

SECTION 1: PRE-REQUISITES & ADOPTION BY THE LOCAL JURISDICTIONS

INTRODUCTION & PLAN PURPOSE

The eight jurisdictions in Tooele County are vulnerable to natural, technological, and human-caused 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 vulnerabilities and craft solutions that can significantly reduce threat to life and property. The plan is based on the premise that hazard mitigation works! 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.

How The Plan Is Organized

Section 1 introduces the plan, outlines the plan including scope, purpose, and goals, lists participating communities, and includes commentary on changes in the plan from earlier versions. Section 2 gives a general regional background including basic demographic, economic, and physiographic characteristics. Section 3 documents the planning process, public involvement, and summarizes information on natural hazards in Tooele County.

Section 4 is the county-wide risk assessment section. Because of the uniformity of the hazard risk throughout the county and the similarity of vulnerabilities, severe weather, drought, agricultural hazards, radon, avalanche, tornado,

tsunami, volcanic, and problem soils were addressed or discussed on a regional level. This section also includes commentary regarding implications of the potential effects of natural hazards on future development. Sections 5 through 19 include natural hazard risk assessments for cities, towns, and the unincorporated county. Section 20 documents local community planning and technical capability to implement mitigation strategies, and Section 21 discusses plan implementation, funding, and public involvement.

How The Plan Should Be Used

First, the plan should be used to help local elected and appointed officials plan, design, and implement programs and projects that will help reduce their community's vulnerability to natural hazards. Second, the plan should be used to facilitate inter-jurisdictional coordination and collaboration related to natural hazard mitigation planning and implementation. Third, the plan should be used to develop or provide guidance for local emergency planning. Finally, if adopted, the plan will bring communities in compliance with the Disaster Mitigation Act of 2000, qualifying jurisdictions to apply for funding for pre-disaster mitigation projects and for receiving federal aid in the event of a presidentially declared disaster.

What Is Hazard Mitigation?

Hazard mitigation is defined as any cost-effective action(s) that has 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.

Hazard mitigation measures 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. However, some projects may require financial commitments from local jurisdictions without any measurable monetary reward or benefit, although it may save lives and priceless community assets. Some initial financial investments for projects which lessen risk to local residents and property, may also pay economic dividends later on if legal issues arise.

However, the primary focus of hazard mitigation actions must be on capital investment decisions, and based on vulnerability. Capital investments, whether for homes, roads, public utilities, pipelines, power plants, or public works greatly determine the nature and degree of hazard vulnerability for 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 and other ordinances - which manage development in high vulnerability areas along with building codes and guidelines, are often the most useful mitigation approaches a city can implement.

In general, mitigation measures are the most neglected programs within emergency management. Since the priority to implement mitigation activities is generally low in comparison to perceived threat, implementation may be a timely and highly involved process. Mitigation success may 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 risks to people and property 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.

This multi-jurisdictional plan evaluates the potential impacts, risks and vulnerabilities associated with natural hazards for jurisdictions in Tooele County. The plan supports, identifies, describes, and documents potential mitigation projects for municipalities and the unincorporated

areas in each county. The suggested actions and plan implementation contained in this document for local governments may reduce the impact severity of future disasters. Only through coordinated partnerships with emergency managers, political entities, public works officials, community planners, the general public, and other individuals working to implement this program will the goals of the plan be accomplished.

For most of the State of Utah, the planning services of the Utah Association of Governments (AOG's) have been utilized to develop the mitigation plans for all jurisdictions in the state. However, some individual jurisdictions have recently completed the plan on their own. For this plan update, Tooele County emergency management requested assistance from Bear River Association of Governments to update the plan for the entire region.

Tooele County was the project manager for this plan update and provided oversight throughout the entire process. County staff also served as the main contact and liaison for elected and appointed officials, as well as staff from participating jurisdictions.

Plan Purpose

This Pre-Disaster Mitigation Plan is meant to provide information regarding threats to life and property associated with natural hazards to local and State governments as well as interested agencies and the general public. The intent of this document can be summarized into several overarching goals which:

- Fulfill Federal, State, and local hazard mitigation planning requirements
- Promote pre- and post-disaster mitigation measures, short and 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.
- Eliminate or minimize conditions which would have an undesirable impact on our citizens, local infrastructure, economy,

environment, and the well-being of local, county, and state governments.

Plan Scope

Tooele County, with assistance from Bear River Association of Governments, will submit a current updated plan to the Utah Division of Emergency Services. Future monitoring, evaluating, updating and implementing will take place as new incidents occur and/or every five years. The hazard mitigation plans and strategies will also be included in local planning efforts and plans.

Overall Goals

Coordinate with participating local governments to develop a regional planning process that will meet the Local Mitigation Plan Review Tool provided by FEMA. Additional goals include planning to meet expectations set by the State and addressing the concerns of local jurisdictions.

Local Goals

The goals below form the basis for the development of the PDM Plan and are shown from highest to lowest priority. They are:

1. Protection of life before, during, and after the occurrence of a disaster.
2. Protection of emergency response capabilities (critical infrastructure).
3. Improved communication and warning systems.
4. Integration of appropriate emergency medical services and use medical facilities during a natural disaster event.
5. Identification of critical facilities and community infrastructure.
6. Government collaboration across jurisdictional boundaries during natural hazard events.
7. Protection of developed property, homes and businesses, industry, educational opportunities, and the cultural fabric of a community, by combining hazard loss reduction strategies with a community's

environmental, cultural/historical, social, and economic needs.

8. Protection of natural resources and the environment when considering mitigation measures.

Countywide Goals

1. Eliminate or reduce the long-term risk to human life and property by identifying natural hazards.
2. Aid both the private and public sectors in understanding the risks they may be exposed to from identified hazards, and work with local governments and partners to find mitigation strategies that reduce those risks.
3. Decrease liability for local governments by educating elected officials and staff on natural hazard mitigation and issues.
4. Minimize the impacts of natural hazard risks when they cannot be avoided.
5. Mitigate the impacts of damage as a result of identifying hazards.
6. Implement mitigation strategies in a way that minimizes negative environmental impacts.
7. Provide a basis for funding projects which are outlined as hazard mitigation strategies.
8. Maintain and improve a regional platform to enable communities to take advantage of shared goals, resources, and other available resources.

Prioritization of Mitigation Strategies

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, staffing, and other resource constraints.

Recurrence intervals, past events, and damage estimates compiled during the assessment of vulnerability in this plan were also considered for priority and time line values. While there was not a technical cost-benefit analysis for determining mitigation strategies during this planning process, the above criteria were considered for prioritization.

ADOPTION & UPDATING THE PLAN

Participating Jurisdictions

Table 1: Participating Jurisdictions in Tooele County

Tooele County

Incorporated Communities

Grantsville City

Ophir Town

Rush Valley Town

Stockton Town

Tooele City

Vernon Town

Wendover City

Unincorporated Communities

Dugway

Erda

Goshute Reservation

Lake Point

Pine Canyon

Skull Valley

Stansbury Park

Emergency Management website, located at www.tcem.org. A hard copy of the plan was also available at the Tooele County Emergency Management office for viewing. After a 30-day public comment period, comments from communities, the public, county working groups, as well as the Utah Division of Emergency Services were integrated into the plan. The draft plan was then sent to FEMA Region VIII for review.

After revisions to the draft plan were completed, each jurisdiction was notified regarding the benefits of adopting a FEMA-approved plan, encouraging all 15 incorporated and unincorporated communities, including the county, to adopt the plan. Blank promulgation forms were sent to chief elected officials asking the communities to adopt the plan and to send the completed promulgation forms to Tooele County Emergency Management staff for inclusion as an appendix in the plan. The final plan was also made available in its entirety and by section on the Tooele County Emergency Management website located at www.tcem.org.

Plan Updates & Changes - General

During the 2015-2016 planning process, it was determined that most of the 2008 plan was in need of some level of revision. However, background information, such as hazard definitions, the purpose for the plan, local adoption, and other information were all still relevant. The most substantial changes consisted of document layout revisions, updates on the planning process, economic and demographic information updates, completely new risk assessment methodology and analysis, mitigation strategy updates, and updated community capability assessments. Following are some of the specific changes made to these sections.

Document layout and organization has been completely updated to create a more user friendly and accessible document. Some charts, tables, data, and other information were moved to the appendix to accentuate the most critical elements in the body of the plan. Community risk assessments were organized by jurisdiction to provide more of a community emphasis. For example, the Grantsville section was named "Grantsville City –

Local Adoption of The Plan

On April 1, 2016, the DRAFT Pre-Disaster Mitigation Plan was placed on the Tooele County

Community Risk Assessment,” to give a sense of ownership for communities and to make the plan easier to navigate.

The planning process was altered slightly as well. Where the 2008 planning process consisted of a region-wide, collective approach, which included all five counties in the Wasatch Front Regional Council, this plan update was completed through a comprehensive, local, working group. Tooele County Emergency Management staff invited all jurisdictions in the region to send representatives to the meetings and to serve as members of a county working group. State and Federal Agencies with land management responsibilities in Tooele County were also invited and attended working group meetings. Unincorporated communities were also invited to participate in the planning process, and all natural hazards analysis was performed for those communities where data existed. Any other suggestions for members were integrated into the working group as needed.

The use of surveys was also employed for gathering data and soliciting input for local governments and others. Letters and e-mails were also sent regularly to those contacts from the county throughout the process inviting representatives to the meetings, and giving many opportunities for community involvement.

Economic and demographic data was also updated in the plan, as was historical and natural hazard events data. New sources were sought where data was limited in the 2008 version, such as historical landslide data, historical wildfire data, and earthquake epicentre data.

New risk assessment methodology and up-to-date GIS data was also used in this plan in an attempt to reflect current conditions (See **Appendix C** and **F**). New landslide susceptibility, geological faults, wildfire, dam failure, and floodplain data was also utilized. Steep slopes were added to address additional hazard areas. Natural Resource Conservation Service (NRCS) SSURGO GIS datasets were also utilized in this plan update to address additional hazards, including frequently flooded soils, high water table, and unsuitable soils for residences with and without basements. These soils datasets provide another layer of analysis

critical for determining risk to natural hazards, especially for communities in rural areas where other datasets do not exist.

The most significant change in the risk assessment methodology for this update included the use of county-wide parcel data for creating potential loss estimates. This data included for detailed information on building types, current market values, and other attributes. The data was more representative of potential losses for specific parcels since no comprehensive countywide building footprint data was available.

A new wildfire hazard data set was also used for this plan update. Data from the West Wide Wildfire Risk Assessment (WWWRA), completed in 2013 by the Oregon Department of Forestry, was utilized to provide a more accurate risk assessment region-wide.

Mitigation strategies were also updated through interaction with participating communities. Some strategies from 2008 were completed, those that were still applicable were carried over into this plan, and new strategies were created by local governments to better address natural hazard issues.

Some communities in the county have either grown and added new employees, and/or have more data and GIS capabilities. These capabilities were listed at the end of this document as well, with the realization that some communities will continue to have needs for hazard mitigation planning assistance from Tooele County and other State and Federal agencies in the future. Tooele County staff will continue to be a resource for these communities.

Other Plan Updates and Changes

Some of the most substantial changes to this updated plan are in regards to the document layout and organization. Unlike the 2008 plan, most of the data, including large charts and extraneous background information, was consolidated and put in the appendix. This created a much more interesting plan layout and made the body of the document much shorter.

Individual community sections were also

created to make the document more accessible to local community leaders, staff, and emergency managers/planners on the local, state, and federal levels.

A more robust risk analysis was also performed. Updated Geographic Information Systems (GIS) data was used, where available, for the analysis including updated data for wildfire, soils, steep slopes, dam failure, floodplain, and geologic hazards data. Soils data was introduced into the planning process to provide natural hazards data for additional flood areas, high water table, and unsuitable soils for buildings with and without basements. Potential loss data was also more comprehensive, and included new data for:

- Natural gas lines (Questar Gas)
- Other oil and gas facilities
- Updated electrical line, road and canal data
- Agricultural amenities
- Recreational amenities
- Natural amenities
- Updated list of Critical Facilities

Another focus of Tooele County emergency management staff was to make the meetings for the update process more interesting and appealing to elected officials and other stakeholders. Various natural hazards specialists from state and federal agencies were invited to give presentations at the mitigation strategies meeting as well as the pre-adoption and draft plan meeting. They presented realistic and feasible ideas for communities to help mitigate potential impacts from natural hazards. Elected officials and staff were invited to ask questions and learn from these specialists.

MITIGATION STRATEGIES IMPLEMENTED FROM 2008-2016

Drought

Action 3: Water reservoirs have insufficient storage capacity. Dredge reservoirs for increased capacity. *Settlement Canyon Reservoir has been dredged to increase storage capacity.*

Action 4: Store water when there is surplus. Increase storage capacity through expansion. *This has been an ongoing effort. Surplus water from storms is stored at the golf course ponds, and used for irrigation. However, they don't have a way to pump that back into the city.*

Action 5: Manage surface and subsurface supplies as one. Implement redistribution and/or interconnections between reservoir drainage areas and surface/subsurface storage or wells. *Tooele and Grantsville city have cross connections between water tanks to anywhere in their cities*

Action 6: Actively encourage water conservation through the development and distribution of outreach materials to each community. *Tooele City has passed numerous ordinances for water conservation.*

Action 8: Coordinate with irrigation companies to develop a secondary water system and water distribution plan for drought. *Reclamation facility is used for irrigation, as well as the golf course ponds.*

Earthquake

Action 3: Create and/or improve natural hazard ordinances including codes for liquefaction. Make these easily accessible and downloadable on the County website and linked to the Emergency Management website. *Building and zoning codes have been implemented to protect against earthquakes, have put ordinances in place for structural updates. Library, schools have been seismically updated. Police station is being designed to withstand earthquakes.*

Flood

Action 2: Request flood maps and/or updates for Grantsville City, Hickman Canyon and the South Rim development in Stockton. *Utah Department of Natural Resources and the US Forest Service has been involved in mapping floods in Grantsville.*

Action 4: Develop a drainage master plan; design and construct improved drainage channels, and detention ponds in appropriate areas of the County to include: Bates Canyon, Pine Canyon, Middle Canyon, Settlement Canyon, North and South Willow. ***Grantsville put in a control ditch on the west side of Grantsville, to direct flood waters through the county. Grantsville has also made an effort to preserve natural drainages and not allow building in that area.***

Action 5: Develop a Surface Water Management Plan, design/construct storm water routes or channels to direct flows, and storm drain spot improvements according to the recently conducted Stansbury Park Storm Drainage Study. ***An engineering study and a plan was developed to eliminate flood waters from coming into the city.***

Other Notes on Flooding:

Grantsville completed a mapping project, construction in some areas including facility upgrades, and is working with FEMA on drainage channel and corridor issues.

Severe Weather

Action 1: Increase Weather Spotter training.

Ongoing.

Action 2: Increase Amateur Radio Operator Involvement in weather observations.

Ongoing.

Action 3: Install more electronic sign boards for alerting public of severe weather condition, especially along the I-80 corridor.

Ongoing.

Wildland Fire

Action 1: Develop and distribute outreach documents specific to fire resistant vegetation. ***Fire resistant vegetation has been put in.***

Action 2: Take action through physical inspection to enforce codes currently in place. ***Have increased inspections and enforcement codes.***

Action 3: Explain wildfire risk to people seeking building permits and realtors showing homes in risk prone areas, discourage building above 5577 feet above sea level (WUI areas), and provide a copy of the code and outreach documents. ***Building permits and education has increased. Fire Warden has gone into communities with interface issues and talked about mitigation strategies.***

Action 4: Determine the specific areas where the Wildfire Protection Standards are in effect and make it available to the public in a graphic form. ***Ongoing.***