



SECTION THREE MITIGATION STRATEGIES

STATE OF UTAH
HAZARD MITIGATION PLAN

March 2014

Mitigation Strategy Concept

Hazard identification presented in this document along with the risk analysis within each chapter, together identify the likelihood of a natural hazard having severe enough consequences to warrant mitigation. The State Hazard Mitigation Planning Committee (SHMPC) has developed goals, objectives, and action items specific to each hazard; when united, they provide a strategy to lessen the vulnerability to each specified hazard. Strategies developed for each hazard are not all inclusive and the state reserves the right to modify strategies as it sees fit to address mitigation needs as they arise. Future occurrences, new technology, or an unforeseen event could result in the modification of strategies outlined in this plan.

Even though a potential project may not be listed in this plan as a specific mitigation action, the State will still aid in completing the project as if it were a project listed in this state mitigation plan. State support will be applied to any mitigation action deemed cost effective and environmentally sound, which can be classified under any of the six FEMA approved mitigation categories:

Prevention

Stops the problem before it starts by keeping the problem from arising or becoming worse. The use of known hazards areas, like floodplains for example, can be limited through planning ordinances, land acquisition, or regulation.

Property Protection

Measures include those actions that focus on permanently moving people, property, and businesses out of unsafe areas where, in terms of wise disaster and community planning they shouldn't have been in the first place.

Natural Resource Protection

Projects pertaining to natural resource protection preserve or restore natural areas or their natural functions.

Emergency Services

Measures are taken during a disaster to minimize its impacts. These measures are the responsibility of city and county emergency managers, operators of major and critical facilities, and local emergency service organizations.

Structural Projects

Structural projects are usually designed by engineers to reduce or redirect the impact of natural disasters away from at-risk population areas.

Non Structural Projects

Projects that are designed to reduce or redirect the impact of natural disasters that do not require structural work.

Public Information

Public information educates and advises property owners, potential property owners, and others of hazards and ways to protect people and property.

Additional information and suggested projects under these classifications can be found in the State of Utah Mitigation Menu in Appendix B

In this plan the following definitions apply with regards to the layout of state mitigation strategies:

Mitigation Strategies: A method by which an aspect of a specific hazard could be mitigated. A strategy consists of at least one goal per hazard, at least one objective per goal, and at least one action items per objective. A strategy is not complete without all three.

Goal: A statement of an ideal condition that addresses a specific aspect of a hazard to reduce the severity of its impact.

Objective: A statement of a step that could reasonably be taken toward achieving the goal. Objectives may be difficult to reach, but are attainable within the planning timeframe.

Potential Projects: A specific activity that could be undertaken to provide one step toward an objective to accomplish the goal.

Per DMA 2000 requirements, State Hazard Mitigation, plans must address critical facilities, especially those owned by the State. Specific mitigation strategies exist throughout this plan for state owned facilities; this is particularly true for those critical facilities found to lie within high hazard boundaries.

The State always looks for the greatest benefit for the greater good when evaluating mitigation actions to include planning and projects. The state PDM review process reflects this “greatest benefit, greater good” concept.

Strategies reflect what Utah would like to mitigate. These strategies, however, do not take into account the biggest limiting factor in successfully completing mitigation: funding. Thus, implementation of the mitigation strategies listed in this plan or any of the locally adopted hazard mitigation plans is contingent upon the sponsor receiving financial support.

The majority of mitigation projects in Utah are locally determined and prioritized based on community priorities. Most of the local mitigation plans have been updated along with this plan. We were able to update the local mitigation strategies for only the jurisdictions covered by those the local mitigation plans that have been updated. The other local mitigation plans are in the process of being updated.

Part of the state’s technical assistance efforts will be directed towards assisting communities in identifying cost effective mitigation measures that will yield benefits toward reducing their risk to hazards. As the state provides technical assistance, it will ensure that the local mitigation goals and objectives align with the state’s. A complete list of locally generated mitigation strategies can be found in the local mitigation strategies section of this mitigation plan. Interdisciplinary

multi-jurisdictional working groups, coordinated at the county level, generated these mitigation strategies, which were incorporated into the regional PDM plans completed by the seven AOGs.

Section Five of this mitigation plan contains a comprehensive table of locally generated mitigation projects. The projects in the matrix come from the seven regional mitigation plans and represent a statewide list of mitigation projects.

Review and Update of Mitigation Goals and Objectives

Goals and objectives were reviewed by the SHMPC using the criteria listed below. Goals and objectives were reviewed to see if they are still applicable and relevant. The SHMPC and the SHMT meet to discuss the Goals as outlined in the plan. They each decided that the goals and objectives assembled in the 2007 SHMP continue to be significant and relevant. The priorities of the goals were also addressed using the criteria below to ensure that the goals are still listed in proper order. Goals and objectives that save lives are always a greater priority, followed by the protection of critical infrastructure.

Mitigation possible actions were reviewed by each leading agency who used the goals listed below to determine, evaluate, and prioritize the mitigation actions that make up the current strategy. Each identified specialist listed, reviewed the possible projects from the previous plan, and commented on whether they were still applicable, if they had been completed or if they were no longer needed. Appendix Q, Utah Mitigation Changes, identifies and compares the previous plans to the updated plan Goals, Objectives and Possible Projects. It also documents the status of the possible projects and funding sources of the projects completed.

The following is a list of identified specialist who reviewed the mitigation strategy section and determined prioritization and evaluated possible projects.

Earthquake Risk and Mitigation Strategies

Bob Carey, State Earthquake Program Manager
Steve Bowman, Geologic Hazards Program Manager
Richard Giraud, Geologist, UGS
Christopher DuRoss, UGS

Flood Risk Assessment and Mitigation Strategies

John Crofts Utah NFIP Coordinator,
Amisha Lester, RiskMAP/CTP Coordinator,
Bronson Smart, NRCS
Brian McInerney, Salt Lake NWS
Ana Vargo, NRCS

Severe Weather Risk Assessment and Mitigation Strategies

Kevin Barjenburch, Salt Lake NWS
Brian McInerney, Salt Lake NWS
Chris Crnich, UDA

Wildfire Risk Assessment and Mitigation Strategies

Tyre Holfeltz, Utah FFSL
Tracy Dunford, Utah FFSL
Cory Angerth, USGS

Dam Failure Risk Assessment and Mitigation Strategies

David Marble, Utah Dam Safety
Dan Grundvig, USBR
Ed Vidmar, USBR

Landslide Risk Assessment and Mitigation Strategies

Steve Bowman, Geologic Hazards Program Manager and
Richard Giraud, Geologist, UGS

Drought Risk Assessment and Mitigation Strategies

Randy Julander, NRCS
Bronson Smart, NRCS

The state's mitigation goals and objectives are general in order to address vulnerabilities on a state level. Several mitigation projects were awarded that meet the state's mitigation goals and objectives.

Of the mitigation possible projects listed in the 2011 SHMP, some are considered ongoing. Ongoing is used to describe projects that may have been completed but needs to continue or not fully completed. Most ongoing projects are funded through the responsible agency.

For example, Dam Failure Goal 2. Regulate and Maintain all dams in Utah, Objective B. Update dam Emergency Action Plans EAP, Possible Project 3. Digitized dam failure inundation maps for use in Geographic Information Systems. This is listed as "Ongoing", there are digitized maps for almost all of the high hazard dams but not all. This project is not fully complete, therefore it is ongoing.

Ongoing may also be described for possible projects that have been completed and will continue to be completed. An example would be the Severe Weather Goal 2. To provide or enhance severe weather warning systems, Objective A. To be able to warn *people in severe weather-prone areas through appropriate technology*, possible project 4. Promote Wireless Emergency Alerts (WEA). This project has been completed, but it is not enough to promote WEA's once, but to continuously promote them.

NRCS Flood mitigation projects that were completed are listed in Section 4 of this plan. The flood mitigation goals and objectives that are met through the NRCS projects are listed as follows:

Priority Goal #1: To mitigate flood loss by structural projects.

Objective A: Protect Property from flooding

Possible projects:

Place rip-wrap in strategic locations.

Increase the size of culverts and bridges.

Priority Goal #4. To mitigate flooding as a result of wildfires.

Objective A. To re-vegetate and rehabilitate areas burned by wildfire

Possible projects:

Identify areas where re-vegetation and rehabilitation is necessary, and prioritize.

Commence re-vegetation and rehabilitation on a priority basis

Objective B. To construct temporary debris traps and other flood mitigating structures in wildfire-burned areas

Possible projects:

Identify areas where such construction is necessary, and prioritize

Commence construction on a priority basis.

Priority Goal #5. To provide support for all feasible flood related mitigation developed or proposed by a local jurisdiction

Objective A. To support locally generated flood mitigation.

Possible projects:

To support locally generated flood mitigation.

A listing of implemented mitigation projects is located in Section 4 of this plan under Completed Mitigation Projects and Plans. This list FEMA and NRCS funded projects. The following list the HMA funded grants completed since 2011 and how they relate to goals and objectives.

Earthquake Mitigation

Priority Goal #1: To reduce the effects of earthquakes on critical facilities

Objective B: To retrofit critical facilities to withstand earthquakes

Possible projects:

Reinforce the most hazard-prone parts of critical facilities. Water and waste water districts.

Public school buildings.

Develop maps showing critical facilities overlaid on the earthquake hazard.

Develop improved seismic hazard maps.

Weber Basin Water Culinary Wells Multihazard Mitigation Project - PDMC-PJ-08-UT-2011-003

Snyderville Basin Water Reclamation District East Canyon WRF Seismic Project – 1955 HMGP FEMA Project #9-R

Murray School District Riverview Jr High Seismic Mitigation Project – 4011 HMGP FEMA Project #05-R

Weber Basin Water Conservancy District 12MG Tank Retrofit – 4011 HMGP FEMA Project #09-R

Utah Geological Survey (UGS) 5% Lidar Acquisition- 4053 HMGP FEMA project # 02 – F

Utah Geological Survey (UGS) 5% Liquefaction Mapping- 4088 HMGP FEMA project # 04 - F

Implementation of Risk-based liquefaction maps in hazard ordinances (U of U and UGS) - 4011 HMGP FEMA project # 10 – F

Priority Goal #3: To educate the public about earthquake safety, earthquake mitigation actions at home and in the workplace, etc.

Objective A: To develop and disseminate earthquake safety programs for the public.

Possible Projects: Provide printed and broadcast material. Provide teacher education and presentations for schools and civic groups.

Implementation of Risk-based liquefaction maps in hazard ordinances (U of U and UGS) - 4011 HMGP FEMA project # 10 – F

Flood Mitigation

Priority Goal #1: To mitigate flood loss by structural projects.

Objective A: Protect Property from flooding

Possible projects:

Place rip-wrap in strategic locations.

Increase the size of culverts and bridges.

St. George Sunbrook Golf Course and Monterey Subdivision Erosion Protection – 1955 HMGP FEMA Project #01-R

St. George Millcreek Electric Generation Facility Erosion Protection – 1955 HMGP FEMA Project #03-R

Emery County Long Street Culvert #2 (88"x65") – 1955 HMGP #11-R

Emery County Long Street Culvert #1 (48") – 1955 HMGP #12-R

St. George Riverside Drive Erosion Project – 4011 HMGP FEMA Project #06-R

Priority Goal #2: To obtain benefits of NFIP for all property owners.

Objective C: To identify for the purposes of vulnerability insurable and non-insurable structures in the flood hazard area.

Possible projects: Locate all such structures through use of GIS digital floodplain maps.

Objective E: To update and digitize all Flood Insurance Rate Maps (FIRM).

Possible projects: Initiate planning process for Risk Map Program. Continue Risk Map on a prioritized basis.

Utah Geological Survey (UGS) 5% Lidar Acquisition- 4053 HMGP FEMA project # 02 – F

Utah Geological Survey (UGS) 5% Liquefaction Mapping- 4088 HMGP FEMA project # 04 - F

Landslide Mitigation

Priority Goal #1: To reduce the impacts of landslides on critical facilities.

Objective A: Prepare digital maps that locate critical facilities in relation to potential landslide threats.

Possible Projects: Develop improved landslide hazard and landslide inventory maps.

Priority Goal #2: Protect lives and property from landslides.

Objective A: To Reduce the impacts of landslides on businesses, residential structures, and public buildings.

Possible projects: Property Acquisitions.

Objective B: Prepare improved landslide hazard maps.

Possible Projects: Develop improved landslide hazard and landslide inventory maps.

Priority Goal #3: Increase the level of knowledge related to landslides.

Objective A: Provide educational and training opportunities for city and county planners.

Possible projects: Develop improved landslide hazard and landslide inventory maps.

Priority Goal #5: Encourage Cities, Towns, and Counties to develop ordinances for geologic hazards.

Objective A: Enable counties to develop ordinances

Possible projects: Develop improved landslide hazard and landslide inventory maps.

North Salt Lake Springhill Landslide - PDMC-PJ-08-UT-2012-001

North Salt Lake Springhill Landslide – 4011 HMGP FEMA Project #07-R

Utah Geological Survey (UGS) 5% Lidar Acquisition- 4053 HMGP FEMA project # 02 – F

Utah Geological Survey (UGS) 5% Liquefaction Mapping- 4088 HMGP FEMA project # 04 - F

All Hazard Mitigation

Priority Goal #1: Continued involvement with mitigation planning in Utah.

Objective A: To provide technical assistance to regional planning agencies and communities in a timely manner, with a reasonable turnaround time, as the multi-jurisdictional and local plans are being updated.

Priority Goal #3: Increase awareness of hazard mitigation.

Objective A: Document mitigation projects throughout the State.

Tooele County Natural Hazard Mitigation Plan – PDMC-PL-08-UT-2012-006

Salt Lake County All-Hazard Mitigation Planning Project – PDMC-PL-08-UT-2012-008

Morgan County Pre Disaster Mitigation Planning – PDMC-PL-08-UT-2012-010

Murray City School District Multihazard Mitigation Plan – 1955 HMGP FEMA Project #06 –P

Davis County Mitigation Plan Update – 1955 HMGP FEMA Project #04 – P

Goals

These goals form the basis for the development of the hazard mitigation 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)
- Protection of communication and warning systems
- Protection of emergency medical services and medical facilities
- Protection of mobile resources
- Maintenance of 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 concerning community hazards and mitigation measures
- Preserving and/or restoring natural features that provide mitigation such as floodplains
- Minimize the impacts of natural hazards

State Plan Mitigation Strategies

Dam Safety ▼

The Division of Water Rights Dam Safety Section is in charge of maintaining dam safety within the state of Utah. Dam Safety is inherently, by nature and definition, centered on mitigation. Thus, the single most important dam safety mitigation strategy would be continued funding at an elevated level. Elevated funding would allow the state to bring more dams up to current standards in a shorter amount of time. The State's goal is no dam failures- old or new - small or large - high, moderate or low hazard. It should not take a dam failure to keep funding and focus.

The majority of mitigation projects in Utah are locally determined and prioritized based on community priorities. Part of the state's technical assistance efforts have been directed towards assisting communities in identifying cost effective mitigation measures that will yield benefits toward reducing their risk to hazards. A complete list of locally generated mitigation strategies pertaining to dam safety can be found in the local mitigation strategies section of this mitigation plan. Interdisciplinary multi-jurisdictional working groups, coordinated at the county level, generated these mitigation strategies which were incorporated into the regional PDM plans completed by the seven AOGs.

#1 Priority Goal: Improve safety of dams in Utah

A. *Objective: Bring deficient High Hazard dams up to current industry standards*

Possible projects:

1. Complete the Dam Safety projects prioritized in the Dam Rehabilitation Priority Listing done by Dam Safety Section. The priority listing is available in Appendix J.
2. Continue funding from Utah legislature, 4 million dollars per year, and push for funding from the feds through the National Dam Safety Rehabilitation Act - 300 million dollars.
3. Continue the program to take care of prioritized moderate hazard dams that can cause significant property damage on a benefit cost basis.

Responsible agencies:

NRCS, ACOE, DEM, BOR; Division of Water Resource
Dam Owner

Possible funding:

State Budget, Dam Owner

Timeline:

30 years

#2 Priority Goal: Regulate and maintain all dams in Utah for Public Safety

A. *Objective: Conduct a dam safety program that will keep up with industry standards with support from the legislature, department, division, and governor*

Possible Projects:

1. Regular dam inspection
2. Install a monitoring system

3. Develop owner education and coordination

Responsible agencies:

NRCS, ACOE, DEM, BOR; Division of Water Resources
Dam Owner

Possible funding:

State Budget, Dam Owner

Timeline:

Ongoing

B. *Objective: Update dam Emergency Action Plans EAP.*

Possible projects:

1. Update all dated EAP plans off of a prioritized risk table.
2. Create dam failure notification and call down lists in event of incident.
3. Digitized dam failure inundation maps for use in Geographic Information Systems.
4. Continue to provide inundation maps on the web.

Responsible agencies:

NRCS, ACOE, DEM, BOR; Division of Water Resources
Dam Owners

Possible funding:

State Budget, Dam Owners

Timeline:

Ongoing – EAPs are always being updated.

C. *Objective: Study dam failure vulnerability.*

Possible projects:

1. Utilize digitized dam failure inundation map to calculate location vulnerability.
2. Estimate losses for inundated areas to validate dam upgrades.

Responsible agencies:

NRCS, ACOE, DEM, BOR; Division of Water Resources
Dam Owners

Possible funding:

State Budget, Dam Owners

Timeline:

Ongoing

#3 Priority Goal: Reduce the vulnerability to State-owned and critical facilities and populations located within the dam inundation zones

A. *Objective: Protect state owned and critical facilities in inundation zones.*

Possible projects:

1. Encourage exercise of dam EAP
2. Provide technical assistance on exercising dam safety plans.
3. Include DNR Dam Safety program in Risk MAP projects.

4. Identify what state owned facilities and critical facilities are located within inundations zones

4. Identify areas of encroachment below high hazard dams.

Responsible agencies:

NRCS, ACOE, DEM, BOR; Division of Water Resources
Dam Owners

Possible funding:

State Budget, Dam Owners,

Timeline:

1-15 years

B. *Objective: Improve security for the State's high hazard dams*

Possible projects:

1. Include current dam EAPs in the development of all-hazard regional exercise.

Responsible agencies:

NRCS, ACOE , DEM, BOR; Division of Water Resources
Dam Owners

Possible funding:

State Budget, Dam Owners

Timeline:

10 years

Drought Mitigation Strategies ✓

The impacts of drought can be partially mitigated through cooperative partnerships between state and federal agencies, Tribes, public land users, and the Governor's Office. The unique composition of land ownership in Utah means drought mitigation must be completed through multi-agency efforts utilizing multi-disciplinary teams. Mitigation strategies listed below support the statewide drought mitigation plan, Utah Partners for Conservation and Development Drought Assessment and Mitigation State of the State Report (Appendix H), Land Use Plans from land management agencies, the State Drought Plan (Appendix G) and *Drought in Utah: Learning from the Past – Preparing for the Future* (Appendix G). The bottom line is, it takes teamwork, science, and above all time, patience, and communication to mitigate the economic, social, and environmental impacts of drought.

The majority of mitigation projects in Utah are locally determined and prioritized based on community priorities. Part of the state's technical assistance efforts have been directed towards assisting communities in identifying cost effective mitigation measures which yield benefits toward reducing their risk to hazards. A complete list of locally generated mitigation strategies can be found in the local mitigation strategies section of this plan. Interdisciplinary multi-jurisdictional working groups, coordinated at the county level, generated these mitigation strategies, which were incorporated into the regional PDM plans completed by the seven Associations of Government.

#1 Priority Goal: To conserve existing water resources in all sectors.

- A. Objective: *To educate the public about water conservation at home and in the workplace.*

Possible projects:

1. Provide related printed and broadcast material.
2. Provide teacher education on this subject for classroom use.
3. Provide speakers for civic groups and schools.

Responsible agencies:

State government for technical assistance and program development.

Local government for program development and delivery.

Possible funding:

Local government operating budget.

Timeline:

Ongoing

- B. Objective: *To adopt strict water conservation practices in all state buildings.*

Possible projects:

1. Retrofit buildings with water saving devices.
2. Educate employees about water conservation in the workplace.
3. Develop and install water conserving landscaping.

Responsible agencies:

State government

Possible funding:

State government operating budget.

Timeline:

5-10 years

- C. Objective: *To conserve water within the agricultural sector.*

Possible projects:

1. Develop and demonstrate water conservation practices for agricultural use.
2. Promote the use of treated wastewater effluent where appropriate.

Responsible agencies:

State government for technical assistance.

Local government for program development and delivery.

Possible funding:

Local government operating budget.

Timeline:

5-10 years

- D. Objective: *To promote and support implementation of mitigation strategies identified in “Drought in Utah – Learning from the Past – Preparing for the Future”.*

Possible projects:

1. Incorporate strategies in natural hazard outreach programs
2. Participate in water summit and resource workshops and promote water conservation mechanisms to appropriate public entities.

Possible funding:

State government operating budget.

Timeline:

Ongoing

#2 Priority Goal: To reduce the impact of development on water resources.

- A. Objective: *To enhance building codes for new construction in areas where potable water supply is a problem.*

Possible projects:

1. Modify existing building codes or adopt new ones where appropriate.
2. Require water-conserving landscaping.
3. Require the use of water-conserving appliances and fixtures in new construction.

Responsible agencies:

State government for technical assistance.

Local government for program development and delivery.

Possible funding:

Local government operating budget.

Timeline:

3-5 years

- B. Objective: *To develop demonstration projects to show the public how they can retrofit their property with appropriate water conservation technology.*
Possible projects:
1. Develop demonstration projects to show how to utilize water conservation technology including, but not limited to, gray water use and rainwater capture.
Responsible agencies:
State government for technical assistance.
Public water systems for program development and delivery.
Possible funding:
Public water system operating budget.
Timeline:
1-3 years
- C. Objective: *To require that all public water systems have drought contingency plans.*
Possible projects:
1. Provide technical assistance for drought contingency planning.
Responsible agencies:
State government for technical assistance.
Local government for program development and delivery.
Possible funding:
Local government operating budget.
Timeline:
5-10 years
- D. Objective: *To promote and support implementation of mitigation strategies identified in “Drought in Utah – Learning from the Past – Preparing for the Future”.*
Possible projects:
1. Incorporate strategies in natural hazard outreach programs
Possible funding:
State government operating budget.
Timeline:
Ongoing

#3 Priority Goal: To improve public water infrastructure.

- A. Objective: *To reduce water loss within public water infrastructure.*
Possible projects:
1. Identify and correct leakage from water mains.
Responsible agencies:
State government for technical assistance.
Local government for program development and delivery.

Possible funding:

Local government operating budget.

Timeline:

Ongoing

B. Objective: *To reduce water use by consumers.*

Possible projects:

1. Meter all water usage within water systems.
2. Set water rates that encourage water conservation and cover the cost of operations and maintenance.

Responsible agencies:

State government for technical assistance.

Local government for program development and delivery.

Possible funding:

Local government operating budget.

Timeline:

1-3 years

C. Objective: *To increase efficiency through shared system management.*

Possible projects:

1. Develop incentives for public water systems to conserve their resources through mergers or sharing.

Responsible agencies:

State government for technical assistance.

Public water systems for mutual cooperation.

Possible funding:

Public water system operating budget.

Timeline:

1-3 years

D. Objective: *To expand and improve existing potable water systems.*

Possible projects:

1. Enhance the productivity and efficiency of existing raw water extraction methods.
2. Develop new well fields or surface water sources for public drinking water.

Responsible agencies:

State government for technical assistance.

Public water systems for program development and delivery.

Possible funding:

Public water system operating budget.

Timeline:

5-10 years

E. Objective: *Support the State's Drought Mitigation Plans and initiatives.*

Possible projects:

1. Support the State Department of Natural Resources Water Resources Section in developing and updating the state drought plan.

Responsible agencies:

State Water Resources
Public water systems users
National Weather Service.

Possible funding:

Operating budgets of involved Agencies.

Timeline:

Ongoing

- F. Objective: *To promote and support implementation of mitigation strategies identified in “Drought in Utah – Learning from the Past – Preparing for the Future”.*

Possible projects:

1. Incorporate strategies in natural hazard outreach programs

Possible funding:

State government operating budget.

Timeline:

Ongoing

Earthquake Mitigation Strategies ✓

In addition to the mitigation strategies detailed below, the State Hazard Mitigation Plan also incorporates any seismic mitigation endorsed by the Utah Seismic Safety Commission, and fully incorporates *Putting Down Roots in Earthquake Country, Your Handbook for Earthquakes in Utah* completed in 2010 by the Utah Seismic Safety Commission and its partners. A Strategic Plan of Earthquake Safety in Utah is located in Appendix C along with *Earthquake Safety in Utah, A Progress Report on the Activities and Accomplishments of the Utah Seismic Safety Commission, 2000 to 2007*.

The majority of mitigation projects in Utah are locally determined and prioritized based on community priorities. Part of the state's technical assistance efforts have been directed towards assisting communities in identifying cost effective mitigation measures that will yield benefits toward reducing their risk to hazards. A complete list of locally generated mitigation strategies for earthquakes is found in the local mitigation strategies section of this mitigation plan.

#1 Priority Goal: To reduce the effects of earthquakes on critical facilities.

A. Objective: *To prepare digital maps that locate critical facilities in earthquake zones.*

Possible Projects:

1. Support seismic mitigation of state-owned critical facilities.
2. Develop maps showing critical facilities overlaid on the earthquake hazard.
3. Develop improved seismic hazard maps.

Responsible agencies:

State government for state-owned facilities.
Local government for other facilities.
Utah Division of Facilities Construction and Management.
Utah Geological Survey.

Possible funding:

State and local government operating budgets.

Timeline:

3-15 years

B. Objective: *To retrofit critical facilities to withstand earthquakes.*

Possible projects:

1. Reinforce the most hazard-prone parts of critical facilities.
2. Water and waste water districts.
3. Public school buildings.

Responsible agencies:

Owners of those facilities.

Possible funding:

Owners of those facilities, HMA for public facilities.

Timeline:

5-30 years

- C. Objective: *To retrofit businesses, residential structures, and public buildings to withstand moderate earthquakes.*
- Possible projects:
1. Reinforce the most hazard-prone parts of businesses, residences, and public buildings.
 2. Identify unreinforced masonry (URM) buildings.
 3. Promote incentive programs through state and local jurisdiction support to assist businesses and private residences in retrofitting URM buildings.
 4. Survey all state schools using the ATC-21 process to identify hazardous schools.
 5. Property acquisitions.
- Responsible agencies:
- Owners of those buildings
 - Structural Engineers Association of Utah
 - Utah Seismic Safety Commission
 - Utah State Office of Education
- Possible funding:
- HMA, Owners of the buildings, State Budget
- Timeline:
- 5-30 years

#2 Priority Goal: To include seismic standards in building codes where appropriate.

- A. Objective: *Better enforcement of the seismic standards in the International Building Code (IBC), which has been adopted statewide.*
- Possible projects:
1. Training of building inspectors to the seismic provision in IBC
- Responsible agencies:
- State government for technical assistance.
 - Local government for code enhancement and enforcement.
- Possible funding:
- Local government operating budget. State Legislature
- Timeline:
- 1-30 years

#3 Priority Goal: To educate the public about earthquake safety, earthquake mitigation actions at home and in the workplace, etc.

- A. Objective: *To develop and disseminate earthquake safety programs for the public.*
- Possible projects:
1. Provide printed and broadcast material.
 2. Community Emergency Response Teams (CERT).
 3. Provide teacher education and presentations for schools and civic groups.

Responsible agencies:

State government for technical assistance.

Local government for program development and delivery.

Possible funding:

HMA

Local government operating budget.

Timeline:

1-10 years

Flood Mitigation Strategies ✓

The majority of mitigation projects in Utah are locally determined and prioritized based on community priorities. Part of the state's technical assistance efforts have been directed towards assisting communities in identifying cost effective mitigation measures that will yield benefits toward reducing their risk to hazards. A complete list of locally generated mitigation strategies completed as part of the seven AOG plans is located in the mitigation strategy section of this mitigation plan. Interdisciplinary multi-jurisdictional working groups, coordinated at the county level, generated these mitigation strategies which were incorporated into the regional PDM plans completed by the seven AOGs.

#1 Priority Goal: To mitigate flood loss by structural projects.

A. *Objective: Protect Property from flooding*

Possible projects:

1. Sustain and promote No Adverse Impact (NAI)
2. Place rip-wrap in strategic locations
3. Increase the size of culverts and bridges
4. Property Acquisitions

Responsible agencies:

Local jurisdictions, NRCS, ACOE

Possible funding:

Local jurisdictions, FEMA, NRCS, State Budget

Timeline:

5-30 years

B. *Objective: To survey all roads, bridges, and drainage structures and determine their ability to withstand and pass the highest anticipated flood.*

Possible projects:

1. Identify and map all inadequate structures.
2. Propose solutions to any problems disclosed in the survey.

Responsible agencies:

State government for state-owned property.

State government for technical assistance to local governments.

Local government for property within their jurisdiction.

Possible funding:

State agency operating budgets.

Local government operating budgets.

Timeline:

3-15 years

C. *Objective: To provide maintenance, repairs, and improvements to roads, bridges, and drainage structures.*

Possible projects:

1. Remove debris and vegetation from floodways and drainage structures through a systematic maintenance program.

2. Improve flood resistance through enhancement of wing walls, flood barriers, foundations, etc., at likely flood impact points.
3. Construct debris basins, flood retention ponds, energy flow dissipaters in an effort to control the flow and release of flood waters.

Responsible agencies:

State government for state-owned property.
Local government for property within their jurisdiction.

Possible funding:

State and local operating budgets for maintenance

Timeline:

5-30 years

#2 Priority Goal: To obtain benefits of NFIP for all property owners.

- A. Objective: *To increase jurisdiction participation into NFIP.*

Possible projects:

1. Encourage legislation requiring all eligible jurisdictions to participate in NFIP.
2. Promote the benefits of NFIP participation to all jurisdictions.

Responsible agencies:

State government for NFIP guidance
Local government for NFIP ordinance and enforcement

Possible funding:

FEMA, State, Local government operating budget

Timeline:

Ongoing

- B. Objective: *Lower policy holders' insurance rates through participation in the Community Rating System (CRS).*

Possible projects:

1. Eligible communities participate in CRS.

Responsible agencies:

State and Federal government for guidance and periodic CRS evaluation.
Local government for CRS program compliance.

Possible funding:

Local government operating budget

Timeline:

Ongoing

- C. Objective: *To identify for the purposes of vulnerability insurable and non-insurable structures in the flood hazard area.*

Possible projects:

Locate all such structures through use of GIS digital floodplain maps.

Responsible agencies:

Local government

Possible funding:

Local government operating budget

Timeline:

1-15 years

- D. Objective: *To regulate the alteration of existing drainage patterns of new development.*

Possible projects:

1. Adopt and improve codes and ordinances that set reasonable limits on the alteration of drainage patterns due to new development.
2. Provide technical assistance for the development or modification of codes and ordinances related to this mitigation objective.

Responsible agencies:

State government offering technical assistance.

Local government to enact and enforce codes and ordinances.

Possible funding:

State, Local government operating budget

Timeline:

3-15 years

- E. Objective: *To update and digitize all Flood Insurance Rate Maps (FIRM).*

Possible projects:

1. Initiate planning process for Risk Map Program.
2. Continue Risk Map on a prioritized basis.

Responsible agencies:

State government, Utah Division of Emergency Management

Possible funding:

FEMA under Risk Map, UGS, USACE

Timeline:

1-30 years

#3 Priority Goal: To assure that all people have basic information relating to flood issues.

- A. Objective: *To provide flood-related information through print and broadcast media.*

Possible projects:

1. Prepare and disseminate brochures, public service spots, etc., related to flood mitigation and flood safety issues.

Responsible agencies:

State government for technical assistance.

Local government for program development and execution.

Possible funding:

FEMA, State Budget, Local Budget, NOAA

Timeline:

Ongoing

- B. Objective: *To provide information and programs to educational institutions.*
Possible projects:
1. To prepare and deliver flood related programs and materials for educational institutions.
- Responsible agencies:
State government for technical assistance.
Local government for program development and execution.
- Possible funding:
FEMA, State Budget, Local Budget, NOAA
- Timeline:
Ongoing

#4 Priority Goal: To mitigate flooding as a result of wildfires.

- A. Objective: *To re-vegetate and rehabilitate areas burned by wildfire.*
Possible projects:
1. Identify areas where re-vegetation and rehabilitation is necessary, and prioritize.
 2. Commence re-vegetation and rehabilitation on a priority basis.
- Responsible agencies:
Federal and state government for areas within their jurisdiction.
Federal and state government for technical assistance.
Local government for areas within their jurisdiction.
- Possible funding:
Federal programs via FEMA, USFS, BLM, NRCS, or others.
State Budget via FFSL, Local Budget
- Timeline:
Ongoing
- B. Objective: *To construct temporary debris traps and other flood mitigating structures in wildfire-burned areas.*
Possible projects:
1. Identify areas where such construction is necessary, and prioritize.
 2. Commence construction on a priority basis.
- Responsible agencies:
Federal and state government for areas within their jurisdiction.
Federal and state government for technical assistance.
Local government for areas within their jurisdiction.
- Possible funding:
Federal programs via USFS, BLM, NRCS, or others.
HMA, State Budget, Local Budget
- Timeline:
Ongoing

#5 Priority Goal: To provide support for all feasible flood related mitigation developed or proposed by a local jurisdiction.

- A. Objective: *To support locally generated flood mitigation.*
Possible projects:
1. Too numerous to list; see local mitigation section of this plan for details on mitigation proposed by the local jurisdictions.
Responsible agencies:
Federal and state government for areas within their jurisdiction.
Federal and state government for technical assistance.
Local government for areas within their jurisdiction.
Possible funding:
Federal programs via FEMA, USFS, BLM, NRCS, or others.
State Budget, Local Budget.
Timeline:
Ongoing

#6 Priority Goal: Business Outreach

- A. Objective: *Compliance with NFIP.*
Possible projects:
1. Trainings
Responsible agencies:
Federal and state government for areas within their jurisdiction.
Federal and state government for technical assistance.
Local government for areas within their jurisdiction.
Possible funding:
Federal programs via FEMA, USFS, BLM, NRCS, or others.
State Budget, Local Budget.
Timeline:
Ongoing

Landslide Mitigation Strategies ✓

The majority of mitigation projects in Utah are locally determined and prioritized based on community priorities. Part of the state's technical assistance efforts have been directed towards assisting communities in identifying cost effective mitigation measures that will yield benefits toward reducing their risk to hazards. A complete list of locally generated mitigation strategies developed as part of the county mitigation working groups were used in the multi-jurisdictional plans and can be found in the local mitigation strategies in this plan.

#1 Priority Goal: To reduce the impacts of landslides on critical facilities

- A. Objective: *Prepare digital maps that locate critical facilities in relation to potential landslide threats*

Possible Projects:

1. Support mitigation of state owned critical facilities while also participating in Risk MAP.
2. Develop improved landslide hazard and landslide inventory maps.
3. Set state standards on where critical facilities can be located.
4. Develop a plan to relocate or protect facilities located within landslide hazard areas.

Responsible agencies:

State government, UGS, DEM, DFCM
FEMA, Local government

Possible funding:

FEMA, State and local government operating budgets.

Timeline:

1-20 years

#2 Priority Goal: Protect lives and property from landslides

- A. Objective: *To reduce the impacts of landslides on businesses, residential structures, and public buildings.*

Possible projects:

1. Property Acquisitions

Responsible agencies:

Local Jurisdiction, Property Owners
UGS, DEM, DFCM

Possible funding:

FEMA, State Budget, Local Budget

Timeline:

5-30 years

- B. Objective: *Prepare improved landslide hazard maps*

Possible Projects:

1. Develop improved landslide hazard and landslide inventory maps.

Responsible agencies:

UGS, DEM, DFCM, Local government

Possible funding:

FEMA, State Budget, Local Budget

Timeline:

1-30 years

#3 Priority Goal: Increase the level of knowledge related to landslides

- A. Objective: *Educate general public on landslide risk.*

Possible projects:

1. Utah Geological Survey website
2. Utah Division of Emergency Management website
3. Training manuals
4. Educational publications
5. Utilize the information booth at the Utah State Fair and information posted on the DEM website

Responsible agencies:

UGS, DEM, DFCM

Possible funding:

FEMA, State Budget, Local Budget

Timeline:

Ongoing

- B. Objective: *Provide educational and training opportunities for city and county planners*

Possible projects:

1. Conduct half-day landslide awareness training
2. Develop improved landslide hazard and landslide inventory maps.
3. Continue to hold the UDEM Natural Hazard Workshop

Responsible agencies:

UGS, DEM, DFCM

Possible funding:

FEMA, State Budget, Local Budget

Timeline:

Ongoing

- C. Objective: *Educate developers*

Possible projects:

1. Provide training to developers on landslides, risks, and potential mitigation and legal liability.

Responsible agencies:

UGS, DEM, DFCM

Possible funding:

FEMA, State Budget, Local Budget

Timeline:

Ongoing

#4 Priority Goal: Monitor landslide movement

- A. Objective: *Continue to develop and improve monitoring of landslide movement and respond to landslide activity.*

Possible projects:

1. Continued monitoring of landslide movement by the Utah Geological Survey.
2. Continued field response to debris flows, landslides, and rock falls by the Utah Geological Survey

Responsible agencies:

Utah Geological Survey

Possible funding:

FEMA, State Budget - Utah Geological Survey, Local Budget

Timeline:

Ongoing

#5 Priority Goal: Encourage Cities, Towns, and Counties to develop ordinances for geological hazards.

- A. Objective: *Enable counties to develop ordinances*

Possible projects:

1. Develop improved landslide hazard and landslide inventory maps.
2. Assist cities and counties in development of geologic hazard ordinances.

Responsible agencies:

UGS, DEM, DFCM

Possible funding:

FEMA, State Budget - Utah Geological Survey, Local Budget

Timeline:

1-30 years

Severe Weather Mitigation Strategies ✓

The majority of mitigation projects in Utah are locally determined and prioritized based on community priorities. Part of the States technical assistance efforts have been directed towards assisting communities in identifying cost effective mitigation measures that will yield benefits toward reducing their risk to hazards. A complete list of locally generated mitigation strategies developed as part of the county mitigation working groups were used in the multi-jurisdictional plans and can be found in the local mitigation strategies in this plan.

#1 Priority Goal: To assure that all people have basic information relating to severe weather preparedness and response.

- A. Objective: *To provide weather-related information through print, broadcast, and social media.*

Possible projects:

1. Prepare and disseminate brochures, public service announcements, etc., related to severe weather, including, but not limited to, tornados, lightning, hail, straight-line winds, extreme heat, winter storms, ice storms, extreme cold, and avalanches.
2. Utilize awareness weeks for flood, lightning, severe weather, winter weather, etc., to provide preparedness and response information.
3. Use Be Ready Utah Campaign
4. Leverage Utah Public Information Officer Association, DEM and Emergency Management Newsroom (utahemergencyinfo.com)

Responsible agencies:

National Weather Service, American Red Cross, State and Local government, Utah Public Information Officer Association, Utah Broadcasters Association, and Forest Service Utah Avalanche Center

Possible funding:

FEMA, State Budget, Local Budget, NOAA

Timeline:

Ongoing

- B. Objective: *To provide severe weather information and programs to schools.*

Possible projects:

1. Prepare and deliver severe weather-related programs and materials for schools.

Responsible agencies:

National Weather Service, American Red Cross, State government, Local government, School District Association, Utah School Superintendents Association and State of Utah Office of Education.

Possible funding:

FEMA, State Budget, Local Budget, NOAA, School Districts

Timeline:

Ongoing

#2 Priority Goal: To provide or enhance severe weather warning systems.

- A. Objective: *To be able to warn people in severe weather-prone areas through appropriate technology.*

Possible projects:

1. Increase participation the National Weather Service StormReady program.
2. Increase NOAA Weather Radio All Hazards availability
3. Use Integrated Public Alert and warning System (IPAWS) to disseminate emergency messages
4. Promote Wireless Emergency Alerts (WEA)
5. Create an Integrated Warning Team (IWT)

Responsible agencies:

National Weather Service, State government, Local government, Utah Public Information Officer Association, Utah Broadcasters Association, and Forest Service Utah Avalanche Center

Possible funding:

FEMA, State Budget, Local Budget, NOAA

Timeline:

1-15 years

- B. Objective: *To be able to warn people of hazardous weather via broadcast media.*

Possible projects:

1. Enhance the Emergency Alert System (TV and radio) statewide.
2. Enhance NOAA Weather Radio All Hazards coverage statewide.
3. Use Integrated Public alert and Warning System (IPAWS)
4. Promote Wireless Emergency Alerts (WEA)
5. Create an Integrated Warning Team (IWT)

Responsible agencies:

National Weather Service, State government, Local government, Utah Public Information Officer Association, Utah Broadcasters Association, and Forest Service Utah Avalanche Center

Possible funding:

FEMA, State Budget, Local Budget, NOAA

Timeline:

1-15 years

- C. Objective: *To enhance severe weather information communication with emergency managers, safety officials, and other first responders.*

Possible projects:

1. Encourage use of iNWS mobile and desktop alerting services and NWSChat instant messaging program
2. Observation upgrades such as installing automated weather stations for burn scar areas at risk
3. Prepare and disseminate brochures, public service announcements, etc., related to severe weather, including, but not limited to, tornados, lightning, hail, straight-line winds, extreme heat, winter storms, ice storms, extreme cold, and avalanches.
4. Utilize awareness weeks for flood, lightning, severe weather, winter weather, etc., to provide preparedness and response information.
5. Use Be Ready Utah Campaign
6. Leverage Utah Public Information Officer Association, DEM and Emergency Management Newsroom
(utahemergencyinfo.com)

Responsible agencies:

National Weather Service, American Red Cross, State and Local government, Utah Public Information Officer Association, Utah Broadcasters Association, and Forest Service Utah Avalanche Center

Possible funding:

FEMA, State Budget, Local Budget, NOAA

Timeline:

Ongoing

#3 Priority Goal: Enhance avalanche knowledge and warning ability

- A. Objective: *To be able to warn people in potentially avalanche prone areas through appropriate technology.*

Possible projects:

1. Continued support and funding of the Forecast Service Utah Avalanche Center UAC. The UAC has numerous warning systems in place with an avalanche warning posted on the web and through their hotline each morning.

Responsible agencies:

National Weather Service, U.S. Forest Service
State government for technical assistance and grant funding.
Local government for program development and execution.

Possible funding:

FEMA, State Budget, Local Budget, NOAA, USFS

Timeline:

Ongoing

- B. Objective: *Increase the avalanche skill base among the various users groups*

Possible projects:

1. Continued support and funding of the Forecast Service Utah Avalanche Center

2. Low or no cost avalanche education similar to the avalanche education offered by the Utah Avalanche Center or avalanche expert.
3. Tie in with ski resorts to assist in offering avalanche training.
4. Conduct training specific to snowmobilers, snowshoe and back country skiing communities
5. Increase avalanche knowledge of city and county emergency managers.

Responsible agencies:

National Weather Service, U.S. Forest Service
State government for technical assistance and grant funding.
Local government for program development and execution.

Possible funding:

Private and public partnerships

Timeline:

Ongoing

#4 Priority Goal: To design public buildings and private property to withstand the effects of severe weather.

- A. Objective: *To require that all new construction of any type meet enhanced standards for wind-loading, snow-loading, and other weather-related hazards.*

Possible projects:

1. Develop codes and ordinances that require safe rooms in new construction.

Responsible agencies:

State government for technical assistance.
Local government for code development and enforcement.

Possible funding:

Local government operating budget.

Timeline:

1-3 years

- C. Objective: *To retrofit existing structures to meet extreme weather standards.*

Possible projects:

1. Ensure retrofits comply with new building codes.

Responsible agencies:

State government for technical assistance.
Local government for program development and execution.

Possible funding:

FEMA, State Budget, Local Budget, Building owner

Timeline:

5-30 years

- D. Objective: *To identify and equip public buildings to serve as shelters for travelers stranded because of severe winter storms.*

Possible projects:

1. Identify suitable public buildings and equip them with supplies and emergency power generation capability.

Responsible agencies:

American Red Cross for guidance on shelter requirements.

State government for technical assistance.

Local government for program development and execution.

Possible funding:

State Budget, Local Budget

Timeline:

1-20 years

Wildfire Mitigation Strategies ✓

The majority of mitigation projects in Utah are locally determined and prioritized based on community priorities. Part of the state's technical assistance efforts have been directed towards assisting communities in identifying cost effective mitigation measures that will yield benefits toward reducing their risk to hazards. A complete list of locally generated mitigation strategies relating to wildfire is available in the local mitigation strategies section of this mitigation.

#1 Priority Goal: To eliminate dangerous fuel loading in wildlands.

- A. Objective: *To reduce fuel loads in and around critical facilities, regardless of ownership.*

Possible projects:

1. Reduce fuels in the vicinity of power stations, power lines, and transformer sites.
2. Reduce fuels along major transportation routes, prioritized by vulnerability and usage.
3. Reduce fuels in critical watersheds.
4. Reduce fuels around other critical facilities.

Responsible agencies:

State government, Federal government, Local government, DEM, EMNRD, Private individuals and companies for their own property

Possible funding:

State Budget, Local Budget, SFA-WUI, FLEP, FEMA

Timeline:

3-15 years

- B. Objective: *To reduce fuels on private property.*

Possible projects:

1. Provide assistance with disposition of vegetative material removed from private land, as through chipping or burning.
2. Develop programs for re-use of vegetative material that would contribute to the local economy.
3. Emigration Canyon
4. Other communities located in the WUI

Responsible agencies:

State and local government for providing assistance, DEM, EMNRD, USFS, Private individuals and businesses for their own property

Possible funding:

State Budget, Local Budget, SFA-WUI, FLEP, RCA-EAP, CFRP, FEMA, Private Landowners

Timeline:

1-15 years

- C. Objective: *To reduce fuels on public lands.*

Possible projects:

1. Provide assistance with disposition of vegetative material removed from public land, as through chipping or burning.
2. Develop programs for re-use of vegetative material that would contribute to the local economy.

Responsible agencies:

State and local government, DEM
EMNRD, USFS, BLM

Possible funding:

State Budget, Local Budget, SFA-WUI, FLEP, RCA-EAP, CFRP, BLM,
USFS, FEMA

Timeline:

1-15 years

#2 Priority Goal: To provide public information and education regarding the wildfire hazard and what people can do about it.

- A. Objective: *To provide public information through print and broadcast media on the subject of defensible space.*

Possible projects:

1. Develop and disseminate printed information on the subject of defensible space, to include (but not limited to):
 - (a) reducing fuels;
 - (b) building with fire-resistant materials;
 - (c) designing roads and driveways;
 - (d) protecting utilities; and
 - (e) using fire-resistant landscaping.

2. Develop and disseminate radio and TV spots for the same.

Responsible agencies:

State government
Local government

Possible funding:

State Budget - FFSL, Local Budget, SFA-WUI, FLEP, RCA-EAP, CFRP,
FEMA

Timeline:

Ongoing

- B. Objective: *To provide educational community meetings and seminars on the subject of defensible space.*

Possible projects:

1. Develop and deliver community meetings and seminars on the subject of defensible space.
2. Develop demonstration project to illustrate defensible space tactics.

Responsible agencies:

State government, DEM, FFSL
Local government

Possible funding:

State Budget - FFSL, Local Budget, SFA-WUI, FLEP, RCA-EAP, CFRP,
FEMA

Timeline:

Ongoing

- C. Objective: *Provide information and technical assistance to local government planners and private developers on the subject of fire-resistant communities.*

Possible projects:

1. Develop and deliver printed materials to guide planners and developers in utilizing defensible space tactics when laying out subdivisions and other development projects.

Responsible agencies:

State government, Local government, DEM

Possible funding:

FEMA, State Budget - FFSL, Local Budget, SFA-WUI, FLEP, RCA-EAP,
CFRP,

Timeline:

Ongoing

- D. Objective: *Provide public information on the subject of what to do if a wildfire is nearby.*

Possible projects:

1. Develop and deliver public information on personal and family preparedness for evacuation and/or defense if a wildfire appears to be threatening.

Responsible agencies:

State government
Local government

Possible funding:

State Budget - FFSL, Local Budget, SFA-WUI, FLEP, RCA-EAP, CFRP,
FEMA

Timeline:

Ongoing

#3 Priority Goal: To encourage and assist local governments to require property owners and developers to utilize defensible space tactics.

- A. Objective: *Develop local code enhancements that require utilization of defensible space tactics where appropriate.*

Possible projects:

1. Adopt the 2006 WUI Code
2. Develop and enact other appropriate code enhancements.

Responsible agencies:

State government
Local government

Possible funding:

Local government operating budget.

Timeline:

1-15 years

#4 Priority Goal: To complete the rural addressing program and digital maps that locate critical facilities, subdivisions, firefighting resources, roads and bridges, and specific private addresses.

- A. Objective: *Identify every residence or business with a street name and address.*

Possible projects:

1. Complete the rural addressing program and stay current with it.

Responsible agencies:

Local government.

Possible funding:

FEMA, State Budget - FFSL, Local Budget, SFA-WUI, FLEP, RCA-EAP, CFRP,

Timeline:

1-15 years

- B. Objective: *Develop digital maps of the wildland-urban interface.*

Possible projects:

1. Digitally map all street addresses, critical facilities, fire-fighting resources, etc., in the wildland-urban interface.
2. Extend digital mapping to include all areas subject to the wildfire hazard while also participating in Risk MAP.

Responsible agencies:

State government
Local government

Possible funding:

State Budget - FFSL, Local Budget, USFS, FEMA

Timeline:

1-15 years

#5 Priority Goal: To provide training, equipment, and resources for fire departments to fight wildfires.

- A. Objective: *Enhance existing wildfire training programs and equipment procurement for fire departments.*
Possible projects:
1. Enhance existing programs.
Responsible agencies:
State government
Local government
Possible funding:
State Budget - FFSL, Local Budget, SFA-WUI, FLEP, RCA-EAP, CFRP, USFS, FEMA
Timeline:
1-15 years
- B. Objective: *Enhance existing or develop new fire-fighting resources for wildfire suppression.*
Possible projects:
1. Enhance existing or develop new water sources in wildfire-prone areas.
2. Build & Maintain water-filling areas for helicopters.
3. Establish dry water hydrants in high hazard fire areas
Responsible agencies:
Federal government
State government
Local governments
Possible funding:
State budget, SFA-WUI, local government operating budgets
Timeline:
1-3 years
- C. Objective: *To preposition extra fire-fighting resources prior to the beginning of the fire season.*
Possible projects:
1. Contract with air and ground fire-fighting contractors to position their assets at key points within the state.
Responsible agencies:
State government
Possible funding:
State operating budget
Timeline:
Ongoing

Technological and Manmade Mitigation Strategies ✓

Partners in terrorism and response worked together to develop strong, yet realistic, mitigation strategies for technological and man-made disasters. The effects of terrorism can vary significantly from loss of life and injuries to property damage and disruptions in services such as

electricity, water supply, public transportation, and communications. In that respect, preparation for terrorist events is similar to any other disaster. Mitigation efforts for other hazards will help to prevent damage from terrorist incidents as well. This "all-hazards" mitigation approach builds upon existing programs that mitigate other natural and technological hazards while focusing on the security of the public. With this "all-hazards" approach in mind, the State and communities can and should:

#1 Priority Goal: Recognize facility vulnerabilities throughout the State

- A. Objective: *Establish ways to identify and fund structural mitigation measures.*
Possible projects:
1. Provide SIAC with information and data supporting all-hazard mitigation efforts for their assessment software.
 2. Encouraging tying into PDM funds to enhance structural mitigation measures on vulnerable State and local facilities.
- Responsible agencies:
State government to identify structural mitigation measures
Local and State government to apply for grant opportunities
- Possible funding:
Timeline:
Ongoing
- B. Objective: *Assess and enhance security measures at critical facilities*
Possible Projects:
1. All-hazard risk assessment information when updating security measures
 2. Provide funding through DEM grants to fund projects
- Responsible agencies:
State government to identify structural mitigation measures
Local and State government to apply for grant opportunities
- Possible funding:
Timeline:
Ongoing

#2 Priority Goal: Reduce risk from bomb blast and nuclear, biological, and chemical attacks to critical state facilities and population.

- A. Objective: *Review state and local technological manmade response and recovery plans*
Possible Projects:
1. Encourage local governments to review technological manmade hazards plans and include risk analysis and mitigation measures in their regional/local hazard mitigation plans.
- Responsible agencies:
State government to identify mitigation measures
Local and State government to apply for grant opportunities
- Possible funding:

Timeline:

Ongoing

- B. Objective: *Identify other plans and studies to assist with risk assessment*

Possible Projects:

1. Develop a secure technological and manmade library for plans
2. Work with private sector to gather risk assessment data.

Responsible agencies:

State government to identify plans

Local and State government to apply for grant opportunities

Possible funding:

Timeline:

1-3 years

#3 Priority Goal: Enhance outreach and partnerships with state and local agencies

- A. Objective: *Include non-traditional institutions, agencies, commissions, etc., that are impacted by technological and manmade hazard in state and local mitigation plan development.*

Possible Projects:

1. Include private sector representative on the State Hazard Mitigation Team
2. Include higher education on the State Hazard Mitigation Team

Responsible agencies:

State government to identify outreach and partnership opportunities

Local and State government to apply for grant opportunities

Possible funding:

Timeline:

Ongoing

All Hazard Mitigation Strategies ✓

All hazard mitigation strategies are those strategies which do not directly correspond with one specific hazard, or in their completion mitigate a number of hazards. The emphasis in the all hazard mitigation arena in the coming years will be to include man made hazards in the state mitigation plan, and to increase the accuracy of the vulnerability assessment. Completing these strategies will allow the mitigation plan to be a more useful plan.

#1 Priority Goal: Continued involvement with mitigation planning in Utah.

- A. Objective: *Continue to have a current, approved state mitigation plan*
Possible projects:
1. Have an update of the state mitigation plan approved
 2. Submit a PDM-C grant application to
 - i. Increase the accuracy of GIS data utilized in the current plan
 - ii. Utilize HAZUS with updated Flood and Earthquake runs
 3. Collect and organize data of State owned or operated critical facilities
- Responsible agencies:
State government, DEM, Division of Facilities Construction & Management
- Possible funding:
FEMA, State
- Timeline:
Ongoing
- B. Objective: *Continue to develop and update local hazard mitigation plans*
Possible projects:
1. Assist Association of Governments in updating LHMPs
 2. Assist with Counties to write and/or update LHMPs
 3. Assist with Special Districts to write and/or update LHMPs
 4. Support Local Jurisdictions to write LHMPs
 5. Support School Districts to write/update LHMPs
- Responsible agencies:
State DEM, AOG's, Local governments, Special Districts, School Districts
- Possible funding:
FEMA, State budget, Local budget,
- Timeline:
Ongoing
- C. Objective: *To provide technical assistance to regional planning agencies and communities in a timely manner, with a reasonable turnaround time, as the multi-jurisdictional and local plans are being updated.*
Possible projects:
1. Continued involvement with the SHMT
 2. Continued coordination with the SHMO, Earthquake Program Manager, State Flood Plain Manager, and Risk MAP Manager.
 3. Coordination with FEMA
 4. Standing Natural Hazard Mitigation plan review committee.
- Responsible agencies:
State government, DEM, Local Jurisdictions
- Possible funding:
FEMA, State Agencies,

Timeline:

Ongoing

#2 Priority Goal: Improve the State's Disaster Response and Recovery Capability.

- A. Objective: *Facilitate the enhancement of State and local Emergency Recovery Plans and provide related training and technical assistance.*

Possible projects:

1. Facilitate the review of existing Disaster Recovery Plans for potential enhancement with respect to All Natural and Man-made Hazard Mitigation initiatives
2. Provide planning and related technical resources to facilitate the enhancement of Disaster Recovery Plans to include Hazard Mitigation initiatives

Responsible agencies:

State government, DEM

Possible funding:

FEMA, DRI, State Budget

Timeline:

Ongoing

#3 Priority Goal: Increase awareness of hazard mitigation

- A. Objective: *Document mitigation projects throughout the State*

Possible projects

1. Study and document loss avoidance for all completed mitigation projects
2. Develop and distribute a best practices in mitigation handbook to be used by locals and other state agencies
3. Develop and distribute a Mitigation Success pamphlet
4. Study and document all hazard events

Timeline:

Continuous

- B. Objective: *Increase public awareness of hazard mitigation through outreach and education*

Possible projects

1. DEM will continue to pursue public education initiatives concerning mitigation, including the information booth at the Utah State Fair and information posted on the DEM website
2. Encourage local government to make their hazard mitigation plans available to the public through their website, library, etc.
3. Distribute Utah Hazards Handbook

Responsible agencies:

State

Possible funding:

FEMA, State Budget

Timeline:

Ongoing

#4 Priority Goal: Improve overall integrated statewide mitigation efforts

A. Objective: *Integrate the SHMP with other state and local plans*

Possible projects

1. Require all communities within Utah to have an updated, comprehensive plan with hazard mitigation a component of the plan
2. Create a planning clearing house that reviews all plans created by state agencies and links them together

Responsible agencies:

State government,
Department of Natural Resources, State Legislators

Possible funding:

State and local budgets

Timeline:

1-20 years

B. Objective: *Protect citizens and property from poor land use development*

Possible projects

1. Develop full disclosure laws
2. Develop natural hazard model ordinances

Responsible agencies:

State government,
Department of Natural Resources
State Legislators

Possible funding:

State and Local Budgets

Timeline:

1-15 years

#5 Priority Goal: Promote research, education, and outreach activities to create a culture of mitigation in Utah

A. Objective: *Research non-traditional mitigation techniques and develop mitigation success stories on different mitigation techniques*

Possible projects

1. Develop success stories in earthquake resistant construction and mitigation techniques
2. Develop partnership and research with the University of Utah

Responsible agencies:

State and local government, Utah Seismic Safety Commission,

Timeline:

1-15 years

B. Objective: *Utilize the web to promote hazard mitigation and be a rich source of information*

Possible projects

1. Enhance the current DEM website to provide more information than currently exists. Ensure links to other hazard information is current.

Timeline:

Ongoing