the regional plan. The strategies, goals, and projects identified in this plan were approved at that same meeting. Demographic information was submitted by the Tribal Emergency Management Team in May 2012.

Incorporation of Existing Plans, Studies, or Reports

There have been many local plans and studies produced for the jurisdictions in the Uintah Basin Region. Most of these, however, are more related to emergency response and/or management, and do not specifically apply to pre-disaster hazard mitigation. There were a few documents, however, that did directly relate to this planning process. Please see the Works Cited section at the end of this document for all other references. Documents incorporated as part of the planning

process and used for general background information are as follows:

- State of Utah Hazard Mitigation Plan, 2007
- Utah State Water Plan, 2008
- Utah 2008 Baseline Report
- U.S. Army Corps of Engineers, Sacramento District, Flood Hazard Identification Study for the Uintah Basin Association of Governments, 2003
- Utah Natural Hazards Handbook, 2008
- Floodplain Management in Utah; Quick Guide, 2003

These documents were used mostly for obtaining updated data and/or better understanding current planning efforts statewide. One document in particular was regularly incorporated by reference into this plan due to the insight it provided in determining flood hazards for the smaller communities in the region. The Flood Hazard Identification Study for the Uintah Basin Association of Governments, by the U.S. Army Corps of Engineers provided general local flood hazard assessments for communities that did not have FEMA delineated 100-year floodplain data. This was very useful for determining geographic hazard areas for communities where GIS data was not available.

How the Plan was promulgated for Local Adoption

After the draft plan was completed, it was sent to the Utah Department of Emergency Management (Utah DEM) with a completed crosswalk for a pre-draft review. After DEM comments were integrated into the plan, it was placed on the UBAOG website, and a hard copy was placed at the UBAOG front desk, for public comment opportunities. Public notices were also published in local newspapers announcing a 30-day public comment period and the plan's location on the UBAOG website and in the main office. Local jurisdictions were also sent letters with a CD of the plan notifying them of the comment period and location of the draft plan online and in the UBAOG office, and also inviting them to a Final Review and Pre-Promulgation Meeting.

After all the necessary changes were made to the draft plan, and after the public comment period, the plan was sent to Utah DEM, which sent the draft plan to FEMA for review. After FEMA revisions were made, those sections of the plan that were updated were sent to Utah DEM, which sent it to FEMA for final approval. The plan was also presented to the mitigation steering committee at the UBAOG Board of Directors Meeting. Copies of the plan were then sent to each community and County in the region, with an example promulgation form, and a date by which to adopt the plan. Copies of signed promulgation forms from each participating jurisdiction in the region were then sent to Utah DEM, which sent them to FEMA.

After the final plan was completed, it was placed on the UBAOG website, and information was sent to local newspapers discussing the plan and its intended use and availability. Hard copies and CDs were then sent to each participating jurisdiction in the Uintah Basin Region.

SECTION 3:

GENERAL REGIONAL DATA

GEOGRAPHIC BACKGROUND

Uintah Basin Association of Governments' region: Substantial portions of two major physiographic provinces extend into the three-county area. The Rocky Mountain Province encompasses the northern half of the area, which includes the Uinta Mountains; and the Colorado Plateau province makes up the other half and is more notably called the Uintah Basin Section. The Uinta Mountains are a unique east-west traversing mountain range approximately 150 miles long and 30 miles wide--extending into Summit County, which lies east of Daggett County and north of Duchesne County. This mountain range was formed anciently by anticline uplift, and was left with outward dipping and outcropped sedimentary formations. The most noted feature of these mountains is the evidence of glaciations. The Pleistocene era left prominent horns, arêtes, cirques, and glacial troughs. U-shaped valleys have been filled with ground moraine and lateral moraine; and terminal moraines--by forming small natural dams– which have created hundreds of small lakes. The Uinta Mountains have an average elevation of 10,000 feet, with 24 peaks rising over 13,000 feet, and many more over 12,000 feet. The Uinta's contain some of the highest mountain peaks in the state, Kings Peak being the highest at 13,520 feet.

In addition to the Great Salt Lake, the Uinta Mountains are perhaps the most important physiographic feature in northern Utah and the central inter-mountain region The Uinta's are central to the historic and economic development of northern Utah. Three fifths of the water in the state of Utah originates there. Such Wasatch streams as the Weber, Provo, and Bear originate in the Uinta Mountains. There are many streams that contribute to the Green River that have their birth in the Uinta Mountains: Strawberry, Duchesne, Rock Creek, Lake Fork, Uinta, Whiterocks, Big and Little Brush Creeks and Ashley Creek. All of these streams are very important to the Uintah Basin as a source of culinary, irrigation, and industrial water.

In a literal sense, Daggett County is not part of the geomorphic "Uintah Basin" feature. However, the county is included within the region because of its geopolitical, economy, growth and market orientation with the other two counties. As a whole, the three-county area includes 8,412 square miles of land. The largest county, Uintah, consists of over half of the land area with 4,479 square miles, and Duchesne and Daggett Counties follow with 3,234 and 699 square miles respectively.

There are two major climatic zones that occur in the Uintah Basin: Steppe (BSK) and undifferentiated highlands (H). According to the modified Koppen Classification, a steppe land or semiarid climate includes those areas where the average annual precipitation is less than the potential evapo-transpiration; and where annual precipitation is between 8 and 14 inches. The steppe lands of the Uintah Basin also experience temperatures averaging well below 32 degrees Fahrenheit during the winter months.

The undifferentiated highlands climate is basically a mountainous humid region with severely cold winters and rather cool summers. The Uinta Mountains experience a host of temperature variations ranging from warm summers in the high valley meadows to the tundra conditions near the high peaks. This mountain chain usually receives well over 30 inches of precipitation each year.

The temperatures in the Uintah Basin vary from extremely cold in the winter to hot in the summer. Daily temperatures, from the nighttime low to the daytime high, can vary as much as 40 degrees Fahrenheit. The seasons are well defined. Winter storms result from moist Pacific air associated with frontal systems moving eastward across the Basin. Winter precipitation falls mostly as snow, while thunderstorm activity dominates the summer season.

Summer precipitation is associated with the northerly flow of warm, moist air originating in the Gulf of Mexico. These summer thunderstorms are of high intensity, but limited in areas where the rain is produced. Flash flooding and erosion damage occur during these storms.

The average annual precipitation ranges from less than 7 inches near Ouray to about 40 inches in the high mountains. Irrigation is essential in the cropland areas. The frost-free period, or consecutive days with a minimum temperature above 32 degrees Fahrenheit, increases as elevation decreases.

DEMOGRAPHICS

The population of the Uintah Basin Region (Daggett, Duchesne, and Uintah Counties combined) experienced an increase of approximately 29% from 40,516 to 52,254 during the ten years between the 2000 and 2010 U.S. Census; according to U.S. Census Bureau data. Daggett County's population increased by 15% from 921 to 1059, Duchesne County's population increased by 29.5% from 14,371 to 18,607, and Uintah County's population increased by 29.2% from 25,224 to 32,588; during the aforementioned time period.

The following reports from the American Community Survey give a population and housing profile of each county with the Uintah Basin Region:

Daggett County, Utah
Population and Housing Narrative Profile: 2005-2009 2005-2009 American Community Survey 5-Year Estimates
American Community Survey

NOTE. Although the American Community Survey (ACS) produces population, demographic and housing unit estimates, it is the Census Bureau's Population Estimates Program that produces and disseminates the official estimates of the population for the nation, states, counties, cities and towns and estimates of housing units for states and counties.

For more information on confidentiality protection, sampling error, nonsampling error, and definitions, see Survey Methodology.

HOUSEHOLDS AND FAMILIES: In 2005-2009 there were 340 households in Daggett County. The average household size was 2.1 people.

Families made up 62 percent of the households in Daggett County. This figure includes both married-couple families (58 percent) and other families (4 percent). Nonfamily households made up 38 percent of all households in Daggett County. Most of the nonfamily households were people living alone, but some were composed of people living in households in which no one was related to the householder.

NATIVITY AND LANGUAGE: Four percent of the people living in Daggett County in 2005-2009 were foreign born. Ninety-six percent was native, including 56 percent who were born in Utah.

Among people at least five years old living in Daggett County in 2005-2009, 7 percent spoke a language other than English at home. Of those speaking a language other than English at home, 49 percent spoke Spanish and 51 percent spoke some other language; 9 percent reported that they did not speak English "very well."

GEOGRAPHIC MOBILITY: In 2005-2009, 69 percent of the people at least one year old living in Daggett County were living in the same residence one year earlier; 7 percent had moved during the past year from another residence in the same county, 16 percent from another county in the same state, 7 percent from another state, and 1 percent from abroad.

EDUCATION: In 2005-2009, 83 percent of people 25 years and over had at least graduated from high school and 14 percent had a bachelor's degree or higher. Seventeen percent were dropouts; they were not enrolled in school and had not graduated from high school.

The total school enrollment in Daggett County was 120 in 2005-2009. Nursery school and kindergarten enrollment was 19 and elementary or high school enrollment was 84 children. College or graduate school enrollment was 16.

INDUSTRIES: In 2005-2009, for the employed population 16 years and older, the leading industries in Daggett County were Arts, entertainment, and recreation, and accommodation and food services, 23 percent, and Public administration, 18 percent.

OCCUPATIONS AND TYPE OF EMPLOYER: Among the most common occupations were: Service occupations, 26 percent; Management, professional and related occupations, 26 percent; Sales and office occupations, 26 percent; Construction, extraction, maintenance, and repair occupations, 14 percent; and Production, transportation, and material moving occupations, 6 percent. Fifty-seven percent of the people employed were Private wage and salary workers; 37 percent was Federal, state, or local government workers; and 7 percent was Self-employed in own not incorporated business workers.

TRAVEL TO WORK: Ninety-one percent of Daggett County workers drove to work alone in 2005-2009, 2 percent carpooled, less than 0.5 percent took public transportation, and 8 percent used other means. The remaining less than 0.5 percent worked at home. Among those who commuted to work, it took them on average 15.6 minutes to get to work.

INCOME: The median income of households in Daggett County was $38,021. Sixty-nine percent of the households received earnings and 35 percent received retirement income other than Social Security. Forty-four percent of the households received Social Security. The average income from Social Security was $12,925. These income sources are not mutually exclusive; that is, some households received income from more than one source.

POVERTY AND PARTICIPATION IN GOVERNMENT PROGRAMS: In 2005-2009, 6 percent of people were in poverty. Four percent of related children under 18 were below the poverty level, compared with 2 percent of people 65 years old and over. Six percent of all families and less than 0.5 percent of families with a female householder and no husband present had incomes below the poverty level.

POPULATION OF Daggett County: In 2005-2009, Daggett County had a total population of 780 - 350 (44 percent) females and 430 (56 percent) males. The median age was 37.9 years. Seventeen percent of the population was under 18 years and 18 percent was 65 years and older.

For people reporting one race alone, 93 percent was White; less than 0.5 percent was Black or African American; less than 0.5 percent was American Indian and Alaska Native; 1 percent was Asian; less than 0.5 percent was Native Hawaiian and Other Pacific Islander and 5 percent were some other race. One percent reported two or more races. Seven percent of the people in Daggett County were Hispanic. 91 percent of the people in Daggett County were White non-Hispanic. People of Hispanic origin may be of any race.

HOUSING CHARACTERISTICS: In 2005-2009, Daggett County had a total of 1,200 housing units, 71 percent of which were vacant. Of the total housing units, 55 percent was in single-unit structures, 1 percent was in multi-unit structures, and 44 percent was mobile homes. Twenty-seven percent of the housing units were built since 1990.

OCCUPIED HOUSING UNIT CHARACTERISTICS: In 2005-2009, Daggett County had 340 occupied housing units - 210 (63 percent) owner occupied and 130 (37 percent) renter occupied. Four percent of the households did not have telephone service and less than 0.5 percent of the households did not have access to a car, truck, or van for private use. Multi Vehicle households were not rare. Forty-three percent had two vehicles and another 24 percent had three or more.

HOUSING COSTS: The median monthly housing costs for mortgaged owners was $1,064, nonmortgage owners $297, and renters $595. Thirty-seven percent of owners with mortgages, 11 percent of owners without mortgages, and 39 percent of renters in Daggett County spent 30 percent or more of household income on housing.

Duchesne County, Utah
Population and Housing Narrative Profile: 2005-2009 2005-2009 American Community Survey 5-Year Estimates
American Community Survey

NOTE. Although the American Community Survey (ACS) produces population, demographic and housing unit estimates, it is the Census Bureau's Population Estimates Program that produces and disseminates the official estimates of the population for the nation, states, counties, cities and towns and estimates of housing units for states and counties.

For more information on confidentiality protection, sampling error, nonsampling error, and definitions, see Survey Methodology.

HOUSEHOLDS AND FAMILIES: In 2005-2009 there were 5,900 households in Duchesne County. The average household size was 2.7 people.

Families made up 81 percent of the households in Duchesne County. This figure includes both married-couple families (65 percent) and other families (16 percent). Nonfamily households made up 19 percent of all households in Duchesne County. Most of the nonfamily households were people living alone, but some were composed of people living in households in which no one was related to the householder.

NATIVITY AND LANGUAGE: Two percent of the people living in Duchesne County in 2005-2009 were foreign born. Ninety-eight percent was native, including 79 percent who were born in Utah.

Among people at least five years old living in Duchesne County in 2005-2009, 4 percent spoke a language other than English at home. Of those speaking a language other than English at home, 56 percent spoke Spanish and 44 percent spoke some other language; 22 percent reported that they did not speak English "very well."

GEOGRAPHIC MOBILITY: In 2005-2009, 85 percent of the people at least one year old living in Duchesne County were living in the same residence one year earlier; 9 percent had moved during the past year from another residence in the same county, 5 percent from another county in the same state, 2 percent from another state, and less than 0.5 percent from abroad.

EDUCATION: In 2005-2009, 85 percent of people 25 years and over had at least graduated from high school and 14 percent had a bachelor's degree or higher. Fifteen percent were dropouts; they were not enrolled in school and had not graduated from high school.

The total school enrollment in Duchesne County was 4,700 in 2005-2009. Nursery school and kindergarten enrollment was 660 and elementary or high school enrollment was 3,500 children. College or graduate school enrollment was 530.

INDUSTRIES: In 2005-2009, for the employed population 16 years and older, the leading industries in Duchesne County were Educational services, and health care, and social assistance, 22 percent, and Agriculture, forestry, fishing and hunting, and mining, 16 percent.

OCCUPATIONS AND TYPE OF EMPLOYER: Among the most common occupations were: Management, professional, and related occupations, 27 percent; Sales and office occupations, 20

percent; Service occupations, 19 percent; Production, transportation, and material moving occupations, 17 percent; and Construction, extraction, maintenance, and repair occupations, 16 percent. Seventy-two percent of the people employed were Private wage and salary workers; 21 percent was Federal, state, or local government workers; and 7 percent was Self-employed in own not incorporated business workers.

TRAVEL TO WORK: Seventy-nine percent of Duchesne County workers drove to work alone in 2005-2009, 12 percent carpooled, less than 0.5 percent took public transportation, and 4 percent used other means. The remaining 5 percent worked at home. Among those who commuted to work, it took them on average 21 minutes to get to work.

INCOME: The median income of households in Duchesne County was $51,504. Eighty-two percent of the households received earnings and 16 percent received retirement income other than Social Security. Twenty-six percent of the households received Social Security. The average income from Social Security was $16,437. These income sources are not mutually exclusive; that is, some households received income from more than one source.

POVERTY AND PARTICIPATION IN GOVERNMENT PROGRAMS: In 2005-2009, 10 percent of people were in poverty. Ten percent of related children under 18 were below the poverty level, compared with 6 percent of people 65 years old and over. Eight percent of all families and 45 percent of families with a female householder and no husband present had incomes below the poverty level.

POPULATION OF Duchesne County: In 2005-2009, Duchesne County had a total population of 16,000 - 7,900 (48 percent) females and 8,400 (52 percent) males. The median age was 29.3 years. Thirty-five percent of the population was under 18 years and 10 percent was 65 years and older.

For people reporting one race alone, 91 percent was White; less than 0.5 percent was Black or African American; 6 percent was American Indian and Alaska Native; less than 0.5 percent was Asian; less than 0.5 percent was Native Hawaiian and Other Pacific Islander and 1 percent was some other race. One percent reported two or more races. Five percent of the people in Duchesne County were Hispanic. 88 percent of the people in Duchesne County were White non-Hispanic. People of Hispanic origin may be of any race.

HOUSING CHARACTERISTICS: In 2005-2009, Duchesne County had a total of 7,900 housing units, 26 percent of which were vacant. Of the total housing units, 71 percent was in single-unit structures, 8 percent was in multi-unit structures, and 21 percent was mobile homes. Twenty-seven percent of the housing units were built since 1990.

OCCUPIED HOUSING UNIT CHARACTERISTICS: In 2005-2009, Duchesne County had 5,900 occupied housing units - 4,400 (75 percent) owner occupied and 1,400 (25 percent) renter occupied. One percent of the households did not have telephone service and 2 percent of the households did not have access to a car, truck, or van for private use. Multi Vehicle households were not rare. Forty-two percent had two vehicles and another 33 percent had three or more.

HOUSING COSTS: The median monthly housing costs for mortgaged owners was $1,017, non-mortgaged owners $285, and renters $639. Twenty-five percent of owners with mortgages, 8 percent of owners without mortgages, and 33 percent of renters in Duchesne County spent 30 percent or more of household income on housing.

Uintah County, Utah
Population and Housing Narrative Profile: 2005-2009 2005-2009 American Community Survey 5-Year Estimates
American Community Survey

NOTE. Although the American Community Survey (ACS) produces population, demographic and housing unit estimates, it is the Census Bureau's Population Estimates Program that produces and disseminates the official estimates of the population for the nation, states, counties, cities and towns and estimates of housing units for states and counties.

For more information on confidentiality protection, sampling error, nonsampling error, and definitions, see Survey Methodology.

HOUSEHOLDS AND FAMILIES: In 2005-2009 there were 9,800 households in Uintah County. The average household size was 3 people.

Families made up 79 percent of the households in Uintah County. This figure includes both married-couple families (65 percent) and other families (13 percent). Nonfamily households made up 21 percent of all households in Uintah County. Most of the nonfamily households were people living alone, but some were composed of people living in households in which no one was related to the householder.

NATIVITY AND LANGUAGE: Three percent of the people living in Uintah County in 2005-2009 were foreign born. Ninety-seven percent was native, including 73 percent who were born in Utah.

Among people at least five years old living in Uintah County in 2005-2009, 6 percent spoke a language other than English at home. Of those speaking a language other than English at home, 55 percent spoke Spanish and 45 percent spoke some other language; 22 percent reported that they did not speak English "very well."

GEOGRAPHIC MOBILITY: In 2005-2009, 81 percent of the people at least one year old living in Uintah County were living in the same residence one year earlier; 11 percent had moved during the past year from another residence in the same county, 6 percent from another county in the same state, 3 percent from another state, and less than 0.5 percent from abroad.

EDUCATION: In 2005-2009, 85 percent of people 25 years and over had at least graduated from high school and 15 percent had a bachelor's degree or higher. Fifteen percent were dropouts; they were not enrolled in school and had not graduated from high school.

The total school enrollment in Uintah County was 8,000 in 2005-2009. Nursery school and kindergarten enrollment was 1,100 and elementary or high school enrollment was 5,900 children. College or graduate school enrollment was 990.

INDUSTRIES: In 2005-2009, for the employed population 16 years and older, the leading industries in Uintah County were Agriculture, forestry, fishing and hunting, and mining, 22 percent, and Educational services, and health care, and social assistance, 15 percent.

OCCUPATIONS AND TYPE OF EMPLOYER: Among the most common occupations were: Sales and office occupations, 26 percent; Management, professional, and related occupations, 24 percent; Construction, extraction, maintenance, and repair occupations, 21 percent; Production, transportation, and material moving occupations, 15 percent; and Service occupations, 14 percent. Seventy-four percent of the people employed were Private wage and salary workers; 19 percent was Federal, state, or local government workers; and 7 percent was Self-employed in own not incorporated business workers.

TRAVEL TO WORK: Seventy-nine percent of Uintah County workers drove to work alone in 2005-2009, 13 percent carpooled, less than 0.5 percent took public transportation, and 4 percent used other means. The remaining 4 percent worked at home. Among those who commuted to work, it took them on average 19.6 minutes to get to work.

INCOME: The median income of households in Uintah County was $57,735. Eighty-six percent of the households received earnings and 12 percent received retirement income other than Social Security. Twenty-four percent of the households received Social Security. The average income from Social Security was $15,283. These income sources are not mutually exclusive; that is, some households received income from more than one source.

POVERTY AND PARTICIPATION IN GOVERNMENT PROGRAMS: In 2005-2009, 10 percent of people were in poverty. Thirteen percent of related children under 18 were below the poverty level, compared with 9 percent of people 65 years old and over. Eight percent of all families and 37 percent of families with a female householder and no husband present had incomes below the poverty level.

POPULATION OF Uintah County: In 2005-2009, Uintah County had a total population of 29,000 - 14,000 (50 percent) females and 15,000 (50 percent) males. The median age was 29 years. Thirty-two percent of the population was under 18 years and 10 percent was 65 years and older.

For people reporting one race alone, 85 percent was White; less than 0.5 percent was Black or African American; 7 percent was American Indian and Alaska Native; 1 percent was Asian; 1 percent was Native Hawaiian and Other Pacific Islander, and 3 percent was some other race. Two percent reported two or more races. Five percent of the people in Uintah County were Hispanic. 84 percent of the people in Uintah County were White non-Hispanic. People of Hispanic origin may be of any race.

HOUSING CHARACTERISTICS: In 2005-2009, Uintah County had a total of 10,000 housing units, 6 percent of which were vacant. Of the total housing units, 74 percent was in single-unit structures, 13 percent was in multi-unit structures, and 13 percent was mobile homes. Twenty-seven percent of the housing units were built since 1990.

OCCUPIED HOUSING UNIT CHARACTERISTICS: In 2005-2009, Uintah County had 9,800 occupied housing units - 7,500 (76 percent) owner occupied and 2,300 (24 percent) renter occupied. Two percent of the households did not have telephone service and 3 percent of the households did not have access to a car, truck, or van for private use. Multi Vehicle households were not rare. Forty-one percent had two vehicles and another 33 percent had three or more.

HOUSING COSTS: The median monthly housing costs for mortgaged owners was $1,205, nonmortgage owners $298, and renters $765. Thirty-one percent of owners with mortgages, 9 percent of owners without mortgages, and 33 percent of renters in Uintah County spent 30 percent or more of household income on housing.

Source: U.S. Census Bureau, 2005-2009 American Community Survey

The U.S. Census Bureau's Population Estimates Program produces the official population estimates for the nation, states, counties and places, and the official estimates of housing units for states and counties. The population and housing characteristics included above are derived from the American Community Survey.

Notes:
· Detail may not add to totals due to rounding.
· Percentages are based on unrounded numbers.

UTE INDIAN TRIBE EMERGENCY MANAGEMENT DEMOGRAPHICS

Leadership on the Reservation

The Ute Indian Tribe is comprised of three bands, the Uncompahgre, Uintah, and Whiteriver. The Ute Tribal Business Committee, the governing body of the Tribe is comprised of six members, two members duly elected from each of the tree bands. The members are elected for a term of four years. The Ute Tribes homeland is the Uintah and Ouray (U&O) Reservation in Northeastern Utah in the Uintah Basin. The U&O reservation encompasses a land area of 1,670,636, 047 acres (this excludes private property), with the exterior boundaries lying within the Wasatch, Duchesne, Grand and Uintah counties. Uintah County has most of the tribal population and Fort Duchesne is the hub for tribal headquarters as well as the Tribal Enterprises of the Ute Tribe.

Membership & Income

The Ute Indian Tribe has a total population of 3,056 members and around 2,620 enrolled members reside on the reservation. A blood quantum of 5/8 is needed in order to be enrolled with the Tribe. Tribal members reside in the communities that are scattered across the reservation. The median income for a household on the reservation is approximately $19,200. About 59% of families and 62% of the population live below the poverty level. The tribe's economy is based on energy, mineral, and natural resources that bring in revenues for tribal operations and pay a minimal monthly tribal dividend. There are tribal members that subsist on this limited income, which is again, well below the national poverty level.

Tribal Enterprises

The Ute Tribal Enterprises LLC operates one grocery store, the Ute Plaza in Fort Duchesne, and two convenient stores located in Fort Duchesne and Myton. The convenient stores are small and provide gasoline services to the surrounding communities. There is a feed-lot the Ute Tribe owns and uses to maintain their cattle herds as well as farm pasture land to sustain the cattle's needs. In addition the Ute Tribe owns the Ute Energy Oil Company that operates drilling rigs, UIT Oilfield Water Service, and a water hauling company that serves the oilfield industry. There is an addition to the Bottle Hollow Lake in the form of a RV unit that has 18 camping sites located in the north-west of the lake. The UIT Fish and Game Outfitting and Guide service those non-tribal members hunting for big game on the reservation.

Education

The Ute Indian Tribe operates several education programs to address the educational needs of the youth, yet drop-out rates of tribal students remain fairly high. The Tribe's Head Start Program implements the We-Can Curriculum, which is a literacy-based program that focuses on early intervention and preparing the five-year old child to enter the public school system better prepared. In addition, the Tribe implemented Uintah River High School focusing on a small classroom setting enabling students to learn in a more concentrated environment. Most of the tribal youths are reading at a grade school level and the math skills are well below that of their non-Native class mates.

Housing

At the present time, the housing development is not able to meet the current demand of housing needs for Tribal members. The Tribe has Ute Indian Designated Housing Authority (HUD) program, those 400 homes and 100 rental units under-serve the needs of tribal members. The tribal council implemented a tribal housing project that has several homes, and despite the efforts to develop housing, there continues to be a critical shortage.

Social & Cultural Impacts

Although, the tribe is one of the largest employers there is still extremely high rates of unemployment, significant numbers of teen pregnancies and high risk of diabetes and other health related illnesses among tribal members. Alcoholism plays a major role in family disintegration and cultural erosion. The majority of adult male tribal members do not have a high school diploma or driver's license and have a poor work history thus making them not viable in the work place. The tribal member female generally is employed with the tribe to provide for the household and has become the main bread winner for the family.

Summary

In conclusion, the Ute Tribe is facing a continuing change in the family structure along with cultural diversification, shifts in technology, and the extreme fluctuation in our economy. Despite what the future holds for the Ute Tribe we know that hose challenges will be met with determination and conviction that they will work for a better community.

SECTION 4:

RISK ASSESSMENT

HAZARD IDENTIFICATION PROCESS

Hazards were identified and evaluated for inclusion in this plan based on historical review of past events, synthesis of existing reports, data and hazard mapping analysis, and input from local level emergency management personnel and other community officials. Consideration for inclusion was based on the likelihood of a hazard's occurrence, location of the occurrence and the potential impact of the event in terms of its effect on human life and property.

This list on the right side of Table 4-1 includes only those natural hazards that were analyzed in the plan. However, there are several other hazards that were discussed during the planning process in less detail due to a lack of data or a lack of historical evidence showing substantial risk to the jurisdictions in the region. Some hazards were also not discussed in detail in this plan because they are not natural hazards, which are what this plan mainly focuses on, with the understanding that those non-natural hazards should still be planned for by jurisdictions. The following is a comprehensive list of all the hazards discussed throughout this process, showing hazards analyzed in the plan and those that were not:

Table 4-1: Identified and Analyzed Hazards in the Uintah Basin Region

All Identified Potential Hazards	Natural Hazards Analyzed in Plan
• Wildfire	• Wildfire
• Earthquake	• Earthquake
• Flooding	• Flooding
• Landslide	• Landslide
• Dam Failure	• Dam Failure
• Drought	• Drought
• Severe Weather (extreme temperature, lightning, snow, ice, wind, avalanche, micro-bursts, and tornadoes)	• Severe Weather (extreme temperature, lightning, snow, ice, wind, avalanche, micro-bursts, and
• Agricultural (insect infestation, disease, livestock/crop loss)	• Agricultural (insect infestation, disease, livestock/crop loss)
• Volcanic (heat vent)	
• Others (HAZMAT, economic/industrial, terrorism, medical)	
• Problem Soils	

Each of the natural hazards listed above in the right column are addressed in the plan. However, drought, severe weather, and agricultural hazards were analyzed generally on a regional scale, while the others were analyzed for each jurisdiction.

Risk Assessment Surveys were sent to the chief elected official for all jurisdictions in the Uintah Basin Region. Among other questions, the survey instrument requested local input on which hazards exist in the area, when the most recent hazard events took place, current zoning and ordinances regarding natural hazards, building codes, NFIP (National Flood Insurance Program) status, maps, documents, or hazard related plans, and critical facilities in the jurisdiction.

Natural hazards differ throughout the state and throughout the Uintah Basin Region; based on variables such as underlying geology, topography, hydrology, development patterns, and climate. For this reason a risk assessment was conducted by the Uintah Basin Association of Governments to determine what natural hazards might affect the Pre-Disaster Mitigation planning. Table 4-2 illustrates the results of UBAOG risk assessment and how and why each hazard with the potential of affecting areas within the Uintah Basin Region was identified. It is understood hazards don't recognized political boundaries, politics and the availability of GIS data dictated the planning scope for this mitigation plan.

Table 4-2: Hazard Identification & Justification for Risk Assessment

Hazard	How Identified	Why Identified
Agricultural (insect infestation, disease, livestock/crop loss)	• Review of County Emergency Operations Plans • Input from County Emergency Managers	• Affects local economy and ecosystem
Dam Failure	• Review of County Emergency Operations Plans • Assistance from Utah Division of Water Rights, Dam Safety Section • Community's profile	• Can cause serious damage to life and property and have subsequent effects such as flooding, fire, debris flow, etc.
Drought	• Review of County Emergency Operations Plans • Community's profile • National Climate Data Center • Palmer Drought Severity Index readings	• Affects local economy, water reservoirs, soil • Previous experiences
Earthquake	• Review of County Emergency Operations Plans • Input from City and County Emergency Operations Managers • United States Geological Survey • Utah Geological Survey • HAZUS analysis	• Utah is predicted, 1/5 chance, to experience a large earthquake within the next fifty years. • Numerous faults throughout Utah • Utah experiences approximately 13 earthquakes a year with a magnitude over 3.0. • Can create fire, flooding, hazardous materials incident, transportation and communication limitations
Flooding	• Review of County Emergency Operations Plans	• Associated with drought and dry soils

	• Review of past disaster declarations • Input from City and County Emergency Operations Managers • Utah Division of Water Resources • Utah Geological Survey • Flood Insurance Studies • Army Corps of Engineers	• Several previous incidents have caused severe damage and loss of life • Many of the rivers and streams are located near neighborhoods • Many neighborhoods are located on floodplains, alluvial fans
Landslides	• Review of County Emergency Operations Plans • Utah Geological Survey • Input from County Emergency Managers • Community's profile • National Climate Data Center • GIS analysis • State Mitigation Plans	• Past incidents have caused loss of life property damage, disruption of power lines and communication • Have caused damage in the past
Severe Weather (extreme temperature, lightning, snow, ice, wind, avalanche, micro-bursts, and tornadoes)	• Review of County Emergency Operations Plans • Community's profile • Review of past disaster declarations • Input from City and County Emergency Operations Managers • Utah Avalanche Forecast Center • Utah Department of Transportation • National Climate Data Center • National Weather Service Special Publication	• Communities, homes, infrastructure, roads, recreational areas, and people can be affected by an avalanche • Avalanches have caused property damage and loss of life in the past • Have caused property damage and loss of life
Wildfires	• Past Wildfire Occurrences • Review of County Emergency Operations Plans	• Potential structure damage • Watershed damage

HAZARD DEFINITIONS

The following is a description of each of the hazards evaluated in the Uintah Basin Region's Pre- disaster Hazard Mitigation Plan. These definitions, with minor modifications and additions, were developed by Utah DEM and used by permission in this plan.

Flooding

Flooding is a temporary overflow of water onto lands not normally inundated by water producing measurable property damage or forcing evacuation of people and vital resources. Floods frequently cause loss of life; property damage and destruction; damage and disruption of communications, transportation, electric service, and community services; crop and livestock damage and loss, and interruption of business. Floods also increase the likelihood of hazard such as transportation accidents, contamination of water supplies, and health risk

increase after a flooding event.

Another important consideration to make regarding flooding is the variety of flood types and other hazards that often happen at the same time flooding occurs. For example, rarely are flood waters clear and free from debris. Often, mud/sediment/debris flows happen concurrently with flooding, causing damages sometimes more severe than what flooding alone may have caused; also, when defining and analyzing flood hazards in the Uintah Basin Region, irrigation canals should be included. Canals are not designed to handle storm water during high rain events. By the nature of canal design, the further downstream on the canal, the less water that canal can handle. As water is extracted from the system, less water is available. This design is opposite to how a storm water system is designed, which should be able to handle higher water flow further downstream (Scott Stoddard, personal communication, 8/13/09). Canals located on steep or unstable hillsides can also exacerbate problems when a landslide occurs, increasing risk and adding an element of flooding to an already dangerous situation.

As development near floodplains occurs, cut and fill of hillsides can change the hydrology of the landscape. In some circumstances, the floodplain levels can actually raise much like putting marbles one at a time in a bathtub filled with water. One by one, projects can slowly alter the floodplain until more residents and structures are at risk. Homes built earlier that were never in the FEMA floodplain to begin with could then be at risk.

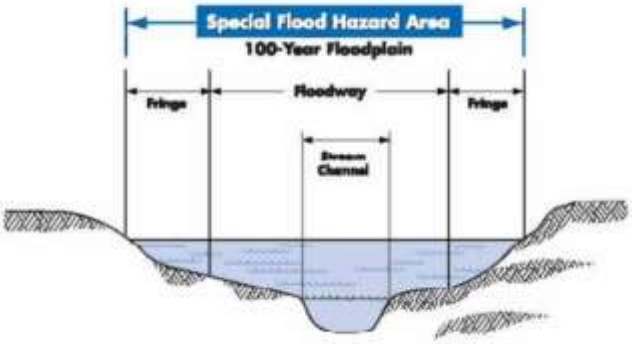
Several factors determine the severity of floods including rainfall intensity, duration and rapid snowmelt. A large amount of rainfall over a short time span can result in flash flood conditions. Small amounts of rain can also result in flooding at locations where the soil has been previously saturated or if rain concentrates in an area having impermeable surfaces such as large parking lots, paved roadways, or post-burned areas with hydrophobic soils. Topography and ground cover are also contributing factors for floods. Water runoff is greater in areas with steep slopes and little or no vegetative ground cover.

Frequency of inundation depends on the climate, soil, and channel slope. In regions where substantial precipitation occurs during a particular season or in regions where annual flooding is due to spring melting of winter snow pack, areas at risk may be inundated nearly every year. Conditions which my exacerbate floods include: steeply sloped watersheds, constrictions, obstructions, debris contamination, soil saturation and velocity.

Explanation of Common Flood Terms

FIRM: Flood Insurance Rate Map

100-year flood: Applies to an area that has a 1 percent chance, on average, of flooding in any given year. However, a 100-year flood could occur two years in a row, or once every 10 years. The 100 year-flood is also referred to as the base flood.



Base Flood: Is the standard that has been adopted for the NFIP. It is a national standard that represents a compromise between minor floods and the greatest flood likely to occur in a given area and provides a useful benchmark.

Base Flood Elevation (BFE): As shown on the FIRM, is the elevation of the water surface resulting from a flood that has a 1% chance of occurring in any given year. The BFE is the height of the base flood, usually in feet, in relation to the National Geodetic Vertical Datum (NGVD) or 1929, the North American Vertical Datum (NAVD) of 1988, or other datum referenced in the FIS report.

Special Flood Hazard Area (SFHA): Is the shaded area on a FIRM that identifies an area that has a 1% chance of being flooded in any given year (100-year floodplain).

Floodway: Is the stream channel and that portion of the adjacent floodplain that must remain open to permit passage of the base flood without raising that water surface elevation by more than one foot.

Earthquakes

An earthquake is the abrupt shaking of the earth caused by the sudden breaking of rocks when they can no longer withstand the stresses, which build up deep beneath the earth's surface. The rocks tend to rupture along weak zones referred to as faults. When rocks break they produce seismic waves that are transmitted through the rock outward producing ground shaking. Earthquakes are unique multi-hazard events, with the potential to cause huge amounts of damage and loss. Secondary effects of a sudden release of seismic energy (earthquake) include: ground shaking, surface fault rupture, liquefaction, tectonic subsidence, slope failure, and various types of flooding.

The Intermountain Seismic Belt

The Intermountain Seismic Belt (ISB) is a zone of pronounced earthquake activity up to 120 miles wide extending in a north south direction 800 miles from Montana to northern Arizona. The Utah portion of the ISB trends from the Tremonton Cache Valley area south through the center of the state, along the Wasatch Front, and the southwest through Richfield and Cedar City concluding in St. George. "The zone generally coincides with the boundary between the Basin and Range physiographic province to the west and the Middle Rocky Mountains and Colorado Plateau physiographic provinces to the east" (Eldredge 6).

Secondary Earthquake Threats

The major secondary effects of earthquakes include: ground shaking, surface fault rupture, liquefaction, tectonic subsidence, avalanches, rock fall, slope failure, and various types of flooding. Other sections discuss landslides, and flooding therefore they will not be discussed under secondary effects of earthquakes yet importance needs to be given to the fact that earthquakes can increase the likelihood of flooding and landslides.

Ground Shaking

Ground shaking causes the most impact during an earthquake because it affects large areas and is the origin of many secondary effects associated with earthquakes. Ground shaking, which generally lasts 10 to 30 seconds in large earthquakes, is caused by the passage of seismic waves generated by earthquakes. Earthquake waves vary in both frequency and amplitude. High frequency low amplitude waves can cause more damage to short stiff structures, whereas low frequency high amplitude waves have a greater effect on tall (high-rise) structures. Ground shaking is measured using Peak Ground Acceleration (PGA). The PGA measures the rate in change of motion relative to the established rate of acceleration due to gravity.

Local geologic conditions such as depth of sediment and sediment make up, affect earthquake waves. Deep valley sediments increase the frequency of seismic waves relative to bedrock. In general, ground shaking increases with increased thickness of sediments" (Eldredge 8). Findings in recent geologic research done by Ivan Wong indicate that earthquakes in Salt Lake County would produce higher PGA values than previously expected near faults and areas of near surface bedrock.

Surface Fault Rupture

During a large earthquake fault movement may propagate along a fault plain to the surface, resulting in surface rupture along the fault plain. The Wasatch fault is a normal (mountain building) fault with regards to movement, meaning the footwall of the fault moves upward and the hanging wall moves in a down direction. Thus faulting is on a vertical plain, which results in the formation of large fault scarps.

Surface fault rupture along the Wasatch fault is expected for earthquakes with magnitudes of 6.5 or larger. The largest probable earthquake that could strike the Uintah Basin region is an earthquake with an estimated magnitude between 7.0 and 7.5; an earthquake of this magnitude, based on current research, would create "surface fault rupture with a displacement of between 16 to 20 feet in height with break segments 12 to 44 miles long" (Eldredge 10). In historic time surface fault rupture has only occurred once in Utah the 1934 Hansel Valley earthquake with a magnitude
6.6 produced 1.6 feet of vertical offset.

Surface fault rupture presents several hazards, anything built on top of the fault or crossing the fault has a high potential of destroyed in the event of displacement. Foundations will be cracked, building torn apart, damage to roads, utility lines, pipelines, or any other utility line crossing the fault. It is almost impossible to design anything within reasonable cost parameters to withstand an estimated displacement of 16 to 20 feet.

Picture 4-2: Displacement in excavation near Rose Wagner Performing Arts Center

Surface fault rupture doesn't occur on a single distinct plain; instead it occurs over a zone often several hundred feet wide known as the zone of deformation. This zone of deformation occurs mainly on the down thrown side of the main fault trace. Tectonic subsidence, caused by antithetic faults moving in the opposite direction of the main fault, slide down hill on the main fault scarp creating grabens (down dropped blocks) within the zone of deformation.

Hintze described an “enigma” of Utah in that seismicity does not always coincide with surface fault scarps or faults (Geologic History of Utah, 1988). The epicenter of the earthquake may be miles away from the surface faulting.

Liquefaction

Soil liquefaction occurs when water-saturated cohesion-less sandy soils are subject to ground shaking. When liquefaction occurs, soils behave more like a viscous liquid (quicksand) and lose their bearing capacity and shear strength. Two conditions must be met in order for soils to liquefy: (1) the soils must be susceptible to liquefaction (sandy, loose, water-saturated, soils typically between 0 and 30 feet below the ground surface) (2) ground shaking must be strong enough to cause susceptible soils to liquefy (lips). The loss of shear strength and bearing capacity due to liquefaction causes buildings to settle or tip and light buoyant structures such as buried storage tanks and empty swimming pools to float upward. Liquefaction can occur during earthquakes of magnitude 5.0 or greater.

Lateral Spread

Soils, once liquefied, can flow on slopes with angles of .5 to 5 percent this movement of liquefied soils is known as lateral spread. "The surface soil layers break up and move sections independently and are displaced laterally over a liquefied layer" (Eldredge 10). Liquefaction can cause damage in several ways, with lateral spreading being one of the most common. Displacement of three (3) or more feet may occur and be accompanied by ground cracking and vertical displacement. Lateral spreading cause roads, buildings, buried utilities, and any other buried or surface structure to be pulled apart.

Various Flooding Issues Related to Earthquakes

Earthquakes could cause flooding due to the tilting of the valley floor, dam failure and seiches in lakes and reservoirs. Flooding can also result from the disruption of rivers and streams. Water tanks, pipelines, and aqueducts may be ruptured, or canals and streams altered by ground shaking, surface faulting, ground tilting, and land sliding.

Seiches

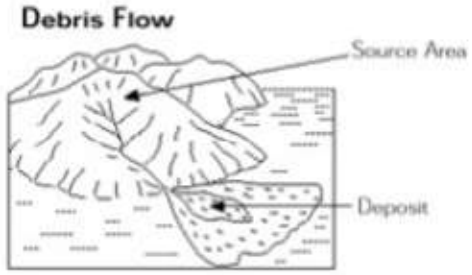
Standing bodies of water are susceptible to earthquake ground motion. Water in lakes and reservoirs may be set in motion and slosh from one end to the other, much like in a bathtub. This motion is called a seiche (pronounced “saysh”). A seiche may lead to dam failure or damage along shorelines.

Landslides

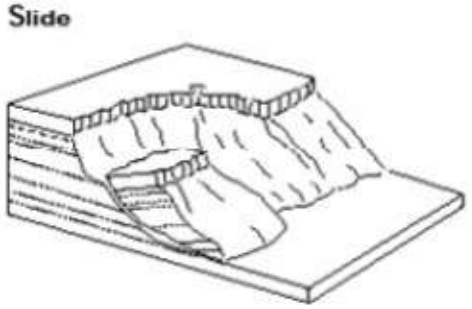
Landslides are defined as, "…the movement of a mass of rock, debris, or earth down a slope (Cruden, 1991)." Landslides, often referred to as mass wasting or slope failure, are one of the most common natural disasters. Slope failures can vary considerably in shape, rate of movement, extent, and effect on surrounding areas. Slope failures are classified by their type of movement, and type of material. The types of movement are classified as falls, slides, topples, and flows. "The types of material include rock, debris (coarse grained soil) and earth (fine grained soil)" (Eldredge 17). "Types of slope failures then are identified as rock falls, rock slides, debris flows, debris slides, and so on" (Eldredge 17). Slope failures occur because of either an increase in the driving forces (weight of slope and slope gradient) or a decrease in the resisting forces (friction, or the strength of the material making up a slope). "Geology (rock type and structure), topography (slope gradient), water content, vegetative cover, and slope aspect are important factors of slope stability" (Eldredge 18).

Certain landslides, such as debris flows can be exacerbated by flooding and water saturation. Landslides alone can be dangerous, but adding flooding to the situation can increase risk.

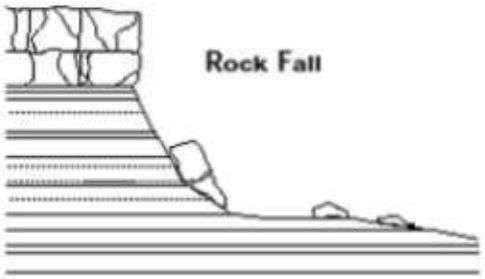
Three Common Types of Landslides in Utah



Debris flows consist of sediment-water mixtures that flow down a streambed or hillside, commonly depositing sediment at canyon mouths in fan like deposits known as alluvial fans.



Slides are down slope movements of soil or rock on slopes.



Rock falls consist of rock(s) falling from a cliff or cut slope and are very common in the canyon country of southern Utah.

Conditions That Make Slopes More Susceptible to Landslides

- Discontinuities: faults, joints, bedding surfaces.
- Massive Materials over soft materials.
- Orientations of dip slope: bedding plans that dip out of slope.
- Loose structure and roundness.
- Adding weight to the head of a slide area: rain, snow, landslides, mine waste piles, buildings, leaks from pipes, sewers, and canals, construction materials fill materials.
- Ground shaking: earthquakes or vibrations.
- Increase in lateral spread caused by mechanical weathering.
- Removal of lateral support.
- Human activities: cut and fill practices, quarries, mine pits, road cuts, lowering of reservoirs.
- Removing underlying support: under cutting of banks in a river.
- Increase in pore water pressure: snow melt, rain, and irrigation.
- Loss of cohesion.

Wildfire

A wildfire is an uncontrolled fire spreading through vegetative fuel often exposing or consuming structures. Wildfires often begin unnoticed and spread quickly and are usually sighted by dense smoke. Wildfires are placed into two classifications Wild land and Urban-Wild land Interface. Wild land fires are those occurring in an area where development is essentially nonexistent, except for roads, railroads, or power lines. Urban-Wild land Interface fire is a wildfire in a geographical area where structures and other human development meet or intermingle with wild land or vegetative fuels.

When discussing wildfires it is important to remember that fires are part of a natural process and are needed to maintain a healthy ecosystem. Three basic elements are needed for a fire to occur (1) a heat source (2) oxygen and (3) fuel. Major ignition sources for wildfire are lightning and human causes such as arson, recreational activities, burning debris, and carelessness with fireworks. On average, 65 percent of all wild fires started in Utah can be attributed to human activities. Once a wildfire has started, vegetation, topography and weather are all conditions having an affect wildfire behavior.

Severe Weather

For the purpose of this mitigation plan the term severe weather is used to represent downbursts, lightening, heavy snowstorms, blizzards, avalanches, hail, and tornados.

Downbursts

A downburst is a severe localized wind, blasting from a thunderstorm. Depending on the size and location of these events, the destruction to property may be devastating. Downbursts fall into two categories by size; Micro-bursts cover and area less than 2.5 miles in diameter. Macro-bursts cover an area with a diameter larger than 2.5 miles.

Lightening

During the development of a thunderstorm, the rapidly rising air within the cloud, combined with the movement of the precipitation within the cloud, causes electrical charges to build. Generally, positive charges build up near the top of the cloud, while negative charges build up near the bottom. Normally, the earth's surface has a slight negative charge. However, as the negative charges build up near the base of the cloud, the ground beneath the cloud and the area surrounding the cloud becomes positively charged. As the cloud moves, these induced positive charges on the ground follow the cloud like a shadow. Lightening is a giant spark of electricity that occurs between the positive and negative charges within the atmosphere or between the atmosphere and the ground. In the initial stages of development, air acts as an insulator between the positive and negative charges. When the potential between the positive and negative charges becomes too great, there is a discharge of electricity that we know as lightning.

Heavy Snowstorms

A severe winter storm deposits four or more inches of snow during a 12-hour period or six inches of snow during a 24-hour period. According to the official definition given by the U.S. Weather Service, the winds must exceed 35 miles per hour and the temperature must drop to 20° F or lower. All winter storms make driving extremely dangerous.

Blizzards

A blizzard is a snowstorm with sustained winds of 40 miles per hour (mph) or more or gusting winds up to at least 50 mph with heavy falling or blowing snow, persisting for one hour or more, temperatures of ten degrees Fahrenheit or colder and potentially life-threatening travel conditions. The definition includes the conditions under which dry snow, which has previously fallen, is whipped into the air and creates a diminution of visual range.

Hail Storms

Hailstones are large pieces of ice that fall from powerful thunderstorms. Hail forms when strong updrafts within, the convection cell of a cumulonimbus cloud carries water droplets upward causing them to freeze. Once the droplet freezes, it collides with other liquid droplets that freeze on contact. These rise and fall cycles continue until the hailstone becomes too heavy and falls from the cloud.

Avalanches

Avalanches are a rapid down-slope movement of snow, ice, and debris. Snow avalanches are a significant mountain hazard in Utah, and nationally account for more deaths each year than earthquakes. Avalanches are the result of snow accumulation on a steep slope and can be triggered by ground shaking, sound, or a person. Avalanches consist of a starting zone, a track, and a run-out zone. The starting zone is where the ice or snow breaks loose and starts to slide. The Track is the grade or channel down which an avalanche travels. The run-out zone is where an avalanche stops and deposits the snow.

The two main factors affecting avalanche activity include weather and terrain, large frequent storms combined with steep slopes result in avalanche danger. Additional factors that contributing to slope stability are amount of snow, rate of accumulation, moisture content, snow crystal types and the wind speed and direction. In Utah, the months of January through April have the highest avalanche risk.

Topography plays a vital role avalanche dynamics. Slope angles between 30 to 45 degrees are optimum for avalanches with 38 degrees being the bulls-eye. Slopes with and angle above 45 degrees continually sluff eliminating large accumulation. The risk of avalanches decreases on slope angles below 30 degrees.

Tornados and High Winds

A tornado is a violently rotating column of air extending from a thunderstorm to the ground. Tornados often occur at the edge of an updraft or within the air coming down from a thunderstorm. Tornadoes can have wind speeds of 250 miles per hour or more, causing a damage zone of 50 miles in length and 1 mile wide. Most tornados have winds less than 112 miles per hour and zones of damage less than 100 feet wide.

Drought

Drought is a normal recurrent feature of climate, although many, in Utah, erroneously consider it a rare and random event. It occurs in virtually all-climatic zones, while its characteristics vary significantly from one region to another. Droughts, simple put, are cumulative hazards, which result from long periods of below normal precipitation. Drought is a temporary aberration and differs from aridity since the latter is restricted to low rainfall regions and is a permanent feature of climate.

The State of Utah uses the Palmer Drought Severity Index or (PDSI) to quantify the existence of a drought. Using the PDSI, drought is expressed as a negative number. Much of the basis, used by the State, to determine drought years, or drought periods, comes from the PDSI. In addition, the PDSI is used by the State Climatologist, the National Geophysical Data Center of NOAA, and the National Drought Mitigation Center.

For the most part droughts no longer affect the availability of drinking water, thus no longer place people's lives at risk, the same cannot be said for a person's livelihood. Numerous water projects throughout the state have placed enough water in storage to insure drinking water. Prolonged droughts have a significant effect on agricultural and agribusinesses, within the state dependent on irrigation water. Droughts also stress wildlife, and heighten the risk of wildfire.

Dam Failure

Dam failures result from the failure of a man made water impoundment structure, which often results in catastrophic down grade flooding. Dam failures are caused by one or a combination of

the following: “breach from flooding or overtopping, ground shaking from earthquakes, settlement from liquefaction, slope failure, internal erosion from piping, failure of foundations and abutments, outlet leaks or failures, vegetation and rodents, poor construction, lack of maintenance and repair, misuse, improper operation, terrorism, or a combination of any of these” (Eldredge, 46). The Utah State Engineer has been charged with regulating non-federal dams in the State dams since 1919. “In the late 1970's Utah started its own Dam Safety Section within the State of Utah Engineers Office to administer all non-federal dams in response to the Federal Dam Safety Act (PL-92-367)” (Eldredge, 46).

The State Dam Safety Section has developed a hazard rating system for all non-federal dams in Utah. Downstream uses, the size, height, volume, and incremental risk/damage assessments or dams are all variables used to assign dam hazard ratings in Dam Safety’s classification system. Using the hazard ratings systems developed by the Dam Safety Section, dams are placed into one of three classifications high, moderate, and low. Dams receiving a low rating would have insignificant property loss due to dam failure. Moderate hazard dams would cause significant property loss in the event of a breach. High hazard dams would cause a possible loss of life in the event of a rupture. The frequency of dam inspection is designated based on hazard rating with the Division of Water Rights inspecting high-hazard dams annually, moderate hazard dams biannually and low-hazard dams every five years.

Agricultural (Infestation, Disease, Livestock/Crop Loss)

Agricultural losses can be detrimental to residents and local economies in the Uintah Basin Region. Insect infestation and other types of crop loss can not only affect a farmer’s livelihood, but can lessen the amount of feed available for livestock, and lead to increased feed prices. Disease can also have extremely negative effects for the agricultural economy and residents livelihoods, where animals and crop populations can quickly be decimated.

Problem Soils

Problem soils and rock constitute a widespread geologic hazard in Utah, covering approximately 18 to 20 percent of the state, and underlie many urbanized areas. The nine types of problem soil and rock in Utah are:

- Expansive Soil
- Collapsible Soil
- Limestone and Karst Terrain
- Gypsiferous Soil
- Soil Subject to Piping
- Dunes
- Peat
- Mine Subsidence
- Sodium Sulfate

Expansive Soil and Rock

Clay minerals found in soils and rock, expand and contract due to changes in moisture content. The most common clay mineral associated with expansive soils in Utah is montmorillonite, "which expands up to 2,000 times its original size, and can exert pressures up to 11,000 pounds per square foot" (Eldredge 30). The cracks created by the expansion and contraction process create a positive feedback mechanism that allows more water to enter during the next storm cycle. Problems associated with expansive materials are cracked foundations, heaving and cracking of road surfaces, failure of wastewater disposal systems, and broken water lines.

Collapsible Soil

Collapsible soil causes ground-surface subsidence when loose, dry, low density deposits decrease in volume when saturated for the first time since deposition. Frequently the water introduced into these soils is from human sources such as irrigation, water impoundment, lawn watering, and alterations to natural drainages, and/or wastewater disposal.

Limestone and Karst Terrain

Closed depressions, caverns, and streams that abruptly disappear underground are characteristics of karst terrain. Limestone, dolomite, and gypsum are all common in the Six County region and susceptible to dissolution by ground water and surface water thus forming karst terrain. Karst features affect surface and subsurface drainage causing a collapse of the ground surface and often the contamination of ground water. The cavernous nature of the terrain allows surface or subsurface sources of pollution from landfills, waste water disposal systems, and buried gasoline tanks to enter the groundwater system.

Gypsiferous Soil

Gypsum is a primary component in some rocks, and the soils derived from them. Gypsiferous deposits, when wetted, are subject to settlement, causing sinkholes similar to those found in karst terrains. Weathered gypsum forms sulfuric acid and sulphate, which reacts with certain types of cement often weakening foundations. Gypsum is also a week material with a low bonding strength.

Piping

Piping is a type of subsurface erosion caused by ground water moving along a permeable layer in unconsolidated materials and exiting at a free face, which intersects the unconsolidated layer. The movement of underground water removes fine-grained particles (silts and clay) creating subsurface voids, which act like channels directing the movement of water. These channels increase in size, as more and more water is collected, until the walls and roof can no longer support the weight and collapse. Over time this process forms a gully, which further concentrates erosion.

Dunes

Dunes form when sand derived from weathered rock or an unconsolidated deposit is blown by the wind into mounds or ridges. Migrating dunes can bury roads, and structures, clog waste and storm water systems, and cause contamination of local ground water.

In Utah, three types of material commonly form dunes: silica, gypsum, and oolites.

Silica Dunes comprised mainly of silica, are typically found along the western side mountain ranges in western Utah.

Gypsum Dunes are principally derived from the evaporation of playas and are found in Great Salt Lake Desert and along the lee side of many playas in the basins west of Delta.

Oolitic Dunes are composed of calcium carbonate, which is generally precipitated around brine shrimp fecal pellets. Oolitic dunes form in shallow water areas of the Great Salt Lake and are reworked by wind during low water lake cycles.

Many inactive or vegetated dunes in Utah are being reactivated by development and motorized recreation. Once dunes are denuded of their vegetation they begin to migrate once again.

Mine Subsidence

Utah has a long history of mining and there are numerous mines within Utah. Mining removes rock and leaves voids that, if not supported, can collapse and cause subsidence of the ground surface and sinkholes. Subsidence can occur in both active and abandoned mines.

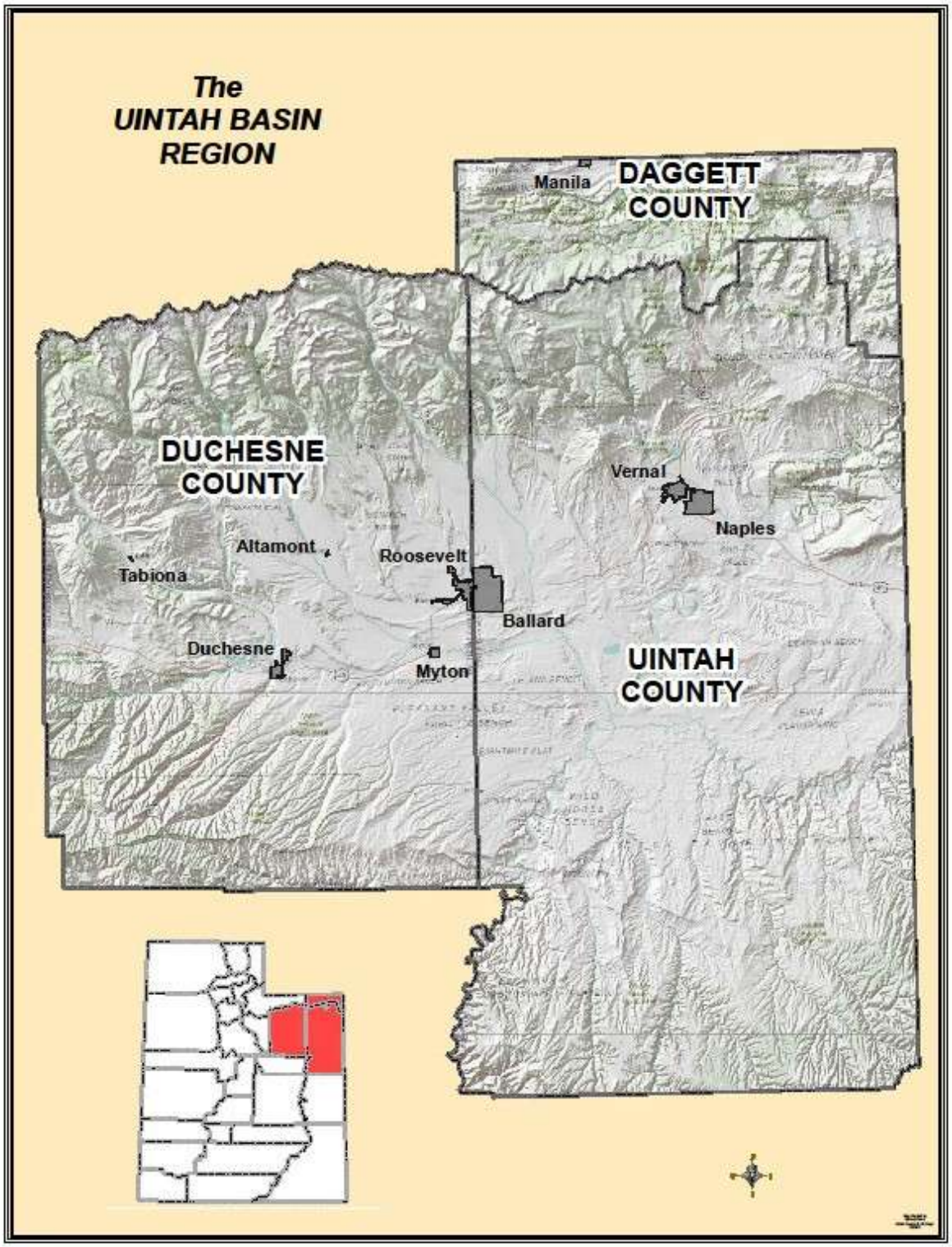
Peat

Peat consists of partially decomposed plant remains. Peat usually accumulated in areas of shallow ground water and near standing water where oxygen depletion limits organic decay. Hazards associated with peat can include subsidence when water is removed, oxidations, and compression and settlement under. Peat deposits are considered a localized hazard occurring primarily along the shores of the Great Salt Lake, Utah Lake, and low lying areas formerly occupied by Lake Bonneville. Mountainous areas commonly have localized small areas of peat, forming in head scarps created by landslides and behind glacial moraines. (Eldredge 33)

Sodium Sulfate

Sodium Sulfate is derived from the evaporation of playas and for the weathering of bedrock. “Soils with high concentrations of water-soluble sulfates exhibit an expansive phenomenon resembling that of expansive clays and frost heave.” (Eldredge 33)

SECTION 5:


The
UINTAH BASIN
REGION
Manila
DAGGETT
COUNTY
DUCHESNE
COUNTY
Vernal
Naples
Altamont
Tabiona
Roosevelt
Ballard
Duchesne
Myton
UINTAH
COUNTY

Description of the Study Area

Uintah Basin Association of Government (UBAOG) serves the following counties and municipalities within these counties: Daggett, Duchesne, and Uintah. The three counties in the study area are very rural, with the total population of the Uintah Basin being only 52,254. Each counties population is: Daggett 1,059, Duchesne 18,607, and Uintah 32,588. The principle draining in the area is the Green River with the Duchesne and White Rivers as major tributaries.

The Uintah Basin Region is divided into two drainages—the North Slope and the south slope of the Uinta Mountains. Elevations in the basin range from 13,528 feet and Kings Peak in the Uinta Mountains to 4,600 feet along the Green River near its exit from Uintah County. The Uinta Mountain range is unique, being one of few major ranges of mountains in North America running east and west. The Uintah Mountains were extensively glaciated, and glacial features dominate the present landscape. Glacial erosion has created many picturesque examples of horns, arêtes, cirques, and glacial troughs. Lateral and terminal moraines often form natural dams, creating over a thousand small lakes that dot the region. The Uintah Basin is very dependent upon their runoff for water supply. Drought years in the Uintah Basin can be divesting, causing a huge economic impact to the agricultural business.

Table 5-1: FEMA Hazard Profile for Drought	
Frequency	Seven year cycle
Severity	Catastrophic
Location	Entire Region
Seasonal Pattern	Year – round
Duration	Up to several years.
Speed of Onset	Not Measurable
Probability of Future Occurrences	High

AFFECT:

The current drought situation in Daggett County, Duchesne County, and Uintah County will present a serious threat to the health and safety of its residents, private property, agriculture, the environment and the economy. The severe drought has reduced soil moisture, stream flows, ground and water levels and could result in agricultural, residential and commercial losses of millions of dollars. The potential for wildfires throughout the county is high and the availability of firefighting resources is expected to be limited as drought conditions worsen. Immediate action is required to protect public health and safety and private property, wildfire, agriculture and the environment.

Impacts of Drought

- Decreased land prices
- Loss to industries directly dependent on agricultural production (machinery and fertilizer manufactures, food processors, dairies, etc.)
- Unemployment from drought related declines in production
- Strain on financial institutions (foreclosures, more credit risk, capitol shortfalls)
- Revenue losses to federal, state, and local governments from reduced tax base.
- Reduction of economic development.
- Rural population loss and relocation to larger cities.
- Loss to recreation and tourism industry
- Energy related effects
- Water suppliers' revenue shortfalls
- Higher cost of water transport
- Decline in food production causes increase in food prices and increase in importation of food

Social

- Mental and physical stress
- Health related low flow problems including cross-connection contamination diminished sewage flows, increased pollutant concentrations, and reduced fire-fighting capabilities.
- Loss of human life
- Public safety concerns caused by increased threat of forest and range fires
- Increases in conflicts of water users.
- Changes lifestyles of those living in rural areas.
- Reduction of modification of recreation activities.
- Public dissatisfaction with government drought response plan

Environmental

- Damage to animal species
- Reduction and degradation of fish and wildlife habitat
- Increased contact of wild animals with agricultural producers.
- Loss of biodiversity
- Lower water levels in reservoirs and lakes
- Reduced stream flow.
- Loss of wetlands
- Increased ground water depletion, land subsidence, reduced recharge.
- Increased number and severity of wild fires.
- More dust and pollutants in the air.
- Visual and landscape qualities diminished.

Drought History in Uintah Basin

According to Utah's annual Palmer Drought Severity Index Charts, Utah has experienced as many as 60 years of drought out the past 100 years, with several of these being multi-year droughts" (35). Multi-year droughts affecting the entire state occurred during 1896-1905, 1930-

1936, 1939-1940, 1953-1956, 1958-1964, 1976-1979, and 1995-1996. Single year droughts occurred during "1924, 1966, and 1974" (State of Utah 35). The Chart below provides a drought history for the Uintah Basin, using date for Utah climate zone five and six, from the present back to 1895. Drought severity is measured using the Palmer Drought Severity Index (PDSI). The PDSI drought severity is represented monthly with a numerical id between +6 and –6 with server droughts having higher negative numbers.

The Palmer Drought Severity Index

Palmer Drought Severity Index, an index, developed by Wayne Palmer in the 1960's, which measures drought severity using temperature and rainfall to determine dryness. The Palmer Drought Severity Index or (PDSI) has become the "semi-official" drought index as it is "standardized" to local climate and can be applied to any part of the country. The PDSI uses zero as normal and assigns a monthly numerical id between +6 and -6 with, server droughts having higher negative numbers. Thus, a moderate drought is minus 2, a severe drought minus 3, and extreme drought is minus 4. Excess rain is expressed using plus figures, with plus 2 representing moderate rainfall, etc.

Generic Mitigation

- Educate Daggett County residents on conserving water.
- Reduce water consumption.
- Quickly deal with leaks and breaks in irrigation equipment.
- Monitor water system efficiency.

Table 5-2: FEMA Hazard Profile for Severe Weather	
Frequency	Possible
Severity	Catastrophic
Location	Entire Region
Seasonal Pattern	November, December, January, February
Duration	Days, Weeks, or Months.
Speed of Onset	6 to 12 hours warning
Probability of Future Occurrences	Medium

A winter storm can range from moderate snow over a few hours to blizzard conditions with blinding wind-driven snow that last several days. Some winter storms may be large enough to affect several states while others may affect only a single community. All winter storms are accompanied by low temperatures and blowing snow, which can severely reduce visibility. A severe winter storm is one that drops four or more inches of snow during a 12- hour period, or six or more inches during a 24-hour span. An ice storm occurs when freezing rain falls from clouds and freezes immediately on impact.

AFFECT:

All winter storms make driving and walking extremely hazardous. The aftermath of a winter storm can impact a community or region for days, weeks, and even months. Storm effects such as extreme cold, flooding, and snow accumulation can cause hazardous conditions and hidden problems for people in the affected area. A harsh winter storm affects the transportation of food and fuel to and from the Wasatch Front, and impacts all retail and grocery stores, restaurants, and gas stations.

Generic Mitigation:

- Work with UDOT on transportation and road conditions.
- Revise and up-date building codes for carports, barns and the residential roofs.
- Public education programs that provide back-up power and heat.
- Research alternative forms of heat source.
- Obtain 72 hour kits.

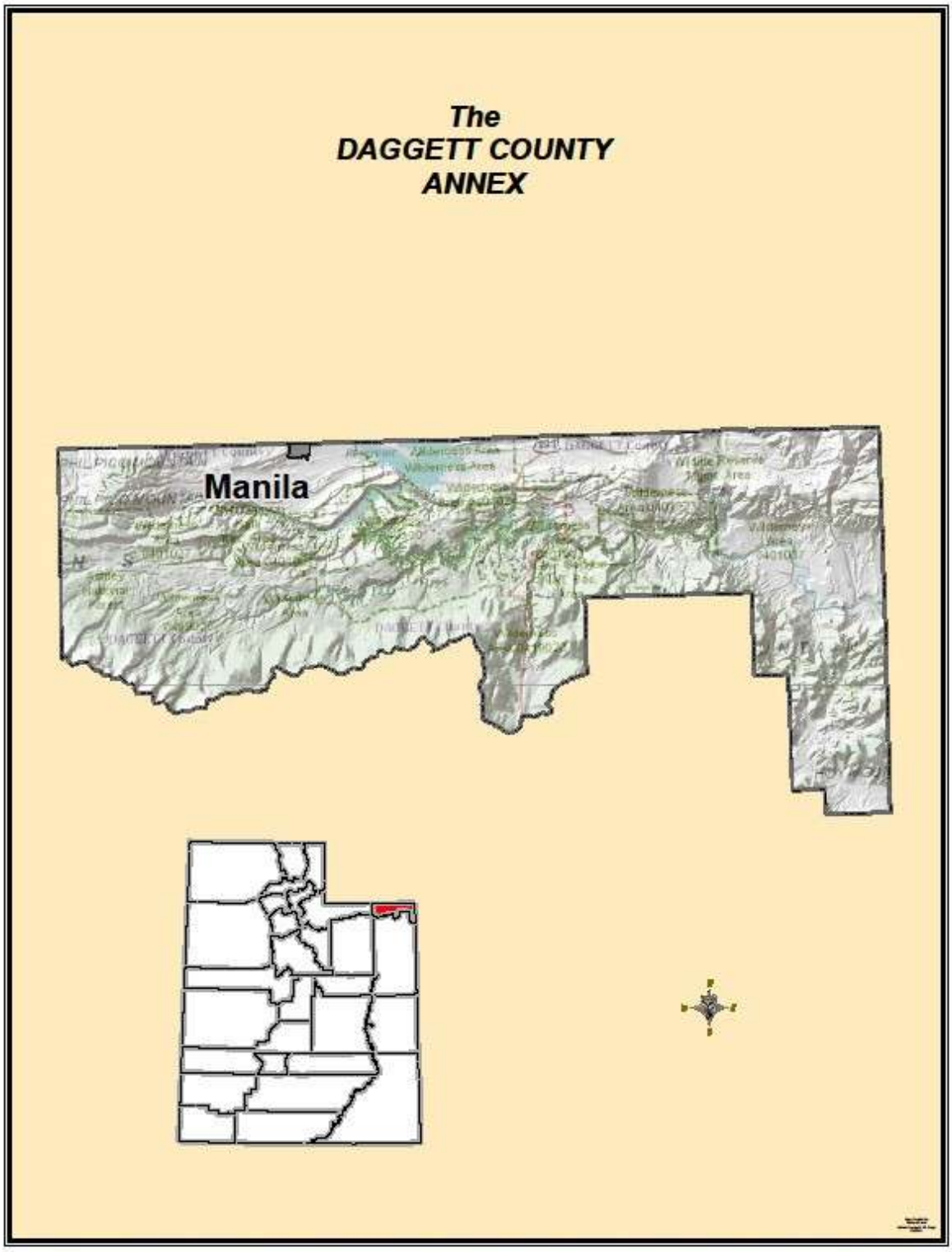
Table 5-3: FEMA Hazard Profile for Agricultural	
Frequency	Highly Likely
Severity	Catastrophic
Location	Entire Region
Seasonal Pattern	Spring, summer, and fall.
Duration	Months and up to several years.
Speed of Onset	Minimal or no warning
Probability of Future Occurrences	Medium

Agriculture has historically dominated the economic life of Uintah Basin Region. The region remains a significant producer of crops and livestock. The entire region has experienced losses in agriculture, livestock, and wildlife as a result of insect infestation. Damage to the economic base and to the health of the citizens is also a direct result of insects. Insects most notable are grasshoppers, Mormon Crickets, Bark Beetles, and mosquitoes. Currently the West Nile Virus spread by mosquitoes is a serious threat to humans and animals in the Uintah Basin Region.

Generic Mitigation:

- Education the public.
- Spray insecticides in likely breeding areas.
- Monitor plant and animal diseases throughout the region to minimize spread.
- Education ranchers and farmers.
- Update EOP.

SECTION 6:



DAGGETT COUNTY

Past Hazard Events in Daggett County

Understanding the past is often the key to discovering what the future holds; this is especially true when planning for natural disasters. The fact that the towns within Daggett County have experienced, for example, flooding in the past means flooding can occur in the future. While over time some of this has been mitigated for the low frequency of occurrence often results in hazards with little or no mitigation. Table 6-1 provides a brief history of Daggett County natural disasters. This table includes only sizable events found during our research, and may not represent the total history.

Table 6-1: Daggett County Natural Disaster History

Hazards	Date	Location	Critical Facility or Area Impacted	Comments
Flooding	Summer 1936	County Wide	Damage to roads and bridges	No loss of life
Flash Flooding	June 10, 1965	Palisades Campground	Sheep Creek flash flood took out nearly 10 miles of state highway	7 deaths
Drought	Summer 1977	County Wide	Heavy impact on agriculture and drinking water for local residents	No loss of life
Wildfire	Summer 1977	County Wide	Hundreds of acres burned	3 deaths
Flooding	Spring 1983	County Wide	Damage to culverts and roads. The one lane bridge over Green River was destroyed.	No loss of life
Wildfire	Summer 1985	16 mi SW of Manila	4,600 acres burned	No loss of life
Wildfire	August 18, 1993	Ruples Assist Fire	Unknown	Unknown
Drought	Fall 2000	County Wide	Heavy impact on agriculture and drinking water for local residents	No loss of life

Wildfire	July 2002	Daggett County (Dutch John)	Forced the evacuation of approximately 200 residents, consumed 20,000 acres and cost $1.5 million to suppress	No loss of life
Drought	2003	County wide	Heavy impact on agriculture and drinking water for local residents	No loss of life
Drought	Fall 2006	County Wide	$900,000 in damages to crops	No loss of life
Wildfire	Summer 2007	NE along the Uintah/Daggett County line in the Ashley National Forest	Burned more than 32,000-acres	3 deaths
Severe Wind	Spring 2011	Greendale Area and Ranches around the Town of Manila	Power Line broken and transformer damaged at Flaming Gorge Dam $600,000 and resident damages at $300,000	No loss of life
Landslide	June 4, 2011	Daggett County near Jarvie Ranch	Damage and partial closing of Daggett County Highway 1364	No loss of life

Daggett County identified five natural hazards they wanted addressed in the Daggett County portion of this multi-jurisdictional plan. Through input of the planning committee the following hazards were identified:

- Dam Failure
- Earthquakes
- Flooding
- Landslides
- Wildfire

In identifying these hazards the PDM planning committee relied on technical experts, public input, research of past events, and risk assessments completed by the county emergency manager for their Pre-disaster Hazard Mitigation Plan.

The Daggett County PDM planning committee consisted of one County Commissioner, the Mayor of Manila, the County Emergency Managers, the TRI-County Health Department, the County Planning and Zoning, the Executive Assistant to the County Commissioners, several

local citizens and the Uintah Basin Association of Governments planning coordinator.

Natural Hazard: Dam Failure

Table 6-2: FEMA Hazard Profile for Dam Failure	
Frequency	Possible
Severity	Catastrophic
Location	Entire County
Seasonal Pattern	Spring
Duration	Several months to over one year.
Speed of Onset	30 minutes or less (minimal or no warning)
Probability of Future Occurrences	High

A Word about Dams:

Dams are a critical support function for water managers in the State and also act as a flood control measure. If a dam remains stable, does not get overtopped, or is not impaired as the result of an earthquake, then, at a minimum, they do provide incidental flood control. If not then they can add to the flood threat.

There are 117 dams within Uintah Basin of these 20 have received an high hazard rating by Utah Division of Water Rights Dam Safety section. The State Dam Safety Section has developed a hazard rating system for all non-federal dams in Utah. Downstream uses, size, height, volume, and incremental risk/damage assessments are a variable used to assign dam safety classification. Using the hazard ratings systems developed by the State Dam Safety Section, dams are placed into one of three classifications high, moderate, and low. Dams receiving a low rating would have insignificant property loss due to dam failure. Moderate hazard dams would cause significant property loss in the event of a breach. High hazard dams would cause a possible loss of life in the event of a rupture. The frequency of dam inspection is designated based on hazard rating with the Division of Water Rights inspecting high-hazard dams annually, moderate hazard dams biannually and low-hazard dams every five years.

AFFECT:

Dam failure would cause significant downstream flooding to low lying areas. Impacts could include destroyed homes, bridges, roads, crops, utilities, and business loss. Natural dam failures are rare but terrorist could target large dams such as Flaming Gorge.

Description of Hazard

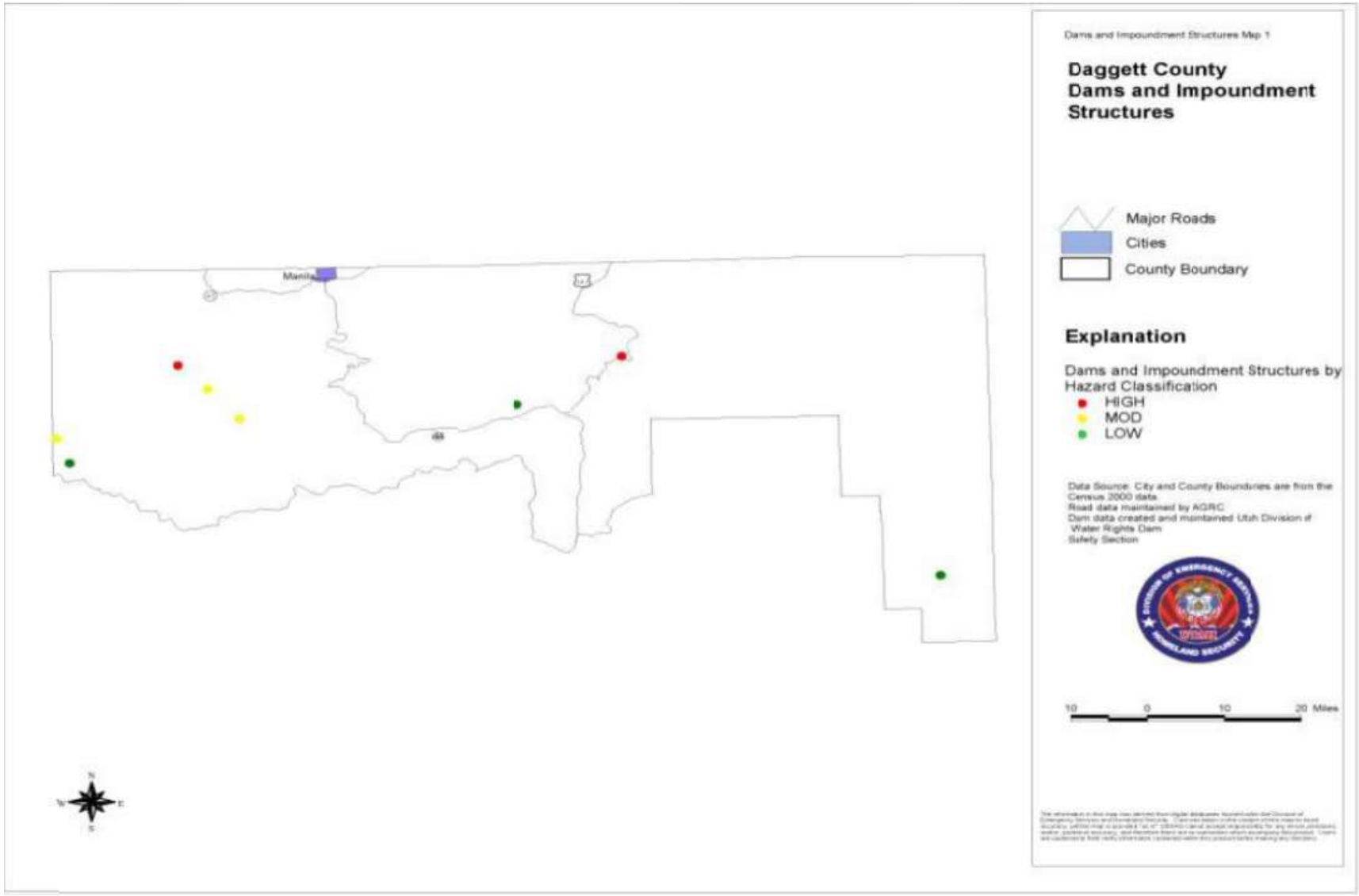
The following high hazard dams exist within Daggett County according to the Utah Division of Dam Safety database.

- Brownie Lake Dam
- East and West Green Lakes
- Flaming Gorge Dam
- Longs Park Dam
- Sheep Creek Lake Dam
- Spirit Lake Dam

Low-lying areas downstream of these dams are particularly at risk, if a dam were to fail.

Generic Mitigation:

- Proper mapping of flood plains, including mapping of dam breach flood potential.
- Knowledge must be made public so that emergency managers are aware and the public is aware when they buy and sell property.
- Updated Emergency Action Plans (EAP) and integration with GIS Systems.
- Maintaining proper flood plain and wetland geometry and vegetation will help route floods.
- Flood plain usage should be compatible with flood plain needs.
- More debris dams would help with floods and debris, and mud, and maintaining a flood control pool in existing dams would be beneficial.
- Protection of roads and bridges.
- General infrastructure protection.
- More authority to order releases and better forecasting would help in snowmelt floods and runoff.
- Gather hazard and risk data/information.
- Development of improved mitigation techniques.
- Education of local officials, developers, and citizens.


Dams and Impoundment Structures Map 1
Daggett County
Dams and Impoundment Structures
Major Roads
Cities
County Boundary
Explanation
Dams and Impoundment Structures by Hazard Classification
HIGH
MOD
LOW
Data Source: City and County Boundaries are from the Census 2000 data
Road data maintained by AGRC
Dam data created and maintained Utah Division of Water Rights Dam Safety Section
10 0 10 20 Miles

Natural Hazard: Earthquake

Table 6-3: FEMA Hazard Profile for Earthquake	
Frequency	Possible
Severity	Catastrophic
Location	Near fault lines of the County
Seasonal Pattern	Year - round
Duration	Minutes to hours
Speed of Onset	30 minutes or less (minimal or no warning)
Probability of Future Occurrences	Low

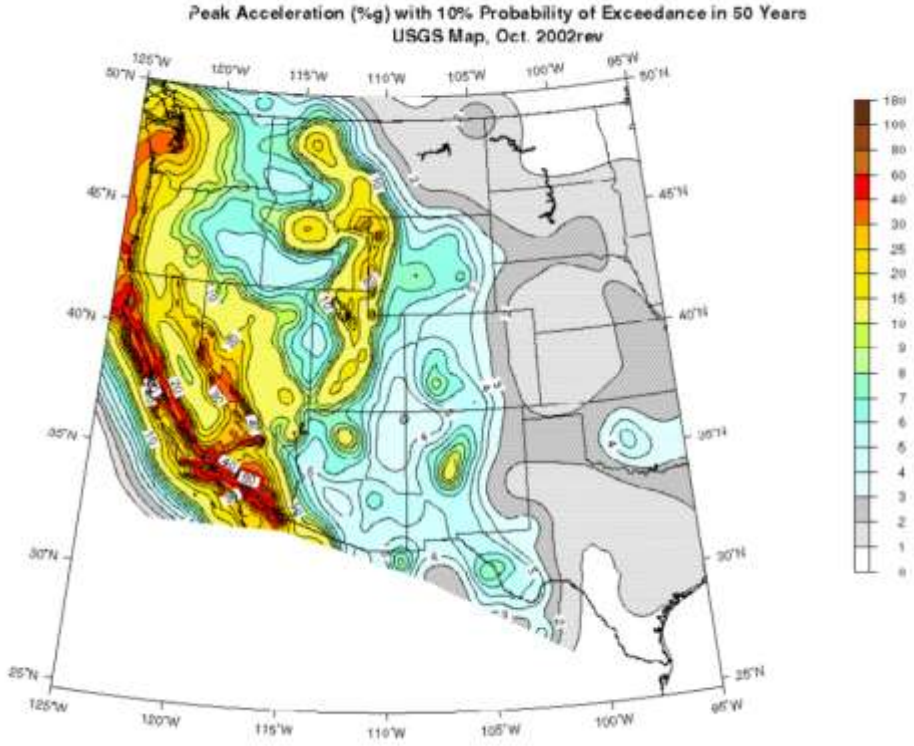
An earthquake is a sudden, rapid shaking of the Earth caused by the breaking and shifting of rock beneath the Earth's surface. This shaking can cause buildings and bridges to collapse; disrupt gas, electric, and phone service; and sometimes trigger landslides, avalanches, flash floods, fires, and huge destructive ocean waves (tsunamis). Buildings with foundations resting on unconsolidated landfill, old waterways, or other unstable soil are most at risk. Buildings or trailers and manufactured homes not tied to a reinforced foundation anchored to the ground are also at risk since they can be shaken off their mountings during an earthquake. Earthquakes can occur at any time of year.

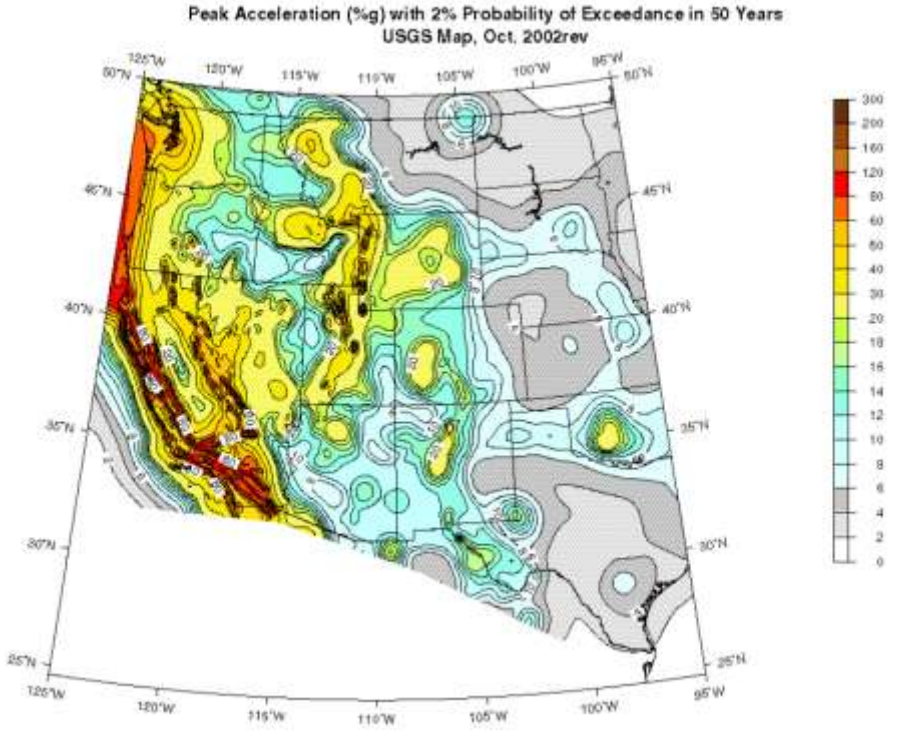
Daggett County is an area of limited seismic activity. The Pot Creek faults in eastern Daggett County are the only faults located within the County. This poorly understood group of faults has moved within the last 1.6 million years. However, because of the limited seismic danger Daggett County is zoned for little or no activity.

The maps on the following page shows the national Peak Ground Acceleration (PGA) values for the United States with a 10% chance of being exceeded over 50 years. This is a common earthquake measurement that shows three things: the geographic area affected (all colored areas on the map), the probability of an earthquake of each given level of severity (10% chance in 50 years or 2% chance in 50 years), and the severity (the PGA is indicated by color).

Determine the PGA zone(s) in which your planning area is located. This is done by identifying the color associated with your planning area and correlating it with the color key located on the map. Large planning areas may be located in more than one zone.

Peak ground acceleration (PGA) is a measure of the strength of ground movements. The PGA measures the rate in change of motion relative to the established rate of acceleration due to gravity (g) (980cm/sec/sec).


Peak Acceleration (%g) with 10% Probability of Exceedance in 50 Years
USGS Map, Oct. 2002rev


Peak Acceleration (%g) with 2% Probability of Exceedance in 50 Years
USGS Map, Oct. 2002rev

POTENTIAL AFFECT:

A potential earthquake could affect water, oil and gas produced for the Uintah Basin as well as the Wasatch Front. An earthquake could affect transportation and dams. Many homes in Daggett County were not built to meet earthquake standards.

Critical Facilities

The Disaster Mitigation Plan for Daggett County identifies critical facilities located in the County. A critical facility is defined as a facility in either the public or private sector that provides essential products and services to the general public, is otherwise necessary to preserve the welfare and quality of life in the County, or fulfills important public safety, emergency response, and/or disaster recovery functions. The critical facilities identified in the County were not located in the natural hazard area. *Due to data limitations, we were unable to map the location of the critical facilities in Daggett County.*

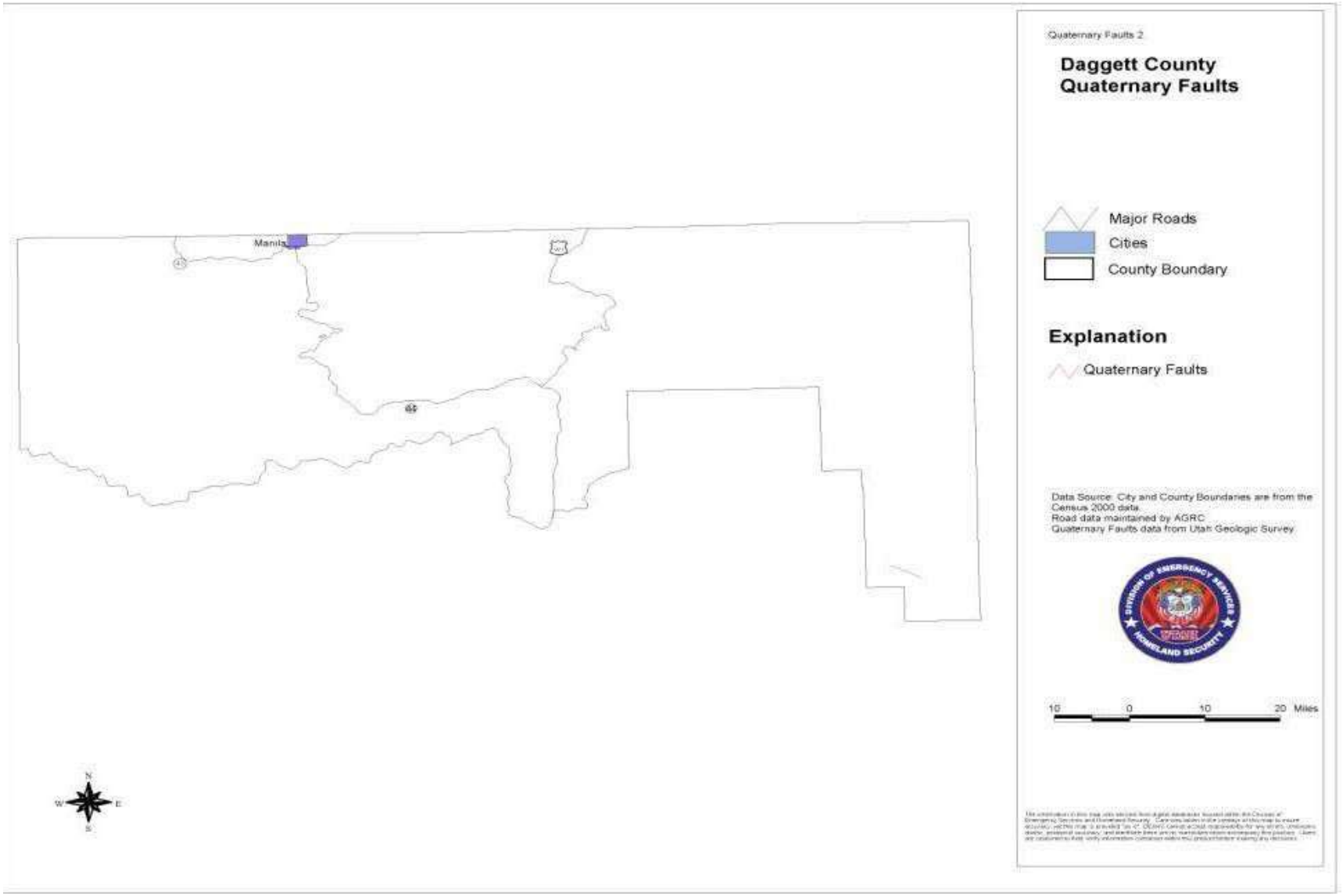
Table 6-4: Critical Facilities for Daggett County				
Classification	**Total**	**Least Moderate Damage >50%**	**Complete Damage >50%**	**Functionality >50% at day 1**
Hospitals	0	0	0	0
Schools	3	0	0	0
EOCs	1	0	0	0
Police Stations	1	0	0	0
Fire Stations	2	0	0	0

Generic Mitigation:

Generic Ground Shaking Mitigation
- Understand peak horizontal acceleration and recurrence interval.
- Design appropriately.
- Zoning ordinances and building codes.

Generic Liquefaction Mitigation
- Move soil out.
- Increase the density of soils in place.
- Remove ground water.
- Structural design.

Generic Surface Fault Rupture Mitigation
- Avoidance
- Zoning ordinances


Quaternary Faults 2
Daggett County
Quaternary Faults
Manila
Major Roads
Cities
County Boundary
Explanation
Quaternary Faults
Data Source: City and County Boundaries are from the Census 2000 data.
Road data maintained by AGRC
Quaternary Faults data from Utah Geologic Survey
10 0 10 20 Miles
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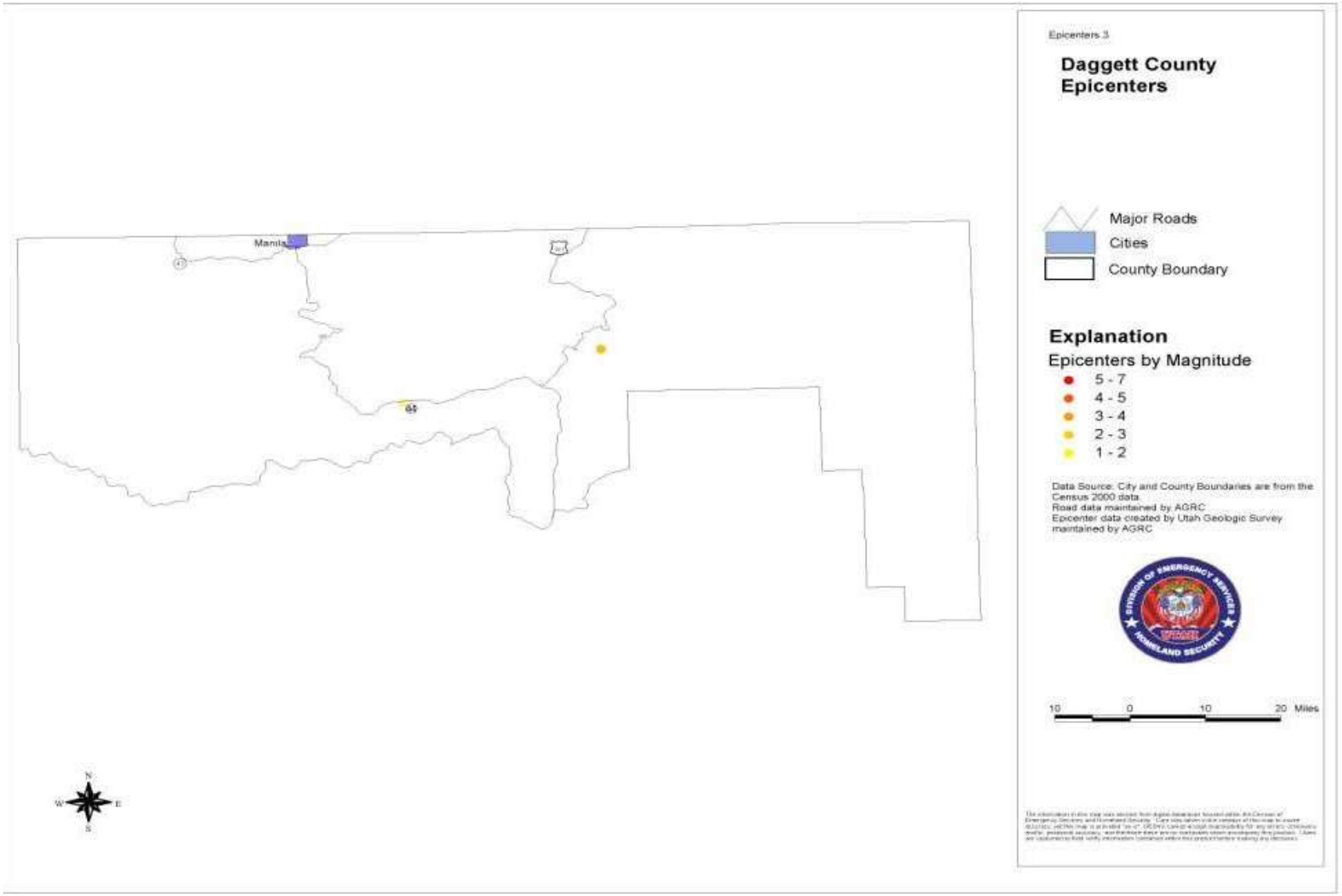
Epicenters 3
Daggett County Epicenters
Manila
Major Roads
Cities
County Boundary
Explanation
Epicenters by Magnitude
5 - 7
4 - 5
3 - 4
2 - 3
1 - 2
Data Source: City and County Boundaries are from the Census 2000 data.
Road data maintained by AGRC
Epicenter data created by Utah Geologic Survey maintained by AGRC
10 0 10 20 Miles
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E
S

Natural Hazard: Flooding

Table 6-5: FEMA Hazard Profile for Flooding	
Frequency	Likely
Severity	Critical
Location	Flooding would affect all communities in the county that are in and along the floodplain.
Seasonal Pattern	After spring rains, heavy thunderstorms, or spring thaws.
Duration	Rainstorms can last for hours and possibly days. Spring run-off can last weeks.
Speed of Onset	Six to twelve hours.
Probability of Future Occurrences	High

Floods are the most common and widespread of all natural disasters except fire. Most communities in the United States have experienced some kind of flooding after spring rains, heavy thunderstorms, or winter snow thaws.

Precipitation in Daggett County originates from two major sources. Moisture laden polar pacific air entering the area from the west or northwest during the winter produces large general storms, which most often result in heavy snowfall in the upper elevations and either snowfall or moderate intensity rainfall in the lower elevations.

The second major source of precipitation in the area arises from tropical air masses entering from the south and southwest out of the Gulf of Mexico during the summer months. Often wrongly referred to as monsoons these air masses cause high intensity convective cloudburst storms, which are augmented by the orthographic lifting which occurs as the air mass passes over neighboring mountains.

Precipitation from these two types of storms can produce flash floods, snowmelt floods, post wildfire/damaged watershed floods, and severe winter weather.

Using the best available data, members of the PDM update team were unable to determine vulnerable structures. Currently neither Daggett County nor the Town of Manila has flood plain maps. The majority of Manila's 401 homes sit down grade from the Sheep Creek Canal. This unlined earthen canal has failed before causing damage to the KOA camp ground on the western edge of Manila.

Using GIS technology and flow velocity Town models, it would be possible to map the damage that can be expected from flood events over time. It is also possible to pinpoint the effects of certain flood events on individual properties.

At this time, data was insufficient to conduct a risk analysis for flood events in Daggett County. However, the current mapping projects being led by the county and by the state will result in better data that will assist in understanding risk. As part of its efforts to mitigate hazards and protect lives and property from the devastating effects of natural disasters, FEMA aims to provide individuals, businesses, and communities with information and tools to work proactively to mitigate hazards and prevent losses resulting from disasters. One of these tools is HAZUS or Hazards U.S., a natural hazard loss estimation methodology developed by FEMA under contract with the National Institute of Building Sciences. Using Geographic Information Systems (GIS) technology, HAZUS allows users to compute estimates of damage and losses that could result from an earthquake. To support FEMA's mitigation and emergency preparedness efforts, HAZUS is being expanded into HAZUS-MH, a multi-hazard methodology with new modules for estimating potential losses from wind and flood (riverine and coastal) hazards.

Reoccurring Flood Hazards: None

Generic Mitigation:

- Avoidance
- Better flood routing through communities.
- Annual warning of risk information on how to protect property and lives.
- Flood insurance awareness, emphasis, and marketing.
- Projects such as levees/dams.
- Funding by a storm water tax in cooperation with Federal and State programs.
- Additional SNOTEL sites and enhanced instrumentation.
- Protection of roads and bridges.
- Greater reservoir capacities.
- Curtail development in flood-prone areas.
- General infrastructure protection.
- Develop river corridor parkways.
- Protection of wastewater treatment facilities from excessive inflows.
- Protection of drinking water supply systems.
- Gather hazard and risk data/information.
- Development of improved mitigation techniques.
- Education of local officials, developers, and citizens.

Natural Hazard: Landslide

Table 6-6: FEMA Hazard Profile for Landslide	
Frequency	Likely
Severity	Limited
Location	Carter Creek and Sheep Creek roads.
Seasonal Pattern	After spring rains, heavy thunderstorms, or spring thaws.
Duration	Depending upon conditions
Speed of Onset	Minimal or no warning.
Probability of Future Occurrences	Low

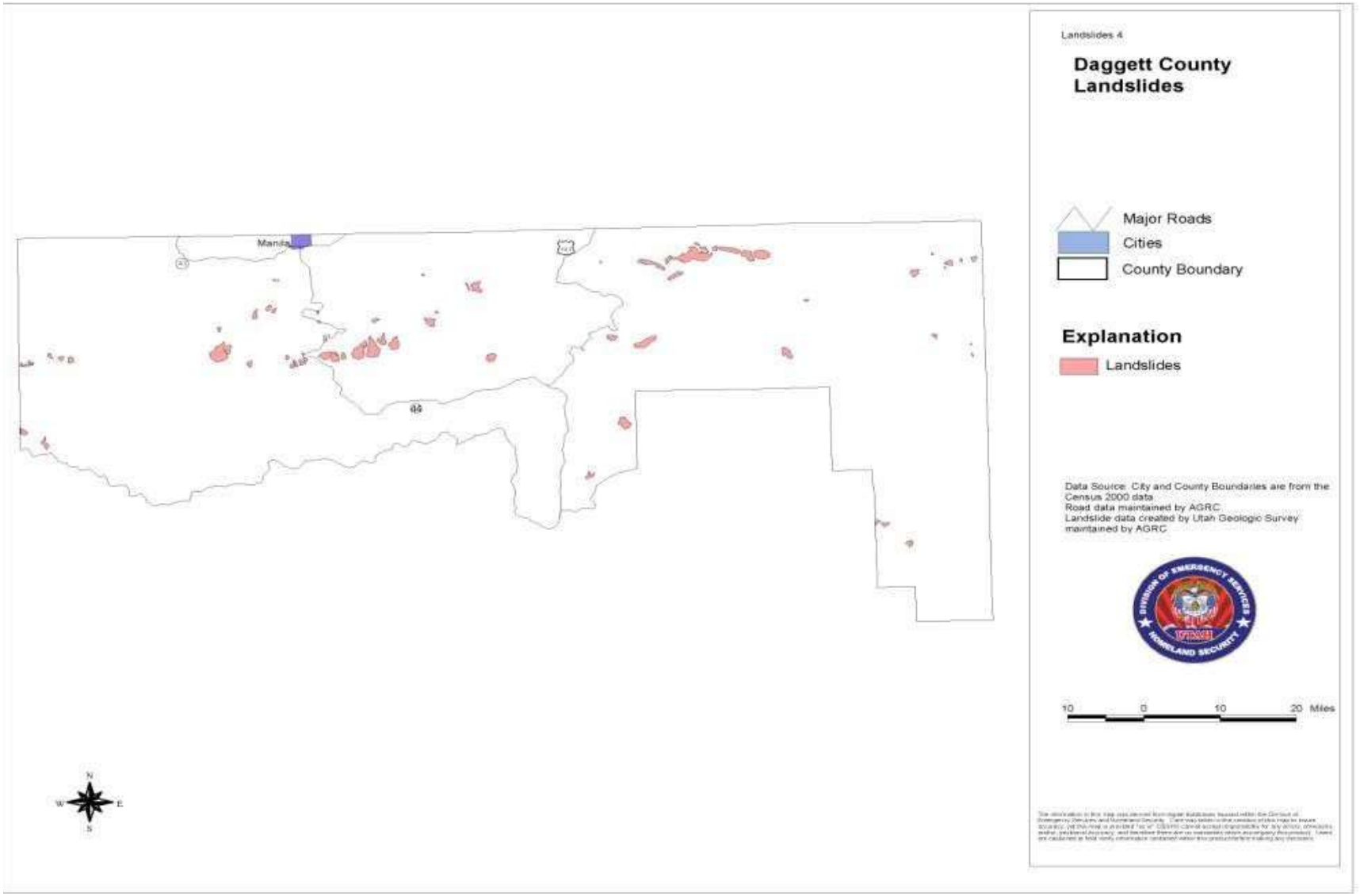
Overall Summary of Impacts

The Uintah Basin Association of Governments identified and mapped possible landslide threats to Daggett County that would have a potential risk to pedestrians, vehicle traffic, and residential areas. In Daggett County there are several areas namely Carter Creek that could have a potential risk to pedestrians and vehicle traffic due to landslides. Based upon the information we had available at that time we were unable to come up with any hard value figures that these landslides would have on Daggett County. In Daggett County there are approximately 12.8 residential structures at potential risk from landslide. Based upon figures provided by the Daggett County Assessor's Office, the market value of those structures is estimated to be $960,000.

Daggett County contains approximately 5,551 acres of historically active landslides recorded from 1847 to the present time. Within that area are approximately 12.8 households and land worth $960,000. There is approximately 4.07 miles of local roads and .4154 miles of state route 44 located in the affected areas. The estimated cost to replace these roadways is $8.14 million and $1.00 million respectively. This data represents total length of roads and rail lines within the affected areas. In addition, there is approximately .747 miles of power lines located within the historically active landslide areas; with an estimated replacement cost of $36,065.

Generic Mitigation:

- Avoidance
- Recognize landslide area
- Zoning ordinances
- Remove landslide materials
- Drain subsurface materials
- Install surface drains
- Remove materials for the head of the landslide.
- Re-grade.
- Build buttress or retaining wall at the toe of the slope.
- Install soil nails and rock anchors.
- Maintain natural vegetation.


Landslides 4
Daggett County
Landslides
Major Roads
Cities
County Boundary
Explanation
Landslides
Data Source: City and County Boundaries are from the Census 2000 data
Road data maintained by AGRC
Landslide data created by Utah Geologic Survey maintained by AGRC
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Natural Hazard: Wildfire

Table 6-7: FEMA Hazard Profile for Wildfire	
Frequency	Highly Likely
Severity	Catastrophic
Location	Daggett County
Seasonal Pattern	June through October
Duration	Depending upon conditions; minutes to days to months.
Speed of Onset	Minimal or no warning.
Probability of Future Occurrences	High

There are three different classes of wild land fires. A **surface fire** is the most common type and burns along the floor of a forest, moving slowly and killing or damaging trees. A **ground fire** is usually started by lightning and burns on or below the forest floor. **Crown fires** spread rapidly by wind and move quickly by jumping along the tops of trees. Wild land fires are usually signaled by dense smoke that fills the area for miles around.

A Word about Wildfires

Almost every year several communities around the state are flooded and/or affected by post burn debris flows. Wildfire damaged watersheds have conditions which increase the potential for debris flows which may damage structures and infrastructure in the impacted area. Overall, the heightened risk associated with alluvial fans is always of concern. Post fire re-vegetation and stabilization efforts in many cases do not alleviate the threat due to flooding and debris flow.

Generic Mitigation:

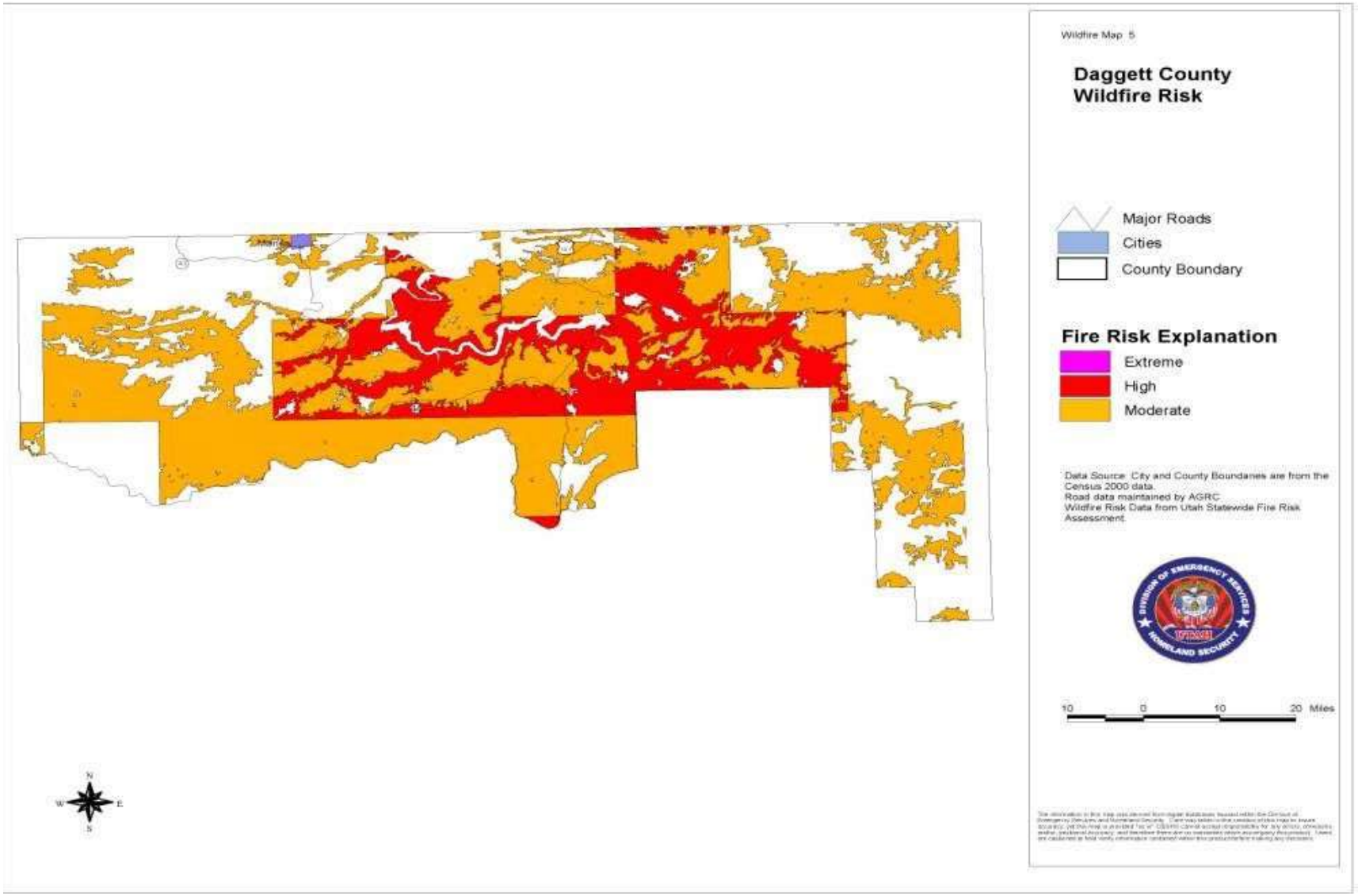
- Avoidance.
- Define, create, and maintain a defensible space.
- Plant drought and fire resistant vegetation.
- Ordinances.

Table 6-8: Daggett County Wildfire Vulnerability				
	Acres of Extreme	Acres of High	Acres of Moderate	Acres of Low / Very Low
Daggett County	N/A	67,693	204,401	189,792
Town of Manila	None	None	93	None
	Households in Extreme / Cost	Households in High / Cost	Households in Moderate / Cost	
Daggett County	None	159 / $9,540,000	479 / $28,740,000	
Town of Manila	None	None	72 / $4,320,000	

*Excludes content value of households, which would result in an increase of 50% for values listed.

Table 6-9: Daggett County Wildfire Vulnerability for Transportation & Utilities		
Transportation		
Name	Miles	Estimated Cost
Local Neighborhood / Town Roads	218.1	$436,200,000
State Route 43	1.18	$2,847,930
State Route 44	21.31	$51,431,685
US Highway 191	21	$50,683,500
Utilities		
Name	Description	Estimated Cost
Flaming Gorge	Power Generation	$50,000,000
Power Lines	53.45 miles	$2,580,566
KV-230	4.25 miles	$205,190
Natural Gas	6.41 miles of Questar	$1,547,309

Table data includes road lengths within areas determined to have an extreme, high, or moderate risk to wildfire as determined by the Utah Statewide Fire Risk Assessment.


Wildfire Map 5
Daggett County
Wildfire Risk
Major Roads
Cities
County Boundary
Fire Risk Explanation
Extreme
High
Moderate
Data Source: City and County Boundaries are from the Census 2000 data.
Road data maintained by AGRC
Wildfire Risk Data from Utah Statewide Fire Risk Assessment
10 0 10 20 Miles
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Mitigation Capabilities of Daggett County

This portion of the Plan assesses Daggett County's current capabilities to mitigate the effects of the natural hazards identified within the plan. The assessment includes an examination of the following local government capabilities:

1. Staff & Organizational Capability
2. Technical Capability
3. Development Trends
4. Fiscal Capability
5. Policy and Program Capabilities
6. Political Willpower

The capabilities assessment serves as the foundation for designing an effective hazard mitigation strategy. It not only helps establish the goals and objectives for Daggett County to pursue under this Plan, but also ensures that those goals and objectives are realistically achievable under given local conditions.

1. Staff and Organizational Capability
Daggett County has **Very Limited** staff and organizational capability to implement hazard mitigation strategies. Daggett County is Utah's least populated county, containing only 1,059 people. While the County has a number of professional staff members to serve residents and carry out day-to-day administrative activities, much of the staff is part time or is tasked with numerous duties.

The County of Daggett does have an Emergency Manager who is responsible for the mitigation, preparedness, response and recovery operations that deal with both natural and man-made disaster events.

2. Technical Capability
Daggett County has **very limited** technical capability to implement hazard mitigation strategies.

Technical Expertise
Daggett County does have an, emergency manager to administer the County's hazard mitigation programs. The County does not have a licensed engineer or related technical expert on staff, and has in the past relied upon outside contractors/consultants to perform a majority of any required technical work.

Internet Access
Daggett County does provide its employees and citizens with high speed broadband Internet. Internet access opens up an enormous door for local officials to keep abreast of the latest information relative to their work and makes receiving government services more affordable and convenient. It is believed that Internet access will help further the County's hazard mitigation awareness programs, but should be supplemented with more traditional (and less technical) means as well.

3. Development Trends
Daggett County is approximately 90% federal land. Out of the remaining 10% around 8% is used for agricultural purposes. This leaves approximately 2% of the land available for development. Therefore, future development in Daggett County will be minimal.

4. Fiscal capability
Daggett County has **very limited** fiscal capability to implement hazard mitigation strategies. Under the Disaster Mitigation Act of 2000, FEMA has made special accommodations for "small and impoverished communities", who will be eligible for a 90% Federal share, 10% non-Federal cost split for projects funded through the Pre-Disaster Mitigation Grant Program. Daggett County is not yet classified as small and impoverished but it is thought they meet the requirements.

5. Policy and program capability

Emergency Operations Plan
Daggett County has developed and adopted an Emergency Operations Plan, which predetermines actions to be taken by government agencies and private organizations in response to an emergency or disaster event. The Plan was adopted April 12, 2000. For the most part, the Plan describes the County's capabilities to respond to emergencies and establishes the responsibilities and procedures for responding effectively to the actual occurrence of a disaster. The Plan does not specifically address hazard mitigation, but it does identify the specific operations to be undertaken by the County to protect lives and property immediately before, during and immediately following an emergency. There are no foreseeable conflicts between this Hazard Mitigation Plan and Daggett County's Emergency Management Plan, primarily because they are each focused on two separate phases of emergency management (mitigation vs. preparedness and response).

Floodplain Management Plan
Daggett County does currently participate in the National Flood Insurance Program. However, FEMA has yet to complete the 100 year floodplain mapping for Daggett County.

Storm water Management Plan
Daggett County Currently has no formal Storm water Management Plan.

County Ordinances
The Daggett County currently does not have any county ordinance that addresses natural disasters. However, the planning committee was in attendance at our Natural Disaster meetings and agreed to work on implementing and adopting new County Ordinances that are relevant to hazard mitigation.

6. Political Willpower

Most Daggett County residents are quite knowledgeable about the potential hazards that their community faces. Recent wildfires have increased the understanding and need for mitigation within the government structure of Daggett County.

The Uintah Basin Association of Governments used historical data to estimate to the best of their ability (with the data available at the time) the potential dollar losses if the County were to experience flooding and wildfires, the two most likely hazards to occur in the County. The estimated costs are as follows:

Potential flood losses:
At this time, data was insufficient to conduct a loss analysis for flood events in Daggett County. However, the current mapping projects being led by the county and by the state will result in better data that will assist in understanding potential losses due to flooding.

Potential wildfire losses:
At this time, data was insufficient to conduct a loss analysis for wildfire events in Daggett County. However, the current mapping projects being led by the county and by the state will result in better data that will assist in understanding potential losses due to wildfires. Wildfires pose little threat to the residential and commercial properties, as well as, the local school system located within Daggett County.

DAGGETT COUNTY – COMMUNITY HAZARD MITIGATION GOALS AND STRATEGIES

The following goals were identified to direct community hazard mitigation strategies. These goals were developed based on the input from the Uintah Basin Regional Pre-Disaster Mitigation Technical Planning Team and input from the elected officials that comprise the Uintah Basin Association of Governments Board of Directors.

Goal #1: Protect Current Residents and Property

- Improve emergency response capabilities.
- Improve the disaster resistance of existing infrastructure and critical facilities.
- Build capacity of citizens to undertake mitigation activities through education and training.
- Build technical GIS and analysis capacity for communities to help identify hazards and risks to hazards.

Goal #2: Protect Future Residents and Property

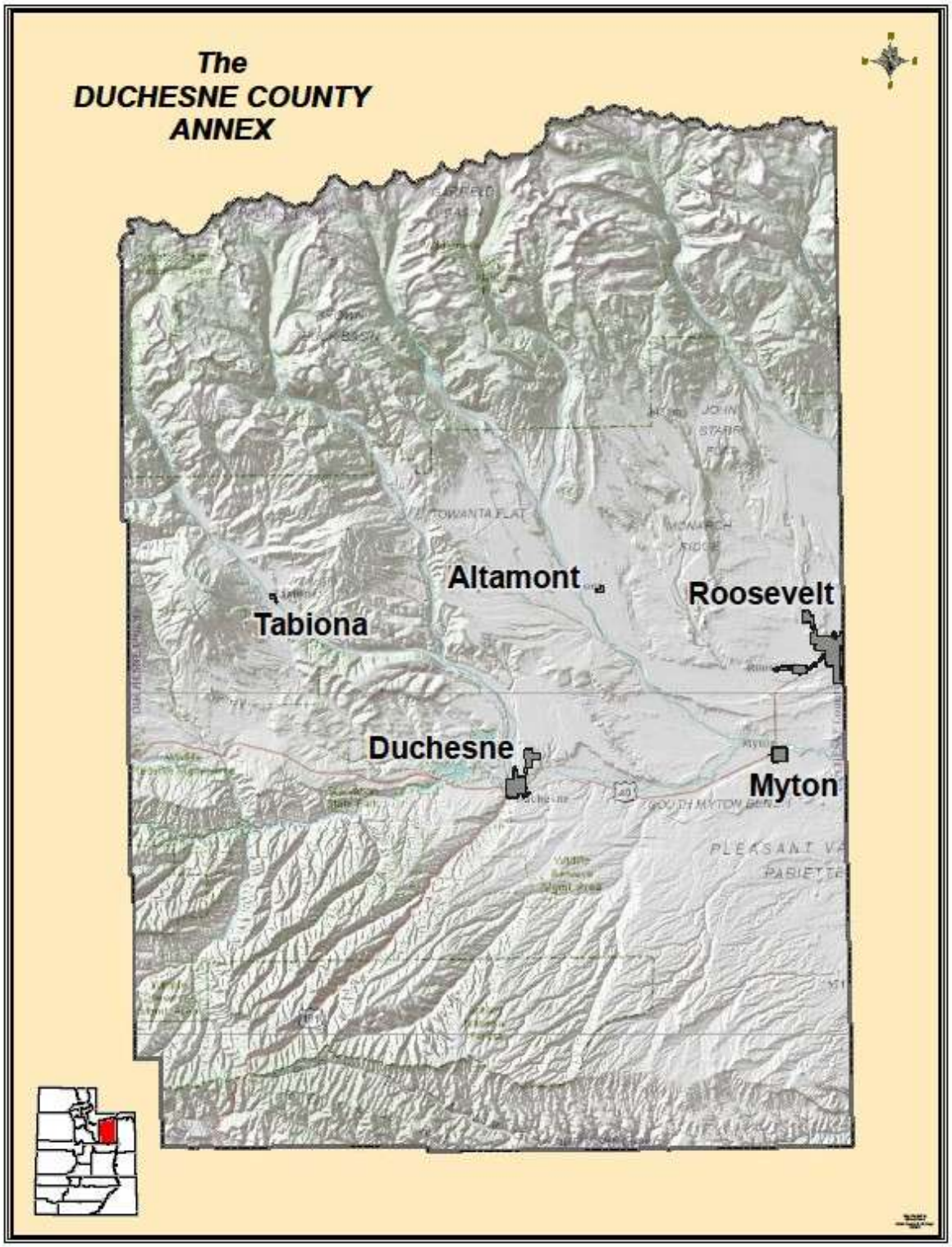
- As appropriate, develop and implement regulatory mechanisms to ensure new development activities will not increase the risk to life or property from natural hazards.
- Build technical GIS and analysis capacity for communities to help identify hazards and risk to hazards for future residents and their property.
- Empower future citizens to make informed choices through access to better data and more resources.

To accomplish these goals, specific mitigation strategies were developed by participating jurisdictions with assistance from working groups and UBAOG staff. These strategies were assigned a priority of high, medium, or low by communities and through UBAOG staff assistance according to the following criteria:

- Potential number of people protected by the project
- Technical feasibility
- Political support
- Available funding and priorities
- Environmental impacts

A guiding factor in prioritizing mitigation strategies was the principle that mitigation should provide the greatest amount of good to the greatest number of people, after considering funding opportunities and constraints. Recurrence intervals, past events, and damage estimates compiled during the assessment of vulnerability in this plan were also considered for priority and timeline values. While there was not a technical benefit-cost analysis regarding mitigation strategies during this planning process, the above criteria were considered for prioritization.

SECTION 7:


The
DUCHESNE COUNTY
ANNEX
Altamont
Roosevelt
Tabiona
Duchesne
Myton

Past Hazard Events in Duchesne County

Understanding the past is often the key to discovering what the future holds; this is especially true when planning for natural disasters. The fact that cities within Duchesne County have experienced, for example, flooding in the past means flooding can occur in the future. While over time some of this has been mitigated for the low frequency of occurrence often results in hazards with little or no mitigation. Table 7-1 provides a brief history of Duchesne County natural disasters. This table includes only sizable events found during our research, and may not represent the total history.

Table 7-1: Duchesne County Natural Disaster History

Hazards	Date	Location	Critical Facility or Area Impacted	Comments
Flood	September 13, 1940	Duchesne	Damage to Indian Canyon and roads flooded	No loss of life
Flood	August 7, 1941	Mountain Home	Destroyed bridges washed out road over Kofford wash and caused damage in Rock Creek	No loss of life
Flood	August 7, 1945	Strawberry Creek area	Damage to roads, ranches, and irrigation diversions near Strawberry Creek	No loss of life
Flood	August 1, 1953	Sowers Canyon	Damages to farm house and 200 acres	No loss of life
Flood	August 5, 1957	Tabiona/Hanna	Damage to homes, roads, farms, and crops	No loss of life
Flood	September 2, 1960	Hanna	Flood homes and damaged approximately 100 acres of farmland	No loss of life
Flood	August 11, 1969	Duchesne	Damage to town due to flooding	No loss of life
Landslide	October 6, 1997	2 ½ miles South	Damage threat to a	No loss of life

		East of Bluebell	main county road as well as a significant traffic hazard	
Wildfire	August 28, 2005	Eastern Duchesne County	1500 acres burned with damages to a home in the area	No loss of life
Wildfire	Summer 2007	NE along the Uintah/Daggett County line in the Ashley National Forest	Burned more than 32,000-acres	3 deaths
Wildfire	July 2008	15 North of Helper Utah	668 acre burned with no danger to homes or campgrounds	1 injured firefighter, no loss of life
Flood	Spring 2011	County wide	County wide flooding damages	1 death

Duchesne County identified five natural hazards they wanted addressed in the Duchesne County portion of this multi-jurisdictional plan. Through input of the planning committee the following hazards were identified:

- Dam Failure
- Earthquakes
- Flooding
- Landslides
- Wildfire

In identifying these hazards the PDM planning committee relied on technical experts, public input, research of past events, and risk assessments completed by the county emergency manager for their Pre-Disaster Mitigation Plan.

The Duchesne County Disaster Mitigation Planning committee consisted of one County Commissioner, the Mayor of Duchesne, the Mayor of Altamont, the Mayor of Tabiona, the Roosevelt City Manager, the Mayor of Myton, the County Emergency Manager and the Uintah Basin Association of Governments planning Coordinator.

Natural Hazard: Dam Failure

Table 7-2: FEMA Hazard Profile for Dam Failure	
Frequency	Unlikely
Severity	Catastrophic
Location	Entire County
Seasonal Pattern	Spring
Duration	Several months to over one year.
Speed of Onset	30 minutes or less (minimal or no warning)
Probability of Future Occurrences	High

A Word about Dams

Dams are a critical support function for water managers in the State and also act as a flood control measure. If a dam remains stable, does not get overtopped, or is not impaired as the result of an earthquake, then, at a minimum, they do provide incidental flood control. If not then they can add to the flood threat. There are 117 dams within Uintah Basin of these 20 have received an high hazard rating by Utah Division of Water Rights Dam Safety section. The State Dam Safety Section has developed a hazard rating system for all non-federal dams in Utah. Downstream uses, size, height, volume, and incremental risk/damage assessments are a variable used to assign dam safety classification. Using the hazard ratings systems developed by the State Dam Safety Section, dams are placed into one of three classifications high, moderate, and low. Dams receiving a low rating would have insignificant property loss due to dam failure. Moderate hazard dams would cause significant property loss in the event of a breach. High hazard dams would cause a possible loss of life in the event of a rupture. The frequency of dam inspection is designated based on hazard rating with the Division of Water Rights inspecting high-hazard dams annually, moderate hazard dams bi-annually, and low-hazard dams every five years.

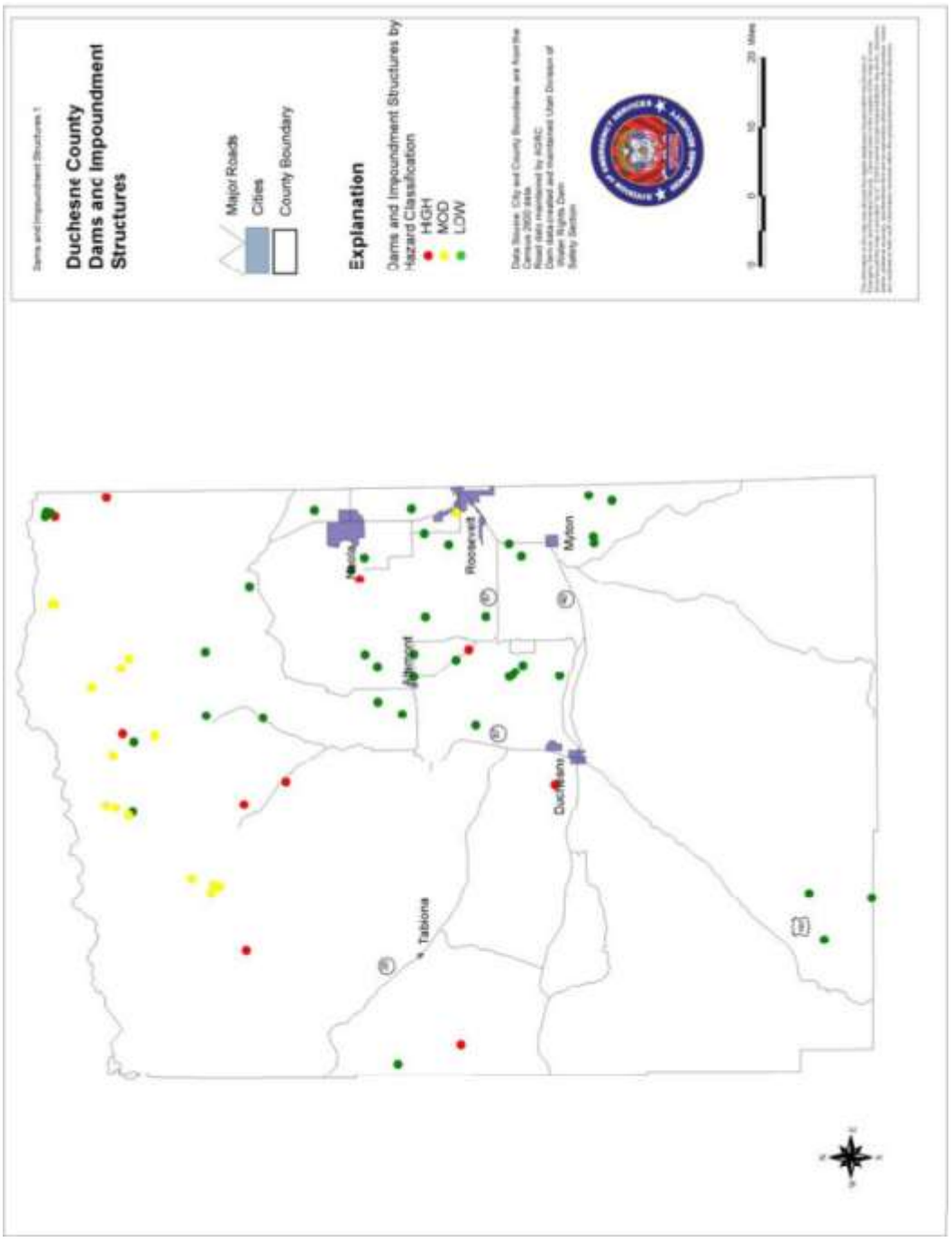
VULNERABLITY: High

Description of Hazard

The following high hazard dams exist within Duchesne County according to the Utah Division of Dam Safety database:

- Cliff Lake
- Browns Draw
- Starvation
- Twin Pots
- Moon Lake
- East Timothy
- Red Creek
- Chepeta Lake
- Stillwater
- Big Sand Wash

The following map illustrates the location of each dam. Low lying areas downstream of these dams are particularly at risk, if a dam were to fail.



Generic Mitigation:

- Proper mapping of flood plains, including mapping of dam breach flood potential.
- Knowledge must be made public so that emergency managers are aware and the public is aware when they buy and sell property.
- Updated Emergency Action Plans (EAP) and integration with GIS Systems.
- Maintaining proper flood plain and wetland geometry and vegetation will help route floods.
- Flood plain usage should be compatible with flood plain needs.
- More debris dams would help with floods and debris, and mud, and maintaining a flood control pool in existing dams would be beneficial.
- Protection of roads and bridges.
- General infrastructure protection.
- More authority to order releases and better forecasting would help in snowmelt floods and runoff.
- Gather hazard and risk data/information.
- Development of improved mitigation techniques.
- Education of local officials, developers, and citizens.

Natural Hazard: Earthquake

Table 7-3: FEMA Hazard Profile for Earthquake	
Frequency	Unlikely
Severity	Catastrophic
Location	Near fault lines of the County
Seasonal Pattern	Year - round
Duration	Minutes to hours
Speed of Onset	30 minutes or less (minimal or no warning)
Probability of Future Occurrences	Low

An earthquake is a sudden, rapid shaking of the Earth caused by the breaking and shifting of rock beneath the Earth's surface. This shaking can cause buildings and bridges to collapse; disrupt gas, electric, and phone service; and sometimes trigger landslides, avalanches, flash floods, and fires. Buildings with foundations resting on unconsolidated landfill, old waterways, or other unstable soil are most at risk. Buildings or trailers and manufactured homes not tied to a reinforced foundation anchored to the ground are also at risk since they can be shaken off their mountings during an earthquake. Earthquakes can occur at any time of year.

Duchesne County contains the Towanta Flat Graben and the Duchesne Pleasant Valley Fault system. The Duchesne Pleasant valley system is a poorly understood system with fault traces running east and west. This east west orientation is at odds with contemporary tectonic stress regimes so it has not been determined if this fault could produce a large magnitude earthquake or not. Research indicates the Towanta Flat fault last moved in the mid to late Quaternary period.

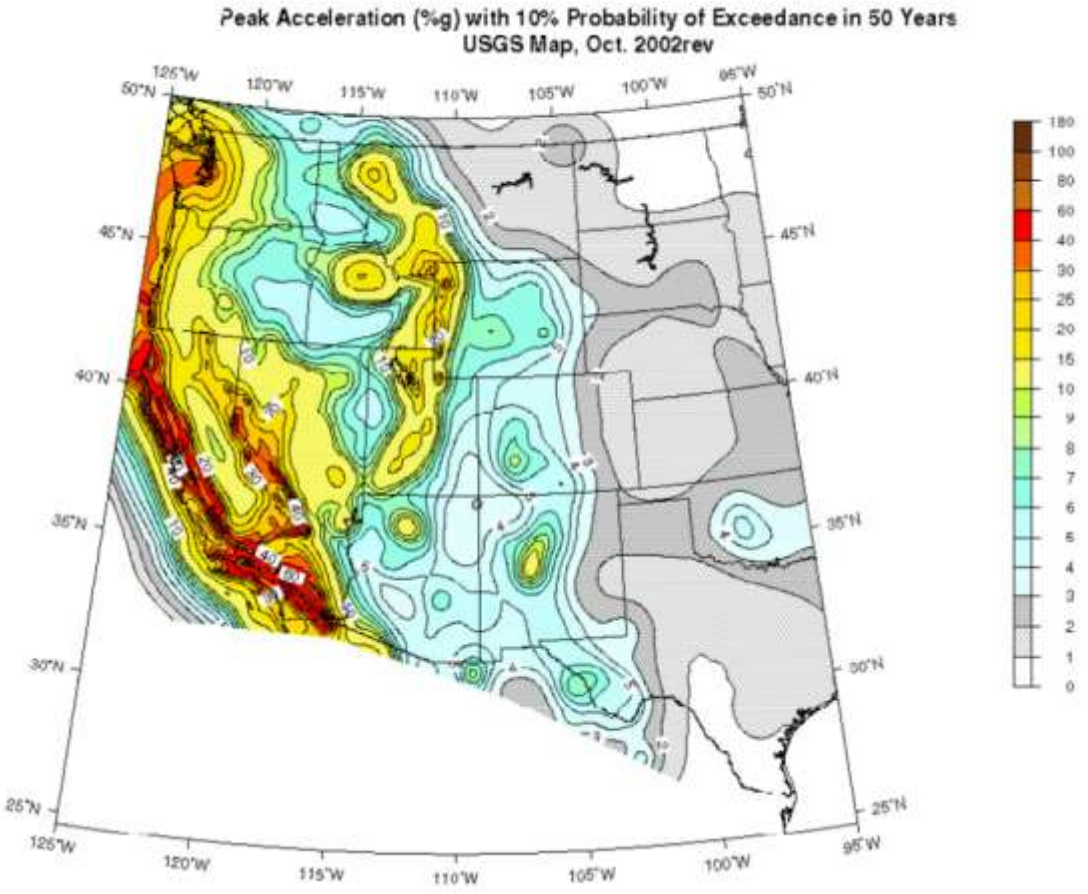
Duchesne County is an area of limited seismic hazard due to the long recurrence intervals along the Towanta Flat and Pleasant Valley Fault zones. Duchesne being zoned for little or no seismic activity is warranted.

VULNERABILITY: Low

The following maps show the national Peak Ground Acceleration (PGA) values for the United States with a 10% chance of being exceeded over 50 years. This is a common earthquake measurement that shows three things: the geographic area affected (all colored areas on the map), the probability of an earthquake of each given level of severity (10% chance in 50 years or 2% chance in 50 years), and the severity (the PGA is indicated by color).

Determine the PGA zone(s) in which your planning area is located. This is done by identifying the color associated with your planning area and correlating it with the color key located on the map. Large planning areas may be located in more than one zone.

Peak ground acceleration (PGA) is a measure of the strength of ground movements. The PGA measures the rate in change of motion relative to the established rate of acceleration due to gravity (g) (980cm/sec/sec).


Peak Acceleration (%g) with 10% Probability of Exceedance in 50 Years
USGS Map, Oct. 2002rev
125°W
120°W
115°W
110°W
105°W
100°W
95°W
50°N
45°N
40°N
35°N
30°N
25°N
180
100
80
60
40
30
25
20
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9
8
7
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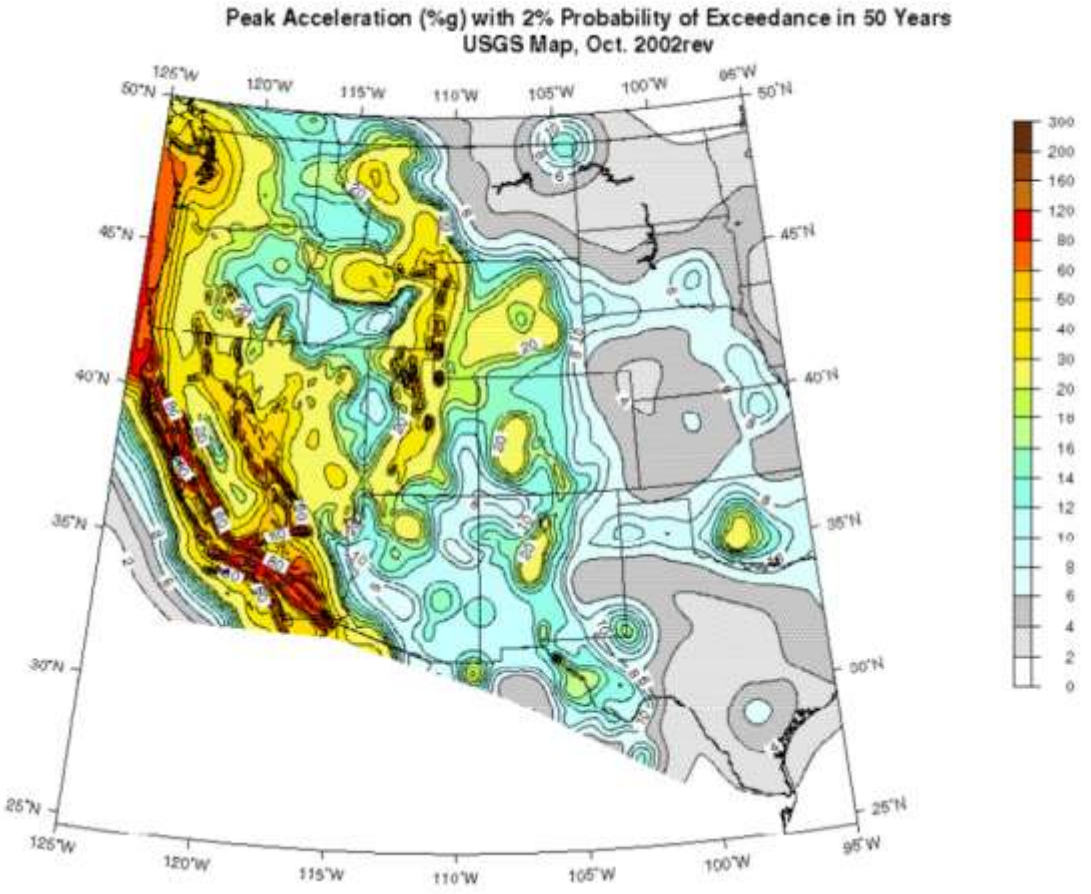
4
3
2
1
0



POTENTIAL AFFECT:

A potential earthquake could affect water, oil and gas produced for the Uintah Basin as well as the Wasatch Front. An earthquake could affect transportation and dams. Many homes in Duchesne County were not built to meet earthquake standards.

Critical Facilities

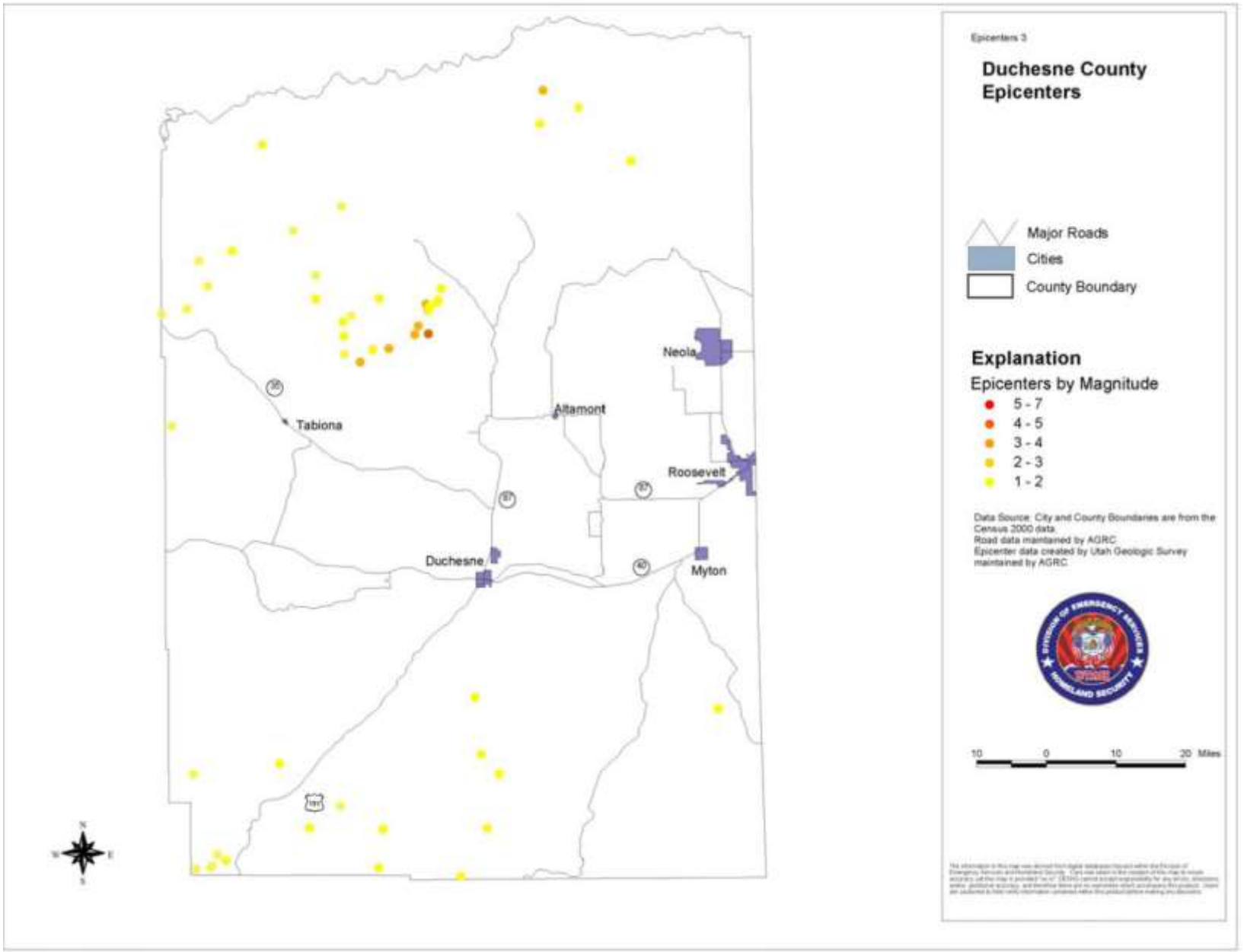
The Disaster Mitigation Plan for Duchesne County identifies critical facilities located in the County. A critical facility is defined as a facility in either the public or private sector that provides essential products and services to the general public, is otherwise necessary to preserve the welfare and quality of life in the County, or fulfills important public safety, emergency response, and/or disaster recovery functions. *Due to data limitations, we were unable to map the location of the critical facilities in Duchesne County.*

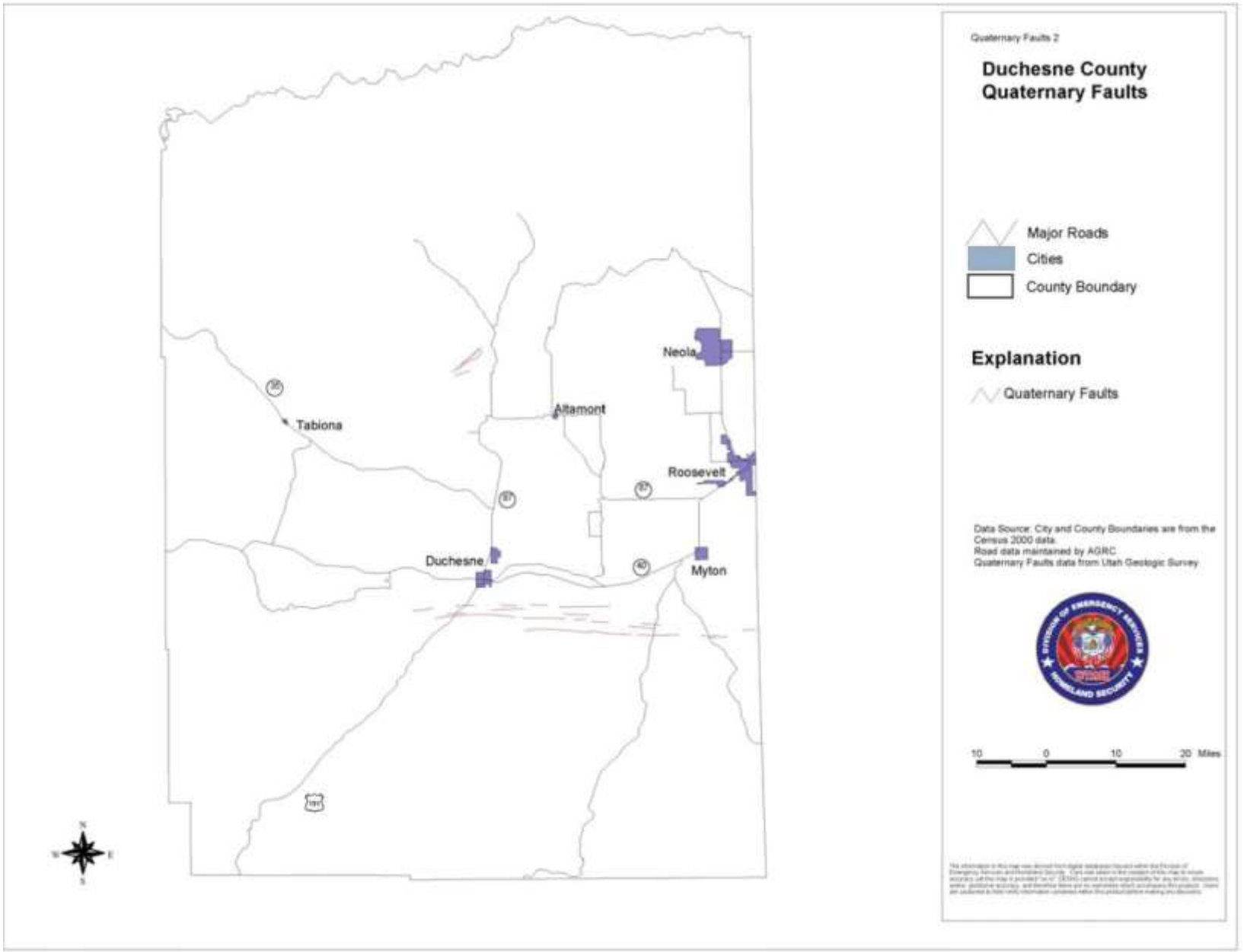
Table 7-4: Critical Facilities for Duchesne County				
Classification	**Total**	**Least Moderate Damage >50%**	**Complete Damage >50%**	**Functionality >50% at day 1**
Hospitals	1	0	0	1
Schools	16	0	0	2
EOCs	1	0	0	0
Police Stations	2	0	0	1
Fire Stations	5	0	0	1

Generic Mitigation:

- Avoidance
- Build all homes and building's to meet the standards and code of earthquakes. County adopts building codes on all new construction.
- Educate the public on potential hazards.
- Working with local LEPC on exercising plans in existence.
- Educate local school systems to utilize LEPC.

The following maps identify Epicenters and Quaternary Faults and give an explanation for each in Duchesne County.


Epicenters 3
Duchesne County Epicenters
Major Roads
Cities
County Boundary
Explanation
Epicenters by Magnitude
5 - 7
4 - 5
3 - 4
2 - 3
1 - 2
Data Source: City and County Boundaries are from the Census 2000 data.
Road data maintained by AGRC.
Epicenter data created by Utah Geologic Survey maintained by AGRC.
10 0 10 20 Miles
Neola
Tabiona
Altamont
Roosevelt
Duchesne
Myton


Quaternary Faults 2
Duchesne County
Quaternary Faults
Major Roads
Cities
County Boundary
Explanation
Quaternary Faults
Neola
Altamont
Tabiona
Roosevelt
Duchesne
Myton
Data Source: City and County Boundaries are from the Census 2000 data.
Road data maintained by AGRC.
Quaternary Faults data from Utah Geologic Survey
10 0 10 20 Miles

Natural Hazard: Flooding

Table 7-5: FEMA Hazard Profile for Flooding	
Frequency	Likely
Severity	Limited
Location	Flooding would affect all communities in the county that are in and along the floodplain.
Seasonal Pattern	After spring rains, heavy thunderstorms, or spring thaws.
Duration	Rainstorms can last for hours and possibly days. Spring run-off can last weeks.
Speed of Onset	Six to twelve hours.
Probability of Future Occurrences	High

Floods are the most common and widespread of all natural disasters except fire. Most communities in the United States have experienced some kind of flooding after spring rains, heavy thunderstorms, or winter snow thaws.

A flood, as defined by the National Flood Insurance Program is: "A general and temporary condition of partial or complete inundation of two or more acres of normally dry land area or of two or more properties (at least one of which is your property) from:

- Overflow of inland or tidal waters.
- Unusual and rapid accumulation or runoff of surface waters from any source, or
- A mudflow.

[The] collapse or subsidence of land along the shore of a lake or similar body of water as a result of erosion or undermining caused by waves or currents of water exceeding anticipated cyclical levels that result in a flood."

Floods can be slow or fast rising but generally develop over a period of days. Mitigation includes any activities that prevent an emergency, reduce the chance of an emergency happening, or lessen the damaging effects of unavoidable emergencies. Investing in mitigation steps now, such as, engaging in floodplain management activities, constructing barriers, such as levees, and purchasing flood insurance will help reduce the amount of structural damage to your home and financial loss from building and crop damage should a flood or flash flood occur. Source: http://www.fema.gov/hazards/floods/

Vulnerability: High

Reoccurring Flood Hazards: None

Generic Mitigation:

- Avoidance
- Revise and up-date building ordinances for new construction that takes place to help eliminate bridges and buildings from being washed away.
- Manufactured homes need to be installed properly and inspected.
- Enforce zoning
- Protection of roads and bridges.
- Protection of drinking water supply systems.
- Education of local officials, developers, and citizens.
- Better flood routing through communities.
- Development of improved mitigation techniques.

Natural Hazard: Landslide

Table 7-6: FEMA Hazard Profile for Landslide	
Frequency	Likely
Severity	Limited
Location	Dye Dugway, Indian Canyon, Ravola Dugway, and Wolf Creek Pass in Duchesne County.
Seasonal Pattern	After spring rains, heavy thunderstorms, or spring thaws.
Duration	Depending upon conditions
Speed of Onset	Minimal or no warning.
Probability of Future Occurrences	Low

Vulnerability: Low

AFFECT:

In 1983, the Dye Dug way moved and peeled off the side. Damages were approximately $50,000. Other areas that incur landslides are Indian Canyon, Ravola Dug way, and Wolf Creek Pass.

Overall Summary of Impacts

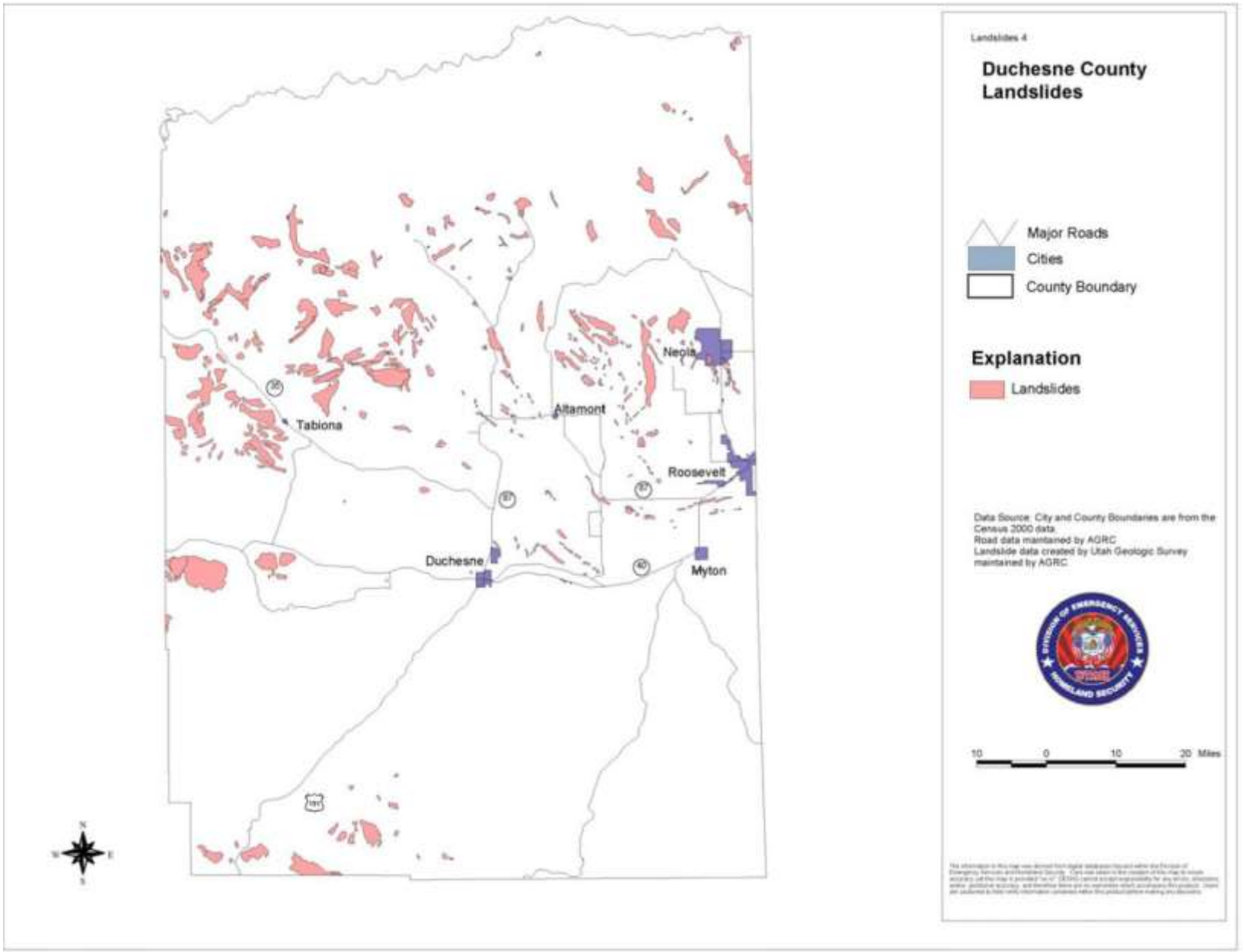
The Uintah Basin Association of Governments identified and mapped possible landslide threats to Duchesne County that would have a potential risk to pedestrians, vehicle traffic, and residential areas.

In Duchesne County there are several areas namely Indian Canyon, Ravola Dug way, and Wolf Creek Pass that could have a potential risk to pedestrians and vehicle traffic due to landslides. Based upon the information we had available at that time we were unable to come up with any hard value figures that these landslides would have on Duchesne County.
In Duchesne County there are approximately 253 residential structures, on approximately 82,560 acres of historically active landslides from 1847 to present, at potential risk from landslide. Based upon figures provided by the Duchesne County Assessor's Office, the market value of those structures is estimated to be $20,240,000.

Table 7-7: Duchesne County Landslide Vulnerability for Transportation & Utilities		
Transportation		
Name	Miles	Estimated Cost
Local Neighborhood / City Roads	95.95	$191,900,000
State Route 87	.268	$646,818
State Route 40	.448	$1,081,248
Utilities		
Name	Description	Estimated Cost
KV-138 Lines	1.929 miles	$93,132
Power Lines	9.27	$447,555
Natural Gas	1.62 miles of Questar	$391,051

Generic Mitigation:

- Avoidance
- Recognize landslide areas
- Zoning Ordinances
- Install surface drains
- Remove materials from the head of the landslide
- Install a pipeline for run-off.
- Seed hillsides to prevent landslides
- Re-grade


Landslides 4
Duchesne County
Landslides
Major Roads
Cities
County Boundary
Explanation
Landslides
Data Source: City and County Boundaries are from the Census 2000 data.
Road data maintained by AGRC
Landslide data created by Utah Geologic Survey maintained by AGRC
10 0 10 20 Miles
Neola
Altamont
Tabiona
Roosevelt
Duchesne
Myton

Natural Hazard: Wildfire

Table 7-8: FEMA Hazard Profile for Wildfire	
Frequency	Highly Likely
Severity	Catastrophic
Location	Duchesne County
Seasonal Pattern	June through October
Duration	Depending upon conditions; minutes to days to months.
Speed of Onset	Minimal or no warning.
Probability of Future Occurrences	High

Vulnerability: High

There are three different classes of wild land fires. A **surface fire** is the most common type and burns along the floor of a forest, moving slowly and killing or damaging trees. A **ground fire** is usually started by lightning and burns on or below the forest floor. **Crown fires** spread rapidly by wind and move quickly by jumping along the tops of trees. Wild land fires are usually signaled by dense smoke that fills the area for miles around.

A Word about Wildfires

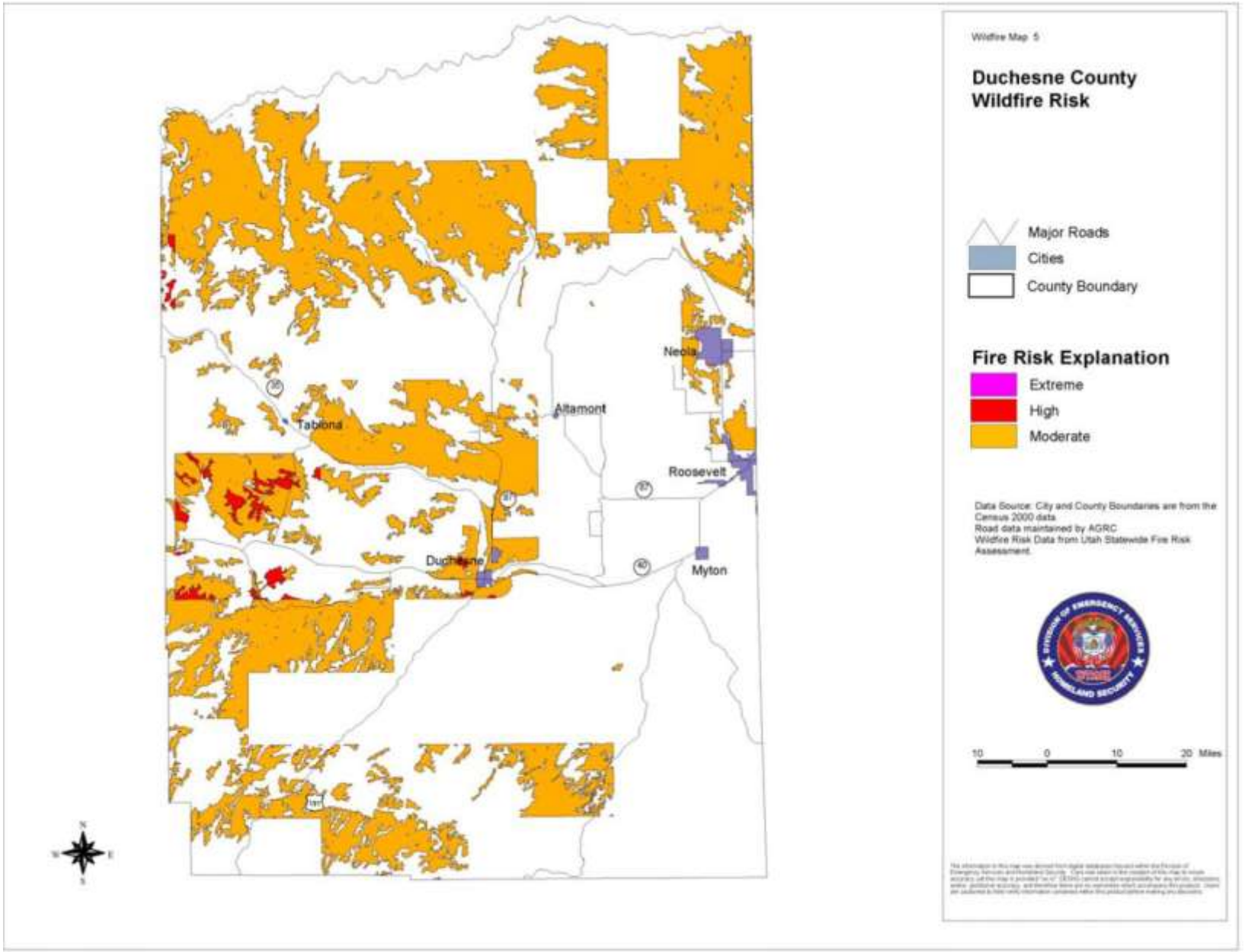
Almost every year several communities around the state are flooded and/or affected by post burn debris flows. Wildfire damaged watersheds have conditions which increase the potential for debris flows which may damage structures and infrastructure in the impacted area. Overall, the heightened risk associated with alluvial fans is always of concern. Post fire re-vegetation and stabilization efforts in many cases do not alleviate the threat due to flooding and debris flow.

Generic Mitigation:

- The County cannot mitigate because the forest service won't allow counties to manage their land.
- Poor land management on BLM and forestlands.
- Continued enforcement of the Wild land Urban Interface Code throughout the county.
- Obtain fire-fighting equipment to control wildfires in rough terrain.
- Provide wild land fire training.
- Obtain fire grant from FEMA for personnel equipment.
- Weed control.

Table 7-9: Duchesne County Wildfire Vulnerability				
	Acres of Extreme	Acres of High	Acres of Moderate	Acres of Low / Very Low
Duchesne County	N/A	10,842	569,861	1,496,417
Altamont				
Duchesne City	N/A	N/A	87	N/A
Myton City				
Roosevelt City	N/A	N/A	659	N/A
Tabiona				
	Households in Extreme / Cost	Households in High / Cost	Households in Moderate / Cost	
Duchesne County	None	2.86 / $163,840	150.1 / $9,606,400	
Altamont				
Duchesne City			40.5 / $2,592,000	
Myton City				
Roosevelt City			246 / $15,731,200	
Tabiona				

Table 7-10: Duchesne County Wildfire Vulnerability for Transportation & Utilities		
Transportation		
Name	Miles	Estimated Cost
Local Neighborhood / City Streets	619	$1,237,836,000
State Route 35	1.1	$2,654,850
State Route 87	13.07	$31,544,445
State Route 121	.90	$2,172,150
State Route 150	3.68	$8,881,680
State Route 191	4.88	$11,777,880
State Route 208	5.85	$14,118,975
State Route 311	2.59	$6,250,965
Utilities		
Name	Description	Estimated Cost
Mono Lake Plant	Power Generation	$10,000,000
KV-138	6.01 miles	$290,162
Uncoded Power Lines	46.27	$2,233,915
Natural Gas	9.37 miles of Questar	$2,261,824


Wildfire Map 5
Duchesne County
Wildfire Risk
Major Roads
Cities
County Boundary
Fire Risk Explanation
Extreme
High
Moderate
Data Source: City and County Boundaries are from the Census 2000 data
Road data maintained by AGRC
Wildfire Risk Data from Utah Statewide Fire Risk Assessment.
Neola
Altamont
Tabiona
Roosevelt
Duchesne
Myton
10 0 10 20 Miles

Mitigation Capabilities of Duchesne County

This portion of the Plan assesses Duchesne County's current capacity to mitigate the effects of the natural hazards identified within the plan. The assessment includes an examination of the following local government capabilities:

1. Staff & Organizational Capability
2. Technical Capability
3. Development Trends
4. Fiscal Capability
5. Policy and Program Capabilities
6. Political Willpower

The capabilities assessment serves as the foundation for designing an effective hazard mitigation strategy. It not only helps establish the goals and objectives for Duchesne County to pursue under this Plan, but also ensures that those goals and objectives are realistically achievable under given local conditions.

1. Staff and Organizational Capability
Duchesne County has Very Limited staff and organizational capability to implement hazard mitigation strategies. Duchesne County is Utah's 15th most populated county, containing only 14,759 people. While the County has a number of professional staff members to serve residents and carry out day-today administrative activities, much of the staff is part time or is tasked with numerous duties.

The County of Duchesne does have an Emergency Manager who is responsible for the mitigation, preparedness, response and recovery operations that deal with both natural and man-made disaster events.

2. Technical Capability
Duchesne County has very limited technical capability to implement hazard mitigation strategies.

Technical Expertise
Duchesne County does have an, emergency manager to administer the County's hazard mitigation programs. The County does not have a licensed engineer or related technical expert on staff, and has in the past relied upon outside contractors/consultants to perform a majority of any required technical work.

Internet Access
Duchesne County does provide its employees and citizens with high speed broadband Internet. Internet access opens up an enormous door for local officials to keep abreast of the latest information relative to their work and makes receiving government services more affordable and convenient. It is believed that Internet access will help further the County's hazard mitigation awareness programs, but should be supplemented with more traditional (and less technical) means as well.

3. Development Trends
Agriculture has historically dominated the economic life of Duchesne County. The county remains a significant producer of crops and livestock. However, during the second half of the 20th Century, the development of oil and gas reserves provided an important boost to the economy, and this industry remains a major contributor to growth. Other expanding industries include government and trade. Duchesne County includes part of the tribal lands of the Uintah- Ouray Indian Reservation. New retail and service developments on tribal lands help sustain the Native American population and add to the economic vitality of the area. For the third consecutive quarter, nonfarm employment in Duchesne County reported a year-over decline. Second quarter data for 1999 showed a decrease of 4.2 percent. Slowdowns in oil and gas activity continue to stymie economic growth in the area. Duchesne County's unemployment rate jumped from 7.2 percent in second quarter 1998 to 8.4 percent in second quarter 1999, one of the highest rates in Utah.

Slower economic growth has slowed the demand for construction in Duchesne County. The total valuation of second quarter permit-authorized construction slipped from $6.8 million in 1998 to $4.6 million in 1999. Residential construction continued to slow, as new dwelling units fell from 88 to 73. The value of residential construction declined from $5.2 million to $3.4 million. Nonresidential building slowed from building slowed from $1.0 million in 1998 to $820,600 in 1999 as fewer nonresidential projects were authorized. Total additions, alternations, and repairs dropped 29.2 percent in valuation; however, renovations to commercial structure did improve slightly.

4. Fiscal Capability
Duchesne County has **very limited** fiscal capability to implement hazard mitigation strategies.

5. Policy and Program Capability

Emergency Operations Plan
Duchesne County has developed and adopted an Emergency Operations Plan, which predetermines actions to be taken by government agencies and private organizations in response to an emergency or disaster event. The Plan was last updated in June 2011, and is updated annually by the county emergency manager. For the most part, the Plan describes the County's capabilities to respond to emergencies and establishes the responsibilities and procedures for responding effectively to the actual occurrence of a disaster.

The Plan does not specifically address hazard mitigation, but it does identify the specific operations to be undertaken by the County to protect lives and property immediately before, during and immediately following an emergency. There are no foreseeable conflicts between this Hazard Mitigation Plan and Duchesne County's Emergency Management Plan, primarily because they are each focused on two separate phases of emergency management (mitigation vs. preparedness and response).

Floodplain Management Plan
Although Duchesne County currently participates in the National Flood Plain Insurance Program they do not have a current Floodplain Management Plan. However, this Disaster Mitigation Plan recommends that Duchesne County work on updating and/or revising their Floodplain Management Plan.

Storm water Management Plan
Duchesne County Currently has no formal Storm water Management Plan.

County Ordinances
The Duchesne County currently does not have any county ordinances that address natural disasters. However, a member of the planning committee was in attendance at our Natural Disaster meetings and agreed to work on implementing and adopting new County Ordinances that are relevant to hazard mitigation.

6. Political Willpower

Most Duchesne County residents are quite knowledgeable about the potential hazards that their community faces. Recent wildfires have increased the understanding and need for mitigation within the government structure of Duchesne County.

The Uintah Basin Association of Governments used historical data to estimate to the best of their ability (with the data available at the time) the potential dollar losses if the County were to experience flooding and wildfires, the two most likely hazards to occur in the County. The estimated costs are as follows:

Potential flood losses:
- Residential properties (including senior citizens home): Depending upon the location of the flood, losses could result into millions of dollars. *Approximately; 4 to 5 million dollars*
- Local Hospital: The local Hospital in Duchesne County is located in Roosevelt City, which currently does not have a flood plain map. However, it is not likely that potential floods would affect the hospital. Past floods that have occurred in Duchesne County have not affected the Hospital. Minimal damages would occur if the Hospital were affected by potential flooding. *Approximately; $100,000.00*
- Schools: The Schools located in Duchesne City, are likely to be affected by a flood. The elementary school and the High School are located in the flood plain. *Approximately; 4 to 5 million dollars*
- Communication utility company: Due to the fact that the communications and the utility companies are not located in the flood plain minimal damages would result from a flood. *Approximately; $100,000.00*
- Waste water treatment plant: It is not likely that the wastewater treatment plant would have any damages due to flooding. *Approximately;$100,000.00*

Potential wildfire losses:

- Residential properties: Depending upon the location of the flood, losses could result into excess of millions of dollars. *Approximately; 4 to 5 million dollars*
- Hospital: The Duchesne County Hospital would have minimal damages if any that would result from potential wildfire losses. *Approximately; $100,000.00*
- Secondary School: Duchesne County does have a couple of school systems located on the outskirts of the County that could have potential damages due to wildfires. *Approximately; 1 to 2 million dollars*

DUCHESNE COUNTY – COMMUNITY HAZARD MITIGATION GOALS AND STRATEGIES

The following goals were identified to direct community hazard mitigation strategies. These goals were developed based on the input from the Uintah Basin Regional PDM Technical Planning Team and input from the elected officials that comprise the UBAOG Board of Directors.

Goal #1: Protect Current Residents and Property

- Improve emergency response capabilities.
- Improve the disaster resistance of existing infrastructure and critical facilities.
- Build capacity of citizens to undertake mitigation activities through education and training.
- Build technical GIS and analysis capacity for communities to help identify hazards and risks to hazards.

Goal #2: Protect Future Residents and Property

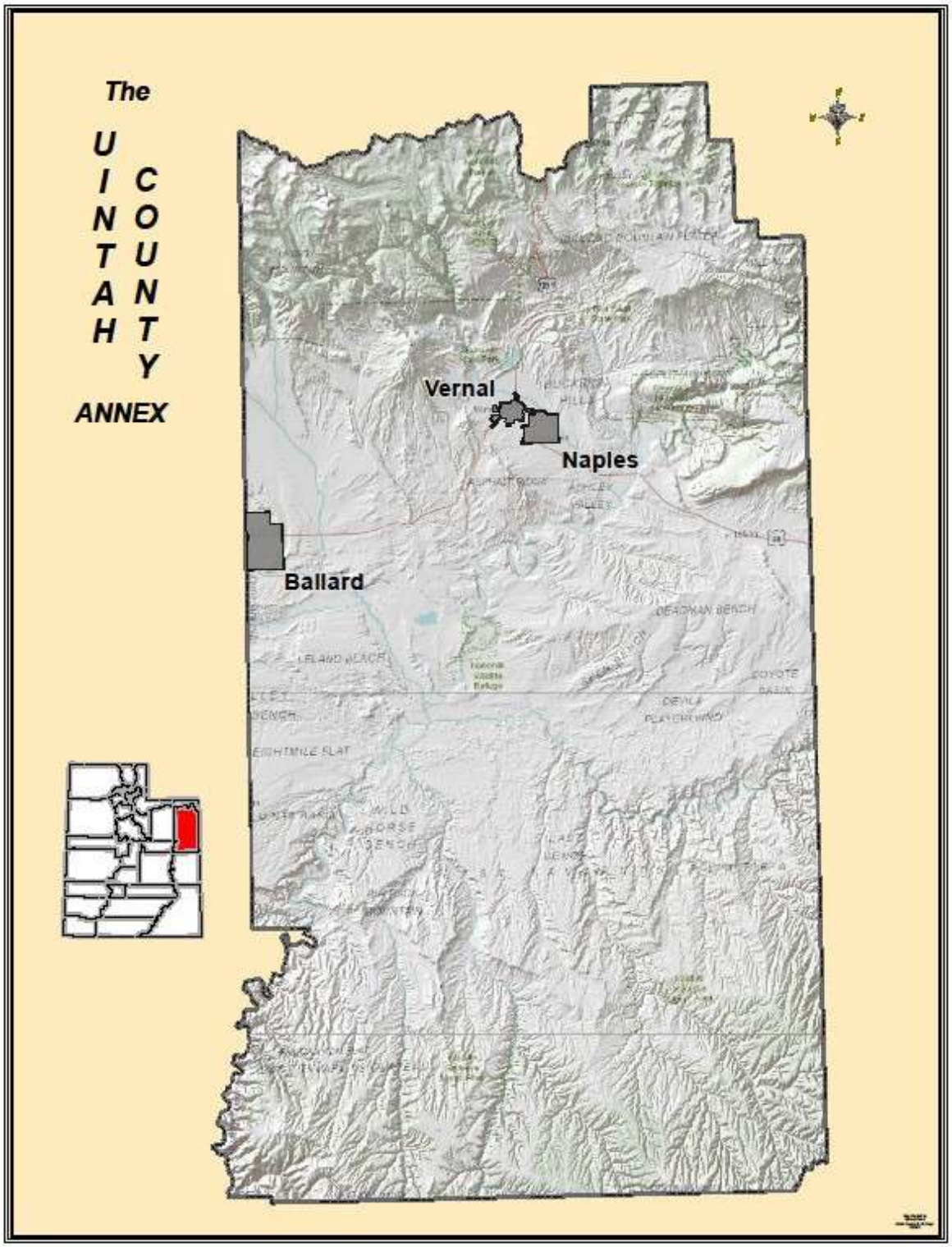
- As appropriate, develop and implement regulatory mechanisms to ensure new development activities will not increase the risk to life or property from natural hazards.
- Build technical GIS and analysis capacity for communities to help identify hazards and risk to hazards for future residents and their property.
- Empower future citizens to make informed choices through access to better data and more resources.

To accomplish these goals, specific mitigation strategies were developed by participating jurisdictions with assistance from working groups and UBAOG staff. These strategies were assigned a priority of high, medium, or low by communities and through UBAOG staff assistance according to the following criteria:

- Potential number of people protected by the project
- Technical feasibility
- Political support
- Available funding and priorities
- Environmental impacts

A guiding factor in prioritizing mitigation strategies was the principle that mitigation should provide the greatest amount of good to the greatest number of people, after considering funding opportunities and constraints. Recurrence intervals, past events, and damage estimates compiled during the assessment of vulnerability in this plan were also considered for priority and timeline values. While there was not a technical benefit-cost analysis regarding mitigation strategies during this planning process, the above criteria were considered for prioritization.

SECTION 8:



Past Hazard Events in Uintah County

Understanding the past is often the key to discovering what the future holds; this is especially true when planning for natural disasters. The fact that cities within Uintah County have experienced, for example, flooding in the past means flooding can occur in the future. While over time some of this has been mitigated for the low frequency of occurrence often results in hazards with little or no mitigation. Table 8-1 provides a brief history of Uintah County natural disasters. This table includes only sizable events found during our research, and may not represent the total history.

Table 8-1: Uintah County Natural Disaster History

Hazards	Date	Location	Critical Facility or Area Impacted	Comments
Flash Flooding	September 1, 1909	Ashley River near Vernal	Unknown	1 Death
Flash Flooding	July 4, 1925	Five Mile Canyon near Vernal	Unknown	1 Death
Flood	August 9, 1941	Vernal/Jensen	Approximately $75,000 damages to crops were caused by heavy rain and hail. Red Wash Bridge was damaged	No loss of life
Flood	August 25, 1955	Lapoint	$3,000 in damages to bridges and roads	No loss of life
Flood	July 30, 1956	Jensen	$25,000 in damages to farmlands and crops	No loss of life
Flood	June 10, 1965	Maeser/Ouray	Damage to homes, crops, and waterlines	No loss of life
Flood	1983	County Wide	Limited	No loss of life
Wildfire	July 23, 1988	Green River Fire	Unknown	No loss of life
Wildfire	September 17, 1992	Diamond Mountain Bonus	Unknown	No loss of life
Wildfire	August 16,	Diamond Rim	Unknown	No loss of life

	1996	#2		
Wildfire	June 25, 1999	Walsh Knolls	1096 Acres	No loss of life
Wildfire	June 27, 1999	White Rocks	Unknown	No loss of life
Wildfire	March 26, 2000	Max Assist	Unknown	No loss of life
Wildfire	May 29, 2000	Sweetwater Complex	3700 Acres	No loss of life
Wildfire	July 28, 2000	Pot Creek	Unknown	No loss of life
Flooding	2005	Uintah County	20 condos near the creek and 10-15 homes in the area were considered threatened	No loss of life
Wildfire	Summer 2007	NE along the Uintah/Daggett County line in the Ashley National Forest	Burned more than 32,000-acres	3 deaths
Flooding	June 2011	County Wide	Damages to roads and homes. Bridges and culverts were also threatened by debris	No loss of life

Uintah County identified five natural hazards they wanted addressed in the Uintah County portion of this multi-jurisdictional plan. Through input of the planning committee the following hazards were identified:

- Dam Failure
- Earthquakes
- Flooding
- Landslides
- Wildfire

In identifying these hazards the Uintah County PDM planning committee relied on technical experts, public input, research of past events, and risk assessments completed by the county emergency manager for their Pre-Disaster Mitigation Plan.

The Uintah County Disaster Mitigation Planning committee consisted of one County Commissioner, the County Emergency Manager, the Vernal City Planner, the Naples City Manager, and Ballard City and the Uintah Basin Association of Governments planning

coordinator.
The Disaster Mitigation Plan for Uintah County identifies critical facilities located in the County. A critical facility is defined as a facility in either the public or private sector that provides essential products and services to the general public, is otherwise necessary to preserve the welfare and quality of life in the County, or fulfills important public safety, emergency response, and/or disaster recovery functions. The critical facilities identified in the County were not located in the natural hazard area. Due to Data limitations, The Uintah Basin Association of Governments was unable to map the location of the critical facilities in Uintah County.

Natural Hazard: Dam Failure

Table 8-2: FEMA Hazard Profile for Dam Failure	
Frequency	Unlikely
Severity	Catastrophic
Location	Entire County
Seasonal Pattern	Spring
Duration	Several months to over one year.
Speed of Onset	30 minutes or less (minimal or no warning)
Probability of Future Occurrences	High

Vulnerability: High

A Word about Dams

Dams are a critical support function for water managers in the State and also act as a flood control measure. If a dam remains stable, does not get overtopped, or is not impaired as the result of an earthquake, then, at a minimum, they do provide incidental flood control. If not then they can add to the flood threat.

There are 117 dams within Uintah Basin of these 20 have received an high hazard rating by Utah Division of Water Rights Dam Safety section. The State Dam Safety Section has developed a hazard rating system for all non-federal dams in Utah. Downstream uses, size, height, volume, and incremental risk/damage assessments are a variable used to assign dam safety classification. Using the hazard ratings systems developed by the State Dam Safety Section, dams are placed into one of three classifications high, moderate, and low. Dams receiving a low rating would have insignificant property loss due to dam failure. Moderate hazard dams would cause significant property loss in the event of a breach. High hazard dams would cause a possible loss of life in the event of a rupture. The frequency of dam inspection is designated based on hazard rating with the Division of Water Rights inspecting high-hazard dams annually, moderate hazard dams bi-annually, and low-hazard dams every five years.

Description of Hazard

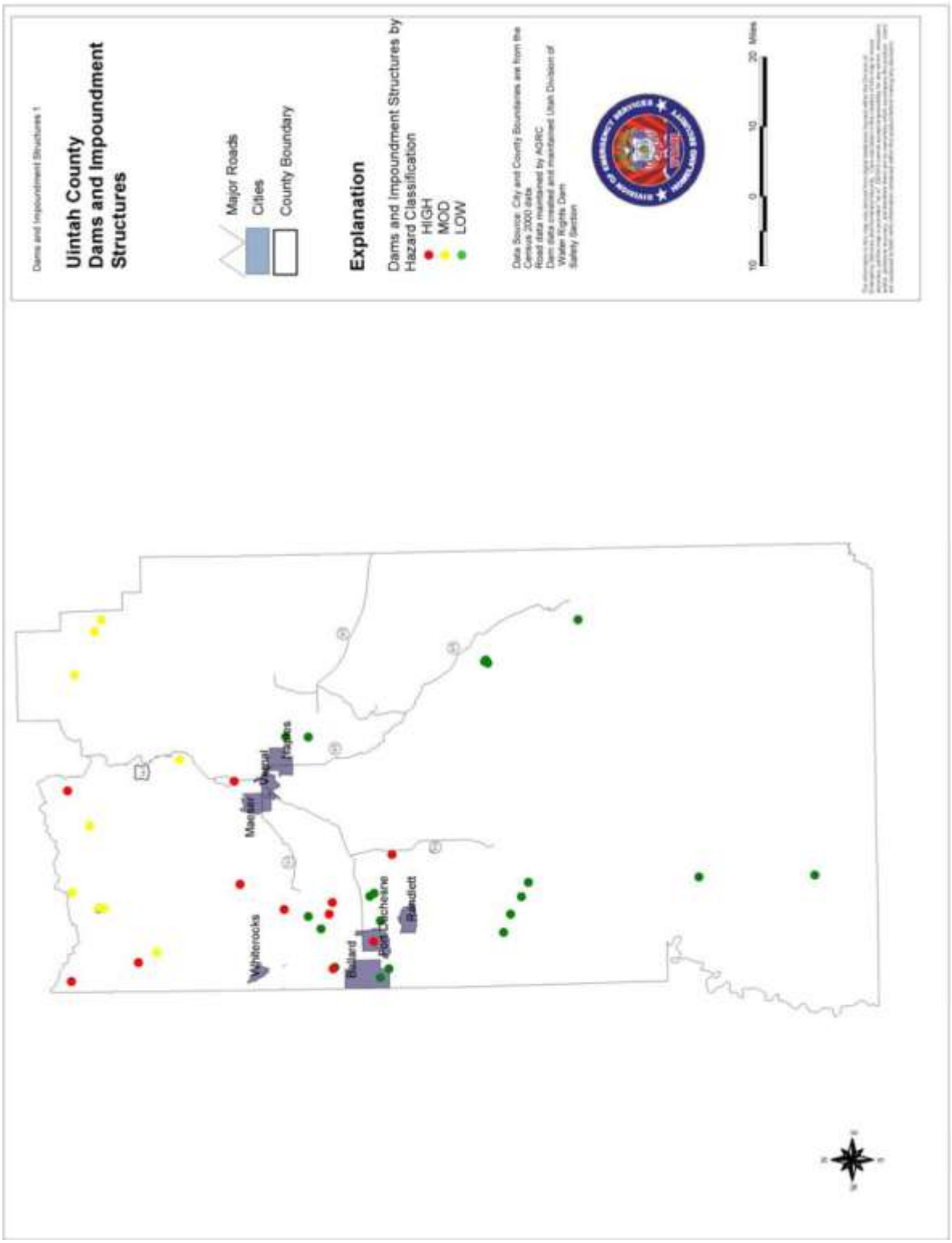
The following high hazard dams exist within Uintah County according to the Utah Division of Dam Safety database:

- Brough
- Whiterocks
- East Park
- Paradise Park
- Bullock Draw
- Lapoint
- Montes Creek
- Cottonwood
- Steineker
- Red Fleet

<u>Generic Mitigation</u>:

• Proper mapping of flood plains, including mapping of dam breach flood potential.
• Knowledge must be made public so that emergency managers are aware and the public is aware when they buy and sell property.
• Updated Emergency Action Plans (EAP) and integration with GIS Systems.
• Maintaining proper flood plain and wetland geometry and vegetation will help route floods.
• Flood plain usage should be compatible with flood plain needs.
• More debris dams would help with floods and debris, and mud, and maintaining a flood control pool in existing dams would be beneficial.
• Protection of roads and bridges.
• General infrastructure protection.
• More authority to order releases and better forecasting would help in snowmelt floods and runoff.
• Gather hazard and risk data/information.
• Development of improved mitigation techniques.
• Education of local officials, developers, and citizens.

The following map illustrates the location of each dam. Low lying areas downstream of these dams are particularly at risk, if a dam were to fail.



Natural Hazard: Earthquake

Table 8-3: FEMA Hazard Profile for Earthquake	
Frequency	Unlikely
Severity	Catastrophic
Location	Near fault lines of the County
Seasonal Pattern	Year - round
Duration	Minutes to hours
Speed of Onset	30 minutes or less (minimal or no warning)
Probability of Future Occurrences	Low

An earthquake is a sudden, rapid shaking of the Earth caused by the breaking and shifting of rock beneath the Earth's surface. This shaking can cause buildings and bridges to collapse; disrupt gas, electric, and phone service; and sometimes trigger landslides, avalanches, flash floods, fires, and huge destructive ocean waves (tsunamis). Buildings with foundations resting on unconsolidated landfill, old waterways, or other unstable soil are most at risk. Buildings or trailers and manufactured homes not tied to a reinforced foundation anchored to the ground are also at risk since they can be shaken off their mountings during an earthquake. Earthquakes can occur at any time of year. Source: http://www.fema.gov/hazards/earthquakes/

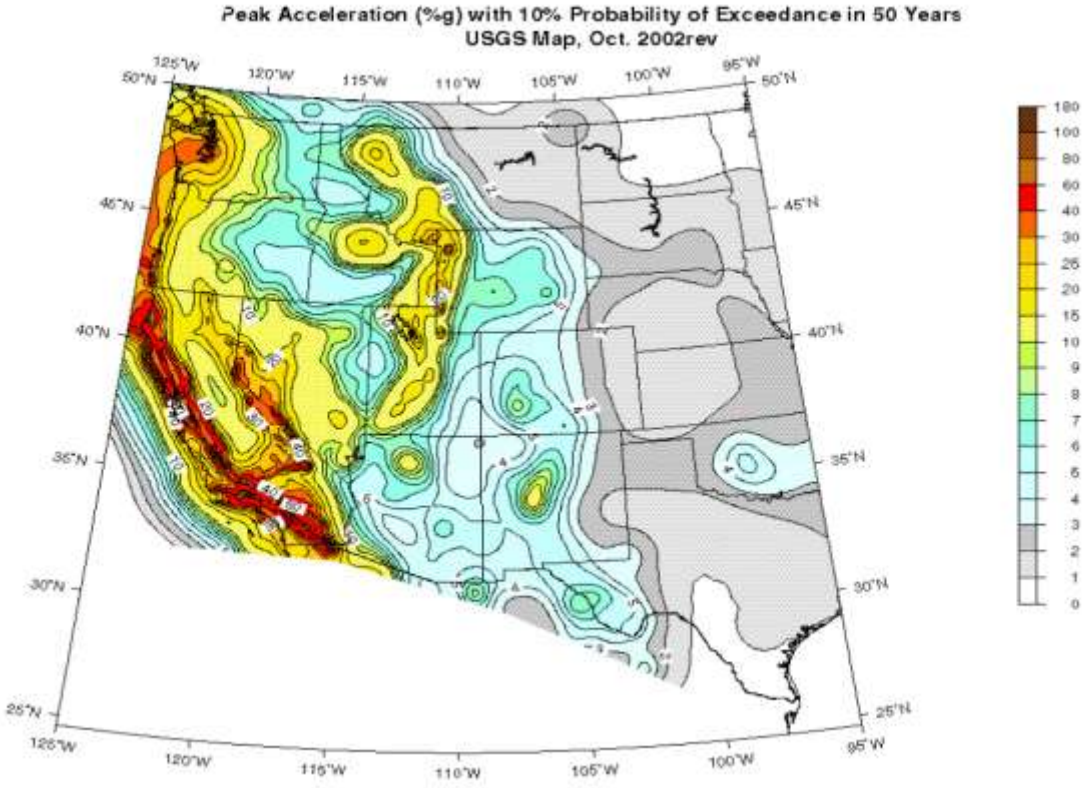
The Diamond Gulch Fault in Uintah County is the only source area for a large magnitude earthquake. Uintah County is similar to the other counties within the Uintah Basin and has a low seismic hazard, as it is uncertain if the Diamond Gulch Fault has moved during the quaternary period.

Vulnerability: Low

The following maps show the national Peak Ground Acceleration (PGA) values for the United States with a 10% chance of being exceeded over 50 years. This is a common earthquake measurement that shows three things: the geographic area affected (all colored areas on the map), the probability of an earthquake of each given level of severity (10% chance in 50 years or 2% chance in 50 years), and the severity (the PGA is indicated by color).

Determine the PGA zone(s) in which your planning area is located. This is done by identifying the color associated with your planning area and correlating it with the color key located on the map. Large planning areas may be located in more than one zone.

Peak ground acceleration (PGA) is a measure of the strength of ground movements. The PGA measures the rate in change of motion relative to the established rate of acceleration due to gravity (g) (980cm/sec/sec).


Peak Acceleration (%g) with 10% Probability of Exceedance in 50 Years
USGS Map, Oct. 2002rev
125°W
120°W
115°W
110°W
105°W
100°W
95°W
50°N
45°N
40°N
35°N
30°N
25°N
180
100
80
60
40
30
25
20
15
10
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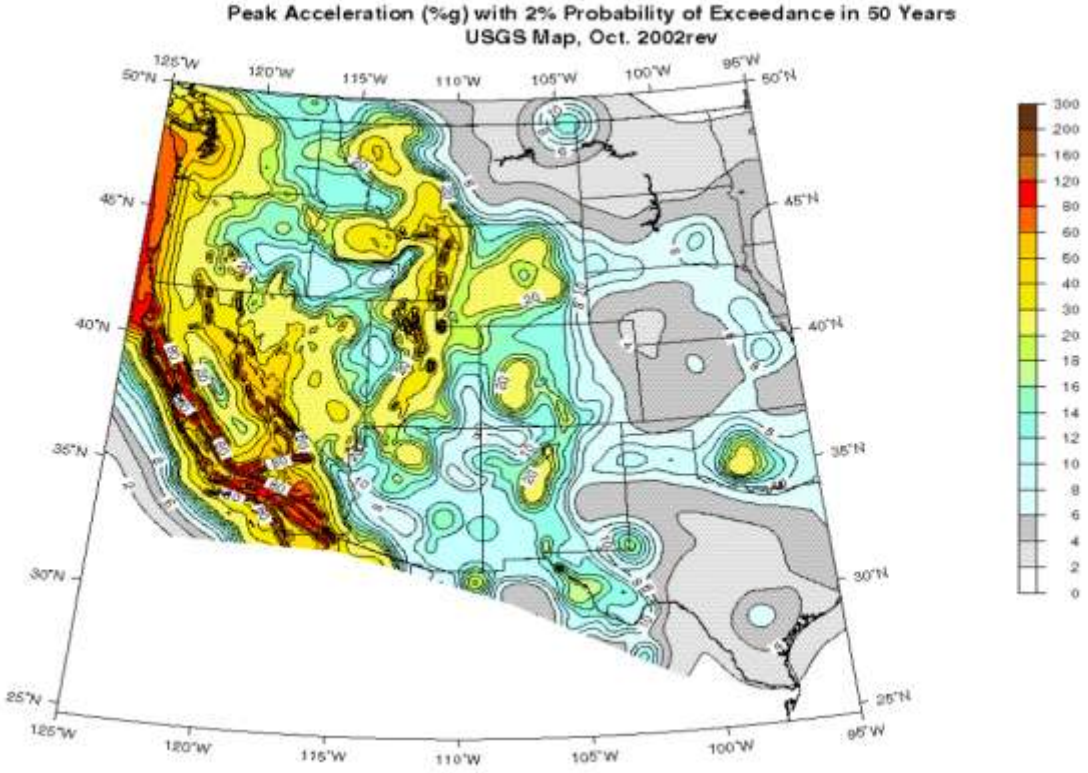

Peak Acceleration (%g) with 2% Probability of Exceedance in 50 Years
USGS Map, Oct. 2002rev
125°W
120°W
115°W
110°W
105°W
100°W
95°W
50°N
45°N
40°N
35°N
30°N
25°N
300
200
160
120
80
60
50
40
30
20
18
16
14
12
10
8
6
4
2
0

AFFECT:

The Diamond Gulch Fault in Uintah County is the only source area for a large magnitude earthquake. Uintah County is similar to the other counties within the Uintah Basin and has a low seismic hazard, as it is uncertain if the Diamond Gulch Fault has moved during the quaternary period.

POTENTIAL AFFECT:

A potential earthquake could affect water, oil and gas produced for the Uintah Basin as well as the Wasatch Front. An earthquake could affect transportation and dams. Many homes in Uintah County were not built to meet earthquake standards.

Table 8-4: Critical Facilities for Uintah County

Classification	Total	Least Moderate Damage >50%	Complete Damage >50%	Functionality >50% at day 1
Hospitals	1	0	0	1
Schools	10	0	0	0
EOCs	1	0	0	1
Police Stations	3	0	0	0
Fire Stations	2	0	0	0

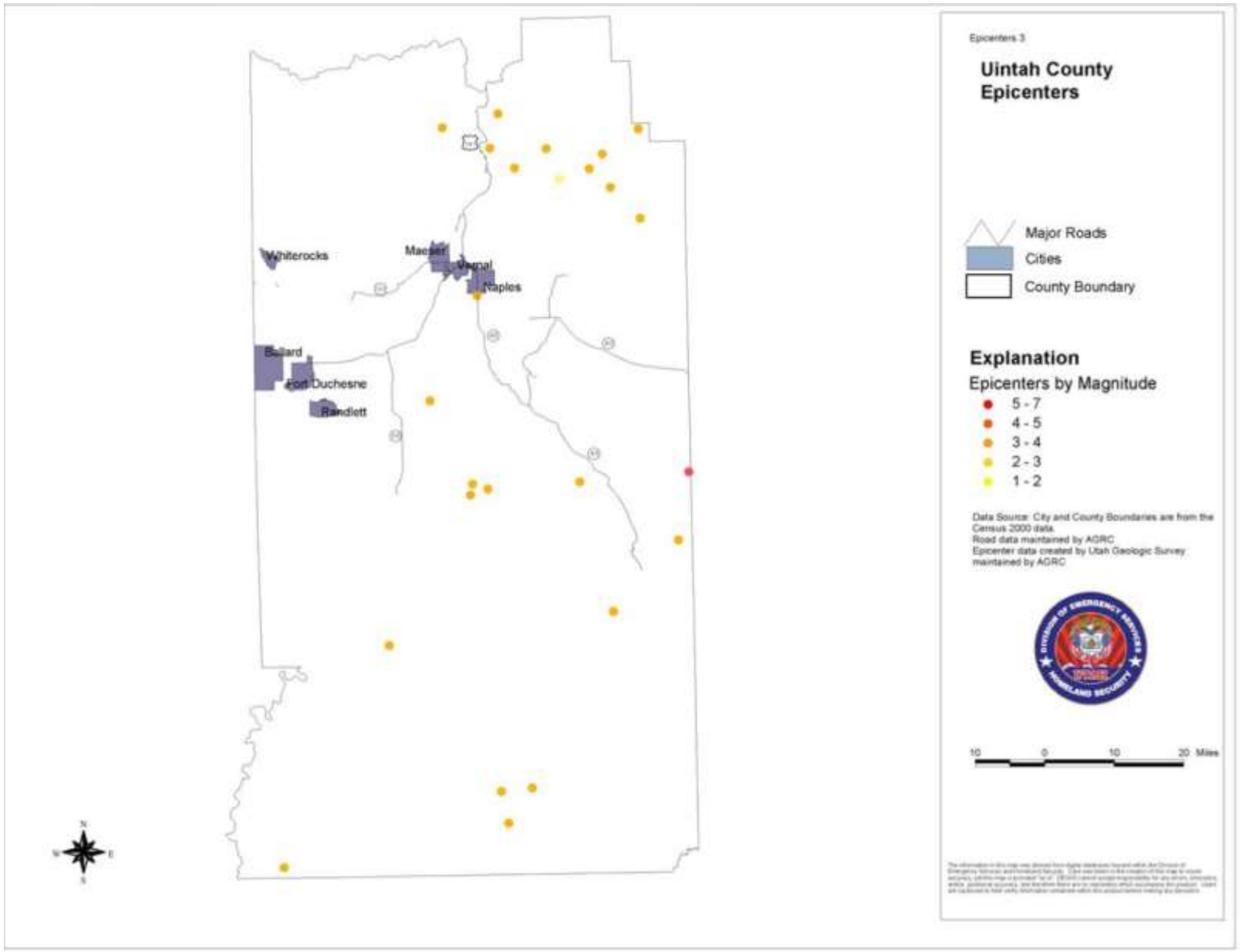
Generic Mitigation:

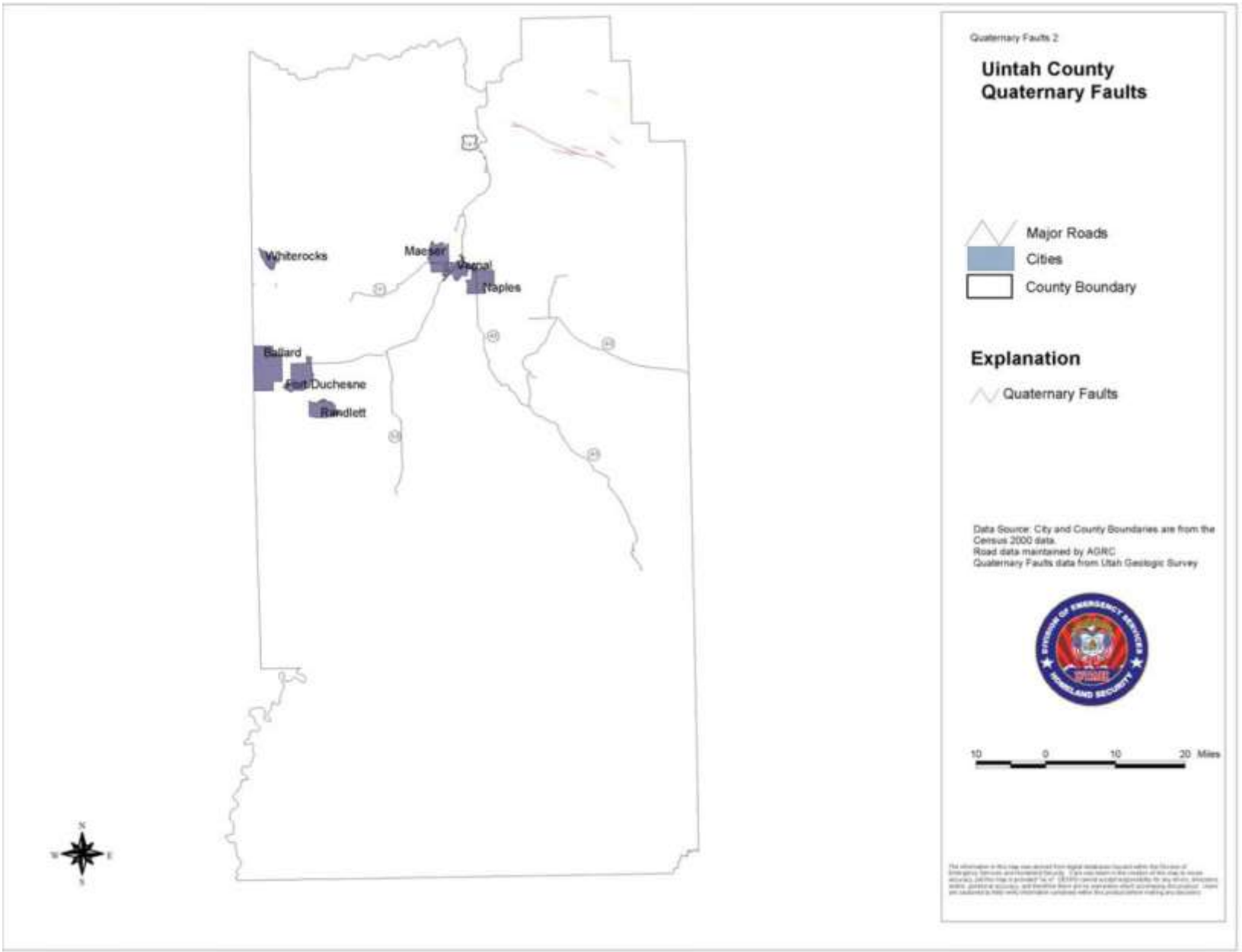
- Build all homes and building's to meet the standards and code of earthquakes. County adopts building codes on all new construction.
- Educate the public on potential hazards.
- Working with local LEPC on exercising plans in existence.
- Educate local school systems to utilize LEPC.

Generic Ground Shaking Mitigation
- Understand peak horizontal acceleration and recurrence interval.
- Design appropriately.
- Zoning ordinances and building codes.

Generic Liquefaction Mitigation
- Move soil out.
- Increase density of soils in place.
- Remove ground water.
- Structural design.

Generic Surface Fault Rupture Mitigation
- Avoidance
- Zoning ordinances


Epicenters 3
Uintah County Epicenters
Whiterocks
Maeser
Vernal
Naples
Ballard
Fort Duchesne
Randlett
Major Roads
Cities
County Boundary
Explanation
Epicenters by Magnitude
5 - 7
4 - 5
3 - 4
2 - 3
1 - 2
Data Source: City and County Boundaries are from the Census 2000 data
Road data maintained by AGRC
Epicenter data created by Utah Geologic Survey maintained by AGRC
10 0 10 20 Miles


Quaternary Faults 2
Uintah County
Quaternary Faults
Major Roads
Cities
County Boundary
Explanation
Quaternary Faults
Data Source: City and County Boundaries are from the Census 2000 data.
Road data maintained by AGRC
Quaternary Faults data from Utah Geologic Survey
10 0 10 20 Miles
Whiterocks
Maeser
Vernal
Naples
Ballard
Fort Duchesne
Randlett

Natural Hazard: Flooding

Table 8-5: FEMA Hazard Profile for Flooding	
Frequency	Likely
Severity	Critical
Location	Flooding would affect all communities in the county that are in and along the floodplain.
Seasonal Pattern	After spring rains, heavy thunderstorms, or spring thaws.
Duration	Rainstorms can last for hours and possibly days. Spring run-off can last weeks.
Speed of Onset	Six to twelve hours.
Probability of Future Occurrences	High

Floods are the most common and widespread of all natural disasters except fire. Most communities in the United States have experienced some kind of flooding after spring rains, heavy thunderstorms, or winter snow thaws.

A flood, as defined by the National Flood Insurance Program is: "A general and temporary condition of partial or complete inundation of two or more acres of normally dry land area or of two or more properties (at least one of which is your property) from:

- Overflow of inland or tidal waters.
- Unusual and rapid accumulation or runoff of surface waters from any source, or
- A mudflow

[The] collapse or subsidence of land along the shore of a lake or similar body of water as a result of erosion or undermining caused by waves or currents of water exceeding anticipated cyclical levels that result in a flood."

Floods can be slow or fast rising but generally develop over a period of days. Mitigation includes any activities that prevent an emergency, reduce the chance of an emergency happening, or lessen the damaging effects of unavoidable emergencies. Investing in mitigation steps now, such as, engaging in floodplain management activities, constructing barriers, such as levees, and purchasing flood insurance will help reduce the amount of structural damage to your home and financial loss from building and crop damage should a flood or flash flood occur. Source: http://www.fema.gov/hazards/floods/

Vulnerability: High

Reoccurring Flood Hazards: None

AFFECT:

Naples City had some structural damage due to microbursts. Uintah County has had four to five flash floods in the last twenty years with little damage. However, some bridges were lost costing Uintah County approximately $200,000.00 and Vernal City around, $2,000.00.

Generic Mitigation:

- Avoidance
- Revise and up-date building ordinances for new construction that takes place to help eliminate bridges and buildings from being washed away.
- Manufactured homes need to be installed properly and inspected.
- Enforce zoning.
- Flood insurance awareness, emphasis, and marketing.
- Curtail development in flood-prone areas.
- Greater reservoir capacities.
- Gather hazard and risk data/information.
- Protection of drinking water supply.
- Education of local officials, developers, and citizens.
- Better flood routing through communities.
- Funding by a storm water tax in cooperation with Federal and State programs.

Natural Hazard: Landslide

Table 8-6: FEMA Hazard Profile for Landslide	
Frequency	Unlikely
Severity	Critical
Location	Uintah County
Seasonal Pattern	After spring rains, heavy thunderstorms, or spring thaws.
Duration	Depending upon conditions
Speed of Onset	Minimal or no warning.
Probability of Future Occurrences	Low

Vulnerability: Low

The Uintah Basin Association of Governments identified and mapped possible landslide threats to Uintah County that would have a potential risk to pedestrians, vehicle traffic, and residential areas.

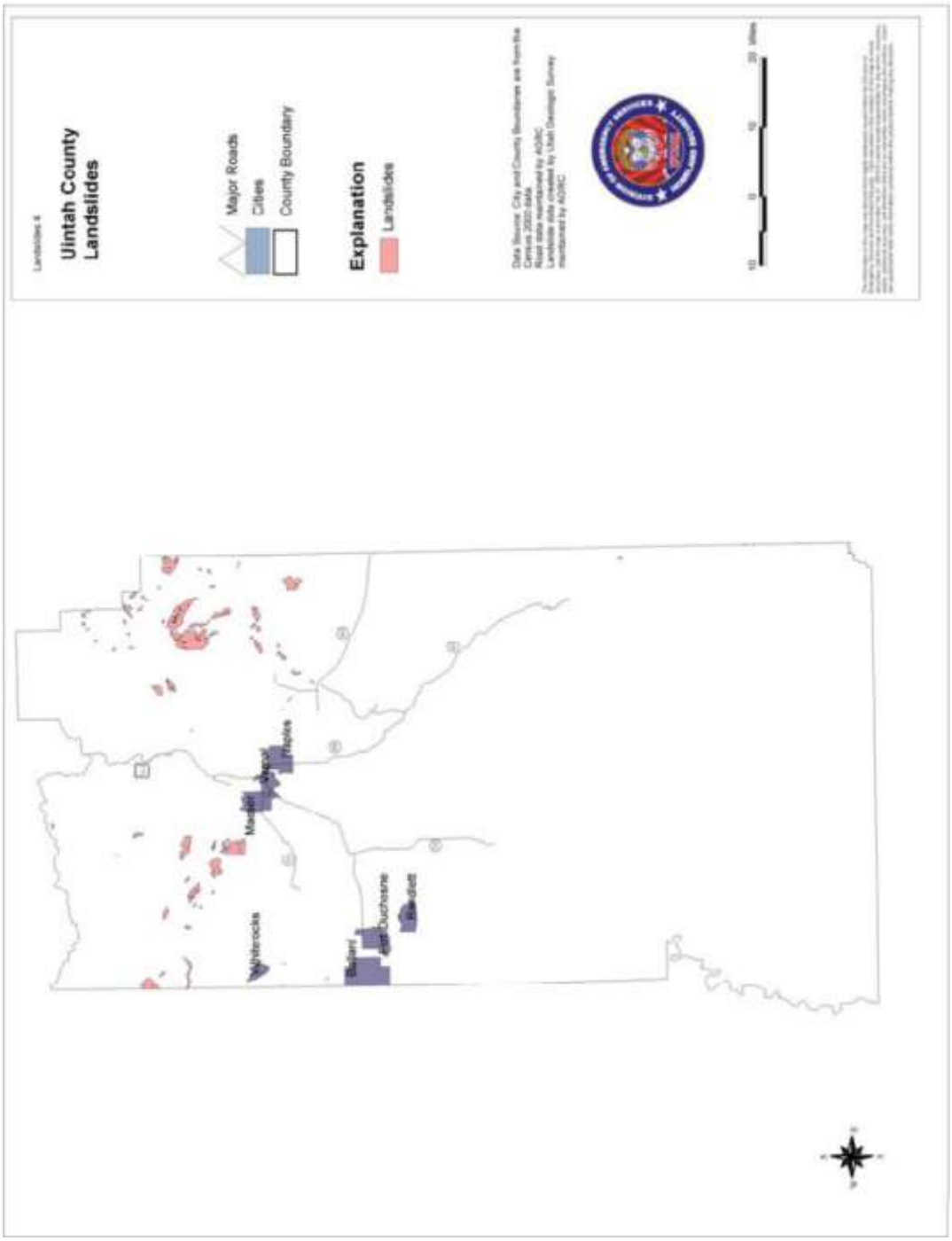
In Uintah County there are several areas namely, Blue Mountain, Diamond Mountain, Dry Fork Canyon, and the Book Cliffs that could have a potential risk to pedestrians and vehicle traffic due to landslides. Based upon the information we had available at that time we were unable to come up with any hard value figures that these landslides would have on Uintah County.
In Uintah County there are approximately 66 residential structures, on approximately 20,983 acres of historically active landslides from 1847 to present, at potential risk from landslide. Based upon figures provided by the Uintah County Assessor's Office, the market value of those structures is estimated to be $5,280,000.00.

Table 8-7: Uintah County Landslide Vulnerability for Transportation & Utilities		
Transportation		
Name	Miles	Estimated Cost
Local Neighborhood / City Streets	23	$46,000,000
Utilities		
Name	Description	Estimated Cost
Power Lines	1 mile	$241,390
Natural Gas	.032 miles of Questar	$1,544

<u>Generic Mitigation</u>:

- Install a pipeline for run-off.
- Seed hillsides to prevent landslides.

The following map illustrates Landslides and gives an explanation for Landslides in Uintah County.



Natural Hazard: Wildfire

Table 8-8: FEMA Hazard Profile for Wildfire	
Frequency	Likely
Severity	Catastrophic
Location	Uintah County
Seasonal Pattern	June through October
Duration	Depending upon conditions; minutes to days to months.
Speed of Onset	Minimal or no warning.
Probability of Future Occurrences	High

There are three different classes of wild land fires. A **surface fire** is the most common type and burns along the floor of a forest, moving slowly and killing or damaging trees. A **ground fire** is usually started by lightning and burns on or below the forest floor. **Crown fires** spread rapidly by wind and move quickly by jumping along the tops of trees. Wild land fires are usually signaled by dense smoke that fills the area for miles around. Source: http://www.fema.gov/hazards/fires/

A Word about Wildfires

Almost every year several communities around the state are flooded and/or affected by post burn debris flows. Wildfire damaged watersheds have conditions which increase the potential for debris flows which may damage structures and infrastructure in the impacted area. Overall, the heightened risk associated with alluvial fans is always of concern. Post fire re-vegetation and stabilization efforts in many cases do not alleviate the threat due to flooding and debris flow.

Vulnerability: High

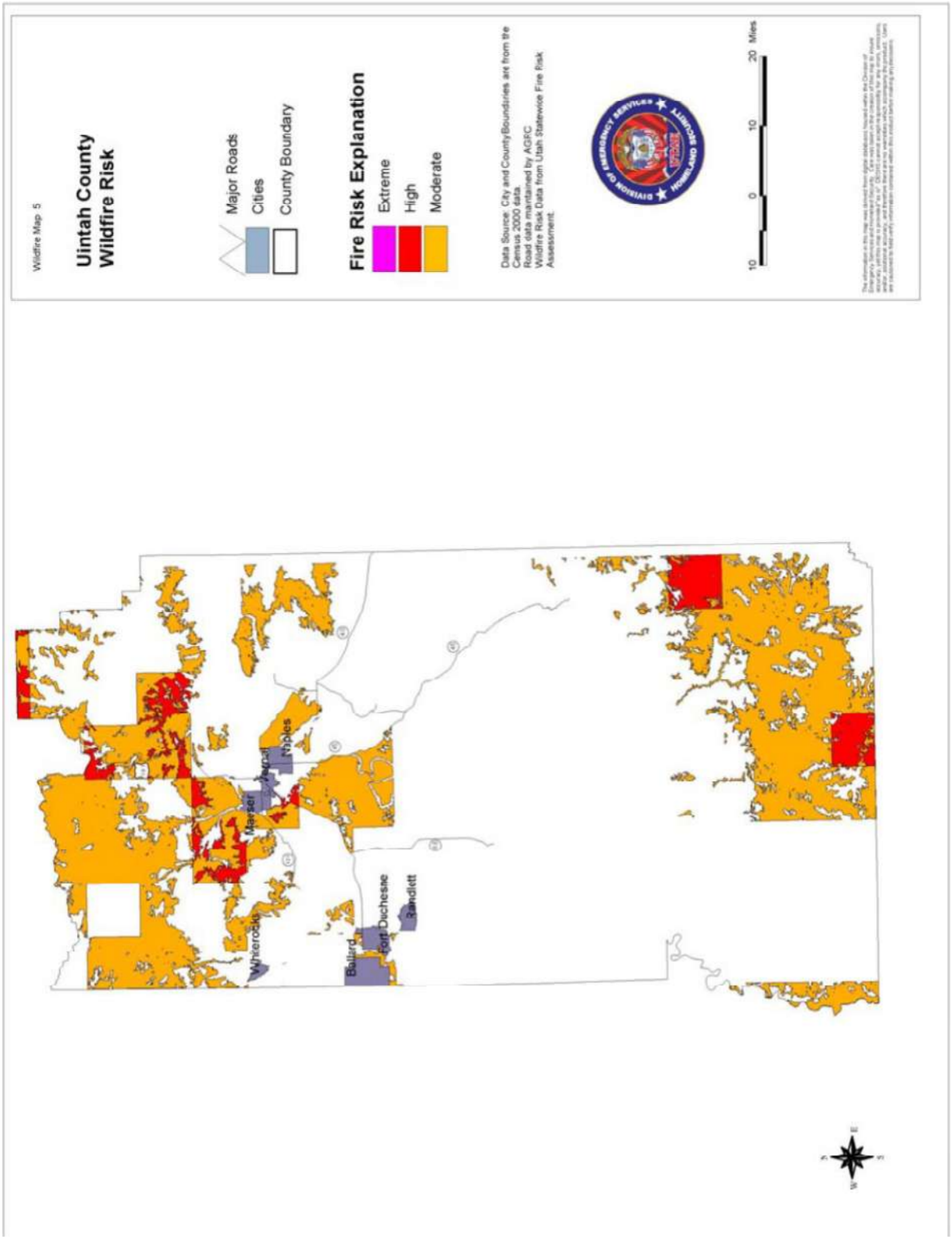
Generic Mitigation:

- The County cannot mitigate because the forest service won't allow counties to manage their land.
- Poor land management on BLM and forestlands.
- Obtain fire-fighting equipment to control wildfires in rough terrain.
- Provide wild land fire training.
- Obtain fire grant from FEMA for personnel equipment.
- Weed control

Table 8-9: Uintah County Wildfire Vulnerability				
	Acres of Extreme	Acres of High	Acres of Moderate	Acres of Low / Very Low
Uintah County	N/A	74,927	631,257	2,177,549
Ballard City	N/A	N/A	4,356	N/A
Naples City	N/A	N/A	207	N/A
	Households in Extreme / Cost	Households in High / Cost	Households in Moderate / Cost	
Uintah County	None	235 / $15,040,000	1,982 / $126,848,000	
Ballard City			95 / $6,080,000	
Naples City			20.5/ $1,312,000	

Table 8-10: Uintah County Wildfire Vulnerability for Transportation & Utilities		
Transportation		
Name	Miles	Estimated Cost
Local Neighborhood / City Streets	918.7	$1,837,400,000
State Route 40	11.7	$28,237,950
State Route 191	15.2	$36,685,200
State Route 121	2.4	$5,792,400
State Route 301	2.2	$5,309,700
State Route 45	3.8	$9,171,300
Utilities		
Name	Description	Estimated Cost
Maeser	Power Generation	$10,000,000
Chevron Resources	Power Generation	$10,000,000
Uncoded Power Lines	108.3 miles	$5,228,724
KV-12.5 or less	4.5 miles	$217,260
KV-69	6.7 miles	$323,476
KV-138	4 miles	$193,120
Natural Gas	20.2 miles of Questar	$4,876,078

The following map illustrates fire risk and gives a wildfire explanation for Uintah County.



Mitigation Capabilities of Uintah County

This portion of the Plan assesses Uintah County's current capacity to mitigate the effects of the natural hazards identified within the plan. The assessment includes an examination of the following local government capabilities:

1. Staff & Organizational Capability
2. Technical Capability
3. Development Trends
4. Fiscal Capability
5. Policy and Program Capabilities
6. Political Willpower

The capabilities assessment serves as the foundation for designing an effective hazard mitigation strategy. It not only helps establish the goals and objectives for Uintah County to pursue under th is Plan, but also ensures that those goals and objectives are realistically achievable under given local conditions.

1. Staff and Organizational Capability
Uintah County has **Very Limited** staff and organizational capability to implement hazard mitigation strategies. Uintah County is Utah's 11 most populated county, containing 25,224 people. While the County has a number of professional staff members to serve residents and carry out day-to-day administrative activities, much of the staff is part time or is tasked with numerous duties.

The County of Uintah does have an Emergency Manager who is responsible for the mitigation, preparedness, response and recovery operations that deal with both natural and man-made disaster events.

2. Technical Capability
Uintah County has **very limited** technical capability to implement hazard mitigation strategies.

Technical Expertise

Uintah County does have an, emergency manager/building inspector to administer the County's hazard mitigation programs. The County does not have a licensed engineer or related technical expert on staff, and has in the past relied upon outside contractors/consultants to perform a majority of any required technical work.

Geographic Information Systems (GIS)

GIS systems can best be described as a set of tools (hardware, software and people) used to collect, manage, analyze and display spatially-referenced data. Many local governments are now incorporating GIS systems into their existing planning and management operations. Uintah County currently has GIS capability, and it has been identified as a needed enhancement for both the Planning Department and the Building Inspections office to further hazard mitigation goals.

Internet Access

Uintah County does provide its employees and citizens with high speed broadband Internet. Internet access opens up an enormous door for local officials to keep abreast of the latest information relative to their work and makes receiving government services more affordable and convenient. It is believed that Internet access will help further the County's hazard mitigation awareness programs, but should be supplemented with more traditional (and less technical) means as well.

3. Development Trends

Uintah County's economy has always relied on agriculture and mining to sustain its growth. The area has benefited from the development of several geologic deposits, such as gilsonite, oil shale, tar sand and oil, which have shaped its economic growth. While mining and agriculture remain significant to the economy, other industries such as government services, trade and the Ute Indian Tribe, are developing. These new industries help stabilize and diversify the economy.

Nonagricultural employment in Uintah County rose 2.3 percent to 8,745 by adding nearly 200 jobs between the second quarter of 1998 and the second quarter of 1999. Increased construction activity and service employment sustained economic growth. Uintah County's unemployment rate rose to 6.3 percent in 1998 to 6.4 percent for the comparable period of 1999.

Construction employment jumped 50.8 percent by adding 190 positions. All of the growth was in heavy construction for water, sewer, pipeline and communications systems. Residential, nonresidential, and special trade contractors reported slight growth. Services added 170 positions, and 8.4 percent year-over growth. Home health care, offices and clinics of doctors, video rental stores, temporary help agencies, residential care facilities, and tribal organizations reported growth, while jobs for equipment rental declined.

Government jobs increased 4.6 percent by adding 81 positions. Increases were reported for federal, state and local government, although local government positions dominated growth. Federal jobs related to land and wildlife management increased moderately, while state employment reported slight increases in several areas. Local positions rose for roadwork, recreation and education, but contracted for environmental and transportation services.

Manufacturing employment experienced an increase of 17 jobs both durable and nondurable goods manufacturing added positions. Wood kitchen cabinet manufacturing, construction machinery, and publishing accounted for the growth. Oil and gas equipment reported a decline. Finance, Insurance and Real Estate year-over data indicate a net increase of one position. Real estate and insurance agents expanded, while banking/lending positions declined.

4. Fiscal Capability

Uintah County has very limited fiscal capability to implement hazard mitigation strategies.

5. Policy and Program Capability

Emergency Operations Plan

Uintah County has developed and adopted an Emergency Operations Plan, which predetermines actions to be taken by government agencies and private organizations in response to an emergency or disaster event. The Plan was adopted June 1986. For the most part, the Plan describes the County's capabilities to respond to emergencies and establishes the responsibilities and procedures for responding effectively to the actual occurrence of a disaster.

The Plan does not specifically address hazard mitigation, but it does identify the specific operations to be undertaken by the County to protect lives and property immediately before, during and immediately following an emergency. There are no foreseeable conflicts between this Hazard Mitigation Plan and Uintah County's Emergency Management Plan, primarily because they are each focused on two separate phases of emergency management (mitigation vs. preparedness and response).

Floodplain Management Plan

Although Uintah County currently participates in the National Flood Plain Insurance Program they do not have a current Floodplain Management Plan. However, this Disaster Mitigation Plan recommends that Uintah County work on updating and/or revising their Floodplain Management Plan.

Storm Water Management Plan

Uintah County Currently has the Ashley Valley Storm Water Master Plan issued in December 2008. Uintah County currently does not have any county ordinances that address natural disasters. However, a member of the planning committee was in attendance at our Natural Disaster meetings and agreed to work on implementing and adopting new County Ordinances that are relevant to hazard mitigation.

6. Political Willpower

Most Uintah County residents are quite knowledgeable about the potential hazards that their community faces. Recent wildfires have increased the understanding and need for mitigation within the government structure of Uintah County.

The Uintah Basin Association of Governments used historical data to estimate to the best of their ability (with the data available at the time) the potential dollar losses if the County were to experience flooding and wildfires, the two most likely hazards to occur in the County. The estimated costs are as follows:

Potential flood losses:

- Residential properties (including senior citizens home): Depending upon the location of the flood, losses could result into millions of dollars. Approximately; 3 to 4 million dollars
- Local Hospital: The local Hospital in Uintah County is not in the flood plain, and would, therefore not likely be affected by a flood. Approximately; $100,000.00
- Schools: The Schools located in Uintah County, are not likely be affected by a flood. None of the schools are located in the flood plain. Approximately; $100,000.00

- Communication utility company: Due to the fact that the communications and the utility companies are not located in the flood plain minimal damages would result from a flood. Approximately; $100,000.00
- Waste water treatment plant: Due to the fact that the waste water treatment plant is not located in the flood plain minimal damages would result from a flood. Approximately; $100,000.00

Potential wildfire losses:

- Residential properties: Depending upon the location of the flood, losses could result into excess of millions of dollars. Approximately; 4 to 5 million dollars
- Hospital: The Uintah County Hospital would have minimal damages if any that would result from potential wildfire losses. Approximately; $100,000.00
- Secondary School: Uintah County does have two school systems located on the outskirts of City that could have potential damages due to wildfires. Approximately; 1 to 2 million dollars

Uintah County

The Uintah County Disaster Mitigation Planning committee, which consists of one County Commissioner, the County Emergency Manager, the Vernal City Planner, the Naples City Manager, and Ballard City in conjunction with the Uintah Basin Association of Governments meets on several different occasions to review and analyze the risk assessment studies that were performed for the County. The goals listed were determined to be those goals that would have the greatest benefit in hazard reduction to the County. The goals, objectives and actions represent a long-term vision for hazard reduction or enhancement of mitigation capabilities. Listed below is our definition of goals and objectives.

UINTAH COUNTY – COMMUNITY HAZARD MITIGATION GOALS AND STRATEGIES

The following goals were identified to direct community hazard mitigation strategies. These goals were developed based on the input from the Uintah Basin Regional PDM Technical Planning Team and input from the elected officials that comprise the UBAOG Board of Directors.

Goal #1: Protect Current Residents and Property

- Improve emergency response capabilities.
- Improve the disaster resistance of existing infrastructure and critical facilities.
- Build capacity of citizens to undertake mitigation activities through education and training.
- Build technical GIS and analysis capacity for communities to help identify hazards and risks to hazards.

Goal #2: Protect Future Residents and Property

- As appropriate, develop and implement regulatory mechanisms to ensure new development activities will not increase the risk to life or property from natural hazards.
- Build technical GIS and analysis capacity for communities to help identify hazards and risk to hazards for future residents and their property.
- Empower future citizens to make informed choices through access to better data and more resources.

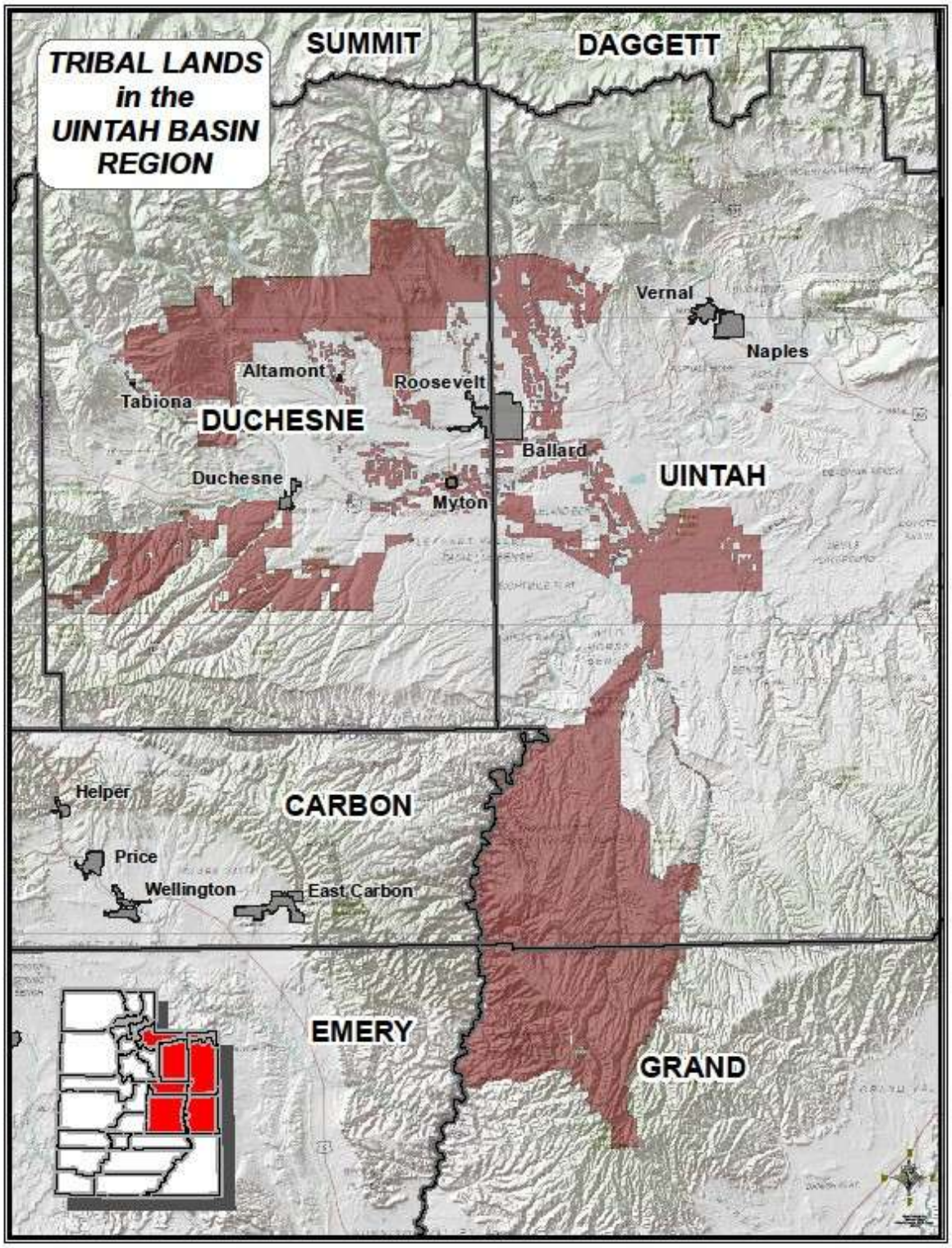
To accomplish these goals, specific mitigation strategies were developed by participating jurisdictions with assistance from working groups and UBAOG staff. These strategies were assigned a priority of high, medium, or low by communities and through UBAOG staff assistance according to the following criteria:

- Potential number of people protected by the project
- Technical feasibility
- Political support
- Available funding and priorities
- Environmental impacts

A guiding factor in prioritizing mitigation strategies was the principle that mitigation should provide the greatest amount of good to the greatest number of people, after considering funding opportunities and constraints. Recurrence intervals, past events, and damage estimates compiled during the assessment of vulnerability in this plan were also considered for priority and timeline values. While there was not a technical benefit-cost analysis regarding mitigation strategies during this planning process, the above criteria were considered for prioritization.

SECTION 9:

Uintah & Ouray Reservation Annex


TRIBAL LANDS
in the
UINTAH BASIN
REGION
SUMMIT
DAGGETT
Vernal
Naples
Altamont
Tabiona
Roosevelt
DUCHESNE
Ballard
UINTAH
Duchesne
Myton
Helper
CARBON
Price
Wellington
East Carbon
EMERY
GRAND

UINTAH & OURAY RESERVATION

Past Hazard Events in or close proximity to the Uintah & Ouray Indian Reservation

Because of the "checkerboard" landownership on and around the Reservation and because of lack of data, Reservation specific hazard identification is difficult. For this reason we have taken a more broad view of the Uintah Basin in looking at natural hazards and their history. A landslide that occurs on a State Highway off of the Reservation can just as much affect the Tribe as one that occurs on their land. Floods and fires do not skip over landownership. A dam that is not on or owned by the Tribe can flood Tribal lands if it fails, causing much damage.

Understanding the past is often the key to discovering what the future holds; this is especially true when planning for natural disasters. The fact that residents within Uintah & Ouray Reservation have experienced flooding in the past means flooding can occur in the future. While over time some of this has been mitigated for the low frequency of occurrence often results in hazards with little or no mitigation. Table 1 provides a brief history of natural disasters in or around the Uintah & Ouray Reservation. This table includes only sizable events found during our research, and may not represent the total history.

2005

1983

Table 9-1: Uintah & Ouray Reservation Natural Disaster History				
Hazards	**Date**	**Location**	**Critical Facility or Area Impacted**	**Comments**
Flash flood	July 4, 1925	Five Mile Canyon near Vernal	1 Death	Child swept from automobile
Flood	September 13, 1940	Duchesne	Damage in Indian Canyon and roads flooded	No loss of life

Flood	August 7, 1941	Mountain Home	Destroyed bridges washed out road over Kofford wash and caused damage in Rock Creek	No loss of life
Flood	August 25, 1955	Lapoint	$3,000.00 in damage to bridges and roads	No loss of life
Flood	July 30, 1956	Jensen	$25,000 damage to farmlands and crops	No loss of life
Flood	August 5, 1957	Tabiona/Hanna	Damage to homes, roads, farms, and crops	Farm Creek
Flood	June 10, 1965	Maeser/Ouray	Damage to homes, crops, and waterlines	Source: Ashley Creek, Dry Fork, The Green, White, and Duchesne
Flood	August 11, 1969	Duchesne	Damage to town due to flooding	Source Yellowstone river, Strawberry river, Duchesne River, and Reed Creek
Flood	1983	Reservation Wide	Limited	Source
Flood	2005	Reservation Wide	Over $200,000 in Damage	No loss of life
Wildfire	July 23, 1988	Green River Fire	Unknown	No loss of life
Wildfire	September 17, 1992	Diamond Mountain Bonus	Unknown	No loss of life
Wildfire	August 16, 1996	Diamond Rim #2	Unknown	No loss of life
Wildfire	June 25, 1999	Walsh Knolls	1096 Acres	No loss of life
Wildfire	June 27, 1999	Whiterocks	Unknown	No loss of life

Wildfire	May 29, 2000	Sweetwater Complex	3700 Acres	No loss of life
Wildfire	July 28, 2000	Pot Creek	Unknown	No loss of life
Wildfire	September 2005	Neola area	Residential structures lost	No loss of life
Flooding	Spring 2011	Reservation Wide	Roads, homes, crops.	No loss of life

Uintah & Ouray Reservation identified natural hazards they wanted addressed in the Uintah & Ouray Reservation portion of this plan. Through input of the planning committee the following hazards were identified:

- Dam Failure
- Earthquakes
- Flooding
- Landslides
- Wildfire

In identifying these hazards the Uintah & Ouray Reservation Tribal members relied on history of past events, Tribal member input, and risk assessments completed by the state emergency manager for their Pre-Disaster Mitigation Plan.

The Uintah & Ouray Reservation Emergency Services committee consists of the Tribe Emergency Manager, and representatives from the following departments: Irrigation, EMS, E&M, Air quality, Resources, EPA , Security, Police, Fish and Wildlife, Ute Bulletin, Health, IHS, Food Dist. Center, BIA Liaison, Tribal Spiritual Leader, Episcopal Church, Executive, VC, Tribal Attorney and Hazmat Liaison.

The Disaster Mitigation Plan Annex for Uintah & Ouray Reservation identifies critical facilities located in the Reservation. A critical facility is defined as a facility in either the public or private sector that provides essential products and services to the general public, is otherwise necessary to preserve the welfare and quality of life in the Reservation, or fulfills important public safety, emergency response, and/or disaster recovery functions. The critical facilities identified in the Reservation were not located in the natural hazard area. *Due to Data limitations, we were unable to map the location of the critical facilities in Uintah* & Ouray Reservation.

Natural Hazard: Dam Failure

Table 9-2: FEMA Hazard Profile for Dam Failure	
Frequency	Unlikely
Severity	Catastrophic
Location	Low lying areas downstream of dams.
Seasonal Pattern	Any time of year.
Duration	Several months to over one year.
Speed of Onset	30 minutes or less (minimal or no warning)
Probability of Future Occurrences	High

A Word about Dams

Dams are a critical support function for water managers in the State and also act as a flood control measure. If a dam remains stable, does not get overtopped, or is not impaired as the result of an earthquake, then, at a minimum, they do provide incidental flood control, if not then they can add to the flood threat. There are 77 dams within and/or affect the Uintah & Ouray Reservation. Of these, 18 have received a high hazard rating by Utah Division of Water Rights Dam Safety section and the Tribe has expressed concern about several other dams. The State Dam Safety Section has developed a hazard rating system for all non-federal dams in Utah. Downstream uses, size, height, volume, and incremental risk/damage assessments are a variable used to assign dam safety classification. Using the hazard ratings systems developed by the State Dam Safety Section, dams are placed into one of three classifications high, moderate, and low. Dams receiving a low rating would have insignificant property loss due to dam failure.
Moderate hazard dams would cause significant property loss in the event of a breach. High hazard dams would cause a possible loss of life in the event of a rupture. The frequency of dam inspection is designated based on hazard rating with the Division of Water Rights inspecting high-hazard dams annually, moderate hazard dams bi-annually, and low-hazard dams every five years.

VULNERABLIITY: High

Description of Hazard

The following high hazard dams exist within and/or affect Uintah & Ouray Reservation according to the Utah Division of Dam Safety database.

- Big Sand Wash
- Bottle Hollow
- Midview
- Current Creek
- Moon Lake
- Soldier Creek
- Starvation
- Stillwater (Upper)

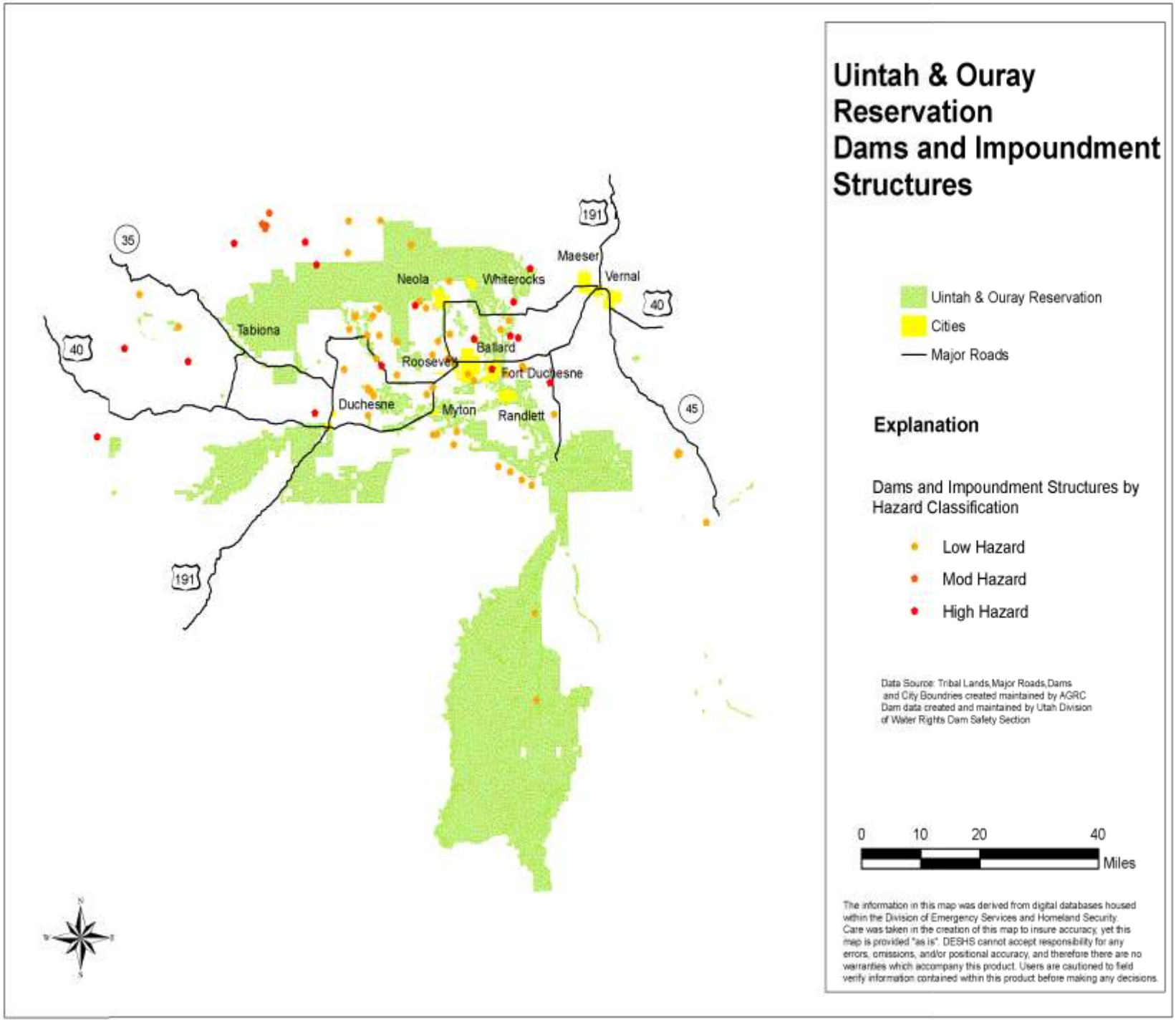
- Brough
- Browns Draw
- Bullock Draw
- Cottonwood
- Lapoint
- Montes Creek
- Red Creek (Duchesne)
- Red Wash
- Twin Pots
- Flaming George
- Steinaker

In addition, the following dams exist within and/or affect Uintah & Ouray Reservation and are of concern to the Tribe.

- Towave
- Pelican

Low-lying areas downstream of these dams are particularly at risk, if a dam were to fail. The Bottle Hollow dam would devastate the entire town of Ft. Duchesne if it was to fail.

Bottle Hollow Dam


Uintah & Ouray Reservation
Dams and Impoundment Structures
35
40
191
45
Tabiona
Neola
Whiterocks
Maeser
Vernal
Ballard
Roosevelt
Fort Duchesne
Duchesne
Myton
Randlett
Uintah & Ouray Reservation
Cities
Major Roads
Explanation
Dams and Impoundment Structures by Hazard Classification
Low Hazard
Mod Hazard
High Hazard
Data Source: Tribal Lands,Major Roads,Dams and City Boundries created maintained by AGRC
Dam data created and maintained by Utah Division of Water Rights Dam Safety Section
0
10
20
40
Miles
The information in this map was derived from digital databases housed within the Division of Emergency Services and Homeland Security. Care was taken in the creation of this map to insure accuracy, yet this map is provided "as is". DESHS cannot accept responsibility for any errors, omissions, and/or positional accuracy, and therefore there are no warranties which accompany this product. Users are cautioned to field verify information contained within this product before making any decisions.

Generic Mitigation:

- Proper mapping of flood plains, including mapping of dam breach flood potential.
- Knowledge must be made public so that emergency managers are aware and the public is aware when they buy and sell property.
- Create Emergency Action Plans (EAP) and integrate with PDM plan.
- Maintaining proper flood plain and wetland geometry and vegetation will help route floods.
- Flood plain usage should be compatible with flood plain needs.
- More debris dams would help with floods and debris, and mud, and maintaining a flood control pool in existing dams would be beneficial.
- Protection of roads and bridges.
- General infrastructure protection.
- More authority to order releases and better forecasting would help in snowmelt floods and runoff.
- Gather hazard and risk data/information.
- Development of improved mitigation techniques.
- Education of local officials, developers, and citizens.
- Work with non-Tribal dam owners with dams that could affect the Reservation.

Natural Hazard: Earthquake

Table 9-3: FEMA Hazard Profile for Earthquake	
Frequency	Unlikely
Severity	Catastrophic
Location	Affect the entire Reservation
Seasonal Pattern	Year - round
Duration	Minutes to hours
Speed of Onset	30 minutes or less (minimal or no warning)
Probability of Future Occurrences	Low

VULNERABILITY: Low

An earthquake is a sudden, rapid shaking of the Earth caused by the breaking and shifting of rock beneath the Earth's surface. This shaking can cause buildings and bridges to collapse; disrupt gas, electric, and phone service; and sometimes trigger landslides, avalanches, flash floods, fires, and huge destructive ocean waves (tsunamis). Buildings with foundations resting on unconsolidated landfill, old waterways, or other unstable soil are most at risk. Buildings or trailers and manufactured homes not tied to a reinforced foundation anchored to the ground are also at risk since they can be shaken off their mountings during an earthquake. Earthquakes can occur at any time of year.

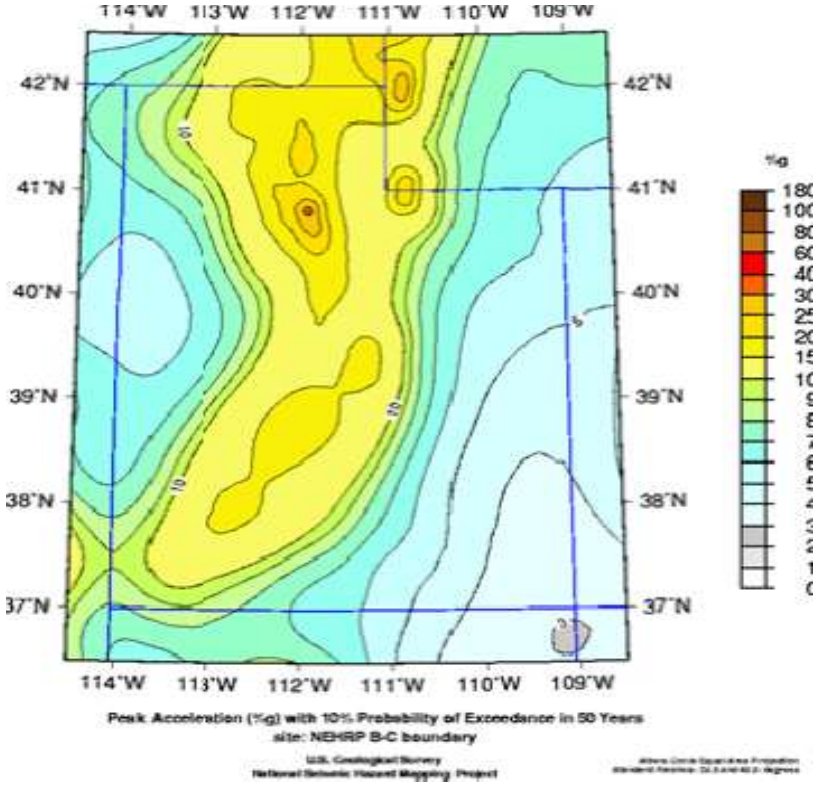
The Diamond Gulch Fault in Uintah County is the only source area for a large magnitude earthquake. Uintah & Ouray Reservation is similar to the counties within the Uintah Basin and has a low seismic hazard, as it is uncertain if the Diamond Gulch Fault has moved during the quaternary period.

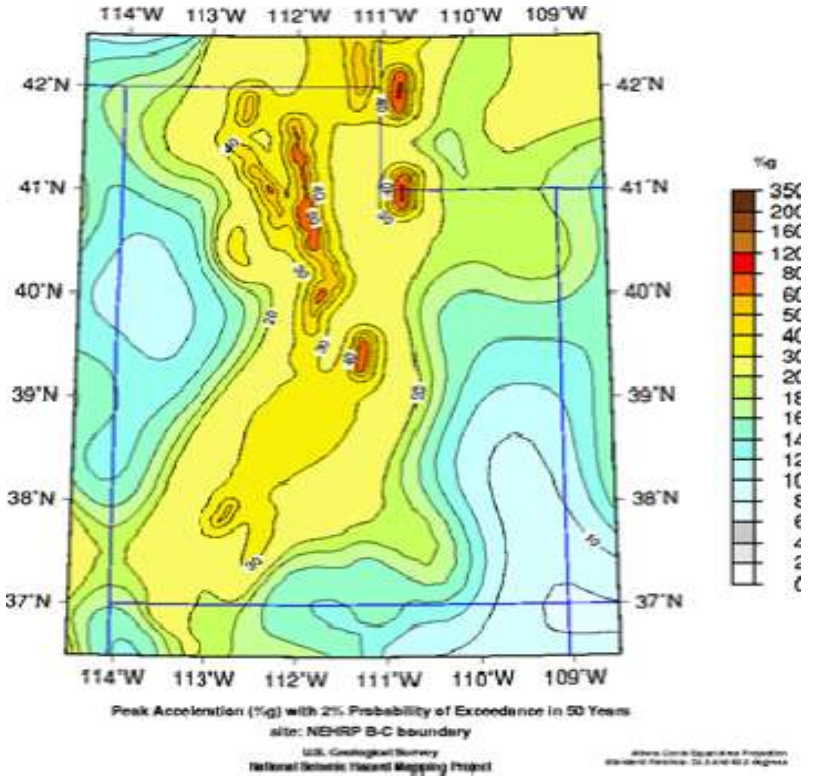
Duchesne County contains the Towanta Flat Graben and the Duchesne Pleasant Valley Fault system. The Duchesne Pleasant valley system is a poorly understood system with fault traces running east and west. This east west orientation is at odds with contemporary tectonic stress regimes so it has not been determined if this fault could produce a large magnitude earthquake or not. Research indicates the Towanta Flat fault last moved in the mid to late Quaternary period. The Reservation is an area of limited seismic hazard due to the long recurrence intervals along the Towanta Flat and Pleasant Valley Fault zones.

The following maps show the national Peak Ground Acceleration (PGA) values for the United States with a 10% chance of being exceeded over 50 years. This is a common earthquake measurement that shows three things: the geographic area affected (all colored areas on the map), the probability of an earthquake of each given level of severity (10% chance in 50 years or 2% chance in 50 years), and the severity (the PGA is indicated by color).

Determine the PGA zone(s) in which your planning area is located. This is done by identifying the color associated with your planning area and correlating it with the color key located on the map. Large planning areas may be located in more than one zone.

Peak ground acceleration (PGA) is a measure of the strength of ground movements. The PGA measures the rate in change of motion relative to the established rate of acceleration due to gravity (g) (980cm/sec/sec).


114°W
113°W
112°W
111°W
110°W
109°W
42°N
41°N
40°N
39°N
38°N
37°N
%g
Peak Acceleration (%g) with 10% Probability of Exceedance in 50 Years
site: NEHRP B-C boundary


114°W
113°W
112°W
111°W
110°W
109°W
42°N
41°N
40°N
39°N
38°N
37°N
%g
Peak Acceleration (%g) with 2% Probability of Exceedance in 50 Years
site: NEHRP B-C boundary

AFFECT:

Uintah & Ouray Reservation is similar to the surrounding counties within the Uintah Basin and has a low seismic hazard, as it is uncertain if the Diamond Gulch Fault has moved during the quaternary period.

POTENTIAL AFFECT:

A potential earthquake could affect water, oil and gas produced for the Uintah Basin as well as the Wasatch Front. An earthquake could affect transportation and dams. Many homes in Uintah & Ouray Reservation were not built to meet earthquake standards.

Table 9-4: Critical Facilities for Uintah & Ouray Reservation

Classification	Total	Least Moderate Damage >50%	Complete Damage >50%	Functionality >50% at day 1
Hospitals	0	0	0	0
Schools	3	0	0	0
Clinics	1	0	0	1
EOCs	1	0	0	1
Police Stations	1	0	0	0
Fire Stations	1	0	0	0

Generic Mitigation:

- Build all homes and building's to meet the standards and code of earthquakes. Reservation adopts building codes on all new construction.
- Educate the public on potential hazards.
- Working with local LEPC on exercising plans in existence.
- Educate local school systems to utilize LEPC.

Generic Ground Shaking Mitigation

- Understand peak horizontal acceleration and recurrence interval.
- Design appropriately.
- Zoning ordinances and building codes.

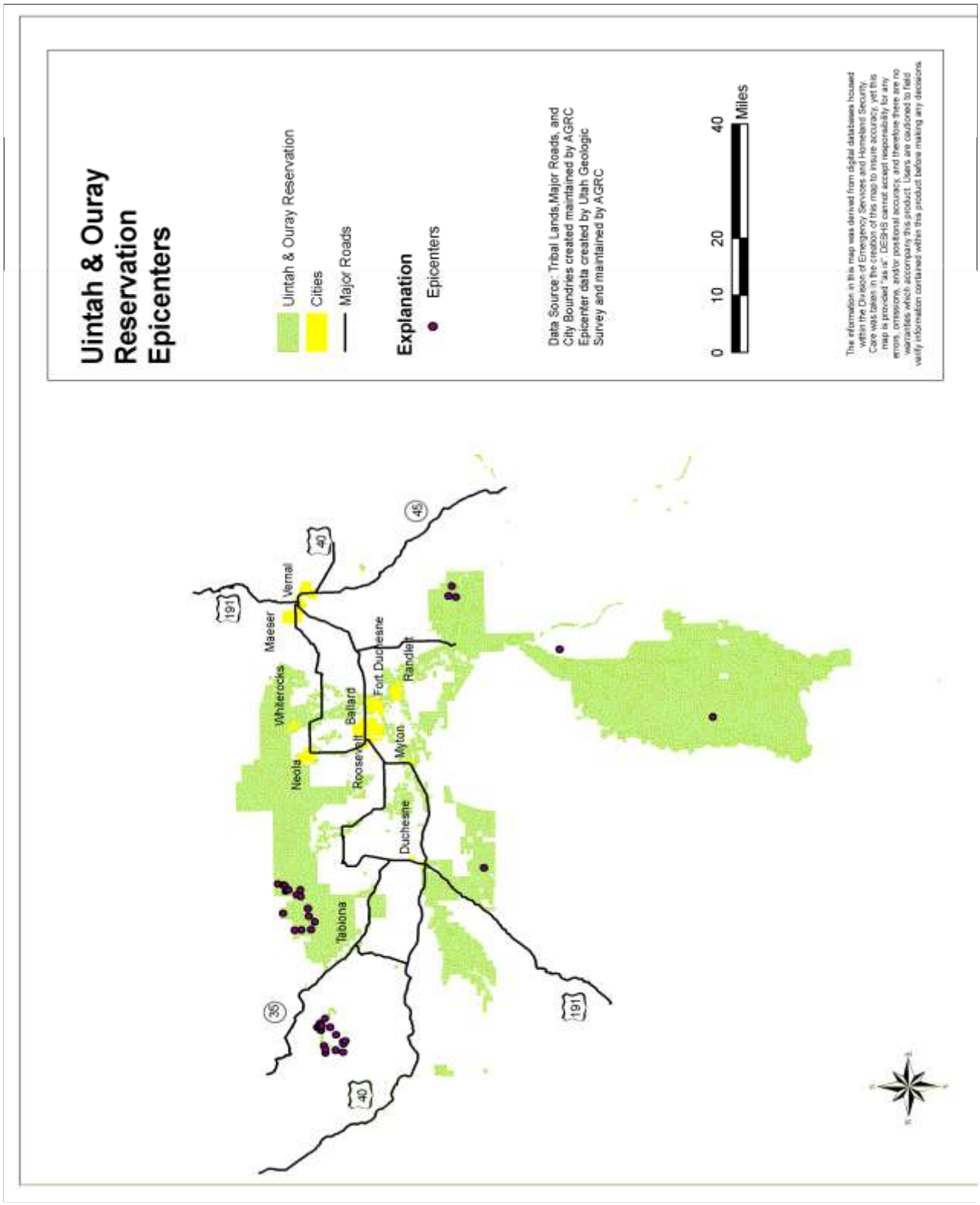
Generic Liquefaction Mitigation

- Move soil out.
- Increase density of soils in place.
- Remove ground water.
- Structural design.

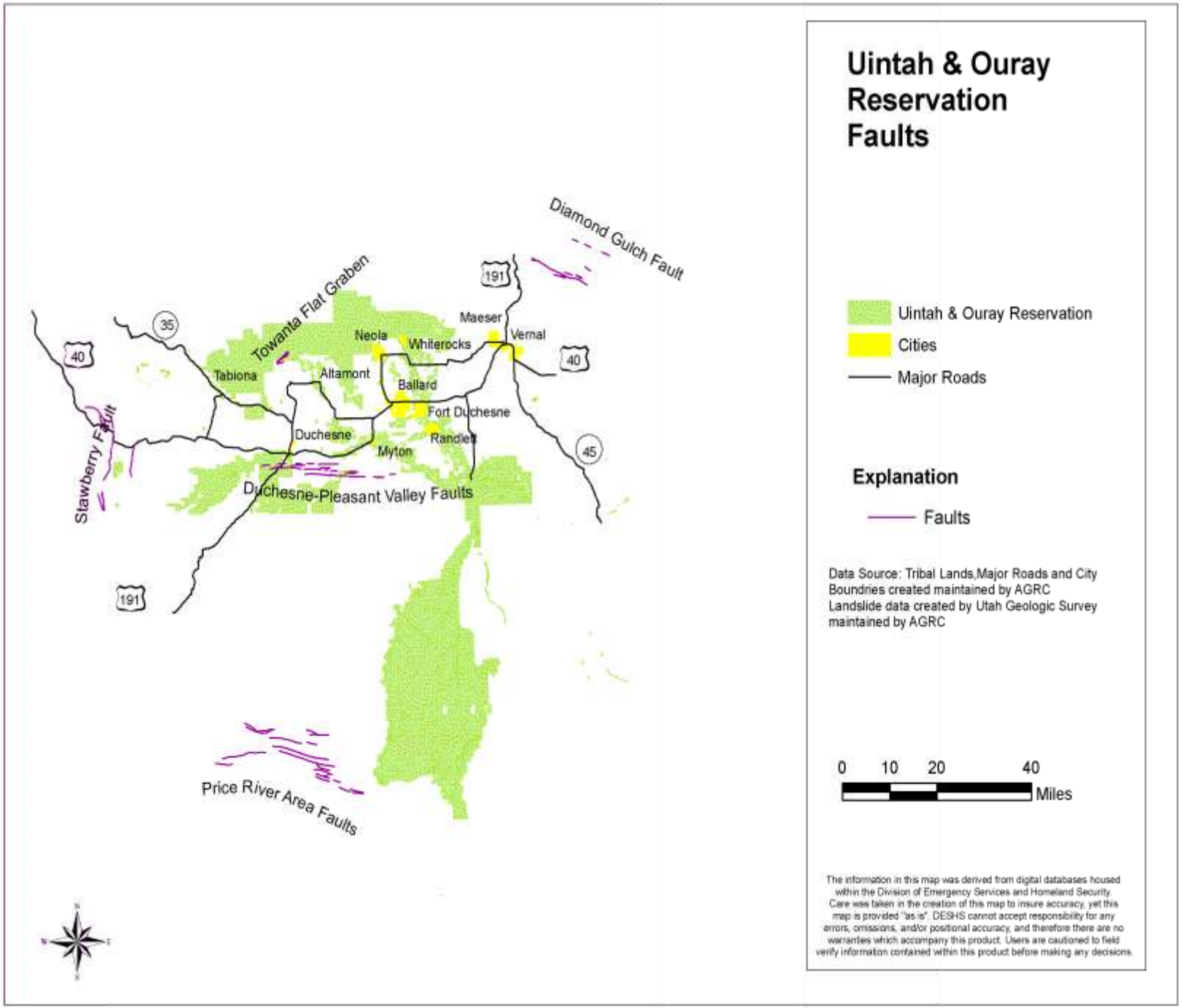
Generic Surface Fault Rupture Mitigation

- Avoidance
- Zoning ordinances

The following maps identify Epicenters and Quaternary Faults and give an explanation for each



in Uintah & Ouray Reservation.


Diamond Gulch Fault
Towanta Flat Graben
Stawberry Fault
Duchesne-Pleasant Valley Faults
Price River Area Faults
Maeser
Vernal
Neola
Whiterocks
Tabiona
Altamont
Ballard
Fort Duchesne
Duchesne
Randlett
Myton
35
40
191
45
Uintah & Ouray Reservation Faults
Uintah & Ouray Reservation
Cities
Major Roads
Explanation
Faults
Data Source: Tribal Lands,Major Roads and City Boundries created maintained by AGRC
Landslide data created by Utah Geologic Survey maintained by AGRC
0 10 20 40
Miles
The information in this map was derived from digital databases housed within the Division of Emergency Services and Homeland Security. Care was taken in the creation of this map to insure accuracy, yet this map is provided "as is". DESHS cannot accept responsibility for any errors, omissions, and/or positional accuracy, and therefore there are no warranties which accompany this product. Users are cautioned to field verify information contained within this product before making any decisions.

Natural Hazard: Flooding

Table 9-5: FEMA Hazard Profile for Flooding	
Frequency	Likely
Severity	Critical
Location	Flooding would affect all communities within the reservation that are in and along the floodplain.
Seasonal Pattern	After spring rains, heavy thunderstorms, or spring thaws.
Duration	Rainstorms can last for hours and possibly days. Spring run-off can last weeks.
Speed of Onset	Six to twelve hours.
Probability of Future Occurrences	High

Floods are the most common and widespread of all natural disasters except fire. Most communities in the United States have experienced some kind of flooding after spring rains, heavy thunderstorms, or winter snow thaws.

A flood, as defined by the National Flood Insurance Program is: "A general and temporary condition of partial or complete inundation of two or more acres of normally dry land area or of two or more properties (at least one of which is your property) from:

- Overflow of inland or tidal waters.
- Unusual and rapid accumulation of runoff of surface waters from any source, or
- A mudflow

[The] collapse or subsidence of land along the shore of a lake or similar body of water as a result of erosion or undermining caused by waves or currents of water exceeding anticipated cyclical levels that result in a flood."

Floods can be slow or fast rising but generally develop over a period of days. Mitigation includes any activities that prevent an emergency, reduce the chance of an emergency happening, or lessen the damaging effects of unavoidable emergencies. Investing in mitigation steps now, such as, engaging in floodplain management activities, constructing barriers, such as levees, and purchasing flood insurance will help reduce the amount of structural damage to your home and financial loss from building and crop damage should a flood or flash flood occur. Source: http://www.fema.gov/hazards/floods/

VULNERABILITY: High

Reoccurring Flood Hazards: None

AFFECT:

In the summer of 2005, the President declared a flood and landslide disaster for eight counties and the Uintah & Ouray Reservation in Utah in response to the extensive flooding and damage that occurred in the spring of that year. The flooding caused hundreds of thousands of dollars in damage on the Reservation. A similar presidential declaration occurred in August 2011 due to similar flooding and damage.

Lake Fork River Arcadia

Generic Mitigation:

- Avoidance
- Revise and up-date building ordinances for new construction that takes place to help eliminate home, bridges and buildings from being washed away.
- Manufactured homes need to be installed properly and inspected.
- Enforce zoning.
- Flood insurance awareness, emphasis, and marketing.
- Curtail development in flood-prone areas.
- Greater reservoir capacities.
- Gather hazard and risk data/information.
- Protection of drinking water supply.
- Education of local officials, developers, and citizens.
- Better flood routing through communities.
- Funding by a storm water tax in cooperation with Federal and State programs.
- Purchase Flood Insurance
- Become a member of the NFIP

Natural Hazard: Landslide

Table 9-6: FEMA Hazard Profile for Landslide	
Frequency	Unlikely
Severity	Critical
Location	Uintah & Ouray Reservation
Seasonal Pattern	After spring rains, heavy thunderstorms, or spring thaws.
Duration	Depending upon conditions
Speed of Onset	Minimal or no warning.
Probability of Future Occurrences	Low

VULNERABILITY: Low

The Uintah Basin Association of Governments identified and mapped possible landslide threats to Uintah Basin that would have a potential risk to pedestrians, vehicle traffic, and residential areas.

In Uintah County there are several areas namely, Blue Mountain, Diamond Mountain, Dry Fork Canyon, and the Book Cliffs that could have a potential risk to pedestrians and vehicle traffic due to landslides. Based upon the information we had available at that time we were unable to come up with any hard value figures that these landslides would have on the Uintah & Ouray Reservation.

Dry Fork Canyon

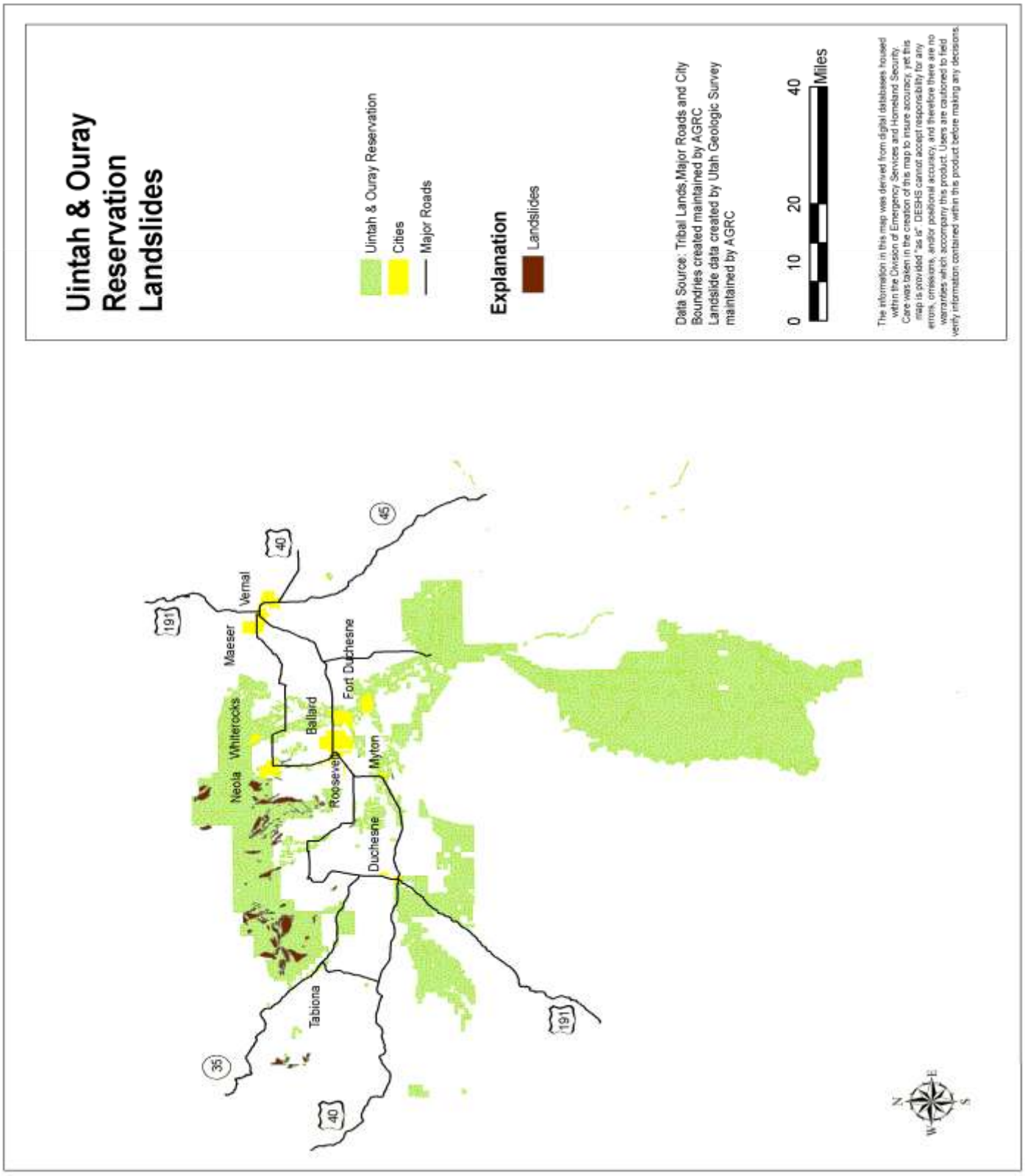
On the Uintah & Ouray Reservation there are approximately 66 residential structures at potential risk from landslide. Based upon figures provided by the local Assessor's Office, the market value of those structures is estimated to be $5,280,000.00.

Table 9-7: Uintah & Ouray Reservation Landslide Vulnerability for Transportation & Utilities		
Transportation		
Name	Miles	Estimated Cost
Local Neighborhood / City Streets	23	$46,000,000
Utilities		
Name	Description	Estimated Cost
Power Lines	1 mile	$241,390
Natural Gas	.032 miles of Questar	$1,544

Generic Mitigation:

- Install a pipeline for run-off.
- Seed hillsides to prevent landslides.

The following map illustrates Landslides and gives an explanation for Landslides in the Uintah Basin.



Natural Hazard: Wildfire

Table 9-8: FEMA Hazard Profile for Wildfire	
Frequency	Likely
Severity	Catastrophic
Location	Uintah & Ouray Reservation
Seasonal Pattern	June through October
Duration	Depending upon conditions; minutes to days to months.
Speed of Onset	Minimal or no warning.
Probability of Future Occurrences	High

There are three different classes of wild land fires. A **surface fire** is the most common type and burns along the floor of a forest, moving slowly and killing or damaging trees. A **ground fire** is usually started by lightning and burns on or below the forest floor. **Crown fires** spread rapidly by wind and move quickly by jumping along the tops of trees. Wild land fires are usually signaled by dense smoke that fills the area for miles around.

A Word about Wildfires

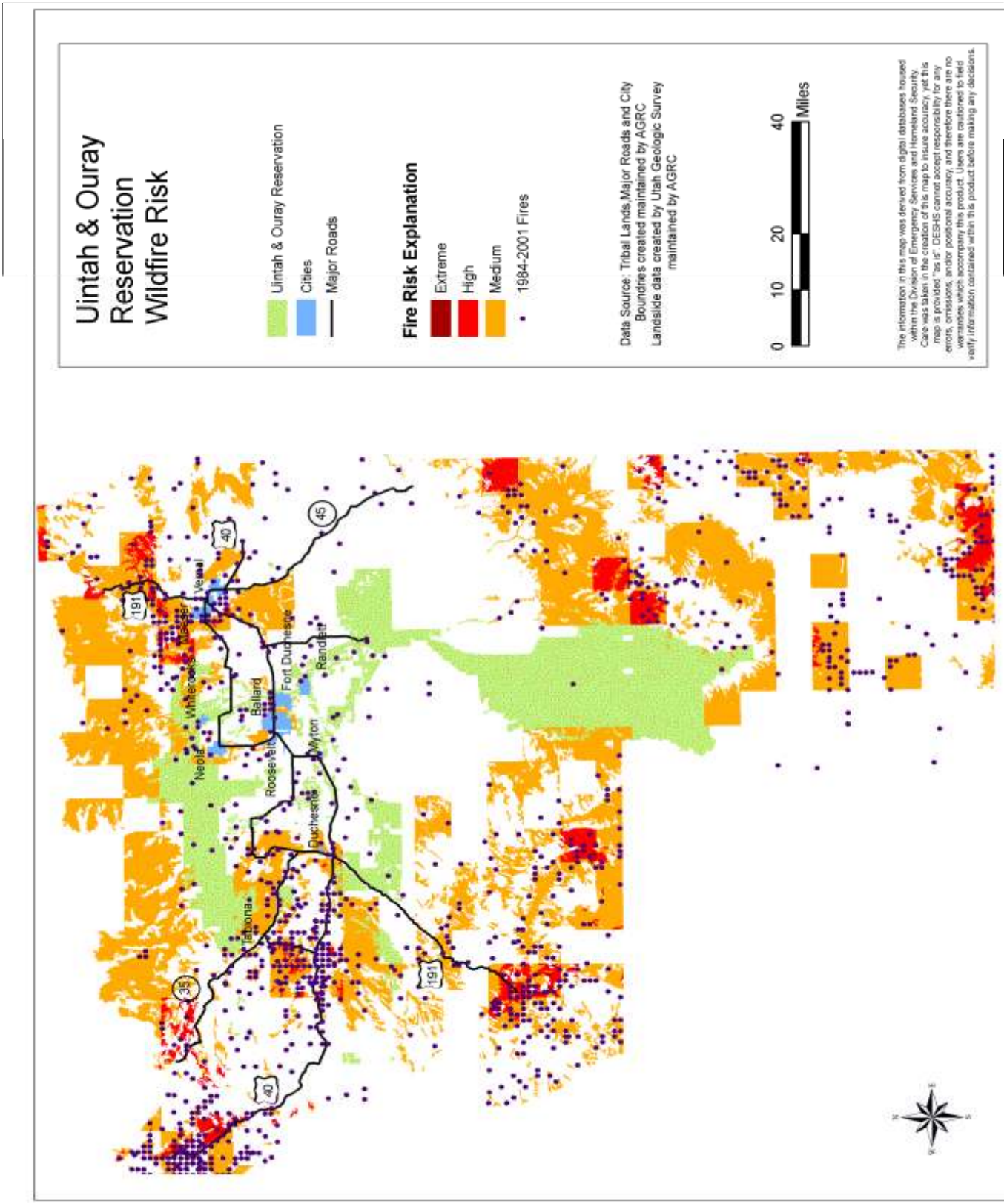
Almost every year several communities around the state are flooded and/or affected by post burn debris flows. Wildfire damaged watersheds have conditions which increase the potential for debris flows which may damage structures and infrastructure in the impacted area. Overall, the heightened risk associated with alluvial fans is always of concern. Post fire re-vegetation and stabilization efforts in many cases do not alleviate the threat due to flooding and debris flow.

VULNERABILITY: High

Generic Mitigation:

- Change poor land management on BLM and forestlands.
- Obtain fire-fighting equipment to control wildfires in rough terrain.
- Provide wild land fire training.
- Obtain fire grant from FEMA for personnel equipment.
- Weed control.

The following map illustrates fire risk and gives a wildfire explanation for the Uintah & Ouray Reservation.



Mitigation Capabilities of Uintah & Ouray Reservation

This portion of the Plan assesses Uintah & Ouray Reservation's current capacity to mitigate the effects of the natural hazards identified within the plan. The assessment includes an examination of the following local government capabilities:

1. Staff & Organizational Capability
2. Technical Capability
3. Development Trends
4. Fiscal Capability
5. Policy and Program Capabilities
6. Political Willpower

The capabilities assessment serves as the foundation for designing an effective hazard mitigation strategy. It not only helps establish the goals and objectives for Uintah & Ouray Reservation to pursue under this Plan, but also ensures that those goals and objectives are realistically achievable under given local conditions.

1. Staff and Organizational Capability

Uintah & Ouray Reservation has limited staff to implement hazard mitigation strategies. The Uintah & Ouray Reservation contains 19,182 people (2000 census). While the Reservation has a number of professional staff members to serve residents and carry out day-to-day administrative activities, much of the staff is part time or is tasked with numerous duties.

The Uintah & Ouray Reservation does have an Emergency Manager who is responsible for the mitigation, preparedness, response and recovery operations that deal with both natural and man-made disaster events along with many other duties.

2. Technical Capability

Uintah & Ouray Reservation has very limited technical capability to implement hazard mitigation strategies.

Technical Expertise

Uintah & Ouray Reservation does have an emergency manager to administer the Reservation's hazard mitigation programs. The Reservation does not have a licensed engineer or related technical expert on staff, and has in the past relied upon outside contractors/consultants to perform a majority of any required technical work.

Geographic Information Systems (GIS)

GIS systems can best be described as a set of tools (hardware, software and people) used to collect, manage, analyze and display spatially-referenced data. Many local governments are now incorporating GIS systems into their existing planning and management operations. Uintah & Ouray Reservation currently has GIS capability, and it has been identified as a needed enhancement for both the Planning Department and the Building Inspections office to further hazard mitigation goals.

Internet Access

Uintah & Ouray Reservation does provide its employees and citizens with high speed broadband Internet. Internet access opens up an enormous door for local officials to keep abreast of the latest information relative to their work and makes receiving government services more affordable and convenient. It is believed that Internet access will help further the Reservation's hazard mitigation awareness programs, but should be supplemented with more traditional (and less technical) means as well.

3. Development Trends

Today's surface ownership of the Uintah Basin is a mixture of Federal Lands (50.5%), Fee Lands (23.8%) Tribal Trust Lands (17.5%) and State of Utah Lands (8.2%). The Tribe, with slightly less than one million acres has ownership of almost 1/4 of the Uintah Basin's total land area. However, the ownership of the surface does not necessarily mean ownership of the minerals. A large area of land, known as the Hill Creek Extension is tribally owned with mineral rights being owned by the Federal Government. Oil and gas production from this land represents 1/4 of the oil and gas produced in Uintah County.

The population of the Tribe living on the Reservation is made up of 703 households. Of the families making up those households, 345 (or 49%) fall into the very low income category and 147 (or 21%) are in the low income category. The average size of families making up these two categories is 4.15 people.

Uintah & Ouray Reservation's economy has always relied on agriculture and mining to sustain its growth. The area has benefited from the development of several geologic deposits, such as gilsonite, oil shale, tar sand and oil, which have shaped its economic growth. Mineral resources are an economic asset, and total Tribe oil production averages over 1,000 barrels a day.

While mining and agriculture remain significant to the economy, other industries such as government services, trade and guided hunts are developing. These new industries help stabilize and diversify the economy. Raising cattle is an important activity on the reservation, and the Tribal Feedlot is where the Tribe maintains its cattle. The Loan Program provides loans to tribal members, and Ute Petroleum is the Tribe's gas stations. Children attend public schools on or near the reservation.

4. Fiscal Capability

Uintah & Ouray Reservation has **very limited** fiscal capability to implement hazard mitigation strategies.

5. Policy and Program Capability

Emergency Operations Plan
Uintah & Ouray Reservation is in the process of writing their plan with State assistance.

Floodplain Management Plan
Although Uintah & Ouray Reservation currently participate in the National Flood Plain Insurance Program they do not have a current Floodplain Management Plan. However, this Disaster Mitigation Plan recommends that Uintah & Ouray Reservation work on updating and/or revising their Floodplain Management Plan.

Storm water Management Plan
Uintah & Ouray Reservation Currently has no formal Storm water Management Plan.

Reservation Ordinances
The Uintah & Ouray Reservation currently does not have any Reservation ordinances that address natural disasters.

6. Political Willpower
Most Uintah & Ouray Reservation residents are quite knowledgeable about the potential hazards that their community faces. Recent wildfires and a presidentially declared flood have increased the understanding and need for mitigation within the government structure of Uintah & Ouray Reservation.

The Uintah & Ouray Reservation used historical data to estimate to the best of their ability (with the data available at the time) the potential dollar losses if the Reservation were to experience flooding and wildfires, the two most likely hazards to occur in the Reservation. The estimated costs are as follows:

Potential flood losses:

- Residential properties (including senior citizens home): Depending upon the location of the flood, losses could result into millions of dollars. *Approximately; 3 to 4 million dollars*
- Local Clinic: The local clinic for the Reservation is not in the flood plain, and would, therefore not likely be affected by a flood. *Approximately; $100,000.00*
- Schools: The Schools located on the Reservation, are not likely be affected by a flood. None of the schools are located in the flood plain. *Approximately; $100,000.00*
- Communication utility company: Due to the fact that the communications and the utility companies are not located in the flood plain minimal damages would result from a flood. *Approximately; $100,000.00*
- Waste water treatment plant: Due to the fact that the waste water treatment plant is not located in the flood plain minimal damages would result from a flood. *Approximately; $100,000.00*

Potential wildfire losses:

- Residential properties: Depending upon the location of the flood, losses could result into excess of millions of dollars. *Approximately; 4 to 5 million dollars*
- Hospital: The Reservation Hospital would have minimal damages if any that would result from potential wildfire losses. *Approximately; $100,000.00*

Secondary School: The reservation does have one secondary school located in an area that could have potential damages due to wildfires. *Approximately; 1 to 2 million dollars*

UINTAH & OURAY RESERVATION

The Uintah & Ouray Reservation Emergency Services committee consists of the Tribe Emergency Manager, and representatives from the following departments: Irrigation, EMS, E&M, Air quality, Resources, EPA , Security, Police, Fish and Wildlife, Ute Bulletin, Health, IHS, Food Dist. Center, BIA Liaison, Tribal Spiritual Leader, Episcopal Church, Executive, VC, Tribal Attorney and Hazmat Liaison. The goals listed were determined to be those goals that would have the greatest benefit in hazard reduction to the reservation. The goals, objectives and actions represent a long-term vision for hazard reduction or enhancement of mitigation capabilities. Listed below is our definition of goals and objectives.

UINTAH & OURAY RESERVATION-COMMUNITY HAZARD MITIGATION GOALS AND STRATEGIES

The following goals were identified to direct community hazard mitigation strategies. These goals were developed based on the input from the Uintah Basin Regional PDM Technical Planning Team and input from the elected officials that comprise the UBAOG Board of Directors.

Goal #1: Protect Current Residents and Property

- Improve emergency response capabilities.
- Improve the disaster resistance of existing infrastructure and critical facilities.
- Build capacity of citizens to undertake mitigation activities through education and training.
- Build technical GIS and analysis capacity for communities to help identify hazards and risks to hazards.

Goal #2: Protect Future Residents and Property

- As appropriate, develop and implement regulatory mechanisms to ensure new development activities will not increase the risk to life or property from natural hazards.
- Build technical GIS and analysis capacity for communities to help identify hazards and risk to hazards for future residents and their property.
- Empower future citizens to make informed choices through access to better data and more resources.

To accomplish these goals, specific mitigation strategies were developed by participating jurisdictions with assistance from working groups and UBAOG staff. These strategies were assigned a priority of high, medium, or low by communities and through UBAOG staff assistance according to the following criteria:

- Potential number of people protected by the project
- Technical feasibility
- Political support
- Available funding and priorities
- Environmental impacts

A guiding factor in prioritizing mitigation strategies was the principle that mitigation should provide the greatest amount of good to the greatest number of people, after considering funding opportunities and constraints. Recurrence intervals, past events, and damage estimates compiled during the assessment of vulnerability in this plan were also considered for priority and timeline values. While there was not a technical benefit-cost analysis regarding mitigation strategies during this planning process, the above criteria were considered for prioritization.

SECTION 10:

PLAN MAINTENANCE

Plan Maintenance Procedures

Monitoring, Evaluating and Updating the PDM Plan

Periodic monitoring and reporting of the PDM Plan is required to ensure that the goals and objectives for the Uintah Basin Region are kept current and that local mitigation efforts are being carried out. The PDM Plan has therefore been designed to be user-friendly in terms of monitoring implementation and preparing regular progress reports.

Annual Reporting Procedures

The PDM Plan shall be reviewed annually, as required by the Executive Board, or as situations dictate such as following a disaster declaration. Each year the UBAOG Community Development Department Staff will review the plan and ensure the following:

1. The Executive Director and the Executive Council will receive an annual report and/or presentation on the implementation status of the Plan at the January Executive Council Meeting.
2. The report will include an evaluation of the effectiveness and appropriateness of the mitigation actions proposed in the PDM Plan.
3. The report will recommend, as appropriate, any required changes or amendments to the PDM Plan.

If the UBAOG Executive Board determines that a modification of the PDM Plan is warranted, the Board may initiate a PDM Plan amendment.

Revisions and Updates

Periodic revisions and updates of the PDM Plan are required to ensure that the goals and objectives for the Uintah Basin Region are kept current. More importantly, revisions may be necessary to ensure the Plan is in full compliance with Federal regulations and State statutes. This portion of the Plan outlines the procedures for completing such revisions and updates. Plan maintenance and significant revision is contingent upon availability of funding.

Five (5) Year Plan Review

The entire plan including any background studies and analysis should be reviewed every five (5) years to determine if there have been any significant changes in the Uintah Basin Region, which would affect the PDM Plan. Increased development, increased exposure to certain hazards, the development of new mitigation capabilities or techniques and changes to Federal or State legislation are examples of changes that may affect the condition of the PDM Plan.

The Pre-Disaster Hazard Mitigation Plan Ad-Hoc Committee, with a potential membership representing every jurisdiction in the UBAOG, will be reconstituted for the five (5) year review/update process. Typically, the same process that was used to create the original plan will be used to prepare the update. Further, following a disaster declaration, the PDM Plan will need to be revised to reflect on lessons learned or to address specific circumstances arising out of the disaster.

The results of this five (5) year review should become summarized in the annual report prepared for this PDM Plan under the direction of the Community Development Director. The annual report will include an evaluation of the effectiveness and appropriateness of the PDM Plan, and will recommend, as appropriate, any required changes or amendments to the PDM Plan.

If the Executive Board determines that the recommendations warrant modification to the PDM Plan, the Board may either initiate a PDM Plan amendment as described below, or, if conditions justify, may direct the UBAOG Community Development Department to undertake a complete update of the PDM Plan.

Plan Amendments

An amendment to the PDM Plan should be initiated only by the Executive Board, either at its own initiative or upon the recommendation of the Executive Director, Community Development Director or Mayor of an affected community. Upon initiation of an amendment to the PDM Plan, UBAOG will forward information on the proposed amendment to all interested parties including, but not limited to, all affected city or county departments, residents and businesses. Depending on the magnitude of the amendment, the full Ad-Hoc committee may be reconstituted. At a minimum, the information will be made available through public notice in a newspaper of general circulation and on the UBAOG or DES Website. Information will also be forwarded to the Utah Department of Public Safety, Division of Emergency Services and Homeland Security. This information will be sent out in order to seek input on the proposed PDM Plan amendment for not less than a forty-five (45) day review and comment period. At the end of the comment period, the proposed amendment and all review comments will be forwarded to the Executive Director (or his/her designee) for consideration. If no comments are received from the reviewing parties within the specified review period, such will be noted accordingly. The Executive Director (or his/her designee) will review the proposed amendment along with comments received from other parties and submit a recommendation to the Executive Board within sixty (60) days.

In determining whether to recommend approval or denial of a PDM Plan amendment request, the following factors will be considered:

1. There are errors or omissions made in the identification of issues or needs during the preparation of the Plan; and/or
2. New issues or needs have been identified which were not adequately addressed in the Plan; and/or
3. There has been a change in information, data or assumptions from those on which the Plan was based.
4. The nature or magnitude of risks has changed.
5. There are implementation problems, such as technical, political, legal or coordination issues with other agencies.

Upon receiving the recommendation of the Executive Director or his/her designee, the Executive Board will hold a public hearing. The Executive Board will review the recommendation (including the factors listed above) and any oral or written comments received at the public hearing. Following that review, the Executive Council will take one of the following actions:

1. Adopt the proposed amendment as presented.
2. Adopt the proposed amendment with modifications.
3. Refer the amendment request back to the Executive Director for further consideration.
4. Defer the amendment request for further consideration and/or hearing.
5. Reject the amendment request.

Implementation through Existing Programs

Process

Each jurisdiction included in the Uintah Basin Association of Governments Pre-disaster Hazard Mitigation Plan has a current Capital Improvements Plan (CIP). The Capital Improvement Planning that occurs in the future will contribute and be a reflection of the goals in the Hazard Mitigation Plan. It will be the responsibility of Mayor/Council/Commissioner(s) of each jurisdiction, as he/she/they see fit, to include within the Capital Improvements Plan action items that have been outlined within the Mitigation Plan and ensure these actions are carried out no later than the target dates unless reasonable circumstances prevent their implementation (i.e. lack of funding availability).

Funding Sources

Although all mitigation techniques will likely save money by avoiding losses, many projects are costly to implement. Uintah Basin jurisdictions will continue to seek outside funding assistance for mitigation projects in both the pre- and post-disaster environment. This portion of the Plan identifies the primary Federal and State grant programs for Uintah Basin jurisdictions to consider, and also briefly discusses local and non-governmental funding sources.

Federal

The following federal grant programs have been identified as funding sources which specifically target hazard mitigation projects:

Title: Pre-Disaster Mitigation Program
Agency: Federal Emergency Management Agency

Through the Disaster Mitigation Act of 2000, Congress approved the creation of a national program to provide a funding mechanism that is not dependent on a Presidential Disaster Declaration. The Pre-Disaster Mitigation (PDM) program provides funding to states and communities for cost-effective hazard mitigation activities that complement a comprehensive mitigation program and reduce injuries, loss of life, and damage and destruction of property.

The funding is based upon a 75% Federal share and 25% non-Federal share. The non-Federal match can be fully in-kind or cash, or a combination. Special accommodations will be made for "small and impoverished communities", who will be eligible for 90% Federal share/10% non-Federal.

FEMA provides PDM grants to states that, in turn, can provide sub-grants to local governments for accomplishing the following eligible mitigation activities:

- State and local hazard mitigation planning
- Technical assistance (e.g. risk assessments, project development)
- Mitigation Projects
- Acquisition or relocation of vulnerable properties
- Hazard retrofits
- Minor structural hazard control or protection projects
- Community outreach and education (up to 10% of State allocation)

Title: Flood Mitigation Assistance Program
Agency: Federal Emergency Management Agency

FEMA's Flood Mitigation Assistance program (FMA) provides funding to assist states and communities in implementing measures to reduce or eliminate the long-term risk of flood damage to buildings, manufactured homes and other structures insurable under the National Flood Insurance Program (NFIP). FMA was created as part of the National Flood Insurance Reform Act of 1994 (42 USC 4101) with the goal of reducing or eliminating claims under the NFIP.

FMA is a pre-disaster grant program, and is available to states on an annual basis. This funding is available for mitigation planning and implementation of mitigation measures only, and is based upon a 75% Federal share/25% non-Federal share. States administer the FMA program and are responsible for selecting projects for funding from the applications submitted by all communities within the state. The state then forwards selected applications to FEMA for an eligibility determination. Although individuals cannot apply directly for FMA funds, their local government may submit an application on their behalf.

Title: Hazard Mitigation Grant Program
Agency: Federal Emergency Management Agency

The Hazard Mitigation Grant Program (HMGP) was created in November 1988 through Section 404 of the Robert T. Stafford Disaster Relief and Emergency Assistant Act. The HMGP assists states and local communities in implementing long-term mitigation measures following a Presidential disaster declaration. To meet these objectives, FEMA can fund up to 75% of the eligible costs of each project. The state or local cost-share match does not need to be cash; in-kind services or materials may also be used. With the passage of the Hazard Mitigation and Relocation Assistance Act of 1993, federal funding under the HMGP is now based on 15% of the federal funds spent on the Public and Individual Assistance programs (minus administrative expenses) for each disaster.

The HMGP can be used to fund projects to protect either public or private property, so long as the projects in question fit within the state and local governments overall mitigation strategy for the disaster area, and comply with program guidelines. Examples of projects that may be funded include the acquisition or relocation of structures from hazard-prone areas, the retrofitting of existing structures to protect them from future damages; and the development of state or local standards designed to protect buildings from future damages.

Eligibility for funding under the HMGP is limited to state and local governments, certain private nonprofit organizations or institutions that serve a public function, Indian tribes and authorized tribal organizations. These organizations must apply for HMPG project funding on behalf of their citizens. In turn, applicants must work through their state, since the state is responsible for setting priorities for funding and administering the program.

Title: Public Assistance (Infrastructure) Program, Section 406
Agency: Federal Emergency Management Agency

FEMA's Public Assistance Program, through Section 406 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, provides funding to local governments following a Presidential Disaster Declaration for mitigation measures in conjunction with the repair of damaged public facilities and infrastructure. The mitigation measures must be related to eligible disaster related damages and must directly reduce the potential for future, similar disaster damages to the eligible facility. These opportunities usually present themselves during the repair/replacement efforts.

Proposed projects must be approved by FEMA prior to funding. They will be evaluated for cost effectiveness, technical feasibility and compliance with statutory, regulatory and executive order requirements. In addition, the evaluation must ensure that the mitigation measures do not negatively impact a facility's operation or risk from another hazard.

Public facilities are operated by state and local governments, Indian tribes or authorized tribal organizations and include:

- Roads, bridges & culverts
- Draining & irrigation channels
- Schools, city halls & other buildings
- Water, power & sanitary systems
- Airports & parks

Private nonprofit organizations are groups that own or operate facilities that provide services otherwise performed by a government agency and include, but are not limited to the following:

- Universities and other schools
- Hospitals & clinics
- Volunteer fire & ambulance
- Power cooperatives & other utilities
- Custodial care & retirement facilities
- Museums & community centers

Title: SBA Disaster Assistance Program
Agency: US Small Business Administration

The SBA Disaster Assistance Program provides low-interest loans to businesses following a Presidential disaster declaration. The loans target businesses to repair or replace uninsured disaster damages to property owned by the business, including real estate, machinery and equipment, inventory and supplies. Businesses of any size are eligible, along with non-profit organizations. SBA loans can be utilized by their recipients to incorporate mitigation techniques into the repair and restoration of their business.

Title: Community Development Block Grants
Agency: US Department of Housing and Urban Development

The Community Development Block Grant (CDBG) program provides grants to local governments for community and economic development projects that primarily benefit low- and moderate-income people. The CDBG program also provides grants from post-disaster hazard mitigation and recovery following a Presidential disaster declaration. Funds can be used for activities such as acquisition, rehabilitation or reconstruction of damaged properties and facilities and for the redevelopment of disaster areas.

State Programs

Local

Local governments depend upon local property taxes as their primary source of revenue. These taxes are typically used to finance services that must be available and delivered on a routine and regular basis to the general public. If local budgets allow, these funds are used to match Federal or State grant programs when required for large-scale projects.

Private

Another potential source of revenue for implementing local mitigation projects are monetary contributions from non-governmental organizations, such as private sector companies, churches, charities, community relief funds, the Red Cross, hospitals, Land Trusts and other non-profit organizations.

Paramount to having a plan deemed to be valid is its implementation. There is currently no new fiscal note attached to the implementation of this PDM Plan.

Continued Public Involvement

Throughout the planning process, public involvement has been and will be critical to the development of the Plan and its updates. On a yearly basis the plan will be profiled at Uintah Basin's Annual Open House, which is held in the fall of every year. There are typically 250-300 local citizens who attend the Open House. The plan will also be available on the UBAOG website to provide additional opportunities for public participation and comment.

Uintah Basin Association of Governments staff has been designated by its Executive Board as the lead agency in preparing and submitting the Uintah Basin Region Pre-disaster Hazard Mitigation Plan, which includes coverage for all incorporated cities and unincorporated areas within the counties of Daggett, Duchesne, and Uintah. The strategy of the Association of Governments in preparing the plan is to use available resources and manpower in the most efficient and cost effective manner to allow our cities and counties continued access to data, technical planning assistance and FEMA eligibility. In addition, the AOG will reach out to non-profits, public agencies, special needs organizations, groups and individuals in allowing them input and access to the plan. With limited resources, however, it becomes difficult to both identify and to individually contact the broad range of potential clients that may stand to benefit from the plan. This being the case, we have established the following course of action:

STEP 1. The AOG will publicly advertise all hearings, requests for input and meetings directly related to the Pre-Disaster Hazard Mitigation Plan process. Executive Council meetings where plan items are discussed and where actions are taken will not receive special notifications as they are already advertised according to set standards. All interested parties are welcome and invited to attend such meetings and hearings, as they are public and open to all. Advertisement will be done according to the pattern set in previous years, i.e. the AOG will advertise each hearing and request for input at least seven days (7) in advance of the activity and will publish notices of the event in the Uintah Basin Standard. The notices will advertise both the hearing and the means of providing input outside the hearing if an interested person is unable to attend.

STEP 2. The AOG has established a mailing list of many local agencies and individuals that may have an interest in the Pre-Disaster Hazard Mitigation Plan. Each identified agency or person will be mailed a notice of the hearings and open houses.

STEP 3. Comments, both oral and written, will be solicited and accepted from any interested party. Comments, as far as possible, will be included in the final draft of the Hazard Mitigation Plan; however, the AOG reserves the right to limit comments that are excessively long due to the size of the Plan.

STEP 4. Specific to risk assessment and hazard mitigation, needs analysis, and capital investment strategies, the AOG will make initial contact and solicitation for input from each incorporated jurisdiction within the region. All input is voluntary. Staff time and resources do not allow personal contact with other agencies or groups, however, comments and strategies are welcomed as input to the planning process from any party via regular mail, FAX, e-mail, phone call, etc. In addition, every public jurisdiction advertises and conducts public hearings on their planning, budget, etc. where most of these mitigation projects are initiated. Input can be received from these prime sources by the region as well.

STEP 5. The final draft of the Hazard Mitigation Plan will be presented to the Uintah Basin Executive Board at its regularly scheduled monthly meeting for adoption and approval to submit the document to State authorities. Executive Board policies on adoption or approval of items will be in force and adhered to. This document is intended to be flexible and in constant change so comments can be taken at any time of the year for consideration and inclusion in the next update. Additionally, after FEMA approval of the Plan, the Plan will be promulgated for each local jurisdiction for adoption by resolution.

STEP 6. The following policies will guide AOG staff in making access and input to the Hazard Mitigation Plan as open and convenient as possible:

A. Participation: All citizens of the region are encouraged to participate in the planning process, especially those who may reside within identified hazard areas. The AOG will take whatever actions possible to accommodate special needs of individuals including the impaired, non-English speaking, persons of limited mobility, etc.

B. Access to Meetings: Adequate and timely notification to all area residents will be given as outlined above to all hearings, forums, and meetings.

C. Access to Information: Citizens, public jurisdictions, agencies and other interested parties will have the opportunity to receive information and submit comments on any aspect of the Hazard Mitigation Plan, and/or any other documents prepared for distribution by the Association of Governments that may be adopted as part of the plan by reference. The AOG may charge a nominal fee for printing of documents that are longer than three pages.

D. Technical Assistance: Residents as well as local jurisdictions may request assistance in accessing the program and interpretation of mitigation projects. AOG staff will assist to the extent practical, however, limited staff time and resources may prohibit staff from giving all the assistance requested. The AOG will be the sole determiner of the amount of assistance given all requests.

E. Public Hearings: The AOG will plan and hold public hearings according to the following priorities: 1- Hearings will be conveniently timed for people who might benefit most from Mitigation programs, 2- Hearings will be accessible to people with disabilities (accommodations must be requested in advance according to previously established policy), and 3- Hearings will be adequately publicized. Hearings may be held for a number of purposes or functions including to: a-identify and profile hazards, b-develop mitigation strategies, and c-review plan goals, performance, and future plans.

F. Comment Period: The AOG will sponsor a 30-day public comment period prior to final plan submission. The comment period will begin with a public hearing to open the 30-day solicitation of input. Comments may be made orally, or in writing, and as far as possible, will be included in the final Pre-disaster Hazard Mitigation Plan according to the outlined participation rules.

References: Utah State Water Plan Uintah Basin. Utah Division of Water Resources, December 1999.

Appendix A:

- **Daggett County**
- **Duchesne County**
- **Uintah County**
- **Uintah & Ouray Reservation**

DAGGETT COUNTY - COMMUNITY MITIGATION STRATEGIES

Protecting Current Residents and Property

Jurisdiction	Hazard	Goal	Action	Action (For NFIP Compliance, if Applicable)	Priority (High, Medium, Low)	Time-frame (Year)	Potential Funding Sources	Estimated Cost	Resources
Uintah Basin Region	All	Protect current residents and property	County-wide emergency preparedness fair (possibly conducted jointly with Uintah County)	NA	High	2013	Counties, UBAOG	Minimal	UBAOG, Counties, Be Ready Utah, LEPCs, Special Service Districts, National Guard, GOPB
Uintah Basin Region	Severe Weather	Protect current residents and property	Public education/training including 3-5 day power outage survival, emergency response (CERT), emergency shelter locations, emergency kits, backup utilities, livestock issues, and interoperable emergency communications planning.	NA	High	2014	Counties, Municipalities, Utah ESHS, FEMA	Unknown	Counties, Municipalities, LEPCs, Utah ESHS, UBAOG, FEMA, NOAA
Uintah Basin Region	Agricultural	Protect current residents and property	Encourage crop diversity, weed and pest management, and coordination with local, State, and Federal agencies on agricultural land management and	NA	Medium	2013	Utah Department of Agriculture and Food, USDA, USU Extension, BLM	Minimal	Utah Department of Agriculture and Food, USDA, USU Extension, BLM
Uintah Basin Region	Drought	Protect current residents and property	Study feasibility of increasing current water storage capabilities	NA	Low	2015	Counties, Water Districts, Municipalities	Minimal	Counties, Water Districts, Municipalities, UBAOG
Uintah Basin Region	Drought	Protect current residents and property	Encourage water conservation techniques for all land uses.	NA	High	2014	Utah DEQ, USDA, Utah Agriculture and Food, Water Districts, Counties, Municipalities	Minimal	Utah DEQ, USDA, Utah Agriculture and Food, Water Districts, Counties, Municipalities
Uintah Basin Region	Earthquake	Protect current residents and property	Update geologic hazards data in the local General Plans and ordinances with new data available from the Utah Geologic Survey and the US Geological Survey	NA	High	2014	Counties, Municipalities, UBAOG	Minimal	Counties, Municipalities, UBAOG
All Uintah Basin Region jurisdictions that do not participate in NFIP	Flood	Protect current residents and property	Talk with the Utah ESHS about the benefits of the NFIP and consider joining so residents can purchase flood insurance.	Talk with the Utah ESHS about the benefits of the NFIP and consider joining so residents can purchase flood insurance	High	2013	Counties, Municipalities	Minimal	Utah ESHS, FEMA, Municipalities, Counties, UBAOG
Daggett County	Dam Failure	Protect current residents and property	Digitize high hazard dam failure inundation maps.	NA	Medium	2015	State, County	Minimal	State, County

Daggett County	Dam Failure	Protect current residents and property	Update Emergency Operations Plan to include GIS dam failure estimates.	NA	Medium	2013	County	Minimal	County
Daggett County	Dam Failure	Protect current residents and property	Educate the local elected officials, developers, and citizens.	NA	Medium	2015	County	Minimal	County
Daggett County	Dam Failure	Protect current residents and property	Update Emergency Action Plans (EAP) and integrate with GIS.	NA	Medium	2015	FEMA, State, Local	Unknown	State, County
Daggett County	Dam Failure	Protect current residents and property	Implementation of more debris dams would assist in controlling floods, reducing the amount of debris and mud that come through. Maintenance of flood control pools in existing dams would also be very beneficial.	NA	Medium	2015	County, Local	Minimal	County, Local
Daggett County	Drought	Protect current residents and property	Conduct public awareness seminars and information campaigns designed to reduce water usage.	NA	High	2014	County	Minimal	County
Daggett County	Earthquake	Protect current residents and property	Identify and maintain critical transportation and utility services.	NA	Medium	2014	County	Unknown	County
Daggett County	Earthquake	Protect current residents and property	Conduct a public awareness campaign	NA	Medium	2015	County	Unknown	County
Daggett County	Earthquake	Protect current residents and property	Conduct a structural and non-structural earthquake hazard assessment.	NA	High	2015	County	Unknown	County
Daggett County	Flooding	Protect current residents and property	Set horizontal and vertical survey control and order aerial photography with contours for each residential area in the county.	Set horizontal and vertical survey control and order aerial photography with contours for each residential area in the county.	High	2015	County, State, Federal	Unknown	County, State
Daggett County	Flooding	Protect current residents and property	Design master storm drainage plans to handle storm water runoff through residential areas.	Design master storm drainage plans to handle storm water runoff through residential areas.	High	2016	County, State, Federal	Unknown	County, State, Federal
Daggett County	Flooding	Protect current residents and property	Provide information to the public on how the storm drainage plans will assist in preventing flood damage to the residents of Daggett County.	NA	High	2016	County, State, Federal	Unknown	County, State, Federal

Daggett County	Agricultural	Protect current residents and property	Spread insect bait and spray for mosquitoes.	NA	High	2013	County, Special Service District	Unknown	County, Special Service District
Daggett County	Agricultural	Protect current residents and property	Provide mosquito abatement for the county through spraying and reducing standing water.	NA	High	2013	County, State, Federal	$6,000	County, State, Federal
Daggett County	Agricultural	Protect current residents and property	Educate the public on the importance of vaccinating their animals against the threat of West Nile Virus and other diseases.	NA	High	2015	County	$6,000	County
Daggett County	Landslide	Protect current residents and property	Assess the probability of landslides and identify specific structures at risk.	NA	High	2016	County	Unknown	County, State, Federal
Daggett County	Landslide	Protect current residents and property	Coordinate with all government agencies' that would assist in sloping of the hillside near Carter Creek. The county will need to contact the appropriate agencies on the possibility of implementing some kind of protective netting or fencing that would eliminate the rock from tumbling down on to Highway 44.	NA	High	2016	County	Unknown	County, State, Federal
Daggett County	Wildfire	Protect current residents and property	Develop and enforce current local, state, and federal building and fire codes as related to wildfire prevention.	NA	High	2013	County	Minimal	County
Town of Manila	Drought	Protect current residents and property	Maintain and enforce rate policies that encourage water conservation.	NA	High	2013	Local	Minimal	Local
Town of Manila	Flooding	Protect current residents and property	Daggett County and the Town of Manila will form a partnership with the current owners of the Sheep Creek Canal. In doing so, this will enable them to work together in the lining or piping of portions of the canal as funding becomes available.	NA	High	2015	FEMA, County, Local	Unknown	FEMA, County, Local
Town of Manila	Flooding	Protect current residents and property	Educate the public on canal maintenance and repair.	NA	High	2013	County, Local	Minimal	County, Local
Town of Manila	Flooding	Protect current residents and property	County and Town building inspectors and the planning committee will implement a maintenance and inspection schedule in coordination with the owners of the canal.	NA	High	2014	County, Local	Minimal	County, Local
Town of Manila	Flooding	Protect current residents and property	Implement a flood ordinance that will cover the County and Town with flood insurance.	Implement a flood ordinance that will cover the County and Town with flood insurance.	High	2014	County, Local	Minimal	County, Local
Town of Manila	Agricultural	Protect current residents and	Conduct aerial spraying to reduce infestations.	NA	High	2013	Local	Unknown	Local

		property							
Town of Manila	Severe Weather	Protect current residents and property	Provide adequate clearances for power lines and conduct ongoing line maintenance. Maintain power outage plan.	NA	High	2015	Local	TBD	Local
Town of Manila	Wildfire	Protect current residents and property	The local LEPC will provide semi-annual training for the citizens of Daggett County and the Town of Manila regarding homeowner risk to wildfire and how to reduce that risk.	NA	High	2013	Local	TBD	Local

DAGGETT COUNTY - COMMUNITY MITIGATION STRATEGIES

Protecting Future Residents and Property

Jurisdiction	Hazard	Goal	Action	Action (For NFIP Compliance, if Applicable)	Priority (High, Medium, Low)	Time-frame (Year)	Potential Funding Sources	Estimated Cost	Resources
Uintah Basin Region	All	Protect future residents and property	County-wide emergency preparedness fair (possibly conducted jointly with Uintah County)	NA	High	2013	Counties, UBAOG	Minimal	UBAOG, Counties, Be Ready Utah, LEPCs, Special Service Districts, National Guard, GOPB
Uintah Basin Region	Severe Weather	Protect future residents and property	Discuss planning needs on the county and city levels to coordinate land use regulations regarding development in flood, landslide, and wildfire hazard areas and Severe Weather events and response. This would be intended to prevent damages from extreme weather trigger events and incorporate severe weather into current response plans.	NA	Medium	2014	Counties, Municipalities, UBAOG	Minimal	Counties, Municipalities, UBAOG, Be Ready Utah, LEPCs, NOAA, NRCS
Uintah Basin Region	Agricultural	Protect future residents and property	Encourage crop diversity, weed and pest management, and coordination with local, State, and Federal agencies on agricultural land management and	NA	Medium	2014	Utah Department of Agriculture and Food, USDA, USU Extension, BLM	Minimal	Utah Department of Agriculture and Food, USDA, USU Extension, BLM
Uintah Basin Region	Drought	Protect future residents and property	Study feasibility of increasing current water storage capabilities	NA	Low	2015	Counties, Water Districts, Municipalities	Minimal	Counties, Water Districts, Municipalities, UBAOG
Uintah Basin Region	Drought	Protect future residents and property	Encourage water conservation techniques for all land uses.	NA	High	2014	Utah DEQ, USDA, Utah Agriculture and Food, Water Districts, Counties, Municipalities	Minimal	Utah DEQ, USDA, Utah Agriculture and Food, Water Districts, Counties, Municipalities
Uintah Basin Region	Earthquake	Protect future residents and property	Update geologic hazards data in the local General Plans and ordinances with new data available from the Utah Geologic Survey and the US Geological Survey	NA	High	2014	Counties, Municipalities, UBAOG	Minimal	Counties, Municipalities, UBAOG
All Uintah Basin Region jurisdictions that do not participate in NFIP	Flood	Protect future residents and property	Talk with the Utah ESHS about the benefits of the NFIP and consider joining so residents can purchase flood insurance.	Talk with the Utah ESHS about the benefits of the NFIP and consider joining so residents can purchase flood insurance	High	2013	Counties, Municipalities	Minimal	Utah ESHS, FEMA, Municipalities, Counties, UBAOG
Daggett County	Drought	Protect future residents and property	The local LEPC will hold meetings semi-annually to educate the public on the need to be water wise.	NA	High	2013	County	Minimal	County

Daggett County	Drought	Protect future residents and property	Develop more redundant piping and storm water lines for Dutch John and the Flaming Gorge Reservoir.	NA	High	2015	County	Unknown	County
Daggett County	Drought	Protect future residents and property	Install new wheel lines to improve efficiency of water use.	NA	High	2015	Federal, State, County	Unknown	NRCS, UACD, USU Extension
Daggett County	Landslide	Protect future residents and property	The county's and town's planning committee will review and update the zoning ordinances within the County and Town to make sure that individuals are not constructing new homes near potential landslide areas.	NA	High	2014	County	Minimal	County
Daggett County	Severe Weather	Protect future residents and property	Ensure that 80 MPH wind load requirement is met by builders.	NA	High	2013	County	Minimal	County
Town of Manila	Drought	Protect future residents and property	Improve water delivery system and implement strategies to encourage residents and businesses to utilize water saving devices and procedures.	NA	High	2015	Local, State, Federal	Unknown	Local, State, Federal
Town of Manila	Flooding	Protect future residents and property	Put in an application to the Army Corps of Engineers for updated and revised flood plain maps for the Town of Manila.	Put in an application to the Army Corps of Engineers for updated and revised flood plain maps for the Town of Manila.	High	2015	FEMA, State, Local	Unknown	FEMA, State, Local
Town of Manila	Flooding	Protect future residents and property	Place a restrictive clause in the County and Town ordinances that will prohibit any new development in the county flood plain.	Place a restrictive clause in the County and Town ordinances that will prohibit any new development in the county flood plain.	High	2013	Local	Minimal	Local
Town of Manila	Flooding	Protect future residents and property	Place a restrictive clause in the County and Town ordinances that will prohibit any undercutting of the canal.	NA	High	2013	Local	Minimal	Local
Town of Manila	Flooding	Protect future residents and property	County and Town building inspectors and planning committee will make sure that the Zoning Ordinance is up-dated or revised every 5 to 6 years.	NA	High	2013	County, Local	Minimal	County, Local

Daggett County, Utah
Population and Housing Narrative Profile: 2005-2009
2005-2009 American Community Survey 5-Year Estimates
American Community Survey

NOTE. Although the American Community Survey (ACS) produces population, demographic and housing unit estimates, it is the Census Bureau's Population Estimates Program that produces and disseminates the official estimates of the population for the nation, states, counties, cities and towns and estimates of housing units for states and counties.

For more information on confidentiality protection, sampling error, nonsampling error, and definitions, see Survey Methodology.

HOUSEHOLDS AND FAMILIES: In 2005-2009 there were 340 households in Daggett County. The average household size was 2.1 people.

Families made up 62 percent of the households in Daggett County. This figure includes both married-couple families (58 percent) and other families (4 percent). Nonfamily households made up 38 percent of all households in Daggett County. Most of the nonfamily households were people living alone, but some were composed of people living in households in which no one was related to the householder.

NATIVITY AND LANGUAGE: Four percent of the people living in Daggett County in 2005-2009 were foreign born. Ninety-six percent was native, including 56 percent who were born in Utah.

Among people at least five years old living in Daggett County in 2005-2009, 7 percent spoke a language other than English at home. Of those speaking a language other than English at home, 49 percent spoke Spanish and 51 percent spoke some other language; 9 percent reported that they did not speak English "very well."

GEOGRAPHIC MOBILITY: In 2005-2009, 69 percent of the people at least one year old living in Daggett County were living in the same residence one year earlier; 7 percent had moved during the past year from another residence in the same county, 16 percent from another county in the same state, 7 percent from another state, and 1 percent from abroad.

EDUCATION: In 2005-2009, 83 percent of people 25 years and over had at least graduated from high school and 14 percent had a bachelor's degree or higher. Seventeen percent were dropouts; they were not enrolled in school and had not graduated from high school.

The total school enrollment in Daggett County was 120 in 2005-2009. Nursery school and kindergarten enrollment was 19 and elementary or high school enrollment was 84 children. College or graduate school enrollment was 16.

DISABILITY: In Daggett County, among people at least five years old in 2005-2009, percent reported a disability. The likelihood of having a disability varied by age - from percent of people 5 to 15 years old, to percent of people 16 to 64 years old, and to percent of those 65 and older.

INDUSTRIES: In 2005-2009, for the employed population 16 years and older, the leading industries in Daggett County were Arts, entertainment, and recreation, and accommodation and food services, 23 percent, and Public administration, 18 percent.

OCCUPATIONS AND TYPE OF EMPLOYER: Among the most common occupations were: Service occupations, 26 percent; Management, professional and related occupations, 26 percent; Sales and office occupations, 26 percent; Construction, extraction, maintenance, and repair occupations, 14 percent; and Production, transportation, and material moving occupations, 6 percent. Fifty-seven percent of the people employed were Private wage and salary workers; 37 percent was Federal, state, or local government workers; and 7 percent was Self-employed in own not incorporated business workers.

TRAVEL TO WORK: Ninety-one percent of Daggett County workers drove to work alone in 2005-2009, 2 percent carpooled, less than 0.5 percent took public transportation, and 8 percent used other means. The remaining less than 0.5 percent worked at home. Among those who commuted to work, it took them on average 15.6 minutes to get to work.

INCOME: The median income of households in Daggett County was $38,021. Sixty-nine percent of the households received earnings and 35 percent received retirement income other than Social Security. Forty-four percent of the households received Social Security. The average income from Social Security was $12,925. These income sources are not mutually exclusive; that is, some households received income from more than one source.

POVERTY AND PARTICIPATION IN GOVERNMENT PROGRAMS: In 2005-2009, 6 percent of people were in poverty. Four percent of related children under 18 were below the poverty level, compared with 2 percent of people 65 years old and over. Six percent of all families and less than 0.5 percent of families with a female householder and no husband present had incomes below the poverty level.

POPULATION OF Daggett County: In 2005-2009, Daggett County had a total population of 780 - 350 (44 percent) females and 430 (56 percent) males. The median age was 37.9 years. Seventeen percent of the population was under 18 years and 18 percent was 65 years and older.

For people reporting one race alone, 93 percent was White; less than 0.5 percent was Black or African American; less than 0.5 percent was American Indian and Alaska Native; 1 percent was Asian; less than 0.5 percent was Native Hawaiian and Other Pacific Islander and 5 percent was Some other race. One percent reported two or more races. Seven percent of the people in Daggett County was Hispanic. Ninety-one percent of the people in Daggett County were White non-Hispanic. People of Hispanic origin may be of any race.

HOUSING CHARACTERISTICS: In 2005-2009, Daggett County had a total of 1,200 housing units, 71 percent of which were vacant. Of the total housing units, 55 percent was in single-unit structures, 1 percent was in multi-unit structures, and 44 percent was mobile homes. Twenty-seven percent of the housing units were built since 1990.

OCCUPIED HOUSING UNIT CHARACTERISTICS: In 2005-2009, Daggett County had 340 occupied housing units - 210 (63 percent) owner occupied and 130 (37 percent) renter occupied. Four percent of the households did not have telephone service and less than 0.5 percent of the households did not have access to a car, truck, or van for private use. Multi Vehicle households were not rare. Forty-three percent had two vehicles and another 24 percent had three or more.

HOUSING COSTS: The median monthly housing costs for mortgaged owners was $1,064, nonmortgage owners $297, and renters $595. Thirty-seven percent of owners with mortgages, 11 percent of owners without mortgages, and 39 percent of renters in Daggett County spent 30 percent or more of household income on housing.

Source: U.S. Census Bureau, 2005-2009 American Community Survey

The U.S. Census Bureau's Population Estimates Program produces the official population estimates for the nation, states, counties and places, and the official estimates of housing units for states and counties. The population and housing characteristics included above are derived from the American Community Survey.

Notes:
· Detail may not add to totals due to rounding.
· Percentages are based on unrounded numbers.

DUCHESNE COUNTY - COMMUNITY MITIGATION STRATEGIES

Protecting Current Residents and Property

Jurisdiction	Hazard	Goal	Action	Action (For NFIP Compliance, if Applicable)	Priority (High, Medium, Low)	Time-frame (Year)	Potential Funding Sources	Estimated Cost	Resources
Uintah Basin Region	All	Protect current residents and property	County-wide emergency preparedness fair	NA	High	2013	Counties, UBAOG	Minimal	UBAOG, Counties, Be Ready Utah, LEPCs, Special Service Districts, National Guard, GOPB
Uintah Basin Region	Severe Weather	Protect current residents and property	Public education/training including 3-5 day power outage survival, emergency response (CERT), emergency shelter locations, emergency kits, backup utilities, livestock issues, and interoperable emergency communications planning.	NA	High	2014	Counties, Municipalities, Utah ESHS, FEMA	Unknown	Counties, Municipalities, LEPCs, Utah ESHS, UBAOG, FEMA, NOAA
Uintah Basin Region	Agricultural	Protect current residents and property	Encourage crop diversity, weed and pest management, and coordination with local, State, and Federal agencies on agricultural land management and	NA	Medium	2014	Utah Department of Agriculture and Food, USDA, USU Extension, BLM	Minimal	Utah Department of Agriculture and Food, USDA, USU Extension, BLM
Uintah Basin Region	Drought	Protect current residents and property	Study feasibility of increasing current water storage capabilities	NA	Low	2015	Counties, Water Districts, Municipalities	Minimal	Counties, Water Districts, Municipalities, UBAOG
Uintah Basin Region	Drought	Protect current residents and property	Encourage water conservation techniques for all land uses.	NA	High	2014	Utah DEQ, USDA, Utah Agriculture and Food, Water Districts, Counties, Municipalities	Minimal	Utah DEQ, USDA, Utah Agriculture and Food, Water Districts, Counties, Municipalities
Uintah Basin Region	Earthquake	Protect current residents and property	Update geologic hazards data in the local General Plans and ordinances with new data available from the Utah Geologic Survey and the US Geological Survey	NA	High	2014	Counties, Municipalities, UBAOG	Minimal	Counties, Municipalities, UBAOG
All Uintah Basin Region jurisdictions that do not participate in NFIP	Flood	Protect current residents and property	Talk with the Utah ESHS about the benefits of the NFIP and consider joining so residents can purchase flood insurance.	Talk with the Utah ESHS about the benefits of the NFIP and consider joining so residents can purchase flood insurance	High	2013	Counties, Municipalities	Minimal	Utah ESHS, FEMA, Municipalities, Counties, UBAOG
Duchesne County	Dam Failure	Protect current residents and property	Update Emergency Operations Plan to include GIS dam failure estimates.	NA	High	2014	County	Unknown	County, UBAOG

Duchesne County	Dam Failure	Protect current residents and property	Educate the local elected officials, developers, and citizens.	NA	High	2014	County	Minimal	County, UBAOG, FEMA
Duchesne County	Dam Failure	Protect current residents and property	Update Emergency Action Plans (EAP) and integrate with GIS systems.	NA	High	2014	FEMA, State, County, Local	Unknown	County, Local, State, UBAOG
Duchesne County	Dam Failure	Protect current residents and property	Implementation of more debris dams would assist in controlling floods, reducing the amount of debris and mud that come through. Maintenance of flood control pools in existing dams would also be very beneficial.	NA	High	2015	County, Local	Minimal	County, Local, State, UBAOG
Duchesne County	Drought	Protect current residents and property	Install new wheel lines to improve water use efficiency.	NA	High	2015	County, State, Federal	Unknown	NRCS, UACD, USU, County, DEQ, UBAOG
Duchesne County	Earthquake	Protect current residents and property	Identify and maintain critical transportation and utility services.	NA	High	2013	County, Local	Unknown	County
Duchesne County	Earthquake	Protect current residents and property	Conduct a public awareness campaign.	NA	High	2014	County, Local	Unknown	County, UBAOG, FEMA
Duchesne County	Flood	Protect current residents and property	Set Horizontal and vertical survey control and order aerial photography with contours for each residential area in the county	Set Horizontal and vertical survey control and order aerial photography with contours for each residential area in the county	High	2015	County, State, Federal	Unknown	County, State, Federal
Duchesne County	Flood	Protect current residents and property	Implement storm drainage plans throughout the residential areas of Duchesne County	Implement storm drainage plans throughout the residential areas of Duchesne County	High	2014	County, State, Federal	Unknown	County, Local
Duchesne County	Agricultural	Protect current residents and property	Spread insect bait and spray for mosquitoes.	NA	High	2013	County, Local	Minimal	County
Duchesne County	Agricultural	Protect current residents and property	Apply for grants to purchase Mosquito magnets and propane tanks to run the magnets.	NA	High	2014	County	Unknown	County
Duchesne County	Agricultural	Protect current residents and property	Educate the public on the importance of vaccinating their animal.	NA	High	2014	County, State	Minimal	County
Duchesne County	Agricultural	Protect current residents and property	Conduct aerial spraying to reduce infestations.	NA	High	2013	County	Unknown	County

Duchesne County	Landslide	Protect current residents and property	Assess the probability of landslides and identify specific structures at risk.	NA	High	2014	County	Unknown	County, State, UBAOG
Duchesne County	Landslide	Protect current residents and property	Assess the probability of landslides and identify specific structures at risk.	NA	High	2014	County	Unknown	County
Duchesne County	Severe Weather	Protect current residents and property	Provide adequate clearances for power lines and conduct ongoing line maintenance. Maintain outage plan.	NA	High	2014	County	Unknown	County, Local
Duchesne County	Wildfire	Protect current residents and property	Develop and enforce current local, state and national codes.	NA	High	2013	County, State, Federal.	Unknown	County, Sate, Federal
Duchesne County	Wildfire	Protect current residents and property	The local LEPC will provide semi-annual training for the citizens of Duchesne County	NA	High	2013	County, State	Minimal	County
Altamont Town	Flood	Protect current residents and property	Town building inspectors and the planning committee will revise and update building ordinances for new construction that takes place to help eliminate bridges and buildings from being washed away.	Town building inspectors and the planning committee will revise and update building ordinances for new construction that takes place to help eliminate bridges and buildings from being washed away.	High	2013	County, FEMA, State	Minimal	County, Local
Altamont Town	Flood	Protect current residents and property	Town building inspectors and planning committee will make sure that the Zoning Ordinance is up-dated or revised every 5 to 6 years.	Town building inspectors and planning committee will make sure that the Zoning Ordinance is up-dated or revised every 5 to 6 years.	High	2016	County, FEMA, State	Unknown	County, Local
Altamont Town	Flood	Protect current residents and property	The County Emergency Managers will research grant opportunities for potential funding.	The County Emergency Managers will research grant opportunities for potential funding.	High	2014	County, FEMA, State	Unknown	County, Local

Altamont Town	Flood	Protect current residents and property	Implement a flood ordinance that will cover the County and Town with flood insurance.	Implement a flood ordinance that will cover the County and Town with flood insurance.	High	2013	County, FEMA, State	Minimal	County, Local
Altamont Town	Flood	Protect current residents and property	Implement a zoning ordinance to ensure that manufactured homes are being installed properly and inspected.	Implement a zoning ordinance to ensure that manufactured homes are being installed properly and inspected.	High	2013	County FEMA, State	Minimal	County, Local
Duchesne City	Drought	Protect current residents and property	Maintain and enforce rate policies that encourage water conservation.	NA	High	2013	County, Local	Minimal	County, Local, DEQ
Duchesne City	Flood	Protect current residents and property	Put in an application to the Army Corps. Of Engineers for updated and revised flood plain maps for the Duchesne City.	Put in an application to the Army Corps, Of Engineers for updated and revised flood plain maps for the Duchesne City	High	2014	County FEMA, State	Unknown	County, Local
Duchesne City	Flood	Protect current residents and property	County and City building inspectors and planning committee will make sure that the Zoning Ordinance is up-dated or revised every 5 to 6 years.	County and City building inspectors and planning committee will make sure that the Zoning Ordinance is up-dated or revised every 5 to 6 years.	High	2016	County, FEMA, State	Unknown	County, Local
Duchesne City	Flood	Protect current residents and property	Implement a flood ordinance that will cover the County and City with flood insurance.	Implement a flood ordinance that will cover the county and City with flood insurance.	High	2013	County, FEMA, State	Minimal	County, Local
Myton City	Drought	Protect current residents and property	Develop additional water storage tanks as well as implement conservation plans.	NA	High	2015	County, Federal, State	Unknown	County
Myton City	Drought	Protect current residents and property	Maintain and enforce rate policies that encourage water conservation.	NA	High	2013	County	Minimal	County

Myton City	Flooding	Protect current residents and property	County and City building inspectors and the planning committee will revise and update building ordinances for new construction that takes place to help eliminate bridges and building from being washed away.	County and City building inspectors and the planning committee will revise and update building ordinances for new construction that takes place to help eliminate bridges and building from being washed	High	2013	County, FEMA, State	Unknown	County, Local
Myton City	Flooding	Protect current residents and property	County and City building inspectors and planning committee will make sure that the Zoning Ordinance is up-dated or revise every 5 to 6 years.	County and City building inspectors and planning committee will make sure that the Zoning Ordinance is up-dated or revise every 5 to 6 years.	High	2016	County, FEMA, State	Unknown	County, Local
Myton City	Flooding	Protect current residents and property	The County Emergency Managers will research grant opportunities for potential funding.	The County Emergency Managers will research grant opportunities for potential funding.	High	2014	County, FEMA, State	Unknown	County, Local
Myton City	Flooding	Protect current residents and property	Implement a flood ordinance that will cover the County and City with flood insurance.	Implement a flood ordinance that will cover the County and City with flood insurance	High	2013	County, FEMA, State	Minimal	County, Local
Roosevelt City	Drought	Protect current residents and property	Maintain and enforce rate policies that encourage water conservation.	Maintain and enforce rate policies that encourage water conservation.	High	2013	County	Minimal	County, DEQ, Water Districts
Roosevelt City	Flood	Protect current residents and property	Implement a flood ordinance that will cover the County and City with flood insurance	Implement a flood ordinance that will cover the County and City with flood insurance	High	2013	County, FEMA, State	Unknown	County, Local

Roosevelt City	Flood	Protect current residents and property	Enforce Zoning Laws	Enforce Zoning Laws	High	2013	County, FEMA, State	Minimal	County, Local
Tabiona Town	Flood	Protect current residents and property	The County Emergency Managers will research grant opportunities for potential funding	NA	High	2014	County, FEMA, State	Unknown	County, Local
Tabiona Town	Flood	Protect current residents and property	Enforcing Zoning Laws.	Enforcing Zoning Laws	High	2013	County, FEMA, State	Minimal	County, Local

DUCHESNE COUNTY - COMMUNITY MITIGATION STRATEGIES

Protecting Future Residents and Property

Jurisdiction	Hazard	Goal	Action	Action (For NFIP Compliance, if Applicable)	Priority (High, Medium, Low)	Time-frame (Year)	Potential Funding Sources	Estimated Cost	Resources
Uintah Basin Region	All	Protect future residents and property	County-wide emergency preparedness fair	NA	High	2013	Counties, UBAOG	Minimal	UBAOG, Counties, Be Ready Utah, LEPCs, Special Service Districts, National Guard, GOPB
Uintah Basin Region	Severe Weather	Protect future residents and property	Discuss planning needs on the county and city levels to coordinate land use regulations regarding development in flood, landslide, and wildfire hazard areas and Severe Weather events and response. This would be intended to prevent damages from extreme weather trigger events and incorporate severe weather into current response plans.	NA	Medium	2014	Counties, Municipalities, UBAOG	Minimal	Counties, Municipalities, UBAOG, Be Ready Utah, LEPCs, NOAA, NRCS
Uintah Basin Region	Agricultural	Protect future residents and property	Encourage crop diversity, weed and pest management, and coordination with local, State, and Federal agencies on agricultural land management and	NA	Medium	2014	Utah Department of Agriculture and Food, USDA, USU Extension, BLM	Minimal	Utah Department of Agriculture and Food, USDA, USU Extension, BLM
Uintah Basin Region	Drought	Protect future residents and property	Study feasibility of increasing current water storage capabilities	NA	Low	2015	Counties, Water Districts, Municipalities	Minimal	Counties, Water Districts, Municipalities, UBAOG
Uintah Basin Region	Drought	Protect future residents and property	Encourage water conservation techniques for all land uses.	NA	High	2014	Utah DEQ, USDA, Utah Agriculture and Food, Water Districts, Counties, Municipalities	Minimal	Utah DEQ, USDA, Utah Agriculture and Food, Water Districts, Counties, Municipalities
Uintah Basin Region	Earthquake	Protect future residents and property	Update geologic hazards data in the local General Plans and ordinances with new data available from the Utah Geologic Survey and the US Geological Survey	NA	High	2014	Counties, Municipalities, UBAOG	Minimal	Counties, Municipalities, UBAOG
All Uintah Basin Region jurisdictions that do not participate in NFIP	Flood	Protect future residents and property	Talk with the Utah ESHS about the benefits of the NFIP and consider joining so residents can purchase flood insurance.	Talk with the Utah ESHS about the benefits of the NFIP and consider joining so residents can purchase flood insurance	High	2013	Counties, Municipalities	Minimal	Utah ESHS, FEMA, Municipalities, Counties, UBAOG
Duchesne County	Dam Failure	Protect future residents and property	Digitize high hazard dam failure inundation maps.	NA	High	2014	County, State, and Federal	Unknown	County, Utah Dam Safety Section, AGRC

Duchesne County	Drought	Protect future residents and property	Educate the public on the need to be water wise.	NA	High	2013	County	Minimal	County, DEQ, UBAOG, Water Districts
Duchesne County	Drought	Protect future residents and property	Conduct a feasibility study regarding the development of additional water storage tanks within the County.	NA	High	2014	County	Minimal	County, DEQ, UBAOG, Water Districts
Duchesne County	Drought	Protect future residents and property	Implement and enforce water laws that prohibit the use of extensive amounts of water.	NA	High	2013	County	Minimal	County
Duchesne County	Earthquake	Protect future residents and property	Structural and non-Structural earthquake hazard assessment.	NA	High	2014	County	Unknown	County
Duchesne County	Flood	Protect future residents and property	Design master storm drainage plans to handle storm water runoff through residential areas.	NA	High	2014	County	Unknown	County
Duchesne County	Landslide	Protect future residents and property	The county's, city and town's planning committee will review and update the zoning ordinances within the county to make sure that individuals are not constructing new homes near potential landslide areas.	NA	High	2013	County	Minimal	County
Duchesne County	Severe Weather	Protect future residents and property	Ensure that 80 MFH wind load requirement is met by builders	NA	High	2013	County	Minimal	County
Altamont Town	Drought	Protect future residents and property	Develop additional water storage tanks as well as implement.	NA	High	2015	County, Sate, Federal	Unknown	County
Altamont Town	Drought	Protect Future residents and property	Maintain and enforce rate policies that encourage water conservation.	NA	High	2013	County, Local	Minimal	Local
Altamont Town	Flood	Protect future residents and property	Put in an application to the Army Corps. Of Engineers for updated and revised flood plain maps for the town of Altamont.	Put in an application to the Army Corps. Of Engineers for updated and revised flood plain maps for the town of Altamont.	High	2014	County, FEMA, state	Unknown	County, Local
Altamont Town	Flood	Protect future residents and property	Enforce Zoning laws.	Enforce Zoning laws.	High	2013	County, FEMA, State	Unknown	County, Local

Duchesne City	Drought	Protect future residents and property	Develop additional water storage tanks as well as implement.	NA	High	2015	County, Federal, State	Unknown	County, Local
Duchesne City	Flood	Protect future residents and property	County and City building inspectors and the planning committee will revise and update building ordinances for new construction that takes place to help eliminate bridges and building from being washed away.	County and City building inspectors and the planning committee will revise and update building ordinances for new construction that takes place to help eliminate bridges and building from being washed away.	High	2013	County, FEMA, State	Minimal	County, Local
Duchesne City	Flood	Protect future residents and property	The County Emergency Managers will research grant opportunities for potential funding.	The County Emergency managers will research grant opportunities for potential funding.	High	2013	County, FEMA, State	Minimal	County, Local
Duchesne City	Flood	Protect future residents and property	Implement a zoning ordinance to ensure that manufactured homes are being installed properly and inspected.	Implement a zoning ordinance to ensure that manufactured homes are being installed properly and inspected.	High	2013	County, FEMA, State	Minimal	County, Local
Duchesne City	Flood	Protect future residents and property	Enforcing Zoning Law	Enforcing Zoning Law	High	2013	County, FEMA, State	Minimal	County, Local
Myton City	Flood	Protect future residents and property	Put in an application to the Army Corps. Of Engineers for updated and revised flood plain maps for the Myton City.	Put in an application to the Army Corps. Of Engineers for updated and revised flood plain maps for the Myton City.	High	2014	County, FEMA, State	Unknown	County, Local

Myton City	Flood	Protect future residents and property	Implement a zoning ordinance to ensure that manufactured homes are being installed properly and inspected.	Implement a zoning ordinance to ensure that manufactured homes are being installed properly and inspected.	High	2013	County, FEMA, State	Minimal	County, Local
Myton City	Flood	Protect future residents and property	Enforce Zoning Law	Enforce Zoning Law	High	2013	County, FEMA, State	Minimal	County, Local
Roosevelt City	Drought	Protect future residents and property	Develop additional water storage tanks as well as implement conservation plans.	NA	High	2015	County, Federal, State	Unknown	County, DEQ, Water Districts
Roosevelt City	Flood	Protect future residents and property	Put in an application to the Army Corps. Of Engineers for updated and revised flood plain maps for the Roosevelt City	Put in an application to the Army Corps. Of Engineers for updated and revised flood plain maps for the Roosevelt City	High	2014	County, FEMA, State	Unknown	County, Local
Roosevelt City	Flood	Protect future residents and property	Place a restrictive clause in the County and City Ordinances that will prohibit any new development in the floodplain.	Place a restrictive clause in the County and City Ordinances that will prohibit any new development in the floodplain.	High	2013	County, FEMA, State	Minimal	County, Local

Roosevelt City	Flood	Protect future residents and property	County and City building inspectors and the planning commit will revise and update building ordinances for new construction that takes place to help eliminate bridges and buildings from being washed away.	County and City building inspectors and the planning commit will revise and update building ordinances for new construction that takes place to help eliminate bridges and buildings from being washed away.	High	2013	County, FEMA, State	Minimal	County, Local
Roosevelt City	Flood	Protect future residents and property	County and City building inspectors and planning committee will make sure that the Zoning Ordinance is up-dated or revised every 5 to 6 years.	County and City building inspectors and planning committee will make sure that the Zoning Ordinance is up-dated or revised every 5 to 6 years.	High	2013	County, FEMA, State	Minimal	County, Local
Roosevelt City	Flood	Protect future residents and property	The County Emergency Managers will research grant opportunities for potential funding.	The County Emergency Managers will research grant opportunities for potential funding.	High	2013	County, FEMA, State	Unknown	County, Local
Roosevelt City	Flood	Protect future residents and property	Implement a zoning ordinance to ensure that manufactured homes are being installed properly and inspected.	Implement a zoning ordinance to ensure that manufactured homes are being installed properly and inspected.	High	2013	County, FEMA, State	Minimal	County, Local
Tabiona Town	Flood	Protect future residents and property	Put in an application to the Army Corps, Of Engineers for updated and revised flood plain maps for the town of Tabiona	Put in an application to the Army Corps, Of Engineers for updated and revised flood plain maps for the town of Tabiona	High	2013	County, FEMA, State	Unknown	County, Local

Tabiona Town	Flood	Protect future residents and property	County and town building inspectors and the planning committee will revise and update building ordinances for new construction that takes place to help eliminate bridges and building from being washed away.	County and town building inspectors and the planning committee will revise and update building ordinances for new construction that takes place to help eliminate bridges and building from being washed away.	High	2013	County, FEMA, State	Minimal	County, Local
Tabiona Town	Flood	Protect future residents and property	County and town building inspectors and planning committee will make sure that the Zoning Ordinance is up-dated or revised every 5 to 6 years.	County and town building inspectors and planning committee will make sure that the Zoning Ordinance is up-dated or revised every 5 to 6 years.	High	2016	County, FEMA, State	Minimal	County, Local
Tabiona Town	Flood	Protect future residents and property	Implement a flood ordinance that will cover the County and Town with flood insurance.	Implement a flood ordinance that will cover the County and Town with flood insurance.	High	2013	County, FEMA, State	Minimal	County, Local

Duchesne County, Utah
Population and Housing Narrative Profile: 2005-2009
2005-2009 American Community Survey 5-Year Estimates
American Community Survey

NOTE. Although the American Community Survey (ACS) produces population, demographic and housing unit estimates, it is the Census Bureau's Population Estimates Program that produces and disseminates the official estimates of the population for the nation, states, counties, cities and towns and estimates of housing units for states and counties.

For more information on confidentiality protection, sampling error, non-sampling error, and definitions, see Survey Methodology.

HOUSEHOLDS AND FAMILIES: In 2005-2009 there were 5,900 households in Duchesne County. The average household size was 2.7 people.

Families made up 81 percent of the households in Duchesne County. This figure includes both married-couple families (65 percent) and other families (16 percent). Nonfamily households made up 19 percent of all households in Duchesne County. Most of the nonfamily households were people living alone, but some were composed of people living in households in which no one was related to the householder.

NATIVITY AND LANGUAGE: Two percent of the people living in Duchesne County in 2005-2009 were foreign born. Ninety-eight percent was native, including 79 percent who were born in Utah.

Among people at least five years old living in Duchesne County in 2005-2009, 4 percent spoke a language other than English at home. Of those speaking a language other than English at home, 56 percent spoke Spanish and 44 percent spoke some other language; 22 percent reported that they did not speak English "very well."

GEOGRAPHIC MOBILITY: In 2005-2009, 85 percent of the people at least one year old living in Duchesne County were living in the same residence one year earlier; 9 percent had moved during the past year from another residence in the same county, 5 percent from another county in the same state, 2 percent from another state, and less than 0.5 percent from abroad.

EDUCATION: In 2005-2009, 85 percent of people 25 years and over had at least graduated from high school and 14 percent had a bachelor's degree or higher. Fifteen percent were dropouts; they were not enrolled in school and had not graduated from high school.

The total school enrollment in Duchesne County was 4,700 in 2005-2009. Nursery school and kindergarten enrollment was 660 and elementary or high school enrollment was 3,500 children. College or graduate school enrollment was 530.

DISABILITY: In Duchesne County, among people at least five years old in 2005-2009, percent reported a disability. The likelihood of having a disability varied by age - from percent of people 5 to 15 years old, to percent of people 16 to 64 years old, and to percent of those 65 and older.

INDUSTRIES: In 2005-2009, for the employed population 16 years and older, the leading industries in Duchesne County were Educational services, and health care, and social assistance, 22 percent, and Agriculture, forestry, fishing and hunting, and mining, 16 percent.

OCCUPATIONS AND TYPE OF EMPLOYER: Among the most common occupations were: Management, professional, and related occupations, 27 percent; Sales and office occupations, 20 percent; Service occupations, 19 percent; Production, transportation, and material moving occupations, 17 percent; and Construction, extraction, maintenance, and repair occupations, 16 percent. Seventy-two percent of the people employed were Private wage and salary workers; 21 percent was Federal, state, or local government workers; and 7 percent was Self-employed in own not incorporated business workers.

TRAVEL TO WORK: Seventy-nine percent of Duchesne County workers drove to work alone in 2005-2009, 12 percent carpooled, less than 0.5 percent took public transportation, and 4 percent used other means. The remaining 5 percent worked at home. Among those who commuted to work, it took them on average 21 minutes to get to work.

INCOME: The median income of households in Duchesne County was $51,504. Eighty-two percent of the households received earnings and 16 percent received retirement income other than Social Security. Twenty-six percent of the households received Social Security. The average income from Social Security was $16,437. These income sources are not mutually exclusive; that is, some households received income from more than one source.

POVERTY AND PARTICIPATION IN GOVERNMENT PROGRAMS: In 2005-2009, 10 percent of people were in poverty. Ten percent of related children under 18 were below the poverty level, compared with 6 percent of people 65 years old and over. Eight percent of all families and 45 percent of families with a female householder and no husband present had incomes below the poverty level.

POPULATION OF Duchesne County: In 2005-2009, Duchesne County had a total population of 16,000 - 7,900 (48 percent) females and 8,400 (52 percent) males. The median age was 29.3 years. Thirty-five percent of the population was under 18 years and 10 percent was 65 years and older.

For people reporting one race alone, 91 percent was White; less than 0.5 percent was Black or African American; 6 percent was American Indian and Alaska Native; less than 0.5 percent was Asian; less than 0.5 percent was Native Hawaiian and Other Pacific Islander and 1 percent was some other race. One percent reported two or more races. Five percent of the people in Duchesne County were Hispanic. Eighty-eight percent of the people in Duchesne County were White non-Hispanic. People of Hispanic origin may be of any race.

HOUSING CHARACTERISTICS: In 2005-2009, Duchesne County had a total of 7,900 housing units, 26 percent of which were vacant. Of the total housing units, 71 percent was in single-unit structures, 8 percent was in multi-unit structures, and 21 percent was mobile homes. Twenty-seven percent of the housing units were built since 1990.

OCCUPIED HOUSING UNIT CHARACTERISTICS: In 2005-2009, Duchesne County had 5,900 occupied housing units - 4,400 (75 percent) owner occupied and 1,400 (25 percent) renter occupied. One percent of the households did not have telephone service and 2 percent of the households did not have access to a car, truck, or van for private use. Multi Vehicle households were not rare. Forty-two percent had two vehicles and another 33 percent had three or more.

HOUSING COSTS: The median monthly housing costs for mortgaged owners was $1,017, nonmortgage owners $285, and renters $639. Twenty-five percent of owners with mortgages, 8 percent of owners without mortgages, and 33 percent of renters in Duchesne County spent 30 percent or more of household income on housing.

Source: U.S. Census Bureau, 2005-2009 American Community Survey

The U.S. Census Bureau's Population Estimates Program produces the official population estimates for the nation, states, counties and places, and the official estimates of housing units for states and counties. The population and housing characteristics included above are derived from the American Community Survey.

Notes:
· Detail may not add to totals due to rounding.
· Percentages are based on unrounded numbers.

UINTAH COUNTY - COMMUNITY MITIGATION STRATEGIES

Protecting Current Residents and Property

Jurisdiction	Hazard	Goal	Action	Action (For NFIP Compliance, if Applicable)	Priority (High, Medium, Low)	Time-frame (Year)	Potential Funding Sources	Estimated Cost	Resources
Uintah Basin Region	All	Protect current residents and property	County-wide emergency preparedness fair	NA	High	2013	Counties, UBAOG	Minimal	UBAOG, Counties, Be Ready Utah, LEPCs, Special Service Districts, National Guard, GOPB
Uintah Basin Region	Severe Weather	Protect current residents and property	Public education/training including 3-5 day power outage survival, emergency response (CERT), emergency shelter locations, emergency kits, backup utilities, livestock issues, and interoperable emergency communications planning.	NA	High	2014	Counties, Municipalities, Utah ESHS, FEMA	Unknown	Counties, Municipalities, LEPCs, Utah ESHS, UBAOG, FEMA, NOAA
Uintah Basin Region	Agricultural	Protect current residents and property	Encourage crop diversity, weed and pest management, and coordination with local, State, and Federal agencies on agricultural land management and	NA	Medium	2014	Utah Department of Agriculture and Food, USDA, USU Extension, BLM	Minimal	Utah Department of Agriculture and Food, USDA, USU Extension, BLM
Uintah Basin Region	Drought	Protect current residents and property	Study feasibility of increasing current water storage capabilities	NA	Low	2015	Counties, Water Districts, Municipalities	Minimal	Counties, Water Districts, Municipalities, UBAOG
Uintah Basin Region	Drought	Protect current residents and property	Encourage water conservation techniques for all land uses.	NA	High	2014	Utah DEQ, USDA, Utah Agriculture and Food, Water Districts, Counties, Municipalities	Minimal	Utah DEQ, USDA, Utah Agriculture and Food, Water Districts, Counties, Municipalities
Uintah Basin Region	Earthquake	Protect current residents and property	Update geologic hazards data in the local General Plans and ordinances with new data available from the Utah Geologic Survey and the US Geological Survey	NA	High	2014	Counties, Municipalities, UBAOG	Minimal	Counties, Municipalities, UBAOG
All Uintah Basin Region jurisdictions that do not participate in NFIP	Flood	Protect current residents and property	Talk with the Utah ESHS about the benefits of the NFIP and consider joining so residents can purchase flood insurance.	Talk with the Utah ESHS about the benefits of the NFIP and consider joining so residents can purchase flood insurance	High	2013	Counties, Municipalities	Minimal	Utah ESHS, FEMA, Municipalities, Counties, UBAOG
Uintah County	Dam Failure	Protect current residents and property	Update the Emergency Operations Plan to include GIS dam failure estimates and a one-page table of a list of dams and their contacts	NA	High	2013	County	Minimal	County

Uintah County	Dam Failure	Protect current residents and property	Encourage the maintenance of flood control pools at existing dams.	NA	High	2013	County	Minimal	County
Uintah County	Drought	Protect current residents and property	Educate the public through news releases and a “fact sheet” on the need to be water wise.	NA	High	2014	County	Minimal	County
Uintah County	Drought	Protect current residents and property	Educate ranchers and farmers about implementing improved irrigation techniques to include adding wheel lines and utilizing USU satellite imaging. Do this through press releases and a “fact sheet”.	NA	High	2014	County	Minimal	County
Uintah County	Drought	Protect current residents and property	Support the implementation and enforcement of water laws that encourage the legal use of water resources. Accomplish through press releases, building relationships and publishing a “fact sheet”.	NA	High	2014	County	Minimal	County
Uintah County	Earthquake	Protect current residents and property	Identify and maintain critical transportation and utility services.	NA	High	2014	County, UBAOG, Municipalities	Unknown	County, UBAOG, Municipalities
Uintah County	Earthquake	Protect current residents and property	Conduct a structural and non-structural earthquake hazard assessment.	NA	High	2015	County	Unknown	County
Uintah County	Flooding	Protect current residents and property	Implement storm drainage plans throughout residential areas of Uintah County.	Implement storm drainage plans throughout residential areas of Uintah County.	High	2015	County, FEMA, DEQ	Unknown	County, FEMA, DEQ
Uintah County	Agricultural	Protect current residents and property	Spread insect bait and spray for mosquitoes.	NA	High	2013	County, Special Service District	TBD	County, Special Service District
Uintah County	Agricultural	Protect current residents and property	Conduct aerial spraying to reduce infestations in cooperation with the State Cooperative Extension Office.	NA	High	2013	County	TBD	County, State Cooperative Extension Office
Uintah County	Landslide	Protect current residents and property	Identify potential structures at risk, and their level of risk.	NA	High	2015	County	Unknown	County
Uintah County	Severe Weather	Protect current residents and property	Provide adequate clearance for power lines from vegetation to avoid damage and power outages from downed power lines due to high winds.	NA	High	2015	County	Unknown	County
Uintah County	Severe Weather	Protect current residents and property	Do press releases and publish a “fact sheet” to get information to the public regarding power line safety and power outage safety.	NA	High	2014	County	Minimal	County

Uintah County	Wildfire	Protect current residents and property	Develop and enforce current local, state, and federal fire and building codes regarding defensible spaces and other measures.	NA	High	2014	County, Federal, Municipalities, State	Unknown	County, FEMA, State, Municipalities
Ballard City	Flooding	Protect current residents and property	Implement a flood ordinance that will cover the County and City with flood insurance.	Implement a flood ordinance that will cover the County and City with flood insurance.	High	2014	FEMA, State, local	Unknown	FEMA, State, local
Ballard City	Flooding	Protect current residents and property	Enforce current zoning laws related to flood plain building.	Enforce current zoning laws related to flood plain building.	High	2013	City	Minimal	City
Ballard City	Drought	Protect current residents and property	Maintain and enforce water rate policies that encourage water conservation.	NA	High	2013	City, County	Minimal	City, County
Naples City	Severe Weather	Protect current residents and property	Discuss planning needs on the county and city levels to coordinate land use regulations regarding development in flood, landslide, and wildfire hazard areas and Severe Weather events and response. This would be intended to prevent damages from extreme weather trigger events and incorporate severe weather into current response plans. Public education/training including 3-5 day power outage survival, emergency response (CERT), emergency shelter locations, emergency kits, backup utilities, livestock issues, and interoperable emergency communications planning.	NA	High	2013	UBAOG	$50,000	Counties, municipalities, UBAOG, Utah ESHS, Army Corps., Be Ready Utah, FFSL, LEPC, NOAA, NRCS
Naples City	Earthquake	Protect current residents and property	Update geologic hazards data in the local General Plans and ordinances with new data available from the Utah Geologic Survey and the US Geological Survey. Identify risks, prepare emergency management plan for earthquakes - explore possibility of damages from fault damage zones and liquefaction, rescue procedures.	NA	High	2014	Local, UBAOG, CIB	$300,000	Local, UBAOG, County, UGS, USGS, Utah ESHS
Naples City	Flooding	Protect current residents and property	Surface drainage project. Reconcile current development with Ashley Valley Water Storm Drainage Plan.	NA	High	2013	Local, UBAOG	Minimal	Utah ESHS, Local, UBAOG
Naples City	Dam Failure	Protect current residents and property	Work with the Utah Division of Water Rights and other groups to implement Emergency Action Plans on a local level.	NA	Low	2014	Utah Division of Water Rights, Local	Minimal	Utah Division of Water Rights, Local

Naples City	Wildfire	Protect current residents and property	Require wild land/urban interface mitigation through county ordinance. Talk with Utah FFSL about writing a Community Wildfire Protection Plan, and encourage fire wise ordinances and building codes.	NA	Low	2014	Utah FFSL, Local	Minimal	Utah FFSL, Local
Naples City	Agricultural	Protect current residents and property	Encourage crop diversity, weed and pest management, and coordination with local, State, and Federal agencies on agricultural land management and production. Work with various agencies to plan for and mitigate economic losses associated with stock loss due to disease. Prepare an Emergency Services Function for County Emergency Operations Plans. Educate residents on crop insurance program, alternative planting and CRP programs, value of agriculture, pest control, crop diversity, urban tree planting guidelines, etc. Control rodent infestation (prairie dogs)	NA	Medium	2015	State, local, USDA	Minimal	State, local, USDA
Vernal City	Drought	Protect current residents and property	Maintain and enforce water rate policies that encourage water conservation.	NA	High	2013	City	Minimal	City
Vernal City	Flooding	Protect current residents and property	Put in an application to the Army Corps of Engineers for updated and revised flood plain maps for the City of Vernal.	Put in an application to the Army Corps of Engineers for updated and revised flood plain maps for the City of Vernal.	High	2014	FEMA, State, local	Unknown	FEMA, County, City
Vernal City	Flooding	Protect current residents and property	Implement a flood ordinance that will cover the County and City with flood insurance.	Implement a flood ordinance that will cover the County and City with flood insurance.	High	2014	FEMA, State, local	Unknown	FEMA, State, local

UINTAH COUNTY - COMMUNITY MITIGATION STRATEGIES

Protecting Future Residents and Property

Jurisdiction	Hazard	Goal	Action	Action (For NFIP Compliance, if Applicable)	Priority (High, Medium, Low)	Time-frame (Year)	Potential Funding Sources	Estimated Cost	Resources
Uintah Basin Region	All	Protect future residents and property	County-wide emergency preparedness fair	NA	High	2013	Counties, UBAOG	Minimal	UBAOG, Counties, Be Ready Utah, LEPCs, Special Service Districts, National Guard, GOPB
Uintah Basin Region	Severe Weather	Protect future residents and property	Discuss planning needs on the county and city levels to coordinate land use regulations regarding development in flood, landslide, and wildfire hazard areas and Severe Weather events and response. This would be intended to prevent damages from extreme weather trigger events and incorporate severe weather into current response plans.	NA	Medium	2014	Counties, Municipalities, UBAOG	Minimal	Counties, Municipalities, UBAOG, Be Ready Utah, LEPCs, NOAA, NRCS
Uintah Basin Region	Agricultural	Protect future residents and property	Encourage crop diversity, weed and pest management, and coordination with local, State, and Federal agencies on agricultural land management and	NA	Medium	2014	Utah Department of Agriculture and Food, USDA, USU Extension, BLM	Minimal	Utah Department of Agriculture and Food, USDA, USU Extension, BLM
Uintah Basin Region	Drought	Protect future residents and property	Study feasibility of increasing current water storage capabilities	NA	Low	2015	Counties, Water Districts, Municipalities	Minimal	Counties, Water Districts, Municipalities, UBAOG
Uintah Basin Region	Drought	Protect future residents and property	Encourage water conservation techniques for all land uses.	NA	High	2014	Utah DEQ, USDA, Utah Agriculture and Food, Water Districts, Counties, Municipalities	Minimal	Utah DEQ, USDA, Utah Agriculture and Food, Water Districts, Counties, Municipalities
Uintah Basin Region	Earthquake	Protect future residents and property	Update geologic hazards data in the local General Plans and ordinances with new data available from the Utah Geologic Survey and the US Geological Survey	NA	High	2014	Counties, Municipalities, UBAOG	Minimal	Counties, Municipalities, UBAOG
All Uintah Basin Region jurisdictions that do not participate in NFIP	Flood	Protect future residents and property	Talk with the Utah ESHS about the benefits of the NFIP and consider joining so residents can purchase flood insurance.	Talk with the Utah ESHS about the benefits of the NFIP and consider joining so residents can purchase flood insurance	High	2013	Counties, Municipalities	Minimal	Utah ESHS, FEMA, Municipalities, Counties, UBAOG

Uintah County	Dam Failure	Protect future residents and property	Conduct a public awareness campaign to educate and inform local elected officials, developers and citizens per dam failure risk and preparedness actions.	NA	High	2015	County	Minimal	County, FEMA, UBAOG
Uintah County	Dam Failure	Protect future residents and property	Integrate Dam Emergency Action Plans with GIS data to create dam inundation and impact layer.	NA	High	2014	FEMA, State of Utah, local	Unknown	County
Uintah County	Dam Failure	Protect future residents and property	Identify and prioritize locations for debris dams that will assist in flood and debris control. Put one debris dam in the approval process.	NA	High	2017	County	Minimal	County
Uintah County	Drought	Protect future residents and property	Contact local conservation boards and other agencies with a stake in water conservation to build a cooperative relationship and build active involvement. Hold annual meeting in conjunction with the Uintah Basin Water Summit.	NA	High	2014	County	Minimal	Water Districts, OEM, USU, State Water Conservation, Farm Bureau, USDA
Uintah County	Earthquake	Protect future residents and property	Educate the public through press releases and publishing a “fact sheet”. Contact the State earthquake specialist for guidance. Encourage earthquake instruction in schools.	NA	High	2015	County, Municipalities, School Districts	Unknown	County, State of Utah, OEM
Uintah County	Flooding	Protect future residents and property	Identify areas of high flood risk along waterways and apply for stream alteration permits with the State and the Army Corps of Engineers to mitigate.	NA	High	2015	Local	TBD	County, State of Utah, Army Corps of Engineers
Uintah County	Flooding	Protect future residents and property	Apply with the US Forest Service to put an additional SNOTEL site in the Ashley National Forest; to fill a gap in water data.	Apply with the US Forest Service to put an additional SNOTEL site in the Ashley National Forest; to fill a gap in water data.	High	2014	Local	TBD	County
Uintah County	Agricultural	Protect future residents and property	Purchase mosquito magnets and propane tanks to run them.	NA	High	2013	Special Service District	TBD	Special Service District
Uintah County	Landslide	Protect future residents and property	Review and update building ordinances to ensure new construction is not permitted in areas of high landslide risk.	NA	High	2014	County	Minimal	County
Uintah County	Landslide	Protect future residents and property	Assess the danger in landslide areas and identify mitigation actions to take.	NA	High	2014	County	Unknown	County

Uintah County	Severe Weather	Protect future residents and property	Ensure that the 80 mph wind load requirement is met by builders, as well as ensuring that roofs are tied to supporting walls.	NA	High	2013	County	Minimal	County
Uintah County	Wildfire	Protect future residents and property	LEPC conduct one homeowner training annually. Do a public outreach campaign through releases and a "fact sheet".	NA	High	2013	County	Minimal	County
Ballard City	Drought	Protect future residents and property	Develop additional water storage tanks as well as implement conservation plans.	NA	High	2015	City, Water District, Federal	TBD	City, County, UBAOG, DEQ
Ballard City	Flooding	Protect future residents and property	Put in an application to the Army Corps of Engineers for updated and revised flood plain maps for Ballard City.	Put in an application to the Army Corps of Engineers for updated and revised flood plain maps for Ballard City.	High	2015	FEMA, Army Corps of Engineers, City	Unknown	FEMA, Army Corps of Engineers, City, County, UBAOG
Ballard City	Flooding	Protect future residents and property	City Building inspectors and planning committee will make sure the zoning ordinance is updated or revised every 5 to 6 years.	NA	High	2016	City	Minimal	City
Ballard City	Flooding	Protect future residents and property	City building inspectors and the planning committee will revise and update building ordinances for new construction that takes place to help eliminate bridges and buildings from being washed away.	NA	High	2014	City	Minimal	City
Ballard City	Flooding	Protect future residents and property	Implement a zoning ordinance to ensure that manufactured homes are being installed properly and inspected.	NA	High	2014	City	Minimal	City
Naples City	Drought	Protect future residents and property	Discuss purchasing agricultural water rights for culinary water on a county and local level. Explore possibility of water wise landscaping ordinances. Study feasibility of increasing current water storage capabilities. Encourage water conservation techniques for all land uses.	NA	High	2014	Local, County, UBAOG	Minimal	Local, County, UBAOG USU Extension, NRCS, Utah League of Cities and Towns, Utah DEQ, USDA, Utah Agriculture and Food, Utah APA

Naples City	Landslide	Protect future residents and property	Prevent building in a landslide area through planning commission. Identify and educate all property owners in a landslide area. Develop or update an environmental safety zone - with identified hazard areas, disclosure/education, and hazard maps.	NA	Low	2014	UBAOG, Local	Minimal	UBAOG, Utah ESHS
Vernal City	Flooding	Protect future residents and property	County and City building inspectors and the planning committee will revise and update building ordinances for new construction that takes place to help eliminate bridges and buildings from being washed away.	NA	High	2013	City	Minimal	City, County
Vernal City	Flooding	Protect future residents and property	County and City building inspectors and planning committee will make sure that the Zoning Ordinance is up-dated or revised every 5 to 6 years.	NA	High	2016	City	Minimal	City, County
Vernal City	Flooding	Protect future residents and property	Implement a zoning ordinance to ensure that manufactured homes are being installed properly and inspected.	NA	High	2013	City	Minimal	City
Vernal City	Flooding	Protect future residents and property	Enforce zoning laws as related to flood plain construction.	Enforce zoning laws as related to flood plain construction.	High	2013	City	Minimal	City

Uintah County, Utah
Population and Housing Narrative Profile: 2005-2009
2005-2009 American Community Survey 5-Year Estimates
American Community Survey

NOTE. Although the American Community Survey (ACS) produces population, demographic and housing unit estimates, it is the Census Bureau's Population Estimates Program that produces and disseminates the official estimates of the population for the nation, states, counties, cities and towns and estimates of housing units for states and counties.

For more information on confidentiality protection, sampling error, nonsampling error, and definitions, see Survey Methodology.

HOUSEHOLDS AND FAMILIES: In 2005-2009 there were 9,800 households in Uintah County. The average household size was 3 people.

Families made up 79 percent of the households in Uintah County. This figure includes both married-couple families (65 percent) and other families (13 percent). Nonfamily households made up 21 percent of all households in Uintah County. Most of the nonfamily households were people living alone, but some were composed of people living in households in which no one was related to the householder.

NATIVITY AND LANGUAGE: Three percent of the people living in Uintah County in 2005-2009 were foreign born. Ninety-seven percent was native, including 73 percent who were born in Utah.

Among people at least five years old living in Uintah County in 2005-2009, 6 percent spoke a language other than English at home. Of those speaking a language other than English at home, 55 percent spoke Spanish and 45 percent spoke some other language; 22 percent reported that they did not speak English "very well."

GEOGRAPHIC MOBILITY: In 2005-2009, 81 percent of the people at least one year old living in Uintah County were living in the same residence one year earlier; 11 percent had moved during the past year from another residence in the same county, 6 percent from another county in the same state, 3 percent from another state, and less than 0.5 percent from abroad.

EDUCATION: In 2005-2009, 85 percent of people 25 years and over had at least graduated from high school and 15 percent had a bachelor's degree or higher. Fifteen percent were dropouts; they were not enrolled in school and had not graduated from high school.

The total school enrollment in Uintah County was 8,000 in 2005-2009. Nursery school and kindergarten enrollment was 1,100 and elementary or high school enrollment was 5,900 children. College or graduate school enrollment was 990.

DISABILITY: In Uintah County, among people at least five years old in 2005-2009, percent reported a disability. The likelihood of having a disability varied by age - from percent of people 5 to 15 years old, to percent of people 16 to 64 years old, and to percent of those 65 and older.

INDUSTRIES: In 2005-2009, for the employed population 16 years and older, the leading industries in Uintah County were Agriculture, forestry, fishing and hunting, and mining, 22 percent, and Educational services, and health care, and social assistance, 15 percent.

OCCUPATIONS AND TYPE OF EMPLOYER: Among the most common occupations were: Sales and office occupations, 26 percent; Management, professional, and related occupations, 24 percent; Construction, extraction, maintenance, and repair occupations, 21 percent; Production, transportation, and material moving occupations, 15 percent; and Service occupations, 14 percent. Seventy-four percent of the people employed were Private wage and salary workers; 19 percent was Federal, state, or local government workers; and 7 percent was Self-employed in own not incorporated business workers.

TRAVEL TO WORK: Seventy-nine percent of Uintah County workers drove to work alone in 2005-2009, 13 percent carpooled, less than 0.5 percent took public transportation, and 4 percent used other means. The remaining 4 percent worked at home. Among those who commuted to work, it took them on average 19.6 minutes to get to work.

INCOME: The median income of households in Uintah County was $57,735. Eighty-six percent of the households received earnings and 12 percent received retirement income other than Social Security. Twenty-four percent of the households received Social Security. The average income from Social Security was $15,283. These income sources are not mutually exclusive; that is, some households received income from more than one source.

POVERTY AND PARTICIPATION IN GOVERNMENT PROGRAMS: In 2005-2009, 10 percent of people were in poverty. Thirteen percent of related children under 18 were below the poverty level, compared with 9 percent of people 65 years old and over. Eight percent of all families and 37 percent of families with a female householder and no husband present had incomes below the poverty level.

POPULATION OF Uintah County: In 2005-2009, Uintah County had a total population of 29,000 - 14,000 (50 percent) females and 15,000 (50 percent) males. The median age was 29 years. Thirty-two percent of the population was under 18 years and 10 percent was 65 years and older.

For people reporting one race alone, 85 percent was White; less than 0.5 percent was Black or African American; 7 percent was American Indian and Alaska Native; 1 percent was Asian; 1 percent was Native Hawaiian and Other Pacific Islander, and 3 percent was some other race. Two percent reported two or more races. Five percent of the people in Uintah County were Hispanic. Eighty-four percent of the people in Uintah County were White non-Hispanic. People of Hispanic origin may be of any race.

HOUSING CHARACTERISTICS: In 2005-2009, Uintah County had a total of 10,000 housing units, 6 percent of which were vacant. Of the total housing units, 74 percent was in single-unit structures, 13 percent was in multi-unit structures, and 13 percent was mobile homes. Twenty-seven percent of the housing units were built since 1990.

OCCUPIED HOUSING UNIT CHARACTERISTICS: In 2005-2009, Uintah County had 9,800 occupied housing units - 7,500 (76 percent) owner occupied and 2,300 (24 percent) renter occupied. Two percent of the households did not have telephone service and 3 percent of the households did not have access to a car, truck, or van for private use. Multi Vehicle households were not rare. Forty-one percent had two vehicles and another 33 percent had three or more.

HOUSING COSTS: The median monthly housing costs for mortgaged owners was $1,205, nonmortgage owners $298, and renters $765. Thirty-one percent of owners with mortgages, 9 percent of owners without mortgages, and 33 percent of renters in Uintah County spent 30 percent or more of household income on housing.

Source: U.S. Census Bureau, 2005-2009 American Community Survey

The U.S. Census Bureau's Population Estimates Program produces the official population estimates for the nation, states, counties and places, and the official estimates of housing units for states and counties. The population and housing characteristics included above are derived from the American Community Survey.

Notes:
· Detail may not add to totals due to rounding.
· Percentages are based on unrounded numbers.

UINTAH & OURAY RESERVATION - COMMUNITY MITIGATION STRATEGIES

Protecting Current Residents and Property

Jurisdiction	Hazard	Goal	Action	Action (For NFIP Compliance, if Applicable)	Priority (High, Medium, Low)	Time-frame (Year)	Potential Funding Sources	Estimated Cost	Resources
Uintah Basin Region	All	Protect current residents and property	Reservation-wide emergency preparedness fair	NA	High	2013	Tribe, Counties, UBAOG	Minimal	UBAOG, Counties, Be Ready Utah, LEPCs, Special Service Districts, National Guard, GOPB
Uintah Basin Region	Severe Weather	Protect current residents and property	Public education/training including 3-5 day power outage survival, emergency response (CERT), emergency shelter locations, emergency kits, backup utilities, livestock issues, and interoperable emergency communications planning.	NA	High	2014	Tribe, Counties, Municipalities, Utah ESHS, FEMA	Unknown	Counties, Municipalities, LEPCs, Utah ESHS, UBAOG, FEMA, NOAA
Uintah Basin Region	Agricultural	Protect current residents and property	Encourage crop diversity, weed and pest management, and coordination with tribal, local, State, and Federal agencies on agricultural land management and production.	NA	Medium	2014	Tribe, Utah Department of Agriculture and Food, USDA, USU Extension, BLM	Minimal	Utah Department of Agriculture and Food, USDA, USU Extension, BLM
Uintah Basin Region	Drought	Protect current residents and property	Study feasibility of increasing current water storage capabilities	NA	Low	2015	Tribe, Counties, Water Districts, Municipalities	Minimal	Tribe, Counties, Water Districts, Municipalities, UBAOG
Uintah Basin Region	Drought	Protect current residents and property	Encourage water conservation techniques for all land uses.	NA	High	2014	Tribe, Utah DEQ, USDA, Utah Agriculture and Food, Water Districts, Counties, Municipalities	Minimal	Utah DEQ, USDA, Utah Agriculture and Food, Water Districts, Counties, Municipalities
Uintah Basin Region	Earthquake	Protect current residents and property	Update geologic hazards data in the local General Plans and ordinances with new data available from the Utah Geologic Survey and the US Geological Survey	NA	High	2014	Tribe, Counties, Municipalities, UBAOG	Minimal	Tribe, Counties, Municipalities, UBAOG
All Uintah Basin Region jurisdictions that do not participate in NFIP	Flood	Protect current residents and property	Talk with the Utah ESHS about the benefits of the NFIP and consider joining so residents can purchase flood insurance.	Talk with the Utah ESHS about the benefits of the NFIP and consider joining so residents can purchase flood insurance	High	2013	Tribe, Counties, Municipalities	Minimal	Tribe, Utah ESHS, FEMA, Municipalities, Counties, UBAOG
Uintah & Ouray Reservation	Dam Failure	Protect current residents and property	Update the Emergency Operations Plan to include GIS dam failure estimates and a one-page table of a list of dams and their contacts	NA	High	2013	Tribe	Minimal	Tribe, DEM, Local Government

Uintah & Ouray Reservation	Dam Failure	Protect current residents and property	Encourage the maintenance of flood control pools at existing dams.	NA	High	2013	Tribe	Minimal	Tribe
Uintah & Ouray Reservation	Drought	Protect current residents and property	Educate the public through news releases and a “fact sheet” on the need to be water wise.	NA	High	2014	Tribe	Minimal	Tribe
Uintah & Ouray Reservation	Drought	Protect current residents and property	Educate ranchers and farmers about implementing improved irrigation techniques to include adding wheel lines and utilizing USU satellite imaging. Do this through press releases and a “fact sheet”.	NA	High	2014	Tribe	Minimal	Tribe
Uintah & Ouray Reservation	Drought	Protect current residents and property	Support the implementation and enforcement of water laws that encourage the legal use of water resources. Accomplish through press releases, building relationships and publishing a “fact sheet”.	NA	High	2014	Tribe	Minimal	Tribe
Uintah & Ouray Reservation	Earthquake	Protect current residents and property	Identify and maintain critical transportation and utility services.	NA	High	2014	Tribe, Counties, UBAOG, Municipalities	Unknown	Tribe, Counties, UBAOG, Municipalities
Uintah & Ouray Reservation	Earthquake	Protect current residents and property	Conduct a structural and non-structural earthquake hazard assessment.	NA	High	2015	Tribe	Unknown	Tribe
Uintah & Ouray Reservation	Flooding	Protect current residents and property	Implement storm drainage plans throughout residential areas of the reservation.	Implement storm drainage plans throughout residential areas of Uintah & Ouray Reservation.	High	2015	Tribe, Counties, FEMA, DEQ	Unknown	Tribe, Counties, FEMA, DEQ
Uintah & Ouray Reservation	Agricultural	Protect current residents and property	Spread insect bait and spray for mosquitoes.	NA	High	2013	Tribe	TBD	Tribe
Uintah & Ouray Reservation	Agricultural	Protect current residents and property	Conduct aerial spraying to reduce infestations in cooperation with the State Cooperative Extension Office.	NA	High	2013	Tribe	TBD	Tribe, State Cooperative Extension Office
Uintah & Ouray Reservation	Landslide	Protect current residents and property	Identify potential structures at risk, and their level of risk.	NA	High	2015	Tribe	Unknown	Tribe
Uintah & Ouray Reservation	Severe Weather	Protect current residents and property	Provide adequate clearance for power lines from vegetation to avoid damage and power outages from downed power lines due to high winds.	NA	High	2015	Tribe	Unknown	Tribe
Uintah & Ouray Reservation	Severe Weather	Protect current residents and property	Do press releases and publish a “fact sheet” to get information to the public regarding power line safety and power outage safety.	NA	High	2014	Tribe	Minimal	Tribe, Counties

Uintah & Ouray Reservation	Wildfire	Protect current residents and property	Develop and enforce current local, state, and federal fire and building codes regarding defensible spaces and other measures.	NA	High	2014	Tribe, Counties, Federal, Municipalities, State	Unknown	Tribe, Counties, FEMA, State, Municipalities

UINTAH & OURAY RESERVATION - COMMUNITY MITIGATION STRATEGIES

Protecting Future Residents and Property

Jurisdiction	Hazard	Goal	Action	Action (For NFIP Compliance, if Applicable)	Priority (High, Medium, Low)	Time-frame (Year)	Potential Funding Sources	Estimated Cost	Resources
Uintah Basin Region	All	Protect future residents and property	Reservation-wide emergency preparedness fair	NA	High	2013	Tribe, Counties, UBAOG	Minimal	Tribe, UBAOG, Counties, Be Ready Utah, LEPCs, Special Service Districts, National Guard, GOPB
Uintah Basin Region	Severe Weather	Protect future residents and property	Discuss planning needs on the tribal, county and city levels to coordinate land use regulations regarding development in flood, landslide, and wildfire hazard areas and Severe Weather events and response. This would be intended to prevent damages from extreme weather trigger events and incorporate severe weather into current response plans.	NA	Medium	2014	Tribe, Counties, Municipalities, UBAOG	Minimal	Tribe, Counties, Municipalities, UBAOG, Be Ready Utah, LEPCs, NOAA, NRCS
Uintah Basin Region	Agricultural	Protect future residents and property	Encourage crop diversity, weed and pest management, and coordination with local, State, and Federal agencies on agricultural land management and	NA	Medium	2014	Tribe, Utah Department of Agriculture and Food, USDA, USU Extension, BLM	Minimal	Tribe, Utah Department of Agriculture and Food, USDA, USU Extension, BLM
Uintah Basin Region	Drought	Protect future residents and property	Study feasibility of increasing current water storage capabilities	NA	Low	2015	Tribe, Counties, Water Districts, Municipalities	Minimal	Tribe, Counties, Water Districts, Municipalities, UBAOG
Uintah Basin Region	Drought	Protect future residents and property	Encourage water conservation techniques for all land uses.	NA	High	2014	Tribe, Utah DEQ, USDA, Utah Agriculture and Food, Water Districts, Counties, Municipalities	Minimal	Tribe, Utah DEQ, USDA, Utah Agriculture and Food, Water Districts, Counties, Municipalities
Uintah Basin Region	Earthquake	Protect future residents and property	Update geologic hazards data in the local General Plans and ordinances with new data available from the Utah Geologic Survey and the US Geological Survey	NA	High	2014	Tribe, Counties, Municipalities, UBAOG	Minimal	Tribe, Counties, Municipalities, UBAOG
All Uintah Basin Region jurisdictions that do not participate in NFIP	Flood	Protect future residents and property	Talk with the Utah ESHS about the benefits of the NFIP and consider joining so residents can purchase flood insurance.	Talk with the Utah ESHS about the benefits of the NFIP and consider joining so residents can purchase flood insurance	High	2013	Tribe, Counties, Municipalities	Minimal	Tribe, Utah ESHS, FEMA, Municipalities, Counties, UBAOG

Uintah & Ouray Reservation	Dam Failure	Protect future residents and property	Conduct a public awareness campaign to educate and inform local elected officials, developers and citizens per dam failure risk and preparedness actions.	NA	High	2015	Tribe	Minimal	Tribe, Counties, FEMA, UBAOG
Uintah & Ouray Reservation	Dam Failure	Protect future residents and property	Integrate Dam Emergency Action Plans with GIS data to create dam inundation and impact layer.	NA	High	2014	Tribe, FEMA, State of Utah, local	Unknown	Tribe, Counties, FEMA
Uintah & Ouray Reservation	Dam Failure	Protect future residents and property	Identify and prioritize locations for debris dams that will assist in flood and debris control. Put one debris dam in the approval process.	NA	High	2017	Tribe	Minimal	Tribe
Uintah & Ouray Reservation	Drought	Protect future residents and property	Develop additional water storage tanks as well as implement conservation plans.	NA	High	2015	City, Water District, Federal	TBD	City, County, UBAOG, DEQ
Uintah & Ouray Reservation	Drought	Protect future residents and property	Contact local conservation boards and other agencies with a stake in water conservation to build a cooperative relationship and build active involvement. Hold annual meeting in conjunction with the Uintah Basin Water Summit.	NA	High	2014	Tribe, Counties	Minimal	Tribe, Water Districts, OEM, USU, State Water Conservation, Farm Bureau, USDA
Uintah & Ouray Reservation	Earthquake	Protect future residents and property	Educate the public through press releases and publishing a “fact sheet”. Contact the State earthquake specialist for guidance. Encourage earthquake instruction in schools.	NA	High	2015	Tribe, Counties, Municipalities, School Districts	Unknown	Tribe, Counties, State of Utah, OEM
Uintah & Ouray Reservation	Flooding	Protect future residents and property	Identify areas of high flood risk along waterways and apply for stream alteration permits with the State and the Army Corps of Engineers to mitigate.	NA	High	2015	Tribe, Army Corps of Engineers	TBD	Tribe, Counties, State of Utah, Army Corps of Engineers
Uintah & Ouray Reservation	Flooding	Protect future residents and property	Put in an application to the Army Corps of Engineers for updated and revised flood plain maps for Uintah & Ouray Reservation.	Put in an application to the Army Corps of Engineers for updated and revised flood plain maps for the Uintah & Ouray Reservation.	High	2015	Tribe, FEMA, Army Corps of Engineers	Unknown	Tribe, FEMA, Army Corps of Engineers, UBAOG
Uintah & Ouray Reservation	Flooding	Protect future residents and property	Apply with the US Forest Service to put an additional SNOTEL site in the Ashley National Forest; to fill a gap in water data.	Apply with the US Forest Service to put an additional SNOTEL site in the Ashley National Forest; to fill a gap in water data.	High	2014	Tribe, Forest Service	TBD	Tribe, Counties, Forest Service

Uintah & Ouray Reservation	Agricultural	Protect future residents and property	Purchase mosquito magnets and propane tanks to run them.	NA	High	2013	Tribe	TBD	Tribe
Uintah & Ouray Reservation	Landslide	Protect future residents and property	Review and update building ordinances to ensure new construction is not permitted in areas of high landslide risk.	NA	High	2014	Tribe	Minimal	Tribe
Uintah & Ouray Reservation	Landslide	Protect future residents and property	Assess the danger in landslide areas and identify mitigation actions to take.	NA	High	2014	Tribe	Unknown	Tribe

Uintah & Ouray Reservation	Severe Weather	Protect future residents and property	Ensure that the 80 mph wind load requirement is met by builders, as well as ensuring that roofs are tied to supporting walls.	NA	High	2013	Tribe	Minimal	Tribe
Uintah & Ouray Reservation	Wildfire	Protect future residents and property	LEPC conduct one homeowner training annually. Do a public outreach campaign through releases and a “fact sheet”.	NA	High	2013	Tribe, RRPC	Minimal	Tribe, RRPC

Appendix B:

U.S. Army Corps of Engineers Flood Study 2003

Flood Hazard Identification Study
Uintah Basin Association of Governments

By:
United States Army Corps of Engineers
Utah Division of Emergency Services and Homeland Security

September 26, 2003

Introduction

The US Army Corps of Engineers Sacramento District completed this flood hazard identification study through a contract with the seven Associations of Governments. Funding was provided under the USACE Planning Assistance to States Program (Section 22). The intent of the study is to aid in detailing natural hazards associated with fluvial process for entities within each AOG currently unmapped as part of the National Flood Insurance Program or mapped as D zone areas.

Acknowledgements

The following agencies aided in preparation, interpretation, and completion of this flood hazard investigation study.

Utah Associations of Governments
Uintah Basin Association of Governments
Sacramento District Corps of Engineers
Utah Division of Emergency Services and Homeland Security

Scope of Work

This study will evaluate and identify areas with a high flood hazard and identify potential mitigation solutions. The areas evaluated in this study include the three unincorporated counties of Daggett, Duchesne, and Uintah. Municipalities within the three counties were studied if they met the following criteria:

1. Jurisdiction has not been mapped by FEMA,
2. Jurisdiction mapped by FEMA as a Zone D, area of undetermined flood hazard.

Fluvial hazards within the cities and towns of Dutch John, Manila, Altamont, Roosevelt, Tabiona, Ballard, and Naples were studied.

Description of the Study Area

Uintah Basin Association of Government UBAG serves the following counties and municipalities with these counties: Daggett, Duchesne, and Uintah. The three counties in the study area are very rural, with the total population of the Uintah Basin being only 40,516. Each counties population is: Daggett 921, Duchesne 14,371, and Uintah 25,244. The principle draining in the area is the Green River with the Duchesne and White Rivers as major tributaries. The Uintah basin is divided into two drainages—the North Slope and the south slope of the Uinta Mountains. Elevations in the basin range from 13,528 feet and Kings Peak in the Uinta Mountains to 4,600 feet along the green river near it's excite from Uintah County.

The Uinta Mountain range is unique, being the only major range of mountains in North America running east and west. The Uintah Mountains were extensively glaciated, and glacial features dominate the present landscape. Glacial erosion has created many picturesque examples of horns, arêtes, cirques, and glacial troughs. Lateral and terminal moraines often form natural dams, creating over a thousand small lakes that dot the region.

Numerous small streams exit the north and south slope of the Uinta range. These include such streams as the Sheep Creek, Carter Creek, Currant Creek, Red Creek, Rock Creek, Yellowstone, Whiterocks, and Strawberry River.

Discussion, Data, and Observations

Data presented in this study are from the following sources:

- Daggett County Emergency Response Plan
- Uintah County Emergency Response Plan
- Duchesne County Emergency Response Plan
- City of Naples Storm Water Master Plan
- State Water Plan
- Utah State Water Plan Uintah Basin (December, 1999)

In addition to incorporating existing studies and plans completed in the area, this flood hazard study also contains information from technical experts familiar with the study area. The mitigation projects are purely suggested actions, which based on past experience, will reduce or eliminate the identified fluvial hazard. These mitigation recommendations in no way represent the only measure to attain fluvial mitigation. In many cases the proposed or best solution is simply avoidance. This method of mitigation is implemented through the use of zoning, and represents in most cases the lowest cost mitigation measure.

Disclaimer

The information provided in this study was developed from a number of sources including:

- Past USACE studies done within the region and drainage basins,
- Personal knowledge,
- Limited onsite visits,
- Map interpolations,
- Current GIS work.

Even though care was taken to ensure a measure of correctness and field checks were performed on the information and data gathered, it is important to note this flood hazard study is presented “as is”. The United States Army Corps of Engineers, Division of Emergency Service and Homeland Security, or any other agency assisting in completion of this study cannot accept any responsibilities for errors, omissions, or accuracy. There are no warranties, which accompany this product. Users are cautioned to field verify information provided in this product before making any decisions. In no way does the mapping presented in this study take the place of a regulatory FEMA Flood Insurance

Rate Map (FIRM), or replace any flood hazard identification product developed by FEMA / National Flood Insurance Program (NFIP).

Need For Additional Research
Additional research should be conducted to better map communities currently mapped as a FEMA Zone D, or currently unmapped communities, and communities without dated Flood Insurance Rate Maps. Communities would benefit from knowing peak flows and stages on tributaries of concern.

How Communities Where Ranked
The communities within this study were ranked based on a committee's evaluation. The evaluation committee consisted of the:

- Utah State Floodplain Program Manager
- Utah State Hazard Mitigation Officer,
- Natural Hazard Mitigation Planner,
- U.S. Army Corp of Engineers,
- State Earthquake Program Manager.

This committee researched each of the twenty-nine counties and all 269 incorporated areas within the State of Utah. Each jurisdiction was assigned one of five ratings: Very High, High, Moderate, Low, or Not Rated. These ratings in no way reflect actual flood threat. The ratings were assigned based on the following variables:

- Perceived flood threat based on topography, past flooding occurrences, and experience of committee members.
- Participation in the National Flood Insurance Program (NFIP).
- Past studies included, but not limited to, regulatory FEMA/NFIP Flood Insurance Studies (FIS), other flood studies, and reconnaissance reports.
- Population growth within the jurisdiction.
- If the community is mapped by FEMA/National Flood Insurance Program NFIP), and type of map which identifies high, moderate and low flood threats

Ratings were used to set the scope of work for each community within this study**.** Information on excluded communities was added were available.

A Word about Wildfires
Almost every year several communities around the state are flooded and/or affected by post burn debris flows. Wildfire damaged watersheds have conditions which increase the potential for debris flows which may damage structures and infrastructure in the impacted area. Overall, the heightened risk associated with alluvial fans is always of concern. Post fire re-vegetation and stabilization efforts in many cases do not alleviate the threat due to flooding and debris flow.

A Word about Dams

Dams are a critical support function for water managers in the State and also act as a flood control measure. If a dam remains stable, does not get overtopped, or is not impaired as the result of an earthquake, then, at a minimum, they do provide incidental flood control. If not then they can add to the flood threat. There are 117 dams within Uintah Basin of these 20 have received an high hazard rating by Utah Division of Water Rights Dam Safety section. The State Dam Safety Section has developed a hazard rating system for all non-federal dams in Utah. Downstream uses, size, height, volume, and incremental risk/damage assessments are a variable used to assign dam safety classification. Using the hazard ratings systems developed by the State Dam Safety Section, dams are placed into one of three classifications high, moderate, and low. Dams receiving a low rating would have insignificant property loss due to dam failure. Moderate hazard dams would cause significant property loss in the event of a breach. High hazard dams would cause a possible loss of life in the event of a rupture. The frequency of dam inspection is designated based on hazard rating with the Division of Water Rights inspecting high-hazard dams annually, moderate hazard dams biannually and low-hazard dams every five years.

Daggett County

- Flaming Gorge
- Long Park

Duchesne County

- Cliff Lake
- Browns Draw
- Starvation
- Twin Pots
- Moon Lake
- East Timothy
- Red Creek
- Chepeta Lake
- Stillwater
- Big Sand Wash

Uintah County

- Brough
- Whiterocks
- East Park
- Paradise Park
- Bullock Draw
- Lapoint
- Montes Creek
- Cottonwood

A Word about Prevention and Preparedness

Communities need to pay attention to such things as topography and past flood history when designing and approving new construction. Cities need insure adequate storm drain systems are installed, and paved areas and streets do not intersect stream channels only to become new "rivers". Aged irrigation storage basins and canals represent a risk to down slope property should the canal fail.

Simple things like not storing valuables and keepsakes such as photographs in the basement (or other low lying areas), and raising your furnace, water heater, and electric panel can really lessen the impacts if a flood does occur. Consult with a professional for further information if this and other damage reduction measures can be taken.

Residents need to let their local officials know that flooding and the consequences it brings is a concern to the majority of the citizenry. Wherever a serious problem does exist, citizens could organize themselves, working to reduce or eliminate the flood threats that face the community.

Working together public officials and residents can make a BIG difference as to the outcome BEFORE floods threaten their community.

Daggett County

COUNTY	CITY/TOWN	POPULATION	STATE MAP LOCATION	NFIP STATUS	THREAT (or NSFHA-eligible)
Daggett	**Unincorporated**	413		**Not Participating**	Green River & Tribs
Daggett	**Dutch John (Unincorporated)**	200	D8	**Not Participating**	Dutch John Canyon
Daggett	**Manila**	308	D8	**Not Participating**	Sheep Creek Canal

Daggett County Flood and Dam failure History

Hazards	Date	Location	Critical Facility or Area Impacted	Comments
Flash Flood Daggett	June 10, 1965	Palisades Campground	7 deaths	Source Sheep Creek
Flood Daggett Presidential	1983	County wide	Damage to culverts and roads. The one lane bridge over Green River was destroyed	Source Birch, Red, Crouse, and Pat Creeks.

(All dollar values for given are for year of disaster)

Daggett County Flood Mitigation Goals -

Goal 1 Reduce Risk of Potential Flooding

Unincorporated Daggett County – Problem Identification: Daggett is one of the smallest counties in the state both in terms of population and size. However, almost half of its residents live in the unincorporated county making that population one of the largest percentages in the state. The County does not participate in the National Flood Insurance Program. No major rivers threaten existing urban development. Therefore, no structural flood control projects are warranted at this time. Flood sources include the Green River, Sheep, Carter, Pott Creeks, and their tributaries, and other potential flood sources such as Flaming Gorge Reservoir.

Objective: Minimize future flood damage in the unincorporated County

Action: Nonstructural measures appear to be the most prudent option for the county to implement in the unincorporated areas. Zoning to prevent development of structures near all rivers, creeks, and lakes would be prudent

(100 ft minimum setback or greater) as well as not allowing development on alluvial fans. New development near canals should also be discouraged, as there have been several potentially deadly flood events in the state due to flooding caused by canal failures. The cost of modifying county laws to include these is minimal and the benefits substantial (although there will be a small percentage of the population that will oppose any zoning or other changes in the laws for that matter).

- **Timeframe:**
- **Funding:**
- **Estimated Cost:** Minimal – almost nothing.
- **Staff:**

Dutch John (Unincorporated) – Problem Identification: Dutch John, although an unincorporated community, was evaluated for its flood risk as it may someday become incorporated. It does not participate in the National Flood Insurance Program. No major rivers threaten Dutch John. Dutch John Canyon Creek and the other unnamed drainages would; however, pose threats during a major flood event.

Objective: Minimize future flood damage in Dutch John.

Alternative Action: A structural mitigation project for this community could be a deflector levee from the canyon mouth, extending west past all development for distance of about a mile.

- **Timeframe:**
- **Funding:**
- **Estimated Cost:** The preliminary cost for the levee project would be about $250,000.
- **Staff:**

Alternative Action: A nonstructural project could consist of zoning of the flood prone area to insure that all new developments are sited as far away from the channels as possible (or at least constructed so as to be higher in elevation than the flood threat). This however, would do nothing to protect existing development.

- **Timeframe:**
- **Funding:**
- **Estimated Cost:** Minimal.
- **Staff:**

Manila – **Problem Identification:** Manila does not participate in the National Flood Insurance Program. No major rivers flow through or threaten Manila. However, flooding could be experienced from the Sheep Creek Canal if

overtopped or if failure were to occur. The drainages surrounding Manila in the unincorporated county create a less severe flood threat from time to time.

Objective: Minimize future flood damage in Manila.

Alternative Action: In light of several canal failures around the state, a stability study of the Sheep Creek Canal could be conducted. If study findings reveal deficiencies, perform all remedial measures identified. Also, all new development could be permitted a safe distance away from the unnamed drainages surrounding Manila.

- **Timeframe:**
- **Funding:**
- **Estimated Cost:** A detailed canal stability study could be up to $50,000.
- **Staff:**

Alternative Action: A nonstructural project could consist of zoning of the flood prone area to insure that all new developments are sited as far away from the channels as possible (or at least constructed so as to be higher in elevation than the flood threat). This however, would do nothing to protect existing development.

- **Timeframe:**
- **Funding:**
- **Estimated Cost:**
  Minimal
- **Staff:**

Duchesne County

COUNTY	CITY/TOWN	POPULATION	STATE MAP LOCATION	NFIP STATUS	THREAT (or NSFHA-eligible)
Duchesne	**Unincorporated**	7798		**Not Participating**	Duchesne River and Tributaries
Duchesne	**Altamont**	178	E7	**Not Participating**	Unnamed drainages east & west of town
Duchesne	**Duchesne**	1408	E7	**D-490055 - 2/4/88**	
Duchesne	**Myton**	539	E7	**490056 - 2/4/88**	
Duchesne	**Roosevelt**	4299	E7	**Not Participating**	Cottonwood Creek and tributary
Duchesne	**Tabiona**	149	E6	**Not Participating**	Duchesne River and Tributaries

Duchesne County Flood and Dam failure History

Hazards	Date	Location	Critical Facility or Area Impacted	Comments
Flood Duchesne	September 13, 1940	Duchesne	Damage in Indian Canyon and roads flooded	Source: Indian Canyon
Flood Duchesne	August 7, 1941	Mountain Home	Destroyed bridges washed out road over Kofford wash in caused damage in Rock Creek	
Flood Duchesne	August 7, 1945	Strawberry Creek area	Damage to roads, ranches, and irrigation diversions near Strawberry Creek.	Source Strawberry Creek.
Flood Duchesne	August 1, 1953	Sowers Canyon	Damage to farm house and 200 acres of farmland	

Flood Duchesne	August 5, 1957	Tabiona/Hanna	Damage to homes, roads, farms, and crops	Farm Creek
Flood Duchesne	September 2, 1960	Hanna	Flood homes and damaged approximately 100 acres of farmland	
Flood Duchesne	August 11, 1969	Duchesne	Damage to town due to flooding	Source Strawberry Creek and Indian Creek.
Flood Duchesne Presidential	1983	County Wide	Damage to roadways, stream embankments, blockage of culverts, and bridges.	Source Yellowstone River, Strawberry River, Duchesne River, and Red Creek.
Flood Duchesne Presidential				

(All dollar values for given are for year of disaster)

Unincorporated Duchesne County

Duchesne County Flood Mitigation

Goal 1 Reduce Risk of Potential Flooding

Unincorporated Duchesne County - Problem Identification: Well over 50 percent of the population lives in unincorporated areas of the county – one of the highest percentages in the state – many in the vicinity of Roosevelt. The highest point in the state, Kings Peak at 13,528 ft is located in northern Duchesne County, making the Duchesne Watershed a significant resource. These high mountain watersheds provide much needed water but also pose flood threats from time to time. The County does not participate in the National Flood Insurance Program; therefore flood studies are not available. Flood threats include the Duchesne River and its numerous tributaries. Other potential flood sources include Starvation and other reservoirs.

Objective: Minimize future flood damage in the unincorporated County.

Action: Nonstructural measures appear to be the most prudent option for the county to implement in the unincorporated areas. Zoning to prevent development of structures near all rivers, creeks, and lakes would be prudent (100 ft minimum

setback or greater) as well as not allowing development on alluvial fans. New development near canals should also be discouraged, as there have been several potentially deadly flood events in the state due to flooding caused by canal failures. The cost of modifying county laws to include these is minimal and the benefits substantial (although there will be a small percentage of the population that will oppose any zoning or other changes in the laws for that matter).

- **Timeframe:**
- **Funding:**
- **Estimated Cost:** Minimal – almost nothing.
- **Staff:**

Altamont – Problem Identification: Altamont does not participate in the NFIP. This community and Mount Emmons just to the southeast appear to have a moderate flood threat from unnamed channels in the immediate vicinity.

Objective: Minimize future flood damage in Altamont.

Alternative Action: A structural mitigation project for this community could be a deflector levee around the community, extending south on both sides past existing development. The overall length would be about a mile.

- **Timeframe:**
- **Funding:**
- **Estimated Cost:** The preliminary cost for the levee project would be about $250,000.
- **Staff:**

Alternative Action: Zoning to prevent development of structures near all drainages would be prudent (100 ft minimum setback or greater). The cost of modifying city ordinances to include these is minimal and the benefits substantial (although this would not reduce the flood threat to existing structures).

- **Timeframe:**
- **Funding:**
- **Estimated Cost:** Minimal – almost nothing**.**
- **Staff:**

Roosevelt – Problem Identification: This community does not participate in the NFIP. Although Cottonwood Creek runs through the north and east parts of town, the channel appears to be much incised and, as a result, would only pose a flood threat during major events. (There is also a tributary through the south side of town that the same would hold true for.)

Objective: Minimize future flood damage in Roosevelt.

Alternative Action: Maintaining the channel clear of debris and snags would be a very low cost method of minimizing flood damages in Roosevelt.

- **Timeframe:**
- **Funding:**
- **Estimated Cost:** Minimal – city crews and equipment could be used when they are available.
- **Staff:**

Alternative Action: Zoning to prevent development of structures near all drainages would be prudent (100 ft minimum setback or greater). The cost of modifying city ordinances to include these is minimal and the benefits substantial (although this would not reduce the flood threat to existing structures).

- **Timeframe:**
- **Funding:**
- **Estimated Cost:** Minimal – almost nothing**.**
- **Staff:**

Tabiona – Problem Identification: This community is the smallest incorporated town in Duchesne County with 149 residents. It does not participate in the NFIP. Tabiona is bounded by flood threats from virtually every side. The Duchesne River runs along the southwest side of town and two tributaries are located to the east and to the west – all posing flood threats.

Objective: Minimize future flood damage in Tabiona.

Alternative Action: Given the relatively few number of existing structures, flood proofing may be a viable alternative – especially for those structures with a history of being flooded. Zoning to prevent new structures from being built in the floodplain would be very helpful and cost effective.

- **Timeframe:**
- **Funding:**
- **Estimated Cost:** $10k - $30k for the average home to flood proof.
- **Staff:**

Alternative Action: A structural mitigation project for this community could be a deflector levee on the east side of the community, extending north and south past existing development. The overall length would be about a mile.

- **Timeframe:**
- **Funding:**
- **Estimated Cost:** The preliminary cost for the levee project would be about $250,000.
- **Staff:**

Uintah County

COUNTY	CITY/TOWN	POPULATION	STATE MAP LOCATION	NFIP STATUS	THREAT (or NSFHA-eligible)
Uintah	**Unincorporated**	15664		490147 – 2/1/86(L)	Green River, Ashley Creek, and Tribs
Uintah	**Ballard**	566	E7	**Not Participating**	NSFHA-eligible
Uintah	**Naples**	1300	E8	**Not Participating**	Ashley Creek Tribs
Uintah	Vernal	7714	E8	490149 - 3/18/86(M)	

Uintah County Flood and Dam failure History

Hazards	Date	Location	Critical Facility or Area Impacted	Comments
Flash Flood Uintah	September 1, 1909	Ashley River near Vernal	1 death	Man crossing Ashley Creek with a wagon
Flash Flood Uintah	July 4, 1925	Five Mile Canyon near Vernal	1 death	Child swept from automobile
Flood Uintah	August 9, 1941	Vernal/Jensen	Approximately $75,000 to crops was caused by heavy rain and hail. Red Wash bridge damaged	
Flood Uintah	August 25, 1955	Lapoint	$3,000 in damage to bridges and roads	
Flood Uintah	July 30, 1956	Jensen	$25,000 damage to farmlands and crops	
Flood Uintah	June 10, 1965	Maeser/Ouray	Damage to homes, crops, and waterlines	Source: Ashley Creek, Dry Fork, The Green, White, and Duchesne Rivers.
Flood	1983	County Wide	Limited	Source

Uintah Presidential			flooding in Vernal, damage to roads, and bridges	Ashley and Deep Creeks and the Green River.
Flood Uintah Presidential				

(All dollar values for given are for year of disaster)

Unincorporated Uintah County

Uintah County Flood Mitigation Goals -

Goal 1 Reduce Risk of Potential

Flooding

Unincorporated Uintah County - Problem Identification: Well over half of its residents – 62 percent live in the unincorporated county – many in the area surrounding Vernal - making that population one of the highest percentages in the state. Flood sources include the Green River, Ashley Creek, and their tributaries. Other potential flood sources include Steinaker and Red Fleet and smaller Reservoirs.

Objective: Minimize future flood damage in the unincorporated County.

Action: Nonstructural measures appear to be the most prudent option for the county to implement in the unincorporated areas. Zoning to prevent development of structures near all rivers, creeks, and lakes would be prudent (100 ft minimum setback or greater) as well as not allowing development on alluvial fans. New development near canals should also be discouraged, as there have been several potentially deadly flood events in the state due to flooding caused by canal failures. The cost of modifying county laws to include these is minimal and the benefits substantial (although there will be a small percentage of the population that will oppose any zoning or other changes in the laws for that matter).\

- **Timeframe:**
- **Funding:**
- **Estimated Cost:** Minimal.
- **Staff:**

Ballard – Problem Identification: While not participating in the NFIP, this community does not appear to be subject to flood threats from any rivers, creeks, or streams and is; therefore, probably eligible for a NSFHA designation.

Objective: Minimize future flood damage in Ballard.

Action: Identify Ballard as a NSFHA-eligible community.

- **Timeframe:**
- **Funding:**
- **Estimated Cost:** Minimal
- **Staff:**

Naples – Problem Identification: This community does not participate in the NFIP. It does have a relatively serious flood threat as evidenced by the many washes that run through it to the Ashley Creek on the east side. The county floodplain map identifies the flood threat on both sides of Naples in the unincorporated area. It can be assumed that a similar (or probably greater) threat exists for the town itself.

Objective: Minimize future flood damage in Naples.

Alternative Action: Because there are multiple drainages, a levee would likely not be viable. Flood proofing of individual structures; however, may be a viable alternative – especially for those structures with a history of being flooded.

- **Timeframe:**
- **Funding:**
- **Estimated Cost:** $10k - $30k for the average home to flood proof.
- **Staff:**

Alternative Action: An alternative action would be zoning to prevent new structures from being built in the floodplain would be very helpful and cost effective. However it would NOT reduce flood damages to existing development.

- **Timeframe:**
- **Funding:**
- **Estimated Cost:** Minimal.
- **Staff:**

Appendix C:

Jurisdiction Letters

Roosevelt City Corporation

255 South State Street
Roosevelt, Utah 84066
(435) 722-5001 722-5000 Fax

November 24, 2009

Laurie Brummond, Executive Director
Uintah Basin Association of Governments
330 East 100 South
Roosevelt, UT 84066

Re: Letter of Commitment as participating jurisdiction in Uintah Basin Association of Governments Multi-jurisdictional Hazard Mitigation Planning

Dear Ms. Brummond:

As the Federal Emergency Management Agency's (FEMA) Local Mitigation Plan requirements under 44 CFR §201.6 specifically identify criteria that allow for multi-jurisdictional mitigation plans and that many issues are better resolved by evaluating hazards more comprehensively by coordinating at the county, regional, or watershed level, the City of Roosevelt is submitting this letter of commitment to confirm that Roosevelt City has agreed to participate in the Uintah Basin Association of Governments Multi-jurisdictional Hazard Mitigation Planning.

Further, as a condition to participating in the mitigation planning; Roosevelt City agrees to meet the requirements for mitigation plans identified in 44 CFR §201.6 and to provide such cooperation as is necessary and in a timely manner to Uintah Basin AOG to complete the plan in conformance with FEMA requirements.

Roosevelt City understands that it must engage in the following planning process, as more fully described in FEMA's *Local Multi-Hazard Mitigation Planning Guidance* dated July 1, 2008, including, but not limited to:

Identification of hazards unique to the jurisdiction and not addressed in the master planning document;
The conduct of a vulnerability analysis and an identification of risks, where they differ from the general planning area;

The formulation of mitigation goals responsive to public input and development of mitigation actions complementary to those goals. A range of actions must be identified specific for each jurisdiction; Demonstration that there has been proactively offered an opportunity for participation in the planning process by all community stakeholders (examples of participation include relevant involvement in any planning process, attending meetings, contributing research, data, or other information, commenting on drafts of the plan, etc.); and
Documentation of an effective process to maintain and implement the plan; and,
Formal adoption of the Multi-jurisdictional Hazard Mitigation Plan by the jurisdiction's governing body (each jurisdiction must officially adopt the plan).

Therefore, with a full understanding of the obligations incurred by participating in the FEMA hazard mitigation planning process as a participant in a multi-jurisdictional plan; I Russell L. Cowan. Mayor. commit Roosevelt City to Uintah Basin Association of Governments Multi-jurisdictional Hazard Mitigation Planning effort.

Executed this 24th day of November 2009.

SIGNED:

Russell L. Cowan

Russell L. Cowan, Mayor

ATTEST:

Carolyn Wilcken

Carolyn Wilcken, City Recorder

447 East Main
Vernal, Utah 84078
Phone: (435) 789-2255
Fax: (435) 789-2256
www.vemalcity.org

November 24, 2009

Laurie Brummond, Executive Director
Uintah Basin Association of Governments
330 East 100 South
Roosevelt, UT 84066

RE: *Letter of Commitment as participating jurisdiction in Uintah Basin Association of Governments Multi-jurisdictional Hazard Mitigation Planning*

Dear Ms. Brummond,

As the Federal Emergency Management Agency's (FEMA) Local Mitigation Plan requirements under 44 CFR §201.6 specifically identify criteria that allow for multi-jurisdictional mitigation plans and that many issues are better resolved by evaluating hazards more comprehensively by coordinating at the county, regional, or watershed level, the City of Vernal is submitting this letter of commitment to confirm that Vernal City has agreed to participate in the Uintah Basin Association of Governments Multi-jurisdictional Hazard Mitigation Planning.

Further, as a condition to participating in the mitigation planning; Vernal City agrees to meet the requirements for mitigation plans identified in 44 CFR §201.6 and to provide such cooperation as is necessary and in a timely manner to Uintah Basin AOG to complete the plan in conformance with FEMA requirements.

Vernal City understands that it must engage in the following planning process, as more fully described in FEMA's *Local Multi-Hazard Mitigation Planning Guidance* dated July 1, 2008, including, but not limited to:

- Identification of hazards unique to the jurisdiction and not addressed in the master planning document;
- The conduct of a vulnerability analysis and an identification of risks, where they differ from the general planning area;

- The formulation of mitigation goals responsive to public input and development of mitigation actions complementary to those goals. A range of actions must be identified specific for each jurisdiction. ;

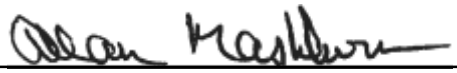
- Demonstration that there has been proactively offered an opportunity for participation in the planning process by all community stakeholders(examples of participation include relevant involvement in any planning process, attending meetings, contributing research, data, or other information, commenting on drafts of the plan, etc.); and

- Documentation of an effective process to maintain and implement the plan; and,

- Formal adoption of the Multi-jurisdictional Hazard Mitigation Plan by the jurisdiction's governing body (each jurisdiction must officially adopt the plan).

Therefore, with a full understanding of the obligations incurred by participating in the FEMA hazard mitigation planning process as a participant in a multi-jurisdictional plan; I Allan Mashburn, Mayor , commit Vernal City to Uintah Basin Association of Governments Multi-jurisdictional Hazard Mitigation Planning effort.

Executed this 24th day of November 2009



Mayor Allan Mashburn

Town of Altamont
PO Box 57 Altamont, Ut. 84001
435-454-3469

November 24, 2009

Laurie Brummond, Executive Director
Uintah Basin Association of Governments
330 East 100 South
Roosevelt, UT 84066

Re: Letter of Commitment as participating jurisdiction in Uintah Basin Association of Governments Multi-jurisdictional Hazard Mitigation Planning

Dear Ms. Brummond,

As the Federal Emergency Management Agency's (FEMA) Local Mitigation Plan requirements under 44 CFR §201.6 specifically identify criteria that allow for multi-jurisdictional mitigation plans and that many issues are better resolved by evaluating hazards more comprehensively by coordinating at the county, regional, or watershed level, the City of Altamont is submitting this letter of commitment to confirm that Altamont City has agreed to participate in the Uintah Basin Association of Governments Multi-jurisdictional Hazard Mitigation Planning.

Further, as a condition to participating in the mitigation planning; Altamont City agrees to meet the requirements for mitigation plans identified in 44 CFR §201.6 and to provide such cooperation as is necessary and in a timely manner to Uintah Basin AOG to complete the plan in conformance with FEMA requirements.

Altamont City understands that it must engage in the following planning process, as more fully described in FEMA's *Local Multi-Hazard Mitigation Planning Guidance* dated July 1, 2008, including, but not limited to:

1. Identification of hazards unique to the jurisdiction and not addressed in the master planning document;
2. The conduct of a vulnerability analysis and an identification of risks, where they differ from the general planning area;
3. The formulation of mitigation goals responsive to public input and development of mitigation actions complementary to those goals. A range of actions must be identified specific for each jurisdiction. ;
4. Demonstration that there has been proactively offered an opportunity for participation in the planning process by all community stakeholders (examples of participation include relevant involvement in any planning process, attending meetings, contributing research, data, or other information, commenting on drafts of the plan, etc.); and
5. Documentation of an effective process to maintain and implement the plan; and,
6. Formal adoption of the Multi-jurisdictional Hazard Mitigation Plan by the jurisdiction's governing body (each jurisdiction must officially adopt the plan).

Therefore, with a full understanding of the obligations incurred by participating in the FEMA hazard mitigation planning process as a participant in a multi-jurisdictional plan; I Clyde Watkins, Mayor , commit Altamont City to Uintah Basin Association of Governments Multi-jurisdictional Hazard Mitigation Planning effort.

Executed this 24th day of November 2009

Clyde Watkins

Town of Manila

P.O. Box 8 9
Manila, UT 84046

Phone (435) 784·3143
Fax (435) 784-3356

November 24, 2009

Laurie Brummond, Executive Director
Uintah Basin Association of Governments
330 East 100 South
Roosevelt, UT 84066

Re: Letter of Commitment as participating jurisdiction in Uintah Basin Association of Governments Multi-jurisdictional Hazard Mitigation Planning

Dear Ms. Brummond,

As the Federal Emergency Management Agency's (FEMA) Local Mitigation Plan requirements under 44 CFR §201.6 specifically identify criteria that allow for multi-jurisdictional mitigation plans and that many issues are better resolved by evaluating hazards more comprehensively by coordinating at the county, regional, or watershed level, the City of Manila is submitting this letter of commitment to confirm that Manila City has agreed to participate in the Uintah Basin Association of Governments Multi-jurisdictional Hazard Mitigation Planning.

Further, as a condition to participating in the mitigation planning; Manila City agrees to meet the requirements for mitigation plans identified in 44 CFR §201.6 and to provide such cooperation as is necessary and in a timely manner to Uintah Basin AOG to complete the plan in conformance with FEMA requirements.

Manila City understands that it must engage in the following planning process, as more fully described in FEMA's *Local Multi-Hazard Mitigation Planning Guidance* dated July 1, 2008, including, but not limited to:

> Identification of hazards unique to the jurisdiction and not addressed in the master planning document;
> The conduct of a vulnerability analysis and an identification of risks, where they differ from the general planning area;
> The formulation of mitigation goals responsive to public input and development of mitigation actions complementary to those goals. A range of actions must be identified specific for each jurisdiction. ;
> Demonstration that there has been proactively offered an opportunity for participation in the planning process by all community stakeholders (examples of participation include relevant involvement in any planning process, attending meetings, contributing research, data, or other information, commenting on drafts of the plan, etc.); and
> Documentation of an effective process to maintain and implement the plan; and,
> Formal adoption of the Multi-jurisdictional Hazard Mitigation Plan by the jurisdiction's governing body (each jurisdiction must officially adopt the plan).

Therefore, with a full understanding of the obligations incurred by participating in the FEMA hazard mitigation planning process as a participant in a multi-jurisdictional plan; I Chuck Dickison. Mayor .....commit Manila City to Uintah Basin Association of Governments Multi-jurisdictional Hazard Mitigation Planning effort.

Executed this 24th day of November 2009

Chuck Dickison

Myton City Corporation
160 East Main Street
P.O. Box 185
Myton, Utah 84052
(435) 722-2711 Fax: (435) 722-2796

November 25, 2009

Laurie Brummond, Executive Director
Uintah Basin Association of Governments
330 East 100 South
Roosevelt, Utah 84066

RE: Letter of Commitment as participating jurisdiction in Uintah Basin Association of Governments Multi-jurisdictional Hazard Mitigation Planning

Dear Ms. Brummond,

As the Federal Emergency Management Agency's (FEMA) Local Mitigation Plan requirements under 44 CFR 201.6 specifically identify criteria that allow for multi-jurisdictional mitigation plans and that many issues are better resolved by evaluating hazards more comprehensively by coordinating at the county, regional, or watershed level, the City of Myton is submitting this letter of commitment to confirm that Myton City has agreed to participate in the Uintah Basin Association of Governments Multi-jurisdictional Hazard Mitigation Planning.

Further, as a condition to participating in the mitigation planning; Myton City agrees to meet the requirements for mitigation plans identified in 44 CFR 201.6 and to provide such cooperation as is necessary and in a timely manner to Uintah Basin AOG to complete the plan in conformance with FEMA requirements.

Myton City understands that it must engage in the following planning process, as more fully described in FEMA's *Local Multi-Hazard Mitigation Planning Guidance* dated July I, 2008, including, but not limited to:

- Identification of hazards unique to the jurisdiction and not addressed in the master planning document;
- The conduct of a vulnerability analysis and an identification of risks, where they differ from the general planning area;
- The formulation of mitigation goals responsive to public input and development of mitigation actions complementary to those goals. A range of actions must be identified specific for each jurisdiction;
- Demonstration that there has been proactively offered an opportunity for participation in the planning process by all community stakeholders (examples of participation include relevant involvement in any planning process, attending meetings, contributing research, data, or other information, commenting on drafts of the plan, etc.); and
- Documentation of an effective process to maintain and implement the plan; and
- Formal adoption of the Multi-jurisdictional Hazard Mitigation Plan by the jurisdiction's governing body (each jurisdiction must officially adopt the plan).

Therefore, with a full understanding of the obligations incurred by participating in the FEMA hazard mitigation planning process as a participant in a multi-jurisdictional plan; I, Kathleen Cooper, Mayor, commit Myton City to Uintah Basin Association of Governments Multi-jurisdictional Hazard Mitigation Planning effort.

Executed this 25th day of November, 2009.

Kathleen Cooper
Mayor

165 South Center
Duchesne, Utah 84021

DUCHESNE CITY

duchesne@ubtanet.com

435-738-2464
fax: 435-738-5394

November 24, 2009

Laurie Brummond, Executive Director
Uintah Basin Association of Governments
330 East 100 South
Roosevelt, UT 84066

Re: Letter of Commitment as participating jurisdiction in Uintah Basin Association of Governments Multi-jurisdictional Hazard Mitigation Planning

Dear Ms. Brummond,

As the Federal Emergency Management Agency's (FEMA) Local Mitigation Plan requirements under 44 CFR §201.6 specifically identify criteria that allow for multi-jurisdictional mitigation plans and that many issues are better resolved by evaluating hazards more comprehensively by coordinating at the county, regional, or watershed level, the City of Duchesne is submitting this letter of commitment to confirm that Duchesne City has agreed to participate in the Uintah Basin Association of Governments Multi-jurisdictional Hazard Mitigation Planning.

Further, as a condition to participating in the mitigation planning; Duchesne City agrees to meet the requirements for mitigation plans identified in 44 CFR §201.6 and to provide such cooperation as is necessary and in a timely manner to Uintah Basin AOG to complete the plan in conformance with FEMA requirements.

Duchesne City understands that it must engage in the following planning process, as more fully described in FEMA's *Local Multi-Hazard Mitigation Planning Guidance* dated July 1, 2008, including, but not limited to:

Identification of hazards unique to the jurisdiction and not addressed in the master planning document;
The conduct of a vulnerability analysis and an identification of risks, where they differ from the general planning area;
The formulation of mitigation goals responsive to public input and development of mitigation actions complementary to those goals. A range of actions must be identified specific for each jurisdiction. ;
Demonstration that there has been proactively offered an opportunity for participation in the planning process by all community stakeholders (examples of participation include relevant involvement in any planning process, attending meetings, contributing research, data, or other information, commenting on drafts of the plan, etc.); and
Documentation of an effective p_rocess to maintain and implement the plan; and,

Formal adoption of the Multi-jurisdictional Hazard Mitigation Plan by the jurisdiction's governing body (each jurisdiction must officially adopt the plan).

Therefore, with a full understanding of the obligations incurred by participating in the FEMA hazard mitigation planning process as a participant in a multi-jurisdictional plan; I Clinton Park. Mayor , commit Duchesne City to Uintah Basin Association of Governments Multi-jurisdictional Hazard Mitigation Planning effort.

Executed this 24th day of November 2009

Clinton Park, Mayor

City *of Naples*

MAYOR
Dean A. Baker

PEOPLE SERVING PEOPLE

1420 East 2850 South
Naples, Utah 84078
(435) 789-9090 • Fax: 789-9458
November 24, 2009

CITY COUNCIL
Robert Hall
Gordon Kitchen
Dennis Long
Dan E. Olsen
Kenneth Reynolds

Laurie Brummond, Executive Director
Uintah Basin Association of Governments
330 East 100 South
Roosevelt, UT 84066

Re: Letter of Commitment as participating jurisdiction in Uintah Basin Association of Governments Multi-jurisdictional Hazard Mitigation Planning

Dear Ms. Brummond,

As the Federal Emergency Management Agency's (FEMA) Local Mitigation Plan requirements under 44 CFR §201.6 specifically identify criteria that allow for multi-jurisdictional mitigation plans and that many issues are better resolved by evaluating hazards more comprehensively by coordinating at the county, regional, or watershed level, the City of Naples is submitting this letter of commitment to confirm that Naples City has agreed to participate in the Uintah Basin Association of Governments Multi-jurisdictional Hazard Mitigation Planning.

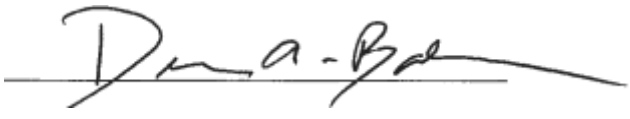
Further, as a condition to participating in the mitigation planning; Naples City agrees to meet the requirements for mitigation plans identified in 44 CFR §201.6 and to provide such cooperation as is necessary and in a timely manner to Uintah Basin AOG to complete the plan in conformance with FEMA requirements.

Naples City understands that it must engage in the following planning process, as more fully described in FEMA's *Local Multi-Hazard Mitigation Planning Guidance* dated July 1, 2008, including, but not limited to:

Identification of hazards unique to the jurisdiction and not addressed in the master planning document;
The conduct of a vulnerability analysis and an identification of risks, where they differ from the general planning area;
The formulation of mitigation goals responsive to public input and development of mitigation actions complementary to those goals. A range of actions must be identified specific for each jurisdiction . ;
Demonstration that there has been proactively offered an opportunity for participation in the planning process by all community stakeholders (examples of participation include relevant involvement in any planning process, attending meetings, contributing research, data, or other information, commenting on drafts of the plan, etc.); and
Documentation of an effective process to maintain and implement the plan; and,
Formal adoption of the Multi-jurisdictional Hazard Mitigation Plan by the jurisdiction's governing body (each jurisdiction must officially adopt the plan).

Therefore, with a full understanding of the obligations incurred by participating in the FEMA hazard mitigation planning process as a participant in a multi-jurisdictional plan; I Dean Baker, Mayor, commit Naples City to Uintah Basin Association of Governments Multi-jurisdictional Hazard Mitigation Planning effort.

Executed this 24th day of November 2009



Ballard City

Mayor
Tom Nordstrom

Route 2 Box 2381
2381 East 1000 South
Ballard, Utah 84066
Phone: 435-722-3393 Fax: 435-722-5726
e-mail: ballcity@ubtanet.com

November 24, 2009

Laurie Brummond, Executive Director
Uintah Basin Association of Governments
330 East 100 South
Roosevelt, UT 84066

Re: Letter of Commitment as participating jurisdiction in Uintah Basin Association of Governments Multi-jurisdictional Hazard Mitigation Planning

Dear Ms. Brummond,

As the Federal Emergency Management Agency's (FEMA) Local Mitigation Plan requirements under 44 CFR §201.6 specifically identify criteria that allow for multi-jurisdictional mitigation plans and that many issues are better resolved by evaluating hazards more comprehensively by coordinating at the county, regional, or watershed level, the City of Ballard is submitting this letter of commitment to confirm that Ballard City has agreed to participate in the Uintah Basin Association of Governments Multi-jurisdictional Hazard Mitigation Planning.

Further, as a condition to participating in the mitigation planning; Ballard City agrees to meet the requirements for mitigation plans identified in 44 CFR §201.6 and to provide such cooperation as is necessary and in a timely manner to Uintah Basin AOG to complete the plan in conformance with FEMA requirements.

Ballard City understands that it must engage in the following planning process, as more fully described in FEMA's *Local Multi-Hazard Mitigation Planning Guidance* dated July 1, 2008, including, but not limited to:

> Identification of hazards unique to the jurisdiction and not addressed in the master planning document;
> The conduct of a vulnerability analysis and an identification of risks, where they differ from the general planning area;
> The formulation of mitigation goals responsive to public input and development of mitigation actions complementary to those goals. A range of actions must be identified specific for each jurisdiction. ;

Demonstration that there has been proactively offered an opportunity for Participation in the planning process by all community stakeholders (examples of participation include relevant involvement in any planning process, attending meetings, contributing research, data, or other information, commenting on drafts of the plan, etc.); and

Documentation of an effective process to maintain and implement the plan; and,

Formal adoption of the Multi-jurisdictional Hazard Mitigation Plan by the jurisdiction's governing body (each jurisdiction must officially adopt the plan).

Therefore, with a full understanding of the obligations incurred by participating in the FEMA hazard mitigation planning process as a participant in a multi-jurisdictional plan; I Tom Nordstrom, Mayor , commit Ballard City to Uintah Basin Association of Governments Multi-jurisdictional Hazard Mitigation Planning effort.

Executed this 24th day of November 2009

FLAMING GORGE COUNTRY

DAGGETT COUNTY

STATE OF UTAH
95 North lst West
P.O.BOX 219
Manila, UT 84046

November 24, 2009

Laurie Brummond, Executive Director
Uintah Basin Association of Governments
330 East 100 South
Roosevelt, UT 84066

Dear Ms. Brummond,

As the Federal Emergency Management Agency's (FEMA) Local Mitigation Plan requirements under 44 CFR §201.6 specifically identify criteria that allow for multi-jurisdictional mitigation plans and that many issues are better resolved by evaluating hazards more comprehensively by coordinating at the county, regional, or watershed level, the County of Daggett is submitting this letter of commitment to confirm that Daggett County has agreed to participate in the Uintah Basin Association of Governments Multi-jurisdictional Hazard Mitigation Planning.

Further, as a condition to participating in the mitigation planning; Daggett County agrees to meet the requirements for mitigation plans identified in 44 CFR §201.6 and to provide such cooperation as is necessary and in a timely manner to Uintah Basin AOG to complete the plan in conformance with FEMA requirements.

Daggett County understands that it must engage in the following planning process, as more fully described in FEMA's *Local Multi-Hazard Mitigation Planning Guidance* dated July 1, 2008, including, but not limited to:

- Identification of hazards unique to the jurisdiction and not addressed in the master planning document;
- The conduct of a vulnerability analysis and an identification of risks, where they differ from the general planning area;
- The formulation of mitigation goals responsive to public input and development of mitigation actions complementary to those goals. A range of actions must be identified specific for each jurisdiction. ;
- Demonstration that there has been proactively offered an opportunity for participation in the planning process by all community stakeholders (examples of participation include relevant involvement in any planning process, attending meetings, contributing research, data, or other information, commenting on drafts of the plan, etc.); and
- Documentation of an effective process to maintain and implement the plan; and,
- Formal adoption of the Multi-jurisdictional Hazard Mitigation Plan by the jurisdiction's governing body (each jurisdiction must officially adopt the plan).

Therefore, with a full understanding of the obligations incurred by participating in the FEMA hazard mitigation planning process as a participant in a multi-jurisdictional plan; I Stewart Leith. Chairman . commit Daggett County to Uintah Basin Association of Governments Multi-jurisdictional Hazard Mitigation Planning effort.

Executed this 24th day of November 2009

Commissioners:
Henry J. Gutz
hank@daggett state ut us
Floyd Briggs
floyd®dnggett state ut us
Stewan Leith, Chairman
sleith®daggett state ut us
(435) 784-3218

Clerk/Treasurer:
Vicky McKee
(435) 784-3154
vmckee@daggett state ut us

Auditor/Recorder:
Keri Pallesen
(435) 784-3210
kpallesen ftll daggett state ut us

Assessor:
Lesa Asay
(435) 784-3222
la.say@daggett state ut us

Sheriff;
Rick Ellsworth
(435) 784-3255
rellswonh l"ii" daggett state ut us

Attorney:
Stephen Foote
Grant Charles
Jonathan Stearmer
(435) 784-3210 x 140

Fax. Number is (435) 784-3335

UINTAH COUNTY

STATE OF UTAH

November 24, 2009

Laurie Brummond, Executive Director
Uintah Basin Association of Governments
330 East 100 South
Roosevelt, UT 84066

Re: Letter of Commitment as participating jurisdiction in Uintah Basin Association of Governments Multi-jurisdictional Hazard Mitigation Planning

Dear Ms. Brummond,

As the Federal Emergency Management Agency's (FEMA) Local Mitigation Plan requirements under 44 CFR §201.6 specifically identify criteria that allow for multi-jurisdictional mitigation plans and that many issues are better resolved by evaluating hazards more comprehensively by coordinating at the county, regional, or watershed level, the County of Uintah is submitting this letter of commitment to confirm that Uintah County has agreed to participate in the Uintah Basin Association of Governments Multi-jurisdictional Hazard Mitigation Planning.

Further, as a condition to participating in the mitigation planning; Uintah County agrees to meet the requirements for mitigation plans identified in 44 CFR §201.6 and to provide such cooperation as is necessary and in a timely manner to Uintah Basin AOG to complete the plan in conformance with FEMA requirements.

Uintah County understands that it must engage in the following planning process, as more fully described in FEMA's *Local Multi-Hazard Mitigation Planning Guidance* dated July 1, 2008, including, but not limited to:

- Identification of hazards unique to the jurisdiction and not addressed in the master planning document;
- The conduct of a vulnerability analysis and an identification of risks, where they differ from the general planning area;
- The formulation of mitigation goals responsive to public input and development of mitigation actions complementary to those goals. A range of actions must be identified specific for each jurisdiction. ;
- Demonstration that there has been proactively offered an opportunity for participation in the planning process by all community stakeholders (examples of participation include relevant involvement in any planning process, attending meetings, contributing research, data, or other information, commenting on drafts of the plan, etc.); and
- Documentation of an effective process to maintain and implement the plan; and,
- Formal adoption of the Multi-jurisdictional Hazard Mitigation Plan by the jurisdiction's governing body (each jurisdiction must officially adopt the plan).

Therefore, with a full understanding of the obligations incurred by participating in the FEMA hazard mitigation planning process as a participant in a multi-jurisdictional plan; I Darlene Burns, Chairperson , commit Uintah County to Uintah Basin Association of Governments Multi-jurisdictional Hazard Mitigation Planning effort.

Executed this 24th day of November, 2009 Darlene R. Burns

Town of Tabiona
POBox449
Tabiona, Utah 84072
435-848-5481

November 24, 2009

Laurie Brummond, Executive Director
Uintah Basin Association of Governments
330 East 100 South
Roosevelt. UT 84066

Re: Letter of Commitment as participating jurisdiction in Uintah Basin Association of Governments Multi-jurisdictional Hazard Mitigation Planning

Dear Ms. Brummond,

As the Federal Emergency Management Agency's (FEMA) Local Mitigation Plan requirements under 44 CFR §201.6 specifically identify criteria that..allow for multijurisdictional mitigation plans and that many issues are better resolved by evaluating hazards more comprehensively by coordinating at the county, regional, or watershed level, the City of Tabiona is submitting this letter of commitment to confirm that Tabiona City has agreed to participate *in* the Uintah Basin Association of Governments multijurisdictional Hazard Mitigation Planning.

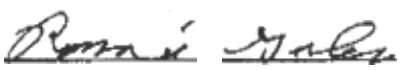
Further, as a condition to participating in the mitigation planning; Tabiona City agrees to meet the requirements for mitigation plans identified in 44 CFR §201.6 and to provide such cooperation as is necessary and in a timely manner to Uintah Basin AOG to complete the plan in conformance with FEMA requirements.

Tabiona City understands that it must engage in the following planning process, as more fully described in FEMA's Local Multi-Hazard Mitigation Planning Guidance dated July 1, 2008, including, but not limited to:

Identification of hazards unique to the jurisdiction and not addressed in the master planning document;
The conduct of a vulnerability analysis and an identification of risks, where they differ from the general planning area;
The formulation of mitigation goals responsive to public input and development of mitigation actions complementary to those goals. A range of actions must be identified specific for each jurisdiction. ;
Demonstration that there has been proactively offered an opportunity for participation in the planning process by all community stakeholders (examples of participation include relevant involvement in any planning process, attending meetings, contributing research, data, or other information, commenting on drafts of the plan, etc.); and
Documentation of an effective process to maintain and implement the plan; and,
Formal adoption of the Multi-jurisdictional Hazard Mitigation Plan by the jurisdictions governing body (each jurisdiction must officially adopt the plan).

Therefore, with a full understanding of the obligations incurred by participating in the FEMA hazard mitigation planning process as a participant in a multi-jurisdictional plan; I Ronnie Giles, Mayor , commit Tabiona City to Uintah Basin Association of Governments Multi-jurisdictional Hazard Mitigation Planning effort.

Executed this 24th day of November 2009



DUCHESNE COUNTY COMMISSION

Kent R. Peatross, Chairman; Ronald Winterton, Member; Kirk J. Wood, Member
P.O. Box270
Duchesne, Utah 84021-0270
Phone (435) 738-1100
Fax (435) 738-5522

November 24, 2009

Laurie Brummond, Executive Director
Uintah Basin Association of Governments
330 East 100 South
Roosevelt, UT 84066

Re: Letter of Commitment as participating jurisdiction in Uintah Basin Association of Governments Multi-jurisdictional Hazard Mitigation Planning

Dear Ms. Brummond,

As the Federal Emergency Management Agency's (FEMA) Local Mitigation Plan requirements under 44 CFR §201.6 specifically identify criteria that allow for multi-jurisdictional mitigation plans and that many issues are better resolved by evaluating hazards more comprehensively by coordinating at the county, regional, or watershed level, the County of Duchesne is submitting this letter of commitment to confirm that Duchesne County has agreed to participate in the Uintah Basin Association of Governments Multi-jurisdictional Hazard Mitigation Planning.

Further, as a condition to participating in the mitigation planning; Duchesne County agrees to meet the requirements for mitigation plans identified in 44 CFR §201.6 and to provide such cooperation as is necessary and in a timely manner to Uintah Basin AOG to complete the plan in conformance with FEMA requirements.

Duchesne County understands that it must engage in the following planning process, as more fully described in FEMA's *Local Multi-Hazard Mitigation Planning Guidance* dated July 1, 2008, including, but not limited to:

li> Identification of hazards unique to the jurisdiction and not addressed in the master planning document;
The conduct of a vulnerability analysis and an identification of risks, where they differ from the general planning area;
li> The formulation of mitigation goals responsive to public input and development of mitigation actions complementary to those goals. A range of actions must be identified specific for each jurisdiction. ;
li> Demonstration that there has been proactively offered an opportunity for participation in the planning process by all community stakeholders (examples of participation include relevant involvement in any planning process, attending meetings, contributing research, data, or other information, commenting on drafts of the plan, etc.); and
li> Documentation of an effective process to maintain and implement the plan; and,
Formal adoption of the Multi-jurisdictional Hazard Mitigation Plan by the jurisdiction's governing body (each jurisdiction must officially adopt the plan).

Therefore, with a full understanding of the obligations incurred by participating in the FEMA hazard mitigation planning process as a participant in a multi-jurisdictional plan; I Kent Peatross, Chairman commit Duchesne County to Uintah Basin Association of Governments Multi-jurisdictional Hazard Mitigation Planning effort.

Executed this 24 day of November

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Appendix D:

Mitigation Surveys

Appendix F:

FEMA PDM Assessment Tool

LOCAL MITIGATION PLAN REVIEW TOOL

The Local Mitigation Plan Review Tool demonstrates how the Local Mitigation Plan meets the regulation in 44 CFR §201.6 and offers States and FEMA Mitigation Planners an opportunity to provide feedback to the community.

- The Regulation Checklist provides a summary of FEMA's evaluation of whether the Plan has addressed all requirements.
- The Plan Assessment identifies the plan's strengths as well as documents areas for future improvement.
- The Multi-jurisdiction Summary Sheet is an optional worksheet that can be used to document how each jurisdiction met the requirements of the each Element of the Plan (Planning Process; Hazard Identification and Risk Assessment; Mitigation Strategy; Plan Review, Evaluation, and Implementation; and Plan Adoption).

The FEMA Mitigation Planner must reference this LocalMitigationPlanReviewGuidewhen completing the LocalMitigationPlanReviewTool.

Jurisdiction: Uintah Basin Region	Title of Plan: Uintah Basin Regional PDM Plan 2012	Date of Plan: 1 November 2012
Local Point of Contact: Cody Christensen	Address: Uintah Basin Association of Governments 330 East 100 South Roosevelt, Utah 84066	
Title: Deputy Director / Planner		
Agency: Uintah Basin Association of Governments		
Phone Number: 435-722-4518	E-Mail: codyc@ubaog.org	

State Reviewer:	Title:	Date:

FEMA Reviewer:	Title:	Date:
Date Received in FEMA Region VIII		
Plan Not Approved		
Plan Approvable Pending Adoption		
Plan Approved		

SECTION 3:
MULTI-JURISDICTION SUMMARY SHEET

MULTI-JURISDICTION SUMMARY SHEET									
#	Jurisdiction Name	Jurisdiction Type	Jurisdiction Contact	Email	Requirements Met (Y/N)				
					A. Planning Process	B. HIRA	C. Mitigation Strategy	D. Update Rqtms.	E. Adoption Resolution
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									

SECTION 1: REGULATION CHECKLIST

1. REGULATION CHECKLIST Regulation (44 CFR 201.6 Local Mitigation Plans)	Location in Plan (section and/or page number)	Met	Not Met
ELEMENT A. PLANNING PROCESS			
A1. Does the Plan document the planning process, including how it was prepared and who was involved in the process for each jurisdiction? (Requirement §201.6(c)(1))	Section 2		
A2. Does the Plan document an opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, agencies that have the authority to regulate development as well as other interests to be involved in the planning process? (Requirement §201.6(b)(2))	Section 1 Page 11 Section 2		
A3. Does the Plan document how the public was involved in the planning process during the drafting stage? (Requirement §201.6(b)(1))	Section 2 Page 17		
A4. Does the Plan describe the review and incorporation of existing plans, studies, reports, and technical information? (Requirement §201.6(b)(3))	Section 2 Page 19		
A5. Is there discussion of how the community(ies) will continue public participation in the plan maintenance process? (Requirement §201.6(c)(4)(iii))	Section 10		
A6. Is there a description of the method and schedule for keeping the plan current (monitoring, evaluating and updating the mitigation plan within a 5-year cycle)? (Requirement §201.6(c)(4)(i))	Section 10		
ELEMENT A: REQUIRED REVISIONS			
ELEMENT B. HAZARD IDENTIFICATION AND RISK ASSESSMENT			
B1. Does the Plan include a description of the type, location, and extent of all natural hazards that can affect each jurisdiction(s)? (Requirement §201.6(c)(2)(i))	Section 4		
B2. Does the Plan include information on previous occurrences of hazard events and on the probability of future hazard events for each jurisdiction? (Requirement §201.6(c)(2)(i))	Sections 5,6,7,8,9		
B3. Is there a description of each identified hazard's impact on the community as well as an overall summary of the community's vulnerability for each jurisdiction? (Requirement §201.6(c)(2)(ii))	Sections 5,6,7,8,9		
B4. Does the Plan address NFIP insured structures within the jurisdiction that have been repetitively damaged by floods? (Requirement §201.6(c)(2)(ii))	Section 6,7,8,9 Pages 65,90,116,144		
ELEMENT B: REQUIRED REVISIONS			

1. REGULATION CHECKLIST Regulation (44 CFR 201.6 Local Mitigation Plans)	Location in Plan (section and/or page number)	Met	Not Met
ELEMENT C. MITIGATION STRATEGY			
C1. Does the plan document each jurisdiction's existing authorities, policies, programs and resources and its ability to expand on and improve these existing policies and programs? (Requirement §201.6(c)(3))	Sections 6,7,8,9		
C2. Does the Plan address each jurisdiction's participation in the NFIP and continued compliance with NFIP requirements, as appropriate? (Requirement §201.6(c)(3)(ii))	Sections 6,7,8,9		
C3. Does the Plan include goals to reduce/avoid long-term vulnerabilities to the identified hazards? (Requirement §201.6(c)(3)(i))	Sections 6,7,8,9		
C4. Does the Plan identify and analyze a comprehensive range of specific mitigation actions and projects for each jurisdiction being considered to reduce the effects of hazards, with emphasis on new and existing buildings and infrastructure? (Requirement §201.6(c)(3)(ii))	Appendix A		
C5. Does the Plan contain an action plan that describes how the actions identified will be prioritized (including cost benefit review), implemented, and administered by each jurisdiction? (Requirement §201.6(c)(3)(iv)); (Requirement §201.6(c)(3)(iii))	Appendix A		
C6. Does the Plan describe a process by which local governments will integrate the requirements of the mitigation plan into other planning mechanisms, such as comprehensive or capital improvement plans, when appropriate? (Requirement §201.6(c)(4)(ii))	Sections 6,7,8,9		
ELEMENT C: REQUIRED REVISIONS			
ELEMENT D. PLAN REVIEW, EVALUATION, AND IMPLEMENTATION (applicable to plan updates only)			
D1. Was the plan revised to reflect changes in development? (Requirement §201.6(d)(3))	Sections 1,2		
D2. Was the plan revised to reflect progress in local mitigation efforts? (Requirement §201.6(d)(3))	Sections 1,2		
D3. Was the plan revised to reflect changes in priorities? (Requirement §201.6(d)(3))	Sections 1,2		
ELEMENT D: REQUIRED REVISIONS			
ELEMENT E. PLAN ADOPTION			
E1. Does the Plan include documentation that the plan has been formally adopted by the governing body of the jurisdiction requesting approval? (Requirement §201.6(c)(5))	Section 1		

1. REGULATION CHECKLIST Regulation (44 CFR 201.6 Local Mitigation Plans)	Location in Plan (section and/or page number)	Met	Not Met
E2. For multi-jurisdictional plans, has each jurisdiction requesting approval of the plan documented formal plan adoption? (Requirement §201.6(c)(5))	Section 1		
ELEMENT E: REQUIRED REVISIONS			
ELEMENT F. ADDITIONAL STATE REQUIREMENTS (OPTIONAL FOR STATE REVIEWERS ONLY; NOT TO BE COMPLETED BY FEMA)			
F1.			
F2.			
ELEMENT F: REQUIRED REVISIONS			

SECTION 2:
PLAN ASSESSMENT

A. Plan Strengths and Opportunities for Improvement

This section provides a discussion of the strengths of the plan document and identifies areas where these could be improved beyond minimum requirements.

Element A: Planning Process

Element B: Hazard Identification and Risk Assessment

Element C: Mitigation Strategy

Element D: Plan Review, Evaluation, and Implementation (Plan Updates Only)

B. Resources for Implementing Your Approved Plan