



EMERGENCY MANAGEMENT *Madison County*

2019 MADISON COUNTY Hazard Mitigation Plan

**MADISON COUNTY EMERGENCY MANAGEMENT
26 NORTH CENTER STREET
REXBURG, IDAHO 83440**

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1.1 Executive Summary

Preface

The Madison County All Hazard Mitigation Plan (HMP) was first developed in late fall of 2006 through the spring of 2008. The 2008 HMP was designed to interface with the State of Idaho Multi-Hazard Mitigation Plan published in November 2007.

This is the 2019 revised version of the original Plan. It contains information relative to the hazards and vulnerabilities facing Madison County and interfaces with the [2018 State of Idaho Multi-Hazard Mitigation Plan](#). The jurisdictions participating in this Plan include Madison County and the cities of Rexburg and Sugar City.

The Madison County MHMP:

- Identifies areas of risk and assesses the potential cost and magnitude
- Establishes strategies and priorities to mitigate risk from natural and technological hazards
- Identifies specific mitigation projects for each identified hazard
- Guides the communities in their risk management activities and minimizes conflicts among agencies
- Establishes eligibility for future mitigation program funds

The 2019 HMP includes the following key updates:

- **Historical hazards:** Each hazard section within this plan documents NCDC-reported hazards within the past five years.
- **County profile:** Demographics, social, and economic data, as well as existing and future land use descriptions, are updated to reflect the current status of the county and its jurisdictions.
- **Planning description:** The new planning team and updated planning process are described and documented.
- **Risk assessment:** The updated risk assessment includes Hazus-MH and GIS analyses that utilize site-specific data from the county. Each participating jurisdiction provided their own hazard analysis, which describes the hazards and their impacts as they pertain specifically to the community. Cybersecurity was added during this update.
- **Mitigation:** The mitigation section addresses status of previous plan's strategies in addition to new mitigation goals, objectives, and strategies.

1.2 Introduction

Hazard mitigation is defined as any sustained action to reduce or eliminate long-term risk to human life and property from hazards. The Federal Emergency Management Agency (FEMA) has made reducing hazards one of its primary goals. Hazard mitigation planning and the subsequent implementation of the projects, measures, and policies developed as part of this Plan, is a primary mechanism in achieving FEMA's goal.

The federal Disaster Mitigation Act of 2000 requires jurisdictions to develop and maintain a Multi-Hazard Mitigation Plan (MHMP) to remain eligible for certain federal disaster assistance and hazard mitigation funding programs. Renewal of the plan every five years is required to encourage the continual awareness of mitigation strategies. In order for the National Flood Insurance Program (NFIP) communities to be eligible for future mitigation funds, they must adopt the MHMP.

Since the 1950s when the federal disaster declaration process was formalized, Idaho has received 29 major disaster declarations, with 6 declarations being from 2016-2018. Of the 6 most recent, none of the major disaster declarations were for Madison County; however, the 2017 declaration for severe winter storms and flooding was made for neighboring Jefferson County. Additionally, 2 federal emergencies, 2 fire suppression authorizations, and 14 fire management assistant declarations Emergency declarations allow states access to FEMA funds for Public Assistance (PA), and disaster declarations allow for additional PA funding, including Individual Assistance (IA) and the Hazard Mitigation Grant Program (HMGP).

1.3 Prerequisites

The Madison County All-Hazard Mitigation Plan meets the requirements of the Disaster Mitigation Act of 2000, which amended the Robert T. Stafford Disaster Relief and Emergency Assistance Act to require state, local, and tribal entities to closely coordinate mitigation planning and implementation efforts.

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1.3.1 Plan Adoption

This Plan represents a comprehensive description of Madison County's commitment to significantly reduce or eliminate the potential impacts of disasters through planning and mitigation. Adoption by the local governing bodies within the County legitimizes the Plan and authorizes responsible agencies to implement mitigation responsibilities and activities.

To be eligible for federal mitigation funding, each participating jurisdiction must adopt the plan. After a thorough review, the Madison County, Idaho Board of County Commissioners adopted the plan on **<date adopted>**.

- **[Insert Adoption Letter Upon FEMA Approval Pending Adoption]**

Following Federal review and approval, the participating jurisdictions in this plan intend to formally adopt the plan by Resolution or Ordinance.

- **[Insert FEMA Approval Letter Upon Receipt]**

1.4 Planning Process

Introduction

Madison County Idaho and the incorporated Cities that lie within the County boundaries are vulnerable to natural, technological, and human-made hazards that have the possibility of causing severe threats to the health, welfare, and security of its residents. The cost of the response to and recovery from the potential disasters, regarding the potential loss of life or property, can be lessened when attention is turned to mitigating their impacts and effects before they occur or reoccur.

This Multi-Jurisdiction All-Hazard Mitigation Plan (HMP) seeks to identify the County's and Cities' hazards and understand their impact on vulnerable populations and infrastructure. With that understanding, the Plan sets forth solutions that if implemented, have the potential to significantly reduce the threat to life and property. The HMP is based on the premise that hazard mitigation works. With increased attention to managing natural hazards and land use, communities can reduce the threats to citizens and infrastructure. Many mitigation strategies can be implemented at minimal cost and social impact.

This is not an emergency response or management plan; however, the HMP can be used to identify gaps and enhance coordination of other plans, including comprehensive emergency management plans, continuity of operations, and emergency response plans. The primary focus of the HMP is to support better decision making directed toward lessening hazard impact 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.

Purpose

The purposes of the HMP are:

- Fulfill Federal and local mitigation planning responsibilities;
- Promote pre- and post-disaster mitigation measures with short/long-range strategies to minimize suffering, loss of life, impact on traditional culture, and damage to property and the environment;
- Eliminate or minimize conditions that would have an undesirable impact on the people, culture, economy, environment, and well being of the County at large.
- Enhance elected officials', departments', and the public's awareness of the threats to the community's way of life, and of what can be done to prevent or reduce the vulnerability and risk.

Scope

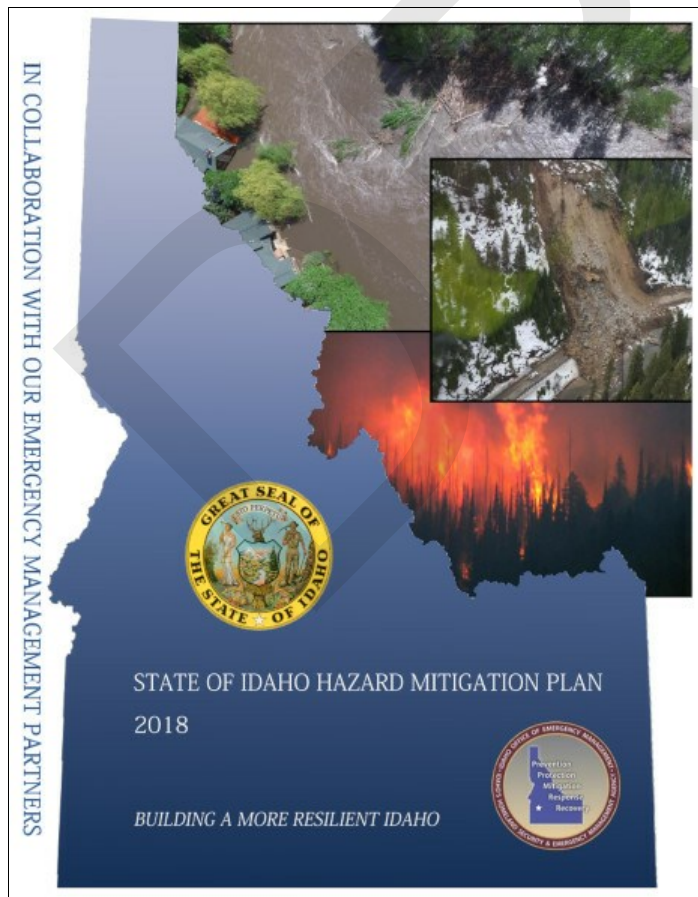
This Multi-Jurisdiction All-Hazard Mitigation Plan covers the areas within Madison County Idaho including the incorporated cities of Rexburg and Sugar City.

Mission Statement

The Madison County Multi-Jurisdiction All Hazards Mitigation Plan (HMP) sets forth public policy designed to protect citizens, critical facilities, infrastructure, private and public property, the local economy, and the environment from risks associated with natural and human-made hazards.

Federal and State Plan Compliance and Integration

This HMP is designed to comply with the requirements of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as amended, and Related Authorities and 44 CFR Part 201, which states that local governments, to be eligible for pre-disaster and/or post-disaster mitigation funds, must have an approved Hazard Mitigation Plan in place. The Plan is also designed to comply with the Federal Emergency Management Agency (FEMA) and Idaho Office of Emergency Management, guidance documents (particularly the Local Multi-Hazard Mitigation Planning Guidebook dated 2018) and other applicable federal, state and local regulations.



Plan Organization

- [Section 1.1](#) provides a high-level summary of the additions to the previous Hazard Mitigation Plan.
- [Section 1.2](#) provides a brief description of Hazard Mitigation.
- [Section 1.3](#) includes the plan prerequisites.
- [Section 1.4](#) of the Plan provides a general overview of the process, the scope, purpose, overall goals of the plan, and steering committee and public involvement.
- [Section 1.5](#) of the Plan gives a profile of the County including demographic, economic, cultural, infrastructure, and physiographic characteristics.
- [Section 1.6](#) is the Risk Assessment, which includes individual hazard profiles, community capability assessment, and hazard rankings, as well as land-use planning and mitigation integration and risk assessment methodology.
- [Section 1.7](#) presents Mitigation Goals and Objectives.
- [Section 1.8](#) details plan maintenance and strategies for implementation.
- [Section 1.9 \(Appendix A\)](#) builds off the previous mitigation goals and objectives and hazard profiles for the individual jurisdiction profiles and mitigation actions.
- [Section 1.10 \(Appendix B\)](#) summarizes the public involvement component of the Plan.
- [Section 1.11 \(Appendix C\)](#) Highlights all references used.

Plan Use

The Plan should be used to help County and City officials plan, design, and implement programs and projects that will help reduce the jurisdictions vulnerability to natural, technological, and man-made hazards. The Plan should also be used to facilitate inter-jurisdiction coordination and collaboration related to all hazard mitigation planning and implementation within the County and at the Regional level. Lastly, the Plan should be used to develop or provide guidance for local emergency response planning. If adopted, this Plan will achieve compliance with the Disaster Mitigation Act of 2000.

Hazard Mitigation

Hazard mitigation is defined as any cost-effective action(s) that has the effect of reducing, limiting, or preventing vulnerability of people, culture, 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, culture, and property, fall into three categories:

- 1) Keep the hazard away from people, property, and structures.
- 2) Keep people, property, or structures away from the hazard.
- 3) Reduce the impact of the hazard on victims, i.e., insurance.

Hazard mitigation measures must be practical, cost-effective, and culturally, environmentally, and politically acceptable. Actions taken to limit the vulnerability of society to hazards must not in themselves be more costly than the anticipated damages.

The primary focus of hazard mitigation planning must be at the point at which capital investment and land use decisions are made, based on vulnerability. Capital investments, whether for homes, roads, public utilities, pipelines, power plants, or public works, determine to a large extent the nature and degree of hazard vulnerability of a community. Once a capital facility is in place, very few opportunities will present themselves over the useful life of the facility to correct any errors in location or construction with respect to the hazard vulnerability. It is for this reason that zoning and other ordinances, which manage development in high vulnerability areas, and building codes, which ensure that new buildings are built to withstand the damaging forces of the hazards, are often the most useful tool in mitigation that a jurisdiction can implement.

Since the priority to implement mitigation activities is usually very low in comparison to the perceived threat, some important mitigation measures take time to implement. Mitigation success can be achieved, however, if accurate information is portrayed through complete hazard identification and impact studies, followed by effective mitigation management.

The Federal Emergency Management Agency has identified hazards to be analyzed by each jurisdiction, completing an All-Hazard Mitigation Plan. The hazards analyzed in this Plan include the following:

Natural Hazards

Weather:

- [Drought](#)
- [Extreme Temperatures](#)
 - [Extreme Heat](#)
 - [Extreme Cold](#)
- [Severe Winter Storm](#)
- [Severe Thunderstorms](#)
- [Tornado and High Winds](#)

Flooding:

- [Flood \(Riverine or Stream\)](#)
- [Flood \(Flash and Heavy Rain\)](#)
- [Dam Failure](#)

Geologic:

- [Earthquake](#)
- [Landslide](#)
- [Snow Avalanche](#)

Other:

- [Wildfire](#)
- [Epidemic/Pandemic](#)

Technological (Human-made) Hazards

- [Structural](#)
 - [Structural Fire](#)
 - [Infrastructure Failure](#)
 - [Utilities Failure \(Power Failure\)](#)
- [Nuclear Event](#)
- [Hazardous Material Event](#)
- [Riot/Demonstration/Civil Disorder](#)
- [Terrorism](#)
 - [Cyber Security Threat](#)

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1.4.1 Existing Plans and Technical and Fiscal Resource Review

Madison County completed its initial HMP in 2008 and updated in 2019. The table below lists the plans, studies, and reports reviewed prior to the update of this Plan. The [Plans and Ordinances](#) and [Appendix C: References](#) sections include additional information utilized in this plan.

Documents Reviewed for 2019 HHMP

Year	Title	Author(s)	Link/Location of Plan
2019	Environmental Resilience Plan/Study	Madison County	In progress
2018	Madison County Profile	Idaho Department of Labor	https://lmi.idaho.gov/Portals/0/Pubs/MadisonProfile.pdf?ver=2018-07-23-070445-013
2017	MADISON COUNTY - STATE OF IDAHO REXBURG, IDAHO ANNUAL FINANCIAL REPORT and COMPLIANCE REPORTS with INDEPENDENT AUDITOR'S REPORT For the Year Ended September 30, 2017	Madison County and Independent Auditors	https://www.co.madison.id.us/attachments/article/26/Madison%20County%20Financial%20Statements%202017.pdf
2017	Idaho State Fire Marshal Annual Report		https://doi.idaho.gov/displaypdf?cat=SFM&id=17annualreport
2015	Madison County Transportation Master Plan		https://co.madison.id.us/images/madison/road/transplan2015.pdf
2015	Sugar City, Idaho Comprehensive Plan	Sugar City Planning and Zoning Commission	https://www.sugarcityidaho.gov/vertical/sites/%7B51927780-B524-43C2-960C-D95D1F4D648A%7D/uploads/Sugar_City_Idaho_Comprehensive_Plan_(adopted_by_City_Council_on_8-27-15).pdf
2014	Comprehensive Economic Development Strategy - Eastern Idaho, Region VI 2014-2019	E.C.I.P.D.A.	https://www.thedevco.net/Region_6_CEDS_2014-2019.pdf
2008	Madison County "2020" - Madison County Comprehensive Plan	Listed on page 4	https://www.co.madison.id.us/attachments/article/31/compplan.pdf
2008	City of Rexburg 2020 Comprehensive Plan	Listed on page 7	http://www.rexburg.org/upload/Community%20Development/Comprehensive%20Plan/Rexburg%202020%20Comp%20Plan%20(adopted%20Nov%2019%202008).pdf

Since a Hazard Mitigation Plan is only a part of the emergency planning, mitigation, preparedness, response and recovery process, a second objective of the planning process was to coordinate Plan preparation with existing Madison County emergency plans, programs, procedures, and organizations. For purposes of this Plan, existing hazard mitigation goals and objectives within Madison County were reviewed. It should be noted that this Plan does not replace any existing plans or programs, but is intended to provide a reference on hazard mitigation to be used in planning and program development.

1.4.2 Plan Participation

The Madison County HMP maintenance process includes a schedule for annual monitoring and evaluation of the programmatic outcomes established in the Plan and for producing a formal Plan revision every five years.

Formal Review Process

The Plan may be reviewed on an annual basis by the Emergency Manager and reviewed and revised every five years by the committee to determine the effectiveness of programs and to reflect changes that may affect mitigation priorities. The Emergency Manager of Homeland Security or designee will be responsible for contacting the Mitigation Committee members and organizing the review.

Committee members will be responsible for monitoring and evaluating the progress of the mitigation strategies in the Plan. The Committee will review the goals and action items to determine their relevance to changing situations in the County as well as changes in Federal policy and to ensure they are addressing current and expected conditions. The Committee will also review the risk assessment portion of the Plan to determine if this information should be updated or modified, given any newly available data. The organizations responsible for the various action items will report on the status of the projects, the success of various implementation processes, difficulties encountered, the success of coordination efforts, and which strategies should be revised or removed.

The Emergency Manager or designee will be responsible for ensuring the updating of the Plan. The Emergency Manager will also notify all holders of the County HMP and affected stakeholders when changes have been made. Every five years the updated plan will be submitted to the State of Idaho Bureau of Homeland Security's Mitigation Program and to the Federal Emergency Management Agency for review.

Continued Public Involvement

The general public must be given an opportunity to be involved in the planning process. As such, a number of public outreach activities were organized to ensure public participation and input was obtained. This section describes those efforts.

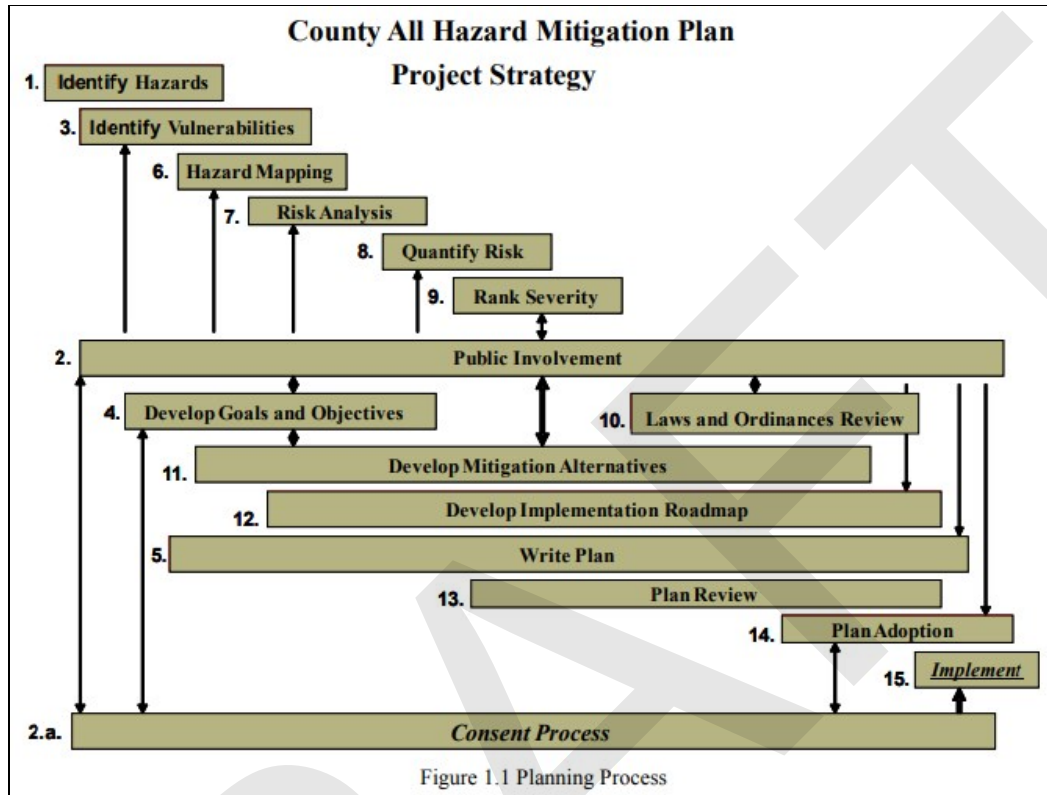
Madison County Homeland Security is dedicated to involving the public directly in the review and updates of the Plan. The Emergency Manager is responsible for the review and update of the Plan. The public will also have the opportunity to provide input into Plan revisions and updates. Copies of the Plan will be kept by appropriate County departments and outside agencies.

A public meeting will be held when deemed necessary by the Emergency Manager. The meetings will provide a forum where the public can express concerns, opinions, or new alternatives that can then be included in the Plan. The Board of County Commissioners will be responsible for using County resources to publicize public meetings and maintain public involvement.

1.4.2.1 Planning Process Detailed

One of the necessary steps of the Hazard Mitigation Planning (HMP) was the organization of Madison County committees. The Committees were established under the direction of the Madison County Emergency Manager. The Core Planning team consisted of key members from Madison County Emergency Management Division and GIS Department, the Steering Local Emergency Planning Committee consists of members from the city and county that provided feedback and guidance during the entirety of the project and the Executive Team was comprised of the Local Emergency Planning Committee (LEPC) members that meet once a month. The full listing of committee members and additional committees is under the [Prerequisites](#) section: [Planning Teams & Jurisdiction Participation](#).

The figure below illustrates the Fifteen Step Planning Process that was used in the development of the Madison HMP.



Step 1 Identify Hazards

Madison County hazards were identified and their frequency of occurrence evaluated using a number of resources including:

- Hazard planning documents developed by State, Federal and private agencies,
- NOAA (National Oceanic and Atmospheric Administration) National Centers for Environmental Information (formerly National Climatic Data Center-NCDC) data dating back to 1950,
- Data from the United States Geological Survey (USGS) and the Idaho State Geological Survey (ISGS),
- Data from the 2018 Idaho Hazard Mitigation Plan, and
- Numerous other sources highlighted under the [Existing Plans](#), [Review of Technical and Fiscal Resources](#), and [Appendix C: References](#) sections.

Step 2 Planning Team and Public Involvement

The survey for 2019 included 37 questions (all located in the Appendix under the [Survey Questions](#) section) and concluded with mitigation and preparation resources available in the County. The survey was shared electronically with the option of a hard copy survey upon request. 202 individual surveys were completed.

Additionally, the members of the LEPC committee completed mitigation action worksheets and reviewed the HMP draft to provide feedback for improvement. Three in-person committee workshops occurred during the process along with individual face-to-face meetings with subject matter experts and stakeholders. In addition, two public meetings occurred at the mid-point of the process and during the draft review face. The draft of the plan was made public for review and details for the public announcements are included under the [Public Meeting](#) section.

At least once a week, through the entire process, the core planning team virtually met.

Step 3 Identify Vulnerabilities

The Committee examined the potential effects on the County of the listed raw hazards by identifying vulnerable populations, infrastructure, critical services, facilities, and the environment in the first meeting. Vulnerabilities were geographically identified using Geographical Information System (GIS) technology and then linked to a GIS database describing the vulnerable target including potential damage and estimates of losses.

Step 4 Develop Goals and Objectives

As required by FEMA, the planning effort was centered on community-supported hazard reduction goals to be implemented and evaluated based on measurable objectives. Mitigation projects are to be assessed against the established goals and objectives to ensure that the selected projects reduce risk as desired.

Step 5 Write Plan

The Plan outline meets and exceeds, the requirements set forth by FEMA in the FEMA PDM Criteria Crosswalk. Plan drafts were presented in an electronic form, as well as sections in a hard copy form, to the Committee and the Public. The Plan was also shared with neighboring jurisdictions for review. The finished Plan includes information on [Plan adoption](#), including a promulgation page for the County and [jurisdictional participation](#).

Step 6 Hazard Mapping

As described in Steps 1 and 4, hazard maps are extremely important in illustrating hazard and vulnerability locations. Information used to conduct the risk assessment and to make loss estimates were linked electronically to the maps using GIS technology. The electronic versions of these maps were provided to the Committee and other reviewing agencies.

Step 7 Hazard Analyses

A risk analysis was conducted using the information gathered in steps 1-4 and 6. For each hazard, two kinds of information are required in order to assess risk:

- information concerning the potential amount of damage a hazard event can cause (hazard magnitude)
- likelihood of events occurring (hazard frequency)

To the extent that such data can be obtained quantitatively, risk may then be determined as the product of the hazard's magnitude and its frequency. The modeling for both quantitative and qualitative data is explained under the [Risk Assessment Methodology](#) section and each [Hazard Profile](#) concludes with a **Hazard Evaluation and Impact/Consequence Assessment**.

TABLE: Hazard Assessment

Indicators & Measurements	Description	Rating Key	
Hazard-Specific Frequency & Probability	Frequency of past occurrences and the probability of future incidents based on predictive modeling or scientific research.	Extreme	
		High	
		Medium	
		Low	
Hazard-Specific Magnitude & Scale	The potential magnitude of the hazard and scale or size of the hazard.	Extreme	
		High	
		Medium	
		Low	
Capability & Capacity	The community's ability and capacity to manage the hazard, such as floodplain management programs or anti-terrorism surveillance	Very Capable	
		Capable	
		Somewhat Capable	
		Minimally Capable	
Mitigation Assessment	The community's efforts to mitigate the hazard, such as buying out flood-prone properties, building codes, etc.	Very Capable	
		Capable	
		Somewhat Capable	
		Minimally Capable	
Consequence & Impact Assessment	The potential severity of the impacts and consequences of the event. This assessment provides consideration to the Hazard Impact Analysis.	Extreme	
		High	
		Medium	
		Low	

Step 8 Quantify Risk

Once a hazard's magnitude and its frequency have been evaluated, a picture of the over-all risk severity associated with that hazard emerges. Because the values are necessarily imprecise and subjective, the risk is visualized by plotting them as shown in Figure 1.2. Here, the frequency is plotted on the vertical axis (Low at the top to High at the bottom), and magnitude in on the horizontal axis (Low = 6 to 12, Medium = 13 to 19, and High = 20 to 48). Hazards with the most severe associated risk, therefore, appear toward the lower right while lowest severity risk hazards appear near the upper left.

Risk Ranking Plot

		Magnitude		
		(Low) 1	(Medium) 2	(High) 3
Frequency	(Low) 1	Green	Green	Yellow
	(Medium) 2	Green	Yellow	Red
	(High) 3	Yellow	Red	Red

Step 9 Rank Severity

To assist in prioritizing mitigation activities, the severities of all hazards considered in the Plan are ranked relative to one another using the above plotting scheme. Prioritization is also based on goals and objectives developed and approved by the Madison County Core Team.

TABLE: Frequency/Probability Ranges

Very Probable/Very Frequent	Score: 75-100	
Probable/Frequent	Score: 50-74	
Somewhat Probable/Somewhat Frequent	Score: 25-49	
Not Probable at All/Not Frequent At All	Score: 0-24	

Step 10 Laws and Ordinances Review

The Madison Comprehensive Plan and other applicable codes, standards, ordinances, and laws were reviewed against the list of ranked hazards to determine if there were any restrictions to or enabling powers that impact possible hazard mitigation alternatives. More details are in the [Land Use Planning and Disaster Mitigation Integration](#) and [Plans and Ordinances](#) sections.

Step 11 Develop Mitigation Alternatives

Potential projects to address identified risk are developed and listed in Section 6. The project descriptions and associated roadmap have addressed approximate costs, possible returns on investments, environmental and socio-economic benefits. Engineering cost estimates based on the conceptual design will be included if provided by the County.

Step 12 Develop Implementation Roadmap of Mitigation Actions

Roadmapping is essentially the development of a high-level project schedule. Mitigation actions for the County and jurisdictions are detailed in [Appendix A: County and Jurisdiction Mitigation Actions](#).

Step 13 Plan Review

The plan review was conducted by the Core Planning Team during plan development. The LEPC Committee assessed the Plan using the most current FEMA HMP Review Crosswalks. Once the Plan was completed, it was submitted, as a draft to the committee and the public to review. Following the public comment time period and after changes were made, the plan was submitted to the Idaho Office of Emergency Management's Hazard Mitigation Officer, and then to FEMA Region 10's Hazard Mitigation Officer for review. The Madison County Board of County Commissioners also reviewed the Plan in a parallel time frame.

Step 14 Plan Adoption

A letter of Promulgation is provided in the Plan. Additionally, each participating jurisdiction will be requested to adopt the Plan by resolution with the respective mayors signing the appropriate multi-jurisdiction participation document.

Step 15 Implement

As this process is followed, the Madison Mitigation Committee and partnering stakeholders will be able to present to the County Board of Commissioners and Mayors an implementable Multi-Jurisdiction All-Hazard Mitigation Plan.

To initiate implementation, the Madison Mitigation Committee presented the completed Plan to the County Board of Commissioners.

1.4.2.2 Madison County Community Preparedness and Mitigation Survey

In 2007, a public questionnaire was provided to three hundred 300 residents of the County. Of the 300 hundred mailed seventy-nine (79) were returned for a return rate of twenty-six percent (26%).

The top five (5) hazards in Madison County in 2007 according to the respondents are:

1. Earthquake
2. High Wind/Wind Storms
3. Blizzards
4. Drought
5. Extreme Cold

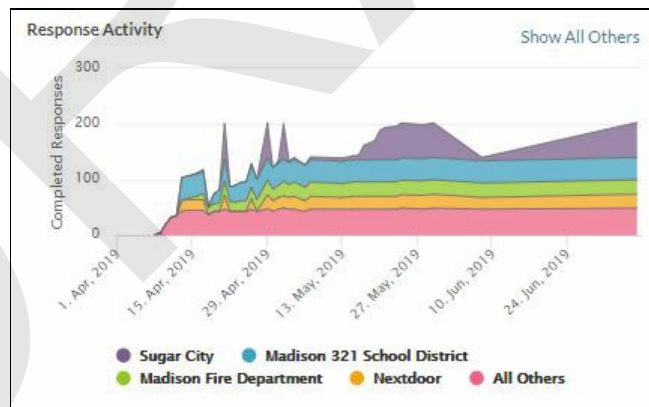
The survey for 2019 included 37 questions (all located in the Appendix under the [Survey Questions](#) section) and concluded with mitigation and preparation resources available in the County. The survey was shared electronically with the option of a hard copy survey upon request. 202 individual surveys were completed. The breakdown of survey participants mirrored the County population (e.g., the percentage of Rexburg residents was much larger than Sugar City residents participants which is equivalent to the different population sizes of the two jurisdictions).

The survey and June 2019 Public Meeting invitation were shared through multiple sources including:

- Nextdoor
- LEPC e-mail list
- Madison County Fire Department Website and Social Media
- Madison County Facebook and website
- City of Rexburg Website
- Sugar City Website
- Madison School District #321 website and e-mail list to parents
- Sugar-Salem School District website and e-mail list to parents
- CERT e-mail list

Based on survey analytics, the greatest number of survey participants found out about the survey from Sugar City and Madison 321 School District; however, this number is inclusive of survey participants that did not finish the survey or were disqualified due to not living or working on Madison County. Below is a breakdown of the links generated to assist in tracking survey participation:

Source	Number of Survey Participants
Nextdoor	25
CERT	9
Madison County Website	2
Sugar City	63
City of Rexburg	0
Madison Emergency Management Facebook	24
Madison Fire Department	26
Madison 321 School District	40
Sugar Salem School District	0
General Link and LEPC	15



The press release along with samples of the survey and public forum advertisement is available in the Appendix under the [Public Meeting](#) section.

In 2019, the top hazards survey takers indicated as high risk for impacting their household and place of business in Madison County are:

- Severe Winter Storm/Heavy Snowfall/Ice Storm (57.7%)
- Extreme Cold Events (55.9%)
- Power Failure (52.2%)
- Earthquake (35.6%)
- Cybersecurity (33.8%)
- Hail (24%)
- Structural Fire (23.6%)
- Severe or Prolonged Drought (23.5%)
- Flash Flooding/Overland Flooding (21.5%)
- Straight Line Wind (20%)

When asked what degree of emphasis the survey takers would expect their jurisdiction to mitigate hazards, these hazards received the highest percentages of high priority:

- Power Failure (49.5%)

- Severe Winter Storm/Heavy Snowfall/Ice Storm (49.2%)
- Extreme Cold Events (45.7%)
- Public Health Emergency (30.2%)
- Cybersecurity (29.8%)
- Earthquake (25.3%)
- Infrastructure Failure (20.2%)

The results from the Public Forum are highlighted in the next section, and under the risk assessment section, the public perception of hazards will be compared to the risk assessment performed for the Hazard Mitigation Plan.

Highlighted results include:

- Communication and Information:
 - The type of device(s) an individual uses to access the internet is a *cell phone* (97.3%) followed by *computer or laptop at home* (93.3%).
 - The number one place survey takers indicated as where they would go to obtain emergency and disaster preparedness information is a *religious organization* (81%) followed by *web search* (59.7%) and *word of mouth* (57%).
 - The number one place survey takers indicated as where they would expect to get information during an emergency is *word of mouth* (63.1%) followed by *local radio* (57.2%), *local television media* (50.9%), and *social media* (47.3%).
- Preparedness:
 - The number one activity individuals have done to prepare for emergencies and disasters is having a *72 hour kit/disaster supply kit* (73.9%).
 - For reasons why individuals have not pursued additional preparedness activities, *costs too much* (35.8%) rated the highest reason followed by *I don't know what to do* (34.4%) and *none of the above apply to me* (32.6%).
 - If a disaster (e.g., snowstorm) impacted Madison County, knocking out electricity and running water, would your household be able to manage on its own for at least 3 days: *Yes* (68%), *Maybe* (24%), *No* (7%), and *Do Not Know* (1%).
- Evacuation:
 - 60.3% indicated that they would *very likely immediately evacuate* if instructed while 1% indicated that they would *refuse to evacuate*.
 - The top reasons that would prevent the survey takers from evacuating included first that *no obstacles would prevent them from evacuating* (36.2%) followed by *lack of gas/fuel for the vehicle* (26.1%), *traffic* (24.1%), and *spouse/significant other won't leave* (20.1%).
 - 9% indicated *yes* and 8% indicated *maybe* that in an evacuation they would need special assistance for themselves or someone in their household. Out of the individuals that indicated *yes* or *maybe*, 11% *do not know who would provide the assistance* and 8% *rely on an outside agency*.
- Recovery:
 - The top reasons for possibly not being able to recover from a disaster were *no alternative power supply* (48.9%), *lack of financial savings* (45.7%), *limited water supply* (39.3%), and *disruption in employment* (31.5%).

All results, excluding open-ended answers to ensure confidentiality is maintained, are available in the Appendix under the [Survey Results](#) section and a copy of the questions is in the Appendix under the [Survey Questions](#) section.



The word cloud above was created by one of the write-in questions and the answers provided would not violate survey respondent confidentiality: *If you have experienced any damage(s) or injury(ies) from a disaster, please list the hazard(s) that caused the damages/loses and/or injuries (Example: flooding, wind, winter storm).*

1.4.2.3 Public Forums & Outreach

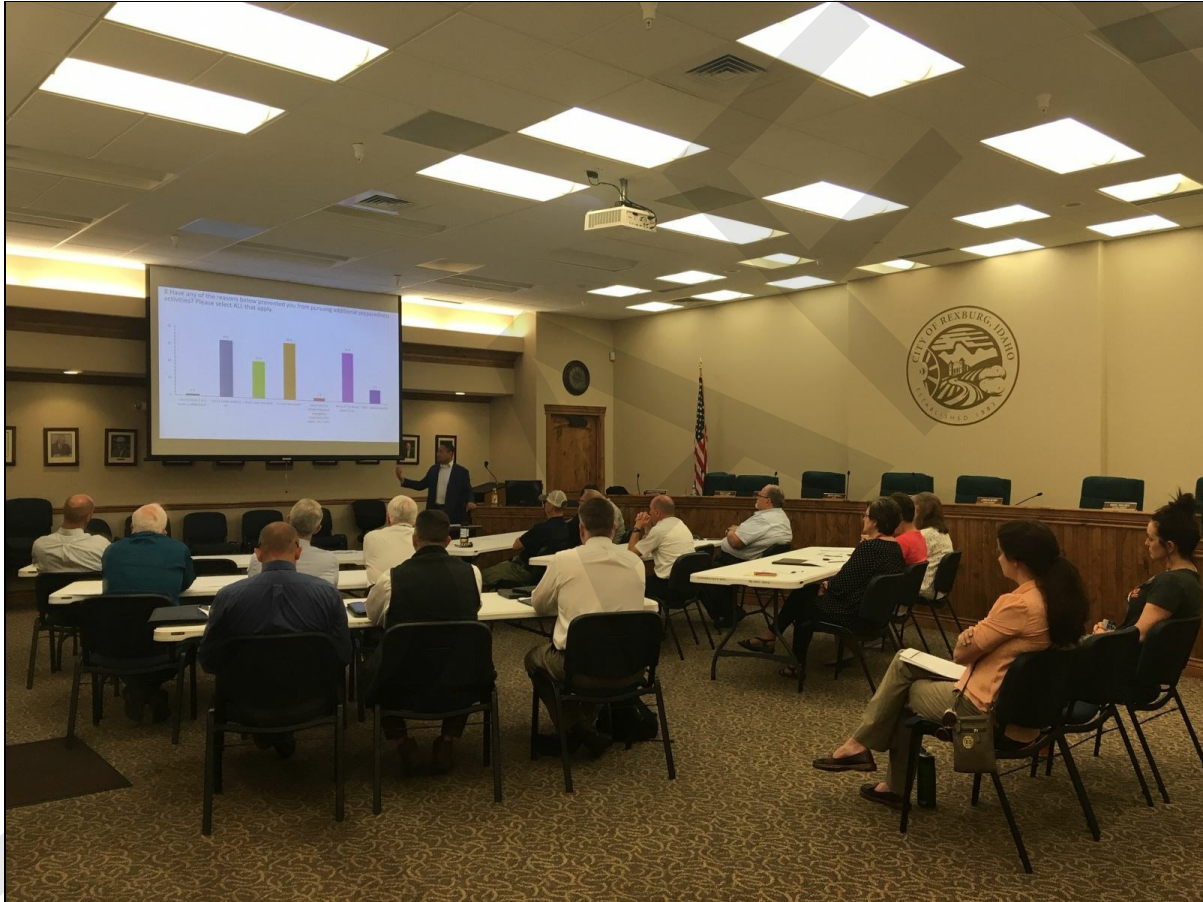
Madison County has a very unique Local Emergency Planning Committee (LEPC). The LEPC is comprised of typical emergency response agencies plus members representing the community at large and industry. Members of the LEPC and additional key stakeholders were invited to be a part of the Madison County Steering Committee. The full list of members can be found in the [Planning Teams & Jurisdiction Participation](#) section and sign-in sheets from all meetings, including public meetings, can be found in the [Public & Steering Committee Meetings](#) Appendix.

The Core Planning team met weekly, sometimes more frequently. The Steering Committee meetings were held three times during the process, with meetings with subject matter experts from the group occurring as well. The first meeting included a briefing on the overall HMP Process and decision on which hazards to include in the HMP. The second LEPC briefing was conducted once the Community Survey was completed. The results were presented and the participants were asked to fill out mitigation action forms. Ahead of the final meeting, the LEPC members were sent the HMP to review. The final meeting consisted of presenting the key updates and findings in the HMP and having a feedback discussion to ensure the plan is inclusive of the LEPC and public's input.

The dates of the meetings were as follows:

- Wednesday, March 6, 2019, from 10-12 PM with meetings with the Core Planning Team members from march 4-6th.
- Thursday, June 13, 2019, from 10-12 PM with a public meeting that evening from
- Wednesday, August 7, 2019 (the public was invited to this meeting)

Image: June 2019 LEPC Meeting



1.4.2.4 Public Plan Review and Feedback

At the conclusion of the planning process, the public was offered an opportunity to provide feedback to the draft Plan. Efforts to make this opportunity known to residents included the following:

- Posting to the Madison County Website
- Sharing the link to the draft via social media outlets including posting to Nextdoor and Facebook
- Sharing via CERT's e-mail list
- Sharing with the school's systems to post to their website and social media
- Announcements in the local newspaper (Standard Journal)

1.5 County Profile

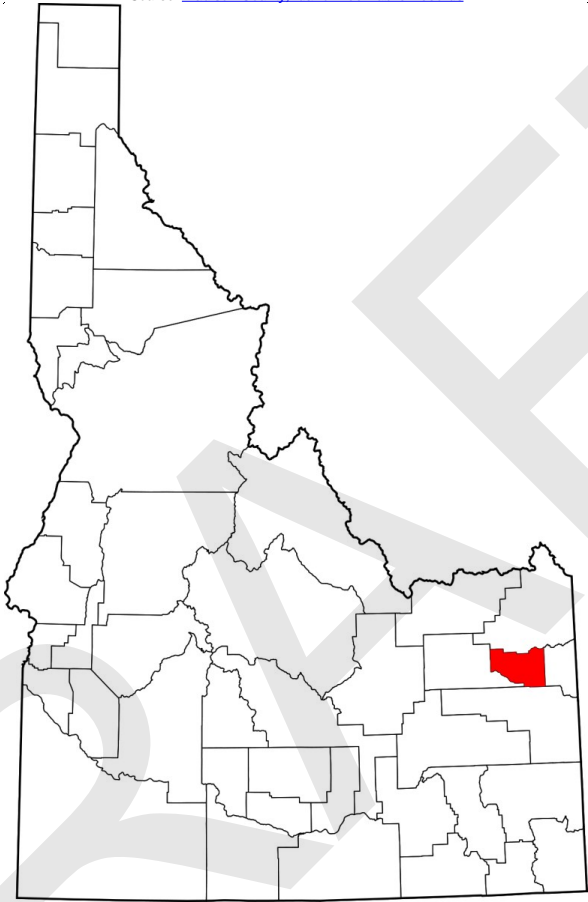
Madison County is a community of values. These values include family, community, affordability, recreation, environmental quality and the protection of agriculture in the County. Preservation of the rural character of the community is of utmost importance to County residents. Residents are proud of their unique close-knit community and its idyllic natural setting. Madison County desires to guarantee the perpetuation of these unique qualities into the future ([Madison County 2020 Comprehensive Plan, 2008](#)). Planning is essential to ensuring the communities in Madison County can continue to flourish and the Hazard Mitigation Plan is a working plan aimed at furthering the sustainability of the communities in Madison County.

Madison County is located in eastern Idaho and is bordered on the north by Fremont County, on the west by Jefferson County, on the south by Jefferson and Bonneville Counties, and on the east by Teton County. It ranks 12th among Idaho counties in population and 42nd in the area with 473 square miles. The population has steadily increased over the past decade. The 2006 population was 31,393, the 2010 population was 37,536, and the 2017 population was 39,141 ([US Census](#)).

The expansion of the Brigham Young University (BYU)-Idaho campus has significantly influenced the population growth and the economy. The past semester (winter 2019), 19,235 students were enrolled, which was a 2.9% increase over the previous winter semester ([BYU Idaho Newsroom](#)). Census data cannot be fully broken down to demonstrate the percentage of students that listed Madison County as their County of residence. However, an indicator of student participation in the Census Data can be attributed to the median age of a resident in the County being a little over 23 years old and over 27% of the population following under the age of 18 ([US Census; Data USA](#)). BYU-Idaho greatly influences the local economy with trade and service sectors being predominant. Agriculture, government, and food processing also contribute significantly to employment. Major employers include Arco, BYU-Idaho, Madison Memorial Hospital, Basic American Foods, Melaleuca, Inc., Roper Starch Worldwide, Wal-Mart, and Western Wats. Education is a strong aspect of the community, which includes 4 public school districts and BYU-Idaho.

The federal government owns 21 percent of the County. Incorporated cities include Rexburg and Sugar City. Other communities include Archer, Burton, Byrne, Edmonds, Herbert, Hibbard, Hincley, Jensen, Jolley, Lyman, Mark, Moody, Parkinson, Plano, Salem, Sunnyside, Thorton, and Walker. Near Sugar City is the site of the Teton Dam ruins. When the dam collapsed in 1976, over 80 billion gallons of water poured into the valley below, flooding portions of five counties. During late July and early August, Rexburg's annual Idaho International Folk Dance Festival takes place, featuring dance troupes from around the world.

FIGURE: Madison County, Idaho Map
Source: [Madison County, Idaho Free Public Records](#)



History

The first inhabitants of the Madison County area were Bannock, Snake, Lemhi, Blackfoot and Crow Indians. Most of the early fur trappers in Idaho came from French-speaking Eastern Canada. Present-day Madison County was visited by fur trapper Richard Leigh, otherwise known as Beaver Dick. In the 1870's more people came through the area on their way to the ore mines in Montana. The fertile soils of the Snake River Valley appealed to them, and many later came back and settled in the Madison County area. In 1879, a man named John Poole spent some time hunting around Menan while employed by the Utah Northern Railroad. He returned to Utah and told many people about the excellent farmland.

W.B. Preston and Thomas E. Ricks to make a trip to the Upper Snake River Valley and scout out a site for a settlement. In February 1883, they cut logs for building a community in the spring. The settlers decided to call their town Ricksburg after Thomas E. Ricks, their leader. However, since the German ancestral name of Ricks is Rex the name later changed to Rexburg. Many of the first settlers lived in dugouts or tents along the banks of the Teton River and called the place Mosquito Flats because of the hordes of mosquitoes from the nearby sloughs. Thomas E. Ricks began the first mercantile in 1884. The settlers prospered despite the severe winters and in two years had built canals, roads, schools, and several buildings including two sawmills in Beaver Canyon one of which was later moved to Rexburg by William F. Rigby. Henry Flamm was a prominent figure in Rexburg and became the first Mayor when city status was achieved in 1903.

From the first days of settlement, the population increased steadily due to the Utah Northern Railroad; however, a branch line didn't reach Rexburg until 1899. Until then travelers would use the railroad as far as Market Lake (present-day Roberts) or Eagle Rock (present-day Idaho Falls) and then continue to Rexburg by a slower means.

Canals were also very important to the settlements. Ditch and canal work began in 1883. The Rexburg Irrigation Company organized in 1884, and by 1900 there were 97 canals in the area. Dry farming was first introduced in the area in 1898 and by 1905 had proven to be a profitable endeavor.

The first school was opened in November 1888 and called the Bannock Stake Academy. In 1903 the Spori Building was built and named after Jacob Spori, the first principal of Bannock Stake Academy. In 1915, college courses were added to the curriculum making Ricks Academy the first Junior College in the Intermountain Region.

In 1906, construction on the town's first municipal water system began at the cost of \$25,000. In 1913, paved sidewalks started replacing the board sidewalks. In 1917, street paving began, and at the time, Rexburg had the widest main street in the state. The County was established on February 18, 1913, with its county seat at Rexburg. The County was named after James Madison, the fourth US President.

Since 1883, the County has transformed from a sagebrush desert into the beautiful and thriving community of today. This city has grown and prospered into the hub of commerce for most communities in the Upper Snake River Valley.

1.5.1 Topography, Geography, and Geology

Madison County is 472 square miles home to many different majestic topographical features. Madison County ranges in elevation from 4,823 feet west of Rexburg to 8,108 feet at Red Butte in the Big Hole Mountains. It is located on the northern end of the Snake River Plain and is therefore relatively flat except for the southwest corner where the Big Hole Mountains extend from the south. There is light forestation close to the river in the riparian areas and sagebrush steppe and grasslands throughout the County. Rexburg has an elevation of 4,865 feet.

The county has four main physiographic divisions. The divisions are the forested mountains in the southeast area, the uplands in the eastern half of the county bordering the forest area, the river tenaces formed by the action of the South Fork and Henry's Fork of the Snake River and by the North and South Forks of the Teton River, and the Aeolian covered lava plains along the west side of the county. The southwest section of the County shows the most diverse geology.

About one-third of the County lays in the valley floor. The valley floor is where Teton River, Henry's Fork, and the Snake River converge. The Snake River lies in the southern portion of the county along with the active Rexburg fault. Further detail on the potential impact from the Rexburg fault is provided in the [Earthquake Hazard profile](#). On the north and west are the wide Teton bench and Upper Valley of the Snake River. Lava plains are found on the west side of the county. Madison County contains the northwest end of the Idaho-Wyoming thrust belt in the Big Hole Mountains. The Absaroka thrust in the Big Hole Mountains is bounded on the west by a normal fault, which is an extension of the Grand Valley fault. This fault is responsible for the half-graben valley west of Heise. Rolling hills of Rexburg Benagriculturalral area border the forested area (Madison County 2020 Comprehensive Plan, 2008).

A small corner of the northwest portion of the County is a very sandy area known as Egin Bench. Egin Bench is underlain with lava rock and holds underground water to nearly ground surface, which makes it a rich farming area. North of Heise, below Kelly Canyon is exposed rhyolite volcanic rocks from the Heise Caldera which erupted between 4 and 6 million years ago. The landscape in Western Madison County contains still active basaltic lava fields. The Menan Buttes at the western border formed where basalt magma interacted with the Snake River groundwater, producing explosive steam eruptions. The Buttes contain basalt tephra and Snake River gravel, cobbles and pebbles. The northeastern part of the County lies on benches above the Teton River. The benches slope upward toward the Yellowstone plateau and are covered with windblown loess. The southwest section of the County shows the most diverse geology.

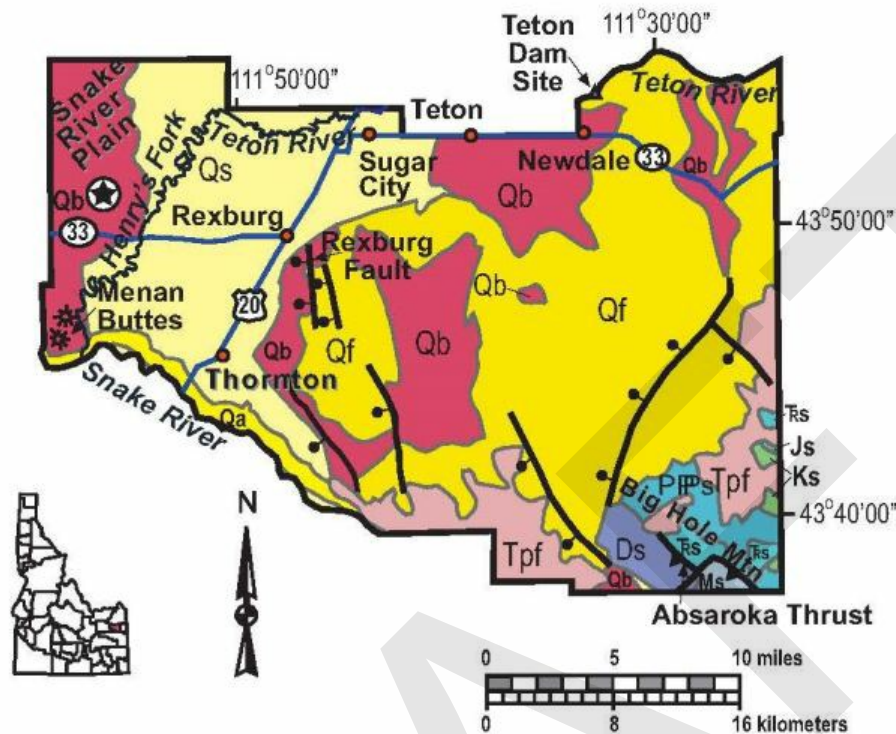
There is some thermal water in Madison County. Pincock Hot Springs, also called Green Canyon Hot Springs is located in eastern Madison County and has a temperature of 111 degrees Fahrenheit. Elkhorn Warm Springs is located along the southeast section of the Jefferson/Madison County border and has a temperature of 72 degrees Fahrenheit. Heise Hot Springs is located just over the border in Jefferson County and has a temperature of 120 degrees Fahrenheit (HMP, 2008).

Water flow in the eastern portion of the County is in a northerly direction and empties into the Teton River. Water in the western portion of the County flows in a southerly and westerly until the water reaches the Henry's Fork of Snake River. Henry's Fork flows southwesterly until it meets the South Fork of Snake River and then forms the mainstream for the Snake River which flows south (Madison County 2020 Comprehensive Plan, 2008).

In 2016, a geological map of Madison County Idaho was compiled and uploaded by the Idaho Geological Survey. The geological map of Madison County, Idaho is below and more details can be downloaded [here](#) (or from the Idaho Geological Survey website).

FIGURE: Madison County Topography
Source: [Phillips, Embree, and Welhan, 2016](#)

Madison County, Idaho



© Digital Atlas of Idaho, Nov. 2002
<http://imnh.isu.edu/digitalatlas>
 Compiled by Paul K. Link,
 Idaho State University, Geosciences Dept.
<http://www.isu.edu/departments/geology/>

Symbols

- | | | | |
|--|--|--|---|
| | Geologic unit contacts with unit designation. | | Overtured anticline: trace of axial plane. |
| | Normal fault: certain; dashed where approximately located; dotted where concealed. | | Overtured syncline: trace of axial plane. |
| | Thrust fault: certain; dashed where approximately located; dotted where concealed. | | Location of ISU Rockwalk rock from each county. |
| | Detachment fault: certain; dashed where approximately located; dotted where concealed. | | Cities |
| | Anticline: trace of axial plane: large arrow indicates direction of plunge. | | Feature location |
| | Syncline: trace of axial plane: large arrow indicates direction of plunge. | | Roads |
| | | | Interstate Route |
| | | | U.S. Route |
| | | | State route |

Description of Geologic Units for Madison County, Idaho

Qa	Quaternary alluvial deposits
Qs	Quaternary surficial cover, including colluvium, fluvial, alluvial fan, lake, and windblown deposits. Included fluveolian cover on Snake River Plain, (Snake River Group).
Qf	Pleistocene silicic volcanic rocks; rhyolite lava and ash-flow tuff (includes Yellowstone Group).
Qb	Pleistocene basalt lava, 2 million to 12,000 years old, flows have some vegetation and surface weathering.
Tpf	Pliocene and Upper Miocene felsic volcanic rocks, rhyolite flows, tuffs, ignimbrites. (in Owyhee County and Mt. Bennett Hills, this should be Tmf).
Ks	Cretaceous sedimentary rocks.
Js	Jurassic sedimentary rocks.
Rs	Triassic sedimentary rocks.
PPs	Permian and Pennsylvanian sedimentary rocks.
Ds	Devonian sedimentary rocks.
Ms	Mississippian sedimentary rocks.

1.5.2 Climate

Madison County (Rexburg) has an average temperature of 43.8 degrees Fahrenheit with the annual high temperature being 55.5 and annual low temperature being 32.1. The hottest month is July and the driest month is August. The coldest month is January and the wettest is May. Average annual total precipitation is 13.3 inches and the average annual snowfall is 55 inches ([US Climate Data, 2019](#)).

TABLE: Average Rainfall and Temperature in Rexburg, Idaho

Source: [US Climate Data](#)

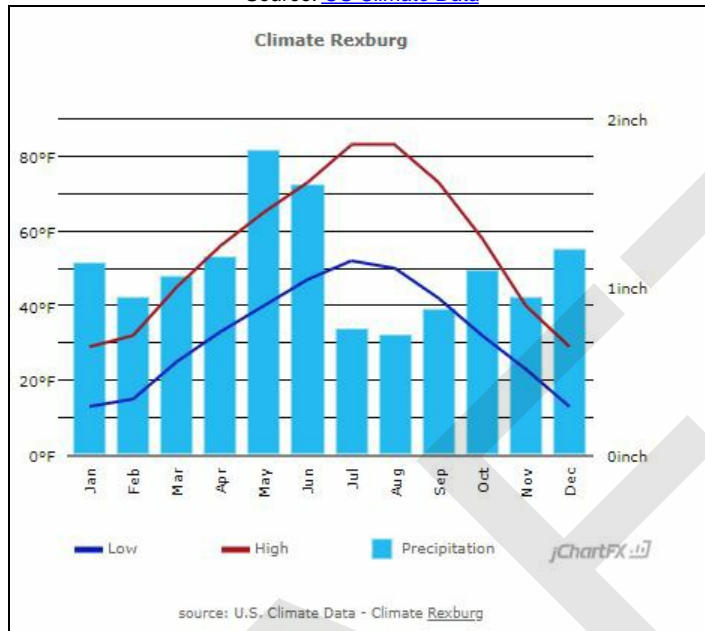


TABLE: Average Temperature - Rexburg Idaho, Idaho

Source: [US Climate Data](#)

Average Maximum Temperature (F)													
Month	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Annual Average
High	29	32	45	56	65	73	83	83	73	58	40	29	55.5
Low	13	15	25	33	40	47	52	50	42	32	23	13	32.1

1.5.3 Demographics

USA Today completed a study on the safest cities in the country and Rexburg City, a city in Madison County, was ranked among the 100 safest cities in America for 2013. In 2006, Madison County had a population of 31,393 and 66.5 people per square mile. The population as of July 1, 2018, is 39,141 (US Census). Continuing from the [2008 HMP](#), the County is continually becoming less rural and more populated. In the Future of Rural Idaho Report published in July 2018, Madison County population was projected to reach 42.9 (thousand) in 2020 and 47.6 (thousand) in 2025 ([Idaho Department of Labor](#)). In the [Madison County Transportation Master Plan \(2015\)](#), growth in the County was predicted to continue to grow with populations reaching 46,000 in 2020, 55,000 in 2030, and 64,000 by the year 2040.

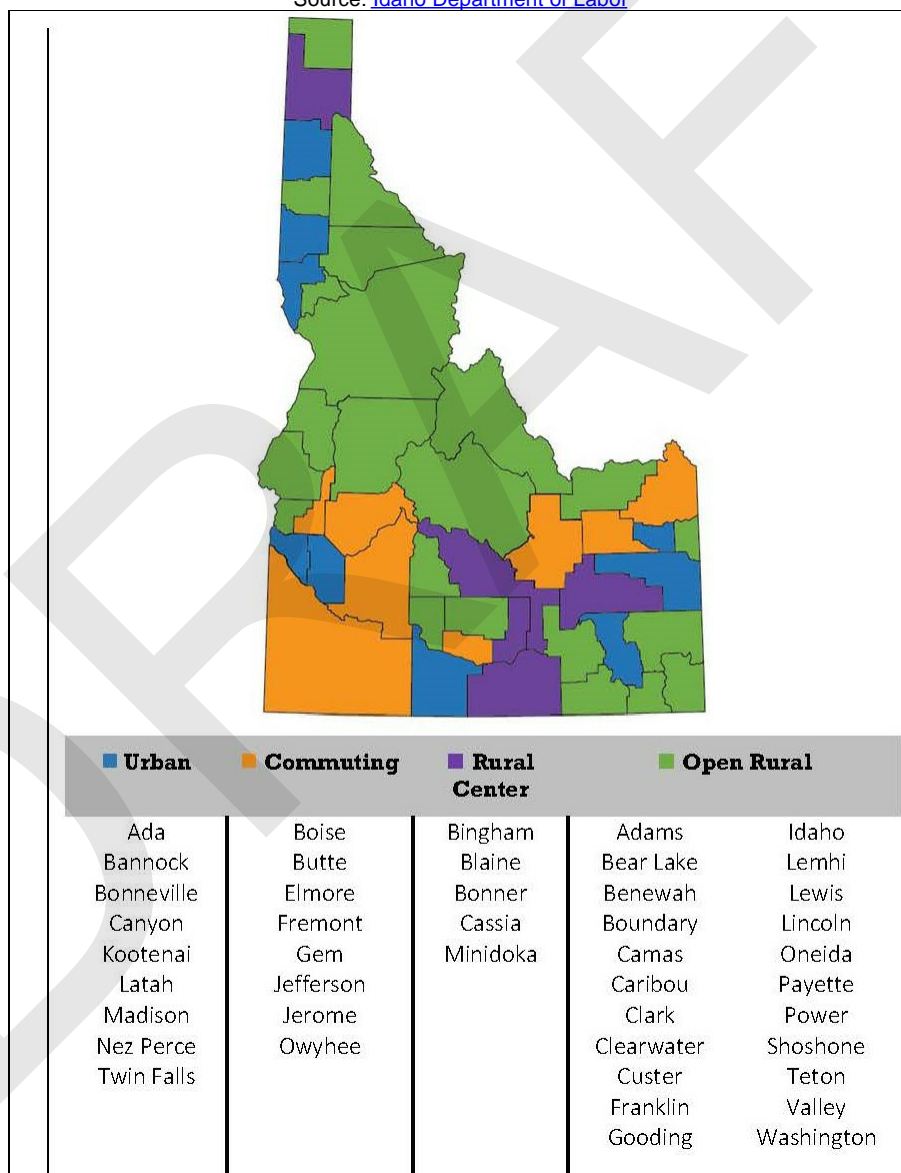
Population growth was relatively slow until the announcement of the expansion of BYU-Idaho. Brigham Young University (BYU-Idaho) is the largest university in Idaho and is located in Madison County. In fall 2018, 20,266 students were enrolled. While students are given the opportunity to participate in the Census Data Count and note Madison County as their residence County given they are likely in this County the majority of the year, in a recent report, students are among the examples of people that "usual residence" is not a straightforward answer ([2020 Census Research, Operational Plans, and Oversight Report, 2018](#)).

In 1990 Madison County was 60.4% urban; in 2000 that increased to 69.7% urban. Rexburg is 98% urban (City-Data). Much of the growth in Madison County and more specifically, the City of Rexburg can be attributed to the expansion of BYU-Idaho into a four-year university. Sugar City saw a small decline during that same time period. Between 2000 and 2006, Rexburg grew at a rate of 54.5% while the County only saw a 14.3% increase and Sugar City a 17.4% increase. Unincorporated Madison County decreased by 63.4%. However, the decrease could be attributed to the expansion of the Rexburg city limits.

Madison County is still considered an "urban county," meaning the city has more than 20,000 residents. Fremont County is a "commuting county" to Madison County, meaning at least 25% of the working population commutes to an urban county (Madison) for work. Madison is one of only 9 of the 44 counties in Idaho that is considered urban ([Idaho Department of Labor](#)).

FIGURE: Urban and Rural County Types, 2015

Source: [Idaho Department of Labor](#)



From 2013-2017, 10,633 households were in Madison County with an average of 3.54 people per household ([ACS 2013-2017](#)). In 2000, there were only 7,129 households ([Madison County](#)). In 2017, the US Census released a report noting that Idaho was the nation's fastest-growing state. Domestic migration and excess of births over death rate are attributed to the population growth.

Also from 2013-2017, families make up 80.9% of the households in Madison County with 37.3% of the households having one or more residents under 18 years old and 14.7% of the households having one or more residents over 65. Of the 310 grandparents that had grandchildren under 18 living with them, 22.6% of the grandparents were responsible for providing basic needs to their grandchild(ren) ([ACS 2013-2017](#)).

The population is mostly concentrated in the western half of the County with a small section southeast of Newdale along State Highway 33 that has 23-75 people

per census tract. The largest concentration of people lies northwest of Rexburg with 203-593 people per census block.

TABLE: Population changes for incorporated areas in Madison County

Sources: Idaho Department of Labor and [ACS 2013-2017](#)

Population changes for Incorporated cities in Madison County								
	1990	2000	2006	2010	2017	Percent change 1990-2000	Percent change 2000-2006	Percent change 2000-2010
County	23,674	27,467	31,393	37,536		16%	14.3%	36.7%
Rexburg	14,298	17,257	26,657		27,369	20.7%	54.5%	
Sugar City	1,275	1,242	1,458		1,521	(2.6)	17.4%	
Unincorporated Madison County	8,101	8,968	3,278			10.7%	(63.4)%	

A little under half (45.8%) of the residents were born in Idaho and 95.3% were US natives. Racially, the majority of the population identifies as White (93.7%).

TABLE: Racial and Ethnic Distribution for Madison County

Source: [ACS 2013-2017](#)

Racial and Ethnic Distribution for Madison County	
White persons	93.7%
Black persons	0.6%
American Indian and Alaska Native	0.0%
Asian persons	1.1%
Native Hawaiian Pacific Islander	0.1%
Persons reporting 2 or more races	2.2%
Persons of Hispanic or Latino Origin	7.1%
White persons, not Hispanic	89.0%

1.5.4 Economy

Financial highlights from [The Madison County - State of Idaho - Rexburg, Idaho Annual Financial Report and Compliance Reports with Independent Auditor's Report for the Year Ended September 30, 2017](#) included:

- "At the end of the current year, the County's governmental funds reported a combined ending fund balance of \$11,433,197.
- At the end of the current year, the fund balance for the General Fund was \$2,344,686, an increase of \$52,269 from the fund balance at September 30, 2016. The business-type activities reported net position of \$790,556, a decrease of \$8,647 from the prior year."

A positive economic factor highlighted is the increasing enrollment at BYU-I which has resulted in large apartment complexes coming on the tax roll. Additionally, the County's General Fund, which is the primary operating fund of the County, balance increased by \$52,269 during the fiscal year 2017. Madison County's investment in capital assets for both governmental and business-type activities as of September 30, 2017, amounted to \$9,379,418 (net of depreciation). Capital assets investments include land, buildings and improvements, machinery and equipment, infrastructure (acquired since September 30, 2003) and construction in progress.

Additional highlights from the 2017 report relevant to the Hazard Mitigation Plan include:

- The County has discussed the moving of the existing airport and advises saving each year for grant matches over the next 10 years,
- The budget was used to upgrade older buildings, and
- Grant matches for new roadways and bridge repair will be needed in the coming years.

Employment

As of 2016, 875 employer establishments are located in Madison County and employ 18,151 individuals (US Census, 2016). Additionally, 2,870 non-employer establishments are in the County. 65.2% of the Madison County population that is over the age of 16 are currently a part of the civilian labor force. Per capita income in a 12-month period (in 2017 dollars) was \$15,257 and the median household income was \$33,620 (US Census 2013-17). The Idaho Department of Labor reports that in December 2018, the civilian labor force in Madison County totaled 22,638 individuals ([Idaho Department of Labor](#)).

From 2015-16, employment grew by 2.93% for a total of 16,626 employees; however, employment numbers reported by the Census Bureau are lower than in 2005 (16,879 jobs). The University of Idaho Extension reported higher 2016 total employment - 22,359 ([University of Idaho Extension](#)). In 2005, jobs had doubled since 1980. Currently, the leading employment industry is Educational Services, which employs more than a quarter of the workforce. By occupation, Administration followed by Education, Training, and Library comprise more than a quarter of common job groups in Madison County.

TABLES: Employment Statistics

Source: [University of Idaho Extension](#)

Total employment

	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total Employment	18,542	18,186	18,767	19,192	19,413	20,505	21,289	22,359	22,976

Employment by industry

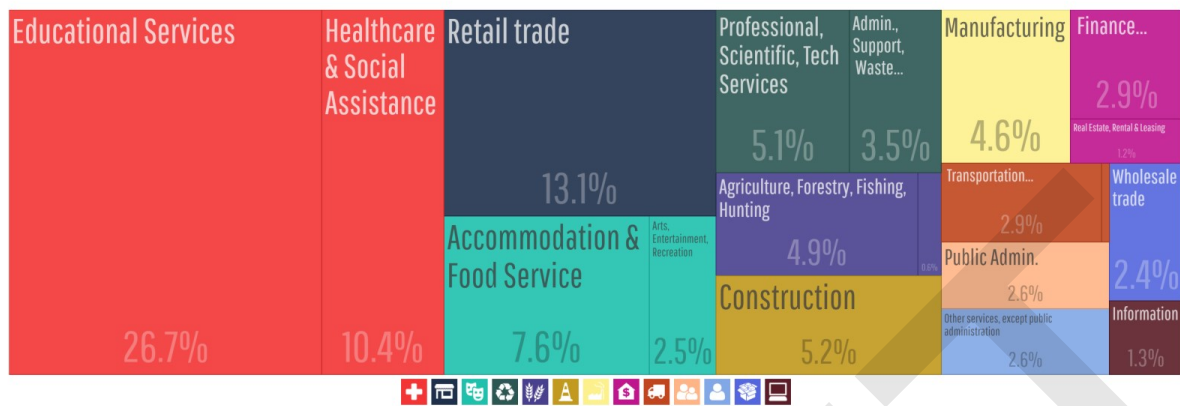
	2009	2010	2011	2012	2013	2014	2015	2016	2017
Farm	3.6%	3.6%	3.8%	3.6%	3.6%	3.5%	3.4%	3.2%	3.4%
Mining	NA	NA	NA	NA	NA	NA	NA	NA	NA
Construction	5.5%	4.9%	4.4%	4.3%	4.7%	4.6%	4.6%	4.6%	4.8%
Manufacturing	4.8%	4.5%	4.3%	4.4%	4.3%	4.6%	4.9%	5.0%	5.3%
Government	11.2%	11.8%	11.4%	11.3%	11.1%	10.5%	10.3%	10.0%	9.9%
Forestry, fishing, related activities and other	NA	NA	NA	NA	NA	NA	NA	NA	NA
Utilities	NA	NA	NA	NA	NA	NA	NA	NA	NA
Wholesale trade	7.5%	7.4%	7.5%	8.0%	8.0%	7.2%	5.9%	3.9%	3.7%
Retail trade	12.5%	11.4%	11.6%	11.6%	11.6%	11.6%	11.5%	11.6%	11.4%
Transportation and warehousing	NA	NA	NA	NA	NA	NA	NA	NA	NA
Information	0.8%	0.7%	0.7%	0.7%	0.8%	0.8%	0.8%	0.8%	0.7%
Finance and insurance	3.6%	3.4%	3.5%	3.3%	3.1%	2.9%	2.8%	2.9%	2.9%
Real estate and rental and leasing	5.3%	5.6%	5.6%	5.4%	5.5%	5.7%	5.8%	5.8%	5.9%
Professional and technical services	6.4%	6.9%	7.3%	7.4%	6.2%	7.2%	6.7%	7.5%	NA
Management of companies and enterprises	NA	NA	NA	NA	0.2%	0.1%	0.2%	0.2%	NA
Administrative and waste services	NA	NA	NA	NA	3.7%	3.8%	4.5%	6.5%	6.6%
Educational services	NA	NA	NA	NA	NA	NA	16.2%	15.7%	15.6%
Health care and social assistance	NA	NA	NA	NA	NA	NA	6.6%	6.4%	6.5%
Arts, entertainment, and recreation	1.1%	1.8%	2.0%	2.2%	1.9%	2.0%	1.8%	1.8%	1.9%
Accommodation and food services	5.9%	5.5%	5.5%	5.4%	5.5%	5.3%	5.7%	5.9%	6.2%
Other services, except public administration	3.8%	3.9%	3.9%	3.8%	3.8%	3.7%	3.7%	3.8%	3.9%

FIGURE: Employment by Industries

Source: [Data-USA](#)

Employment by Industries in Madison County

The closest comparable data for the county of Madison County, ID is from the public use microdata area of Bingham (Outside Fort Hall AIR), Madison, Jefferson, Fremont & Teton Counties PUMA, ID.



Dataset: ACS 5-year Estimate
Source: Census Bureau

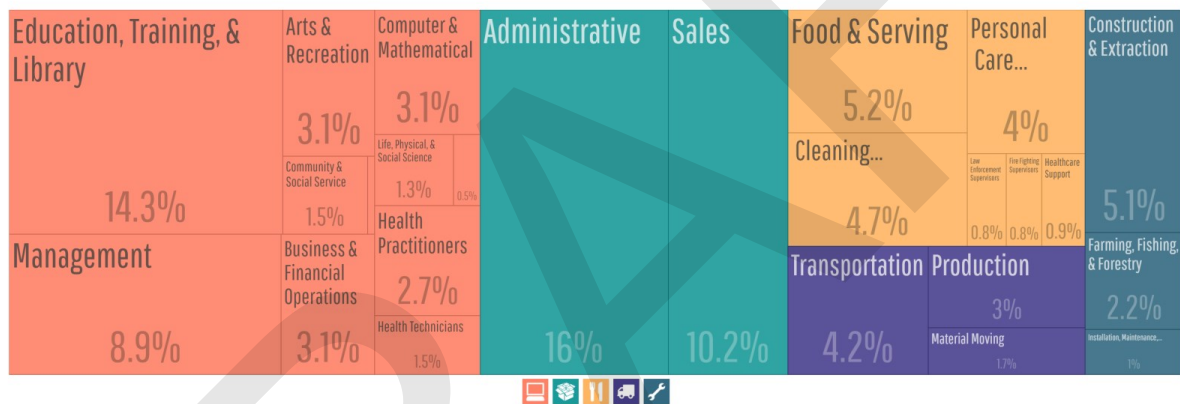
DATAUSA:

FIGURE: Employment by Occupations

Source: [Data-USA](#)

Employment by Occupations in Madison County

The closest comparable data for the county of Madison County, ID is from the public use microdata area of Bingham (Outside Fort Hall AIR), Madison, Jefferson, Fremont & Teton Counties PUMA, ID.



Dataset: ACS 5-year Estimate
Source: Census Bureau

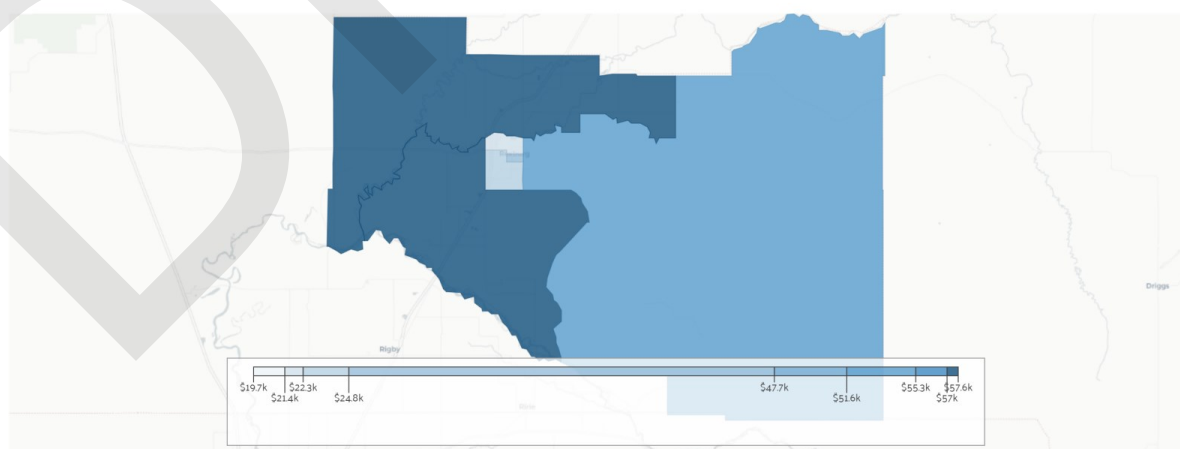
DATAUSA:

FIGURE: Income by Location

Source: [Data-USA](#)

Income by Location in Madison County

The closest comparable data for the county of Madison County, ID is from the public use microdata area of Bingham (Outside Fort Hall AIR), Madison, Jefferson, Fremont & Teton Counties PUMA, ID.



Dataset: ACS 5-year Estimate
Source: Census Bureau
Dataset: ACS PUMS 5-year Estimate

Poverty Rate

According to the 2017 Small Area Income and Poverty Estimates, 19.1% of the population is in poverty, and the University of Idaho Extension reports that 19.8% of the population in 2016 is food insecure ([University of Idaho Extension](#)). The ACS 5-year estimate provides a higher percentage, 32.6%, of people residing in poverty. [City-Data](#) reported 30.8% in poverty in 2016. The largest demographic living in poverty are females 18-24 years old followed by males 18-24 years old

(ACS 5-year estimate).

TABLE: People Residing in Poverty in 2016 (%)

Source: [City-Data](#)

Location	Percentage in Poverty 2016
Madison County	30.8%
Idaho	14.4%

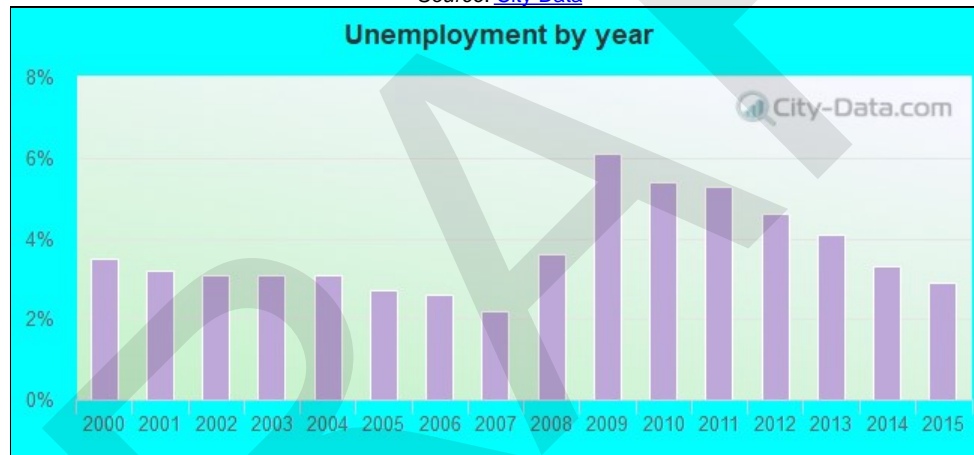
In Rexburg, the median household income is \$26,341 and 41.6% of the population is in poverty (ACS 2013-17). The ACS 5 year study divided the County into 6 Census regional tracts, with the lowest median household income being \$21,352 and the highest being \$57,589. Geographically speaking, the lowest household income is concentrated in the center of the county while the perimeter of the County earns a median average of more than \$20,000- \$30,000/household.

One factor that can be correlated to lower incomes is that student incomes are exceedingly lower than full-time professionals. Madison County is working to retain students post-graduation through employment opportunities. A report that utilized the 2009-11 Census Data calculated the percentage change of people living in poverty after factoring out college students. Madison County rated number 3 on the list of counties with a population between 20,000 and 65,000 with a significant change in poverty rate after excluding off-campus college students. Instead of having a poverty rate of 40.7% from 2009-2011, the poverty rate decreased to 25.9% once off-campus college students were excluded ([Bishaw, 2013](#)).

In 2005, the unemployment rate in Madison County was 2.4. In 2015, the unemployment rate was 2.9% (Rexburg was 3.1%), which is lower than the state of Idaho's average (3.7%). As of February 2019, the [University of Idaho Extension](#) reported the unemployment rate as 2.3% and [Idaho Department of Labor](#) reported the unemployment rate in January 2019 as 1.7%, the lowest in the state. Currently, the unemployment rate in Idaho is 2.9% ([Idaho Department of Labor](#)). The County has maintained one of the lowest unemployment rates in the State during the past two decades. Important to note when examining employment statistics is that full-time students are not counted by the U.S. Bureau of Labor Statistics as part of the civilian labor force. As a result, estimates can understate the actual size of the labor force and the unemployment rate for small counties with a large university. In 2013 the Idaho Department of Labor estimated the county's underemployment rate at 46% which would make it the highest in the state.

FIGURE: Unemployment Rate in Madison County

Source: [City Data](#)



Per Capita Personal Income (PCPI)

In 2005 Madison had a per capita personal income (PCPI) of \$16,489. This PCPI ranked 44th in the State and was 58 percent of the state average, \$28,478, and 48 percent of the national average, \$34,471. In 1995 the PCPI of Madison was \$11,303 and ranked 44th in the State. The 1995- 2005 average annual growth rate of PCPI was 3.8 percent. The average annual growth rate for the state was 3.9 percent and for the nation was 4.1 percent. Figure 2.11 shows the growth in per capita income for Madison County from 1980 to 2005.

In 2016, the PCPI was \$24,566. The state of Idaho average was \$40,311 and the national average was \$50,295. The PCPI increased by 24.3% from 2006 to 2016, while Idaho only experienced a 5.7% increase and the US experiences an 8.4% increase ([University of Idaho Extension](#)).

In 2017, the per capita income was \$25,132, compared to Idaho with a greater per capita income of \$41,826. Currently, Madison County is ranked the lowest for per capita income of the 44 Idaho counties ([University of Idaho Extension](#)). As previously mentioned, students comprise a high percentage of the population and traditionally, students have a minimum wage part-time to a low salary job.

TABLE: Average Employment and Wages

Source: [Idaho Department of Labor](#)

Covered Employment & Average Annual Wages Per Job for 2007, 2016 & 2017	2007		2016		2017	
	Average Employment	Average Wages	Average Employment	Average Wages	Average Employment	Average Wages
Total Covered Wages	13,458	\$24,643	14,746	\$29,272	15,184	\$30,044
Agriculture	362	\$26,683	344	\$31,017	333	\$34,129
Mining	*	*	*	*	*	*
Construction	770	\$24,029	515	\$34,179	569	\$34,942
Manufacturing	1,074	\$28,988	969	\$31,682	1,062	\$31,770
Trade, Utilities & Transportation	3,323	\$21,443	3,157	\$28,659	3,188	\$29,857
Information	100	\$24,446	91	\$27,388	83	\$22,787
Financial Activities	486	\$24,332	608	\$29,972	603	\$31,619
Professional and Business Services	2,005	\$16,541	2,194	\$19,663	2,303	\$20,478
Educational and Health Services	2,186	\$39,408	3,176	\$40,629	3,127	\$42,223
Leisure and Hospitality	1,113	\$9,168	1,384	\$10,494	1,526	\$10,723
Other Services	165	\$20,487	218	\$19,180	257	\$19,333
Government	1,873	\$28,783	2,092	\$33,774	2,130	\$34,956

Per Capita Income	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Madison County	\$18,318	\$18,132	\$18,471	\$19,587	\$32,983	\$21,526	\$22,266	\$24,304	\$24,067	\$25,132
State of Idaho	\$32,646	\$31,142	\$31,921	\$33,503	\$35,187	\$36,167	\$37,792	\$39,780	\$40,508	\$41,826
United States	\$40,904	\$39,284	\$40,545	\$42,727	\$44,582	\$44,826	\$47,025	\$48,940	\$49,831	\$51,640

Information provided by Bureau of Economic Analysis

1.5.5 Industry

Brigham Young University-Idaho greatly influences the local economy with trade and service sectors being predominant. Agriculture, government, and food processing also contribute significantly to employment.

While agriculture is still a dominant industry, other industries have grown in the County. In the 1970s, farming, government, and services were the primary industry. In the past decade, construction, finance, real estate, insurance, and wholesale trade have grown. Additionally, educational and health services are prominent and people in that industry experienced the largest wage increase (Madison County 2020 Comprehensive Plan, 2008).

TABLE: Major Employers in Madison County*

*SOURCE: Quarterly Report of Employment & Wages: 2018 Annual Average
Idaho Department of Labor, Communications & Research
August 7, 2019*

Company Name	Employment Range	Industry Type	Location
BYU IDAHO	5,400 - 5,499	EDUCATIONAL SERVICES - PRIVATE	525 S Center St, Rexburg, ID 83460
MADISON SCHOOL DISTRICT #321	700 - 799	EDUCATIONAL SERVICES - LOCAL GOVERNMENT	60 W Main St, Rexburg, ID 83440
MADISON MEMORIAL HOSPITAL	500 - 599	HEALTH CARE	450 E Main St, Rexburg, ID 83440
WALMART	400 - 499	RETAIL TRADE	1450 N 2nd E, Rexburg, ID 83440
MELALEUCA	300 -399	MANUFACTURING & ADMINISTRATIVE SERVICES	1 S 1st W, Rexburg, ID 83440
SURVEY SAMPLING INTERNATIONAL LLC	200 - 299	PROFESSIONAL & TECHNICAL SERVICES	160 W 2nd S Rexburg, ID 83440
EFOLKS LLC	200 - 299	ADMINISTRATIVE & WASTE SERVICES	Rexburg, Idaho
CITY OF REXBURG	500 - 599	ADMINISTRATIVE SERVICES - LOCAL GOVERNMENT	35 N 1st E, Rexburg, ID 83440
MADISON COUNTY	200 - 299	ADMINISTRATIVE SERVICES - LOCAL GOVERNMENT	134 E Main Rexburg, ID 83440
SUGAR-SALEM JOINT SCHOOL DISTRICT #322	500 - 599	EDUCATIONAL SERVICES - LOCAL GOVERNMENT	105 Center St, Sugar City, ID 83448
THE HOMESTEAD ASSISTED LIVING CENTER	100 - 199	HEALTH CARE	408 W Main St, Rexburg, ID 83440
DICKINSON FROZEN FOODS INC	100 - 199	MANUFACTURING	805 W 3rd S, Sugar City, ID 83448
BROULIM'S FOODTOWN	100 - 199	RETAIL TRADE	124 W Main St, Rexburg, ID 83440
BARRETT BUSINESS SERVICES INC	100 - 199	ADMINISTRATIVE & WASTE SERVICES	Idaho
BASIC AMERICAN FOODS	100 - 199	MANUFACTURING	40 E 7th N, Rexburg, ID 83440

*Only employers that have given the Idaho Department of Labor permission to release employment range data are included in this list.

1.5.6 Land Use and Future Development

The Madison County landscape has many uses, including agriculture, residential, and commercial. Certain technological and light industrial land uses are prevalent; however, the County resists using the land for high impact mining or extractions, heavy industrial manufacturing, and residential subdivisions encroaching on prime agricultural land.

Quick Facts Using GIS from [Madison Rexburg GIS](#):

- The City of Rexburg incorporates 9.81 square-miles of land into its boundaries
- The County has a total area of 473.36 square miles, of which 471.52 square miles is land and 1.84 square miles is water.
- There are approximately 75 miles of road in the City of Rexburg
- Over 396 acres of parks and open space are maintained in Rexburg and Madison County

Agriculture is the dominant land use in Madison County with over 206,000 acres. Forest is the second most dominant with 53,000 acres, but only 17.3% of the total. The table below shows each land use type and the corresponding acres. Although the County is becoming more urban, only 0.3% of the land considered urban land by the Idaho Department of Labor.

TABLE: Acreages of major crops

Source: [NASS 2012](#)

Crop	Madison County
Alfalfa	20,100
Barley	38,100
Potatoes	28,000
Winter Wheat	2,600

TABLE: Land use type in Madison County

Source: [Idaho Department of Labor](#)

Land Use Type in Madison County		
Land Use	Acres	Percent of Total
Urban Land	1,000	0.3%
Agricultural	206,300	67.4%
Rangeland	26,400	8.6%
Forest	53,000	17.3%
Water	3,200	1.0%
Wetland	0	0%
Barren Land	16,000	5.2%

1.5.6.1 Population Trends

Madison County was formed in 1913. In recent years, the Madison County population has greatly increased since BYU-Idaho implemented an innovative year-round track system to allow more students to attend. This increased summertime enrollments by 80 percent. As a result of the larger student body, BYU-Idaho has had a dramatic impact on the housing market in Madison County, specifically in Rexburg City. Additionally, BYU-Idaho is the largest employer in the County. Madison County must continue to coordinate with BYU-Idaho in regards to enrollment growth and future facility planning.

From 2000 to the 2010 Census, Madison County experienced one of the largest population growths in the state of Idaho. Second only to Teton County, Madison County experienced a 36.7% increase in population growth with the population increasing by more than 10,000. On average, the population in Idaho grew by 21.1% from 2000 to 2010 ([Idaho Public Lands by Idaho Association of Counties](#)).

Madison County has a relatively young population. In the year 2000, the median age was 20.7 years. By the year 2006, the median age has risen to 22.2 years and as of 2017, the median age is 23.3 years. This is more than 10 years younger than the median age for the State of Idaho which is 35.9 years (2013-2017 ACS). The younger median age can be correlated to the high percentage of the population being students at BYU-Idaho. A large student population also correlates with the fact that the number of non-family households in the County is larger than national statistics.

1.5.6.2 Land Ownership

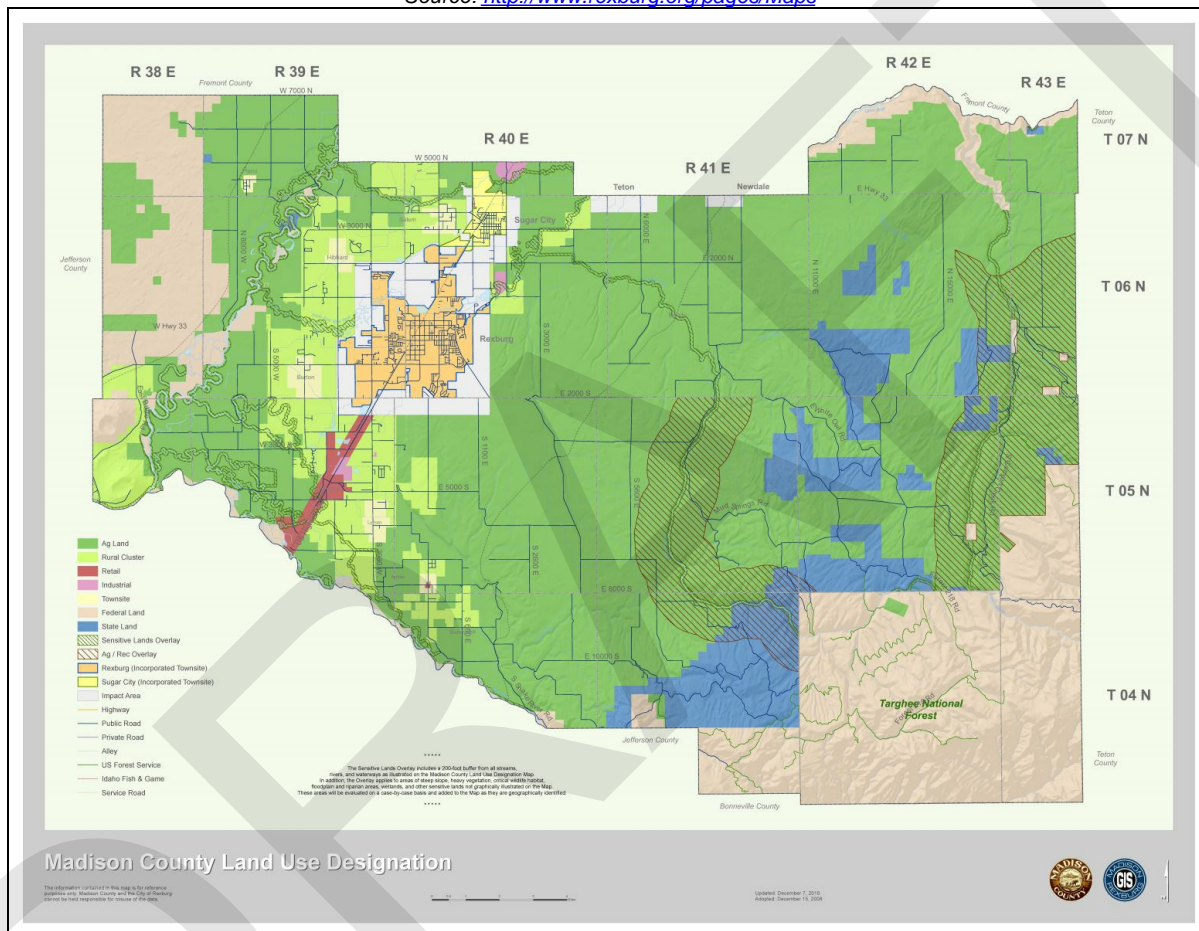
According to the Idaho Public Lands Facts And Figures Report, published by the Idaho Association of Counties, Madison County has a total of 301,824 acres (same number reported in the 2008 HMP). The majority, 70-72%, of the land within the County is privately owned. This accounts for 214, 093 acres. Federal, State, County, and Local governmental agencies own the remainder, making a high percentage (~29%) of land publically owned (Madison County 2020 Comprehensive Plan, 2008). Of that percentage, the United States Forest Service owns 41,460 acres; the Bureau of Land Management owns 19,037 acres, and the Bureau of Reclamation owns about 3,000 acres. State lands make up 7.4% of Madison County or 22,240 acres and a majority of that land is Endowment lands (22,095 acres). The other 145 acres belong to the Idaho Fish and Game. The map below shows the distribution of land ownership in Madison County. Federal and state lands are concentrated in the northwest and the southeast corners of the State.

The County's Land Use Map and additional Maps can be located through the [Madison Rexburg GIS Website](http://www.rexburg.org/pages/GISWebsite) and the Madison Land Use Map is highlighted below and for a PDF you can enlarge, please click [here](#). Additional Maps include:

- [Rexburg Map](#)
- [Sugar City Map](#)
- [Madison County Comprehensive Plan](#)

FIGURE: Madison County Land Use Map

Source: <http://www.rexburg.org/pages/Maps>



1.5.6.3 Zoning and Land Use Maps

The County has two incorporated communities, the cities of Rexburg and Sugar City. As of 2008, the cities were home to 71.4% of the County residents; however, the two cities only comprise 2% of the land in the County. Sugar City is primarily a residential community, with some commercial uses located along the state highway corridor. Rexburg is a major economic hub for the area offering a range of residential, commercial, industrial, and educational opportunities. Throughout both cities, public and semi-public uses including city buildings, city parks, city well sites, pump stations, school complexes, senior center, churches, and meeting halls can be found.

The County also has small community centers with minor commercial uses in Plano, Hibbard, Thornton, Salem, Archer, Burton, Lyman, Moody, Sunnysdell, Independence, Teton, and Newdale.

The first two maps below were generated for this plan using Geographic Information System (GIS) computer system. The County's Zoning Map and additional Maps can be located through the [Madison Rexburg GIS Website](#) and the Zoning Map is highlighted below and for a PDF you can enlarge, please click [here](#). Additional maps include:

- [Rexburg Zoning](#)
- [Sugar City Subdivisions](#)
- [Rexburg Subdivisions](#)
- [Madison Subdivisions](#)

FIGURE: Madison County Profile (larger map can be downloaded through this [link](#))

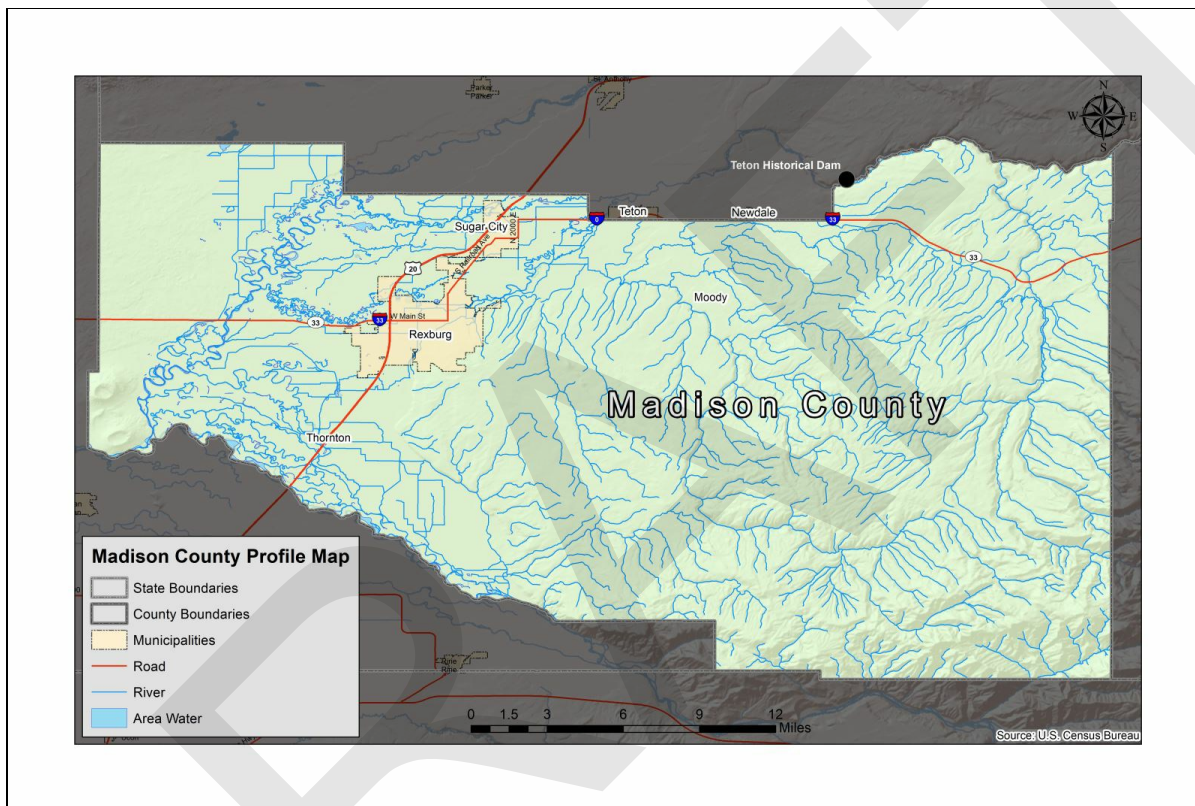


FIGURE: Madison County National Land Cover Data (NLCD) (larger map can be downloaded through this [link](#))

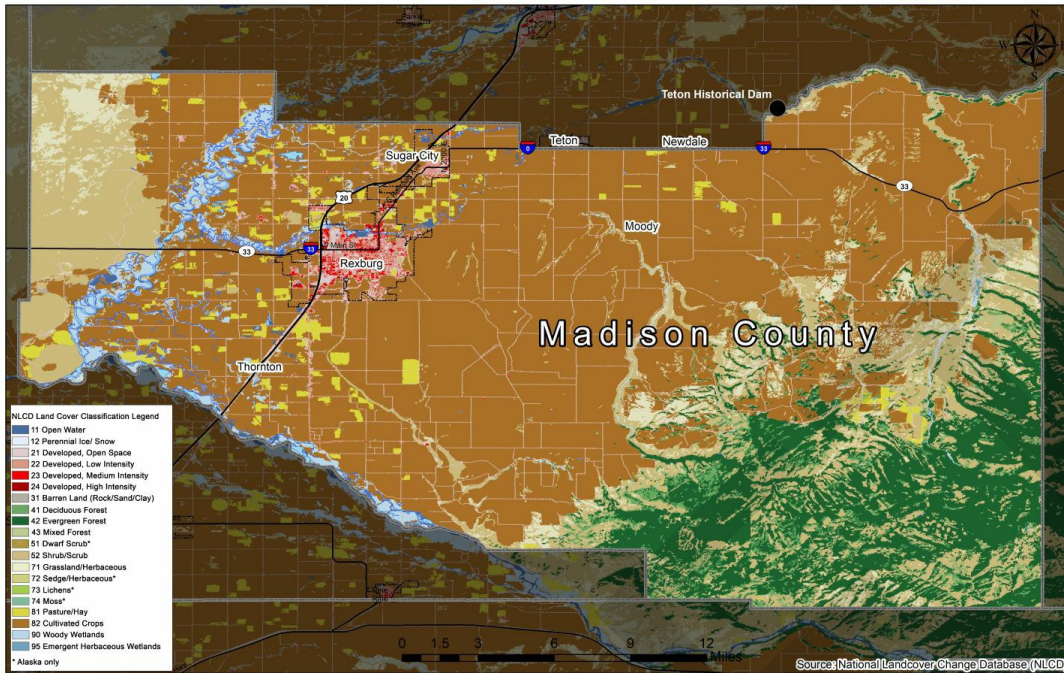
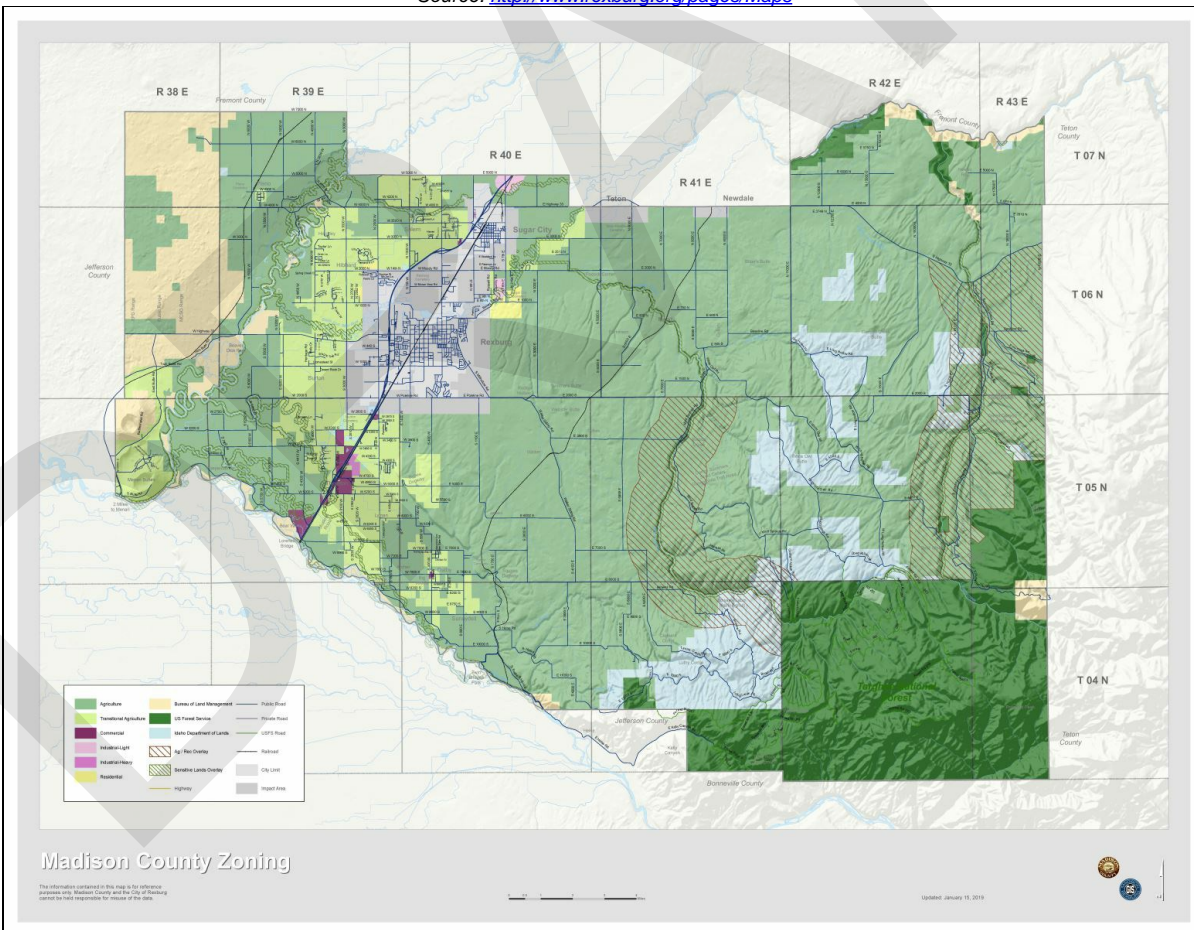


FIGURE: Madison County Zoning Map
 Source: <http://www.rexburg.org/pages/Maps>



1.5.7 Critical Infrastructure

The 2018 State of Idaho Hazard Mitigation Plan reports Madison County having 4,371 buildings with the total replacement cost value being \$3,682,487,000 ([Idaho HMP 2018](#)).

In the [2017 Madison County Annual Financial Report](#), the County's governmental funds reported a combined ending fund balance of \$11,433,197. At the end of the current year, the fund balance for the General Fund was \$2,344,686, an increase of \$52,269 from the fund balance on September 30, 2016. The business-type activities reported a net position of \$790,556, a decrease of \$8,647 from the prior year. Important to note, Madison County started collecting information on infrastructure acquired in 2003.

TABLE: Statement of Net Position

Source: [2017 Madison County Annual Financial Report](#)

MADISON COUNTY - STATE OF IDAHO STATEMENT OF NET POSITION September 30, 2017				
	GOVERNMENTAL ACTIVITIES	BUSINESS- TYPE ACTIVITIES	TOTAL	COMPONENT UNIT
ASSETS				
Cash - County Treasurer	\$ 10,774,570	\$ 318,949	\$ 11,093,519	\$ 7,565,549
Taxes receivable	273,264	8,741	282,005	-
Receivables	331,587	141,948	473,535	11,614,052
Internal balances	-	-	-	-
Due from other governmental agencies	1,368,964	-	1,368,964	-
Inventories	-	-	-	4,685,298
Other assets	-	-	-	653,213
Other assets limited as to use	-	-	-	21,494,743
Capital Assets				
Land and improvements not being depreciated	483,235	107,973	591,208	5,249,273
Infrastructure and infrastructure in progress	651,616	-	651,616	-
Buildings	10,698,021	-	10,698,021	85,537,024
Equipment and furniture	11,824,630	2,106,382	13,931,012	56,759,109
Construction in progress	-	-	-	2,223,429
Less: accumulated depreciation	(15,067,301)	(1,425,138)	(16,492,439)	(75,901,267)
Total Capital Assets	8,590,201	789,217	9,379,418	73,867,568
TOTAL ASSETS	\$ 21,338,586	\$ 1,258,855	\$ 22,597,441	\$ 119,880,423
Deferred outflows of resources				
Expenses unavailable for use	854,427	42,045	896,472	-

Capital Assets

Madison County's investment in capital assets for its governmental and business-type activities as of September 30, 2017, amounted to \$9,379,418 (net of depreciation). This investment in capital assets includes land, buildings and improvements, machinery and equipment, infrastructure (acquired since September 30, 2003) and construction in progress. Major capital additions included the purchase of various heavy equipment.

Capital assets are defined by the County as assets with an initial, individual cost of more than \$10,000 for equipment, \$15,000 for vehicles, \$100,000 for buildings and land, \$500,000 for infrastructure, and an initial useful life of one year or greater. Assets are recorded at historical cost if purchased or constructed. Donated capital assets are recorded at estimated fair value at the date of donation ([2017 Madison County Annual Financial Report](#)).

TABLE: Budgetary Highlights

Source: [2017 Madison County Annual Financial Report](#)

	Governmental Activities		Business-type Activities		Total	
	2017	2016	2017	2016	2017	2016
Land	\$ 483,235	\$ 483,235	\$ 107,973	\$ 107,973	\$ 591,208	\$ 591,208
Buildings & improvements	4,088,174	3,099,383	444,471	480,077	4,532,645	3,579,460
Machinery & equipment	3,452,142	3,959,646	236,773	287,754	3,688,915	4,247,400
Infrastructure	566,650	580,920	-	-	566,650	580,920
Construction in progress	-	-	-	-	-	-
Total	\$ 8,590,201	\$ 8,123,184	\$ 789,217	\$ 875,804	\$ 9,379,418	\$ 8,998,988

County Facilities

Madison County government buildings include a courthouse and administrative building located at 134 E. Main St and 145 E. Main Street in Rexburg. These two facilities house the assessor, University of Idaho Extension Office, Madison County Sheriff, Driver Licensing, Licensing & Registration, and Madison County Commissioners.

Fairgrounds are located at 203 North 5 West in Rexburg. There are approximately 23 structures located at the Fairgrounds including the indoor arena, home arts fair building, fairgrounds stage, grandstand, bleachers, 2 pre-fabricated buildings, 3 horse barns, an outdoor arena, a saw dust shed and eleven metal framed buildings.

Youth Rehabilitation Services are located at 333 Walker Dr in Rexburg.

The Parks and Recreation Department is located at 750 N. 1500 E. in Rexburg. They operate a total of 6 structures at Twin Bridges Park and Beaver Dick Park.

The County Road building is located at 1556 W 749 North in Rexburg and housed the superintendent of County Roads.

Madison County transfer station is located at 750 N. 1500 W. Rexburg. The County also operates a C&D site that accepts construction and demolition waste.

Madison County Facilities

TABLE: Madison County Facilities

Address	Building	Value - 2008	Value - 2019 (calculated for inflation)
	Courthouse section1	\$78,609	\$92,811.36
	Courthouse Section 2	\$158,689	\$187,359.49
	Courthouse Section 3	\$206,495	\$243,802.65
	Administrations Building	\$201,722	\$238,167.31
	Old Hospital, Office building	\$296,672	\$350,272.02
	Law Enforcement Building	\$4,154,721	\$4,905,358.44
	County shop, New, Section 1	\$350,773	\$414,147.50
	County Shop, New, Section 2	\$23,177	\$27,364.41
	County Shop, Old, Section 1	\$7,334	\$8,659.04
	County Shop, Old, Section 2	\$11,488	\$13,563.55
	Sand Shed	\$5,723	\$6,756.98
Fairgrounds	Indoor Arena Section 1	\$718,765	\$848,624.96
	Indoor Arena Section 2	\$81,721	\$96,485.61
	Home Arts Fair Building	\$70,793	\$83,583.24
	Stage	\$13,466	\$15,898.92
	Grandstand	\$32,568	\$38,452.09
	Bleachers	\$15,800	\$18,654.60
	Fair Building #1	\$16,831	\$19,871.87

	Fair Building #2	\$16,552	\$19,542.47
	Horse Barn #1	\$63,953	\$75,507.45
	Horse Barn #2	\$63,953	\$75,507.45
	Horse Barn Old	\$9,114	\$10,760.64
	Sawdust Shed	\$24,871	\$29,364.47
	Outdoor Arena	\$13,363	\$15,777.31
	Eleven Metal Framed Bleachers	\$13,961	\$16,483.35
Twin Bridges Park	Picnic Shelter	\$7,355	\$8,683.83
	Picnic Shelter	\$7,355	\$8,683.83
Beaver Dick Park	Picnic Shelter	\$5,414	\$6,392.15
	Dock #1	\$8,199	\$9,680.32
	Dock #2	\$8,199	\$9,680.32
	Four	\$7,724	\$9,119.50
	Five County Detention Center	\$250,000	\$295,167.74
	Co-op Building	\$395,000	\$466,365.03
	Archer Fire Station	\$301,756	\$356,274.55
	Juvenile Probation Building	\$150,000	\$177,100.64
	Senior Citizens Center	\$230,348	\$271,965.19
	Veterans Building	\$27,635	\$32,627.84
	Safe House	\$6,879	\$8,121.84
	Transfer Station	\$487,951	\$576,109.58
	Landfill Shop	\$49,522	\$58,469.19
	Transfer Station Bldg	\$50,262	\$59,342.88
	Transfer Station Bldg	\$46,890	\$55,361.66
	Transfer Station Bldg	\$22,759	\$26,870.89
Total Value		\$8,714,362	\$9,841,493.43

Rexburg Facilities

TABLE: City of Rexburg Facilities

Address	Building	Total Value	
	Office Building/City Hall	\$696,596	\$822,450.67
	Office Building - INSP/GIS	\$300,000	\$354,201.29
	UP&L Building - Police Building	\$1,044,642	\$1,233,378.47
	Porter Well STN Building	\$14,000	\$16,529.39
	Upper Well STN Building - Res. Building	\$14,500	\$17,119.73
	Lower Well STN Building - Pump house	\$15,500	\$18,300.40
	Smith Well STN Building	\$15,500	\$18,300.40
	Radio Bldg	\$15,500	\$18,300.40

2nd East	Remodeled Pumphouse - 2nd East	\$44,000	\$51,949.52
	Equipment Garage/Water Department	\$262,863	\$310,354.71
	Remodeled Old WW Shop-Addition	\$202,863	\$239,514.45
	Blower Building	\$334,519	\$394,956.87
	Buildings-Wastewater Operations (525 N 5th W)	\$441,614	\$521,400.83
	Chlorine REM FAC Building/Effluent	\$199,079	\$235,046.79
	Rental Dwelling	\$73,500	\$86,779.32
350 E Main	Restrooms 350 E Main	\$12,000	\$14,168.05
249 W 1st South	Restrooms 249 W 1st South	\$50,000	\$59,033.55
	Parks Building	\$56,000	\$66,117.57
	Restrooms Nature Park	\$42,000	\$49,588.18
	Animal Shelter Building	\$375,000	\$442,751.61
425 N 5th W	Shop Building 425 N 5th W	\$700,896	\$827,527.55
	New Clubhouse/Teton Lakes	\$521,889	\$616,179.19
	Clubhouse - Municipal	\$67,000	\$79,104.95
	Pumphouse	\$13,500	\$15,939.06
	Shop Addition-Storage 2005	\$530,335	\$626,151.13
	Merry-Go-Round	\$365,255	\$431,245.97
26.5 N Center	Equipment Garage - 26.5 N Center	\$252,275	\$297,853.77
	Splash Park Building	\$238,019	\$281,022.12
	Theatre Building	\$1,025,026	\$1,210,218.43
	Legacy of Flight Museum Building	\$1,135,229	\$1,340,331.91
	Tabernacle/Museum	\$2,919,679	\$3,447,180.21
Total Value		\$11,978,779	\$13,812,386.19

Sugar City Facilities

TABLE: Sugar City Facilities

Address	Building	Value	
10 East Center	Office Building	\$200,000	\$236,134.19
	Shop Building	\$108,000	\$127,512.46
Heritage Park	Building & Lift Station	\$10,000	\$11,806.71
Park & East 1st North	Building & Pump	\$20,000	\$23,613.42
Front & 3rd South	Building & Attached Equipment	\$235,000	\$277,457.68
Railroad Siding	HCB Building/Pump/Generator	\$50,000	\$59,033.55
	Storage Building	\$63,000	\$74,382.27
West 3rd South	Smith Park Building	\$10,000	\$11,806.71
	Three Dugouts/Scorekeepers booth	\$6,000	\$7,084.03
Total Value		\$702,000	\$441,570.95

1.5.7.1 Public Services and Facilities

Sewer and Water

Within Madison County, domestic water distribution and sewage collection and treatment are provided by the incorporated cities. Decisions regarding development and the availability of sewer and water in the areas of impact rest entirely with city governments.

In 2015, the Idaho Department of Environmental Quality (DEQ) announced the award of a drinking water planning grant in the amount of \$25,000 to the city of Sugar City in Madison County. The funds were awarded for a drinking water planning study. The purpose of the project is to evaluate the existing water supply, storage, booster pumping, and distribution facilities to determine needs, and alternatives for improvement ([Idaho DEQ, 2015](#)). Also in 2015, Idaho DEQ awarded the city of Rexburg an \$11.1 million low-interest drinking water construction loan. to construct 2 new wells, a 2.5 million-gallon storage reservoir, a booster pump station, and make a control system and waterline improvements ([Idaho DEQ, 2015](#)).

The City of Rexburg water is supplied from groundwater pumped directly into the system for culinary use. No treatment of the water is required or provided. Water is supplied from 7 wells located throughout the city with three more currently under construction.. The water system is divided into three pressure zones, whose water is distributed depending on the elevation of the user. Supply and pressure are maintained by 4 water-storage reservoirs that have a total capacity of 4,750,000 gallons. The water system also includes three booster stations that pressurize water into the system for use or for back-up of other zones. Water is distributed to the users through approximately 134 miles of piping that varies in size from two (2") inches to twenty-four (24") inches. The water storage reservoirs will increase to five this year, with a total storage capacity of 7.25 million gallons. ([Rexburg Water Department](#)).

Sugar City has 3 wells. Well #3 is located at Idaho 33 and 3rd South along with its storage facility supplies most of the current need. Wells #1 and #2, near the water tower and in Neibaur Park, respectively, serve as backup wells. The surface and subsurface water are plentiful in Sugar City, even though average annual precipitation is only 11-12 inches. Culinary water is exceptionally pure and pumped from the Eastern Snake River Plain Aquifer several hundred feet below ground. Subsurface water is replenished directly by streams and other surface waters. The deep aquifer is replenished somewhat from subsurface sources, and primarily the deep water comes from north and northeast of the valley ([Sugar City Comprehensive Plan, 2015](#)).

In the outlying formerly unincorporated areas of the County, however, water is supplied by individual wells and sewage is treated by septic systems. For any parcel of land, sewer and water arrangements must meet the standards of the Idaho Department of Health. All septic systems, regardless of size or location, must be approved by the Eastern Idaho Public Health District. In addition, standards may also be required by the Idaho Department of Water Resources and the Idaho Department of Environmental Quality.

Waste Management

Madison County has 2 waste disposal facilities. Madison County operates a transfer station for household waste and a C&D site for construction and demolition debris. The City of Rexburg offers solid waste collection within city limits. In other areas of the County solid waste collection is provided by private companies ([Madison County Website](#)).

Wastewater treatment for Sugar City is through a contract with Rexburg, with capacity available to Sugar City for a population of 2,700. In 2007, Rexburg's treatment facility was upgraded to a capacity of 3.6 million gallons per day and is presently operating at approximately 3.0 million gallons per day ([Sugar City Comprehensive Plan, 2015](#)).

Fire Protection

The central fire station in the County is located in Rexburg at 26 North Center Street. In 2007, the Madison County Fire Protection District acquired property in Sugar City for a satellite station, which reduced response times. The satellite station also provides a space for training and community involvement for citizens ([Sugar City Comprehensive Plan, 2015](#)). In 2000, another fire station was built in the townsite of Archer. Like the satellite station in Sugar City, the new station in the townsite of Archer services to reduce response time and as a place for community involvement.

Public Safety

Fire protection, law enforcement, public library, and emergency medical service are provided the Rexburg and Sugar City by arrangement with Madison County. Law enforcement in Madison County is provided by the Madison County Sheriff's Department located in Rexburg, Idaho. The City of Rexburg has its own police departments. The county has its own men's and women's incarceration facilities ([Sugar City Comprehensive Plan, 2015](#)). Due to state regulations, the BYU-Idaho law enforcement division is now a security and safety division and law enforcement is provided by the Rexburg Police Department.

Emergency Medical Services

Madison County provides emergency medical services, with personnel and ambulances. The Madison Memorial Hospital in Rexburg is only 4 miles from Sugar City. The hospital is an acute primary-care facility. A \$50-million expansion increased bed-count from 49 to 62 and was finished in 2008 ([Sugar City Comprehensive Plan, 2015](#)).

Emergency Services (Disaster)

The Madison County Emergency Management Division coordinates resources in the time of a disaster or incident for the 2 cities in Madison County. The Department is managed by the Madison County Fire Department. The Department follows the Emergency Operations Plan, which is mirrored after the National Response Plan through the Office of Domestic Preparedness. This plan allows the city government and first responding agencies to protect and support the welfare of the citizens, and draw upon those directives listed in the EOP to handle incidents that affect Madison County, in a coordinated manner. The continued commitment by the Madison County Emergency Management Division with assistance from the Federal and State Bureau of Homeland Security Offices is to attain a higher level of excellence in preparedness, response, recovery, and mitigation when dealing with all-hazard incidents in Madison County ([Madison County Emergency Management Website](#)).

1.5.7.2 Public Utilities

The City of Rexburg offers utility rates for water, sewer, and garbage for in the city and out of the city ([Rexburg Website](#)).

The major utilities for Madison County are electrical, gas, telecommunications and irrigation.

Qwest and **Madison Telcom** provide phone service in Madison County

Fall River Electric and **Rocky Mountain Power** provide electrical services in Madison County.

Intermountain Gas Company provides services to cities in the northern part of the County. Most of the outlying unincorporated areas of the County rely on home heating oil, coal, or electric heat.

Propane services are provided by private companies and are used as an energy source in locations not served by Intermountain Gas Company.

1.5.7.3 Water Resources

Surface Water

Rivers in Madison County include the Snake River, Teton River, and Henry's Fork of the Snake River. The Teton River originates on the west slope of the Teton Mountains to the east of Madison County and drains 890 square miles to its confluence with the Henrys Fork

The Snake River forms part of the Madison /Fremont County border until just after the Teton Dam site where it flows into Madison County. Just north of Teton, the Teton River bifurcates into two distributaries, called the South Fork Teton River (also called the South Teton River) and the North Fork Teton River (also called the Teton River). The South Teton River travels generally southwest until it joins Henrys Fork west of Rexburg at the southwest end of a large inland delta region on the Henrys Fork, essentially merging with the delta from the east as one of its channels. The Teton River itself (North Fork Teton) continues to travel west, where it joins the Henrys Fork at Warm Slough west of Sugar City.

The Henry's Fork of the Snake River has headwaters at Henry's Lake to the north in Fremont County and drains most of Madison County. The river enters Madison County west of Sugar City and flows south to the Menan Buttes where it joins the Snake River.

The Snake River forms the southern border between Madison and Jefferson Counties. There are about 50 small streams, sloughs, and rivers in Madison County.

There are 13 springs in Madison County located in the eastern portion of the County.

Irrigation

Irrigation water comes from rivers and reservoirs. Irrigation is controlled by canal companies. Sugar City has not used surface water for irrigation since the 1976 flood, though surrounding farms rely on it. Present growth trends imply that surface water should be used for irrigation during development phases and on open spaces ([Sugar City Comprehensive Plan, 2015](#)). Farmers in the area have begun installing "Pivots", large overhead sprinkler systems that can pull water off of a private well. This taps into the groundwater.

According to the USDA, the cash rent per acre in Madison County was \$114 in 2017 for in irrigated cropland ([USDA](#)). The Fremont-Madison Irrigation District has 250,000 acres. The transition of agricultural to non-agricultural land use in Madison County, just like in Fremon and Teton County, has drastically increased in the last decade ([Rob Van Kirk, 2015](#)).

Groundwater

Groundwater is the primary source of water for the County ([USBR](#)). The County is served by two Groundwater Districts. The Henrys Fork Ground Water District covers 307,634 acres. The Madison Ground Water District covers 177,356 acres ([Idaho Department of Water Resources](#)).

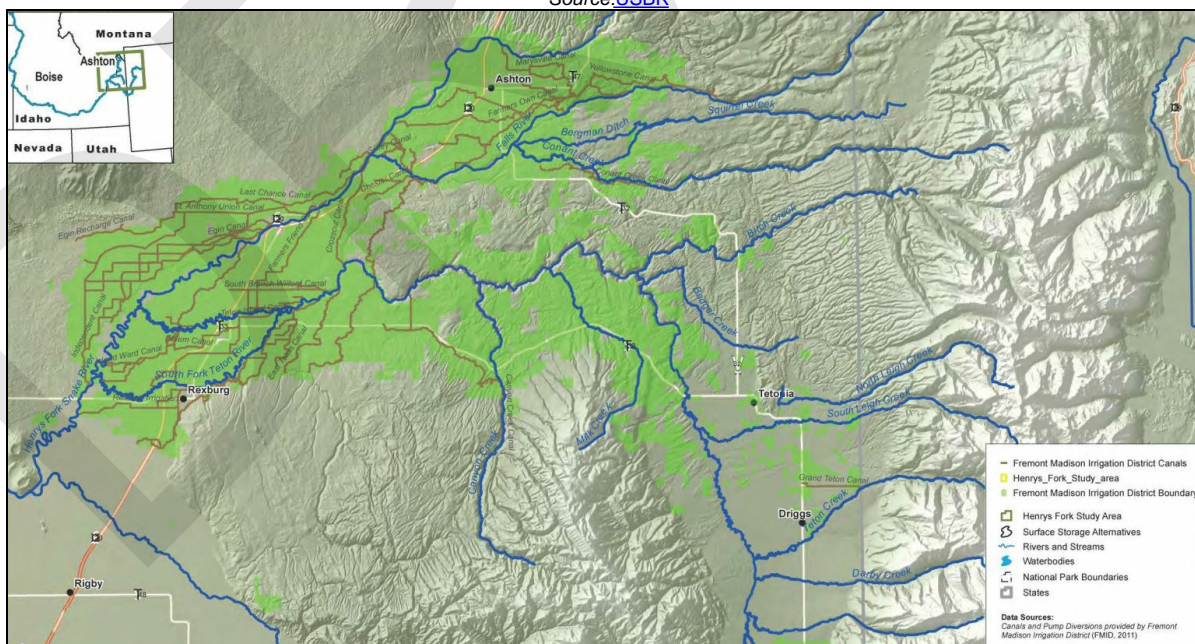
The underground water supply is less than 100 feet in depth in most areas of the County and domestic water supply is plentiful. In valley flat land, water can be located just 30 feet below ground. Madison County is partially underlain by the Snake River Plain Aquifer which is the single most important aquifer in Idaho. The area of Madison County where Henry's Fork junctions with the Snake River consists of sand and gravel which extends from unconsolidated-deposit aquifers in Bannock and Bingham Counties. In this reach, the Snake River loses a substantial volume of water to the underlying sand and gravel. Much of the water is discharged later from springs at and near the northern end of the American Falls Reservoir ([USGS](#)).

Dam

The Cross Cut Diversion Dam diverts water from the Henrys Fork River between Ashton and St. Anthony, immediately below the confluence with the Fall River. The dam is a concrete weir that raises the water level 10 feet above the streambed. The canal that runs from the dam carries irrigation water to 112,000 acres in Fremont and Madison counties, in part via the Teton River ([USBR](#)).

FIGURE: Freemont Madison Irrigation District Canal System

Source: [USBR](#)



1.5.7.4 Transportation

"Future traffic patterns and the resulting operating conditions of a roadway network are directly related to land use planning and socioeconomic conditions." - [Madison County Transportation Plan](#)

Madison County has worked to ensure all transportation from pedestrian to bicycle to transit are included in city planning. Due to funding limitations, the Targhee Regional Public Transportation Authority (TRPTA) permanently closed all public transportation in the County on May 1, 2019 ([TRPTA](#)).

Highways and Transportation

Major highways through Madison County include US Route 20 and State Highway 33 and the existing roadway network consists of local, collector and arterial streets. US Route 30 is a north/south route that bisects the County just west of Rexburg. This route connects Idaho Falls with Rexburg and other areas north of Madison County. State Highway 33 is an east/west route that bisects the western portion of the County and then turns northeast at Rexburg and travels along the northern border into Teton County. It connects Arco in Butte County and Mud Lake area in Jefferson County with Rexburg and areas east of Madison County. Other routes connect Ririe, Thorton and Rexburg east of US Route 20 and Rexburg, Sugar City and St.

Anthony in Fremont County west of US Route 20. There are also highways in the Big Hole Mountains that lead to Kelly Canyon Ski area, Green Canyon Hot Springs and an unimproved road that connects the Heise area to State Highway 33 through the very western portion of the County.

In the [Madison County Transportation Plan](#), congested roadways were noted as an area of concern correlated to the growing population(see Demographics section). The report highlights multiple projects that would alleviate unacceptable congestion.

Bridges

The [Madison County Transportation Plan](#) (2015), notes that according to the National Bridge Inventory Database, Idaho Transportation Department (ITD) owns 32 bridges in Madison County. One of the bridges is structurally deficient and one of which is functionally obsolete. The County owns 39 bridges. Three are structurally deficient, and two are eligible for federal aid with a sufficiency rating of less than fifty. The Twin Bridges are also in need of channel correction. The City of Rexburg maintains 8 bridges. One is structurally deficient, and one is federal aid eligible. The only bridge in Sugar City is functionally obsolete.

The [National Bridge Inventory Data](#) shows 76 bridges in Madison County, which highlights the rapid infrastructure development that has occurred in the last few years. Of these bridges, 56 received a "fair" rating, 14 received a "good" rating, and 4 are listed in "poor" condition. The 4 listed in "poor" condition were built in the 1970s or earlier with one being built in 1930s. The County owns 43 of the bridges, the state owns 22, 9 are owned by the city, and 2 are federally owned ([Bridge Reports](#)). All 76 bridges are highlighted as being open. The majority of the bridges (52) are beam/girder design, followed by 21 being frame design, 2 being a slab, and 1 being truss.

FIGURE: Bridge Rating

Source: [Bridge Reports](#)

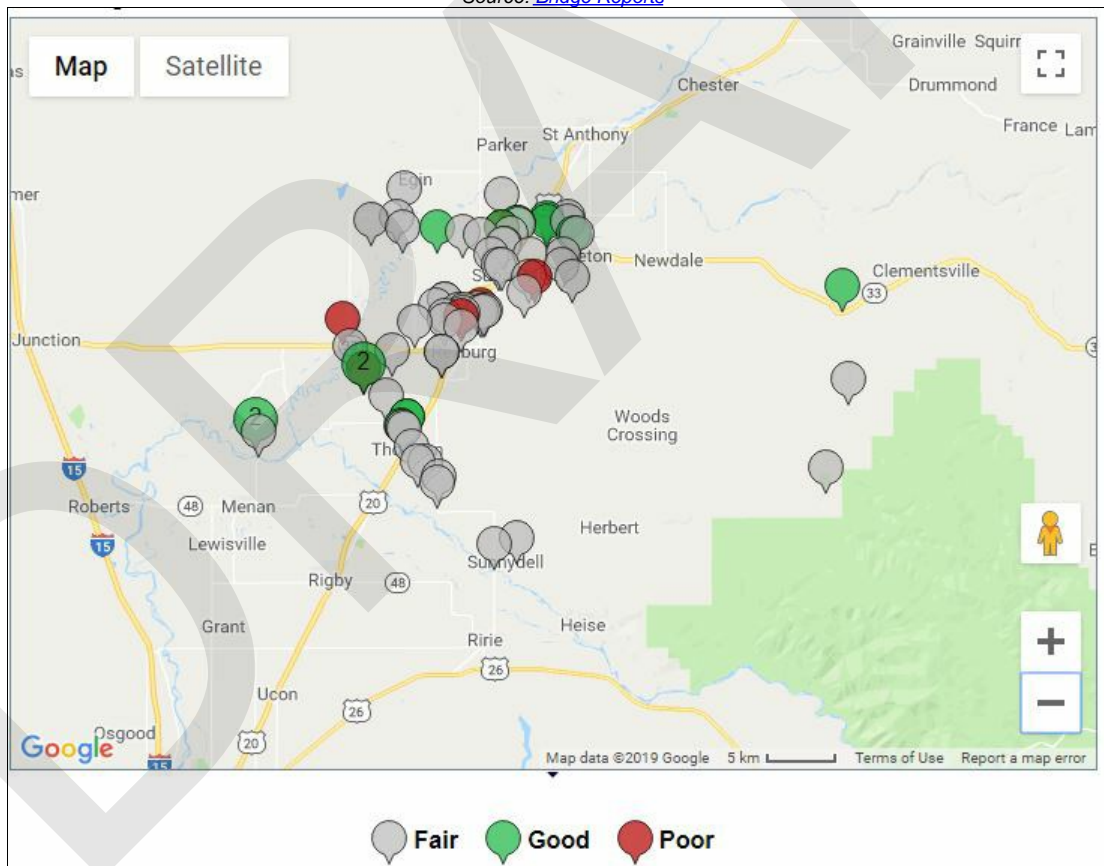


FIGURE: Bridge Design

Source: [Bridge Reports](#)

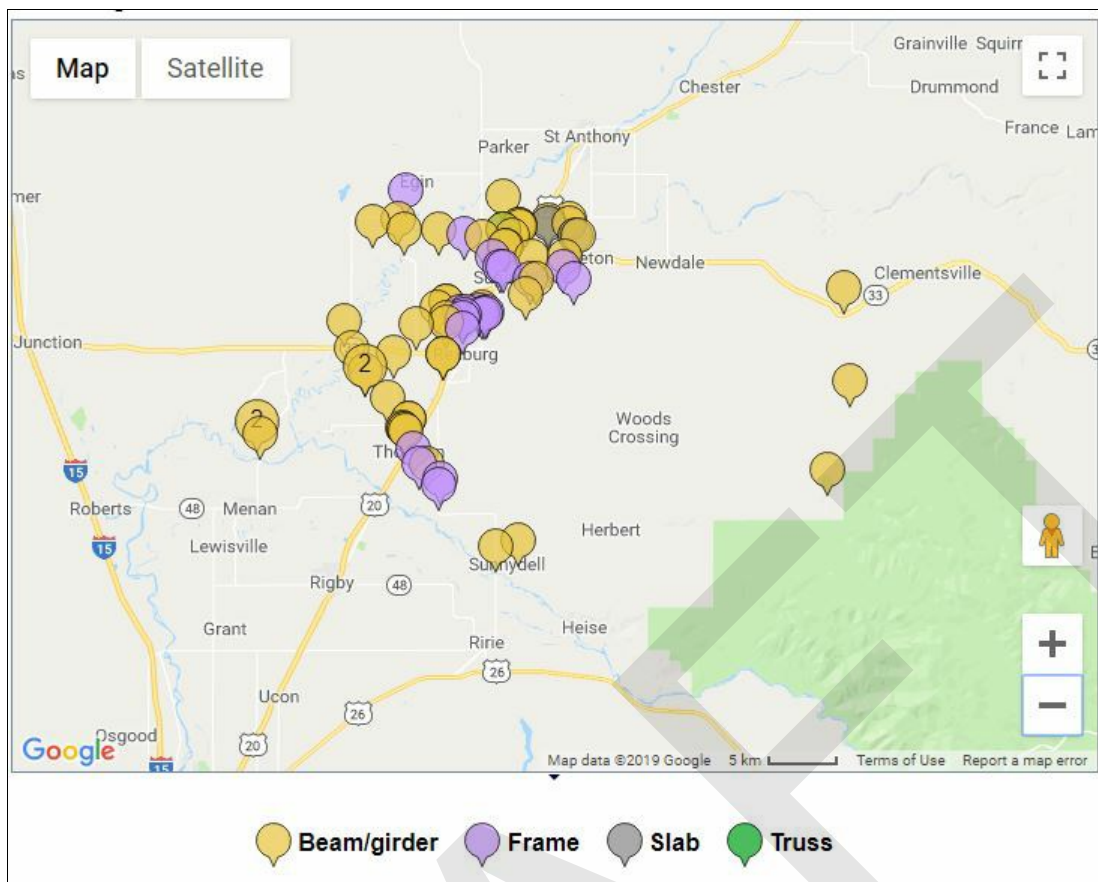
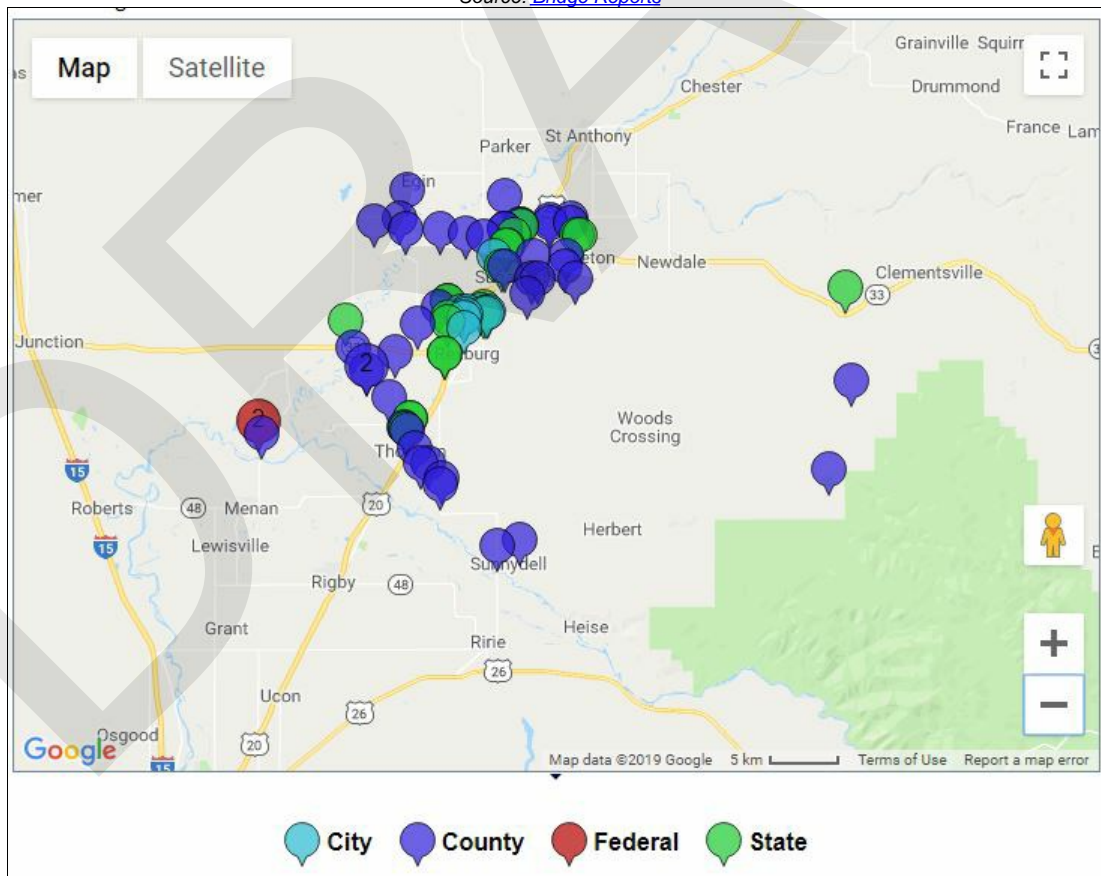


FIGURE: Bridge Owner
Source: [Bridge Reports](#)



Airports

There is one airport located in Madison County 1 mile northwest of the City of Rexburg called Rexburg-Madison County airport (RXE). It has a 4200 x 75 foot asphalt runway with lights, navigation aids, and communication capabilities as well jet fuel available. It is attended Monday thru Saturday 0800-1800 hours. The airport is roughly 25 miles away from the larger Idaho Falls airport. The jointly owned Rexburg-Madison County airport is operational and serves primarily private and agricultural aircraft ([Madison County Transportation Master Plan 2015](#)). The RXE accommodates small corporate jets and turboprop aircraft. The County has conducted a feasibility study to identify a potential new location for the airport. Currently, no confirmed or anticipated date for the move of the airport has been made public.

Railroads

The Union Pacific railroad serves Madison County with freight service. Additionally, the Eastern Idaho Railroad, one of the largest single shortline spin-offs, serves the County primarily through carrying agricultural products. There are 52 miles of the railroad along the Yellowstone branch of the Eastern Idaho Railroad. This rail stretch moves more than 35,000 carloads per year to the Union Pacific branches ([Madison County Transportation Master Plan 2015](#)).

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1.5.7.5 Housing Characteristics

Median housing value in 2000 was \$106,800 and the median rent was \$298. From 2013-17, the real median value of owner-occupied housing was \$190,500 which was greater than the median for Idaho (\$176,800). For 2013-17, 54% of the households were rentals and rent cost was \$721 per month for a two-bedroom ([University of Idaho Extension](#)).

Many of the characteristics highlighted by the ACS 2013-2017 correlate to Madison County being home to a large university. Additionally, housing characteristics provide context for community preparedness and disaster recovery.

According to the most recent ACS study, Madison County had an average of 13,292 housing units from 2013-2017 with 44.5% of the houses being "single-family" houses. As of 2017, 14,113 housing structures were counted with a margin of error of 78. Single-family houses include townhouses or row houses (housing attached to one or more structures). 50.4% of the housing units were located in a multi-unit structure (e.g., a building that contains two or more apartments). Only 5.1% of housing units were in mobile homes.

Source: [ACS 2013-2017](#)

Year Housing Unit Built	Estimate
Built 2010 or later	3,108
Built 2000 to 2009	2,741
Built 1980 to 1999	2,841
Built 1960 to 1979	4,365
Built 1940 to 1959	321
Built 1939 or earlier	737

11.6% of the housing inventories were built in 2010 or later and 3.9% of the houses were built in or before 1939. The median number of rooms in a housing unit is 5.1 rooms and of these housing units, 61.4% had 3 or more bedrooms.

Source: [ACS 2013-2017](#)

House Heating Fuel Used in Madison County, Idaho in 2013-2017	Percentage
Gas	58.5%
Electricity	36.7%
Fuel oil, kerosene, etc.	0.6%
All other fuels	3.6%
No fuel used	0.7%

Of the 13,292 housing units in Madison County, 10,633 units were occupied and 2,659 were vacant. 24.5% of the residents moved into their home after 2015 and only 5.2% had been in their home since 1979. Renters comprised more than half (53.6%) of the occupants in the occupied housing units.

Source: [ACS 2013-2017](#)

Occupants with a Housing Cost Burden in Madison County, Idaho in 2013-2017	Percentage
Owners with mortgage	26.6%
Owners without mortgage	12.1%
Renters	72.1%

Only 4% of the occupied housing units were without a vehicle while 23.8% had access to 3 or more vehicles. 95% of the households have a computer with 75.9% having a broadband internet subscription. 91.3% of the households had a desktop or laptop and 82.9% had a smartphone ([ACS 2013-2017](#)).

1.5.7.6 Educational Facilities

School Districts

There are two school districts that serve Madison County. Madison School District #321 administers 11 schools and serves Rexburg and additional areas of Madison County ([MSD 321 Website](#)). There are 6 elementary schools (Adams, Burton, Hibbard, Kennedy, Lincoln, and South Fork Elementary), one middle school (Madison Middle School), one junior high school (Madison Jr. High), one senior high school (Madison High School), an online school (Madison Online), and an alternative high school (Central Alternative High). From 2001 to 2013, enrollment increased by 20% ([Rexburg Website](#)).

Sugar-Salem School District #322 administers 5 schools and serves Sugar City. Schools include Central Elementary School for pre K through third grade, Kershaw Intermediate for 3-6 grade, Sugar Salem Junior High school for 7-8 grade, Sugar Salem High School for 9-12 grades, and Valleyview Alternative High School ([Sugar Salem Website](#)).

Brigham Young University-Idaho

Brigham Young University-Idaho is a 4-year university owned and operated by the Church of Jesus Christ of Latter Day Saints. It offers a variety of associate and bachelor's degrees in-person and online and is located in Rexburg, Idaho. BYU-Idaho has steadily grown to become Idaho's largest private University with a campus that spans 430 acres with over 40 buildings and 28,000 students attending every year. The school year is organized into three, 14-week semesters: Fall, Winter, and Spring, and one, 7-week Summer Session. BYU-Idaho has 6 colleges and 33 departments.

1.5.7.7 Recreational Areas

Rexburg is well known for its Idaho International Dance & Music Festival held every summer in July. This event brings dancers from several countries to perform at BYU Idaho. There are also several hiking and biking trails in and around the area of Madison County. Additionally, Madison County is at the southwestern gateway to Grand Teton and Yellowstone National Parks.

Madison County has two parks: Beaver Dick Park and Twin Bridges Park. Beaver Dick Park is a 12-acre preserve on the bank of Henry's Fork of the Snake River. It was named after Beaver Dick a trapper who frequented the area. It features camping, fishing, a boat dock, and playground and picnic areas. Twin Bridges Park is located on 31 acres of pristine land rich with wildlife on the South Fork of the Snake River. There are deer and moose in the area and even occasionally bear and mountain lions. The park features camping, fishing, a boat dock, and picnic areas. The city of Rexburg has 8 parks.

TABLE: Parks in Rexburg

Source: [Rexburg Area Chamber of Commerce](#)

Name	Address
BYU-Idaho Gardens	525 S Center Street Rexburg, ID 83440
Community Park	399 E 2nd N Rexburg, ID 83440
Mill Hollow Community	Mill Hollow Trailer Park Rexburg, ID 83440
Nature Park	Nature Park Road Rexburg, ID 83440
Park Street Park	5th West and Park Street Rexburg, ID 83440
Porter Park	S 2nd W & W 2nd South Rexburg, ID 83440
Rotary Park	Nina St. and Rodney St. Rexburg, ID 83440
Smith Park	East Main 3rd East Rexburg, ID 83440

1.5.7.8 Cultural and Historical Sites

According to the Idaho State Historical Preservation Office, there are 79 archeological sites in Madison County and 75 architectural sites.

The following are listed on the National Register of Historic Places:

- **Madison County Courthouse **** (added 1987 - **Building** - #87001587) Also known as 012085 E. Main St., Rexburg
- **Rexburg Stake Tabernacle **** (added 1974 - **Building** - #74000745) Also known as **Madison Stake Tabernacle** 25 N. Center St., Rexburg
- **Spori, Jacob, Building** (added 1989 - **Building** - #89000329) Also known as **004746** 100 E. 2nd South, Rexburg

Brenner, Jacob, House (added 1987 - **Building** - #82000388) 51 S. 1st, W., Rexburg was previously on the list; however, as of April 2018, is no longer included ([The National Register of Historic Plans in Idaho](#)).

Madison County is also home to a number of historic townsites including Plano, Hibbard, Thornton, Salem, Archer, Burton, Lyman, Moody, Sunnyside, and Independence.

Madison County is also home to numerous churches.

TABLE: Churches in Madison County
Source: [Rexburg Area Chamber of Commerce](#)

Name	Address
Apostolic Church	1866 N Highway 33 Sugar City, ID 83448
The Church of Jesus Christ of Latter-Day Saints Rexburg Idaho Stake	845 W 7th S Rexburg, ID 83440
Rexburg Idaho East Stake	387 S 4th E Rexburg, ID 83440
Rexburg Idaho South Stake	2041 W 5200 S Rexburg, ID 83440
Rexburg Idaho Center Stake	590 Summerwood Rexburg, ID 83440
Rexburg Idaho North Stake	314 E 2nd North Rexburg, ID 83440
Cavalry Chapel Rexburg	859 S. Yellowstone HWY Stue 204 Rexburg, ID 83440
Community Presbyterian Church	104 College Ave Rexburg, ID 83440
Covenant Bible Church	36 South 2 West Rexburg, ID 83440
Crown of Life Lutheran Church	3856 E 300 N Rigby, ID 83442
Grace Baptist Church	262 N 2nd W Rexburg, ID 83440
Harvestview Baptist Church	Springhill Suites by Marriott 1177 S Yellowstone HWY
Lighthouse Bible Baptist Church	1816 N Hwy 33 Sugar City, ID 83448
Rexburg Christian Center	241 S 5th West Rexburg, ID 83440
St. Patrick's Catholic Church	38 S 3rd West Rexburg, ID 83440
Upper Valley Assembly of God	Meet at the CottonTree Conference Center PO Box 831 Rexburg ID 83440

1.5.7.9 Madison County Asset Inventory Summary

Asset Type	Asset	Quantity (2008)	Quantity (2019)
General	Geographical Area	471.52 Square Miles	473 square mile
	Households	8,148	
	Population	31,393	39,141
	Housing Units	10,758	13,292 housing units and 14,113 housing structures
Essential Facilities	Hospitals	1	1 - Madison Memorial Hospital
	Schools	11	16 (17 if BYU-Idaho counted)
	Fire Stations	2	3
	Police Stations	2	2 (1 sheriff office and 1 city police station)
	Emergency Operations Facility	1	1
High Potential Loss Facilities	Dams	2	1
	Hazardous Materials Sites	12	
	Military Installations	2 (National Guard and Reserve)	1 (National Guard)
	Nuclear Power Plants	0	0
Transportation Lifeline Systems	Highways	14 Miles	14 Miles
	Railways	849 Miles	849 Miles
	Light Rail	0	0
	Bus	1	0
	Airports	1	1
Utility Lifeline Systems⁴	Potable Water	38	41
	Wastewater	2	15 (12 Rexburg, 1 Sugar City, 1 Sewer Treatment Plant, and 1 Teton - Lift Station)
	Natural Gas	1	1
	Crude and Refined Oil	0	0
	Electric Power (providers)	3	3
	Communications (providers)	3	3

1.6 Risk Assessment Overview

The goal of mitigation is to reduce the future impacts of a hazard including loss of life, injury or disability, property damage, disruption to local and regional economies, and the expenditure of public and private funds for recovery. Sound mitigation must be based on a sound risk assessment. A risk assessment involves quantifying the potential loss resulting from a disaster by assessing the vulnerability of buildings, infrastructure, and people.

This assessment identifies the characteristics and potential consequences of a disaster, how much of the community could be affected by a disaster, and the impact on community assets. A risk assessment consists of three steps: 1) identify/describe hazards, 2) assess vulnerability, and 3) analyze risk.

Those that are addressed in disaster planning are generally categorized as natural, technological, or human-made. The FEMA website contains a thorough discussion of hazards in the section entitled [FEMA's Multi-Hazard Identification and Risk Assessment](#) (MHIRA). Some hazards are a threat to all geographic areas while others (e.g. tsunamis in coastal regions) are more limited in their extent. Studies were conducted to determine which hazards are of concern in Madison County. Hazards that have been identified as significant in this County and that will be considered in this plan are highlighted below.

Hazard Identification

To facilitate the planning process, the Core Planning Team reviewed pre-existing plans and data, including the [2008 Hazard Mitigation Plan](#). These efforts resulted in an expanded list of hazards for the 2019 Madison County HMP. Hazards include:

- **Weather:** Drought, Extreme Temperatures including Extreme Heat and Extreme Cold, Severe Winter Storm, Severe Thunderstorms (including Hail, Lightning, and Severe and Straight-Line Winds), and Tornado and High Winds
- **Flooding:** Flash Flood, River Flooding, and Dam Failure
- **Geologic:** Earthquake, Landslide, and Snow Avalanche
- **Other Natural Hazards:** Wildfire and Epidemic/Pandemic
- **Human-Made and Technological Hazards:** Structural including Structural Fire, Infrastructure Failure, and Utilities Failure (Power Failure), Nuclear Event, Hazardous Material Event, Riot/Demonstration/Civil Disorder, and Terrorism including Cyber Security

Major changes from the 2008 HMP include a significant increase in analysis for all hazards, expansion on thunderstorms and the correlation between thunderstorm, hail, lightning, and high and straight-line winds, expansion of structural hazards to include infrastructure and utility failure, updated pandemic diseases, expanding the civil disorder research to include locally-based hate groups and gangs, and the inclusion of cybersecurity.

In the [2018 Idaho Hazard Mitigation Plan](#), the two hazards that were ranked as "high impact hazards" were:

- **Flood**
- **Severe Storms/Winter**

Planning efforts associated with the development of the 2019 HMP identified the principal **hazards** to be:

- **Winter Weather including severe winter storms, heavy snow, blizzards, and freeze** - This hazard occurred most frequently of the natural hazards (298 events from 1950-2018) and NOAA data starting in the 1950s has reported almost \$1.3 million in damage as a direct result of this hazard.
- **Tornado and High winds** - While less frequently occurring, this hazard resulted in over \$5.1 million in damages, as reported by NOAA.
- **Flooding (flash - including heavy rain - and riverine)** - Flooding occurs less frequently than the above two events, however, damages for both types of flooding resulted in almost \$2.5 million in damages and one event (that qualified for USD funding support) caused a reported \$2 million in crop damages
- **Structural Failure (fire)** - Just the 2017 data shows over \$3 million in damages, which suggests significant damages in comparison to the natural hazards events that could be tracked by NOAA data back to 1950; however, structural fires are typically isolated to impacting one to a few buildings instead of County-wide impact.

Per FEMA's mandate to address all natural hazards, the following natural hazards were not included because these hazards do not directly impact the County. They are:

- Hurricane
- Sea Level Rise
- Storm Surge
- Tsunami
- Mudslides

Jurisdiction-specific Hazard Risks and Threats

[Appendix A. Mitigation Strategies & Actions](#): Madison County and participating jurisdictions document each participating jurisdiction's hazard risks and associated impacts. Only those hazards that represent a specific or unique risk to the municipality are included.

1.6.1 Land Use Planning and Disaster Mitigation Integration

This section of the Madison County Hazard Mitigation Plan (HMP) examines the relationship among the participating jurisdictions' Comprehensive Plan, County Environmental Resilience Plan, Transportation Plan, BYU-Idaho Emergency Management Plans, County Emergency Management Plans, Wildfire Plan, Land Use or Zoning Ordinances, and the HMP. Incorporating hazard mitigation practices into land-use planning is extremely important as future developments are planned and constructed. Through proper planning within the individual jurisdictions, risks to property owners can be reduced and future disaster-related economic losses can be avoided. Land Use and Mitigation Planning Integration are seen as critical components of the mitigation program in Madison County.

The Hazardous Area section of the County and jurisdictional Comprehensive Plans set forth the goal of carefully inventorying and assessing the hazards and then to examine them in relation to development decisions. The County Plan also states that it is the policy of the County to develop appropriate ordinances to address the hazards. With that goal in mind, existing ordinances should be reviewed and juxtaposed against the hazardous areas.

Suggested updates to the Comprehensive Plan include:

1. Develop codes to prohibit new development that would increase flooding and fire risk (e.g. green space).
2. Ensure irrigation and groundwater usage maintains a sustainable practice that will not interpret the natural environment and potentially increase flooding.
3. Update Hazards to reflect the ranking of hazards from the HMP.
4. Designate Wildland Urban Interface and wetlands areas as a special land use category.
5. Include update flood maps and Flood Insurance Rate Maps (FIRM).
6. Work with the Department of Transportation to conduct studies and implement cost-effective measures to reduce flooding on bridges and major roadways.

The following recommendations are made to revise, improve or develop new ordinances as follows:

1. Develop and adopt a Wildland Urban Interface Ordinance
2. Designate Wildland Urban Interface areas as a special land use category.
3. Adopt the International Building Code County wide, including all incorporated cities.

County mitigation ordinances primarily focus on fire safety mitigation. Future ordinances should include land use planning that focuses on flood and wind damage reduction. Additionally, severe weather can impact residents and businesses in the area and codes that support infrastructure that can withstand effects from these hazards should be considered.

The Environmental Resilience Plan is currently being developed. Coordination between the HMP and the Environmental Resilience Plan is extremely important. Ultimately, these plans should be utilized as resources to support hazard reduction land-use, transportation, and community planning.

1.6.2 Risk Assessment Methodology

Madison County recognizes that a community's All Hazard Risk Assessment is the fundamental building block of the four core functions of emergency management: mitigate, prepare, respond, and recover. In today's hazard environment, emergency management is the crux of solving the complex challenges that face communities during an emergency or following a disaster.

The Federal Emergency Management Agency (FEMA) defines mitigation as "the effort to reduce the loss of life and property by lessening the impact of disasters" (FEMA, 2018). FEMA furthers this definition by providing three key areas that need to happen before a disaster. These areas are analyzing risk, reducing risk, and insuring against risk. FEMA also asserts that disasters can happen at any time and in any place, which is an important reason why all communities need to be empowered to assess short and long-term risks. While assessing involves financial backing, the actual implementation of mitigation tactics involves the most significant financial barriers. Mitigation financial barriers must be reframed as investments and preventative measures to a much higher economic and human loss that could result from an unmitigated disaster (FEMA, 2018).

Mitigation should be viewed as a proactive solution to protect a community ahead of any threat of an emergency or disaster impact. Mitigation can provide whole communities with the tools to be resilient before and after a disaster. While mitigation tactics do require financial investment, both short-term for implementation and long-term for maintenance, investing in mitigation should ultimately lessen the financial burden on society as a whole. The Multi-Hazard Mitigation Council initially estimated that each dollar spent on mitigation saves society an average of four dollars, which equates to a 400% savings on disaster spending, which is a growing domestic fiscal burden. More recently, the Multi-Hazard Mitigation Council reported that every \$1 invested in mitigation building equates to \$11, thus an 1100% savings. Another study found that \$1 spent on hazard mitigation can save the nation \$6 in future disaster costs (NIBS, 2019).

Hazard Assessment Methodology

The objective of the risk methodology is to devise a process to compare and evaluate which hazards are the greatest threats to the County and where mitigation actions should be focused to provide the best value to County. The All-Hazard Risk Assessment describes, analyzes, and assesses the risks facing the County from natural and technological/manmade hazards. Natural hazards are those events that are a result of our surrounding environment, such as tornadoes and flooding. Technological hazards are events that are a result of the failure of infrastructure and systems that we have become dependent on for daily activities, such as transportation networks or utilities.

Disasters Are Not Isolated Events

Past disaster events, both natural and human-made, indicate that disasters cannot be viewed or solved as isolated instances. In other words, the rising number of disasters and ensuing damages, including human losses, can be considered to be "symptoms of broader and more basic problems." These problems stem from the intricate relationships society shares with both the natural and constructed environments.

According to Dr. Denis Mileti:

"Many disaster losses – rather than stemming from unexpected events – are the predictable result of interactions among three major systems: the physical environment, which includes hazardous events; the social and demographic characteristics of the communities that experience them; and the buildings, roads, bridges, and other components of the constructed environment".

Source: Mileti, Denis (1999). Disasters by Design. Joseph Henry Press: Washington, DC.

Dr. Mileti's findings demonstrate that these destructive events must be understood and assessed from a holistic point of view and that current and future solutions for reducing damages and human losses must acknowledge that disasters occur at the intersection of the physical environment, social community characteristics, and the constructed environment. While the escalating losses from disasters will continue to result, in part, from the continuing expansion of the built environment, it can also be attributed to the fact that "all these systems – and their interactions – are becoming more complex with each passing year."

Therefore, the County All Hazard Risk Assessment Update assumed that hazard events exacerbate pre-existing conditions of a community and that a community's hazard risk is a function of its vulnerability and potential hazard impact. To mitigate these risks and hazards, capacities, and capabilities of managing potential impacts are evaluated as well as a disaster's cascading effects on communities, residents, essential services, and critical assets. The figure below provides a general illustration of this relationship between the pre-existing conditions in a city (i.e., pre-disaster vulnerability and efforts to mitigate and build capabilities) and the potential impact from various hazards.

Although incorporating vulnerability, capability, and cascading impacts in a risk assessment are complex, it is imperative to include these relationships in the methodology to the best ability possible to ensure the usefulness of the outputs. Understanding these interdependent relationships can assist in operational, hazard, agency, and community planning.

Many of the hazards in the Risk Assessment do not pose a significant risk because of their low probability of occurring or minimal impact; however, these hazards are still addressed in this Plan. Hazards that were determined to not occur in Madison County, Idaho were removed from the Risk Assessment.

Community Vulnerability Risk and Resiliency (CVR2)

Each hazard is evaluated using the CVR2 process, which is based on the probability of a hazard occurring, the potential magnitude of the hazard, and potential impacts. The CVR2 hazard assessment also provides consideration to the community's efforts to mitigate and build capacity to manage each hazard threat. The CVR2 hazard risk analysis incorporates the outputs provided by the vulnerability and capability/capacity indices to provide an overall hazard risk score that can be prioritized. The following table identifies the indicators and measurements, describes why these are important, and presents the key used to evaluate each indicator.

Building off the theoretical finding that disasters are not isolated events, the CVR2 process analyzes a series of vulnerability indices to evaluate the different types of impacts that may be possible by the hazard. Categories are areas of potential vulnerability (for example, social vulnerability) and further evaluated based on a series of scientific indicators like special population types such as the elderly. Each indicator is assessed to provide a complete picture of the potential impact that each hazard poses on the community. The following table identifies the indicators and measurements, describes why these are important, and presents the key used to evaluate each indicator.

Table: Hazard Assessment

Indicators & Measurements	Description	Rating Key	
Hazard-Specific Frequency & Probability	Frequency of past occurrences and the probability of future incidents based on predictive modeling or scientific research.	Extreme	
		High	
		Medium	
		Low	
Hazard-Specific Magnitude & Scale	The potential magnitude of the hazard and scale or size of the hazard.	Extreme	
		High	
		Medium	
		Low	
Capability & Capacity	The community's ability and capacity to manage the hazard, such as floodplain management programs or anti-terrorism surveillance.	Very Capable	
		Capable	
		Somewhat Capable	
		Minimally Capable	
Mitigation Assessment	The community's efforts to mitigate the hazard, such as buying out flood-prone properties, building codes, etc.	Very Capable	
		Capable	
		Somewhat Capable	
		Minimally Capable	
Consequence & Impact Assessment	The potential severity of the impacts and consequences of the event. This assessment provides consideration to the Hazard Impact Analysis.	Extreme	
		High	
		Medium	
		Low	

Table: Hazard Impact Analysis

Categories and Indicators	Rating Key	Physical Vulnerabilities Hazard Impact Analysis								
<p>Physical Vulnerabilities Hazard Impact Analysis</p> <ul style="list-style-type: none">Critical InfrastructureKey ResourcesBuilding Stock	<p>The built environment provides the setting for human activity, ranging in scale from personal residential structures and buildings to neighborhoods and cities that often include supporting infrastructures, such as transportation networks, energy, and water systems. The CVR2's Physical Vulnerability Index (PVI) evaluates critical infrastructure, key resource assets, and building stock risk exposure to hazards using a series of indicators and measurements.</p>	<table><tr><td>Very Vulnerable</td><td></td></tr><tr><td>Vulnerable</td><td></td></tr><tr><td>Somewhat Vulnerable</td><td></td></tr><tr><td>Minimally Vulnerable</td><td></td></tr></table>	Very Vulnerable		Vulnerable		Somewhat Vulnerable		Minimally Vulnerable	
Very Vulnerable										
Vulnerable										
Somewhat Vulnerable										
Minimally Vulnerable										
<p>Social Vulnerabilities Index (SVI) Hazard Impact Analysis</p> <ul style="list-style-type: none">Special PopulationsCultural ConditionsSocio-Economic Conditions	<p>Social vulnerability can be broadly viewed as the characteristics of a person or group and their situation that influence their capacity to anticipate, cope with, resist and recover from the impact of a hazard or threat. Social vulnerability can also be looked at as the susceptibility of community groups (elderly, children, etc.) to the impacts of hazards, as well as their resiliency or ability to adequately recover from them. It should be noted that susceptibility is not only a function of demographic characteristics, but also more complex factors such as health care provision, social capital, and access to lifelines. The CVR2's Social Vulnerability Index (SVI) evaluates the hazard risk exposure of special population types, socio-economic conditions, and cultural conditions using a series of open-source data measurements.</p> <p>There are a number of potential special populations that may be used in the descriptions below including:</p> <ul style="list-style-type: none">Children: Those under 18 years oldDialysis Patients: Patients who are reliant on dialysis to surviveDisabled: Those who have a mental or cognitive disabilityElderly: Those over 65Low-Income/Poor: Those who do not make a living wage or are below the poverty lineNon-English speakersPet Owners: Those who live with and/or take care of animalsTransient: Tourists, commuters, and homelessUniversity Students: Those who attend a college or university, often between ages 18 & 23Vehicle Ownership: Those who do not have access to a vehicle	<table><tr><td>Very Vulnerable</td><td></td></tr><tr><td>Vulnerable</td><td></td></tr><tr><td>Somewhat Vulnerable</td><td></td></tr><tr><td>Minimally Vulnerable</td><td></td></tr></table>	Very Vulnerable		Vulnerable		Somewhat Vulnerable		Minimally Vulnerable	
Very Vulnerable										
Vulnerable										
Somewhat Vulnerable										
Minimally Vulnerable										
<p>Community Conditions Vulnerability Index (CVI) Hazard Impact Analysis</p> <ul style="list-style-type: none">Community OrganizationsEconomic ConditionsEnvironmental ConditionsGovernment ConditionsSpecial Properties	<p>Community-level indicators are measures of conditions that consider how the area may be impacted during a hazard event. A community is a complex system of many interconnected components. This assessment is not meant to capture this system in its entirety, but rather, to focus on specific categories of indicators. The CVR2's Community Conditions Vulnerability Index (CVI) focuses specifically on four broad categories (economic, environmental, community organizations, and governmental conditions), comprised of a series of evidence-based indicators and measurements of community vulnerability.</p>	<table><tr><td>Very Vulnerable</td><td></td></tr><tr><td>Vulnerable</td><td></td></tr><tr><td>Somewhat Vulnerable</td><td></td></tr><tr><td>Minimally Vulnerable</td><td></td></tr></table>	Very Vulnerable		Vulnerable		Somewhat Vulnerable		Minimally Vulnerable	
Very Vulnerable										
Vulnerable										
Somewhat Vulnerable										
Minimally Vulnerable										

The value of the CVR2 assessment is the ability to compare a wide variety of hazards and threats, from floods to acts of terrorism, using the same format for each hazard type. The scoring mechanism enables the community to identify areas of strength and weakness, as well as support the case for further mitigation and planning projects to build up the area's resilience.

Limitations

The analysis of hazards is complicated by a number of factors including laws, customs, ethics, values, attitudes, political preferences, complex infrastructures, and the built environment. The hazard analysis developed for the Plan should be considered an initial step to evaluate the community's hazards. A hazard analysis, however, does provide a wealth of valuable information that is essential for identifying goals, prioritizing actions, planning, and preparedness, and recovering and mitigating future hazards.

The assessment of data and identifying the risk to a community is not hard science. It is not possible to predict hazards or their impacts. Hazard analysis data and conclusions are not absolute. The perception of what constitutes a risk and a judgment of its impact can differ from individual to individual. The changing natural, built, or societal environments can have a significant effect on each hazard assessment. For this reason, it is essential to update this document periodically. A hazard risk assessment does provide a guide to evaluate Madison County's risks and guide the mission of protecting its residents and interests.

Hazard Risk Determination

The determination of the risks associated with each hazard was not based on empirical values. Instead, it is based on a function of the probability of the event occurring and its potential impact. This approach was necessary due to the complexities of a uniformed all-hazard approach and the numerous direct and indirect factors for a unique community like Madison County.

At the most fundamental level, both DHS and FEMA recognize that risk is equal to the frequency (and/or probability) multiplied by consequence ($R = F \times C$). More specifically, in order to have a certain level of risk, there must be a probability or likelihood for that event to occur. Likewise, if the event does happen, but there is no impact or consequence, the level of risk is negated or substantially reduced.

Determining the Probability

The likelihood, frequency, and/or probability of a hazard occurring in Madison County was established by assessing each hazard with the following factors, as described below. Actual data and/or predictive models and/or analyses were used in determining the likelihood/frequency/probability of the hazards. Local subject matter expertise was leveraged when data/analyses were insufficient and/or incomplete in describing the actual likelihood of a hazard. The frequency/probability score is meant to represent the probability or likelihood of a "significant or unusual" incident, but not necessarily the worst-case scenario. The decision to use "significant or unusual" incidents in determining probability was made to eliminate factoring recurrent and/or common hazard incidents that would bias the probability score for specific hazards, such as, but not limited to: severe thunderstorms, transportation incidents, etc. Furthermore, these recurrent and/or common hazard incidents would not necessarily pose a significant threat to the County, nor would they require additional capabilities beyond what is normal. This approach is consistent with the THIRA guidelines.

Frequency/Probability Factors: In determining frequency/probability, the tool assessed the following factors for each hazard.

- In general, how would you rate the probability of this hazard occurring in your jurisdiction?
- Since 1952 (past 60 years), how would you rate the frequency of this hazard occurring in your jurisdiction?
- On average, what do most predictive models indicate is the probability of this hazard occurring in your jurisdiction?
- How would you rate the frequency of events that have occurred within the jurisdictional boundaries of your jurisdiction in the last five years?

Scores were assigned based on the following measurements below. As described previously, actual data and/or predictive models and/or analyses, when available, were used in determining the best option. Local subject matter expertise was leveraged when data/analyses were insufficient and/or incomplete in describing the actual probability of a hazard:

- Unlikely/Not Probable at All/Not Frequent At All
 - Extremely rare and/or no documented history of significant occurrences or events; or
 - Significant events may occur every 100 or more years
- Possibly/Somewhat Probable/Somewhat Frequent
 - Rare significant occurrences with at least one to two documented or anecdotal historical events; or
 - Significant events may occur every 25-100 years
- Likely/Probable/Frequent
 - Occasional significant occurrences with at least three or more documented historic events; or
 - Significant events may occur every 5 to 25 years.
- Highly Likely/Very Probable/Very Frequent
 - Frequent events with a well-documented history of significant occurrences; or
 - Significant events may occur every 1 to 5 years.

Overall Frequency/Probability Scores: Once frequency/probability was determined for each hazard, one of four categories was assigned based on the corresponding score. The higher the number, the more probable the hazard is likely to occur in the County.

Table: Frequency/Probability Ranges

Very Probable/Very Frequent	Score: 75-100	
Probable/Frequent	Score: 50-74	
Somewhat Probable/Somewhat Frequent	Score: 25-49	
Not Probable at All/Not Frequent At All	Score: 0-24	

Determining the Consequence

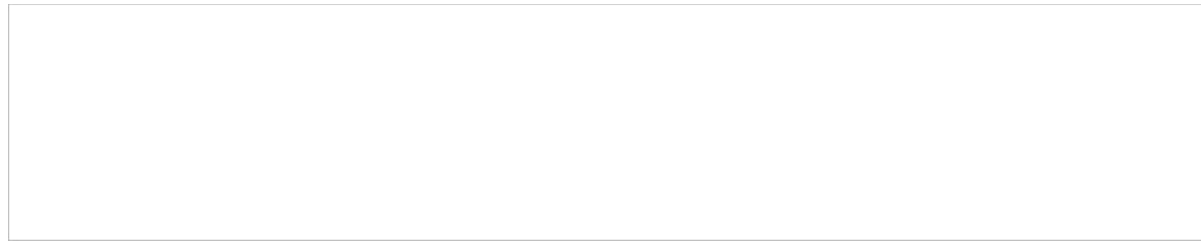
Whereas measuring the frequency/probability of a hazard is often straightforward, defining, and measuring the consequence is more complicated. At the most basic level, the consequence is an assessment of the potential impact(s) if the attack or hazard incident actually occurs. In this assessment, the result of an event (or the impact) will be interdependent on the following factors: vulnerabilities (i.e., social, physical, and community conditions), capabilities and capacities, mitigation, and the characteristics (i.e., magnitude, scale, etc.) of the hazard event or attack itself. Again, the frequency/probability of the hazard is not included in assessing the consequence because, without the event, there is no consequence or impact.

As stated previously, the process assumes that hazard events exacerbate pre-existing conditions of a community. To understand and capture the likely consequence of an event, one must not only understand the characteristics of the hazard (magnitude, scale, extent, etc.) but must also understand the features of the impacted community and its associated vulnerabilities and capabilities. The figure below provides a visual sample of how pre-existing community conditions were determined.

Sample of the Vulnerability Index Methodology and Process

The algebraic conceptual framework that drives the CVR2 tool is based on the overarching premise that the impacts of a disaster are a direct correlation to the pre-existing conditions and vulnerabilities of the community; and secondly, although risk exposure can be reduced, a community can never wholly eliminate disaster impacts by implementing mitigation projects or by building capabilities and capacities.

Risk Assessment Methodology and Formula



The algorithm above recognizes that the potential impact from a hazard is a function of the pre-existing vulnerabilities in a community. Additionally, the algorithm recognizes that although you can reduce your potential impact and vulnerability to hazards by increasing your capability and implementing mitigation, the vulnerability cannot be eliminated. Communities cannot achieve absolute resiliency to any hazard.

More specifically, the variable ***fV*** represents the numeric relationship that although there is a direct correlation between a community's vulnerability and potential impacts; the extent of the vulnerability exposure varies from hazard to hazard. Similarly, ***fX*** represents the numeric relationship that recognizes that capabilities, capacities, and ability to mitigate cannot eliminate a threat and, therefore, cannot be absolute. In simple terms, vulnerability, capability, and mitigation will never be more than 100% or less than 0% (both of which would be practically and theoretically impossible).

Finally, the algorithm recognizes that communities can have vulnerabilities, capabilities, capacities, and the ability to mitigate that are specific to the community and therefore, should be considered all hazards. This is represented in the ***fV1*** and ***fX1*** variables. An example of this would be a community's overall level of preparedness or trust in government. Additionally, communities may also have hazard-specific vulnerabilities or taken hazard-specific measures to mitigate or build capabilities to manage a specific hazard. This is represented by the ***fV2*** and ***fX2*** variables. An example of this would be a community participating in FEMA's National Flood Insurance Program.

1.6.3 Hazard Profiles

The following hazards have been profiled in this section:

- Weather Events: Drought, Extreme Temperatures (Extreme Heat and Extreme Cold), Severe Winter Weather, Severe Thunderstorms, and Tornado and High Winds
- Flooding: Flash Flooding, Riverine or Stream Flooding, and Dam Failure
- Geological Hazards: Earthquake, Landslide, and Snow Avalanche
- Other Natural Hazards: Wildfires and Epidemic/Pandemic
- Technological Hazards: Structural Failure, Nuclear Event, Hazardous Material Event, Riot/Demonstration/Civil Disorder, and Terrorism (Cyber Security Threat)

TABLE: CVR2 Community Hazard Risk Assessment Summary

Source: Further details on the CVR2 assessment are in the [Risk Assessment Methodology](#) section

	Risk ranking	Frequency and Probability	Potential Magnitude Scale	Physical Vulnerability Hazard Impact Rating	Social Vulnerability Hazard Impact Rating	Community Conditions Hazard Impact Rating	Overall Capability & Capacity	Mitigation	Hazard Consequences & Impact Score
Natural Hazards	33								
Avalanche	23	19	12	26	42	15	57	56	27
Dam Failure	24	13	33	46	56	44	65	56	45
Drought	39	50	24	26	42	32	71	67	31
Earthquake	22	13	9	26	42	32	71	67	31
Epidemic/Pandemic	34	31	26	34	48	38	59	67	37
Extreme Cold/Freeze	42	50	29	41	48	24	71	67	35
Extreme Heat	23	19	10	26	48	24	71	67	27
Flooding: Flash Flooding	38	31	49	55	48	36	71	56	46
Flooding: Riverine Flooding	48	50	41	55	56	42	71	67	47
Hailstorms	33	38	13	46	35	24	71	67	30
Landslides	20	13	30	41	27	29	71	67	32
Lightning	26	25	9	41	35	21	71	67	27
Severe Storms	44	50	33	41	48	40	71	89	38
Tornado	31	25	17	55	48	40	71	67	39
Wildland Fire	37	38	20	51	48	27	71	67	36
Winter Storms	51	63	39	51	52	29	72	67	42
Technological Hazards	24								
Hazardous Materials	33	31	20	41	48	32	71	67	35
Infrastructure Systems Failure	19	13	13	41	42	15	71	61	28
Nuclear Facility Accident	12	6	3	34	35	24	72	67	25
Structural (Utilities) Failure	19	13	9	41	42	29	71	67	30
Structural Fires	37	44	22	51	35	18	77	67	31
Human-Caused Hazards	19								
Civil Disturbance / Civil Unrest	15	6	3	46	42	34	59	33	34
Terrorism / Cyber Attack	23	19	7	26	42	29	65	39	29

Legend			
Score	1: Vulnerability Rating	2: Capability and Capacity Rating	3: Overall Risk Rating
0 – 25	Minimally Vulnerable	Minimally Capable	Low
26 – 50	Somewhat Vulnerable	Somewhat Capable	Medium
51 – 75	Vulnerable	Capable	High
76 - 100	Very Vulnerable	Very Capable	Extreme
N/A	Not Applicable/Unknown	Not Applicable/Unknown	Not Applicable/Unknown

TABLE: Summary of Extent of Hazards

Sources: NOAA and cited under each hazard

Hazard	Total Events from 1/1/1950-4/28/2019 (reported by NOAA*)	Number of Total Days with Event(s) from 1/1/1950-4/28/2019 (reported by NOAA)	Total Property Damage (reported by NOAA)	Damage Prior to 1950 (not reported by NOAA)	Total Crop** Damage (reported by NOAA)	Total Deaths (Direct) (reported by NOAA)	Total Injuries (Direct) (reported by NOAA)
Drought	4	2	0	0	0	0	0

Extreme Heat	6	4	0	0	0	0	0
Extreme Cold	34	20	0	0	0	0	0
Severe Winter Storm & Winter Weather	98	72	\$162,500	0	0	4	0
Winter Weather (including two categories above and avalanche, blizzard, heavy snow, and frost/freeze)	306	257	\$1,297,500	0	0	6	1
Lightning	3	2	\$20,000	0	0	0	0
Hail	20	14	0	0	0	0	0
Thunderstorm Winds	28	23	\$57,000	0	0	0	0
Tornado & High Wind (including Dust Storm and Funnel Cloud)	112	93	\$5,124,880	0	0	0	11
Flash Flood	11	8	\$977,000	0	\$2,000,000	0	0
Flood (Riverine)	18	18	\$1,481,000 (\$2,306,000 including 2 federally declared floods not listed by NOAA)	0	0	0	0
Dam Failure	Not Reported by NOAA - additional research shows 1 event (Teton Dam)	NA	NA	\$556,000,000	NA	NA	NA
Earthquake	Not Reported by NOAA - additional research shows no direct earthquake (UGS) and no significant damage caused in the County due to nearby earthquakes	NA	NA	NA	NA	NA	NA
Landslide/Mudslide	Not Reported by NOAA - additional research shows 0 events	NA	NA	NA	NA	NA	NA
Snow Avalanche	8	8	\$1,000	0	0	8	1
Wildfire	28	28	\$29,000	0	0	0	0
Pandemic	Not Reported by NOAA -- additional research shows 2 (West Nile Virus 2006-07 and Spanish Flu 1918)	NA	NA	NA	NA	NA	NA
Additional Hazards: Dense Fog	1	1	\$5,000	0	0	0	0
TOTAL NATURAL HAZARDS:	641	550	\$9,154,880 (\$11,460,880 when including additional 2 floods)	\$556,000,000	\$2,000,000	29	13
Human-made & Technological Hazards	Total Events	Number of Days with Event	Property Damage	Total Property Damage (prior to 1950)	Total Crop Damage	Total Deaths	Total Injuries
Structural Fire	682 calls (majority structural)	NA	\$3,192,500 (for 2017 alone)	NA	NA	NA	NA
Hazardous Material Event	1	1	\$498,652 (for one event - likely other minor events have occurred)	NA	NA	NA	NA

Nuclear Event	0	0	NA	NA	NA	NA	NA
Riot	0	0	NA	NA	NA	NA	NA
Terrorism	0	0	NA	NA	NA	NA	NA
Cybersecurity	Numerous	Numerous	Exact data has not been recorded or made publically accessible	NA	NA	NA	NA

* All NOAA Data is from 1950 or prior.

** Crop damage only includes what has been reported (typically reported to USDA for insurance or grant purposes)

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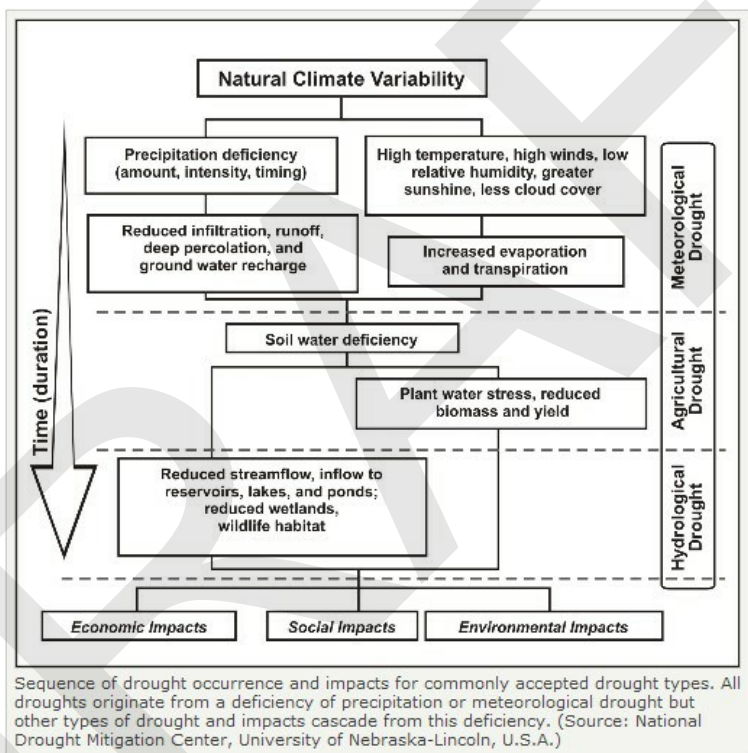
1.6.3.1.1 Drought

Description

Drought is an expected phase in the climactic cycle of almost any geographical region. Certainly, that is the case in the State of Idaho. Objective, quantitative definitions for drought exist but most authorities agree that, because of the many factors contributing to it and because its onset and relief are slow and indistinct, none are entirely satisfactory. According to the National Drought Mitigation Center, droughts originate from a deficiency of precipitation over an extended period of time, usually a season or more. This deficiency results in a water shortage for some activity, group, or environmental sector. What is clear is that a condition perceived as drought in a given location is the result of a significant decrease in water supply relative to what is normal in that area. It should be noted that water supply is not only controlled by precipitation (amount, frequency, and intensity), but also by other factors including evaporation (which is increased by higher than normal heat and winds), transpiration, and human use.

There are several common types of droughts including meteorological, hydrological, agricultural, and socioeconomic. The following figure describes the sequence of drought occurrence and impacts of drought types.

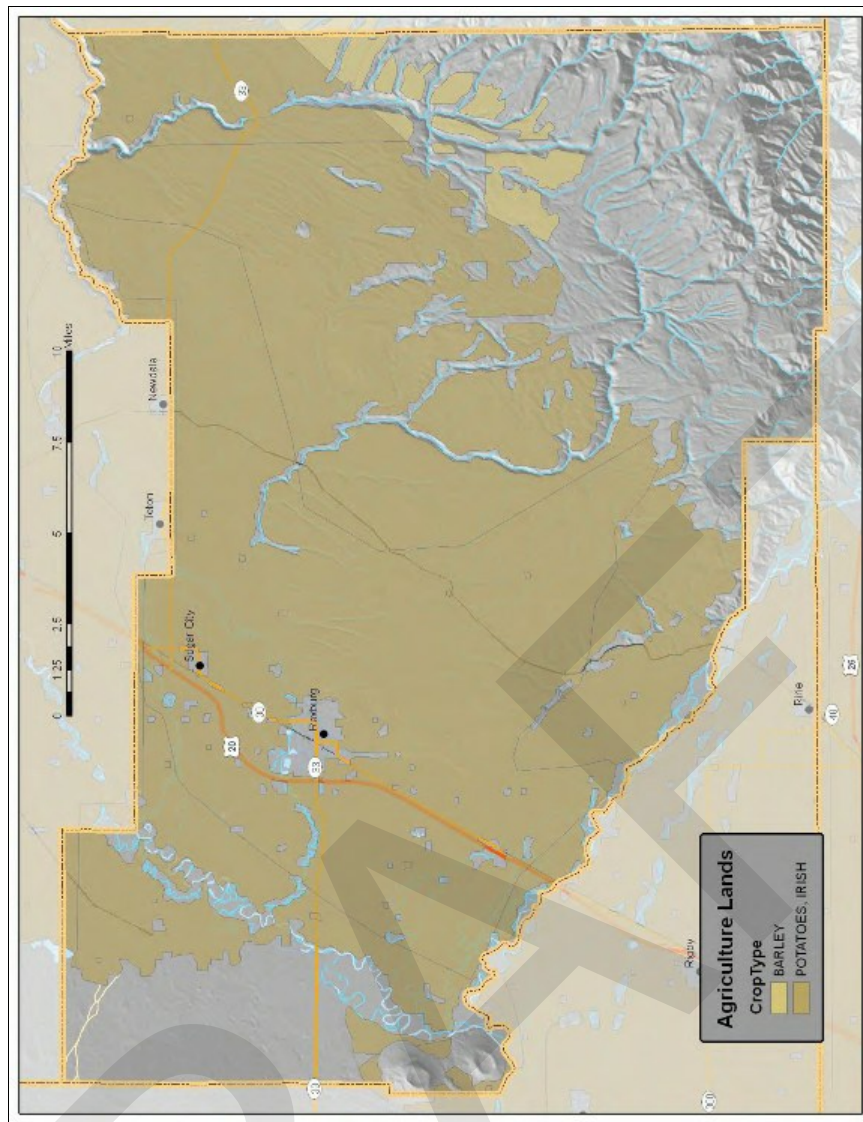
- **Meteorological:** Defined by the degree of dryness (as compared to an average) and the duration of the dry period. These are region-specific and only appropriate for regions characterized by year-round precipitation.
- **Hydrological:** Associated with the effects of periods of precipitation shortfalls (including snow) on the surface or subsurface water supply, e.g. streamflow, reservoir, and lake levels, and groundwater. Impacts of hydrological droughts do not emerge as quickly as meteorological and agricultural droughts. For example, deficiency of reservoir levels may not affect hydroelectric power production or recreational uses for many months.
- **Agricultural:** Links characteristics of meteorological or hydrological drought to agricultural impacts. An agricultural drought accounts for the variable susceptibility of crops during different stages of crop development from emergence to maturity.
- **Socioeconomic:** Links the supply and demand of some economic good, e.g. water, forage, food grains, and fish, with elements of meteorological, hydrological, or agricultural droughts. This type of drought occurs when demand for an economic good exceeds supply as a result of weather-related shortfall in water supply.



Hazard Extent

Although droughts can be widespread or localized events, the figure below indicates that most drought events impact 80% - 100% of the County, regardless of severity. Droughts will continue to occur within Madison County in the long-term, especially considering the possible increase in drought occurrences that the State has stated it foresees ([Idaho HMP Chapter 3.5](#)).

FIGURE: Agricultural Lands



Historical Frequencies

Drought in Madison County reported by [NCDC - NOAA](#):

- 4 drought events (2001 and 2002 - both events occurred in 2 regions) were reported between 01/01/1950 and 04/28/2019 (25320 days)
- A more detailed spreadsheet can be accessed through [this link](#).

TABLE: Drought in Madison County, Idaho from 1950-2019

Source: www.ncdc.noaa.gov/stormevents

Number of County/Zone areas affected:	2
Number of Days with Event	2
Number of Days with Event and Death	0
Number of Days with Event and Death or Injury	0
Number of Days with Event and Property Damage	0
Number of Days with Event and Crop Damage	0
Number of Event Types reported	1

The Idaho Department of Water Resources reports that meteorological drought conditions (a period of low precipitation) existed in the State approximately 30% of the time during the period 1931-1982. The most prolonged drought for most of the State of Idaho lasted 11 years (1929-1941), despite greater than average stream flows in 1932 and 1938. Other principal droughts in Idaho, indicated by streamflow records, occurred during 1944-45, 1959-61, 1977, and 1987-92. In 1977, the worst single year on record, a severe water shortage occurred throughout Idaho and the West. As a result, a federal declaration was issued for the State of Idaho and counties neighboring Fremont County. Streamflows remained below normal from 1979-1981. In addition, a multi-year drought occurred in the County from 2000-2006, with the most severe drought occurring from 2003 to 2005. A time of mostly moderate drought soon followed from 2007-2009. A longer, moderate drought occurred from 2012-2017, prompting a disaster declaration in 2013.

In addition to the NCDC-NOAA Data, the Idaho Department of Water Resources (IDWR) reported the following Drought Emergency Declarations were issued for Madison County since 2001:

- June 8, 2001
- June 12, 2002
- June 2, 2003
- May 20, 2004
- April 15, 2005
- June 29, 2007
- July 22, 2013

The figure below illustrates the drought conditions for Madison County using the U.S. Drought Monitor and covers the years 2000 to the present. It appears that, although a minimum of moderate drought conditions has persisted over the majority of the last 20 years, the County is in the middle of a trend towards slightly less frequent and intense drought periods for the time being. However, the State of Idaho 2018 Hazard Mitigation plan states that "Care should be taken to understand that drought conditions do naturally vary between different seasons, but the data does seem to point towards a possible pattern of increased drought occurrences."

FIGURE: USDM Drought Trends for Madison County
Source: <https://droughtmonitor.unl.edu/Data/Timeseries.aspx>

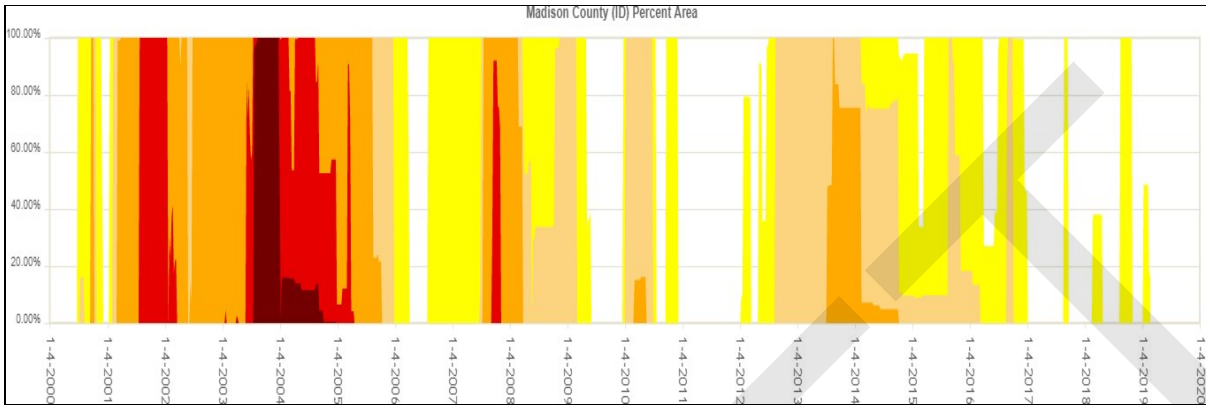


TABLE: Drought Category
Source: <https://droughtmonitor.unl.edu/AboutUSDM/AbouttheData/DroughtClassification.aspx>

Category	Description	Possible Impacts	Ranges				
			Palmer Drought Severity Index (PDSI)	CPC Soil Moisture Model (Percentiles)	USGS Weekly Streamflow (Percentiles)	Standardized Precipitation Index (SPI)	Objective Drought Indicator Blends (Percentiles)
D0	Abnormally Dry	Going into drought: <ul style="list-style-type: none">short-term dryness slowing planting, growth of crops or pastures Coming out of drought: <ul style="list-style-type: none">some lingering water deficitspastures or crops not fully recovered	-1.0 to -1.9	21 to 30	21 to 30	-0.5 to -0.7	21 to 30
D1	Moderate Drought	<ul style="list-style-type: none">Some damage to crops, pasturesStreams, reservoirs, or wells low, some water shortages developing or imminentVoluntary water-use restrictions requested	-2.0 to -2.9	11 to 20	11 to 20	-0.8 to -1.2	11 to 20
D2	Severe Drought	<ul style="list-style-type: none">Crop or pasture losses likelyWater shortages commonWater restrictions imposed	-3.0 to -3.9	6 to 10	6 to 10	-1.3 to -1.5	6 to 10
D3	Extreme Drought	<ul style="list-style-type: none">Major crop/pasture lossesWidespread water shortages or restrictions	-4.0 to -4.9	3 to 5	3 to 5	-1.6 to -1.9	3 to 5
D4	Exceptional Drought	<ul style="list-style-type: none">Exceptional and widespread crop/pasture lossesShortages of water in reservoirs, streams, and wells creating water emergencies	-5.0 or less	0 to 2	0 to 2	-2.0 or less	0 to 2

According to the 2018 State of Idaho Mitigation Plan, in addition to FEMA and state disaster declarations, Madison County has been included in agricultural-related disasters, which are common in as many as two-thirds of all United States Counties.

TABLE: USDA Secretarial Disasters in Madison County, 2012-2017

County	2012	2013	2014	2015	2016	2017	6-Year Total
Madison	1	2	4	2	0	0	9

Probability

Based on the [Community Vulnerability Risk and Resiliency \(CVR2\)](#), this hazard is considered to be "Somewhat Probable/Somewhat Frequent" because significant occurrences of this hazard have happened on occasion (even though isolated or low impact events may occur with more regularity).

Loss Estimates

Drought is agriculture's most expensive, frequent, and widespread form of a natural disaster. It produces a complex web of impacts that spans many sectors of the economy and reaches well beyond the area experiencing physical drought. This complexity exists because water is integral to our ability to produce goods and provide services of all kinds. For example, reduced income for farmers has a ripple effect. Retailers and others who provide goods and services to farmers face reduced business. Hydropower production may also be curtailed significantly. This leads to unemployment, increased credit risk for financial institutions, capital shortfalls, and loss of tax revenue for local, state, and the federal government. Prices for food, energy, and other products increase as supplies are reduced. In some cases, local shortages of certain goods result in the need to import these goods from outside the stricken region. Less discretionary income affects the recreation and tourism industries. An increase in crime may also develop if unrest grows within the community.

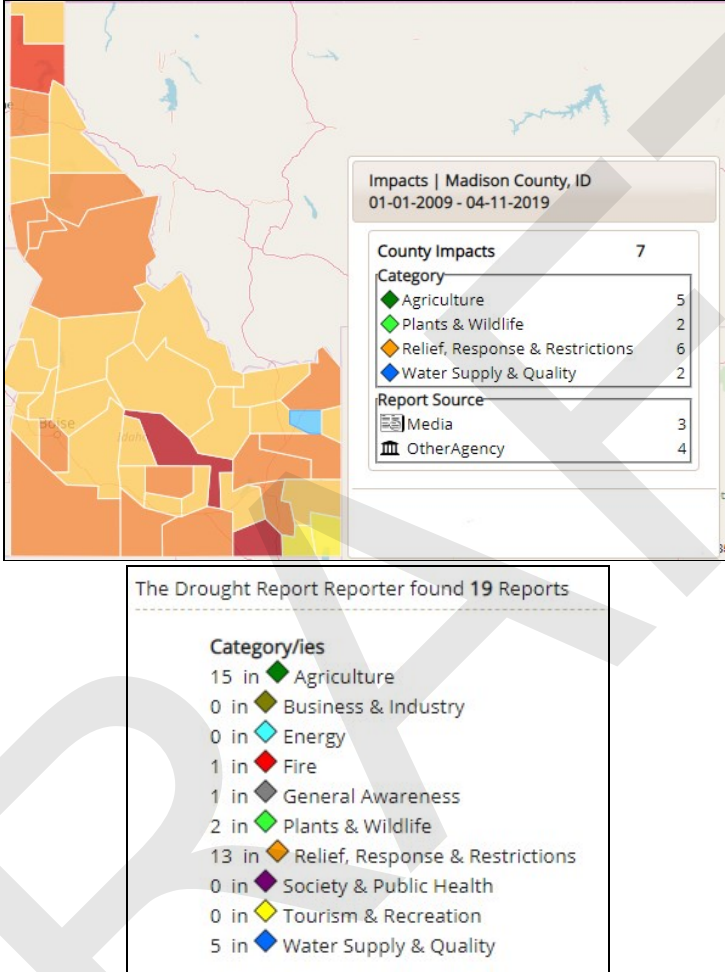
Because the web of impacts is so diffuse, it is very difficult to come up with total financial estimates of damages. Most likely, total damages from serious drought events would fall somewhere in the range of hundreds of thousands of dollars. Because water is non-replaceable as an essential resource for most organisms and many sectors of the economy, losses due to water shortage caused by drought are likely to be repetitive.

Vulnerability Analysis

Of the 11 most important aquifers in Idaho, in terms of human uses, Madison County lies within the boundaries of the Snake River Plain, which was ranked the second most vulnerable aquifer within the State.

The National Drought Mitigation Center's (NDMC) website contains the Drought Impact Reporter, which compiles and categorizes impacts of reported droughts. As seen in the figures below, from 2009 through the beginning of 2019, Madison County had 19 drought reports, 7 of which NDMC classified as impacts because they caused an observable loss or change at a specific place and time.

FIGURE: Droughts from 2009-2019 in Madison County
Source: <https://droughtreporter.unl.edu/map/>; <https://droughtreporter.unl.edu/help/dir/impactsandreports.aspx>



Impact on County Residents

Few, if any, serious injuries or deaths are expected as a direct result of drought. Possible loss of human life from a drought event is often largely due to secondary effects such as heat, fire, and other health-related problems such as increased pollutant concentrations in surface water. For most, there are months of warning lead time for serious drought events as well. Any residents working in or directly depending on the agriculture sector of the local economy may be impacted severely, however.

Impact on Essential Facilities, Critical Infrastructure, & Other Property

All essential facilities are vulnerable to minor damages from drought, as they will encounter many of the same impacts as any other building within the jurisdiction. These impacts include water shortages, fires as a result of drought conditions, and inhabitants in need of medical care from the heat and dry weather. No structural damage to existing building stock is expected due to drought, however. Critical infrastructure will be minimally impacted by drought, as most impacts, if any, would be secondary in nature.

Impact on Operations

Most first responder operations should experience relatively little interruption during a drought event. Medical facilities may experience an increase in residents in need of medical care from the heat and dry weather, but this would only be true in extreme cases. Should a severe, prolonged drought event occur, firefighting efforts in urban or suburban areas may become more difficult, as using other chemicals or methods instead of water are not always appropriate.

Impact on the Environment

In addition to obvious losses in yields in crop and livestock production, drought is associated with increases in insect infestations, plant disease, and wind erosion. Droughts also bring increased problems with insects and diseases to forests and reduce growth. Reduced water levels during droughts lead to increased livestock and wildlife mortality rates, including potentially extensive damage to wildlife and fish habitats. Salmon populations in Idaho, for example, have been especially devastated by drought conditions in recent years.

Relationships to Other Hazards

The incidence of forest and range fires increases substantially during extended droughts, which in turn, places both human and wildlife populations at higher levels of risk.

Drought Hazard Evaluation and Impact/Consequence Assessment

Frequency & Probability ¹	Somewhat Vulnerable - 39		
Potential Magnitude and Scale ¹	Somewhat Vulnerable - 50		
Physical Vulnerability Hazard Impact ¹	Minimally Vulnerable - 24		
Social Vulnerability Hazard Impact ¹	Somewhat Vulnerable - 26		
Community Conditions Hazard Impact ¹	Somewhat Vulnerable - 42		
Overall Capability and Capacity ²	Somewhat Vulnerable - 32		
Mitigation ²	Capable - 71		
Hazard Consequence & Impact Score ¹	Capable - 67		
Overall Risk Rating ³	Medium - 31		
Legend			
Score	1: Vulnerability Rating	2: Capability and Capacity Rating	3: Overall Risk Rating
0 – 25	Minimally Vulnerable	Minimally Capable	Low
26 – 50	Somewhat Vulnerable	Somewhat Capable	Medium
51 – 75	Vulnerable	Capable	High
76 - 100	Very Vulnerable	Very Capable	Extreme
N/A	Not Applicable/Unknown	Not Applicable/Unknown	Not Applicable/Unknown

1.6.3.1.2 Extreme Temperatures

Extreme temperatures — both hot and cold — can have a significant impact on human health and safety, commercial businesses, agriculture, and primary and secondary effects on infrastructure (e.g. burst pipes, power failures, etc.) Weather conditions described as extreme heat or cold vary across different areas of the country, based on the range of average temperatures within the region.

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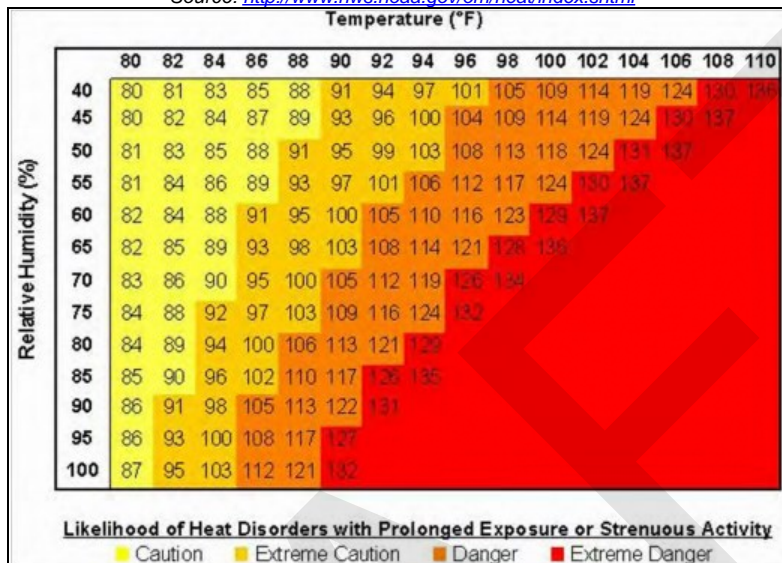
1.6.3.1.2.1 Extreme Heat

Description

The term extreme heat, sometimes called "heatwave," is to some extent a relative one describing a period when weather conditions include temperatures and humidity significantly higher than those usual for a particular geographic area. The National Weather Service (NWS) issues alerts to the public based on its Heat Index (HI) which takes both temperature and humidity into account (see Figure below). The NWS will initiate alert procedures when the HI is expected to exceed 105°- 110°F (depending on local climate) for at least two consecutive days. The effects of extreme heat are often exacerbated in urban areas due to the heat island effect and because stagnant atmospheric conditions may trap pollutants. Extreme heat conditions are not common to Idaho where, in general, humidity is low and weather patterns variable.

FIGURE: National Weather Service Heat Index Chart

Source: <http://www.nws.noaa.gov/om/heat/index.shtml>



Hazard Extent

Because excessive heat events are regional in nature, all areas of the County are vulnerable to this hazard. As would be expected, excessive heat events are most likely to occur during the Summer months of the year.

Historical Frequencies

Heat and Extreme Heat in Madison County reported by NCDC - NOAA:

- 6 extreme heat and hot weather events were reported between 01/01/1950 and 04/28/2019 (25320 days) occurring in 2002 (2 events on the same day in different regions), 2003 (2 events on the same day in different regions), and in 2013 (2 different days).
- In 2002, a heatwave encompassed all of southeastern Idaho from July 10th through the 15th. Several records were set. Pocatello set an all-time record of consecutive days over 100 degrees with 4 from the 11th through the 14th and also set daily high-temperature records from the 11th through the 13th.
- On July 18, 2013, an infant girl died of heat-related causes after being left in a vehicle. This is the only death recorded in Madison County due to heat or excessive heat, according to NCDC data.
- A more detailed spreadsheet can be accessed through [this link](#).

TABLE: Heat and Excessive Heat Events in Madison County, Idaho from 1950-2019

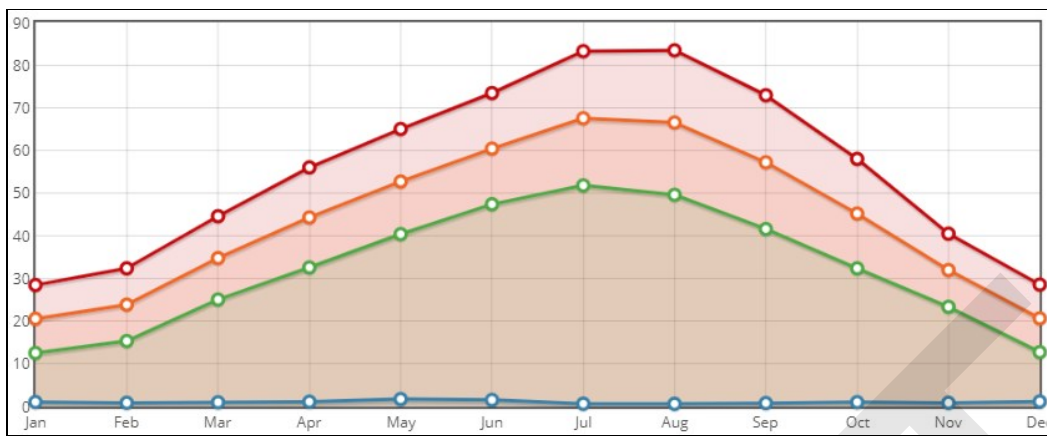
Source: www.ncdc.noaa.gov/stormevents

Number of County/Zone areas affected:	2
Number of Days with Event	4
Number of Days with Event and Death	1
Number of Days with Event and Injury	1
Number of Days with Event and Property Damage	0
Number of Days with Event and Crop Damage	0
Number of Event Types reported	1

The Figure below shows the average temperatures recorded at Rexburg/BYU Idaho from 1981-2010. The record high temperature for Rexburg is 102 degrees F° while the record high temperature for Sugar City is 97 degrees F°.

FIGURE: Rexburg/BYU Idaho, Temperatures (1981-2010)

Source: <https://www.ncdc.noaa.gov/cdo-web/datatools/normals>



MONTH	PRECIP (IN)	MIN TMP (°F)	AVG TMP (°F)	MAX TMP (°F)
01	1.13	12.6	20.6	28.5
02	0.95	15.4	23.9	32.4
03	1.06	25.1	34.8	44.6
04	1.19	32.6	44.3	56.0
05	1.82	40.4	52.7	65.0
06	1.61	47.4	60.4	73.4
07	0.73	51.8	67.5	83.2
08	0.71	49.6	66.5	83.4
09	0.88	41.6	57.2	72.9
10	1.09	32.4	45.2	58.0
11	0.95	23.4	32.0	40.5
12	1.24	12.8	20.7	28.6

Probability

Based on the [Community Vulnerability Risk and Resiliency \(CVR2\)](#), this hazard is considered to be “Not Probable at All/Not Frequent At All”, because this hazard was determined to be extremely rare with little to no documented history of significant occurrences or events. While it is possible that low impact events may occur on occasion, the hazard’s overall impact to the County and participating jurisdictions would be very minor.

Although extreme heat events have not been extremely common in Madison County, such events will continue to be a possibility, especially when considered in light of current climate change trends or possible drought conditions.

Loss Estimates

Extreme heat places high demands on electrical power supplies that can lead to blackouts or brownouts. Economic impacts result from such factors as increased energy prices, loss of business as people avoid leaving their homes to avoid the heat, and agricultural losses. The magnitude of these and other, more indirect impacts is, again, difficult to assess. However, severe heatwaves have been estimated to be in the billions to hundreds of billions of dollars.

Vulnerability Analysis

Impact to County Residents

The primary impact of extreme heat is on human health, causing such disorders as sunstroke, heat exhaustion, and heat cramps. Particularly susceptible resident populations are the elderly, small children, and persons with chronic illnesses. There are also undoubtedly indirect and chronic health effects from extreme heat, the magnitude of which are difficult or impossible to estimate. As of 2017, approximately 6.7% of Madison County residents were 65 or older and 9.9% was 5 or under. Of the population under 65 years of age, from 2013-2017, 5.3% had some form of disability ([US Census](#)).

Impact to Essential Facilities, Critical Infrastructure, & Other Property

During an extreme heat event, it is likely that local hospitals would be vulnerable due to increasing cases of heat stroke and heat exhaustion and other extreme temperature health-related illness cases. Extreme heat places high demands on electrical power supplies that can lead to blackouts or brownouts. Local utility companies would be essential for providing enough resources to supply the increased demand for power (increased demand for air conditioning). No existing buildings are exposed to damage due to extreme heat.

Impact to Operations

Extreme heat can impact first responders in the same ways that it impacts other residents. Extreme heat events are usually countywide, so any impacts to the population would likely need to be addressed by first responders throughout the county. Provided that proper precautions are in place, this hazard is unlikely to significantly hinder normal emergency operations. One exception could potentially be hospitals who encounter a sudden spike in heat event related to medical cases.

Impact to Environment

Extreme heat is often accompanied by drought and can have hazardous effects on livestock, agricultural crops, and energy demands and is associated with wildfires.

Relationships to Other Hazards

Besides direct health risks to humans and livestock, excessive heat can also cause an increased risk for wildfires or power outages - both of which can negatively impact Madison County's residents, infrastructure, and economy.

Extreme Heat Hazard Evaluation and Impact/Consequence Assessment

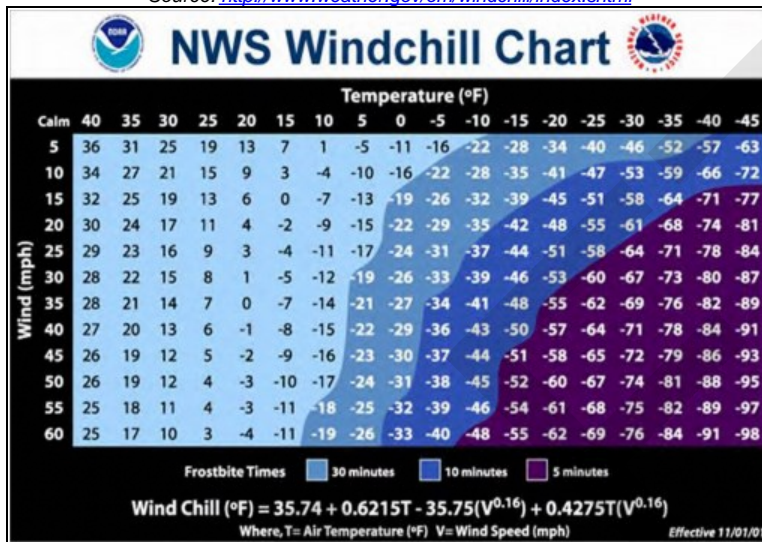
Frequency & Probability ¹	Minimally Vulnerable - 19		
Potential Magnitude and Scale ¹	Minimally Vulnerable - 10		
Physical Vulnerability Hazard Impact ¹	Somewhat Vulnerable - 26		
Social Vulnerability Hazard Impact ¹	Somewhat Vulnerable - 48		
Community Conditions Hazard Impact ¹	Minimally Vulnerable - 24		
Overall Capability and Capacity ²	Capable - 71		
Mitigation ²	Capable - 67		
Hazard Consequence & Impact Score ¹	Somewhat Vulnerable - 67		
Overall Risk Rating ³	Low - 23		
Legend			
Score	1: Vulnerability Rating	2: Capability and Capacity Rating	3: Overall Risk Rating
0 – 25	Minimally Vulnerable	Minimally Capable	Low
26 – 50	Somewhat Vulnerable	Somewhat Capable	Medium
51 – 75	Vulnerable	Capable	High
76 - 100	Very Vulnerable	Very Capable	Extreme
N/A	Not Applicable/Unknown	Not Applicable/Unknown	Not Applicable/Unknown

1.6.3.1.2.2 Extreme Cold

Description

Extreme cold is another of the terms describing a hazard that must be defined relative to what is considered normal in a given locale. What might be considered extreme cold varies considerably in the State of Idaho where normal winter temperatures in the southwest are appreciably more moderate than those in the northwest and far north. Very cold temperatures become a particular hazard when accompanied by winds of 10 mph or greater. The NWS has developed a formula for calculating wind chill based on temperature and wind speed (see figure below) and in this region, issues wind chill advisories when the wind chill temperature are predicted to be -10°F or less with winds of 10 mph or higher for one hour or more. Wind chill warnings are issued when wind chill temperatures will be -20°F or less with winds of 10 mph or higher for one hour or more. As with extreme heat, extreme cold is of greatest concern when the condition persists for an extended period of time.

FIGURE: National Weather Service Windchill Chart
Source: <http://www.weather.gov/om/windchill/index.shtml>



Each National Weather Service Forecast Office may issue the following wind chill-related products as conditions warrant:

- **Wind Chill Watch:** Issued when there is a chance that wind chill temperatures will decrease to at least 24° F below zero in the next 24-48 hours.
- **Wind Chill Advisory:** Issued when the wind chill could be life-threatening if action is not taken. The criteria for this advisory are expected wind chill readings of 15° F to 24° F below zero.
- **Wind Chill Warning:** Issued when wind chill readings are life-threatening. Wind chill readings of 25° F below zero or lower are expected.

Hazard Extent

Because extreme cold events are regional in nature, all areas of the County are vulnerable to the risk of excessive cold. Extreme cold events typically occur in the winter months. The full extent of any extreme cold varies in terms of the wind chill temperature and duration of the event.

Historical Frequencies

Cold/Wind Chill and Extreme Cold/Wind Chill in Madison County reported by [NCDC - NOAA](#):

- 34 cold and extreme cold weather events were reported between 01/01/1950 and 04/28/2019 (25320 days).
- While no crop damage was reported, one event highlighted that roughly 50% of the sugar beets' initial planting was wiped out.
- Multiple events noted that multi-day school closures occurred due to the weather.
- From 2002 to 2017, events happened almost every year.
- An arctic cold front pushed into southeast Idaho for much of the early months of 2007. Wind chill readings dropped to -20°F by 1 am on the January 12th with Blackfoot reporting -30 at 7 am on the 12th. School districts in Blackfoot, Snake River and Firth also closed due to the cold wind chill readings on the 12th.
 - "Extreme Cold/Wind Chill" events like the one above have been repeated several times in the last several years (2008, 2009, 2010, 2011, 2013, 2014, & 2017), with wind chill routinely reaching lows at or around -35° F and closing schools several times.
- A more detailed spreadsheet can be accessed through [this link](#).

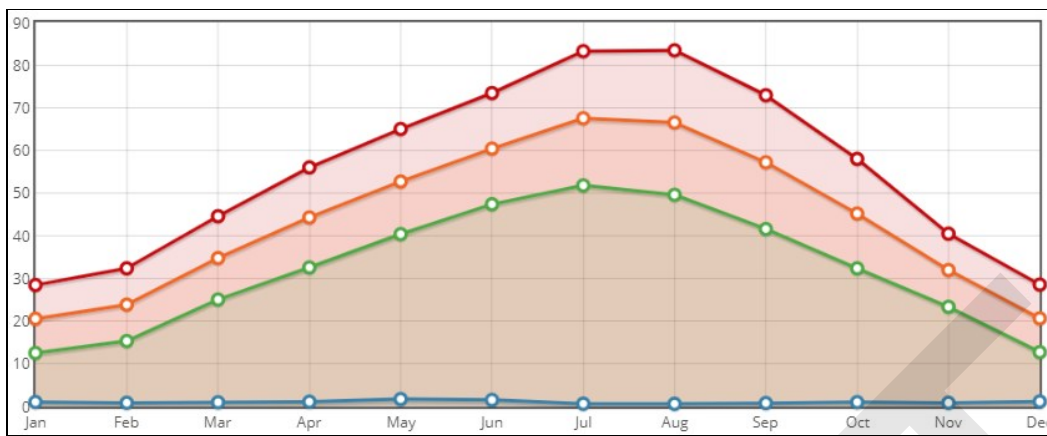
TABLE: Cold and Extreme Cold (Wind Chill) Events in Madison County, Idaho from 1950-2019

Source: www.ncdc.noaa.gov/stormevents

Number of County/Zone areas affected:	2
Number of Days with Event	20
Number of Days with Event and Death	0
Number of Days with Event and Death or Injury	0
Number of Days with Event and Property Damage	0
Number of Days with Event and Crop Damage	0
Number of Event Types reported	2

The Figure below shows the average temperatures recorded at Rexburg/BYU Idaho from 1981-2010. The record low for Sugar City is -39°F on Dec 5, 1974. The record low for Rexburg is -36°F on Feb 1, 1985.

Figure: Rexburg/BYU Idaho, Temperatures (1981-2010)
Source: <https://www.ncdc.noaa.gov/cdo-web/datatools/normals>



MONTH	PRECIP (IN)	MIN TMP (°F)	AVG TMP (°F)	MAX TMP (°F)
01	1.13	12.6	20.6	28.5
02	0.95	15.4	23.9	32.4
03	1.06	25.1	34.8	44.6
04	1.19	32.6	44.3	56.0
05	1.82	40.4	52.7	65.0
06	1.61	47.4	60.4	73.4
07	0.73	51.8	67.5	83.2
08	0.71	49.6	66.5	83.4
09	0.88	41.6	57.2	72.9
10	1.09	32.4	45.2	58.0
11	0.95	23.4	32.0	40.5
12	1.24	12.8	20.7	28.6

Probability

Based on the [Community Vulnerability Risk and Resiliency \(CVR2\)](#), this hazard is considered to be "Somewhat Probable/Somewhat Frequent" because significant occurrences of this hazard have happened on occasion (even though isolated or low impact events may occur with more regularity). This hazard ranks to fourth highest (based on risk) out of all hazards that impact the County.

Loss Estimates

Extreme cold may cause loss of wildlife and vegetation and kill livestock and other domestic animals. Economic loss may result from flooding due to burst pipes, large demands on energy resources, and diminished business activity. In addition, river flooding may take place as a result of the formation of ice jams. No damage has been recorded in Madison County due to "Cold/Wind Chill" or "Extreme Cold/Wind Chill" through 2018 according to NCDC data, however, it is highly likely that damages have occurred that have simply not been recorded.

Vulnerability Analysis

Impact to County Residents

Extreme cold exposure can lead to serious health problems for Madison County residents. These include hypothermia, cold stress, and frostbite or freezing of extremities. Those who are seniors, young children, homeless, or who live in poorly insulated housing are at a greater risk to the effects of extreme cold. Extreme cold can also cause residential pipelines to crack, causing flooding. During such events, vehicles can often fail to start or run properly as well. As of 2017, approximately 6.7% of Madison County residents were 65 or older and 9.9% was 5 or under. Of the population under 65 years of age, from 2013-2017, 5.3% had some form of disability ([US Census](#)). During such events, vehicles can often fail to start or run properly as well.

Impact to Essential Facilities, Critical Infrastructure, & Other Property

During an extreme cold event, hospitals and clinics would likely see an increase in hypothermia, frostbite and other cold-related illnesses. Schools and transportation services may be closed due to safety concerns. Nursing homes, homeless shelters, and other vulnerable populations would need to have the resources available to ensure the safety of the residents. No existing buildings are exposed to major damage due to extreme cold, however, water mains, household pipes, and fire sprinkler lines are at risk of freezing and rupture. Local distribution companies would also be essential in repairing lines and providing enough resources to supply the increased demand for heat.

Impact to Operations

Extreme cold can impact first responders in the same ways that it impacts other residents. Extreme cold events are usually countywide, so any impacts to the population would likely need to be addressed by local and regional first responders throughout the County. Provided that proper precautions are in place, this hazard is unlikely to significantly hinder normal emergency operations. One exception would likely be the hospitals that encounter a sudden spike in cold event-related medical cases. Bus systems may also be forced to close down because it is too cold for people to be outdoors.

Impact to Environment

Rapid freezing of lakes or ponds can damage aquatic life populations short term. Additionally, crops and livestock have the potential to be heavily impacted by sudden, extreme cold events.

Relationships to Other Hazards

Besides direct health risks to humans and livestock, extreme cold events may cause loss of electricity or even river flooding due to the formation of ice jams. Madison County also experiences significant straight line wind with extreme cold exacerbating effects on livestock and human.

Extreme Cold Hazard Evaluation and Impact/Consequence Assessment

Frequency & Probability ¹	Somewhat Vulnerable - 50
Potential Magnitude and Scale ¹	Somewhat Vulnerable - 29
Physical Vulnerability Hazard Impact ¹	Somewhat Vulnerable - 41
Social Vulnerability Hazard Impact ¹	Somewhat Vulnerable - 48
Community Conditions Hazard Impact ¹	Minimally Vulnerable - 24
Overall Capability and Capacity ²	Capable - 71
Mitigation ²	Capable - 67
Hazard Consequence & Impact Score ¹	Somewhat Vulnerable - 35
Overall Risk Rating ³	Medium - 42

Legend			
Score	1: Vulnerability Rating	2: Capability and Capacity Rating	3: Overall Risk Rating
0 – 25	Minimally Vulnerable	Minimally Capable	Low
26 – 50	Somewhat Vulnerable	Somewhat Capable	Medium
51 – 75	Vulnerable	Capable	High
76 - 100	Very Vulnerable	Very Capable	Extreme
N/A	Not Applicable/Unknown	Not Applicable/Unknown	Not Applicable/Unknown

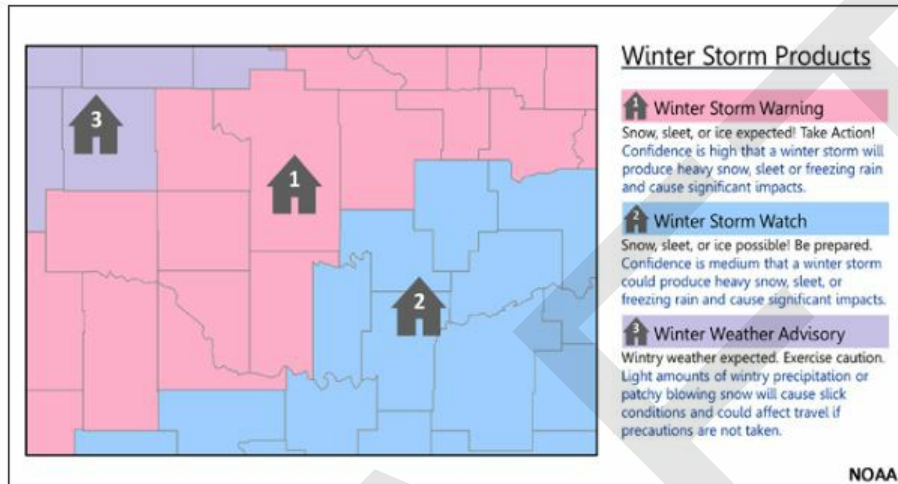
1.6.3.1.3 Severe Winter Storm

Description

The [NWS](#) describes winter storms as weather conditions that produce heavy snow or significant ice accumulations. NOAA defines a winter storm as an event in which the main types of precipitation are snow, sleet or freezing rain ([NOAA](#)). For purposes of this analysis severe winter storm is defined as any winter condition where the potential exists for a blizzard (winds \geq 35mph and falling/drifting snow frequently reduce visibility $< \frac{1}{4}$ mile, for 2 hrs or more) heavy snowfall (valleys 6 inches or more snowfall in 24 hrs mountains 9 inches or more snowfall in 24 hrs), ice storm, and/or strong winds. Snowfall distribution is affected both by elevation and availability of moisture ([WRCC](#)).

Typically, winter storms form from a combination of cold air (below freezing temperatures in the clouds and near the ground), lift (raise the moist air to form clouds causing precipitation), and moisture (used to form clouds and perceptions).

NOAA has three different Winter Storm Products: Winter Storm Warning, Winter Storm Watch, and Winter Weather Advisory:



Other warnings include:

- **Avalanche Warning:** Issued by Sawtooth National Forest Avalanche Center when snowpack conditions indicate the potential for significant avalanches.
- **Blizzard Warning:** Winds of at least 35 mph and falling/drifting snow frequently reduce visibility to less than $\frac{1}{4}$ mile, for 2 hours or more.
- **Freezing Rain/Drizzle Advisory:** Freezing rain/drizzle that is occurring or imminent that may lead to life-threatening circumstances; Ice Storm Warning: Ice accumulations of at least $\frac{1}{4}$ inch are expected over the next 24 hours.

Severe winter weather consists of various forms of precipitation and strong weather conditions. This may include one or more of the following: freezing rain, sleet, heavy snow, blizzards, icy roadways, extremely low temperatures, and strong winds. These conditions can cause human health risks such as frostbite, hypothermia, and death.

Ice (Glazing) and Sleet Storms

Ice or sleet, even in the smallest quantities, can result in hazardous driving conditions and can be a significant cause of property damage. Sleet can be easily identified as frozen raindrops. Sleet does not stick to trees and wires. The most damaging winter storms in Indiana have been ice storms. Ice storms are the result of cold rain that freezes on contact with objects having a temperature below freezing. Ice storms occur when moisture-laden gulf air converges with the northern jet stream causing strong winds and heavy precipitation. This precipitation takes the form of freezing rain coating power lines, communication lines, and trees with heavy ice. The winds will then cause the overburdened limbs and cables to snap; leaving large sectors of the population without power, heat, or communication. Falling trees and limbs can also cause building damage during an ice storm. In the past few decades, numerous ice storm events have occurred in Ohio.

Snowstorms

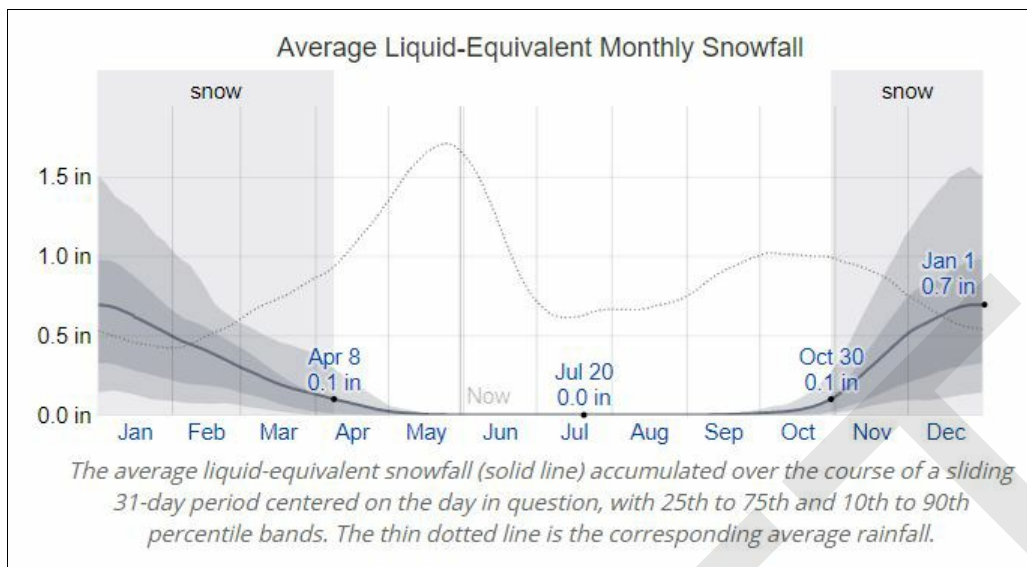
Significant snowstorms are characterized by the rapid accumulation of snow, often accompanied by high winds, cold temperatures, and low visibility. A blizzard is categorized as a snowstorm with winds of 35 miles per hour or greater and/or visibility of less than one-quarter mile for three or more hours. The strong winds during a blizzard blow about falling and already existing snow, creating poor visibility and impassable roadways. Blizzards have the potential to result in property damage. Blizzard conditions not only cause power outages and loss of communication but also make transportation difficult. The blowing of snow can reduce visibility to less than one-quarter mile, and the resulting disorientation makes even travel by foot dangerous if not deadly.

Historical Frequencies

Snowy periods in the County last for roughly 5.3 months (from October 30-April 8). On average, the most snow falls during a 31-day period centered around January 1 resulting in an average liquid-equivalent accumulation of 0.7 inches.

TABLE: Average Liquid-Equivalent Monthly Snowfall in Rexburg

Source: [weatherspark](#)



Winter Storms and Severe Winter Weather in Madison County reported by [NCDC - NOAA](#):

- 98 winter storms and severe winter weather events were reported between 01/01/1950 and 04/28/2019 (25320 days)
- A more detailed spreadsheet can be accessed through [this link](#).

TABLE: Winter Storms and Severe Winter Weather in Madison County, Idaho from 1950-2019

Source: www.ncdc.noaa.gov/stormevents

Number of County/Zone areas affected:	4
Number of Days with Event	72
Number of Days with Event and Death	4
Number of Days with Event and Death or Injury	4
Number of Days with Event and Property Damage	11
Number of Days with Event and Crop Damage	0
Number of Event Types reported	2

Recent events with snowfall over 6 inches include (recorded at the Sugar City Station - 43.8868°, -111.7367° ([NOAA](#))):

- February 23, 2019 - 7 inches
- January 16, 2016 - 6 inches
- January 29, 2016 - 6 inches
- December 16, 2016 - 10 inches
- December 25, 2016 - 10 inches
- December 14, 2015 - 7 inches
- January 9, 2014 - 7 inches
- December 28, 2014 - 11 inches
- December 3, 2013 - 8 inches
- December 21, 2013 - 7 inches

Expanding the NOAA data on winter storms and winter weather to also include avalanche, blizzard, heavy snow and frost/freeze, the number of events increases to 306.

TABLE: Winter Storms, Avalanches, Blizzards, Frost/Freezes, Heavy Snow, and Sleet Weather in Madison County, Idaho from 1950-2019

Source: www.ncdc.noaa.gov/stormevents

Number of County/Zone areas affected:	5
Number of Days with Event	257
Number of Days with Event and Death	12
Number of Days with Event and Death or Injury	14
Number of Days with Event and Property Damage	24
Number of Days with Event and Crop Damage	0
Number of Event Types reported	6

The following tables list heavy snow events (6 inches or more in a 24 hour period) for two weather stations in Madison County; one at BYU Idaho and the other at the Sugar City.

TABLE: Heavy Snow Events at Rexburg, Idaho 1977-2007

Source: <http://www.wrcc.dri.edu/summary/climsmid.html>

Heavy Snowfall at Rexburg / BYU Idaho			
Date	Snowfall (inches)	Date	Snowfall (inches)
01/08/2005	6.0	02/19/1989	6.0
01/28/2000	6.0	12/24/1988	7.0
01/27/1996	6.0	02/14/1986	6.0
01/09/1994	6.0	12/03/1985	6.0
12/30/1992	7.0	12/14/1990	7.5
12/18/1992	7.0	03/04/1985	7.5
12/28/1990	6.0	12/17/1984	6.0
12/27/1990	6.0	12/04/1983	8.0
12/14/1990	7.5	01/23/1982	7.0

TABLE: Madison County Heavy Snow Events Sugar City 1948-1976

Source: <http://www.wrcc.dri.edu/summary/climsmid.html>

Heavy Snowfall at Sugar City			
Date	Snowfall (inches)	Date	Snowfall (inches)
04/26/1976	6.0	12/30/1965	7.0
02/19/1976	6.0	11/17/1964	6.0
01/08/1976	7.0	03/13/1956	8.4
01/05/1976	7.0	01/26/1956	6.7
1/28/1975	7.0	12/24/1955	8.8
11/26/1975	6.0	02/16/1952	6.0
10/22/1975	7.0	12/07/1950	9.0
02/20/1975	6.0	02/04/1950	6.0
11/27/1971	7.0	02/12/1949	14.5
02/03/1971	6.0	02/07/1949	6.4
02/13/1966	6.0	01/15/1949	6.0

Impacts

NOAA's National Centers for Environmental Information is now producing the Regional Snowfall Index (RSI) for significant snowstorms that impact the eastern two-thirds of the U.S. The RSI ranks snowstorm impacts on a scale from 1 to 5 (similar to the Fujita scale for tornadoes or the Saffir-Simpson scale for hurricanes).

TABLE: Regional Snowfall Index (RSI)

Source: [NOAA](#)

CATEGORY	RSI VALUE	DESCRIPTION
1	1-3	Notable
2	3-6	Significant
3	6-10	Major
4	10-18	Crippling
5	18.0+	Extreme

A [2017 report](#) named Idaho the 4th most fatal state for snow driving. The [Idaho Traffic Crashes report \(2016\)](#) supports the danger of driving in snow, citing "Crashes occurring in the winter months are more likely to be attributed to severe weather such as ice and snow; however, these crashes tend to be less severe as people generally slow down and are more cautious when driving in adverse weather conditions." While less severe accidents occur, the highest total crashes occurred in December and January, demonstrating an increase in the frequency of crashes due to winter weather.

According to [NOAA](#), the majority of deaths from winter storms are not directly related to the storm itself.

- People die in traffic accidents on icy roads.
- People die of heart attacks while shoveling snow.
- People die of hypothermia from prolonged exposure to cold.

Of injuries related to ice and snow:

- About 70% occur in automobiles.
- About 25% are people caught out in the storm.
- The majority are males over 40 years old.

Of injuries related to exposure to cold:

- 50% are people over 60 years old.

- Over 75% are males.
- About 20% occur in the home.

Impacts of severe winter storms are numerous. Motorists may be stranded by road closures or may be trapped in their automobiles in heavy snow and/or low visibility conditions. Bad road conditions cause automobiles to go out of control. People can be trapped in homes or buildings for long periods of time without food, heat, and utilities. Those who are ill may be deprived of medical care by being stranded or through the loss of utilities and lack of personnel at care facilities. Use of heaters in automobiles and buildings by those who are stranded may result in fires or carbon monoxide poisoning. Fires during winter storm conditions are a particular hazard because fire service response is hindered or prevented by road conditions and because water supplies may be frozen. Disaster Services may also not be available if telephone service is lost. People who attempt to walk to safety through winter storm conditions often become disoriented and lost. Downed power lines not only deprive the community of electricity for heat and light but pose an electrocution hazard. Death and injury may also occur if heavy snow accumulation causes roofs to collapse.

Loss Estimates

Economic impacts arise from numerous sources including hindered transportation of goods and services, flooding due to burst water pipes, forced closing of businesses, the inability of employees to reach the workplace, damage to homes and structures, automobiles and other belongings by downed trees and branches, loss of livestock and vegetation and many others.

Probability

This hazard is considered to be "Probable/Frequent" because significant occurrences of this hazard have occasionally occurred in the County and will likely occur again in the future. Isolated and low impact events occur with recurrent regularity.

Vulnerability Analysis

Analysis of Community Development Trends

While everyone is potentially at risk during winter storms, the actual threat depends on a person's specific situation. Specifically, a person's ability to find warmth and have basic needs provided during severely cold weather. The vulnerability to severe winter storms is similar to extreme temperatures.

Analysis of Community Development Trends

Because the winter storm events are regional in nature, future development will be impacted equally across the county.

Vulnerability for Future Assets/Infrastructure for Severe Winter Storm Hazard

Any new development within the county will remain vulnerable to these events. However, because structures that are older are more likely to be vulnerable to heavy snow or ice, newer construction may be more resilient to this hazard.

Vulnerability Analysis for Severe Winter Storm Hazard

Winter storm impacts are equally distributed across the entire jurisdiction; therefore, the entire County is vulnerable to a winter storm and can expect the same impacts within the affected area.

Impact on Madison County Residents

Severe winter storm hazard events are not usually life-threatening. The impacts on residents will typically be limited to an increase in hazardous driving conditions due to ice, sleet, or snow. If driving conditions become too hazardous, residents are likely to be trapped in their homes temporarily. Other potential impacts to residents include power outages due to downed lines. It is unlikely, but possible, that residential roof collapse due to heavy buildups of snow could occur.

Impact on Essential Facilities and Other Property

All critical facilities are vulnerable to a winter storm. A critical facility will encounter many of the same impacts as other buildings within the jurisdiction. These impacts include loss of gas or electricity from broken or damaged utility lines, damaged or impassable roads and railways, broken water pipes, and roof collapse from heavy snow.

Building Inventory: The impacts on the general buildings within the County are similar to the damages expected to the critical facilities. These include loss of gas or electricity from broken or damaged utility lines, damaged or impassable roads and railways, broken water pipes, and roof collapse from heavy snow.

Impact on Critical Infrastructure

During a winter storm, the types of infrastructure that could be impacted include roadways, utility lines/pipes, railroads, bridges, and ports. Since the county's entire infrastructure is equally vulnerable, it is important to emphasize that any number of these structures could become damaged during a winter storm. Potential impacts include broken gas and/or electricity lines or damaged utility lines, damaged or impassable roads and railways, and broken water pipes.

Impact on the Environment

Lots of snowfall can lead to flooding in the local ecosystems, impacting the local food chain and potentially spreading pollution. Extended periods of wet/damp conditions can encourage the spread of mold and fungi. It is also possible that frozen tree branches can break off under their own weight and damage the tree. Winter conditions may make it harder for animals to obtain food and water, causing a drop off in local populations. Livestock may also be impacted.

Impact on Operations

Barring extremely hazardous driving conditions, impacts to first responder operations is usually manageable. It is possible that intense ice, sleet, or snow may make it difficult for emergency and police personnel to respond promptly to emergencies. Outages due to downed power lines may also cause many critical to facilities to rely on backup power temporarily.

Severe Winter Storm Hazard Evaluation and Impact/Consequence Assessment

Frequency & Probability ¹	Vulnerable - 63
Potential Magnitude and Scale ¹	Somewhat Vulnerable - 39
Physical Vulnerability Hazard Impact ¹	Vulnerable - 51
Social Vulnerability Hazard Impact ¹	Vulnerable - 52
Community Conditions Hazard Impact ¹	Somewhat Vulnerable - 29
Overall Capability and Capacity ²	Capable - 72
Mitigation ²	Capable - 67
Hazard Consequence & Impact Score ¹	Somewhat Vulnerable - 42
Overall Risk Rating ³	High - 51

Legend

Score	1: Vulnerability Rating	2: Capability and Capacity Rating	3: Overall Risk Rating
0 – 25	Minimally Vulnerable	Minimally Capable	Low
26 – 50	Somewhat Vulnerable	Somewhat Capable	Medium
51 – 75	Vulnerable	Capable	High
76 - 100	Very Vulnerable	Very Capable	Extreme
N/A	Not Applicable/Unknown	Not Applicable/Unknown	Not Applicable/Unknown

1.6.3.1.4 Severe Thunderstorms

Description

In the 2008 Madison County Hazard Mitigation Plan, Lightning, Hail, and Straight Line were all their own category. Given the likelihood of one or more of these events occurring during a thunderstorm, the data has been combined for a more thorough review of compounding impact. Mitigation of thunderstorms to include lightning and hail is established, generally, in the Idaho Disaster Preparedness Act of 1975 as amended (Idaho State Code Chapter 10, Title 46) and, more specifically, in the Governor's Executive Order, 2000-04.

Severe thunderstorms are defined as thunderstorms with one or more of the following characteristics: strong winds, large damaging hail, or frequent lightning. Severe thunderstorms most frequently occur in Idaho during the spring and summer but can occur any month of the year at any time of day. A severe thunderstorm's impacts can be localized or can be widespread. A thunderstorm is classified as severe when it meets one or more of the following criteria:

- Hail of diameter 0.75 inches or higher
- Frequent and dangerous lightning
- Wind speeds equal to or greater than 58 miles an hour

Hail

Hail is a product of an intense thunderstorm. Hail forms inside a thunderstorm where there are strong updrafts of warm air and downdrafts of cold water. Hail usually falls near the center of a storm; however, strong winds occurring at high altitudes in the thunderstorm can blow the hailstones away from the storm center, resulting in damage in other areas near the storm. Hailstones range from pea-sized to baseball-sized, but hailstones more massive than softballs have been reported on rare occasions. Based on information measured by the National Lightning Detection Network, the State of Idaho receives up to three cloud-to-ground lightning flashes per square mile from 2007 to 2016 ([State of Idaho HMP 2018](#)).

TABLE: Hail Size

Source: [NOAA](#)

Size	Inches in Diameter
Pea	0.25
Marble/mothball	0.50
Dime/Penny	0.75
Nickel	0.875
Quarter	1.0
Ping-pong Ball	1.5
Golf Ball	1.75
Tennis Ball	2.5
Baseball	2.75
Tea Cup	3.0
Grapefruit	4.0
Softball	4.5

Lightning

Lightning is a discharge of atmospheric electricity from a thunderstorm. It can travel at speeds up to 140,000 mph and reach temperatures approaching 54,000 degrees. Lightning is often perceived as a minor hazard; in reality, lightning causes damage to many structures and kills, or severely injures, numerous people in the United States. It is estimated that there are 16 million lightning storms worldwide every year.

Severe Winds (Straight-Line Winds)

High wind advisories, watches, and warnings are issued by the NWS according to the following criteria:

- Wind Advisory: Issued for Snake Plain only; winds between 30 and 39 mph and/or gusts between 45 and 57 mph not associated with thunderstorms, below 7,000 feet;
- High Wind Warning: Issued when sustained winds of greater than 40 mph and/or gusts of greater than 58 mph for at least one hour are imminent or occurring and are not associated with thunderstorms; and
- High Wind Watch: Issued when there is a potential for winds of greater than 40 mph and/or gusts of greater than 58 mph and are not associated with thunderstorms (Pocatello Weather Forecast Office 2012).

The term "straight-line winds" is used to distinguish prevailing, non-rotating winds from tornado-related winds. Straight-line winds are responsible for most thunderstorm wind damage, with wind speeds over 100 miles per hour on occasion. A "downburst," a small area of rapidly descending air beneath a thunderstorm, is a particularly damaging type of straight-line wind. Downbursts can have wind velocities equal to that of a strong tornado and can be extremely dangerous to aviation and cause significant damage to some buildings (NWS 2017). Straight-line wind speeds can reach 150 mph, equivalent to those in an F3 tornado ([State of Idaho HMP 2018](#)).

Two categories of straight-line winds are "downbursts" and "derechos." A downburst is a small area of rapidly descending rain and rain-cooled air beneath a thunderstorm. The winds of a downburst travel typically in one direction and the forward side of the downburst causes the worst damage. Derechos are created by the merging of many thunderstorm cells into a cluster or solid line extending for many miles. The width of a derecho can range from 20 to 65 miles, and the length can reach 100 miles or more. In severe cases, derechos can create maximum wind gusts of 150 mph and produce small tornadoes. Damaging straight-line winds are much more common than tornadoes, and their damage is often incorrectly attributed to tornadoes ([State of Idaho HMP 2018](#)).

Madison County, like all of the State of Idaho, is located in Wind Zone I, which is the zone with the lowest speed winds based on 100 years of hurricane data and 40 years of tornado data collected by FEMA.

FIGURE: Wind Zones in the US

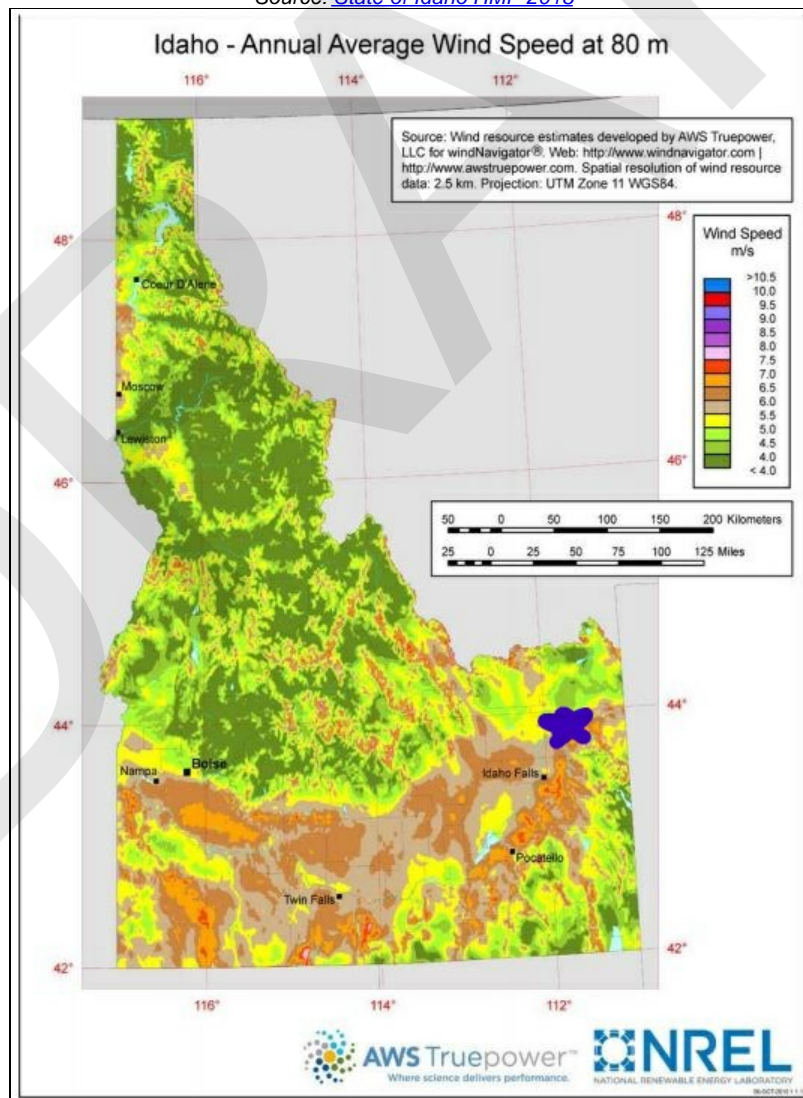
Source: [FEMA - Understanding the Hazards](#)



On average, Idaho's wind speed is 80 mph. Given Madison County location (starred on the map below), the average wind speeds are likely somewhat higher than 80 mph; however, the wind speed should likely stay below the threshold for Wind Zone I (up to 130 MPH).

FIGURE: Idaho Annual Average Wind Speed

Source: [State of Idaho HMP 2018](http://www.idaho.gov/hmp)



Summary of Thunderstorms:

During the warm season, thunderstorms are responsible for most rainfall and thunderstorms most frequently occur in Madison County in spring and summer months.

TABLE: Hail and Wind Events Spotted in Madison County from 2014-2018

Source: <http://www.interactivehailmaps.com/local-hail-map/rexburg-id/>

Date	Summary of Event
8/22/2018	At 424 pm MDT, severe thunderstorms were located along a line extending from near Dubois to 12 miles northwest of Plano to 6 miles south of Hamer, moving east at 35 mph. a wind gust to 56 mph was recorded around 4:20 pm MDT in camas with these storms. A trained spotter also reported power outages in camas (radar indicated). Hazards include 60 mph wind gusts and quarter size hail. Hail damage to vehicles is expected. Expect wind damage to roofs, siding, and trees.
5/31/2018	At 210 pm MDT, a severe thunderstorm was located near archer or near Rexburg, moving northeast at 45 mph (radar indicated). Hazards include 60 mph wind gusts and quarter size hail.
10/30/2016	Estimated up to 60 mph wind causing power to flash off and on in Madison County ID, 6.1 miles NNE of Rexburg, ID
10/2/2016	At 555 pm MDT, doppler radar indicated a severe thunderstorm capable of producing quarter size hail and damaging winds in excess of 60 mph. this storm was located over the Ririe Reservoir, moving north at 45 mph. locations impacted include Rexburg, Rigby, Ririe Reservoir, Lorenzo, Iona, Ririe, Archer, Heise, and Thornton.
5/20/2016	Quarter-sized hail reported 0.6 miles W of Rexburg, ID
5/8/2016	Golf Ball sized hail reported 0.2 miles SW of Rexburg, ID. At 655 pm MDT, doppler radar indicated a severe thunderstorm capable of producing half dollar size hail and damaging winds in excess of 60 mph. this storm was located near Archer, or near Rexburg, and moving southeast at 25 mph.
8/14/2015	Trained spotter traveling on the Salem highway 4 miles north of Rexburg reported several 3-4 inch tree branches laying on the road. estimated winds 50 to 60 mph within Madison County ID, 3.6 miles S of Rexburg, ID. At 727 pm MDT, doppler radar indicated a line of severe thunderstorms capable of producing damaging winds in excess of 60 mph. these storms were located along a line extending from 6 miles northwest of Kilgore to 11 miles southeast of Idmon to 12 miles southeast of Teton to near Wayan, moving northeast at 55 mph. in addition, multiple reports of 55 to 60 mph winds reported earlier near interstate 15. also, tree limbs were reported down along the Salem highway a few minutes ago. locations impacted include Rexburg, Rigby, Driggs, Ashton, Dubois, Swan Valley, Felt, Marysville, Lorenzo, Henry's Lake, Ririe Reservoir, Wayan, Idmon, Palisades Reservoir, Blackfoot Reservoir, Ammon, Victor, Iona, Sugar City, and Ucon.
8/5/2015	At 348 pm MDT, doppler radar indicated a line of severe thunderstorms capable of producing damaging winds in excess of 60 mph. these storms were located along a line extending from 8 miles northwest of Egin to 7 miles east of Teton to near swan valley, moving northeast at 45 mph. locations impacted include Rexburg, Rigby, Driggs, Ashton, Swan Valley, Felt, Marysville, Lorenzo, Ririe Reservoir, Victor, Sugar City, Menan, Teton, Ririe, Parker, Tetonia, Irwin, Hamer, Drummond, and Egin.
8/4/2015	At 443 pm MDT, doppler radar indicated a line of severe thunderstorms capable of producing damaging winds in excess of 60 mph. these storms were located along a line extending from near Teton to near archer to Ririe, moving east at 40 mph. locations impacted include Rexburg, Rigby, Driggs, Lorenzo, felt, Ririe Reservoir, Sugar City, Menan, Ririe, Lewisville, Tetonia, Egin, Plano, Archer, Green Canyon Hot Springs, Heise, Newdale, Tetonia research station, and Thornton
7/15/2015	At 411 pm MDT, trained weather spotters reported a funnel cloud 10 miles west of Plano. a tornado may develop at any time! this dangerous storm was located near Plano, or 10 miles west of Rexburg, moving east northeast at 30 mph. locations impacted include Rexburg, Sugar City, Teton, Parker, St Anthony, Egin, Plano, Newdale, and Southern Saint Anthony Sand Dunes.
5/31/2015	At 956 pm MDT, doppler radar indicated the leading edge of outflow winds in excess of 60 mph, extending from 12 miles west of Ashton reservoir to 6 miles southeast of Chester to 8 miles north of swan valley, moving northeast at 50 mph. up to half-inch hail may also be falling from near swan valley to south of Newdale. locations impacted include Rexburg, Rigby, Driggs, Ashton, Swan Valley, Felt, Ririe Reservoir, Marysville, Lorenzo, Victor, Sugar City, Ucon, Menan, Teton, Ririe, Roberts, Lewisville, Parker, Tetonia, and Drummond.
9/7/2014	Estimated wind gusts of 50 to 60 mp in Madison County ID, 4.8 miles N of Rexburg, ID

Summary of Lightning Events in Madison County from [NCD - NOAA](#):

TABLE: Madison County Lightning Events

Source: Madison County HMP 2008

Place	Date	Time	Event	Details	Reported Damage
Sugar City	5/22/1925		Lightning	Man struck and killed	
Independence	8/7/1925		Lightning	Boy struck and killed	
Hibbard	8/13/1926		Lightning	Man struck and killed	
Clements ville	6/7/1929	5:00 PM	Lightning	Woman and boy struck; woman killed, boy injured	
Rexburg	7/19/1932		Lightning	Man struck and injured by lightning	
Rexburg	8/9/1945		Lightning	Lightning hit electric meter	Slight fire damage to structure
Rexburg	9/6/1945		Lightning	Lightning struck home	Minor damage to home, lightning also struck and killed one cow
Rexburg	8/23/1951		Lightning	Several strikes hitting: an apartment bldg, homes, and trees	Electric damage to structure
Rexburg	5/16/1940	11:45 PM	Lightning	Struck home	Burned structure to ground
Rexburg	6/23/1936	3:00 PM	Lightning	2 men struck; one killed, one injured	
Rexburg	7/16/1996	4:00 PM	Lightning	Lighting struck scoreboard at HS	
Rexburg	7/16/1996	9:05 PM	Lightning	Lightning hit sprinkler system	
Rexburg	8/18/2000	8:00 AM	Lightning	Lightning struck home	\$20,000

- 3 events were reported between 01/01/1950 and 04/28/2019 (25320 days)
 - Two of the events recorded occurred in 1996 and one in 2000; however, events after 2000 have been reported in newspapers and are detailed below the NCDC table.
- A more detailed spreadsheet can be accessed through [this link](#).

TABLE: Lightning Events in Madison County, Idaho from 1950-2019

Source: www.ncdc.noaa.gov/stormevents

Number of County/Zone areas affected:	1
Number of Days with Event	2
Number of Days with Event and Death	0
Number of Days with Event and Death or Injury	0
Number of Days with Event and Property Damage	1
Number of Days with Event and Crop Damage	0
Number of Event Types reported	1

In addition to the NCDC - NOAA lightning events, more recent significant thunder and lightning storms have been reported in newspapers:

- July 16, 2013 - Two homes were struck by lightning in Madison County. At least 100 customers were impacted by a power outage when lightning hit a transformer ([Rexburg Standard Journal](#)).
- June 3, 2019 - Multiple trees were struck by lightning. In addition to the thunderstorms, 4 tornados also touched down in East Idaho (no structural damage or injury reported) ([Idaho State Journal](#)). In nearby Idaho Falls, hail was reported along with hundreds of lightning strikes and one tree split and sent debris flying at least 100 feet away ([East Idaho News](#)).
- According to the National Weather Service in Pocatello, lightning started three [wildfires](#) in Madison County between 1983 and 2002, it is reported by the local fire department and the BLM that lightning started over seventy (70%) percent of all wildfires in the area (HMP 2008). On average, lightning-caused wildfires represent only sixteen (16%) percent of all wildfires in the last 21 years in the US but are responsible for 56% of total acreage burned. Difficulty in assigning lightning as the specific cause for a wildfire is that a fire may smolder for several days before rapid growth. Holdover fires are common in Idaho (see figure below). Holdover fires can smolder for days or even weeks before a fire is detected ([Schultz et. al., 2019](#)).

FIGURE: Lightning-initiated Holdover Wildfires that Grew to Greater than 4 Km2 from 2012-2015

Source: [wildfires today](#)

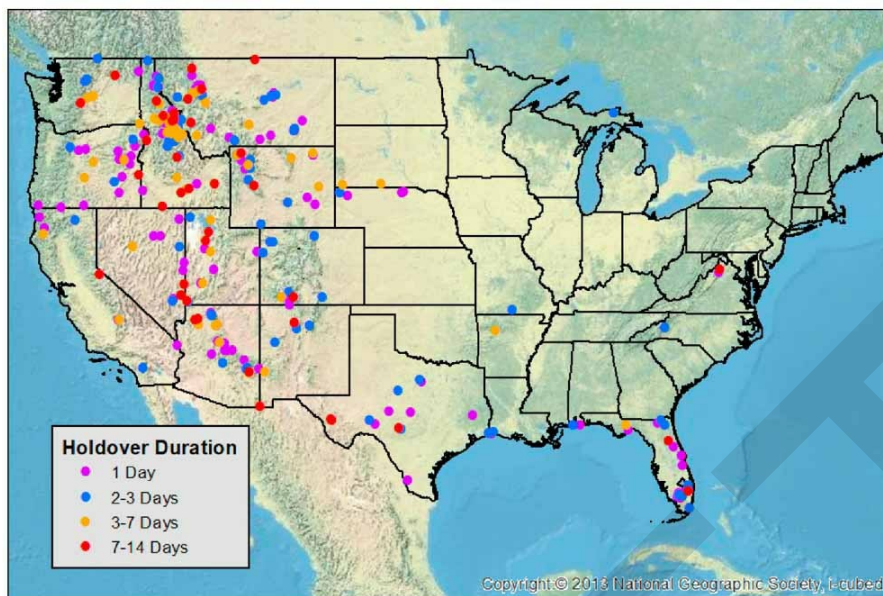
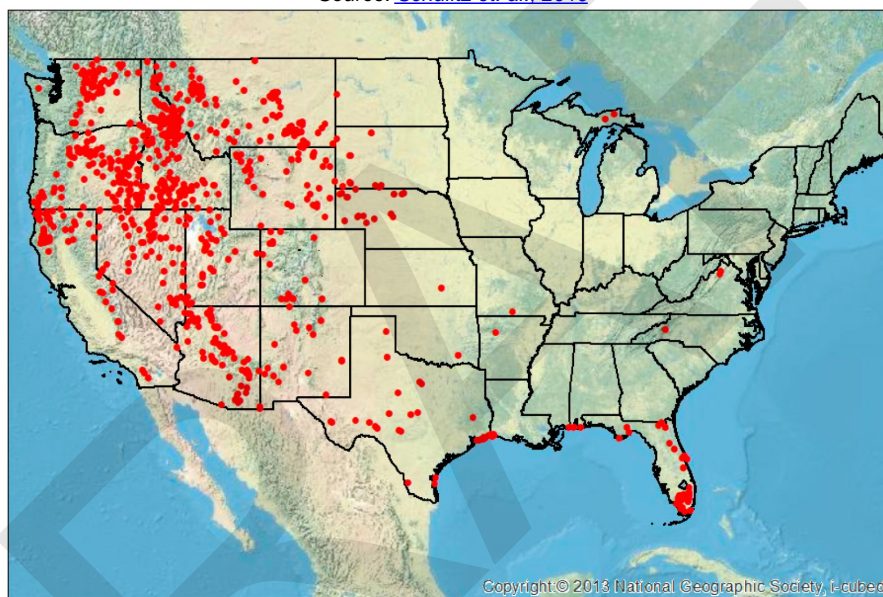


FIGURE: Locations of 905 lightning-initiated wildfires in the contemporaneous United States which grew to sizes ≥ 4 km² between 2012 and 2015
Source: [Schultz et al., 2019](#)



Hail Events in Madison County reported by [NCDC - NOAA](#):

- 20 hail events were reported between 01/01/1950 and 04/28/2019 (25320 days).
- The 4 most recent hail events (1 in 2018 and 3 in 2016) were also accompanied by severe winds.
- A more detailed spreadsheet can be accessed through [this link](#).

TABLE: Hail Events in Madison County, Idaho from 1950-2019

Source: www.ncdc.noaa.gov/stormevents

Number of County/Zone areas affected:	1
Number of Days with Event	14
Number of Days with Event and Death	0
Number of Days with Event and Death or Injury	0
Number of Days with Event and Property Damage	0
Number of Days with Event and Crop Damage	0
Number of Event Types reported	1

While only one hail event had hail that reached the threshold for a severe hail event in 2018, this past year (2018) in Rexburg, 6 reports of on-the-ground hail were made by trained spotters. Doppler radar has detected hail at or near Rexburg, ID on 9 occasions, including 1 occasion during 2018 ([Hail Map](#)).

Thunderstorm Wind Events in Madison County reported by [NCDC - NOAA](#):

- 28 thunderstorm events were reported between 01/01/1950 and 04/28/2019 (25320 days).
- For all the events, property damage was \$57,000 with the most recent event resulting in \$35,000 in damage. This event (4/7/2018), was a thunderstorm that yielded funnel clouds, a tornado, and large hail (up to 2 inches).
- A more detailed spreadsheet can be accessed through [this link](#).

TABLE: Thunderstorm Wind Events in Madison County, Idaho from 1950-2019

Source: www.ncdc.noaa.gov/stormevents

Number of County/Zone areas affected:	1
Number of Days with Event	23
Number of Days with Event and Death	0
Number of Days with Event and Death or Injury	0
Number of Days with Event and Property Damage	5
Number of Days with Event and Crop Damage	0
Number of Event Types reported	1

Probability for Severe Thunderstorm Hazard

Based on the [Community Vulnerability Risk and Resiliency \(CVR2\)](#), severe storms, hailstorms, and lightning are all considered to be "Somewhat Probable/Somewhat Frequent" because significant occurrences of this hazard have happened on occasion (even though isolated or low impact events may occur with more regularity). Out of the three, severe storms have the highest risk ranking and rank the third-highest (based on risk) of all hazards impacting the County. Hailstorms and Lightning often occur in tandem with severe storms.

Geographic Location for Severe Thunderstorm Hazard

The entire county has the same risk for the occurrence of thunderstorm hazards. They can occur at any location within the county.

Loss Estimates

The magnitude of economic losses is difficult to estimate. Government figures suggest annual national costs at around \$30 million but some researchers find evidence that losses may be in the billions of dollars. For example, in July 2018 at least 41 tornadoes and high wind damage from thunderstorms impacted numerous Central and Eastern states over a multi-day event resulting in an estimated cost of \$1.6 Billion and zero deaths ([NCDC NOAA](#)).

Combining the damage reported for thunderstorms, hail, lightning, and high wind, from the 1950s to date, \$77,000 in property damage has been reported ([NCDC - NOAA](#)).

While NOAA did not list any significant damage from hail in Madison County, news articles highlighted that hail caused damage to tin roofs, crops, and vehicles. Near Madison County, one hail storm (April 7, 2018) in eastern Idaho caused \$27 million in damages ([East Idaho News](#)). Economic loss can be extensive, especially to agricultural-based economies. Hail is very damaging to crops. Severe hail may cause extensive property damage including damage to vehicle paint and bodywork, glass, shingles and roofs, plastic surfaces, etc. Hail loss nationally is estimated at over one billion dollars annually.

Hazard Extent for Severe Thunderstorm

The extent of the historical thunderstorms varies in terms of the extent of the storm, the wind speed, and the size of hailstones. Thunderstorms can occur at any location within the county. Often, thunderstorms are compounded by the impact of [tornados](#). National Aeronautics and Space Administration (NASA) scientists suggest that the United States will face more severe thunderstorms in the future, with lightning, damaging hail, and the potential for tornadoes in the event of climate change ([State of Idaho HMP 2018](#)).

Additionally, thunderstorms can produce heavy rain that can cause road wash out. Further detail on heavy rain events is detailed under [Flood \(Flash\)](#).

Lighting strikes occur with some regularity in Madison County. Of special concern are the wide-open fields and metal farm equipment. Several of the fatal lightning strikes happened while the individual was working in a field.

The impacts of straight-line winds are virtually the same as those from tornadoes with similar wind speeds. The damage is distinguishable from that of a tornado only in that the debris generally deposited in nearly parallel rows. Downbursts are particularly hazardous to aircraft in flight.

Analysis of Community Development Trends

Preparing for severe storms will be enhanced if officials sponsor a wide range of programs and initiatives to address the overall safety of county residents. New structures need to be built with more-sturdy construction, and those structures already in place need to be hardened to lessen the potential impacts of severe weather. Community warning sirens to provide warning of approaching storms are also vital to preventing the loss of property and ensuring the safety of Madison County residents.

Vulnerability to Future Assets/Infrastructure for Severe Thunderstorm Hazard

All future development within the county and all communities will remain vulnerable to these events.

Vulnerability Analysis for Severe Thunderstorm Hazard

Severe thunderstorms are an equally distributed threat across the entire jurisdiction; therefore, the entire county's population and all buildings are vulnerable to a severe thunderstorm, and the same impacts can be expected within the affected area. This plan will, therefore, consider all buildings within the county as vulnerable.

Historical records for severe thunderstorms are available and reliable, indicating that they occur yearly to several times a year in Madison County.

Conditions leading to straight-line winds typically develop with days of warning and like high wind events and thunderstorms, meteorologists can forecast the potential of hailstorms, often giving several hours of notice that hail may form. Death or injury is rare in Madison County but some economic loss due to structural damages can occur.

Reconstruction from such damage is left to the individual or family. There would be no need for public sheltering.

The Idaho HMP 2018, provided an estimated general building stock located in wind power classes 6 and 7 by jurisdiction. Out of all the buildings in Idaho, only 92 were located in the hazard area and none are located in Madison County.

Impact on Madison County Residents

Thunderstorm hazards are not usually life-threatening. The impact on Madison County residents will, in all likelihood, be limited to minor property damage to their homes or vehicles due to minor flooding or hail. It is possible, however, that lightning strikes could cause substantial damage or injury in Madison County directly or indirectly (i.e. trees or tree limbs have been known to fall onto property due to lightning or wind). Other impacts to residents include power outages, obscured and potentially dangerous driving conditions, or temporary roadway obstructions.

Impact on Essential Facilities and Other Property

All facilities are vulnerable to severe thunderstorms, particularly properties in poor conditions. Properties at higher elevations are more prone to wind damage. An essential or critical facility will encounter many of the same impacts as any other building within the jurisdiction. These impacts can include structural failure, damaging debris (trees or limbs), roofs blown off, or windows were broken by hail or high winds, fires caused by lightning, and loss of building functionality (e.g., a damaged police station will no longer be able to serve the community).

Impact on Critical Infrastructure

During a severe thunderstorm, the types of infrastructure that could be impacted include roadways, utility lines/pipes, railroads, and bridges. Because the County's entire infrastructure is equally vulnerable, it is important to emphasize that any number of these structures could become damaged during a severe thunderstorm. The impacts on these structures can include broken, failed, or impassable roadways or broken or failed utility lines (e.g., loss of power or gas to the community). Bridges could fail or become impassable, causing risk to traffic.

Impact on the Environment

Most thunderstorm hazard events are not likely to have any serious impact on the environment. Lightning and hail could damage trees and vegetation, but such damage is not likely to be severe, all things considered. It is possible that numerous periods of heavy rainfall could cause or exacerbate flooding and erosion problems in some areas. Major concerns are "dry thunderstorms" or "dry lightning storms", which can produce lightning and high winds with no rain to extinguish or mitigate resulting fires.

Impact on Operations

Barring an unlikely scenario in which major roads or critical facilities are damaged, most operations should be able to function without major impediment during and after this hazard.

Severe Storm Hazard Evaluation and Impact/Consequence Assessment

Frequency & Probability ¹	Somewhat Vulnerable - 50		
Potential Magnitude and Scale ¹	Somewhat Vulnerable - 33		
Physical Vulnerability Hazard Impact ¹	Somewhat Vulnerable - 41		
Social Vulnerability Hazard Impact ¹	Somewhat Vulnerable - 48		
Community Conditions Hazard Impact ¹	Somewhat Vulnerable - 40		
Overall Capability and Capacity ²	Capable - 71		
Mitigation ²	Very Capable - 89		
Hazard Consequence & Impact Score ¹	Somewhat Vulnerable - 38		
Overall Risk Rating ³	Medium - 44		
Legend			
Score	1: Vulnerability Rating	2: Capability and Capacity Rating	3: Overall Risk Rating
0 – 25	Minimally Vulnerable	Minimally Capable	Low
26 – 50	Somewhat Vulnerable	Somewhat Capable	Medium
51 – 75	Vulnerable	Capable	High
76 - 100	Very Vulnerable	Very Capable	Extreme
N/A	Not Applicable/Unknown	Not Applicable/Unknown	Not Applicable/Unknown

Hailstorm Hazard Evaluation and Impact/Consequence Assessment

Frequency & Probability ¹	Somewhat Vulnerable - 38		
Potential Magnitude and Scale ¹	Minimally Vulnerable - 13		
Physical Vulnerability Hazard Impact ¹	Somewhat Vulnerable - 46		
Social Vulnerability Hazard Impact ¹	Somewhat Vulnerable - 35		
Community Conditions Hazard Impact ¹	Minimally Vulnerable - 24		
Overall Capability and Capacity ²	Capable - 71		
Mitigation ²	Capable - 67		
Hazard Consequence & Impact Score ¹	Somewhat Vulnerable - 30		
Overall Risk Rating ³	Medium - 33		
Legend			
Score	1: Vulnerability Rating	2: Capability and Capacity Rating	3: Overall Risk Rating
0 – 25	Minimally Vulnerable	Minimally Capable	Low
26 – 50	Somewhat Vulnerable	Somewhat Capable	Medium
51 – 75	Vulnerable	Capable	High
76 - 100	Very Vulnerable	Very Capable	Extreme
N/A	Not Applicable/Unknown	Not Applicable/Unknown	Not Applicable/Unknown

Lightning Hazard Evaluation and Impact/Consequence Assessment

Frequency & Probability ¹	Minimally Vulnerable - 25
Potential Magnitude and Scale ¹	Minimally Vulnerable - 9
Physical Vulnerability Hazard Impact ¹	Somewhat Vulnerable - 41
Social Vulnerability Hazard Impact ¹	Somewhat Vulnerable - 35
Community Conditions Hazard Impact ¹	Minimally Vulnerable - 21
Overall Capability and Capacity ²	Capable - 71
Mitigation ²	Capable - 67
Hazard Consequence & Impact Score ¹	Somewhat Vulnerable - 27
Overall Risk Rating ³	Medium - 26

Legend

Score	1: Vulnerability Rating	2: Capability and Capacity Rating	3: Overall Risk Rating
0 – 25	Minimally Vulnerable	Minimally Capable	Low
26 – 50	Somewhat Vulnerable	Somewhat Capable	Medium
51 – 75	Vulnerable	Capable	High
76 - 100	Very Vulnerable	Very Capable	Extreme
N/A	Not Applicable/Unknown	Not Applicable/Unknown	Not Applicable/Unknown

1.6.3.1.5 Tornado and High Winds

Description

Tornadoes are nature's most violent storms and can cause fatalities and devastate neighborhoods in seconds. The NWS describes a tornado as a violently rotating column of air, usually pendant to a cumulonimbus, with circulation reaching the ground. It nearly always starts as a funnel cloud and may be accompanied by a loud roaring noise. A tornado is the most destructive of all atmospheric phenomena. Like hail, most tornadoes are spawned by supercell thunderstorms. They usually last only a few minutes, although some have lasted more than an hour and traveled several miles.

Tornadoes are defined as violently-rotating columns of air extending from thunderstorms to the ground. Funnel clouds are rotating columns of air not in contact with the ground; however, the violently-rotating column of air can reach the ground very quickly and become a tornado. If the funnel cloud picks up and blows debris, it has reached the ground and is a tornado. Once a tornado hits the ground, on average, it lasts on average 5 minutes with rare cases of tornados lasting serval hours.

Tornadoes are classified according to the Enhanced Fujita tornado intensity scale. Originally introduced in 1971, the scale was modified in 2006 to better define the damage and estimated wind scale. The Enhanced Fujita Scale ranges from low-intensity EF0 with effective wind speeds of 65 to 85 miles per hour, to EF5 tornadoes with effective wind speeds of over 200 miles per hour. The Enhanced Fujita intensity scale is included in the table below.

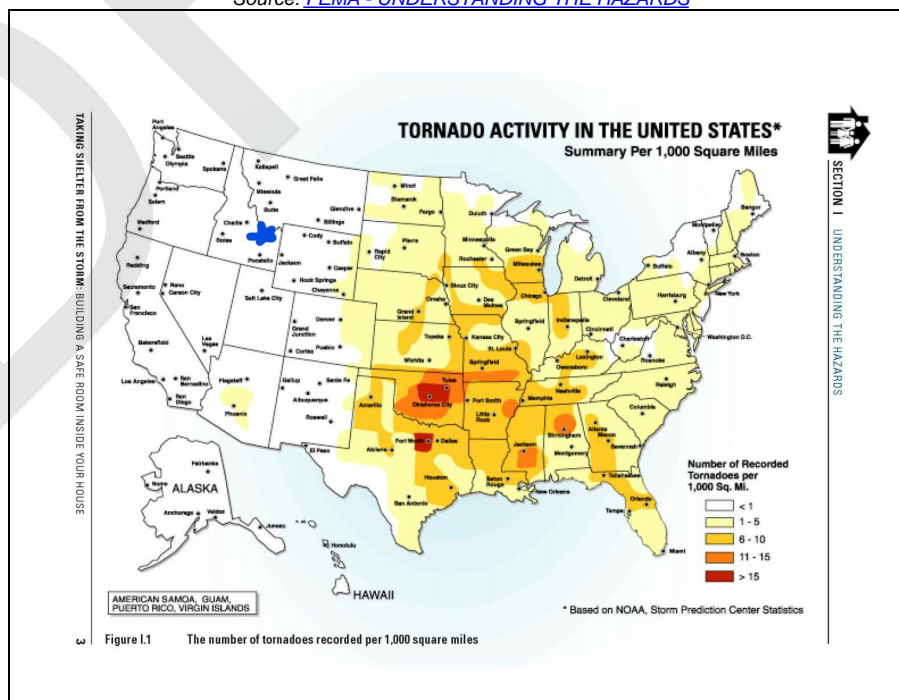
TABLE: Enhanced Fujita (EF) Scale for Estimation of Tornado Wind
Speeds <http://www.srh.noaa.gov/srh/jetstream/mesoscale/tornado.htm>

EF scale	Class	Wind speed		Description	Description of Destruction
		mph	km/h		
F0	weak	65-85	105-137	Gale	Light damage, some damage to chimneys, branches broken, signboards damaged, shallow-rooted trees blown over.
F1	weak	86-110	138-177	Moderate	Moderate damage, roof surfaces peeled off, mobile homes pushed off foundations, attached garages damaged.
F2	strong	111-135	178-217	Significant	Considerable damage, entire roofs torn from frame houses, mobile homes demolished, boxcars pushed over, large trees snapped or uprooted.
F3	strong	136-165	218-266	Severe	Severe damage, walls torn from well-constructed houses, trains overturned, most trees in forests uprooted, heavy cars thrown about.
F4	violent	166-200	267-322	Devastating	Complete damage, well-constructed houses leveled, structures with weak foundations blown off for some distance, large missiles generated.
F5	violent	> 200	> 322	Incredible	Foundations swept clean, automobiles become missiles and thrown for 100 yards or more, steel-reinforced concrete structures badly damaged.

Tornado watches and warnings are issued by the local NWS office. For the State of Idaho, tornado watches are issued when a tornado (a rotating column of air from a thunderstorm in contact with the ground) is occurring or imminent. A tornado watch is issued when conditions are favorable for tornadoes within the next two to six hours (Pocatello Weather Forecast Office 2012).

Historical Frequencies

FIGURE: Number of Tornadoes Per 1,000 Square Miles
Source: [FEMA - UNDERSTANDING THE HAZARDS](#)



Yearly, about 1,200 tornados impact the US (NOAA). While windstorms are frequent in Idaho, the State of Idaho has a relatively low risk of tornadoes compared to states in the Midwest and Southern United States (State of Idaho HMP 2018). Tornadoes of F2 strength or greater are extremely rare in Idaho. The most destructive damage from tornados has resulted from a single storm creating multiple tornados.

Tornadoes, Funnel Clouds, Thunderstorm Winds, Dust Storms, and High Wind Events in Madison County reported by NCDC - NOAA:

- 112 wind-based events were reported between 01/01/1950 and 04/28/2019 (25320 days)
 - Of these events, 6 were tornados.
 - 1955 - F1
 - 1959 - F2
 - 1962 - F0
 - 1973 - F0
 - 1984 - F1
 - 1987 - F0
- All events resulted in \$5,181,880 (majority from High Wind events) in property damage and totaled 11 people being directly injured (all 11 from dust storms).
- A more detailed spreadsheet can be accessed through [this link](#).

TABLE: Tornadoes, Funnel Clouds, Thunderstorm Winds, Dust Storms, and High Wind Events in Madison County, Idaho from 1950-2019

Source: www.ncdc.noaa.gov/stormevents

Number of County/Zone areas affected:	4
Number of Days with Event	93
Number of Days with Event and Death	0
Number of Days with Event and Death or Injury	2
Number of Days with Event and Property Damage	33
Number of Days with Event and Crop Damage	0
Number of Event Types reported	5

FIGURE: Tornado Paths 1950-2017 (larger map can be downloaded through this link)

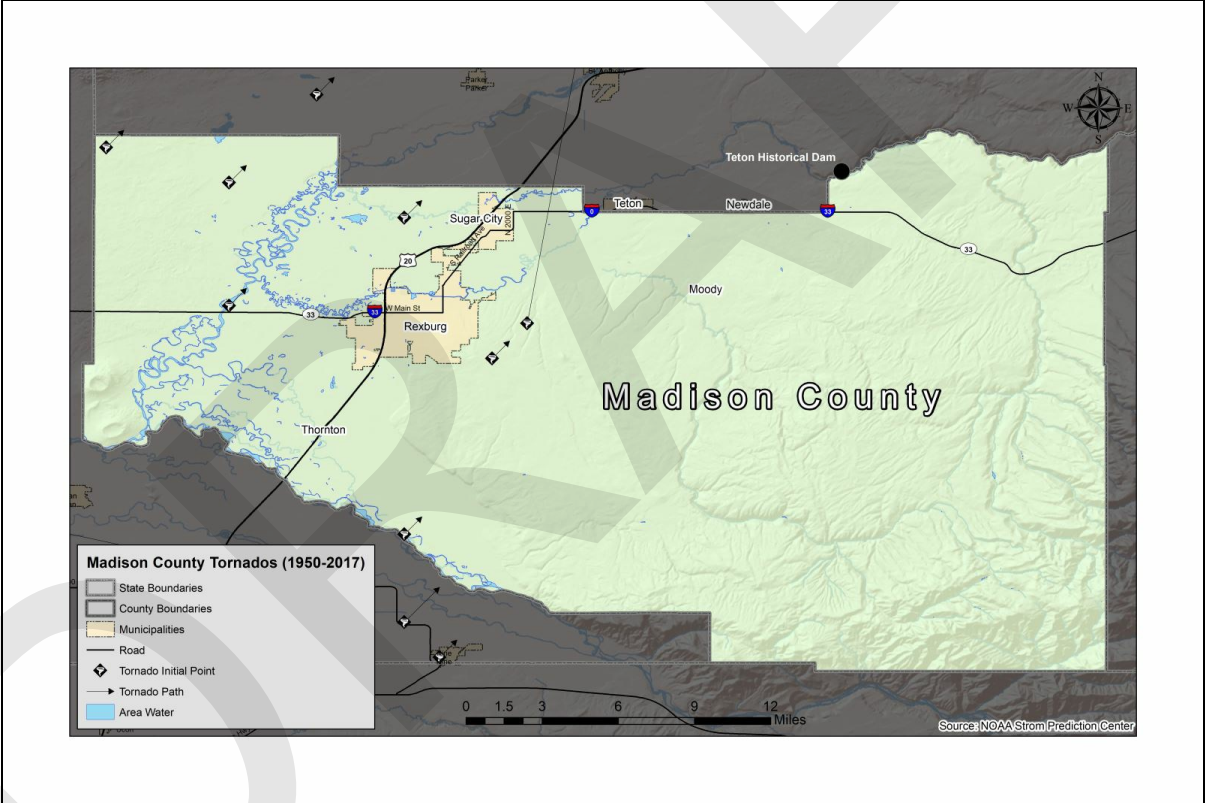
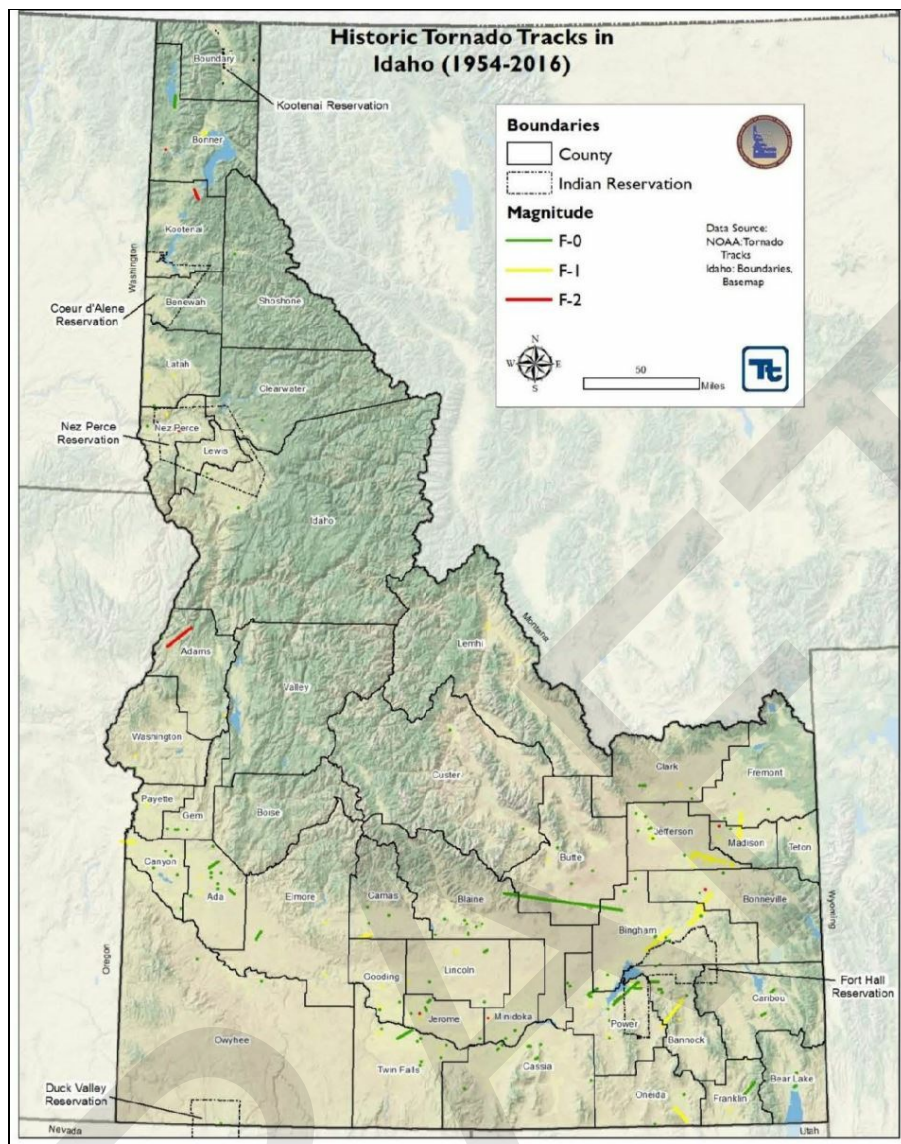


FIGURE: Tornadoes in Idaho
Source: [State of Idaho HMP 2018](#)



Probability for High Wind and Tornado Hazard

Based on the [CVR2](#), this hazard is considered to be "Somewhat Probable/Somewhat Frequent" because significant occurrences of this hazard have happened on occasion (even though isolated or low impact events may occur with more regularity).

Conditions leading to tornado formation may arise quickly and unpredictably. The NWS generally provides warnings of potential tornado activity within hours of the event. The path of a tornado is usually relatively localized and given their historically low F-scale magnitude in Madison County, fatalities and injuries are unlikely. Economic loss due to structural damage is possible, but only County resources would be required for reconstruction. Public Sheltering would likely not be required. Historical records for tornadoes are available and reliable, indicating that tornadoes occur in the five to twenty-five-year range in Madison County.

High wind, thunderstorm wind, and dust storm events occur much more frequently in Madison County. From 1950 to now, the occurrence rate has been:

- 19 Dust Storms
- 27 Thunderstorm Winds
- 54 High Winds

TABLE: Risk Analysis of Wind Zones and Number of Tornadoes per 1,000 Square Miles

Source: [FEMA - UNDERSTANDING THE HAZARDS](#)

		WIND ZONE (See Figure I.2)			
		I	II	III	IV
NUMBER OF TORNADES PER 1,000 SQUARE MILES (See Figure I.1)	<1	LOW RISK	LOW RISK ★	LOW RISK ★	MODERATE RISK
	1 - 5	LOW RISK	MODERATE RISK ★	HIGH RISK	HIGH RISK
	6 - 10	LOW RISK	MODERATE RISK ★	HIGH RISK	HIGH RISK
	11 - 15	HIGH RISK	HIGH RISK	HIGH RISK	HIGH RISK
	>15	HIGH RISK	HIGH RISK	HIGH RISK	HIGH RISK

LOW RISK	MODERATE RISK	HIGH RISK
Need for high-wind shelter is a matter of homeowner preference	Shelter should be considered for protection from high winds	Shelter is preferred method of protection from high winds

★ Shelter is preferred method of protection from high winds if house is in hurricane-susceptible region

Geographic Location for High Wind and Tornado Hazard

The entire county has the same risk for the occurrence of tornadoes and high winds. They can occur at any location within the County. The historical tornadoes generally moved from southwest to northeast across the County.

Loss Estimates

Since 1950 there has been \$5,131,600 in reported losses due to tornados, funnel clouds, thunderstorm winds, dust storms, and high wind event.

- Tornados accounted for \$50,280
- Thunderstorm winds accounted for \$57,000
- High Winds accounted for \$5,017,600 with the High Wind event on April 4, 2018 resulting in \$275,000 in property damages, an event on May 24, 2017 causing \$15,000, one on February 22, 2012 causing \$50,000, and one on June 29, 2011 causing \$54,000 in property damages.
- Dust Storms caused \$57,000 in property damages and also was the cause behind all 11 injuries.

Loss of utilities (primarily due to fallen trees) is common following tornadoes and, depending on circumstances, communities might be deprived of almost any kind of goods and services including food, water, and medical care.

Interestingly, based on NOAA reports, these events have only caused property damage, not crop damage. Although not previously reported, agriculturally, crop and livestock loss is also possible as is the loss of timber production. Similarly, windstorms, which much more frequently occur, can result in power outages as a cascading effect.

The magnitude of economic losses is difficult to estimate. Government figures suggest annual national costs at around \$30 million but some researchers find evidence that losses may be in the billions of dollars. For example, in July 2018 at least 41 tornadoes and high wind damage from thunderstorms impacted numerous Central and Eastern states over a multi-day event resulting in an estimated cost of \$1.6 Billion and zero deaths ([NCDC NOAA](#)).

Hazard Extent for High Wind and Tornado Hazard

The extent of the hazard varies in terms of the extent of the path and the wind speed. Extent is addressed at the county-level due to the nature of the hazard.

Analysis of Community Development Trends

According to the [Idaho HMP 2018](#), "In Idaho, Idaho Code 39-4109 permits cities to adopt and amend the Building Codes that have been adopted by the Idaho Building Code Board, so not all cities have the same standard building code." The current building permit application for new buildings in Madison County notes climatic and geographical criteria, one of which is wind speed:

TABLE: Building Permit Criteria
Source: [Madison County Building Permit Check List](#)

CLIMATIC AND GEOGRAPHICAL DESIGN CRITERIA						
Ground Snow Load	Wind Speed	Seismic Design Category	Weathering	Minimum Frost Depth	Winter Design Temp.	Minimum Rood Live Load
50 P.S.F.	90(40)	D1	Severe	36"	0. -10	35 P.S.F.

Vulnerability to Future Assets/Infrastructure for High Wind and Tornado Hazard

Since tornados and high winds can occur anywhere in the county, any future development will have to be made with this hazard in mind. Mobile home parks, campgrounds, or any other facility without a secure foundation or basement will always be particularly vulnerable.

Any future structures have the same potential for exposure to a tornado or high winds as this hazard does not occur in specific locations. Future buildings will be slightly more resistant to the effects of a tornado or high winds as they will meet the most current building code requirements for bracing and roof design.

Vulnerability Analysis for High Wind and Tornado Hazard

Since tornadoes and high winds can occur within any area in the County, the entire County population and all buildings are vulnerable to tornadoes. To accommodate this risk, this plan will consider all buildings within the County as vulnerable.

Impact on Madison County Residents

A tornado would affect an entire population in the tornado's path most severely, but power outages and street closures have the potential to impact many more. Those most at risk from tornadoes include people living in mobile homes, campgrounds, and other dwellings without secure foundations or basements. People in automobiles are also very vulnerable to tornadoes. The elderly, very young, and the physically and mentally handicapped are most vulnerable because of the lack of mobility to escape the path of destruction. Currently, approximately 9.6% and 7.0% of Madison County residents are under 5 or over 65 years of age, respectively. People who may not understand watches and warnings due to language barriers are also at risk. Approximately 10.1% of Madison County residents 5 and over speak a language at home other than English, although basic familiarity with English is likely ([Census](#)).

An extremely vulnerable population would also be people that identify as homeless. While exact data is not available on the number of residents in the County that identify as homeless, the City of Rexburg does have one Emergency Shelter for persons fleeing domestic violence ([Housing Idaho](#)).

Impact on Essential Facilities and Other Property

All essential facilities are vulnerable to tornadoes. An essential facility will encounter many of the same impacts as any other building within the jurisdiction. These impacts will vary based on the magnitude of the tornado, but can include structural failure, damaging debris (trees or limbs), roofs blown off, windows broken by debris, hail, high winds, and loss of facility functionality (e.g., a damaged police station will no longer be able to serve the community). Further damage can be caused if high winds are accompanied by heavy rain resulting in [flooding \(flash\)](#).

Building Inventory: The same impacts on buildings within the county can be expected. The impacts are similar to those discussed for critical facilities and include structural failure, damaging debris (trees or limbs), roofs blown off, windows broken by debris, hail, or high winds, and loss of building function (e.g., damaged home will no longer be habitable, causing residents to seek shelter).

Impact on Critical Infrastructure

During a tornado, the types of infrastructure that could be impacted include roadways, utility lines/pipes, railroads, and bridges. Because the County's entire infrastructure is equally vulnerable, it is important to emphasize that any number of these structures could become damaged during a tornado. The impacts on these structures include broken, failed, or impassable roadways, broken or failed utility lines (e.g., loss of power or gas to the community), and railway failure from broken or impassable railways. Bridges could fail or become impassable, causing risk to traffic.

Impact on the Environment

Tornado and high wind events can destroy trees, buildings, and other important infrastructure. Tornadoes have been known to kill animals, damage farmland, and disrupt the food chain. Tornadoes can also cause water contamination, impacting local flora and fauna, not to mention humans. If a high wind or tornado hits power lines or causes gas leaks, fires or contamination can also result.

Impact on Operations

Vulnerabilities associated with tornadoes include the warning siren systems and police/fire/emergency medical facilities, including any staff active during the initial impact of a tornado. All personnel in vehicles are particularly vulnerable during a tornado. Should a tornado make roads impassable or disable communication lines, breakdowns or delays in all potential operations are possible. Private or public urban tree removal services are also vulnerable to tornadoes.

Tornado and High Winds Hazard Evaluation and Impact/Consequence Assessment

Frequency & Probability ¹	Minimally Vulnerable - 25		
Potential Magnitude and Scale ¹	Minimally Vulnerable - 17		
Physical Vulnerability Hazard Impact ¹	Vulnerable - 55		
Social Vulnerability Hazard Impact ¹	Somewhat Vulnerable - 48		
Community Conditions Hazard Impact ¹	Somewhat Vulnerable - 40		
Overall Capability and Capacity ²	Capable - 71		
Mitigation ²	Capable - 67		
Hazard Consequence & Impact Score ¹	Somewhat Vulnerable - 39		
Overall Risk Rating ³	Medium - 31		
Legend			
Score	1: Vulnerability Rating	2: Capability and Capacity Rating	3: Overall Risk Rating
0 – 25	Minimally Vulnerable	Minimally Capable	Low
26 – 50	Somewhat Vulnerable	Somewhat Capable	Medium
51 – 75	Vulnerable	Capable	High
76 - 100	Very Vulnerable	Very Capable	Extreme
N/A	Not Applicable/Unknown	Not Applicable/Unknown	Not Applicable/Unknown

1.6.3.2 Flooding

Flooding is defined by the NWS as the inundation of normally dry areas as a result of increased water levels in an established watercourse. Highlighted in this plan are three different types of flooding events:

- **Riverine or stream flooding:** This is the most common type of flood event in Idaho and occurs when a channel receives too much water, and the excess water flows over its banks and inundates low-lying areas, causing a flood (FEMA 2007). Riverine flooding can occur due to prolonged or heavy rainfall, which is also a cause of flash flooding.
- **Flash flooding:** "a rapid and extreme flow of high water into a normally dry area, or a rapid water level rise in a stream or creek above a predetermined flood level, beginning within six hours of the causative event (e.g., intense rainfall, dam failure, ice jam). However, the actual time threshold may vary in different parts of the country" (NWS 2009).
- **Dam failure:** The Idaho Department of Water Resources (IDWR) defines a dam as an artificial barrier or embankment together with appurtenant works, constructed for the purpose of storing water or that stores water, which is 10 feet or more in height from the natural bend of the stream or watercourse at the downstream toe of the barrier, as determined by IDWR, or from the lowest elevation of the outside limit of the barrier, if it is not across a stream channel or watercourse, to the maximum water storage elevation, and has or will have an impounding capacity at maximum water storage elevation of 50 acre-feet or more. Dams can take many forms, and may not be immediately obvious. The failure occurs when the structure partially or fully gives way.

Flooding can be natural, human-caused, or a combination. Human-caused flooding includes [dam failure](#), levee failure, and activities that increase the rate and amount of runoff such as paving, reducing ground cover, and clearing forested areas.

The amount of damage caused by a flood is influenced by the speed and volume of the water flow, the length of time the impacted area is inundated, the amount of sediment and debris carried and deposited, and the amount of erosion that may take place.

Flooding is a dynamic natural process. Along rivers, streams and coastal bluffs a cycle of erosion and deposition is continuously rearranging and rejuvenating the aquatic and terrestrial systems. Although many plants, animals and insects have evolved to accommodate and take advantage of these ever-changing environments, property and infrastructure damage often occurs when people develop coastal areas and floodplains and natural processes are altered or ignored.

Flooding can also threaten life, safety, and health, and often results in substantial damage to infrastructure, homes, and other property. The extent of damage caused by a flood depends on the topography, soils, and vegetation in an area, the depth, and duration of flooding, velocity of flow, rate of rise, and the amount and type of development in the floodplain.

Flooding is a periodic event along most rivers with the frequency depending on local conditions and controls such as dams and levees. The land along rivers that is identified as being susceptible to flooding is called the **floodplain**. The Federal standard for floodplain management under the **National Flood Insurance Plan (NFIP)** is the 100-year floodplain. This area is chosen using historical data such that in any given year there is a 1% chance of a Base Flood (also known as 100-year Flood or Regulatory Flood). A Base Flood is one that covers or exceeds the 100-year floodplain. In Idaho, flooding most commonly occurs in the spring of the year and is caused by snowmelt.

Flooding in Idaho

Floods occur in Idaho every one to two years and are considered the most serious and costly natural hazards affecting the State. According to NOAA's NCEI storm events database, Idaho experienced 617 flooding events between 1950 and 2017. Total property damage was estimated at over \$180 million and total crop damage was estimated at over \$20 million.

Flood Terminology

A number of flood-related terms are frequently used in this plan and are defined below.

Flood Insurance Study (FIS): A *Flood Insurance Study* is the official report provided by the Federal Insurance Administration, which provides flood profiles, the flood boundary-floodway map, and the water surface elevation of the estimated 100-year base flood.

Flood Insurance Rate Map (FIRM): The Flood Insurance Rate Maps (FIRM) are the official maps on which the Federal Insurance Administration has delineated both the areas of special flood hazards and the risk premium zones applicable to the community.

100-year Base Flood: Base Flood means a flood having a 1% chance of being equaled or exceeded in any given year. Also referred to as the 100-year flood. Since the 100-year flood level is statistically computed using existing data, as more data comes in, the level of the 100-year flood will change. As more data are collected, or when a river basin is altered in a way that affects the flow of water in the river, re-evaluation is needed. Alterations can include dams and urban development and other human-made changes in a basin that affect floods ([USGS](#)).

500-year flood: a flood that has a 0.2% of being equaled or exceeded each year. The nomenclature can be confusing and does not mean this flood will only happen every 500 years. In actuality, this type of flood has at least a 6% of occurring in a 30 year time period with the 100-year flood

Floodplain: A floodplain is land adjacent to a lake, river, stream, estuary or another water body that is subject to flooding. If left undisturbed, the floodplain serves to store and discharge excess floodwater. In riverine systems, the floodplain includes the floodway.

Floodway: Floodway means the channel of a river or other watercourse and the adjacent areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than one foot.

Types of Flooding

Flooding can occur in a number of ways, and many times are not independent of each other and can occur simultaneously during a flood event: The Types of Flooding considered for this Plan include:

- heavy rainfall;
- urban stormwater overflow;
- rapid snowmelt;
- rising ground-water (generally in conjunction with heavy prolonged rainfall and saturated conditions);
- riverine ice jams;
- flash floods;
- fluctuating lake levels;
- alluvial fan flooding

Floodplain Management

Madison County participates in the National Flood Insurance Program as well as the Cities of Rexburg and Sugar City which will be further detailed in the [NFIP](#) Section

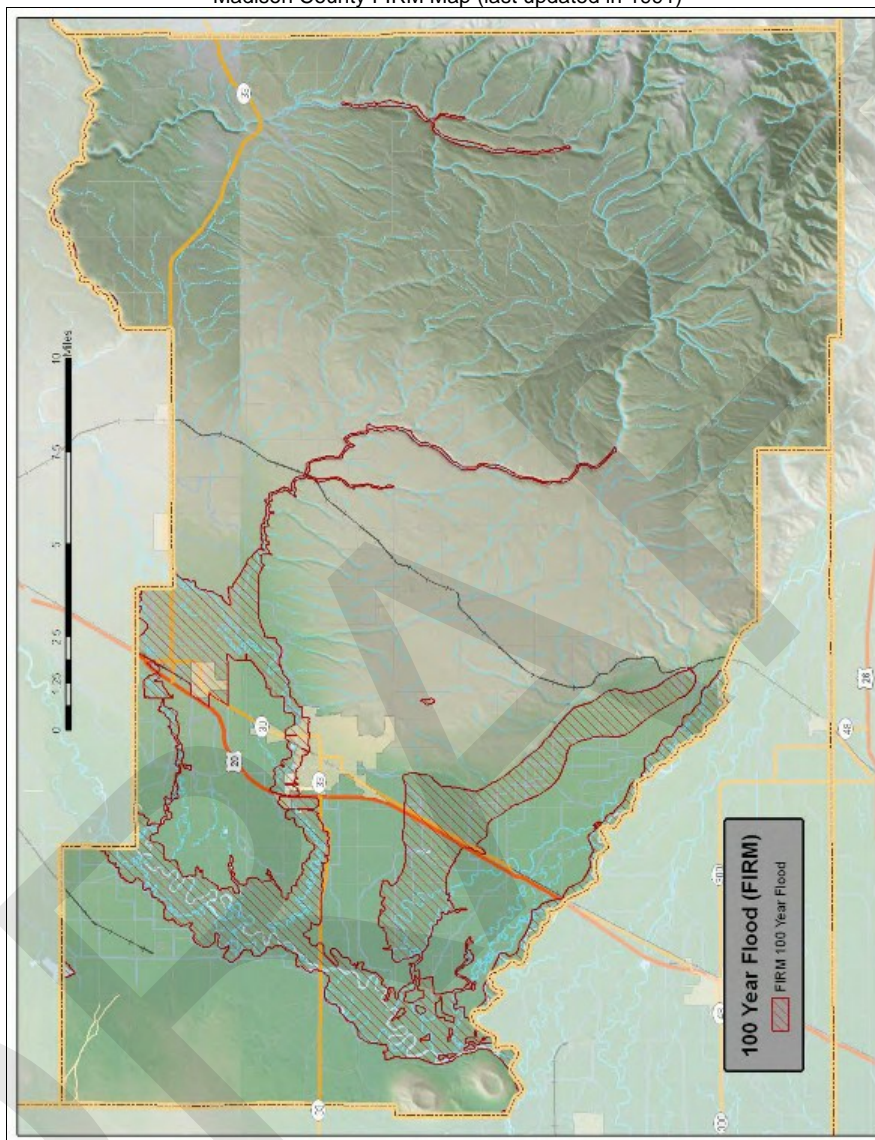
Madison County has no communities within the 100-year flood plain hazard areas that are not participating in the NFIP; Madison County has no communities under

suspension or revocation of participation in the NFIP.

Currently, Madison County is working with FEMA to update flood maps (further detailed under [Flood \(Riverine or Stream\)](#)). The Madison County Flood Plain Administrator is part of the Planning and Zoning Department.

Currently, no jurisdiction in Madison County participates in the **Community Rating System (CRS)**. To encourage communities to go beyond the minimum requirements and further prevent and protect against flood damage, the NFIP established the CRS. To qualify for CRS, communities can do things like make building codes more rigorous, maintain drainage systems, and inform residents of flood risk. In exchange for becoming more flood ready, the CRS community's residents are offered discounted premium rates. Based on the community's CRS ratings, they can qualify for up to a 45% discount on annual flood insurance premiums. Neither the County nor any of the incorporated cities participate in the Community Rating System.

Madison County FIRM Map (last updated in 1991)



1.6.3.2.1 Flood (Riverine or Stream)

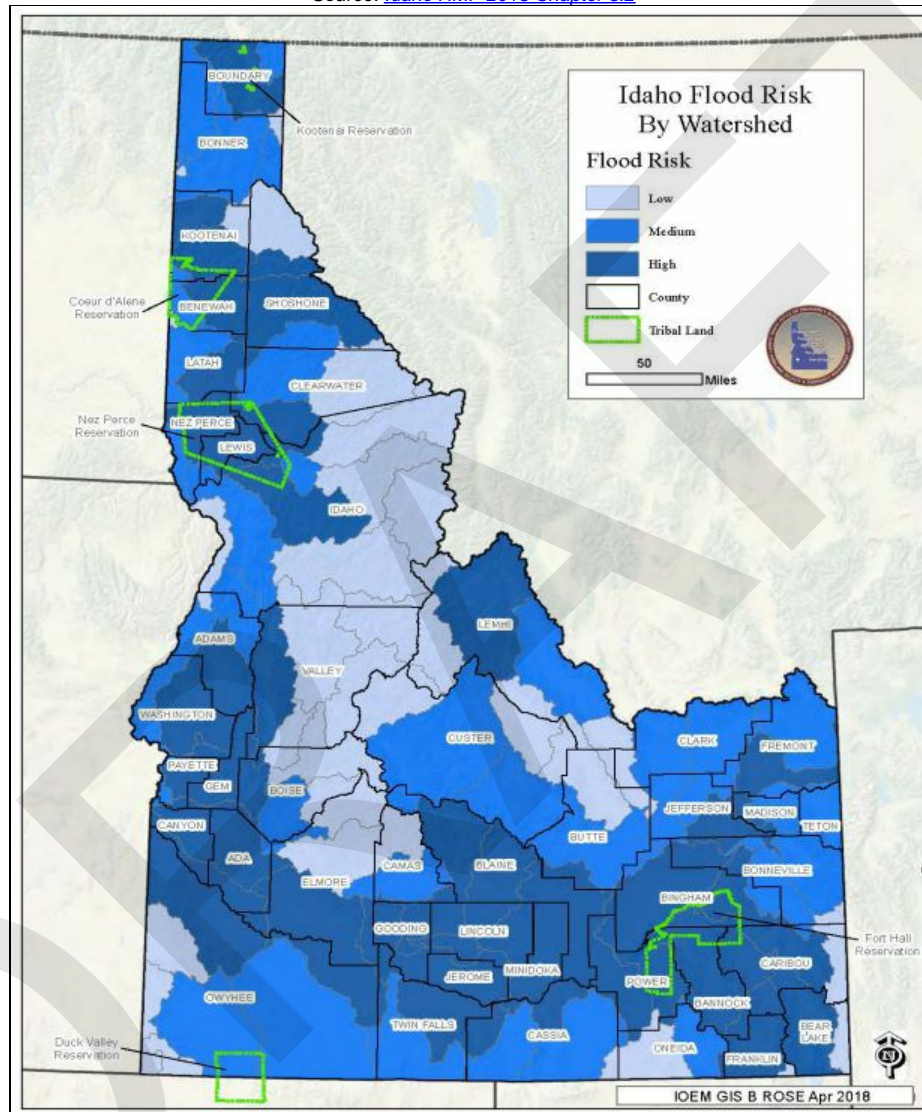
Description

River flooding, the condition where the river rises to overflow its natural banks, may occur due to a number of causes including prolonged, general rainfall, locally intense thunderstorms, snowmelt, and ice jams.

Ordinance No. 717 for the City of Rexburg established areas of special flood hazard. Building in these areas requires permitting before construction can begin ([Rexburg Code](#)). According to the Idaho Department of Water Resources, Madison County has participated in the National Flood Program since 1991 and the last time maps were updated for the program was June of 1991 ([Community Status NFIP](#)). Rexburg and Sugar City began working with FEMA in 2016 to expand current floodplain maps. A floodplain is an area of land near a body of water that is prone to flooding due to factors like rain runoff and stream flow. The newest study, completed by the Strategic Alliance for Risk Reduction and funded by FEMA, will take into account 130 river miles in the Teton Watershed, and includes data gathered between 2009 and 2011 with advanced data gathering methods such as Light Detection and Ranging, or LiDAR ([Rexburg Standard Journal](#)).

FIGURE: Idaho Flood Risk by Watershed

Source: [Idaho HMP 2018 Chapter 3.2](#)



Canals

Madison County has 165.8 miles of Canal. Canals are a necessary part of the agricultural business in the State of Idaho, but as such, they are to be treated as structures to be protected, and are susceptible to flooding as well. Canals can be damaged by flooding, as well as can exacerbate flooding.

38.2 miles of the canal in Madison County is located in the 1% flood event (100-year flood zone), meaning 23% of the canals in the County are in the flood hazard area ([Idaho HMP 2018 Chapter 3.2](#)).

Levees

Important to note are the 3 levee systems in Madison County. In Idaho, there are 203 levee structures and 146 levee systems totaling 247 miles of levees. The average age of levees in the U.S. is 55 years and in Idaho, the average age is also 55. In Madison County, there are 3 Levee Systems totaling 12 miles of levees and 5 levee structures. The reported average age of the levee is 48 years

FIGURE: Levees in Idaho

Source: [National Levee Database](#)

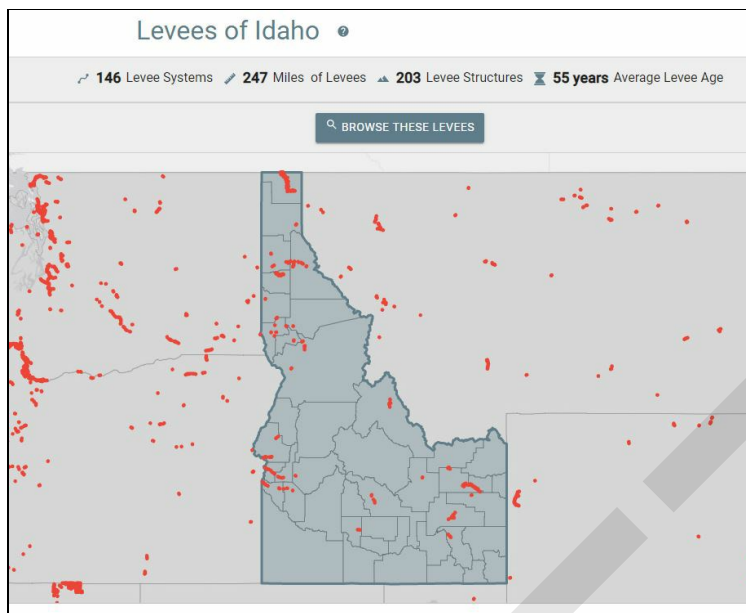
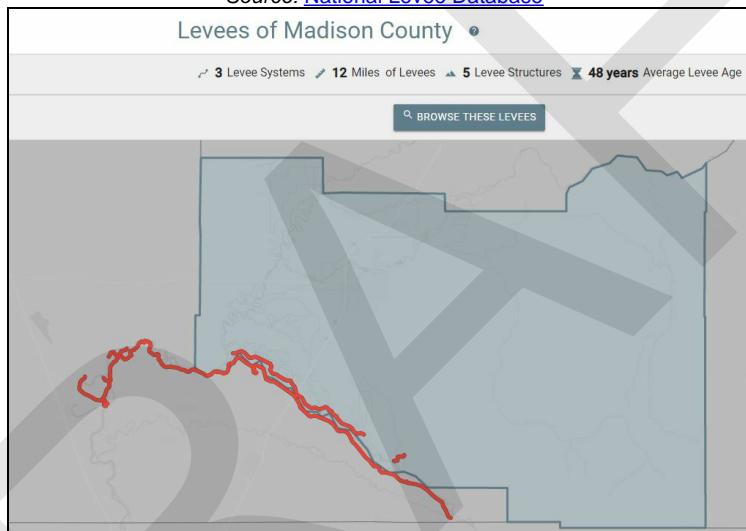


FIGURE: Levees in Madison County

Source: [National Levee Database](#)



In total, 1,467 people are and 499 structures are protected by the levee. The property value of all 3 levee systems is \$85,197,000.

All 3 of the levee systems are classified as "low" under the levee safety action classification. According to the Levee Safety Action Classification Rating Definitions:

- Low means; Likelihood of inundation due to breach and/or system component malfunction in combination with loss of life, economic, or environmental consequences results in low risk.

Levee System	Location	Levee Safety Action Classification	People at Risk (protected by Levee)	Structures at Risk (protected by Levee)	Property Value	Total Miles	Length of Embankment (miles)	Length of Floodwall (miles)	Year Constructed
Heise-Roberts 2 (Right Bank - Upper)*	Rigby, Madison County, Idaho	Low (assessment date 12/19/2016)	1,410	472	\$81.6M	10.08	10.08	0	1952
Lyman Creek (Left Bank)**	Ririe, Madison County, Idaho	Low (assessment date 11/21/2017)	6	2	\$367K	0.79	0.79	0	1971
Lyman Creek (Right Bank)***	Ririe, Madison County, Idaho	Low (assessment date 01/01/2017)	51	25	\$3.23M	0.83	0.83	0	1971

Risk Characterization Summary for Heise-Roberts 2 (Right Bank - Upper): The LSOG considers the risk associated with the Heise – Roberts 2 (Right Bank-Lower) (LST ID 2885) to be Low (LSAC 4) for Prior to Overtopping and to be Low (LSAC 4) for Overtopping. The levee has been loaded to 85% with no performance issues noted. Erosion is the driving risk factor for this levee due to the velocity of 10 feet per second unraveling the unrevetted riverside slopes. Bank caving has been an issue along the length of the levee and is beginning to encroach upon the footprint in a number of areas. The leveed area would experience sheet flow should a breach occur allowing residents to evacuate vertically.

- The Snake River Flood Damage Reduction Project, Heise-Roberts Area, is a federally-authorized, non-Federally operated and maintained group of levee systems on the Snake River in Madison County and Jefferson County, Idaho. Idaho Flood District #1 is responsible for operation and maintenance. The project consists of three separate systems and the Heise-Roberts Right Bank Upper Levee segment accounts for one of them. This segment was constructed in 1952, though there were significant rehabilitation efforts as late as 1964. The segment provides flood reduction benefits along 10.2 miles of rural land on the right bank of the Snake River upstream of the Henry's Fork River. The levee is discontinuous where small sections provide for return flow along Texas Slough and at the Interstate 20 crossing. The levee crest width is typically on the order of 15 ft with a 12 ft minimum. Levee slopes are approximately 2H:1V and landside height vary from 0 to 9 ft. The riverside slope is armored with riprap revetment that was constructed with a top-of-revetment line 2 feet below the levee crest elevation.

****Risk Characterization Summary for Lyman Creek (Left Bank):** The LSOG considers the risk associated with the Lyman Creek (LST ID 711) to be low (LSAC 4) for Prior to Overtopping due to the anticipated good performance and very low associated consequences and also to be low (LSAC 4) for Overtopping due to the relatively infrequent likelihood of overtopping and very low associated consequences. The levee is expected to perform well under significant loading. Uncertainty in embankment seepage performance is due to the culvert condition and unwanted vegetation, there is also uncertainty with embankment stability performance due to excavation into the landslide slope and overseepened slopes near the culverts. These concerns are offset by the fact that the potential for loss of life is very low and the potential economic damages are very low.

- The Lyman Creek Flood Reduction Project, System Q is located on the left bank of the Lyman Creek in Madison County, ID. The project was originally constructed in 1972 and consists of 0.78 miles of levee embankment. The system protects residences, farms, buildings, roads, bridges, and irrigation infrastructure in Madison County.
- Project Type: Federally authorized and non-federally operated and maintained. The project is rural. It is not a multipurpose project.
- Design Flood: 0.01 (100-year) recurrence flood for winter or spring rain on frozen ground (1,500 cfs). Freeboard above design flood: 3.0 feet.
- Project Sponsor: Sunnyside Irrigation District, contact is Keith Munns, President at 208-356-3372 or Leon Mortensen, Board Member at 208-356-5337 or blmortensen@q.com.
- Lyman Creek (Left Bank) is one system, with one segment.

*****Risk Characterization Summary for Lyman Creek (Right Bank):** The LSOG considers the risk associated with the Lyman Creek (Right Bank) (LST ID 1166) to be low (LSAC 4) for Prior to Overtopping due to the anticipated good performance and very low associated consequences and also to be low (LSAC 4) for Overtopping due to the relatively infrequent likelihood of overtopping and very low associated consequences. The levee is expected to perform well under significant loading. Uncertainty in embankment seepage performance is due to the culvert condition and unwanted vegetation, there is also uncertainty with embankment stability performance due to irrigation ditch encroachments. These concerns are offset by the fact that the potential for loss of life is very low and the potential economic damages are very low.

- The Lyman Creek Flood Reduction Project, System P is located on the right bank of the Lyman Creek in Madison County, ID. The project was originally constructed in 1972 and consists of 0.83 miles of levee embankment. The system protects residences, farms, buildings, roads, bridges, and irrigation infrastructure in Madison County.
- Project Type: Federally authorized and non-federally operated and maintained. The project is rural. It is not a multipurpose project.
- Design Flood: 0.01 (100-year) recurrence flood for winter or spring rain on frozen ground (1,500 cfs). Freeboard above design flood: 3.0 feet.

Historical Frequencies

Floods in Madison County reported by [NCDC - NOAA](#):

- 18 flood events were reported between 01/01/1950 and 04/28/2019 (25320 days)
 - For the 18 events, property damaged totaled \$1,481,000. With the exception of \$2,000, all the property damage was caused by 3 events (1 in 2018 and 2 in 2017). The event in 2018 caused \$1,280,000 with 200 miles of County road being washed out. Over 1 million dollars of the damage was road damage.
 - 3/14/2018 flood event: Extensive snowmelt combined with heavy rains to create extensive sheet flooding problems in Madison County. 200 miles of county roads were washed out or damaged. The worst of it came on March 22nd with heavy rains over the county. The majority of the road damage was in the eastern part of the county. The state of Idaho declared Madison County a disaster area on March 19th. Damage estimates on mainly the roads by county officials exceeded one million dollars. Rocky Hollow road was destroyed.
 - From 2008 until the 2018 event, all floods were listed as caused by heavy rain and snowmelt.
 - Although no property damage was reported, the flood event on 4/2/2017 resulted in Madison County declaring a flood emergency. Action was taken to help mitigate riverbank erosion. Erosion occurred due to the high runoff. Some flooding occurred 6 miles east of Lorenzo Highway near Twin Bridges. Over 300 truckloads of riprap rock was delivered to the Sunnyside irrigation canal along the Snake River upstream of Archer Road in the attempt at erosion mitigation. More work was done at the Roth location along the Heise-Roberts levee 1 mile upstream of the Lorenzo Bridge.
- A more detailed spreadsheet can be accessed through [this link](#).

In addition to the NOAA data, the previous Madison County HMP highlighted additional flood events, including 2 events that resulted in federal disaster declaration meaning 3 federal disaster declarations (1962, 1997, and 2018) have been given for flooding (riverine stream) in Madison County. Combining the two sources of information, flood damage is closer to \$2,306,000.

TABLE: Floods in Madison County, Idaho from 1950-2019

Source: www.ncdc.noaa.gov/stormevents

Number of County/Zone areas affected:	3
Number of Days with Event	18
Number of Days with Event and Death	0
Number of Days with Event and Death or Injury	0
Number of Days with Event and Property Damage	5
Number of Days with Event and Crop Damage	0
Number of Event Types reported	1

Madison County Flood Events from the Previous HMP

Place	Date	Time	Event	Details	Reported Damage
Sunnydale/ Archer	3/23/1939		Flood	Snow melting in Lyman Creek Canyon caused flooding	several basements flooded and residents evacuated, some chickens drowned, roads closed
Madison	2/10/1962		Flood	Rain and warm temp. melted snow and caused flooding	Federal disaster declared, residents evacuated, damaged water supplies, \$280,000
Madison	6/24/1943		Flood	Runoff caused flooding	Several roads closed, crops under 3 feet of water
Madison	5/22/1993	2:00 PM	Flood	Teton River reached flood stage briefly, peaked at 6.1 feet	
Southeast County	5/14/1993	9:00 AM	Flood	Henry's Fork reached flood stage for 2 week period, peaked at 10.4 feet	Flooded pasture in lowlands
Madison	3/1997 - 7/1997		Flood	Excessive snowmelt flooded Snake River and its tributaries in southern Idaho, floodwaters reached as far as a mile away from the river and 5' deep	\$275,000, federal disaster declared
Rexburg	5/19/2006	8:00 AM	Flood	Henry's Fork reach flood stage for 1 week period, peaked at 10.1 feet	Outbuildings, parks, and low pasture land flooded

The 1997 Flooding: Rapid snowmelt led to flooded rivers throughout southern Idaho. The Snake River Basin received significant snowfall during the winter of 1996-97, and in higher elevations the snowpack exceeded 250% of normal, causing above normal runoff during the spring melt. Reservoir flows were increased to allow storage capacity, producing the highest flows on the Snake River in 70 years. During June, the spring snowmelt caused extensive flooding along 225 miles of the Snake River and many of its tributaries, from Roberts to Blackfoot. In places, floodwaters ran as far as a mile away from the river and 5' deep. The damage was extensive to numerous roads, canals, farmland, and over 300 homes.

A Federal Disaster was declared on July 7, 1997, for seven counties in SE Idaho: Bingham, Bonneville, Fremont, Jefferson, Madison, Butte, and Custer. Approximately 500 people were evacuated in Jefferson and Bingham counties; more than 50,000 acres of agricultural land was flooded, and over nearly \$1.3 million in grants and loans had been distributed.

Probability for Flood Hazard

Based on the [CVR2](#), this hazard is considered to be "Somewhat Probable/Somewhat Frequent" because significant occurrences of this hazard have happened on occasion (even though isolated or low impact events may occur with more regularity). The 2008 Hazard Mitigation Plan ranked river and stream flooding as the 3rd highest risk hazard with a high frequency and high magnitude score. Given new data, this hazard now ranks the second-highest (following winter storms) in terms of risk ranking.

Repetitive Loss Properties

FEMA defines a repetitive loss structure as a structure covered by a contract of flood insurance issued under the NFIP, which has suffered flood loss damage on two occasions during a 10-year period that bends on the date of the second loss, in which the cost to repair the flood damage is 25% of the market value of the structure at the time of each flood loss. Currently, no properties in Madison County are considered to be repetitive loss structures.

Impacts

Human death and injury sometimes occur as a result of river flooding but are not common. Human hazards during flooding include drowning, electrocution due to downed power lines, leaking gas lines, fires and explosions, hazardous chemicals and displaced wildlife. Economic loss and disruption of social systems are often enormous. Floods may destroy or damage structures, furnishings, business assets including records, crops, livestock, roads and highways, and railways. They often deprive large areas of electric service, potable water supplies, wastewater treatment, communications, and many other community services including medical care, and may do so for long periods of time.

Loss Estimates

There has been **\$2,306,000** in reported damaged due to river flooding in Madison County since 1939. The value of private property within the 100 year flood plain in Madison County as defined by FEMA's HAZUS Loss Estimate Model (see Figure 4.2.3) is as follows:

- Number of Parcels – 2476
- Value of Parcels - \$110,472,019
- Maximum Parcel Value – \$7,222,362
- Building Loss Based on 2 foot depth - \$22,094,000
- Content Loss Based on 2 foot depth - \$33,141,000
- Functional Down Time for Businesses – 30 Days
- Displacement Time for Businesses – 230 Days

According to FEMA's HAZUS Flood Loss Estimate Model the following losses would be expected.

- 1-10% Damage – 36 Residences
- 11-20% Damage – 6 Residences
- 21-30% Damage – 1 Residence

Total Building Related Losses would \$8.07 (\$181,651,442) Million. Total Business Loss due to Interruption would be \$16.56 Million. Total loss due to the event is estimated at \$24.63 Million.

191 (96 \$1969601 / 230 \$19,244,834) Households would be displaced due to the flood. Of these an estimate 332 people would require some sort of temporary public shelter.

A total of 1,489 tons of debris would be generated.

Geographic Location for Flood Hazard

According to the [Idaho HMP 2018](#), 474.6 square miles total area (land and water) is located within the 1% Annual Chance Flood Event (100-year flood zone) Area. Of the total, 10.4% is land and none of the area is considered to be adequately protected by the levee.

Most river flooding occurs in the spring and is the result of excessive rainfall and/or the combination of rainfall and snowmelt. Madison has had one major flood due to an ice jam.

Analysis of Community Development Trends

Developments in the nearest vicinity to water sources are the most at risk of riverine flooding. However, all future developments may be vulnerable to urban flooding due to water control infrastructure that could back up or fail during extreme flood events. Based on the Idaho HMP 2018, with the exception of the urban area, a portion of the suburban, exurban, rural, and commercial and industrial have land use in identified flood hazard areas. The [Idaho HMP Chapter 3.2](#) included projections from 2010 to 2020 by jurisdiction to demonstrate the risk of development changes and Madison County numbers are highlighted in the table below

Year/Change	Urban	Suburban	Exurban	Rural	Commercial/Industrial
2010	0	0.4	17.4	14.1	0.3
2020	0	0.4	19	12.5	0.3
Change	0	0	1.6	-1.6	0

Vulnerability to Future Assets/Infrastructure for Flood Hazard

Any future assets and/or infrastructure built in the floodplain will be susceptible to flooding.

Vulnerability Analysis for Flood Hazard

Madison County is located in Idaho's Upper Snake River Valley. Due to this, Madison County is at risk of riverine and flash flooding. The consequences of flooding can vary greatly. However, this depends on the location, depth, speed, value of the environment, and extent of flooding.

Impact to Madison County Residents

Damage to housing, vehicles, land, crops, or livestock from flood events can be very high during riverine or flash floods. It is possible that flooding can often cause deaths to occur if floodwaters become deep/swift enough to sweep away people or vehicles. It is possible that the sick, disabled, or elderly may not be mobile enough to escape rising floodwaters and may become trapped in their houses. During flooding events, residents may also be at an increased risk for waterborne diseases. For many, the psychological impact of major floods can be intense. Loss of loved ones, homes, and livelihoods can obviously create intense psychological and social disruption.

According to the [Idaho HMP 2018](#), more than 10% of the Madison County population is in a flood hazard area with Madison County ranking third highest out of 7 counties. Using the 2010 Census block centroid, estimated population within Madison County in the 1% flood zones and areas protected by the FEMA-certified levees.

TABLE: Population Located in the 1% Annual Chance Flood Event Boundary and FEMA-Certified Levee Protected Area

Total Population	Population in Flood Hazard Area	Percent of Total Population	Population over 65 in Flood Hazard Area	Percent of Total Population	Low-Income Population in Flood Hazard Area	Percent of Total Population
37,536	5,508	14.7%	454	1.2%	187	<1%

Impact on Essential Facilities and Other Property

The [Idaho HMP 2018](#) highlights that Madison County has a 16.5% replacement cost value located in the 1% Annual Chance Flood Hazard Event Area, one of the highest percentages in the state. An essential facility will encounter many of the same impacts as other buildings within the flood boundary. These impacts can include structural failure, extensive water damage to the facility and loss of facility functionality (e.g. a damaged police station will no longer be able to serve the community). The HAZUS-MH v 4.0 performed for the Idaho HMP estimated that total replacement cost value (RCV) in Madison County was \$3,682,487,000 in 2018. Of that amount, less than 1% is located in the 1% Flood Event Hazard Area; however, the amount is over \$14 million totaling an estimate of \$14,589,000.

Impact on Critical Infrastructure

The Idaho HMP 2018 - 2018 SHMP Hazus analysis showed that Madison County is one of the counties with the greatest population, building stock, and critical facilities exposure to flooding. Impacts on critical infrastructure, such as roads and bridges, may include structural failure and extensive water damage, resulting in a loss of functionality and costly repairs.

Impact on the Environment

Flooded fields can lead to the loss of topsoil as well as damage to crops. Intense flooding can create pollution and disease problems, as well as displace entire ecosystems of local flora and fauna.

Impact on Operations

Flooding events can impact emergency personnel in Madison County in all the same ways as other residents. In addition, flooding events can require a substantial amount of resources and assistance from multiple agencies and departments; these include local emergency response departments, as well as state, federal and non-governmental agencies such as the American Red Cross. A depth of 0.9-1.2m (2.9-3.9 ft) is the maximum depth for rapid access of large emergency vehicles. Flood depths exceeding this may result in first responders being unable to quickly access areas in need of assistance. If critical infrastructure or essential facilities are damaged, first responders may be unable to effectively carry out emergency operations.

Flood (Riverine) Hazard Evaluation and Impact/Consequence Assessment

Frequency & Probability ¹	Somewhat Vulnerable - 50
Potential Magnitude and Scale ¹	Somewhat Vulnerable - 41
Physical Vulnerability Hazard Impact ¹	Vulnerable - 55
Social Vulnerability Hazard Impact ¹	Vulnerable - 56
Community Conditions Hazard Impact ¹	Somewhat Vulnerable - 42
Overall Capability and Capacity ²	Capable - 71
Mitigation ²	Capable - 67
Hazard Consequence & Impact Score ¹	Somewhat Vulnerable - 47
Overall Risk Rating ³	Medium - 48

Legend			
Score	1: Vulnerability Rating	2: Capability and Capacity Rating	3: Overall Risk Rating
0 – 25	Minimally Vulnerable	Minimally Capable	Low
26 – 50	Somewhat Vulnerable	Somewhat Capable	Medium
51 – 75	Vulnerable	Capable	High
76 - 100	Very Vulnerable	Very Capable	Extreme
N/A	Not Applicable/Unknown	Not Applicable/Unknown	Not Applicable/Unknown

1.6.3.2.2 Flood (Flash and Heavy Rain)

Description

Flash flood is defined by NWS as a rapid and extreme flow of high water into a normally dry area, or a rapid water level rise in a stream or creek above a predetermined flood level, beginning within six hours of the causative event (e.g., intense rainfall, dam failure, ice jam). Ongoing flooding can intensify to flash flooding in cases where intense rainfall results in a rapid surge of rising floodwaters. Flash floods differ from floods (discussed below under River Flooding) in the rapidity with which they develop. Floods generally develop over a period of several days, providing more warning time and time for preparation and evacuation. Flash floods occur with little or no warning. They may occur during thunderstorms due to rapid runoff from steep terrain, from areas where the soil is already saturated, or in urban areas where vegetation has been removed and the pavement has replaced exposed soil. Flash floods may also arise as the result of dam failure (discussed below) or the breakup of ice jams.

Historical Frequencies

Flash Flood Weather in Madison County reported by [NCDC - NOAA](https://www.ncdc.noaa.gov/stormevents):

- 5 flash flood and 4 heavy rain weather events were reported between 01/01/1950 and 04/28/2019 (25320 days)
 - For the 9 events, property damaged was a little under 1 million (\$977,000)
 - The heavy rains in 2014 resulted in \$2,000,000 in crop damages and farmers in ranchers qualified for disaster assistance through USDA. Eastern Idaho was estimated to have sustained \$64 million in barely crop damage alone from this event.
 - The 2014 heavy rain event caused \$600,000 in property damage throughout Rexburg, including three-quarters of the buildings on BYU's campus having water in them.
 - The two most recent flash floods (June 2017 and June 2018) caused major damage to roadways.
 - With the exception of one event, all were in summer months. Notably, heavy rain in conjunction with snowmelt and river flood caused compounding damage.
- A more detailed spreadsheet can be accessed through [this link](#).

TABLE: Flash Floods in Madison County, Idaho from 1950-2019

Source: www.ncdc.noaa.gov/stormevents

Number of County/Zone areas affected:	1
Number of Days with Event	8
Number of Days with Event and Death	0
Number of Days with Event and Death or Injury	0
Number of Days with Event and Property Damage	4
Number of Days with Event and Crop Damage	1
Number of Event Types reported	2

TABLE: Madison County Flash Flood Events Prior to 1950

Place	Date	Time	Event	Magnitude	Reported Damage
Rexburg	7/18/1932		Flash Flood	Storm caused flooding on dry farms on the bench	Lawns covered with dirt and rocks, several streets underwater
Moody	3/6/1941		Flash Flood	Rain and melting snow caused flooding	Several thousand dollars damage done to agricultural fields

Impacts

Because flash floods develop so rapidly, people on foot or in automobiles may be stranded or may be swept away and injured or drowned. They are characterized by high-velocity water flow and large amounts of debris, both of which cause damage to or destroy structures and other objects in their path. Other impacts are discussed below under River Flooding.

Loss Estimates

Historical loss estimates due to Flash Flooding have been from several thousands of dollars to hundreds of dollars, however, with the growth being experienced in Rexburg losses due to flash flooding have the potential to significantly increase due to the building of new subdivisions and the expanding BYU campus (as seen from the 2014 event that caused \$600,000 in property damage). Additionally, the 2014 event caused crop damage that likely exceeded \$2 million dollars.

Probability for Flood Hazard

Based on the [CVR2](#), this hazard is considered to be "Somewhat Probable/Somewhat Frequent" because significant occurrences of this hazard have happened on occasion (even though isolated or low impact events may occur with more regularity).

Geographic Location for Flood Hazard

Severe thunderstorms may cause flooding during the summer or fall but tend to be localized.

Flash floods, brief heavy flows in small streams or normally dry creek beds, also occur within the County. Flash flooding is typically characterized by high-velocity water, often carrying large amounts of debris. Urban flooding involves the overflow of storm drain systems and is typically the result of inadequate drainage following heavy rainfall or rapid snowmelt.

Analysis of Community Development Trends

Developments in the nearest vicinity to water sources are the most at risk of riverine flooding. However, all future developments may be vulnerable to urban flooding due to water control infrastructure that could back up or fail during extreme flood events.

Vulnerability to Future Assets/Infrastructure for Flood Hazard

Any future assets and/or infrastructure built in the floodplain will be susceptible to flooding.

Vulnerability Analysis for Flood Hazard

The consequences of flooding can vary greatly, however, depending on the location, depth, speed, value of the environment, and extent of flooding.

Impact on Madison County Residents

Damage to housing, vehicles, land, crops, or livestock from flood events can be very high during riverine or flash floods. It is possible that flooding can often cause deaths to occur if floodwaters become deep/swift enough to sweep away people or vehicles. It is possible that the sick, disabled, or elderly may not be mobile enough to escape rising floodwaters and may become trapped in their houses. During flooding events, residents may also be at an increased risk for waterborne diseases. For many, the psychological impact of major floods can be intense. Loss of loved ones, homes, and livelihoods can obviously create intense psychological and social disruption.

Impact on Essential Facilities and Other Property

An essential facility will encounter many of the same impacts as other buildings within the flood boundary. These impacts can include structural failure, extensive water damage to the facility and loss of facility functionality (e.g. a damaged police station will no longer be able to serve the community).

Impact on Critical Infrastructure

Impacts on critical infrastructures, such as roads and bridges, may include structural failure and extensive water damage, resulting in a loss of functionality and costly repairs.

Impact on the Environment

Flooded fields can lead to the loss of topsoil as well as damage to crops. Intense flooding can create pollution and disease problems, as well as displace entire ecosystems of local flora and fauna.

Impact on Operations

Flooding events can impact emergency personnel in Madison County in all the same ways as other residents. In addition, flooding events can require a substantial amount of resources and assistance from multiple agencies and departments; these include local emergency response departments, as well as state, federal and non-governmental agencies such as the American Red Cross. A depth of 0.9-1.2m (2.9-3.9 ft) is the maximum depth for rapid access of large emergency vehicles. Flood depths exceeding this may result in first responders being unable to quickly access areas in need of assistance. If critical infrastructure or essential facilities are damaged, first responders may be unable to effectively carry out emergency operations.

Flood (Flash) Hazard Evaluation and Impact/Consequence Assessment

Frequency & Probability ¹	Somewhat Vulnerable - 31		
Potential Magnitude and Scale ¹	Somewhat Vulnerable - 49		
Physical Vulnerability Hazard Impact ¹	Vulnerable - 55		
Social Vulnerability Hazard Impact ¹	Somewhat Vulnerable - 48		
Community Conditions Hazard Impact ¹	Somewhat Vulnerable - 36		
Overall Capability and Capacity ²	Capable - 71		
Mitigation ²	Capable - 56		
Hazard Consequence & Impact Score ¹	Somewhat Vulnerable - 46		
Overall Risk Rating ³	Medium - 38		
Legend			
Score	1: Vulnerability Rating	2: Capability and Capacity Rating	3: Overall Risk Rating
0 – 25	Minimally Vulnerable	Minimally Capable	Low
26 – 50	Somewhat Vulnerable	Somewhat Capable	Medium
51 – 75	Vulnerable	Capable	High
76 - 100	Very Vulnerable	Very Capable	Extreme
N/A	Not Applicable/Unknown	Not Applicable/Unknown	Not Applicable/Unknown

1.6.3.2.3 Dam Failure

Description

Dams are structures that retain or detain water behind a large barrier. Idaho has 472 dams in the U.S. Army Corps of Engineers National Inventory of Dams and 99% of these dams are considered "High Hazard Potential Dams" and require an Emergency Action Plan (EAP). 90% of the dams in Idaho are regulated by the state ([National Dam Inventory](#)). The Idaho Hazard Mitigation Plan reports a much higher number of dams in Idaho - 1,100 dams. When full, or partially full, the difference in elevation between the water above the dam and below creates large amounts of energy, creating the potential for failure.

Dam failure is the unintended release of impounded waters. Dams can fail for one or a combination of the following reasons:

- Overtopping caused by floods that exceed the capacity of the dam.
- Deliberate acts of sabotage.
- Structural failure of materials used in dam construction.
- Poor design and/or construction methods.
- Movement and/or failure of the foundation supporting the dam.
- Settlement and cracking of concrete or embankment dams.
- Piping and internal erosion of soil in embankment dams.
- Inadequate maintenance and upkeep.

Many communities view dams as permanent and infinitely safe structures that can yield an over-sense of security and lead to significantly increased risks. Climatic and land-use shifts have been linked to increasing the magnitude of large floods which impacts dams and levees. In addition to failure that results from extreme floods above the design capacity, dams can fail due to structural deficiencies. Dams require constant monitoring and regular maintenance to assure their integrity. The threat of dam, as well as levee failure, may require a substantial commitment of time, personnel, and resources. Since dams deteriorate with age, minor issues become larger compounding problems, and the risk of failure increases.

Failures may be categorized into two types:

- component failure of a structure that does not result in a significant reservoir release, and
- uncontrolled breach failure that leads to a significant release.

With an uncontrolled breach failure of a human-made dam, there is a sudden release of the impounded water, sometimes with little warning. The ensuing flood wave and flooding have enormous destructive power. The Idaho Department of Water Resources (IDWR) is responsible for dam safety in this State. The program is described in detail under [the Dam Safety Program on the IDWR web site](#).

Dams 10 feet or higher or which store more than 50-acre-feet of water are regulated by the Idaho Department of Water Resources. Idaho currently has 546 water storage dams and 21 mine tailings structures that are regulated by IDWR for safety. The Dam Safety Section inspects these dams or tailings structures every other year unless one has a particular problem. Copies of all inspection reports for each of the dams and tailing structures are available at the IDWR State Office in Boise. Inspection reports are also available at the four IDWR Regional Offices for dams and tailing structures located in their specific regions.

Dam Classifications

Each dam inspected by Idaho Water Resources is given both size and risk classification.

Size Classification

- **Small** – 3: Twenty (20) feet high or less and a storage capacity of less than one hundred (100) acre-feet of water.
- **Intermediate** – 2: More than twenty (20) but less than forty (40) feet high or with a storage capacity of one hundred (100) to four thousand (4,000) acre-feet of water.
- **Large** – 1: Forty (40) feet high or more or with a storage capacity of more than four thousand (4,000) acre-feet of water.

Risk Classification

This classification is used by IDWR to classify potential losses and damages anticipated in down-stream areas that could be attributable to the failure of a dam during typical flow conditions.

- **Low Risk – 3:** No permanent structures for human habitation; Minor damage to land, crops, agricultural, commercial or industrial facilities, transportation, utilities or other public facilities or values.
- **Significant Risk – 2:** No concentrated urban development, one (1) or more permanent structures for human habitation which are potentially inundated with floodwater at a depth of two (2) ft. or less or at a velocity of two (2) ft. per second or less. Significant damage to land, crops, agricultural, commercial or industrial facilities, loss of use and/or damage to transportation, utilities or other public facilities or values.
- **High Risk – 1:** Urban development, or any permanent structure for human habitation which is potentially inundated with floodwater at a depth of more than two (2) ft. or at a velocity of more than two (2) ft. per second. Major damage to land, crops, agricultural, commercial or industrial facilities, loss of use and/or damage to transportation, utilities or other public facilities or values.

TABLE: United States Army Corps of Engineers Hazard Potential Classification

Source: [Idaho Hazard Mitigation Plan 2018; Chapter 3.2](#)

Hazard Category	Direct Loss of Life	Lifeline Losses	Property Losses	Environmental Losses
Low	None (rural location, no permanent structures for human habitation)	No disruption of services (cosmetic or rapidly repairable damage)	Private agricultural lands, equipment, and isolated buildings	Minimal incremental damage
Significant	Rural location, only transient or day-use facilities	Disruption of essential facilities and access	Major public and private facilities	Major mitigation required
High	Certain (one or more) extensive residential, commercial, or industrial development	Disruption of essential facilities and access	Extensive public and private facilities	Extensive mitigation cost or impossible to mitigate

Purposes Categories:

N-Industrial, B-Mining, O-Other, C-Commercial, P-Power, D-Domestic, Q-Fire Protection, E- Erosion Control, F-Flood Control, S-Stockwater, G-Wildlife Protection, T-Mine Tailings, H-Fish Propagation, I-Irrigation, J-Stockwater and Irrigation, K-Domestic, Stock and Irrigation, L- Domestic and Irrigation, M-Municipal Supply

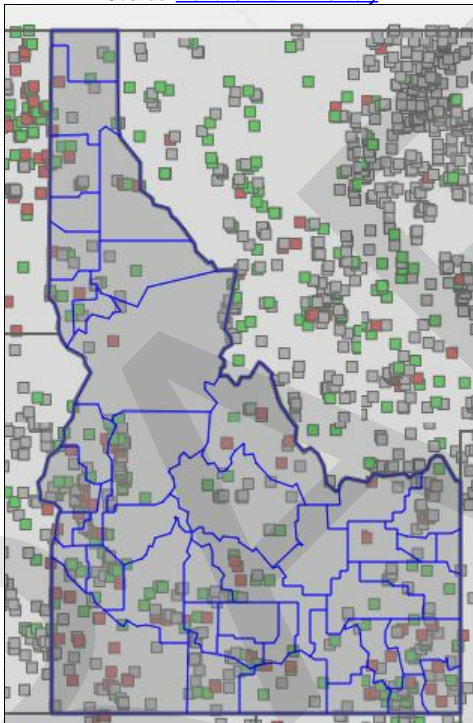
Dam Type

- Earth- Earth Fill,
- Rock- Rock Filled,
- CNGRV- Concrete Gravity,
- CNAR-Concrete Arch,
- MCNAR-Multiple Concrete Arch,
- TMCRB-Timber Crib,
- SLBT-lab and Buttress,
- RKMAS- Rock Masonry,
- Metal-Metal Sheet Pile, and
- AUXDAM-Auxillary Dam

FIGURE: Dams in Idaho

(green indicates dams requiring an EAP that have none, red indicates dams requiring an EAP that do not have one, and grey indicates dams that do not require an EAP)

Source: [National Dam Inventory](#)



According to the National Dam Inventory, there is one (1) active dam in Madison County. This dam is called Webster and the river is Lyons Creek. The NID Height is 22.3 feet and the NID storage is 55 acre-feet. The dam type is "earth." The dam was built in 1976, 42 years ago and is regulated by the state. The primary purpose of the dam is irrigation. The dam was last inspected 7/22/2013 and its hazard potential is low.

A second dam, called B & R Farms, was listed in the 2008 Hazard Mitigation Plan; however, this dam appears to no longer be in use.

While not directly in Madison County, the Ririe Dam and Palisades Dam are nearby and the Palisades Dam has the potential to impact Madison County:

- Ririe: located on Willow Creek which is a minor tributary of the Snake River and is in Bonneville County. The dam was constructed by the Corps of Engineers and is an earth and rockfill structure, 253 feet high, and 1,070 feet long ([USBR](#)).
- Palisades: located on the Snake River and at the time of construction, was the largest volume of material placed in a dam by the Bureau of Reclamation. The dam is a large zoned earth-fill structure that is 270 feet high, has a crest length of 2,100 feet, and contains 13,571,000 cubic yards of material. ([USBR](#)).

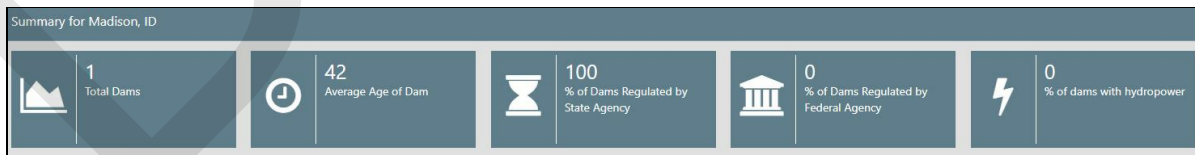


FIGURE: Webster Dam in Madison County (location indicated by blue point)

Source: [National Dam Inventory](#)

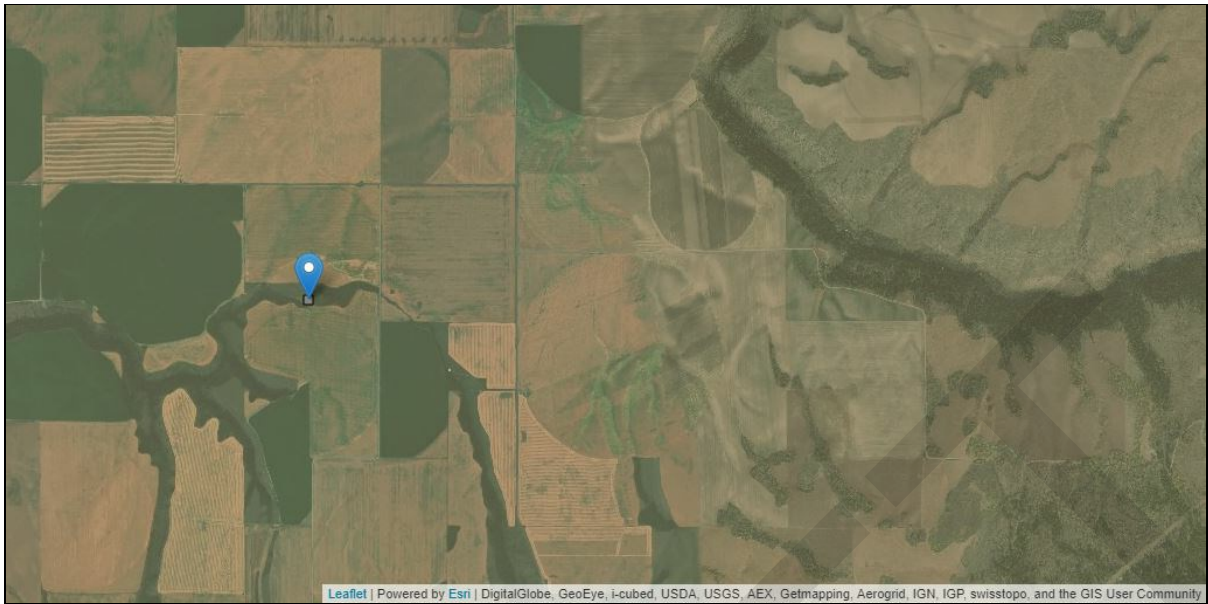


TABLE: Dam in Madison County

Source: [National Dam Inventory](#)

Name	Stream	Owner	Hazard Potential	NID Height	NID Storage	Type	Purpose	Year Completed	EAP
Webster	Lyons Creek	Private but State Regulated	Low	22.3 feet	55 acre-feet	Earth	Irrigation	18	Not required

Historical Frequencies

The Teton Dam Failure is the costliest disaster to ever impact Madison County. The downstream reach of the river led to the extensive development damage (some estimate over \$1 billion in property damage), along with 11 lives and 45,000 livestock lost ([dam safety](#)).

Place	Date	Time	Event	Details	Reported Damage
Madison	6/5/1976	11:57 AM	Dam Failure	Teton Dam breached, released nearly 300,000 acre-feet of water	\$556,000,000, 11 lives lost, 45,000 livestock lost

While this is the only dam failure that has ever occurred in Madison County, the In Idaho, the impact is one that is still being felt, with many of the businesses impacted from the failure, never reopening. Teton Dam was a 300- foot-high earthen dam with a 3,000-foot-long crest and 250,000 acre-feet of stored water. This failure caused significant damages to the downstream Teton-Snake River Valley, with the inundation of an area as much as 9 miles wide and as far as 16 miles downstream of the dam.

The failure of the Teton Dam in 1976 has changed Madison County's perception of hazard mitigation and emergency preparedness. Through firsthand experience Madison County residents learned what it takes to protect lives and then to reconstruct a community; not only the infrastructure and homes but in large measure the economy as well.

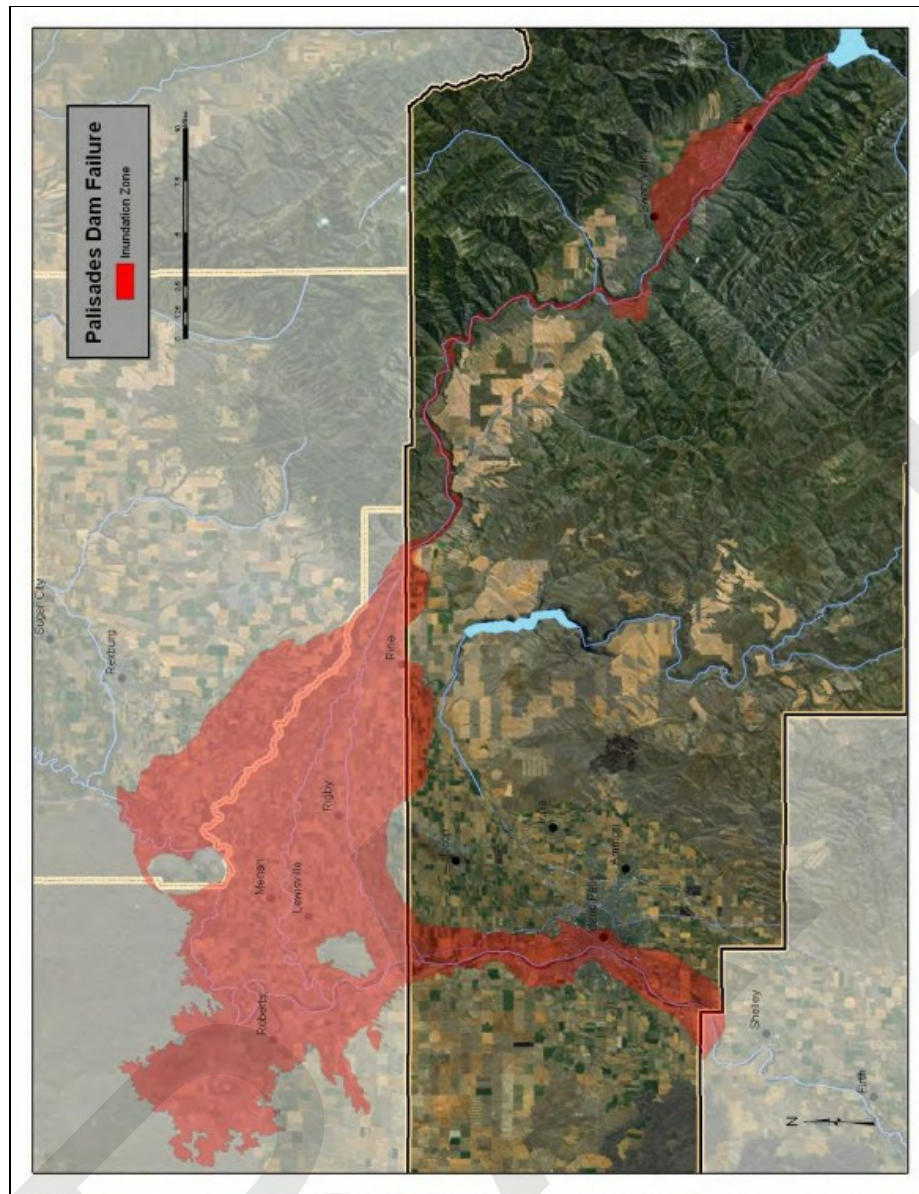
Loss Estimates

Historical loss estimates from the Teton Dam Disaster from Madison County total in excess of \$550 Billion in 1976 dollars. It should be noted that the Teton Dam was located in Teton County and the damage occurred in Madison, Jefferson, Bonneville, and Bingham Counties as floodwaters moved along the Snake River to the American Falls Reservoir. To date, the Teton Dam has not been rebuilt.

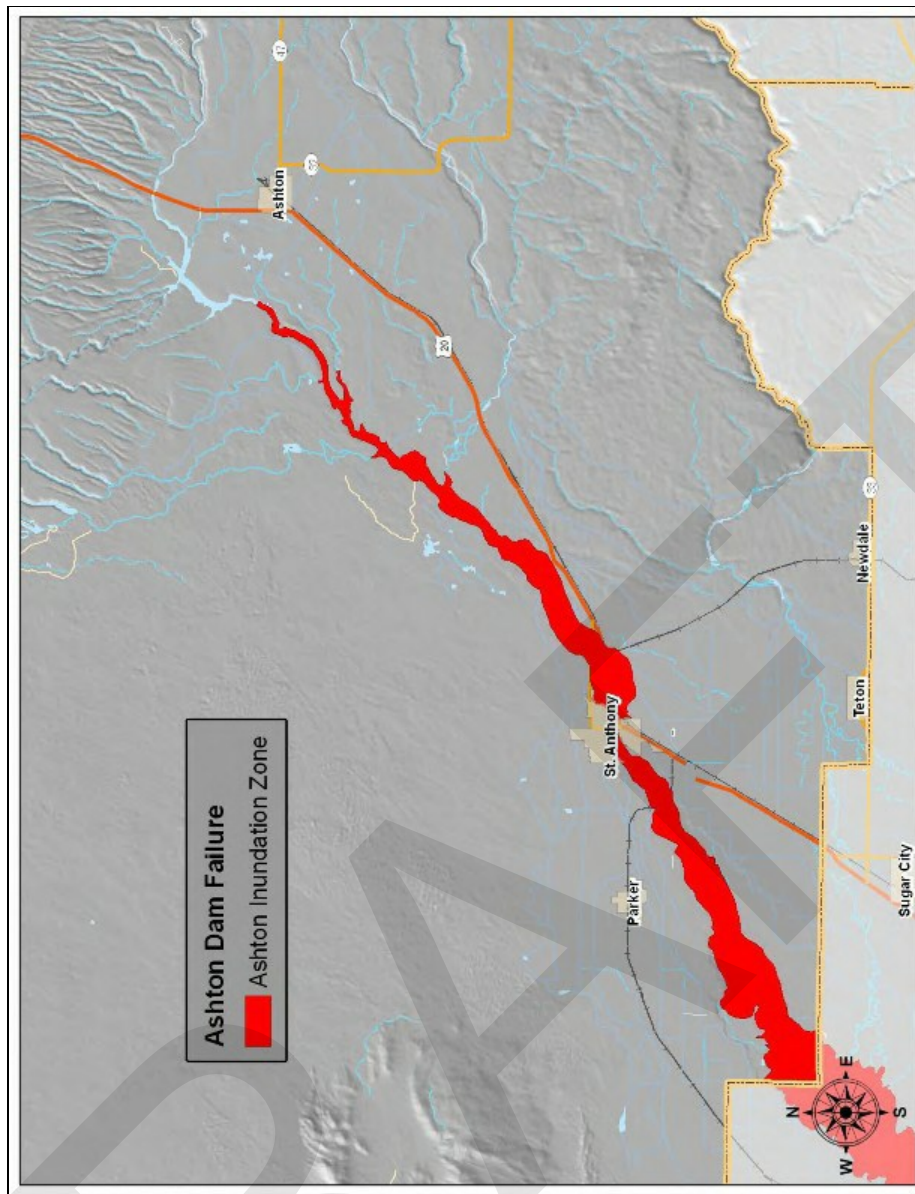
There are a total of 3,826 private property parcels in the Palisades Dam inundation zone in Madison County. The total value of these Madison County parcels is \$110,549,634. In the event of a dam failure, estimated property damage would be \$22,109,800 and estimated content loss would be \$33,164,700 for a total loss estimate of \$55,274,500. Affected businesses could expect a functional down time of 30 days and rebuilding time of as much as 246 days.

Dam Failures along the Snake River would also have an impact on Madison County. For example there are 828 parcels of private property that would be impacted due to a failure of the Ashton or Island Park Dams or the Grassy Lake Dam in Wyoming. Loss estimates from the small dams located in Madison County would be significantly less.

MAP: Palisades Dam Failure Inundation Zone



MAP: Ashton Dam Failure Inundation Zone



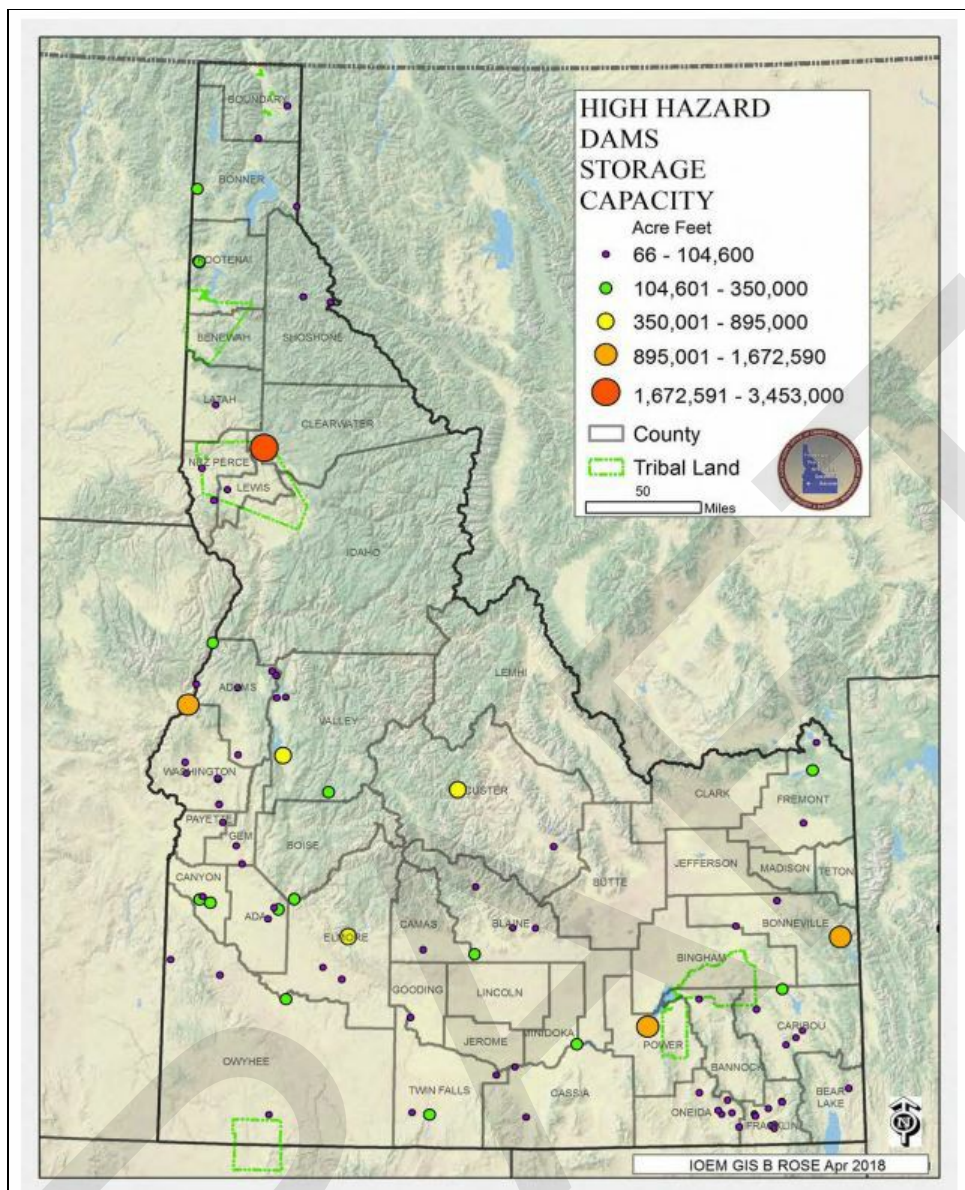
Hazard Evaluation

Risks posed by Dam Failures in Madison County are from Dams located outside of the County along the North and South Forks of the Snake River. Of particular concern is the southern border of Madison County, which is near the Ririe, Antelope Creek, and Palisades Dams (in Bonneville County). The Ririe and Palisades Dam have a "high" hazard potential and are primarily used for flood control and the Antelope Creek dam has a "significant" hazard potential and is used for irrigation.

As highlighted in the [Idaho Hazard Mitigation Plan 2018](#), no high hazard dams are located directly in Madison County.

MAP: High Hazard Dams Storage Capacity

Source: [Idaho Hazard Mitigation Plan 2018](#)



Probability for Dam Failure Hazard

Based on the [CVR2](#), this hazard is considered to be "Not Probable at All/Not Frequent At All", because this hazard was determined to be extremely rare with little to no documented history of significant occurrences or events. While it is possible that low impact events may occur on occasion, the hazard's overall impact on the County and participating jurisdictions would be very minor.

The 2008 Hazard Mitigation Plan ranked dam failure as the second-highest magnitude impact hazard. This ranking was linked to the historical occurrence of the Teton Dam failure which demonstrates the widespread destruction just one failure can cause. Dam failure events are infrequent and usually coincide with events that cause them, such as earthquakes, landslides, and excessive rainfall and snowmelt.

Geographic Location for Dam Failure Hazard

The Webster dam located in Madison County would impact small areas with little or no warning time. Dam Failures which would impact large areas of the County would have hours rather than minutes of warning time.

Loss Estimates

Using historical data, loss estimates of life, livestock, and property are high for the failure of large dams. Additionally, many businesses and residents may not return for an extended time to permanently remain away or closed.

Hazard Extent for Dam Failure Hazard

The probability of any type of dam failure is considered "low" in today's dam safety regulatory and oversight environment. Dam failures typically occur in Idaho as a result of precipitation events. There is a "residual risk" associated with dams. Residual risk is the risk that remains after safeguards have been implemented. For dams, the residual risk is associated with events beyond those that the facility was designed to withstand.

Analysis of Community Development Trends

To reduce hazard potential, land downstream of new dams, or in the vicinity of existing canals, can be zoned or otherwise regulated to limit new construction and exposure. Public awareness measures, such as public education on dam safety, are proactive mitigation measures that should be implemented by local communities. Also, an Emergency Action Plan (EAP) can be done for the Webster dam, even though it is not required. The EAP establishes potential dam failure inundation limits, notification procedures, and thresholds.

Vulnerability to Future Assets/Infrastructure for Dam Failure Hazard

The risk to downstream assets and infrastructure can be reduced substantially with efforts to limit some types of development adjacent to streams and rivers.

Vulnerability Analysis for Dam Failure Hazard

Most of the previously described causes for dam failure can be controlled through good design, proper construction, regular inspection by qualified personnel, and a commitment to strong enforcement to correct identified deficiencies.

Impact on Madison County Residents

Public health risks are associated with dam failures. Particularly for Madison County is the concern of pesticides utilized in crop control. Additionally, the risks associated with [Flooding](#) would apply if a dam failure occurred.

Impact on Essential Facilities and Other Property

The National Dam Safety Program was started in response to the catastrophic dam failures in the 1970s, including the Teton Dam Failure. The Teton Dam Failure impacted every aspect of life in the County, including essential facilities. While no dam exists in the vicinity of Madison County that could cause this extreme of damage, dam failure, particularly from the dams in Bonneville County, could impact essential facilities.

Impact on Critical Infrastructure

Similar to essential facilities, a failure of the Palisades Dam could impact critical infrastructure. If the Webster Dam were to fail, a small portion of the County would be impacted.

Impact on the Environment

Hundreds of dam failures have occurred throughout U.S. history. These failures have caused immense property and environmental damages and have taken thousands of lives. As the nation's dams age and population increases, the potential for deadly dam failures can grow without proper and routine maintenance.

Impact on Operations

Dam failures have the potential to highly impact operations and to prevent failures, more coordination and communication is needed across agencies that regulate waterways, dams, and land use.

Dam Failure Hazard Evaluation and Impact/Consequence Assessment

Frequency & Probability ¹	Minimally Vulnerable - 13		
Potential Magnitude and Scale ¹	Somewhat Vulnerable - 33		
Physical Vulnerability Hazard Impact ¹	Somewhat Vulnerable - 46		
Social Vulnerability Hazard Impact ¹	Vulnerable - 56		
Community Conditions Hazard Impact ¹	Somewhat Vulnerable - 44		
Overall Capability and Capacity ²	Capable - 65		
Mitigation ²	Capable - 56		
Hazard Consequence & Impact Score ¹	Somewhat Vulnerable - 45		
Overall Risk Rating ³	Low - 24		
Legend			
Score	1: Vulnerability Rating	2: Capability and Capacity Rating	3: Overall Risk Rating
0 – 25	Minimally Vulnerable	Minimally Capable	Low
26 – 50	Somewhat Vulnerable	Somewhat Capable	Medium
51 – 75	Vulnerable	Capable	High
76 - 100	Very Vulnerable	Very Capable	Extreme
N/A	Not Applicable/Unknown	Not Applicable/Unknown	Not Applicable/Unknown

1.6.3.3 Geological Hazards

Geologic hazards are adverse conditions capable of causing loss of life and damage to property that involve the movement of geologic features or elements of the surface of the earth. There are a wide variety of such hazards that may be categorized as either sudden or slow phenomena. Slowly developing geologic hazards include soil erosion, sinkholes, and other ground subsidence, and migrating sand dunes. Only sudden geologic hazards will be considered in this planning and will be limited to earthquake, landslide/mudslide, and snow avalanche.

1.6.3.3.1 Earthquake

Description

The U.S. Geological Survey (USGS) defines earthquakes as ground shaking caused by the sudden release of accumulated strain by an abrupt shift of rock along a fracture in the earth or by volcanic or magmatic activity, or other sudden stress changes in the earth. Earthquakes cause both vertical and horizontal ground shaking which varies both in amplitude (the amount of displacement of the seismic waves) and frequency (the number of seismic waves per unit time), usually lasting less than 30 seconds. Earthquakes are measured both in terms of their inherent magnitude and in terms of their local intensity.

The magnitude of an earthquake is essentially a relative estimate of the total amount of seismic energy released and may be expressed using the familiar Richter Scale or using the moment magnitude scale (MMS) now favored by most technical authorities. Both the Richter Scale and the MMS are based on logarithmic formula meaning that a difference of one unit on the scales represents about a thirty-fold difference in the amount of energy released (and, therefore, potential to do damage). On either scale, significant damage can be expected from earthquakes with a magnitude of about 5.0 or higher. What determines the amount of damage that might occur in any given location, however, is not the magnitude of the earthquake but the intensity at that particular place. Earthquake intensity decreases with distance from the earthquake's epicenter (its focal point) but also depends on local geologic features such as depth of sediment and bedrock layers. Intensity is most commonly expressed using the Modified Mercalli Intensity Scale. This measure describes earthquake intensity on an arbitrary, descriptive, twelve-degree scale (expressed as Roman numerals from I to XII) with significant damage beginning at around level VII. Mercalli intensity is assigned based on eyewitness accounts. More quantitatively, the intensity may be measured in terms of peak ground acceleration (PGA) expressed relative to the acceleration of gravity (g) and determined by seismographic instruments.

While Mercalli and PGA intensities are arrived at differently, they correlate reasonably well. While the locations most susceptible to earthquakes are known, there is little ability to predict an earthquake in the short term.

The Idaho Seismic Technical Working Group recently produced a [fact sheet](#) that highlighted the major faults in Idaho and their potential impacts. The fact sheet highlights the two most common threats from an earthquake being high magnitude events and smaller-scale earthquakes occurring over multiple days. The high magnitude events are infrequent; however, these events are catastrophic when they occur ([Idaho Bureau of Homeland Security](#)).

TABLE: Abbreviated Modified Mercalli Intensity Scale

Mercalli Intensity	Description
I	Not felt except by a very few under especially favorable conditions.
II	Felt only by a few persons at rest, especially on upper floors of buildings.
III	Felt quite noticeably by persons indoors, especially on upper floors of buildings. Many people do not recognize it as an earthquake. Standing motor cars may rock slightly. Vibrations similar to the passing of a truck. Duration estimated.
IV	Felt indoors by many, outdoors by few during the day. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motor cars rocked noticeably.
V	Felt by nearly everyone; many awakened. Some dishes, windows broken. Unstable objects overturned. Pendulum clocks may stop.
VI	Felt by all, many frightened. Some heavy furniture moved; a few instances of fallen plaster. Damage slight.
VII	Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable damage in poorly built or badly designed structures; some chimneys broken.
VIII	Damage slight in specially designed structures; considerable damage in ordinary substantial buildings with partial collapse. Damage great in poorly built structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned.
IX	Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb. Damage great in substantial buildings, with partial collapse. Buildings shifted off foundations.
X	Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations. Rails bent.
XI	Few, if any (masonry) structures remain standing. Bridges destroyed. Rails bent greatly.
XII	Damage total. Lines of sight and level are distorted. Objects thrown into the air.

TABLE: Earthquake Magnitude vs. Modified Mercalli Intensity Scale

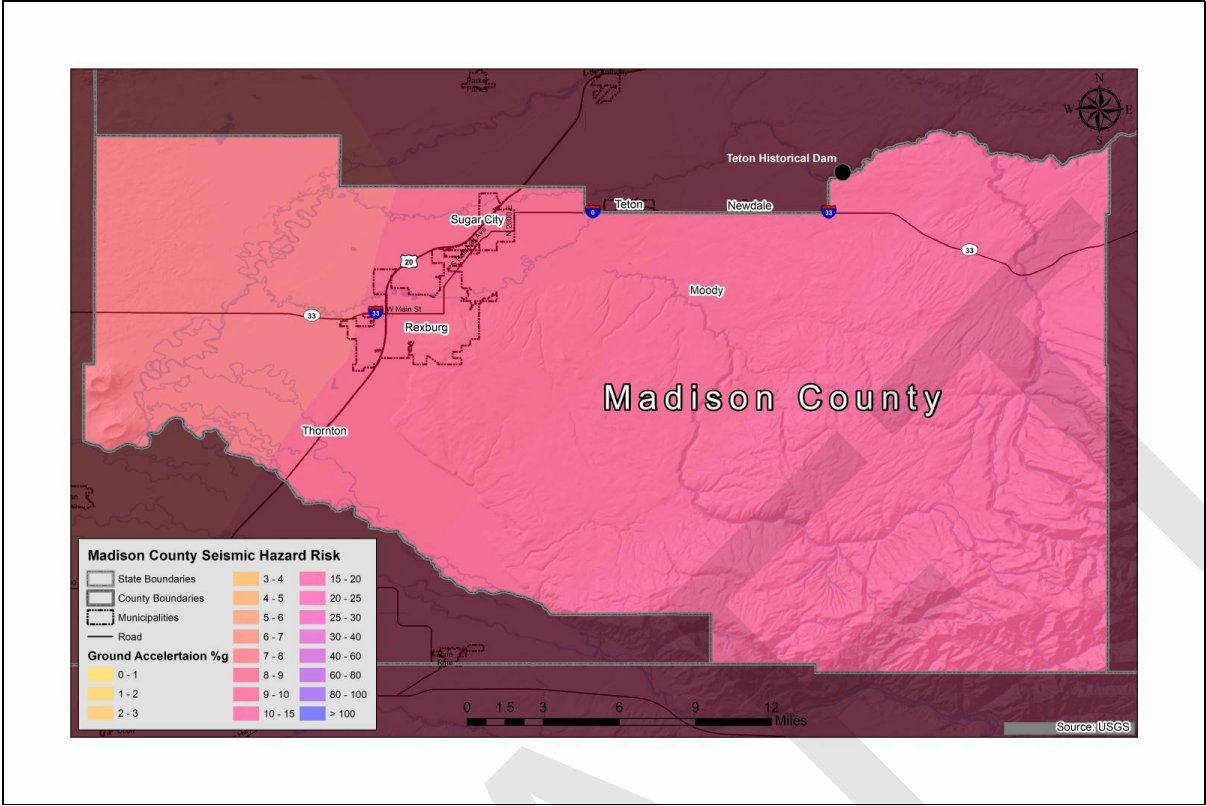
Earthquake Magnitude	Typical Maximum Modified Mercalli Intensity
1.0-3.0	I
3.0-3.9	II-III
4.0-4.9	IV-V
5.0-5.9	VI-VII
6.0-6.9	VII-IX
7.0 and higher	VIII or higher

Hazard Extent

The extent of any felt earthquake will most likely be region and county-wide. Soils along rivers and other bodies of water have higher water tables and higher sand content. As a result, these areas specifically are more susceptible to liquefaction and land shaking. Liquefaction is a phenomenon in which the strength and stiffness of soil are reduced by earthquake shaking as a result of water filling the space between individual soil particles. This can cause buildings to tilt or sink into the ground, slope failures, lateral spreading,

surface subsidence, ground cracking.

FIGURE: Seismic Hazard Risk Level (larger map can be downloaded through this link)



As can be seen in the figures below, two fault lines exist within the County borders and there are many more in several neighboring regions. The Rexburg fault line runs directly through the City of Rexburg and the Heise fault line runs roughly parallel to the rivers south of Rexburg and immediately south of Byrne and Thornton. Both fault lines are only moving at a rate of less than .2 mm/year according to USGS data, and an incident has never been recorded at either location. As shown in the figures below, an earthquake impacting Madison County is far more likely to originate outside of the County to the North or East.

FIGURE: Madison County Faults Map
(Faults Shown in Red)

Source: <https://earthquake.usgs.gov/earthquakes/map/>



FIGURE: Rexburg Fault Line
(Shown by Solid/Dotted Green Line)
Source: [USGS Maps of U.S. Quaternary Faults](#)

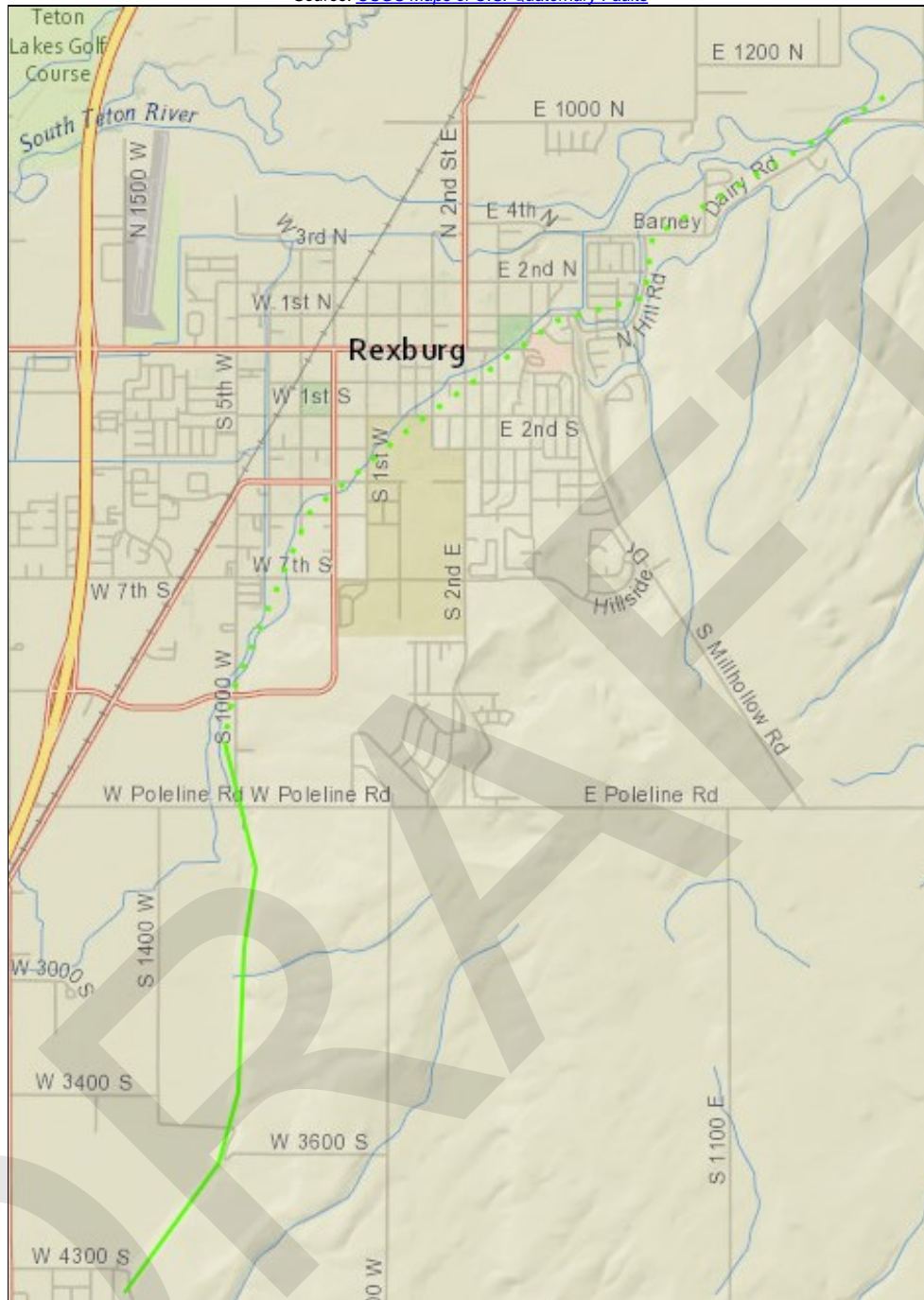
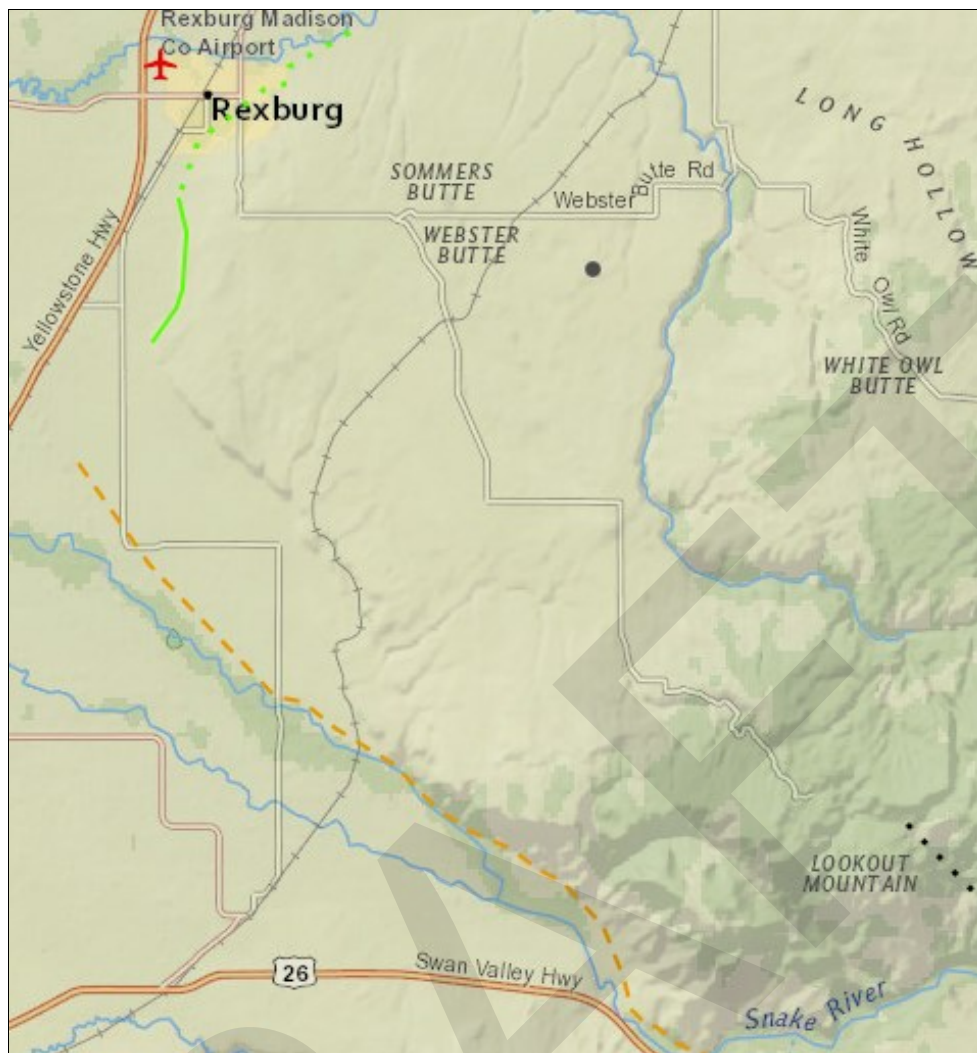


FIGURE: Heise Fault Line
(Shown by Dotted Orange Line)
Source: [USGS Maps of U.S. Quaternary Faults](#)



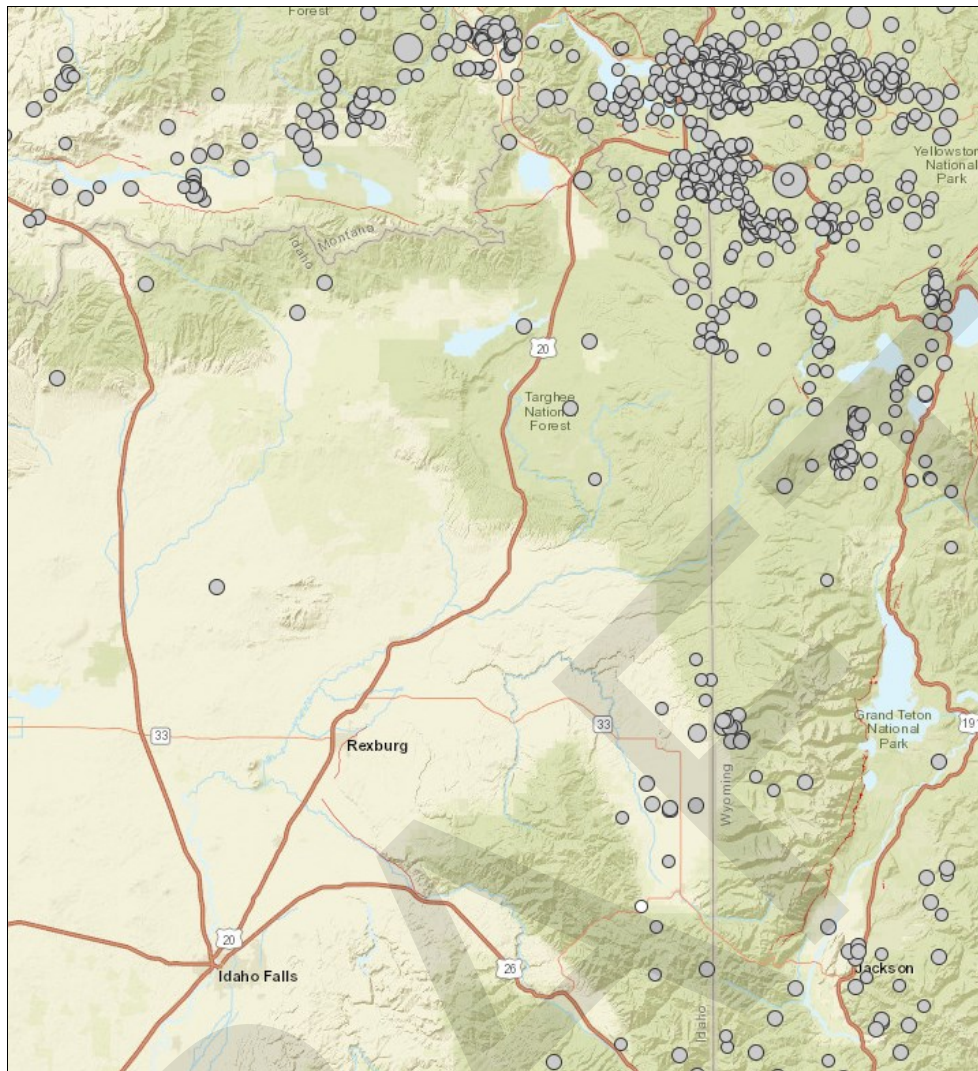
Historical Frequencies

As shown in the figures below, there is no record of an earthquake centered in Madison County in the United Geological Survey's record. There are earthquakes that occur outside of the County that can be felt inside the County, although none has ever been intense enough to cause any notable damage within Madison.

The map below shows every earthquake in the surrounding areas since 1950 that is greater than 2.5 in magnitude.

FIGURE: Historical Earthquakes in the Greater Area Madison County

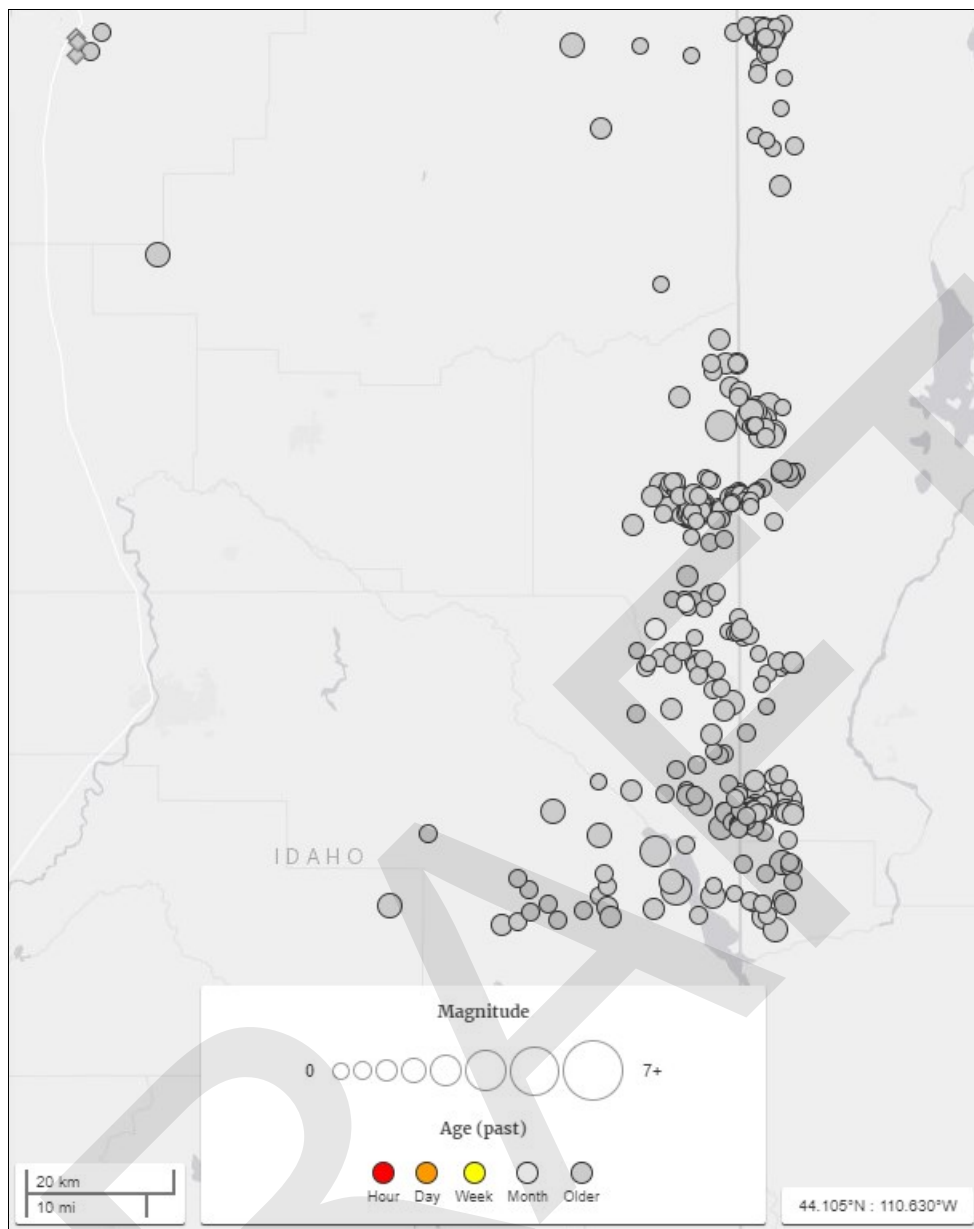
Source: <https://earthquake.usgs.gov/earthquakes/search/>



This map below is a zoomed-in look at Madison County specifically, with the standards lowered to earthquakes of any magnitude at all. As can be seen, there have been no earthquakes of any magnitude recorded in the County, despite many being experienced by neighbors.

FIGURE: Historical Earthquakes Immediately Around Madison County

Source: <https://earthquake.usgs.gov/earthquakes/search/>



- In April 2019, a 4.4 magnitude earthquake occurred 6 miles Northeast of Lima, Montana, but was felt by those in Rexburg around 70 miles away. No immediate reports of damage were recorded.
- On September 3, 2017, a series of 50 minor earthquakes were felt throughout South East Idaho, all occurring within nearby Caribou County. This frequency in such a short time span has been unprecedented for the area.
- The effects of two major earthquakes have been experienced in Eastern Idaho. Hebgen Lake Montana in 1959 and Borah Peak Idaho in 1983 were among the largest in the United States in the past 50 years. These two events combined caused 30 deaths and cost more than \$20 million in losses in spite of having been centered in relatively remote locations.

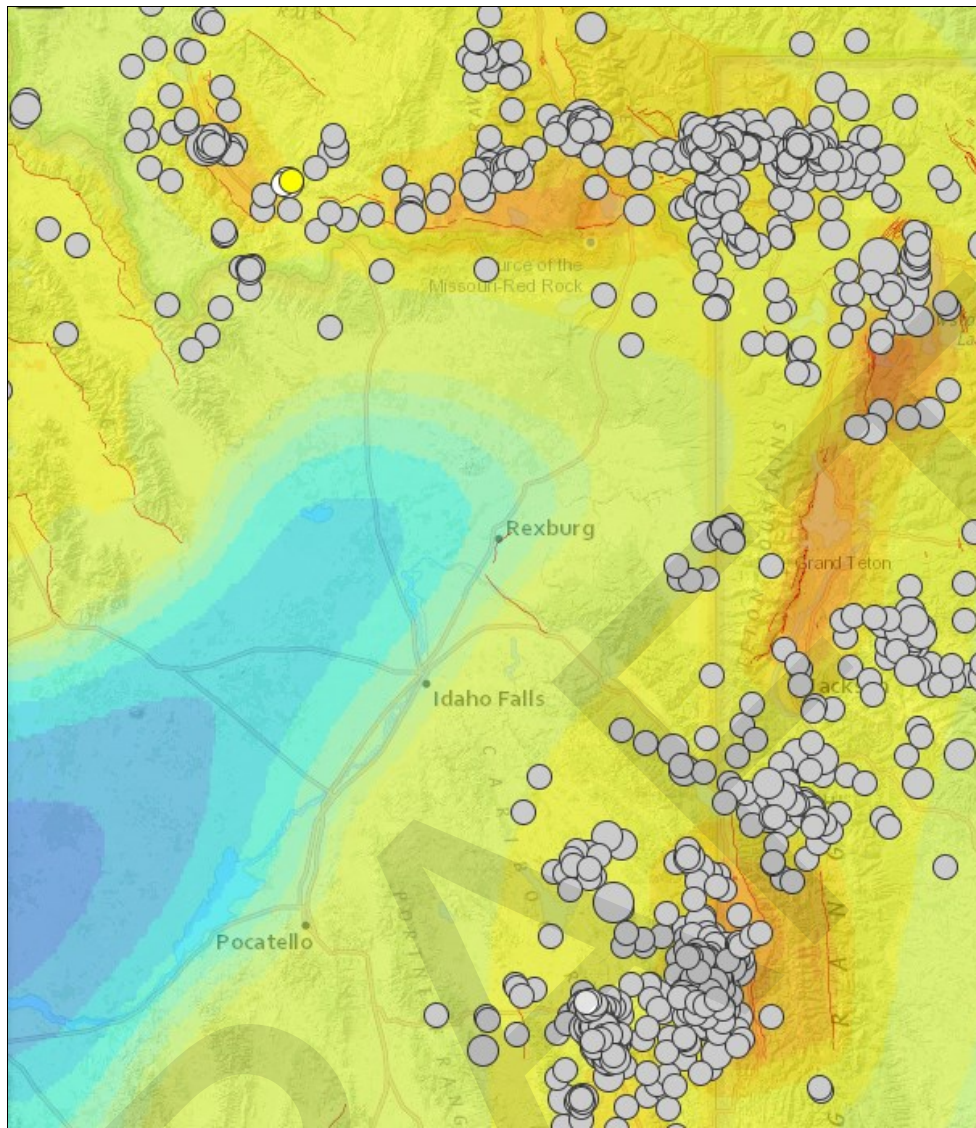
Probability

In the 2008 Hazard Mitigation Plan, earthquakes were ranked as the highest magnitude hazard; however, USGS data demonstrates that the frequency and probability of an earthquake, particularly a high impact earthquake is significantly lower. Based on the [CVR2](#), this hazard is considered to be "Not Probable at All/Not Frequent At All", because this hazard was determined to be extremely rare with little to no documented history of significant occurrences or events. While it is possible that low impact events may occur on occasion, the hazard's overall impact on the County and participating jurisdictions would be very minor.

The map below from the USGS shows the earthquake hazard risk for the area around Madison County - the darker red the color, the higher the probability for damaging earthquakes. Although Madison has several neighbors with higher risk, much of the risk lies on the edges of the snake river plain, but not directly around the County itself. Based on current data, experts estimate the likelihood of a damaging earthquake occurring within Madison County only [10-20 times every 10,000 years](#).

FIGURE: Earthquake Hazard Risk Around Madison County

Source: <https://earthquake.usgs.gov/earthquakes/search/>



Loss Estimates

The effects of two major earthquakes have been experienced in eastern Idaho. Hebgen Lake Montana in 1959 and Borah Peak Idaho in 1983 were among the largest in the United States in the past fifty years. These two events combined caused thirty deaths and cost more than twenty million dollars in losses in spite of having been centered in relatively remote locations.

According to FEMA's HAZUS Loss Estimate Model a magnitude 7.0 probabilistic earthquake in Madison County would yield the following damage:

Building Damage

Table Building Damage

Damage	Slight	Moderate	Extensive	Complete
Single Family	105.78	16.73	0.99	
Other Residential	49.00	16.87	0.71	
Commercial	11.78	3.97	0.51	

Damage to Essential Facilities with Functionality > 50% on Day 1

Hospital – 1
 Schools – 18
 Police Station – 3
 Fire Station – 2
 EOCs - 2

Expected Utility System Damage

Table Utility System Damage

Damage	Potable Water	Waste Water	Natural Gas/Propane
Leaks	18	9	3
Breaks	5	2	1
Oil	0	0	0

The total building-related losses were 3.22 (millions of dollars); 20 % of the estimated losses were related to the business interruption of the region. By far, the largest loss was sustained by the residential occupancies which made up over 61 % of the total loss. Damage to the County Infrastructure would be significant. HAZUS estimates that the total loss to utility and transportation systems would be \$937.91M. The total estimated loss would be \$4.46M in 2000 dollars.

Vulnerability Analysis

Impact on County Residents

All residential housing units are equally at risk of experiencing an earthquake. However, in a mild earthquake, no structural damage is anticipated. In moderate cases, damages are expected to be limited and could include things like broken dishes and windows and toppled file cabinets. Of course, the full impact of a moderate earthquake will have a lot to do with the quality of the structure each resident is in. Poorly built facilities will suffer structural damages at much lower levels of shaking than otherwise. In the unlikely event of a severe earthquake, however, the impact on County residents is likely to be extensive, especially in urban areas. Many buildings could be damaged or even collapse, power and utilities may be disrupted for lengthy periods, fires could break out, transportation could be hindered, and first responders will likely be unavailable for an unknown length of time.

Economic losses local residents and business arise from the destruction of structures and infrastructure, interruption of business activity, and innumerable other sources. In the event of a severe earthquake, this would likely occur on a serious, widespread level, but most earthquake impacts Madison is likely to experience will cause little to no business disruption at all.

Impact on Essential Facilities, Critical Infrastructure, & Other Property

All essential facilities are vulnerable to earthquakes. An essential facility would encounter many of the same impacts as any other building within the county. These impacts include structural failure and loss of facility functionality (e.g., a damaged police station will no longer be able to serve the community).

During an earthquake, the impacts to infrastructure could include broken, failed, or impassable roadways; broken or failed utility lines (e.g., loss of power or gas to the community); and railway failure from broken or impassable railways. Bridges also could fail or become impassable, causing traffic risks. It is also possible that power disruptions due to earthquakes could affect communication infrastructure

Impacts similar to those discussed for essential facilities can be expected for the buildings within the county. These impacts include structural failure and loss of building function that could result in indirect impacts (e.g., damaged homes will no longer be habitable, causing residents to seek shelter). As mentioned previously, areas along rivers or other bodies of water are more susceptible to liquefaction and land shaking which can cause buildings to tilt or sink into the ground.

Impact on Operations

Most mild earthquakes will have very little impact on first responder operations. In the unlikely event of a severe earthquake, it is possible that a massive amount of stress could be placed on the operations of the County. Police, fire response, and emergency medical personnel would likely all be needed in full force during an extreme earthquake event. It is possible that disaster services including medical may be both disabled and overwhelmed.

Impact on the Environment

Mild earthquakes may cause little environmental damage. Significant land and vegetation deformation are likely to occur in the event of a major earthquake, however. During such an event, it is likely that gas, water, and fuel pipelines would all be damaged and cause significant pollution into the environment. Damage to other infrastructure is also likely to release fumes into the atmosphere.

Relationship to Other Hazards

The hazards associated with an earthquake are essentially secondary to ground shaking (also called seismic waves) which may cause buildings to collapse, displacement or cracking of the earth's surface, flooding as a result of damage to dams or levees, and fires from ruptured gas lines, downed power lines and other sources. Avalanches and landslides are two other hazards that can be triggered by seismic events.

Earthquake Hazard Evaluation and Impact/Consequence Assessment

Frequency & Probability ¹	Minimally Vulnerable - 13		
Potential Magnitude and Scale ¹	Minimally Vulnerable - 9		
Physical Vulnerability Hazard Impact ¹	Somewhat Vulnerable - 26		
Social Vulnerability Hazard Impact ¹	Somewhat Vulnerable - 42		
Community Conditions Hazard Impact ¹	Somewhat Vulnerable - 32		
Overall Capability and Capacity ²	Capable - 71		
Mitigation ²	Capable - 67		
Hazard Consequence & Impact Score ¹	Somewhat Vulnerable - 31		
Overall Risk Rating ³	Low - 22		
Legend			
Score	1: Vulnerability Rating	2: Capability and Capacity Rating	3: Overall Risk Rating
0 – 25	Minimally Vulnerable	Minimally Capable	Low
26 – 50	Somewhat Vulnerable	Somewhat Capable	Medium
51 – 75	Vulnerable	Capable	High
76 - 100	Very Vulnerable	Very Capable	Extreme
N/A	Not Applicable/Unknown	Not Applicable/Unknown	Not Applicable/Unknown

1.6.3.3.2 Landslide

Landslide Definition

Landslides are a serious geologic hazard common to almost every state in the United States. It is estimated that nationally they cause up to \$2 billion in damages and from 25 to 50 deaths annually. Globally, landslides cause billions of dollars in damage and thousands of deaths and injuries each year.

The term landslide is a general designation for a variety of downslope movements of earth materials. Some landslides move slowly and cause damage gradually, whereas others move so rapidly that they can destroy property and take lives suddenly and unexpectedly. Gravity is the force driving landslide movement. Factors that allow the force of gravity to overcome the resistance of earth material to landslide movement include saturation by water, steepening of slopes by erosion or construction, alternate freezing or thawing, earthquake shaking, and volcanic eruptions. There are three main types of landslides that occur in Idaho: 1) rotational slump, 2) earthflow, and 3) rockfall.

Rotational slumps are characterized by the movement of a mass of weak rock or sediment as a block unit along a curved slip plane. These slumps are the largest type of landslide in Idaho, commonly involving hundreds of thousands of cubic yards of material and extending for hundreds of feet. Rotational slumps may develop comparatively slowly and commonly require several months or even years to reach stability; however, on occasion, they may move rapidly, achieving stability in only a few hours.

Earth flows involve rock, sediment, or weathered surface materials moving downslope in a mass. Characteristically, earth flows involve a weathered mass of rock or sediment that flow downslope as a jumbled mass, forming a hummocky topography of ridges and swales. Earth flows are most common in weathered surface materials and do not necessarily indicate weak rock. The rate of movement of an earthflow is generally quite slow.

Rockfalls are extremely rapid, and potentially dangerous, downslope movement of earth materials. Large blocks of massive bedrock may suddenly become detached from a cliff or steep hillside and travel downslope in a free fall and rolling, bounding, or sliding manner until a position of stability is achieved. Most rockfalls in Ohio involve massive beds of sandstone or limestone. Surface water seeps into joints or cracks in the rock, increasing its weight and causing expansion of joints in freezing temperatures, prying blocks of rock away from the main cliff. Weak and easily eroded clay or shale beneath the massive bed is an important contributing factor to rockfall.

Landslides are typically associated with periods of heavy rainfall or rapid snowmelt and tend to worsen the effects of flooding that often accompany these events. In areas burned by forest and brush fires, a lower threshold of precipitation may initiate landslides.

Table: Landslide Velocity Classification

Source: [Idaho Hazard Mitigation Plan 2018, Chapter 3.7](#)

Description	Velocity Range
Extremely Rapid	> 5 m/sec
Very Rapid	3 m/min - 5 m/sec
Rapid	1.8 m/hr - 3 m/min
Moderate	12 m/month - 1.8 m/hr
Slow	1.6 m/yr - 13 m/month
Very Slow	16 mm/yr - 1.6 m-yr
Extremely Slow/ Negligible	16 mm/yr

Historical Frequencies

- March 1997 - Federal Declaration Number DR-1154 - the landslide impacted multiple counties including Madison, Benewah, Bingham, Bonner, Bonneville, Boundary, Butte, Custer, Fremont, Jefferson, Kootenai, and Shoshone.

Loss Estimate

Of the 480.723 miles of road in Madison County 91 miles are in potential landslide areas. The total potential loss to roadway due to Landslides in Madison County is \$91 Million.

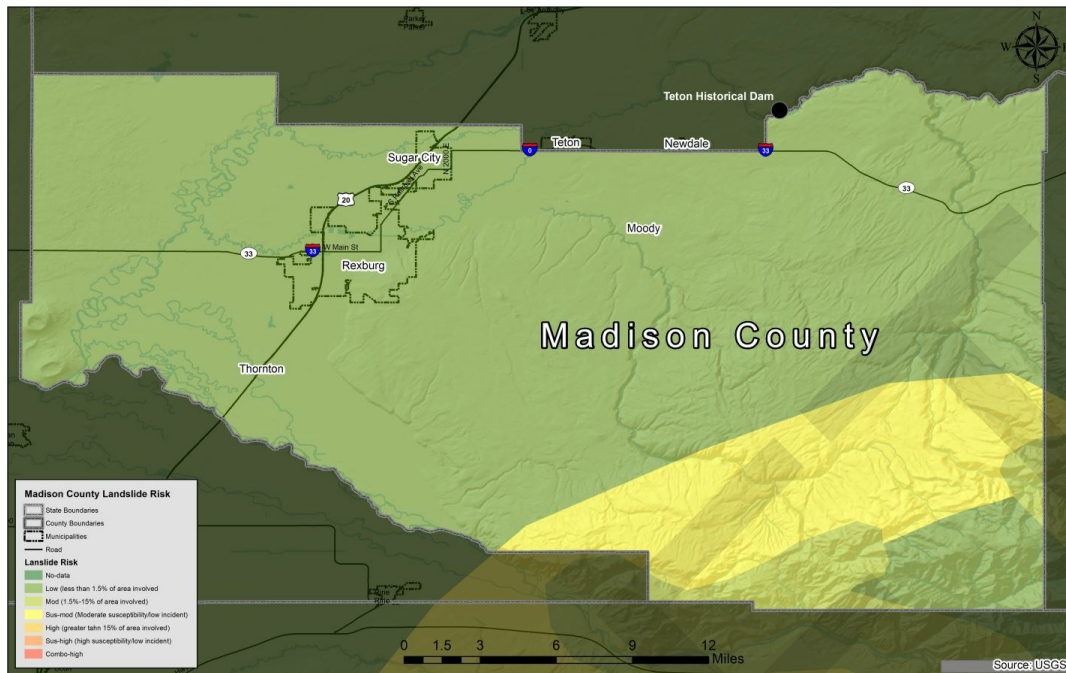
Probability for Landslide Hazard

Based on the [CVR2](#), this hazard is considered to be "Not Probable at All/Not Frequent At All", because this hazard was determined to be extremely rare with little to no documented history of significant occurrences or events. While it is possible that low impact events may occur on occasion, the hazard's overall impact on the County and participating jurisdictions would be very minor.

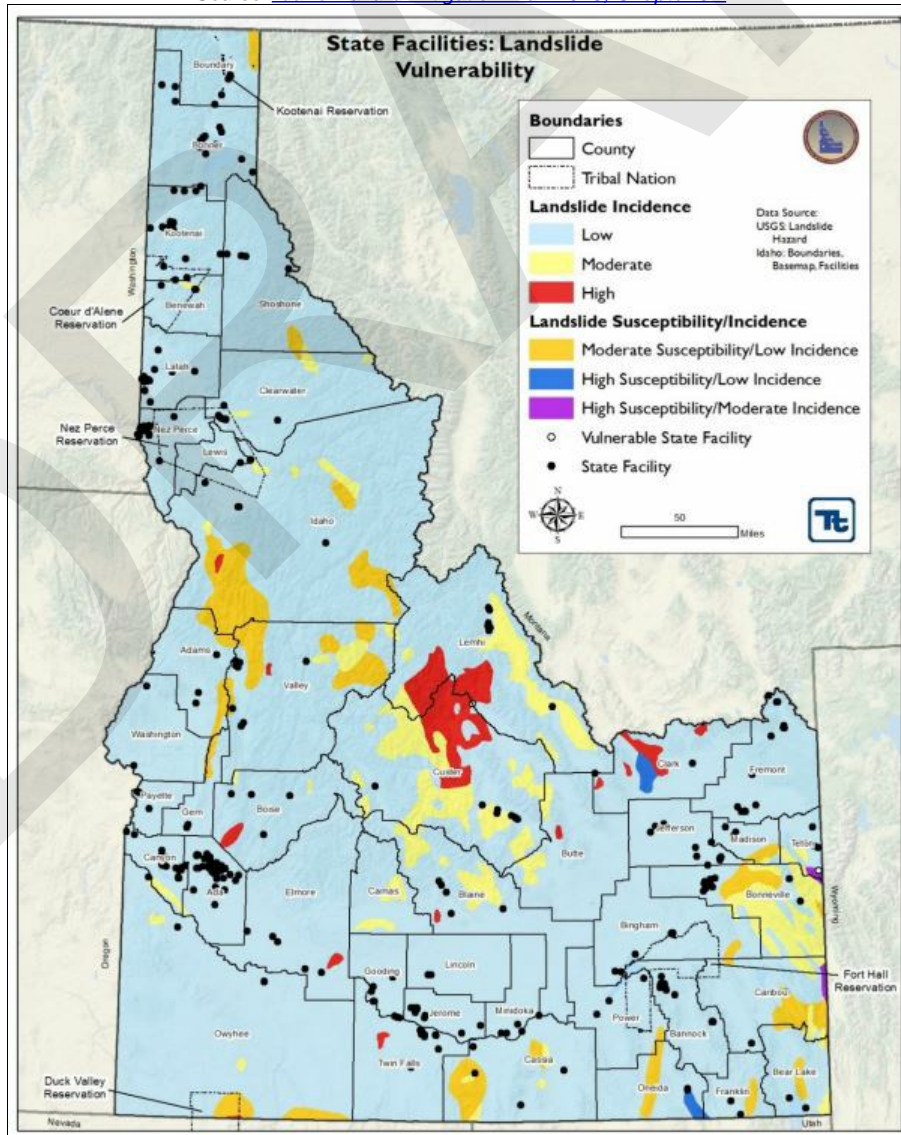
Geographic Location for Landslide Hazard

The southeastern portion in the Big Hole Mountains has the highest probability for this type of event, as highlighted in the maps below. Kelly Canyon Ski Resort is in this area.

MAP: Madison County Landslide Risk - a larger map can be downloaded [here](#)



MAP: State Facilities Landslide Vulnerability
 Source: [Idaho Hazard Mitigation Plan 2018, Chapter 3.7](#)



Loss Estimates

According to the [Idaho Hazard Mitigation Plan 2018, Chapter 3.7](#), no specific statewide loss estimation exists for landslides. Idaho's HMP also highlights that Madison County does not have any state-owned or leased buildings, County critical infrastructure, general building stock, or canals in the landslide hazard area. Additionally, no members of the Madison County population are located in landslide hazard areas.

While landslide damage is historically tracked more for infrastructure damages than the loss of life and injuries, some of the many direct and indirect impacts of landslides are:

- Human and animal deaths and injuries and resulting productivity losses
- Damage or destruction of structures
- Destruction or blockage of roadways and resulting transportation interruption
- Loss of, or reduced land usage
- Loss of industrial, agricultural and forest productivity
- Reduced property values in areas threatened by landslide
- Loss of tourism revenues and recreational opportunities
- Damage or destroyed infrastructure and utilities
- Damming or alteration of the course of streams and resulting flooding
- Reduced water quality

Hazard Extent for Landslide

The extent of the landslide hazard is closely related to development near the regions that are at risk. Additionally, landslides are often triggered by other natural hazards such as earthquakes, heavy rain, floods or wildfires, so landslide probability is often related to the frequency of these other hazards. The potential for a landslide is connected to major storms that saturate steep and vulnerable soils. The more saturated the ground is, the more significant of a landslide that can occur. Landslide occurrence is not directly attributed to a meteorological event, such as the 1-percent-annual-chance or 100-year snowfall; though rainfall events are one known cause of events.

Analysis of Community Development Trends

The area with the highest susceptibility for landslides, southeastern Madison County where the Big Hole Mountains is located, is currently unpopulated with minimal infrastructure. As highlighted under the [Snow Avalanche](#) section, avalanches have occurred in this area resulting in death or injury of snowmobilers. Recreational outdoor activity is a draw for the community and tourists and measures should be taken to prevent activity in this area following severe storms that leave the ground saturated.

Vulnerability to Future Assets/Infrastructure for Landslide Hazard

Future development in the southeastern portion of Madison County would be the most susceptible to this type of hazard.

Vulnerability Analysis for Severe Landslide Hazard

While the majority of Madison County, particularly the populated area, is in an area considered "low" risk, important to note is that areas directly affected by wildfire and those located below or downstream of burn areas are most at risk for mudflows. Human development within forested areas has increased the risk to life and property as a result of wildfire, which can in turn increase risk to landslides. According to the USGS, post-fire landslide hazards include fast-moving, highly destructive debris flows in years following a wildfire event due to heavy rainfall events; they can occur with little warning, can exert great impulsive loads on objects in their paths, damage structures, and endanger human life ([USGS](#)).

Although landslides are often associated with mountainous areas, occurrences may happen outside of this geographic region due to precipitation events and/or saturated soils which would most likely occur in may be expected to occur in the winter (heavy rainstorms), spring (during snowmelt), or summer (significant thunderstorms).

Impact on Madison County Residents

According to the Idaho HMP 2018, the two populations considered most vulnerable are the elderly (persons over the age of 65) and individuals living below the United States Census poverty threshold. Both populations are most susceptible based on a number of factors including their physical and financial ability to react or respond during a hazard, the location and construction quality of their housing, and the ability to be self-sustaining for prolonged periods after an incident because of limited ability to stockpile supplies.

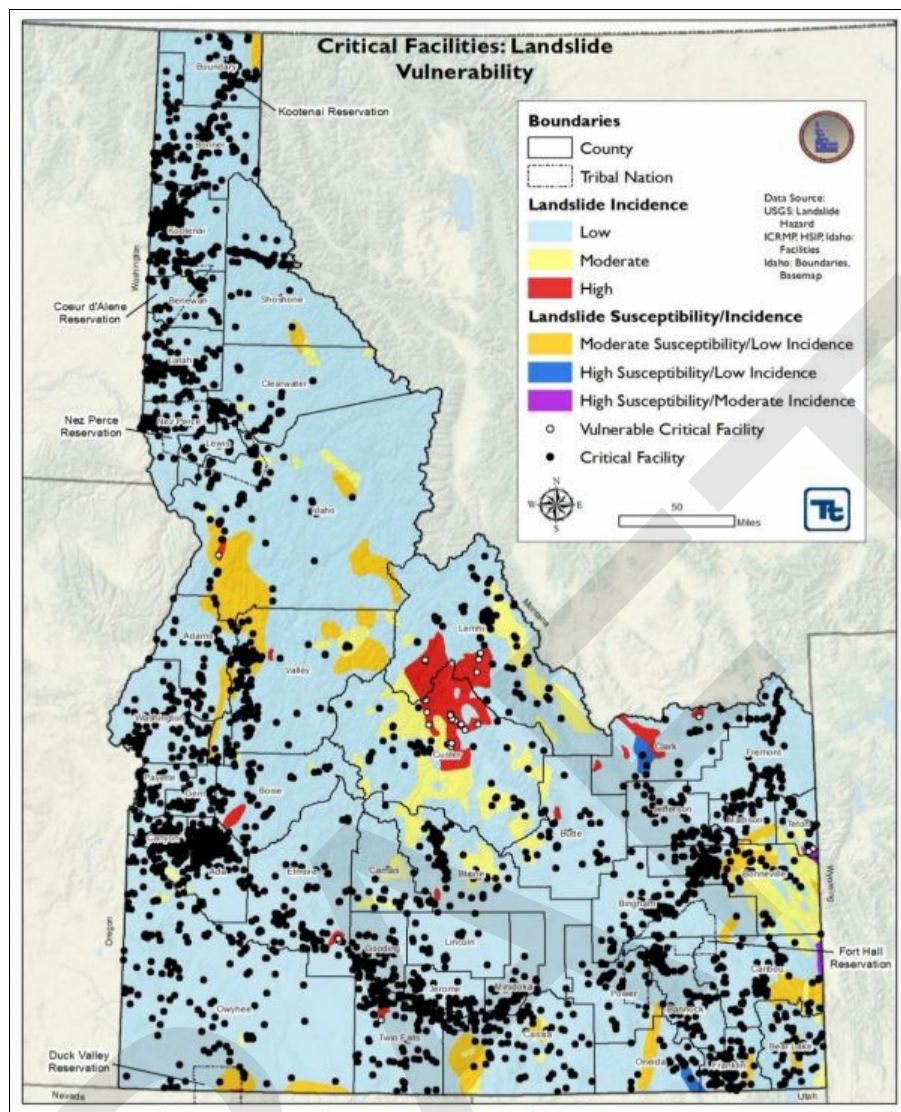
Impact on Essential Facilities and Other Property

No essential facilities are located in the area of Madison County identified as "sus-mod" meaning moderate susceptibility/low incident, which is the highest landslide risk identified in Madison County.

Impact on Critical Infrastructure

No critical facilities are located in the area of Madison County identified as "sus-mod" meaning moderate susceptibility/low incident, which is the highest landslide risk identified in Madison County.

MAP: Critical Facilities Landslide Vulnerability
Source: [Idaho Hazard Mitigation Plan 2018, Chapter 3.7](#)



Impact on the Environment

Landslides have minor environmental impacts compared to several other hazards discussed in the HMP. However, landslides are more harmful, especially to the environment, than avalanches, which have the buffering effects of snow cover. Impacts are typically localized to the extent the landslide occurs; however, landslides have the potential to alter floodplains and drainage patterns, especially when carrying debris that can form dams.

Impact on Operations

Minimal infrastructure is located in the area most susceptible to a landslide; however, if a landslide were to occur in the populated portions of Madison County major roads or critical facilities would be impacted and operations would be impeded with resulting costs of debris removal, stabilizations, restoration, maintenance, response, and post de facto litigation. However, given no historical occurrences of landslides in these areas, operations would likely not be interrupted in Madison County if a landslide occurred in the southeastern region of the County given the geographic isolation of impact from a landslide.

Landslide Hazard Evaluation and Impact/Consequence Assessment

Frequency & Probability ¹	Minimally Vulnerable - 13
Potential Magnitude and Scale ¹	Somewhat Vulnerable - 30
Physical Vulnerability Hazard Impact ¹	Somewhat Vulnerable - 41
Social Vulnerability Hazard Impact ¹	Somewhat Vulnerable - 27
Community Conditions Hazard Impact ¹	Somewhat Vulnerable - 29
Overall Capability and Capacity ²	Capable - 71
Mitigation ²	Capable - 67
Hazard Consequence & Impact Score ¹	Somewhat Vulnerable - 32
Overall Risk Rating ³	Low - 20

Legend

Score	1: Vulnerability Rating	2: Capability and Capacity Rating	3: Overall Risk Rating
0 – 25	Minimally Vulnerable	Minimally Capable	Low
26 – 50	Somewhat Vulnerable	Somewhat Capable	Medium
51 – 75	Vulnerable	Capable	High
76 - 100	Very Vulnerable	Very Capable	Extreme
N/A	Not Applicable/Unknown	Not Applicable/Unknown	Not Applicable/Unknown

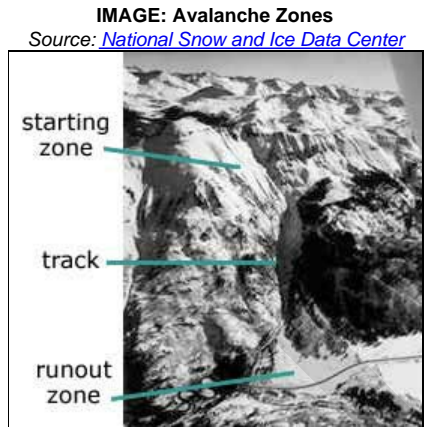
1.6.3.3.3 Snow Avalanche

Description

The only two requirements for an avalanche is a mass of snow and a slope for it to slide down. Snow avalanches are common in mountainous terrain where heavy snowfall accumulates on steep slopes. Avalanches generally occur on slopes between 30 and 45 degrees with 38 degrees being the ideal slope for the development of avalanche conditions. They are often categorized as either loose snow or slab types. While the exact moment of an avalanche cannot be predicted, avalanche conditions are readily recognizable and avalanches tend to recur on the same slopes year after year.

Although avalanches can occur on any slope given the right conditions, certain times of the year and certain locations are more likely to result in avalanches than others. Wintertime, particularly from December to April, is when most avalanches tend to occur.

An avalanche has three main parts, starting zone, track, and runout zone, which are depicted below.



A multitude of factors can affect the likelihood of an avalanche, including weather, temperature, slope steepness, slope orientation (whether the slope is facing north or south), wind direction, terrain, vegetation, and general snowpack conditions. The differing combinations of factors can create low, moderate, or extreme avalanche conditions. Some conditions, such as temperature and snowpack, can change on a daily or hourly basis ([National Snow and Ice Data Center](#)).

Historical Frequencies

Snow Avalanche Events in Madison County reported by [NCDC - NOAA](#):

- 8 snow avalanche events were reported between 01/01/1950 and 04/28/2019 (25320 days).
 - In total, 8 people have died and 1 injured. 6 of the 8 deaths were related to snowmobiling.
- The 4 most recent hail events were also accompanied by severe winds.
- A more detailed spreadsheet can be accessed through [this link](#).

TABLE: Winter Storms and Severe Winter Weather in Madison County, Idaho from 1950-2019

Source: www.ncdc.noaa.gov/stormevents

Number of County/Zone areas affected:	2
Number of Days with Event	8
Number of Days with Event and Death	7
Number of Days with Event and Death or Injury	8
Number of Days with Event and Property Damage	1
Number of Days with Event and Crop Damage	0
Number of Event Types reported	1

TABLE: Past Madison County Snow Avalanche Events

Source: *Madison County HMP 2008*

Place	Date	Event	Details
Moody	1/28/1917	Avalanche	Man buried in snow slide and killed

Loss Estimates

In the mountains of Idaho, many avalanches occur each winter, and Idaho is in the top 10 states in the nation in the number of avalanche fatalities since 1950. In Madison County, snow avalanches occur primarily in the Big Hole Mountain. Most of the deaths related to avalanches have been linked to snowmobiling ([Idaho HMP Chapter 3.4](#)).

According to the Idaho Hazard Mitigation Plan, due to the recorded fatalities due to avalanche in the State, Idaho will continue to be rated as having a moderate severity of avalanche hazard relative to other states. Given the minimal infrastructure in the Big Hole Mountain area, avalanches pose a much higher risk to individuals partaking in outdoor recreation activity than to severely damaging or destroy structures, break power lines, block roadways and railroads, and damage trees and vegetation.

Probability

Based on the [CVR2](#), this hazard is considered to be "Not Probable at All/Not Frequent At All", because this hazard was determined to be extremely rare with little to no documented history of significant occurrences or events. While it is possible that low impact events may occur on occasion, the hazard's overall impact on the County and participating jurisdictions would be very minor.

Vulnerability Analysis

Analysis of Community Development Trends

Similar to [Landslide](#) events, which are isolated in nature, the impact from an avalanche is closely related to development near the south-eastern region. Of primary concern is the trend in the declining snowpack. Warmer temperatures can weaken snowpack and cause layers of snow to not stick together. When combined with wind gusts or an earthquake, warmer temperature enhance the possibility of an avalanche. Higher temperatures can also affect the quality of mountain snow cover, which can yield frequent avalanches. ([Idaho HMP Chapter 3.4](#)).

Analysis of Community Development Trends

Like with [Landslide](#) events, the southeastern portion of Madison County where the Big Hole Mountains is located, which is currently unpopulated with minimal infrastructure, is most susceptible to avalanches. Avalanches are likely to form in this area where slopes of the mountains are at 25 to 50 degrees.

Vulnerability for Future Assets/Infrastructure for Avalanche Hazard

Future development in the southeastern portion of Madison County would be the most susceptible to this type of hazard.

Vulnerability Analysis for Avalanche Hazard

Avalanches begin in areas that have slopes of 25 to 50 degrees, which are geographical areas that are generally too steep for high-density development. However, avalanches can impact areas outside of the initial starting point. Avalanches reach maximum velocity in the track zone (see above illustration) and maximum deposition in the runout zone, where slopes range from 5 to 30 degrees, such areas could support higher density development.

Impact on Madison County Residents

Avalanches have occurred in the Big Hole Mountain area resulting in death or injury of snowmobilers. Recreational outdoor activity is a draw for the community and tourists and measures should be taken to prevent activity in this area following severe storms that leave the ground saturated.

Impact on Essential Facilities and Other Property

No essential facilities are located in the area most susceptible to avalanches.

Impact on Critical Infrastructure

No critical facilities are located in the area most susceptible to avalanches.

Impact on the Environment

Compared to other hazards, avalanches have minor environmental impacts. Impacts can include debris being carried and left in freshly scoured gullies, broken trees due to the force of the avalanche, and temporary dams forming.

Impact on Operations

Minimal infrastructure is located in the area most susceptible to an avalanche and at the present time, the slope conditions in the populated areas would not trigger an avalanche.

Snow Avalanche Hazard Evaluation and Impact/Consequence Assessment

Frequency & Probability ¹		Minimally Vulnerable - 19	
Potential Magnitude and Scale ¹		Minimally Vulnerable - 12	
Physical Vulnerability Hazard Impact ¹		Somewhat Vulnerable - 26	
Social Vulnerability Hazard Impact ¹		Somewhat Vulnerable - 42	
Community Conditions Hazard Impact ¹		Minimally Vulnerable - 15	
Overall Capability and Capacity ²		Capable - 57	
Mitigation ²		Capable - 56	
Hazard Consequence & Impact Score ¹		Somewhat Vulnerable - 27	
Overall Risk Rating ³		Low - 23	
Legend			
Score	1: Vulnerability Rating	2: Capability and Capacity Rating	3: Overall Risk Rating
0 – 25	Minimally Vulnerable	Minimally Capable	Low
26 – 50	Somewhat Vulnerable	Somewhat Capable	Medium
51 – 75	Vulnerable	Capable	High
76 - 100	Very Vulnerable	Very Capable	Extreme
N/A	Not Applicable/Unknown	Not Applicable/Unknown	Not Applicable/Unknown

DRAFT

1.6.3.4.1 Wildfires

Description

Madison County has a detailed Wildfire Mitigation Plan that is currently being updated. The plan is part of the Madison County Wildland/Urban Interface Fire Mitigation Program.

Wildfire is defined by the USDA Forest Service as a fire, naturally caused or caused by humans, that is not meeting land management objectives ([U.S. Forest Service](#)). The Idaho Hazard Mitigation Plan distinguishes a wildfire, from other fires as any non-structure, other than prescribed, fire that occurs in the wildland and is classified for hazard analysis purposes as either Wildland or Wildland Urban Interface (WUI) fires. [Structural Fire](#) will be covered under the [Human-Made and Technological Hazards](#) Section of this plan.

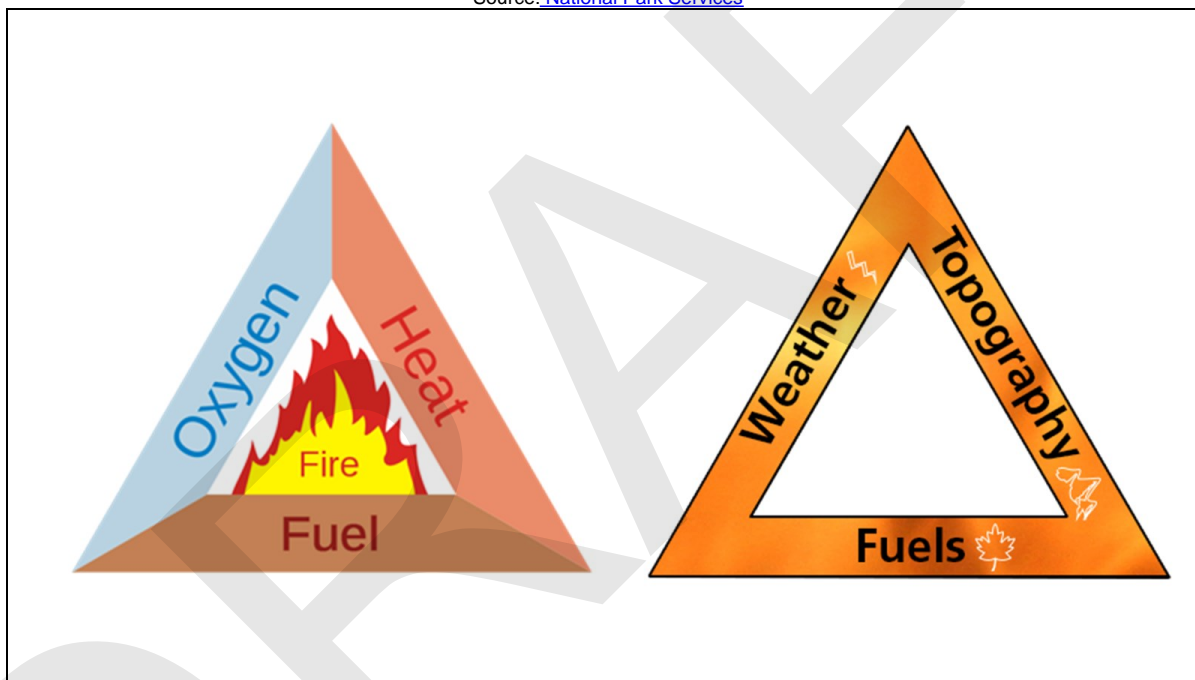
Wildland fires occur in areas that are undeveloped except for the presence of roads, railroads, and power lines while WUI fires occur where structures or other human development meet or is intermingled with the wildland or vegetative fuels. Wildland fire is currently considered a natural and necessary component of wildland ecology and, as such, is most often allowed to progress to the extent that it does not threaten inhabited areas or human interests and well-being. At the WUI, vigorous attempts are made to control fires but this becomes an increasingly difficult challenge as more and more development for recreational and living purposes takes place in wildland areas. Some wildland fires are ignited naturally (almost exclusively by lightning) but most ignitions are a result of human activities, either careless or intentional. The rapidity with which a wildland fire spreads and the intensity with which it burns is controlled by a number of factors including:

- Weather - wind speed and direction, temperature, precipitation
- Terrain - fires burn most rapidly upslope
- Type of vegetation
- Condition of vegetation - dryness
- Fuel load - the amount and density of vegetation
- Human attempts to suppress

Three main components are necessary for a wildfire: oxygen, heat, and fuel. The extent of the wildfire depends on the weather, fuel, and topography.

FIGURE: Components and Extent of a Wildfire

Source: [National Park Services](#)

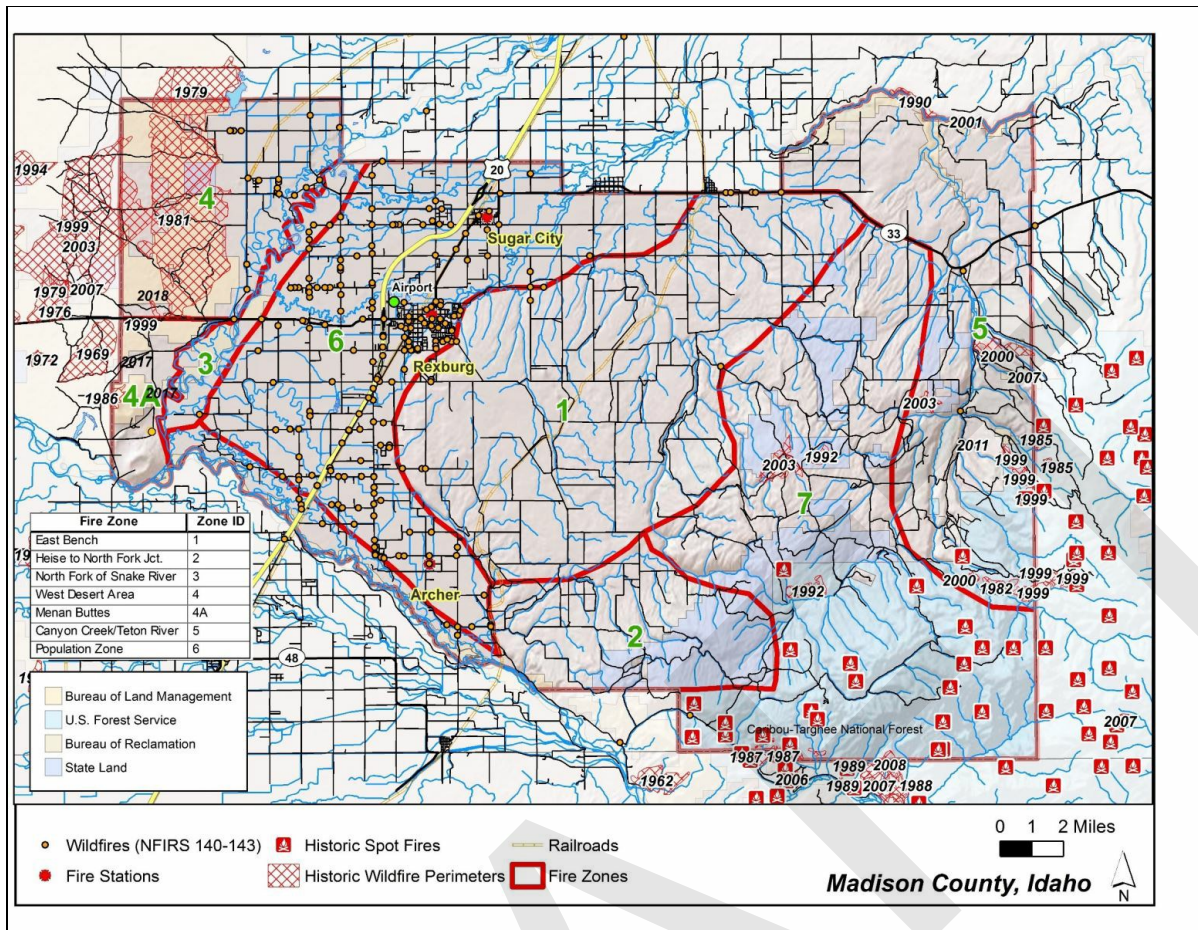


In Idaho, fire was once an integral function of the majority of ecosystems. The seasonal cycling of fire across the landscape was as regular as the July, August, and September lightning storms across the canyons and mountains. Depending on the plant community composition, structural configuration, and buildup of plant biomass, the resulting fire will come from varying ignitions with varying intensities and extend across the landscape. Shorter return intervals between fire events often resulted in less dramatic changes in plant composition (Johnson, 1998). With infrequent return intervals, plant communities tended to burn more severely and be replaced by vegetation different in composition, structure, and age (Johnson et al, 1994). Native plant communities in this region developed under the influence of fire and adaptations to fire are evident at the species, community, and ecosystem levels. Fire history data (from fire scars and charcoal deposits) suggest fire has played an important role in shaping the vegetation in the Columbia Basin for thousands of years (Steele et al, 1986, Agee 1993).

Historical Frequencies

Between 1970 and 2019 there have been numerous fire starts and thousands of acres burned by wildfires in Madison County. Of the reported fire starts many were naturally started, usually through lightning strikes. The naturally started wildfires are typically located in the high desert areas west of the County or on the eastern edges of the County in the Caribou-Targhee National Forest. Since the plan was last updated in 2013, there have been 152 reported fires in the County from 2014-2018. The majority of fires have resulted in minimal acres burned.

FIGURE: Fire History Map (a larger map can be downloaded through this [link](#))



Wildfires in Madison County reported by [NCDC - NOAA](#):

- 28 large-scale wildfire events were reported between 01/01/1950 and 04/28/2019 (25320 days) with the first reported event in 2003.
 - In total, all events caused 302,209 acres to burn (not all in Madison County) with the average being 11,623 acres.
 - 3 of the events caused property damage, totaling \$29,000 in damage. While minimal property damage was caused, 73,900 acres were burned.
 - The fire that caused the most property damage (\$20,000) only burned a few acres.
 - 11 of the 28 wildfires list lightning as the cause.
 - 2 of the 2017 fires noted human causes for the wildfire.
 - 2 fires (2007 and 2010) impacted the Idaho National Laboratory (INL) site which contains nuclear and hazardous materials. No reports suggest the fire caused the emission of materials from the INL site, which could have compounded the hazardous events.
- A more detailed spreadsheet can be accessed through [this link](#).

TABLE: Wildfires in Madison County, Idaho from 1950-2019

Source: www.ncdc.noaa.gov/stormevents

Number of County/Zone areas affected:	3
Number of Days with Event	28
Number of Days with Event and Death	0
Number of Days with Event and Death or Injury	0
Number of Days with Event and Property Damage	3
Number of Days with Event and Crop Damage	0
Number of Event Types reported	1

TABLE: Fires from 1986-2000

Source: HMP 2008

Year	Acres Burned
1986	150
1988	30
1990	54
1992	155
1994	39
1999	52
1999	26
2000	508

Impact

Wildland fires threaten the lives of anyone in their path including hikers, campers, and other recreational users and, where suppression efforts are made, firefighters. Enormous volumes of smoke and airborne particulate materials are produced that can affect the health of persons for many miles downwind. Nearer to the fire, smoke reduces visibility,

disrupting traffic and increasing the likelihood of highway accidents. As a result of wildland fire, there may be changes in water quality in the area and erosion rates may increase along with increased rainfall runoff and flash flood threat, and decreased rainfall interception and infiltration. Indirect impacts include losses to tourism, recreational and timber interests and loss of wildlife habitat. WUI fires have most or all of the above impacts as well as those of structural fires including injury and loss of life, loss of structures and contents. Agricultural losses may also be sustained including livestock, crops, fencing, and equipment.

Probability

Based on the [CVR2](#), this hazard is considered to be "Somewhat Probable/Somewhat Frequent" because significant occurrences of this hazard have happened on occasion (even though isolated or low impact events may occur with more regularity).

Loss Estimates

The Madison County Wildland/Urban Fire Mitigation Program promotes public policy designed to protect citizens, critical facilities, infrastructure, private property, and the environment from wildfires. The county wildland/urban interface areas were all reassessed during the 2013 Update and additional areas of risk or vulnerability zones were identified. The next reassessment will take place in the winter of 2019.

- Reduced water quality

Hazard Extent for Wildfire

Based on the zones established in the Madison County Wildfire Mitigation Plan, wildfire risk varies across the county. Highlighted in the map and chart below is the hazard extent for each zone

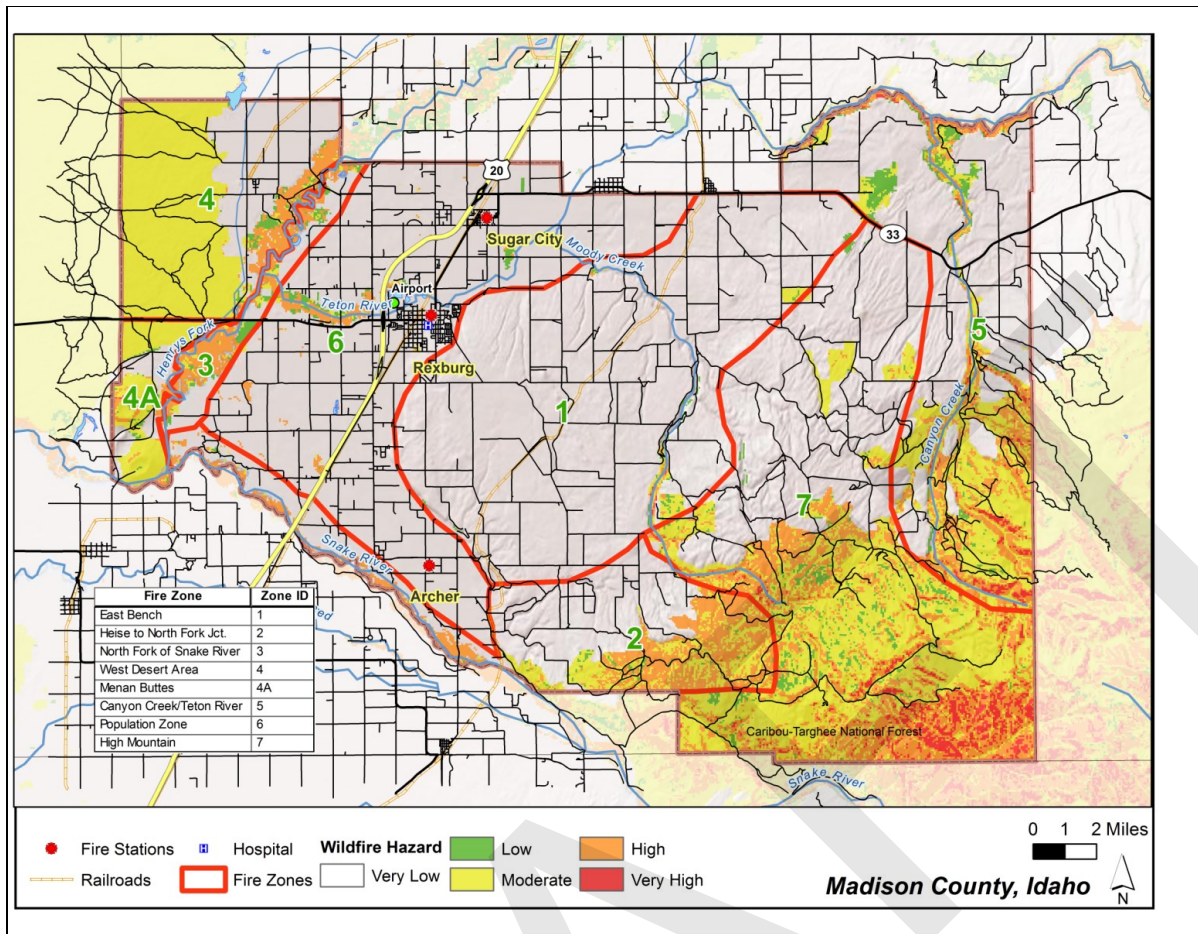
TABLE: Risk Ranking by Zone

Identified Hazards	Life Safety	Property Damage	Environmental Damage	Economic Impact
East Bench – WUI Vulnerability Zone 1	Low	Low	Low	Medium
Heise to North Fork of Snake River intersection – WUI Vulnerability Zone 2	High	High	High	High
North Fork of the Snake River Riparian Area – WUI Vulnerability Zone 3	High	High	High	Low
West Desert Area – WUI Vulnerability Zone 4	Medium	High	Medium	Low
Menan Buttes – WUI Vulnerability Zone 4a	Medium	Low	Medium	Low
Green Canyon Creek/Teton River – WUI Vulnerability Zone 5	High	Medium	High	Medium
Population Zone - WUI Vulnerability Zone 6	High	High	Medium	High
High Mountain - WUI Vulnerability Zone 7	High	High	High	High

TABLE: Ranking Criteria

Category	Criteria
Life Safety	<ul style="list-style-type: none"> • Low - Injuries limited to the area of effect. < 10 • Medium - Serious injuries >10 • High - Multiple fatalities, critical and serious injuries
Property Damage	<ul style="list-style-type: none"> • Low - Minimal damages • Medium - Structural damages evident • High - Loss of structure
Environmental Damage	<ul style="list-style-type: none"> • Low - Minimal impact at area of effect • Medium - Regional damage • High - Long-term recovery and requires significant after-action
Economic Impact	<ul style="list-style-type: none"> • Low - Economic impact minimal • Medium - Loss of business • High - Regional long-term loss

FIGURE: Wildland/Urban Interface Zones (a larger map can be downloaded from this [link](#))



Analysis of Community Development Trends

The projected growth for Madison County from 2010 to 2020 shows minimal to no development in the Wildfire Hazard Area ([Idaho HMP Chapter 3.1, 2018](#)). As the communities of Idaho expand into the wildland-urban interface, more and more residents are exposed to wildfire impacts and currently, there is no County in Idaho without a significant wildland fire hazard (IOEM 2018). Areas that were analyzed and will continue to be of concern for wildfire/WUI planning include:

- Developed recreation sites
- Summer home sites
- Designated communication sites
- Municipal watersheds
- Private land with structures
- Timber areas
- Above-ground utility corridors
- Conservation Reserve Program (CRP) land
- High-use travel corridors
- Wildlife habitat
- Historic areas
- Range land

Vulnerability to Future Assets/Infrastructure for Wildfire Hazard

Future development in the southeastern portion of Madison County would be the most susceptible to this type of hazard.

Vulnerability Analysis for Severe Wildfire Hazard

In Idaho, only 14% of the Wildland-Urban Interface (WUI) has been developed. WUI is the area where structures and other human development meet or intermingle with developed wildland. Recently, the expansion of the WUI has posed significant challenges to wildfire management and impact.

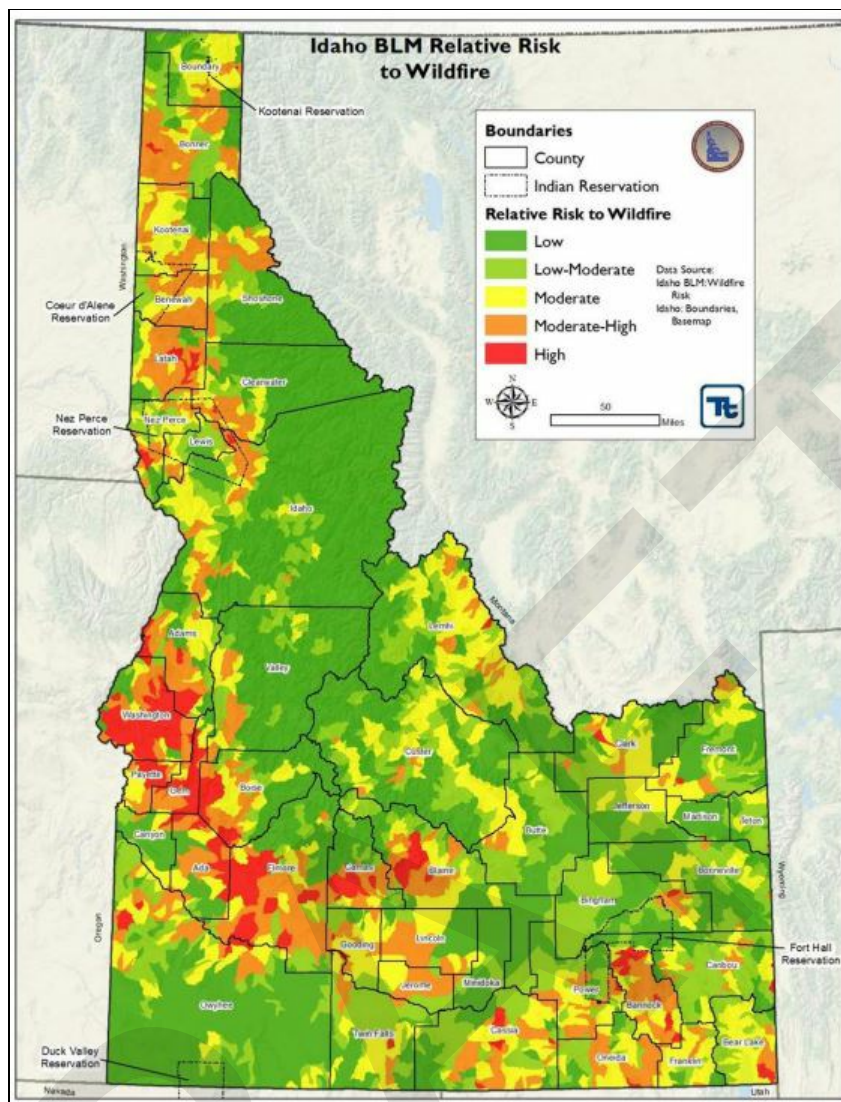
Impact on Madison County Residents

Wildfires can consume large areas of Idaho, destroying property and taking lives. When huge fires strike, there is often little that can be done to control them; forcing residents to evacuate. Dense smoke can fill the area for miles around the fire, impacting areas not directly affected by flames. The smoke from fires poses a direct threat to health impacts, especially for the young and elderly, as well as economic damages due to the loss of tourist business. Wildfires also threaten the infrastructure of Idaho, as well as resources such as water, timber, wildlife habitat, and recreation (IOEM 2018).

Impact on Essential Facilities and Other Property

No essential facilities are located in the area of Madison County most vulnerable, which is the northwest corner of the County as depicted on the Idaho map below.

FIGURE: Vulnerability to Wildfire
Source: [Idaho HMP, Chapter 3.1](#)



Impact on Critical Infrastructure

According to the [Idaho Hazard Mitigation Plan](#), no critical facilities, canals, members of the population, state-owned buildings, or general building stock are located in the Wildfire Hazard Area of Madison County.

Impact on the Environment

Large wildfires may affect air currents in their immediate vicinities by the stack effect: air rises as it is heated, and large wildfires create powerful updrafts that will draw in new, cooler air from surrounding areas in thermal columns ([Idaho HMP Chapter 3.1](#)). Sloping areas where wildfires or human modifications of the land have destroyed vegetation are particularly vulnerable to [landslides](#) during and after heavy rains. Additionally, [droughts](#) can exasperate wildfire conditions.

Forests and vegetation can fuel wildfires and understanding the County landscape are essential to wildfire mitigation. Additionally, land managers need to understand current and historical fire regimes (fire frequency and fire severity prior to significant human settlement) to be able to define ecologically appropriate goals and objectives for an area.

Impact on Operations

Wildfires, especially large-scale fires, require attention from the fire department and would impact the daily operations of the Madison County and Central Fire District. Minimal infrastructure is located in the area most susceptible to wildfires; however, if a wildfire were to spread to the populated portions of Madison County major roads or critical facilities would be impacted and operations would be impeded.

Wildfire Hazard Evaluation and Impact/Consequence Assessment

Frequency & Probability ¹	Somewhat Vulnerable - 38
Potential Magnitude and Scale ¹	Minimally Vulnerable - 20
Physical Vulnerability Hazard Impact ¹	Vulnerable - 51
Social Vulnerability Hazard Impact ¹	Somewhat Vulnerable - 48
Community Conditions Hazard Impact ¹	Somewhat Vulnerable - 27
Overall Capability and Capacity ²	Capable - 71
Mitigation ²	Capable - 67
Hazard Consequence & Impact Score ¹	Somewhat Vulnerable - 36
Overall Risk Rating ³	Medium - 37

Legend			
Score	1: Vulnerability Rating	2: Capability and Capacity Rating	3: Overall Risk Rating
0 – 25	Minimally Vulnerable	Minimally Capable	Low
26 – 50	Somewhat Vulnerable	Somewhat Capable	Medium
51 – 75	Vulnerable	Capable	High
76 - 100	Very Vulnerable	Very Capable	Extreme
N/A	Not Applicable/Unknown	Not Applicable/Unknown	Not Applicable/Unknown

1.6.3.4.2 Epidemic/Pandemic

Description

A public health emergency is a widespread or severe epidemic, incident of contamination or other situation that presents a danger to, or otherwise negatively impacts the general health and well-being of the public.

Public health emergencies can result from a number of causes such as foodborne illness, waterborne pathogens, loss of sewer water service and epidemics of communicable diseases. In recent years, the risk of a public health emergency resulting from an intentional release of a chemical, biological or radiological agent has become more apparent. Pandemic influenza represents one of the greatest threats within this hazard category and historically has had devastating impacts globally.

Pandemic Influenza

Influenza is a virus that occurs on a seasonal basis and presents itself in one of many different genetic combinations. Influenza has been classified into three types of viruses: A, B and C. The A and B viruses are responsible for seasonal epidemic spikes and cause illness in 5 to 20 percent of the population. The C virus is less virulent and causes only mild respiratory illness. Once the influenza is introduced to a host, it has the ability to replicate itself billions of times resulting in illness. Due to its persistence in the population and its seasonal nature, humans have developed a natural resistance to many of the genetic variations of the influenza virus. However, when a novel genetic variation presents itself in a population, humans will be absent from their natural resistance to the virus. This will allow the virus to spread rapidly from host to host causing larger than normal morbidity and mortality rates. This occurrence is classified as pandemic influenza.

Typically, influenza A circulates within human and animal populations such as birds and pigs. Due to its diverse population of hosts, influenza A has the proclivity to acquire genetic material and mutate into different strains. This process is called virus reassortment. Virus reassortment can occur in two ways. The first is when a virus acquires genetic material and mutates within the animal host and the second is when the virus mutates within human populations. Depending on the level of mutation, either of these methods can contribute to making a virus either more genetically novel or allow for easier transmission between hosts.

Two proteins, hemagglutinin, and neuraminidase compose part of the influenza virus. In influenza A there are 11 combinations of hemagglutinin and nine combinations of neuraminidase that compose a particular strain of the virus. During the reassortment process, one of these two proteins will change resulting in a slightly different genetic strain. Since only one protein changed, the body will still have partial immunity to the strain. It will likely cause illness but the immune system typically mitigates the effect. This process is referred to as antigen drift. However, in certain instances, both proteins will change resulting in a completely novel strain. This is what occurs during a pandemic. The body will not have immunity to the new strain; consequently, the result will be increased transmission and a possibly higher degree of virulence.

Therefore, when influenza A strain is introduced to animal populations such as birds or pigs, genetic reassortment leads to antigen drift which increases the likelihood of novel strains. This is why certain pandemics originate in birds and pigs. An example of this is seen in the current H5N1 "avian influenza" strain and the recent H1N1 "swine influenza" strain. While the virulence of these strains differs dramatically, both are considered highly transmittable due to the novel nature of the strain and the lack of human immunity. Although there is no way to predict where a pandemic will originate, they are thought to occur in areas where there is a higher degree of interaction between animal and human hosts.

Pandemics typically occur in waves lasting anywhere from six to eight weeks. As immunity is developed within a population, the virus will recede for a period of 8-12 weeks. The virus will then reemerge slightly mutated for another wave lasting six to eight weeks. This process repeats during a pandemic two to three times.

Symptoms of pandemic influenza vary depending on the virulence of the strain but mirror typical seasonal symptoms including, fever, coughing, sore throat, congestion headaches, soreness in the muscles and joints, chills and fatigue. During a pandemic, these symptoms can be severe resulting in hospitalizations and death.

The severity of pandemic influenza has varied in the past, but estimates range from an infection rate of 30 to 40 percent. Mortality rates will depend on the virulence of the strain. The 1918 strain has an estimated mortality rate of 3% of infected persons.

Special populations to consider are those with weakened immunity such as infants and the elderly, those with autoimmune disease, and individuals with respiratory complications. However, pandemics in the past have also affected those with healthy immunity such as young adults because of the massive immune response certain strains have generated.

The most effective strategy for combating pandemic influenza is vaccination. However, since a pandemic is caused by a novel strain, it is likely vaccine will not be available for the first wave and sometimes not until the middle of the second wave. Alternate strategies for mitigation include the use of antiviral medication, antibiotics for bacterial pneumonia often associated with influenza, social distancing, and public health hygienic practices.

Historical Frequencies

- Measles 2019: While the outbreak of what was supposed to be an eradicated disease from the United States in 2000 has not reached Idaho, neighboring states have seen outbreaks. Prior to measles vaccinations becoming commonplace in the 1960s, 400 to 500 people in the U.S. died of the measles each year, 50,000 people were hospitalized, and 1,000 people became deaf or blind as a result of brain swelling due to the disease ([Healthcare Transformation](#)). Primarily, this concern results from the low vaccination rate in the state. In the past 2 years, Idaho's "opt-out" rates have increased by 25%. The primary reasons for parents to seek "opt-out" for immunizations are religious and personal reasons ([Idaho Education News](#)).
- In October 2014, a citizen in the United States contracted Ebola, which led to extensive coordination and planning with local, state and federal partners.
- West Nile 2004-2006: Locally-acquired mosquito-borne human infections were first recorded in Idaho in 2004. In 2006, Idaho led the nation in reports of human illness associated with WNV with 996 cases being reported to the State Health Department. In addition to people, WNV was also detected in 338 horses, 127 birds, and numerous mosquitoes. The following table shows WNV cases in Madison County since 2004.

TABLE: Reported Cases of WNV in Madison County

Source: [Health and Welfare Idaho](#)

Year	Human	Horse	Bird	Mosquitoes
2006	7	9	2	Not Tested
2007	2	0	0	Not Tested

Three pandemics occurred in the 20th century and one occurred in the 21st century: 1918, 1957, 1968, and 2009.

1918 (Spanish Flu)-The influenza pandemic of 1918-1919 was one of the deadliest epidemics in history, causing influenza-related symptoms in more than 20 percent of the world's population and claiming more than 21 million lives worldwide. It spread along trade routes and shipping lines. Outbreaks swept through North America, Europe, Asia, Africa, Brazil, and the South Pacific. The Great War (i.e. World War I), with its mass movements of men in armies and aboard ships, probably aided in its rapid diffusion and attack. The origins of the deadly flu disease were unknown but widely speculated upon. Some of the allies thought of the epidemic as a biological warfare tool of the Germans. Many thought it was a result of trench warfare, the use of mustard gases and the generated "smoke and fumes" of the war. A national campaign began using the ready rhetoric of war to fight the new enemy of microscopic proportions. A study attempted to reason why the disease had been so devastating in certain localized regions, looking at the climate, the weather and the racial composition of cities. They found humidity to be linked with more severe epidemics.

1957 (Asian Pandemic Flu-H2N2)-The 1957 Asian Flu Pandemic was much milder than that of the 1918 occurrence. The global death toll was estimated to be around 2 million. In 1957, the Asian flu pandemic resulted in about 70,000 deaths in the United States. Immunity to this strain was rare in people less than 65 years of age, and a pandemic was predicted. In preparation, vaccine production began in late May 1957, and health officials increased surveillance for flu outbreaks. The 1957 pandemic is instructive in that the first US cases occurred in June but no community outbreaks occurred until August and the first wave of illness peaked in October. The 1957 pandemic was associated with the emergence and spread of the H2N2 virus (this virus subtype stopped circulating in 1968). The vaccine was available in limited supply by August 1957.

1968 (Hong Kong Flu-H3N2)-The 1968 pandemic was milder than that of 1957, and spread more slowly than previous pandemics, apart from in the United States, where it was introduced by troops returning home from Vietnam. There the disease spread from California to the rest of America in just three months, affecting mostly the very old and those with underlying medical conditions. But in Europe, symptoms were relatively mild. Consequently, the death count not as high as in previous epidemics. Between one and four million people are estimated to have died worldwide, and around 30,000 people were killed in England and Wales. Some experts believe the 1968 pandemic may have been milder than the previous two because those exposed to the 1957 strain may have built up partial protection against the virus.

2009 (Swine Flu-H1N1)-H1N1 was first detected in the United States in April 2009. This virus was a unique combination of influenza virus genes never previously identified in either animals or people. The virus genes were a combination of genes most closely related to North American swine-lineage H1N1 and Eurasian lineage swine-origin H1N1 influenza viruses. Because of this, initial reports referred to the virus as a swine-origin influenza virus. However, investigations of initial human cases did not identify exposures to pigs and quickly it became apparent that this new virus was circulating among humans and not among U.S. pig herds. The CDC estimates about 55 million people were infected, 246,000 H1N1-related hospitalizations, and 11,160 H1N1-related deaths in 2009.

Probability

Based on the [CVR2](#), this hazard is considered to be "Somewhat Probable/Somewhat Frequent" because significant occurrences of this hazard have happened on occasion (even though isolated or low impact events may occur with more regularity).

Loss Estimates

The pandemic events of the past have been globally significant, particularly the pandemic incident of 1918-1919. Losses brought about by the effects of the West Nile virus are centered on loss of income for those affected by the virus as well as a loss of productivity by businesses. Death has occurred in Idaho from the West Nile virus both in humans and animals.

Geographic Location for Public Health Emergency Hazard

There is no geographic location for this hazard, beyond that outbreaks typically begin in areas with high populations.

In contrast to seasonal influenza when it occurs during the late fall and early winter months, pandemic influenza can occur during any month or season.

Hazard Extent for Public Health Emergency

Pandemic Influenza generally occurs in multiple waves (2 to 3) that last a period of six to eight weeks each. Generally, each wave will occur approximately 12 weeks apart. Once a novel strain of influenza can achieve human to human transmission, the pandemic is expected to spread rapidly and across geographic barriers.

Although the likelihood of pandemic is a certainty, their frequency is difficult to predict. In the 20th century, there were three influenza pandemics. In the 21st century, there has been one to date. Pandemic influenza is characterized based on its ability to spread, not its virulence. Pandemics in the past have ranged from severe to mild.

TABLE: Public Health Emergency Hazard Extent

Hazard Type	Affected Jurisdictions	Extent (based on historical events)		Comments
		Minimum	Maximum	
Public Health Emergency	County-wide	Minor illness	Epidemic	1918 Spanish Flu

Analysis of Community Development Trends

It is anticipated that this hazard will become more likely to occur in the future as the County population increases. Additionally, the decline of immunization rates in the County and the state will increase the probability of an epidemic/pandemic.

Immunization and vaccination rates additionally factor into preventing (if high) or aiding in the spread (if low) of certain diseases. While the northernmost counties in Idaho have the highest number of "opt-out" rates, Madison County had a relatively high rate of 6.2% of the students enrolled in school in the County qualifying for exemption, e.g., opt-out, of one or more required immunizations. The 2018 Idaho School Immunization Requirements Exemption form can be found through this [link](#) and highlights the various reasons and immunizations that parents can select to have their child "opt-out" from having. The form does note that students with the exemption may be excused from the school for the duration of an outbreak; however, this would not prevent the spread of many communicable diseases as many communicable diseases do not present symptoms in the first few days ([starting on page 14, see requirements for reportable and restrictable diseases in Idaho](#)).

The state superintendent was quoted noting that in order for the community to be protected against a highly contagious, vaccine-preventable childhood-disease, vaccinations rates need to be at about 94%. The statistics for Madison County from 2017-2018 show that 81.4% of the Kindergarteners had all required immunizations, 80.3% of the first graders, and 98.3% of the seventh graders. The statistics correlate to a decreasing trajectory of immunization in Madison County ([Idaho Education News](#)).

TABLE: Percentage of Students with Full Immunization in Madison County and Idaho

Source: [Idaho Education News](#)

	Kindergarten	First grade	Seventh grade
Madison County	81.4%	80.3%	98.3%
State of Idaho	85.8%	89.9%	84.9%

IMAGE: Immunization Exemption Rates

Source: [Idaho Education News](#)

Impact on Madison County Residents

Due to the nature of public health emergencies, impacts from this event tend to be more widespread rather than confined to a specific location. It is important to note that a public health emergency may originate outside of Madison County, yet still, impact the population of the County.

Those most at risk for influenza in Madison County include:

- Children younger than 2 years old*
- Adults 65 years and older
- Pregnant women and women up to 2 weeks from the end of pregnancy
- People with certain chronic medical conditions (such as asthma, heart failure, chronic lung disease) and people with a weak immune system (due to illnesses such as diabetes and HIV)
- People younger than 19 years of age who are receiving long-term aspirin therapy
- Those who do have medical insurance
- Non-English speakers

*Children who are 2 years through 4 years of age also have a higher rate of complications compared to older children, although the risk for these children is lower than the risk for children younger than 2 years.

Impact on Essential Facilities and Other Properties

Essential facilities will not be physically impacted by this hazard. They may be impacted by the loss of workers who are ill or need to care for others who are ill.

Building Inventory: No existing buildings are exposed to damage due to this hazard.

Impact on Critical Infrastructure

Infrastructure is usually not directly impacted by this hazard. Similarly, to essential facilities, maintenance and repair crews may be understaffed as they fall ill or need to care for others who are ill. The economic impacts of this hazard can be severe.

Impact on the Environment

The Idaho Department of Fish and Game compiles a list of how diseases affect Idaho wildlife. Important to note is that many diseases impacting wildlife do not impact humans or impact in the same way. See the full list on the [Idaho Department of Fish and Game website](#).

Impact on Operations

During a public health emergency, local hospitals and care facilities will likely find themselves with a deluge of new patients to attend to, potentially overwhelming existing capabilities and requiring regional, state, or even federal aid.

Epidemic/Pandemic Evaluation and Impact/Consequence Assessment

Frequency & Probability ¹	Somewhat Vulnerable - 31		
Potential Magnitude and Scale ¹	Somewhat Vulnerable - 26		
Physical Vulnerability Hazard Impact ¹	Somewhat Vulnerable - 34		
Social Vulnerability Hazard Impact ¹	Somewhat Vulnerable - 48		
Community Conditions Hazard Impact ¹	Somewhat Vulnerable - 38		
Overall Capability and Capacity ²	Capable - 59		
Mitigation ²	Capable - 67		
Hazard Consequence & Impact Score ¹	Somewhat Vulnerable - 37		
Overall Risk Rating ³	Medium - 34		
Legend			
Score	1: Vulnerability Rating	2: Capability and Capacity Rating	3: Overall Risk Rating
0 – 25	Minimally Vulnerable	Minimally Capable	Low
26 – 50	Somewhat Vulnerable	Somewhat Capable	Medium
51 – 75	Vulnerable	Capable	High
76 - 100	Very Vulnerable	Very Capable	Extreme
N/A	Not Applicable/Unknown	Not Applicable/Unknown	Not Applicable/Unknown

DRAFT

1.6.3.5.1 Structural

Structural failures can be sudden and very dangerous. These failures often coincide with construction or repair work. Construction workers are typically at greater risk for structural failures that occur during construction or repair. Structural failures can also be a secondary hazard due to fire, earthquakes, sinkholes, landslides, terrorism, and other hazards. During failures due to other hazards, residents and business workers would likely be at greatest risk. Structural failures damage the structure itself that failed and can also damage nearby buildings and infrastructure.

DRAFT

1.6.3.5.1.1 Structural Fire

Description

Structural fires produce high heat, toxic gases, and particulate material as smoke and soot. The heat produced or burning debris can, in turn, cause additional fires. Toxic gases and smoke are extreme hazards in the interior of burning structures and may also be a threat downwind of the structure. Where the building contents include toxic materials, the downwind threat can extend a mile or more. Burning structures may collapse injuring persons inside or nearby and floors or roofs may give way beneath those walking on them. Burning structures present electrical, explosion and flashover hazards, and partially burned structures may, themselves, be physical hazards even after the fire is extinguished.

The Madison County Fire Department has 21 full-time employees and 54 paid-call employees. The department is funded through the tax base. Three stations are operated in Madison County. Station 1 is in the City of Rexburg, Station 2 is in the Townsite of Archer, and Station 3 is in Sugar City ([Madison Fire Department Website](#)). Madison falls into Region III for Fire Prevention in Idaho ([2017 Idaho State Fire Marshal Annual Report](#)).

Mutual Aid: Madison County has mutual aid agreements in place with agencies in surrounding counties. The mutual aid agreements specify that fire fighting and supporting agencies will send apparatus and personnel to engage in fire sequestration with Madison County (as requested by Madison County). Madison County also honors the same agreement when surrounding counties request assistance.

Historical Frequencies

- In October 2016, a wood-burning stove caused a house fire in Rexburg that claimed the life of a teenage girl. Madison County firefighters were able to extinguish the attic and trusses of the house, which likely had been slowly burning for some time, however total property damages were estimated at \$35,000.
- In June 2017, two firefighters needed to be treated for heat exhaustion after fighting a large home fire near Madison County. The Madison Fire Department was needed to aid in the response to help keep the fire from spreading to adjacent structures. Total property damage exceeded \$800,000.

Probability

Based on the [CVR2](#), this hazard is considered to be "Somewhat Probable/Somewhat Frequent" because significant occurrences of this hazard have happened on occasion (even though isolated or low impact events may occur with more regularity).

Loss Estimates

In 2017, the Madison County Fire Department responded to 86 fires, 104 EMS calls, 209 false calls, provided mutual aid for 5 incidents, and responded to 278 other incidents for a total of 682 incidents ([2017 Idaho State Fire Marshal Annual Report](#)). The estimated value of losses in 2017 due to fire in Madison County totaled over \$1,992,680. While this total includes all fire types, based on the predominance of structural fires and minimal reporting that year of other fires, structural damages are likely the majority of the losses reported. Reports from a January 2018 structural fire response highlight how costly just one incident can be. The fire crew was able to contain the fire to just the living room of a house but the remainder of the structure was damaged by smoke and heat which resulted in \$75,000 in damages ([Rexburg Local News](#)).

From January 2009 to December 2018, the Madison Fire Department responded to 106 "111 - building fire" incidents, 8 "112 - fire in a structure other than a building," 4 "121 - Fire in mobile home used as a fixed residence," 2 "120 - Fire in a fixed Mobile Property," 15 "400 - Hazardous Conditions" (Madison County Fire Department Database).

In the [2017 Idaho State Fire Marshal Annual Report](#), a structural fire was the largest fire response category with 1,504 structural response incidents being reported in Idaho (followed by wildland/grassland with 1,378 reported responses). Correlating to the structural statistic, "buildings" were the number one incident type for fire response and "gas leaks" where the number one reported hazardous conditions yielding a fire call. Residential structure (defined to include 1 to 2 family dwellings, apartments, hotels, motels, and dormitory) yielded the highest fire incident count by the structure in Idaho amounting to 1,153 incidents with \$30,797,205 in losses. The primary location for the area of origin of a fire in a household was the kitchen or cooking area.

In 2017, for all of Idaho, of the reported \$409,085,129 in losses, \$395,574,449 were the result of structural fires. The Madison County Fire Department reported fire loss totaling \$1,992,680. For the year 2006, Madison County had a reported \$528,520 in losses due to structure fires.

TABLE - Madison County Structure Fire History
Source: Fire in Idaho 2006 and 2017 State Fire Marshall Annual Report and
[Madison Fire Department Report 2017](#)

Structure Fire History For Madison County Fire Department			
Year	Fire Calls	Total Calls	Loss
2017	86	682	\$3,192,500
2006	134	439	\$528,520

Indirect dollar losses, as is often the case, may be much larger than direct losses. Costs also include those for the development and enforcement of fire codes and maintaining fire response capabilities. Firefighters are, additionally, at risk from such hazards as physical exhaustion and cardiac stresses, heat exhaustion or heat stroke, acute and chronic health effects from toxic exposures, hearing damage, and injuries from many sources.

Vulnerability Analysis

Analysis of Community Development Trends

Fire-hazard events may occur anywhere within the County and all future development can be impacted. While the entire County can be impacted emotionally by the loss caused by the fire and financially, especially if the fire impacts a structure that houses an organization that brings economic opportunities to the community, typically, property damage is isolated to the structure and near vicinity.

Vulnerability to Future Assets/Infrastructure for Fire Hazard

Any future structural development in Madison County will be vulnerable to these events. Even buildings comprised of less combustible materials can be impacted by a fire.

Vulnerability Analysis for Fire Hazard

The hazard impacts the entire jurisdiction equally; therefore, the entire population and all buildings within the county are vulnerable to fires and can expect the same impacts within the affected area. Because of the difficulty predicting which communities are at risk, the entire population and all buildings have been identified as risk facilities.

All facilities are vulnerable to fire hazards. An essential or critical facility will encounter many of the same impacts as any other building within the jurisdiction. These impacts include structural damage from fire, smoke, and heat and water damage from efforts extinguishing the fire.

Impact on Madison County residents

Unlike the majority of natural hazards, structural fires are typically isolated to one or a few structures. While these events have the potential to cause enormous property damage and threaten the lives of Madison County residents, these events typically do not impact the entire County at once. Direct burns and smoke inhalation can both seriously injure residents and their pets, not to mention the significant financial loss that would likely accompany any such event.

Impact on Essential Facilities and Other Property

All essential facilities are at risk of fire. In addition to direct losses, the loss of essential services due to interrupting business continuity is also a likely impact.

Impact on Critical Infrastructure

During a fire, the types of infrastructure that could be impacted include buildings, utility lines/pipes, railroads, and bridges. The damage of a structure will be dependent on the fire-resistant and combustibility of the materials used to create the structure. The majority of the buildings in Madison County are composed of brick, mortar, wood frames, and heavy timber, which are all combustible and flammable ([Structural Fires, Science Direct, 2017](#)). Since the County's entire infrastructure is equally vulnerable, it is important to emphasize that any number of these items could become damaged during a fire. Potential impacts also include structural damage resulting in impassable roadways and power outages.

Impact on the Environment

Burning of certain property or structures has the potential to release hazardous fumes and smoke into the air, potentially threatening the health of the community and of the environment nearby. It is also possible for fires to spread amongst nearby trees and vegetation, potentially causing a great deal of damage to the surrounding flora and fauna.

Impact on Operations

The Madison County Fire Department can likely handle most structural fires and even provides mutual aid for neighboring counties. During a fire, police and other medical services may be called upon to respond to the disaster. Fires pose a risk to the safety and wellbeing of first responders.

Relationships to Other Hazards

The structural fires increase substantially during extended droughts and heat, which in turn places both human and wildlife populations at higher levels of risk.

Structural Fire Hazard Evaluation and Impact/Consequence Assessment

Frequency & Probability ¹	Somewhat Vulnerable - 44		
Potential Magnitude and Scale ¹	Minimally Vulnerable - 22		
Physical Vulnerability Hazard Impact ¹	Vulnerable - 51		
Social Vulnerability Hazard Impact ¹	Somewhat Vulnerable - 35		
Community Conditions Hazard Impact ¹	Minimally Vulnerable - 18		
Overall Capability and Capacity ²	Very Capable - 77		
Mitigation ²	Capable - 67		
Hazard Consequence & Impact Score ¹	Somewhat Vulnerable - 31		
Overall Risk Rating ³	Medium - 37		
Legend			
Score	1: Vulnerability Rating	2: Capability and Capacity Rating	3: Overall Risk Rating
0 – 25	Minimally Vulnerable	Minimally Capable	Low
26 – 50	Somewhat Vulnerable	Somewhat Capable	Medium
51 – 75	Vulnerable	Capable	High
76 - 100	Very Vulnerable	Very Capable	Extreme
N/A	Not Applicable/Unknown	Not Applicable/Unknown	Not Applicable/Unknown

1.6.3.5.1.2 Infrastructure Failure

Description

Infrastructure failure refers to the damage or destruction of road infrastructure, water/wastewater systems, and other engineering failures. This hazard can occur somewhat frequently, but the failures are usually small. For example, a road can be damaged due to other hazards (flood, fire, earthquake, etc.) or by normal wear and tear. Failures like these may impact traffic while the damage is repaired but often does not cause significant issues. However, when infrastructure fails in high profile or high use locations, serious traffic disruption, injury, and death can occur.

The [Madison County Transportation Master Plan Update \(2015\)](#) explains that new developments (in infrastructure) can impact pre-existing infrastructure. Therefore, new developments should pay for the portion of required improvements that result from new growth, which is often done through "impact fees." According to state law, impact fees can only be used to fund growth-related system improvements. For example, to fund roadway improvements, impact fees could be considered. These fees are collected from new developments in the County to help pay for improvements that are needed to the roadway system due to growth ([Madison County Transportation Master Plan Update, 2015](#)).

In 2017, Madison County had an operating budget of \$566,650 for government activity infrastructure ([2017 Madison County Annual Financial Report](#)). Infrastructure, following a straight-line depreciation method, has 15-50 "useful years" which can be increased with proper maintenance and upgrades.

Historical Frequencies

- On June 5, 1976, the Teton Dam, a 305-foot high earth-filled dam across the Teton River in Madison County failed. The failure started at the northwest abutment of the dam at 130 feet below the crest. The dam failed just as it was being completed and filled for the first time by the U.S. Bureau of Reclamation. Two days prior to the failure, 2 small spring areas developed on the right abutment and another spring were noted the day before (Sylvester, Arthur from the University of California Department of Earth Science). 11 people and 13,000 cattle died as a result of the collapse of the dam. Damage estimates have ranged up to \$2 billion and the dam has not been rebuilt. The dam cost about \$100 million to build and as a result of the collapse, the federal government paid over \$300 million in claims (U. S. Department of the Interior, 2000). According to the U.S. Bureau of Reclamation, the Teton Basin Project never had a chance to accomplish its intended goal and instead become a major disaster. Following the disaster came the passage of the Reclamation Safety of Dams Act in 1978. Reclamation created a division and program to monitor the safety of Reclamation dams more closely with the goal of preventing any more tragedies (Stene, Eric for USBR, 1996).

IMAGE: Teton Dam Failure

Source: [Sylvester, Arthur from the University of California Department of Earth Science](#)



- As previously stated under "Flash Flooding," a state disaster declaration was issued for Madison County on March 2018, due to flooding and the extensive damage it caused to local roads, totaling \$475,000.
- Many other flooding hazards in the past have damaged or impacted the roads in the County.
- Additional structural hazards are highlighted under the Structural Fire and Utilities Failure.

Probability

Based on the [CVR2](#), this hazard is considered to be "Not Probable at All/Not Frequent At All", because this hazard was determined to be extremely rare with little to no documented history of significant occurrences or events. While it is possible that low impact events may occur on occasion, the hazard's overall impact on the County and participating jurisdictions would be very minor. There are only minimally documented or anecdotal historic events of significant occurrences. Of important note is the high cost (monetary and lives) that are associated with major structural failures, such as the Teton Dam Failure.

This hazard can occur at any location with a structure. Areas with less stringent building codes may be at greater risk for structural failure. Additionally, areas prone to hazards that can cause structural failure are at a greater risk.

Loss Estimates

Infrastructure failure can injure and kill thousands of people at once, depending on the size of the structure. Damages can easily reach into the millions and even billions of dollars.

Vulnerability Analysis

TABLE: Infrastructure Failure Hazard Extent

Hazard Type	Affected Jurisdictions	Extent (based on historical events)		Comments
		Minimum	Maximum	
Infrastructure Failure	County-wide	Water main break	Bridge Collapse	The maximum extent represents a hypothetical, but realistic scenario. Insert what has happened

Analysis of Community Development Trends

The growth of the County and the aging infrastructure will continue to make the County vulnerable to this hazard. This hazard can occur anywhere since the infrastructure is intertwined throughout the built environment. Any future community development would be vulnerable to a structural failure incident. Adhering to strict building codes and regulations, conducting studies to determine the likelihood and susceptibility of flooding, sinkholes, and landslides will be important in mitigating failure of building stock due to natural hazards.

Hazard Extent for Infrastructure Failure

Most failures are small and do not cause a large impact. However, infrastructure failures in a high profile or high use location can cause serious disruption and many injuries and death.

Vulnerability to Future Assets/Infrastructure for Infrastructure Failure Hazard

Construction of newer infrastructure is less likely to fail; however, many failures are the result of damages from other hazards (flood, landslide, etc.), and this is a possibility for both new and old assets. Additionally, as seen with the Teton Dam, newly constructed infrastructure has the potential to fail when not all environmental conditions (e.g., soil type) are fully considered and planned for.

Vulnerability Analysis for Infrastructure Failure Hazard

Madison County is predicted to have a great increase in population growth which will require increased infrastructure to support the growing community. Transportation infrastructure is critical for residents as they travel daily to work, school, and other locations. To accommodate the growing population, the County will have to expand road networks while accounting for the built and environmental layout of the community. In addition to roadways, failures to the water and wastewater systems, pipelines, and other assets also pose a risk to the county.

While Madison County does not have a substantial skyline and large buildings would not be of concern for major structural failure, Madison County does have many bridges (highlighted in the [Transportation Section](#)). While some of the bridges have been noted by the National Bridge Inventory Database as needing to be fixed, it is unlikely that a structure would fail without a separate catalyst.

Impact on Madison County Residents

The most likely outcome for failure in the road, bridge, or overpass failure is a major inconvenience, travel delays, and traffic congestion. It is very possible, however, that people could be injured or killed if they are in the near proximity of a road, bridge, or overpass collapse. Additionally, infrastructure failures can interrupt business continuity through the blockage of roadways to building structure collapse.

The availability of clean drinking water is crucial to the health and safety of the public. Water service interruptions can cause untreated or poorly treated drinking water to enter the water supply, resulting in boil water advisories.

The stormwater sewer system is of great importance to protecting human health and safety. Flooding which results during system failures, or capacity exceedances, can create safety problems and sewer backups in both combined stormwater systems (sanitary and stormwater flow) and separated stormwater systems, presenting a health concern.

Impact on Essential Facilities and Other Property

All structures, including commercial and industrial building stock, government building stock, and housing stock are vulnerable to infrastructure failure. Typically, this failure would be the result of a separate catalyst.

Water infrastructure systems play an important role in communities. Water treatment systems, including distribution mechanisms, and wastewater systems serve a critical purpose in sanitation and disease prevention by removing harmful viruses, bacteria, and parasites. Keeping water supplies clean of contaminants results in reduced sickness and associated health care costs, which in turn, contributes to reduced absenteeism in the workforce and increased worker productivity. Providing sufficient water supplies to industries that rely on pure water for processing, cooling, or product manufacturing means that these systems generate direct economic value across many sectors of the economy across the country. Storage reservoirs and water towers help ensure this continued availability of clean water, providing additional water resources during peak demand time.

Building Inventory: Stormwater system failures, unlike other critical infrastructure disruptions, have the greatest potential to inflict direct damages to property and buildings. As discussed in the [Flood section](#) of this Plan, urban flooding can result in major property damage costs. Additionally, older buildings in Madison County are more likely to experience failure.

Impact on Critical Infrastructure

This hazard is, by definition, impacts critical infrastructure and can have cascading impacts on surrounding critical infrastructure. Infrastructure may be damaged or unusable if the structure failure is nearby (such as rubble blocking a road or damaging power lines).

Impact on the Environment

This hazard can impact the environment directly through increased erosion (e.g., a dam failure) and secondary impacts like a fire or hazardous material release. Debris from the failure could adversely impact the environment.

Impact on Operations

Although first responders and their facilities are not likely to be impacted directly, this hazard could require a significant response from emergency personnel and public works. Damage to roads and bridges can lead to congested roads or severely limit the ability of emergency personnel to respond to emergency situations as well.

Relationships to Other Hazards

Infrastructure failures can be a result of a compounding impact from other hazards and exasperate pre-existing community vulnerabilities. A relevant example includes a bridge that has been washed out by floodwaters and prevents cars from passing to other areas of town. Additionally, an infrastructure failure may increase the risk of community to other hazards. For example, a flood control structure can fail and increase the potential for an area to flood.

Summary Vulnerability Analysis

According to the ASCE Infrastructure Report Card for 2017, driving on roads in need of repair in Idaho costs each driver \$XX per year, and % of bridges are rated structurally deficient. Drinking water needs in Idaho are an estimated \$X billion, and wastewater needs total \$X billion.

Infrastructure Failure Hazard Evaluation and Impact/Consequence Assessment

Frequency & Probability	Minimally Vulnerable - 13		
Potential Magnitude and Scale	Minimally Vulnerable - 13		
Physical Vulnerability Hazard Impact	Somewhat Vulnerable - 41		
Social Vulnerability Hazard Impact	Somewhat Vulnerable - 42		
Community Conditions Hazard Impact	Minimally Vulnerable - 15		
Overall Capability and Capacity	Capable - 71		
Mitigation	Capable - 61		
Hazard Consequence & Impact Score	Somewhat Vulnerable - 28		
Overall Risk Rating	Low - 19		
Legend			
Score	1: Vulnerability Rating	2: Capability and Capacity Rating	3: Overall Risk Rating
0 – 25	Minimally Vulnerable	Minimally Capable	Low
26 – 50	Somewhat Vulnerable	Somewhat Capable	Medium
51 – 75	Vulnerable	Capable	High
76 - 100	Very Vulnerable	Very Capable	Extreme
N/A	Not Applicable/Unknown	Not Applicable/Unknown	Not Applicable/Unknown

1.6.3.5.1.3 Utilities Failure (Power Failure)

Description

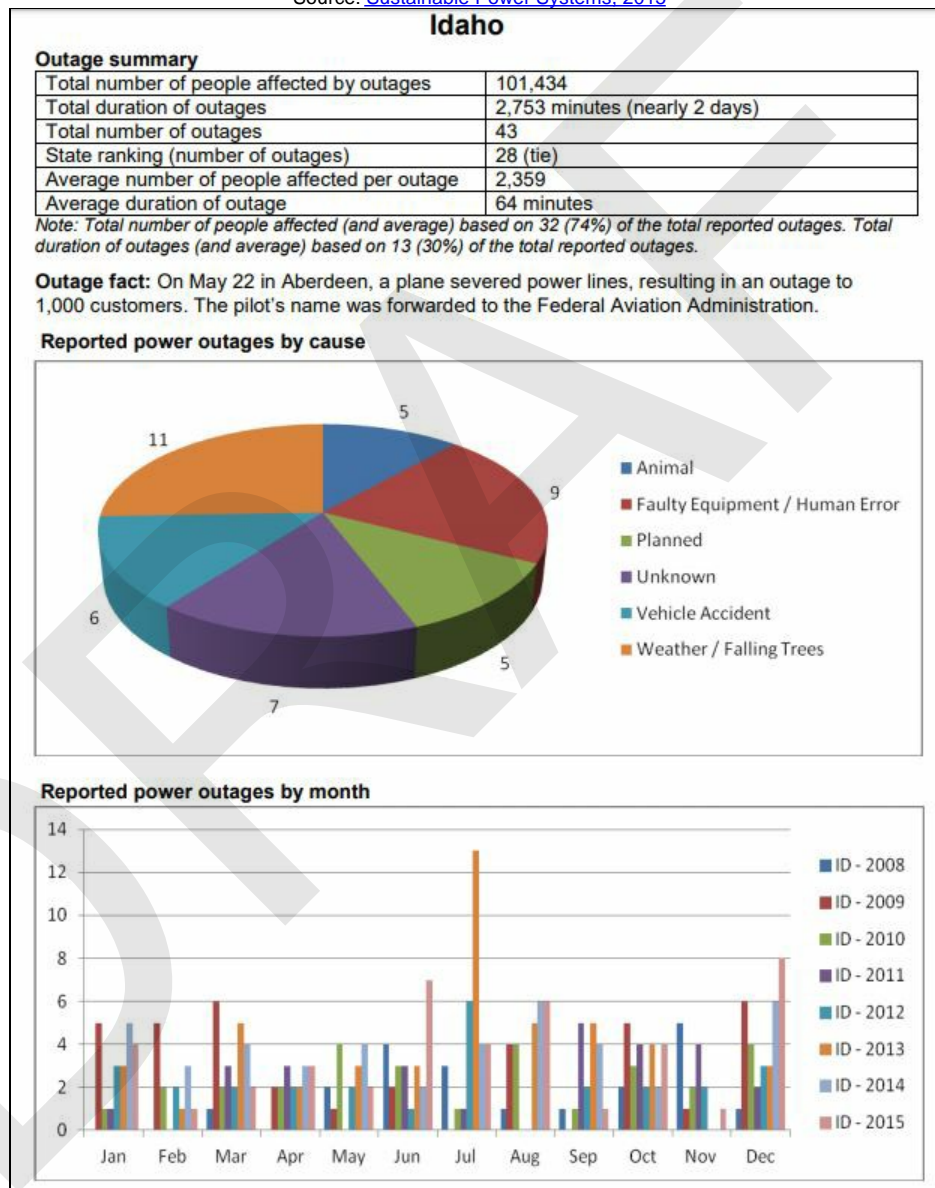
Utility failure can refer to the loss of power, communications, or other basic utility. The most common concern is a power outage. Power outages are typically caused when damages occur to the electrical infrastructure. Those damages can be caused by high winds, traffic accidents, flooding, and more. Power outages can be an inconvenience for many, but life-threatening to those who rely on power for medically necessary services. Downed power lines also pose an additional threat; they can cause fires, injury, and death. If the power outage is caused by an event at the power generating plant, the outage can be far more widespread than if the infrastructure is damaged.

Historical Frequencies

- In August 2010, a severe thunderstorm caused a tree to fall and down several power lines in Rexburg, causing \$10,000 in damages.
- In November 2011, a strong cold front brought significant winds to the area. Tree limbs were blown into power lines causing power outages and \$6,000 of damage.
- As previously narrated, April 2, 2018, saw wind gusts of 50 to 70 mph throughout the area around Madison County. Interstate 15 was closed from exit 118 to exit 143 from Idaho Falls to Roberts due to blowing dust caused by the winds. Damage to power lines resulted in over 2,500 customers without power reported by Rocky Mountain Power.

In the Power Outage Annual Report (2015), Idaho was ranked 28 for the most power outages (by state). The causes of the power outages were fairly split between the potential categories denoting the need to prepare for all types of causes of outages.

TABLES: Power Outages in Idaho
Source: [Sustainable Power Systems, 2015](#)



Probability for Utility Failure Hazard

Based on the [CVR2](#), this hazard is considered to be "Not Probable at All/Not Frequent At All", because this hazard was determined to be extremely rare with little to no documented history of significant occurrences or events. While it is possible that low impact events may occur on occasion, the hazard's overall impact on the County and participating jurisdictions would be very minor.

Geographic Extent for Utility Failure Hazard

Utility failure can occur in any location where the utility is located. As these utilities are available countywide, the risk is countywide.

Hazard Extent for Utility Failure

Utility failure generally impacts thousands of structures, homes, and people at once. However, it is possible for a utility failure to impact a smaller, targeted area or to impact a much larger population. Power outages can be especially dangerous for people or facilities that rely on power for medical needs.

TABLE: Utility Failure Hazard Extent

Hazard Type	Affected Jurisdictions	Extent (based on historical events)		Comments
		Minimum	Maximum	
Utility Failure	County-wide	affected people	households	On May 22 in Aberdeen, a plane severed power lines, resulting in an outage to 1,000 customers. While not in Madison, this type of incident would cause a prolonged power outage.

Analysis of Community Development Trends

As the population continues to grow in Madison County, this will place an increasing strain on utilities.

Vulnerability to Assets/Infrastructure for Utility Failure Hazard

Many new developments incorporate the practice of burying utilities, which will reduce the occurrence of outages/disruptions.

Vulnerability Analysis for Utility Failure Hazard

Most utility failures are brief but have the potential to cause other problems if they remain unresolved for too long. For example, typically, power outages are short-lived. If the power grid was significantly damaged, however, the risk for additional hazards grows (such as riots, fires due to candle use, etc.).

Impact on Madison County Residents

The impact on Madison County residents is likely to be limited to short inconveniences, with the most likely scenario being a temporary power failure. Continued electrical service, however, is incredibly important in maintaining the health and safety of the public. Electricity is required to heat and cool homes, operate traffic signals and operate hospitals and emergency services. Power outages can be particularly dangerous during times of extreme heat or cold. In addition, power outages can have a negative impact on the infirm. The number of people impacted by a power outage is highly variable with each event. It is also possible that water or sewage failure can foster unsanitary conditions that may increase the risk of sickness.

Impact on Essential Facilities and Other Property

Any essential facility that relies on a utility can be impacted by utility failure and should invest in backup generators and other supplies in order to respond accordingly. Populations in schools, hospitals, and elderly care facilities have been identified as being at increased vulnerability to this hazard.

Building Inventory: Secondary impacts of utility failure may result in property damage. Most buildings will not be directly impacted by this hazard.

Impact on Critical Infrastructure

Many key systems, such as water treatment facilities, stormwater/wastewater, and transportation rely on electricity. Disruption in these systems can result in loss of life, property damage, and economic losses.

Impact on the Environment

Utility failure is unlikely to impact the environment except in the unlikely circumstance that such an incident resulted in a hazardous material being inadvertently released into the environment (i.e. waterways).

Impact on Operations

Law enforcement, fire, and emergency medical services will be impacted indirectly by a loss of systems (e.g. data and communications, street and traffic lighting, alarm) and directly by increased calls for service. Electricity is a vital component of operating businesses and County services.

Summary Vulnerability Analysis

Madison County has been affected by utility or energy interruption or failure events many times in the past but there is no historical data that utility or energy interruptions or failures have caused structural damage in the county. No structures are expected to experience damage due to utility failure.

For this planning effort, it was also not possible to analyze the number of potential lives lost or injured. The monetary and economic impact on business/government disruption should be analyzed in future updates as more local data becomes available.

Utility Failure Hazard Evaluation and Impact/Consequence Assessment

Frequency & Probability ¹	Minimally Vulnerable - 13
Potential Magnitude and Scale ¹	Minimally Vulnerable - 9
Physical Vulnerability Hazard Impact ¹	Somewhat Vulnerable - 41
Social Vulnerability Hazard Impact ¹	Somewhat Vulnerable - 42
Community Conditions Hazard Impact ¹	Minimally Vulnerable - 29
Overall Capability and Capacity ²	Capable - 71
Mitigation ²	Capable - 67
Hazard Consequence & Impact Score ¹	Somewhat Vulnerable - 30
Overall Risk Rating ³	Low - 19

Legend

Score	1: Vulnerability Rating	2: Capability and Capacity Rating	3: Overall Risk Rating
0 – 25	Minimally Vulnerable	Minimally Capable	Low
26 – 50	Somewhat Vulnerable	Somewhat Capable	Medium
51 – 75	Vulnerable	Capable	High
76 - 100	Very Vulnerable	Very Capable	Extreme
N/A	Not Applicable/Unknown	Not Applicable/Unknown	Not Applicable/Unknown

1.6.3.5.2 Nuclear Event

Description

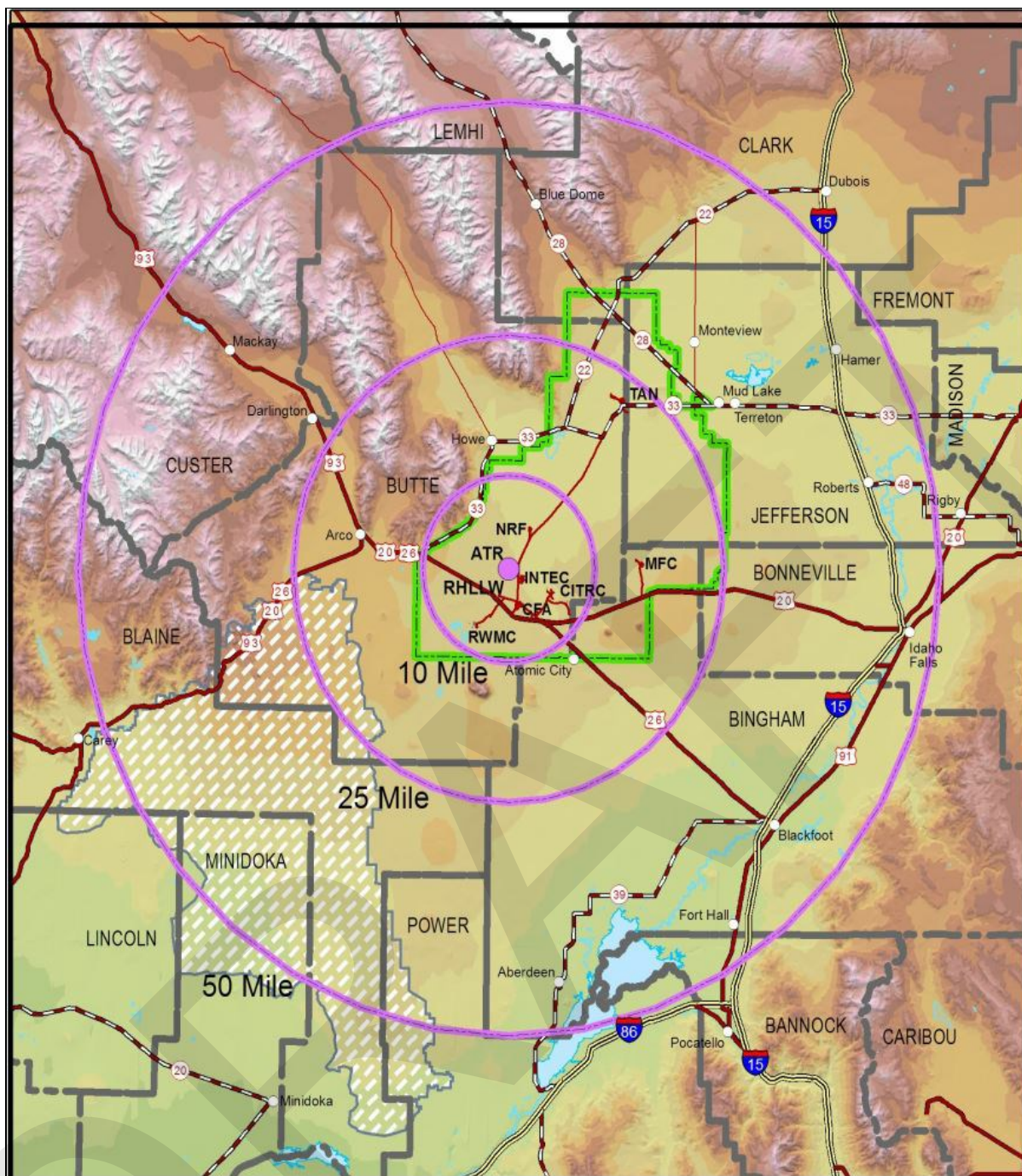
A nuclear event is defined as an incident involving a nuclear reaction; nuclear fission or nuclear fusion. Such an incident must involve fissionable materials, defined as materials containing isotopes with nuclei capable of splitting. Further, the most probable incidents involve fissile materials, defined as materials containing isotopes capable of sustaining a nuclear fission chain reaction. Such reactions release heat, radiation, and radioactive contamination in extremely large quantities relative to the amount of material reacting.

Examples of nuclear events include nuclear weapons detonations, nuclear reactor incidents, and nuclear (fissile) material production, handling or transportation incidents. A nuclear detonation as a part of an attack scenario is, perhaps, the ultimate technological disaster. The hazards are well-known and vividly described in FEMA publications.¹⁶ They include shock waves, enormous heat, and the spread of fallout (radioactive contamination). Other nuclear events would not involve a nuclear blast but still have the potential to produce widespread and long-term consequences as exemplified by the 1986 Chernobyl accident.¹⁷ Of primary concern is the release of radioactive contamination in the form of airborne gases and particulate material. This radioactive material has the potential to travel great distances and particulate material eventually is deposited in the environment and incorporated into the food chain. Such contamination may remain hazardous for many years. Direct radiation exposure is also a hazard in relatively close proximity to a nuclear event as is exposure to high thermal energy. Nuclear events are virtually always caused by human actions - both intentional and unintentional.

The Idaho National Laboratory poses a credible hazard to most western parts of Madison County. While the Idaho Settlement Agreement established timelines for DOE to treat and/or remove specific radioactive and hazardous wastes and spent nuclear fuel now stored at the INL, nuclear events can cause a considerable and prolonged impact on a community. Currently, no incidents have occurred from the Advanced Test Reactor (ATR). The ATR is a low-temperature and low-pressure reactor and has been through several earthquake tests ([INL](#)). The reactor was used to run 6,604 tests from 1959 to 1994 and then was put on standby as the United States started turning away from nuclear power amid safety concerns. The reactor was restarted as part of a strategy to reduce greenhouse gas emissions in the US by generating carbon-free electricity with nuclear power ([AP News, 2018](#)).

The locations of the INL facilities within the Site boundary are shown in the map below. The following Table provides the Protective Action Distance for a radiological release from the RTC facility is given as 115 km (approximately 69 miles). This indicates a threat to crops and grazing lands in western portions of Madison County.

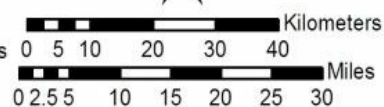
MAP: INL Hazards Assessment Maximum Protective Action Distances
Source – U. S. Department of Energy Idaho Operations Office & INL



Legend

- 10, 25, 50 Mile Radius From Reactor Technology Complex (RTC)
- Interstate Highways
- US Highways
- State Highways
- Secondary Highways
- INL Roads

- Rivers and Streams
- Reservoirs, Lakes, and Playas
- INL Boundary
- Craters of the Moon National Monument
- Cities and Towns
- County Boundaries



Project: Emergency Management Hazards Assessment for RTC

Map Requestor: Lori Fell

GIS Analyst: Glenn Russell

Date Drawn: 5/3/2019

Disclaimer: Contact the GeoSE at 526-1584 for information about the data shown on this map.

Path: Z:\fromCW\ICWI GIS Project Folders\gis-projects2\gis_projects2\trahazard_asses_document
File Name: 10_25_50_Mile_Radius-ap_v1.mxd

TABLE: INL Hazards Assessment Maximum Protective Action Distances*Source – U. S. Department of Energy Idaho Operations Office & INL*

INL Hazards Assessment Maximum Protective Action Distances (PAD)		
Facility	Non-Rad PAD	Rad PAD
Research Center (IRC)	None	None
Radioactive Waste Management Complex (RWMC)	None	4.3 km
Advanced Test Reactor Complex (ATR Complex)	5.7 km	115 km
Idaho Nuclear Technology and Engineering Center (INTEC)	2.4 km	16 km
Central Facilities Area (CFA)	775 m	100 m
Transportation	*	*
MATERIALS AND FUELS COMPLEX (MFC)	530 m	3.2 km
AREA NORTH (TAN)	None	None
Specific Manufacturing Capability (SMC)	120 m	None

* INL asserts that associated transportation activity is within normal limits for highway traffic and uses the DOT ERG for its planning basis.

Historical Frequencies

- There are no recorded nuclear events in Madison County.
- Located under the INL is one of the most productive groundwater resources in the US. The Snake River Plain Aquifer is the primary water source for more than 280,000 people. INL has impacted the quality of the water in the aquifer with heavy metals, chemicals, and radioactive elements. While some of the groundwater below INL is still contaminated, for two decades, the US Department of Energy has been cleaning up the aquifer ([INL](#)).

Additional historical facts unique to INL include:

- The core from Pennsylvania's Three Mile Island nuclear plant was buried thereafter it underwent a partial meltdown in 1979 in one of the nation's worst nuclear mishaps.
- Idaho won federal court battles in the 1990s to prevent the Energy Department's Idaho site from becoming a repository for spent fuel and other nuclear waste ([AP News, 2018](#)).

Probability

Based on the [CVR2](#), this hazard is considered to be "Not Probable at All/Not Frequent At All", because this hazard was determined to be extremely rare with little to no documented history of significant occurrences or events. While it is possible that low impact events may occur on occasion, the hazard's overall impact on the County and participating jurisdictions would be very minor.

While the INL does not pose a direct, life-threatening threat, a portion of Western Madison County lies within the 69-mile ingestion pathway planning zone of the INL Reactor Technology Complex. In this zone, direct, human radiological and contamination exposure is not a serious concern. There is, however, a long-term threat to the food supply because vegetables, fruit, trees, and grains may take up radionuclides from the soil. Radionuclides may also be ingested by livestock, wild game, and fish that may then enter the human food chain.

In the event of a serious radiological release from that facility, food production, processing, and marketing facilities within the planning zone could be affected.

There are two types of responses intended to prevent or limit public exposure in the ingestion pathway:

- Preventive protective actions are those taken by farmers to prevent contamination of milk, water and food products (e.g., sheltering dairy animals and placing them on stored feed and covered water).
- Emergency protective actions are those taken by public officials to address contaminated milk, water, and food products, and divert such products from animal and human consumption (i.e., embargoes).

Loss Estimates

Indirect costs due to a nuclear event would almost certainly exceed those of clean-up. These would include costs attributable to the stigma associated with radiation and radioactive material in the mind of the public. Because of this stigma, the social and political impacts of a nuclear event may greatly exceed any justifiable limits. There have been instances where the public has avoided radiologically contaminated areas and shunned affected businesses and their products long after any credible health threat has been eliminated.

Vulnerability Analysis

Analysis of Community Development Trends

The extent of each nuclear/radiation emergency is dependent on the amount of radioactivity released and the specifics of the emergency. For example, the specific conditions at each site, unique geographical features of the area, and demographic information, all contribute to understanding the true extent of the incident.

Vulnerability to Future Assets/Infrastructure for Nuclear Event

This hazard typically does not impact the built environment; however, any future structural development in Madison County could be vulnerable to these events given the material released and the radius of impact.

Vulnerability Analysis for Nuclear Event

Since radiation cannot be seen, smelled, felt, or tasted, people at the site of an incident will not know whether radioactive materials were involved. Also, a genetic effect is another concern attributed to radiation exposure. Genetic effects are the result of a mutation produced in the reproductive cells of an exposed individual that can be passed on to their offspring. These effects may appear in the exposed person's direct offspring, or even several generations later. This often makes it difficult to determine the true extent of an incident.

Impact on Madison County residents

Due to the low frequency of this event in the United States, it is difficult to establish the economic and social impacts. It is anticipated that the impact could be very high, depending on the severity of the event.

Impact on Essential Facilities and Other Property

The actual area impacted by a release would depend greatly on the type and amount of radioactive material released, weather conditions at the time of the release, and the location relative to wind direction following the release.

Impact on Critical Infrastructure

Similar to essential facilities, critical infrastructure may be impacted depending on the actual area impacted by a release would depend greatly on the type and amount of radioactive material released, weather conditions at the time of the release, and the location relative to wind direction following the release.

Impact on the Environment

A nuclear event can release hazardous materials into the air, potentially threatening the health of the community, crops, and of the environment. It is also possible for the material to spread amongst nearby trees and vegetation, potentially causing a great deal of damage to the surrounding flora and fauna.

Impact on Operations

Nuclear power plant owners/operators work closely with emergency planners to develop response plans in the event of a release of radioactive materials. In Idaho, the responsibility to respond to such events is shared by the plant owner/operator and all levels of government. Response to an off-site release would likely involve multiple agencies and departments from all levels of government.

Relationships to Other Hazards

While INL has been back-up safety features, earthquakes, flooding, power outages, and wind damage have the potential to cause damage to the facility and release harmful materials. INL has been tested to withstand earthquakes and other hazards.

Nuclear Event Evaluation and Impact/Consequence Assessment

Frequency & Probability ¹	Minimally Vulnerable - 6		
Potential Magnitude and Scale ¹	Minimally Vulnerable - 3		
Physical Vulnerability Hazard Impact ¹	Somewhat Vulnerable - 34		
Social Vulnerability Hazard Impact ¹	Somewhat Vulnerable - 35		
Community Conditions Hazard Impact ¹	Minimally Vulnerable - 24		
Overall Capability and Capacity ²	Capable - 72		
Mitigation ²	Capable - 67		
Hazard Consequence & Impact Score ¹	Minimally Vulnerable - 25		
Overall Risk Rating ³	Low - 12		
Legend			
Score	1: Vulnerability Rating	2: Capability and Capacity Rating	3: Overall Risk Rating
0 – 25	Minimally Vulnerable	Minimally Capable	Low
26 – 50	Somewhat Vulnerable	Somewhat Capable	Medium
51 – 75	Vulnerable	Capable	High
76 - 100	Very Vulnerable	Very Capable	Extreme
N/A	Not Applicable/Unknown	Not Applicable/Unknown	Not Applicable/Unknown

1.6.3.5.3 Hazardous Material Event

Description

According to State data, there are 15 Tier II and 1 Tier I facilities within Madison County ([Idaho Hazard Mitigation Plan, Chapter 3.11](#)). Based on previous data compiled in previous hazard mitigation plans, it is likely that hazardous material events occur frequently within the County, and will continue to.

The U.S. Occupational Safety and Health Administration (OSHA) defines a hazardous material as *any substance or chemical which is a "health hazard" or "physical hazard," including chemicals which are carcinogens, toxic agents, irritants, corrosives, sensitizers; agents which act on the hematopoietic system; agents which damage the lungs, skin, eyes, or mucous membranes; chemicals which are combustible, explosive, flammable, oxidizers, pyrophorics, unstable-reactive or water-reactive; and chemicals which in the course of normal handling, use, or storage may produce or release dusts, gases, fumes, vapors, mists or smoke which may have any of the previously mentioned characteristics.* (Full definitions can be found at 29 Code of Federal Regulations (CFR) 1910.1200.)

The U.S. Environmental Protection Agency (EPA) adds to the OSHA definition *any item or chemical which can cause harm to people, plants, or animals when released by spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping or disposing into the environment.* (40 CFR 355 contains a list of over 350 hazardous and extremely hazardous substances.)

The U.S. Department of Transportation (DOT) defines a hazardous material as *any item or chemical which, when being transported or moved in commerce, is a risk to public safety or the environment, and is regulated as such under its Pipeline and Hazardous Materials Safety Administration regulations (49 CFR 100-199), which includes the Hazardous Materials Regulations (49 CFR 171-180).* In addition, hazardous materials in transport are regulated by the International Maritime Dangerous Goods Code; Dangerous Goods Regulations of the International Air Transport Association; Technical Instructions of the International Civil Aviation Organization; and U.S. Air Force Joint Manual, Preparing Hazardous Materials for Military Air Shipments ([Institute of Hazardous Materials Management](#))

Substances that, because of their chemical or physical characteristics, are hazardous to humans and living organisms, property, and the environment, are regulated by the U.S. Environmental Protection Agency (EPA) and, when transported in commerce, by the U.S. Department of Transportation (DOT). EPA regulations address hazardous substances and extremely hazardous substances.

EPA chooses to specifically list hazardous substances and extremely hazardous substances rather than providing objective definitions. Hazardous substances, as listed, are generally materials that, if released into the environment, tend to persist for long periods and pose long-term health hazards for living organisms. They are primarily chronic, rather than acute health hazards.

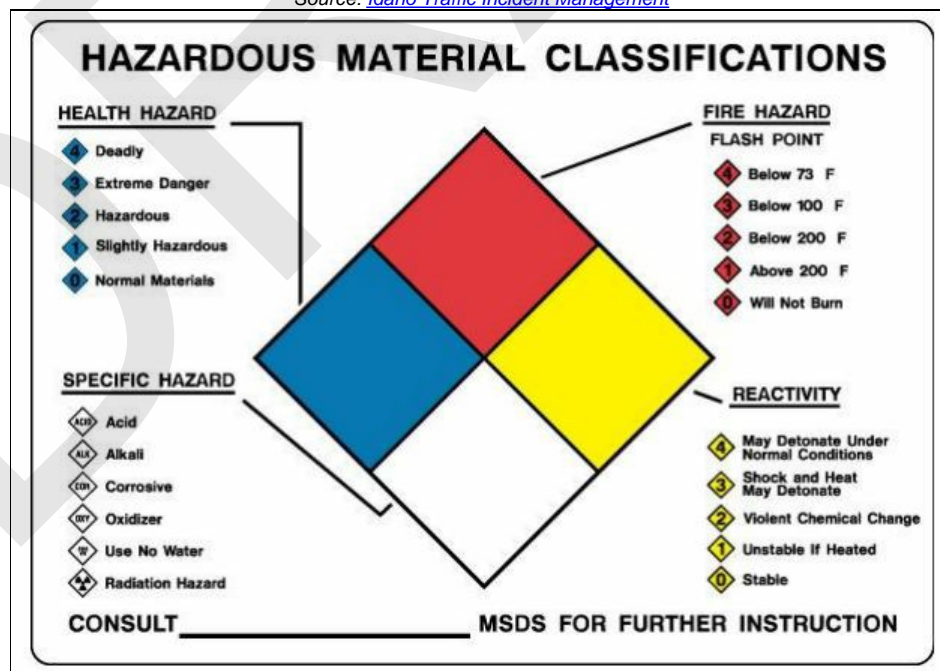
Regulations require that spills of these materials into the environment in amounts at or above their individual reportable quantities must be reported to the EPA. Extremely hazardous substances, on the other hand, while also generally toxic materials, are acute health hazards that, when released, are immediately dangerous to the life of humans and animals as well as causing serious damage to the environment. When facilities have these materials in quantities at or above the TPQ, they must submit Tier II information to appropriate state and/or local agencies to facilitate emergency planning. When a substance meets the DOT definition of hazardous material, it must be transported under safety regulations providing for appropriate packaging, communication of hazards, and proper shipping controls.

In addition to EPA, OSHA, and DOT regulations, the National Fire Protection Association (NFPA) develops codes and standards for the safe storage and use of hazardous materials. These codes and standards are generally adopted locally and include the use of the NFPA 704 standard for the communication of chemical hazards in terms of health, fire, instability (previously called reactivity), and other special hazards (such as water reactivity and oxidizer characteristics). Diamond-shaped NFPA 704 signs ranking the health, fire and instability hazards on a numerical scale from zero (least) to four (greatest) along with any special hazards, are usually required to be posted on chemical storage buildings, tanks, and other facilities. Similar NFPA 704 labels may also be required on individual containers stored and/or used inside facilities.

While somewhat differently defined by the above organizations, the term hazardous material may be generally understood to encompass substances that have the capability to harm humans and other living organisms, property, and/or the environment. There is also no universally accepted, objective definition of the term hazardous material event. A useful working definition, however, might be framed as *Any actual or threatened uncontrolled release of hazardous material, its hazardous reaction products, or the energy released by its reactions that poses a significant risk to human life and health, property and/or the environment.*

FIGURE: Hazardous Materials Classifications

Source: [Idaho Traffic Incident Management](#)



Historical Frequencies

- PHMSA data indicates that only 1 hazardous material event (minor) occurred in Madison County in 2018.
- In 2017, the Toxic Release Inventory (TRI) Program recorded 1 facility (Basic American Foods Rexburg Facility) in Madison County releasing 18 pounds of waste and managing all 18 pounds ([EPA](#)).
- In 2015, the owner of MS Enterprises was sentenced to 46 months in prison for knowingly storing and disposing of hazardous waste on a property off of the Archer-Lyman

Highway near Rexburg. 3,478 containers were found on the property, shipped to a hazardous waste disposal facility, and cost the federal government \$498,652 ([Local News](#)).

- Other notable historical events have no doubt occurred semi-frequently, but records of this data may not be publicly accessible currently.

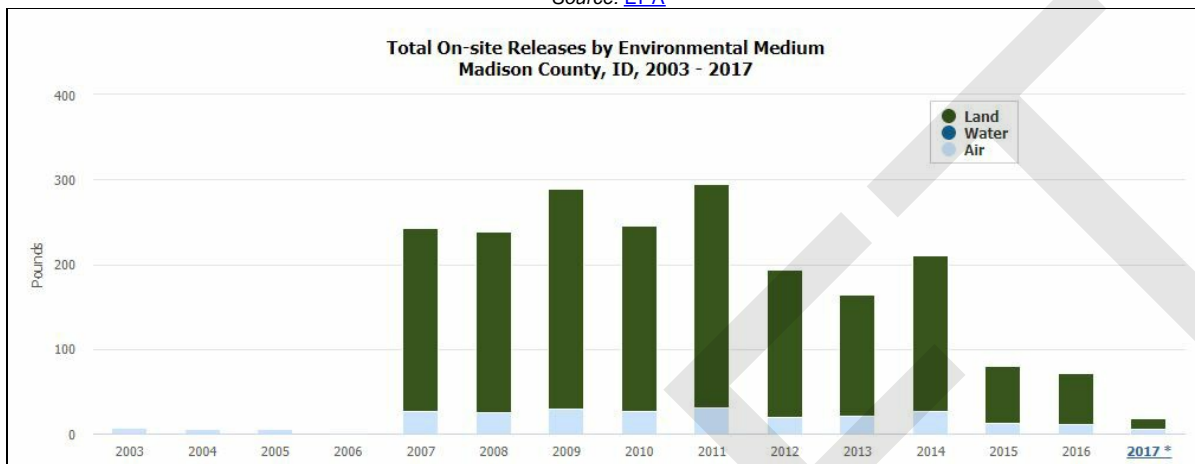
Probability for Hazardous Materials Incident Hazard

Based on the [CVR2](#), this hazard is considered to be "Somewhat Probable/Somewhat Frequent" because significant occurrences of this hazard have happened on occasion (even though isolated or low impact events may occur with more regularity).

Idaho ranks 32 of 56 of state and territories nationwide for total toxic releases per square mile ([EPA](#)). Production has significantly decreased.

TABLE: On-Site Release by Environmental Medium

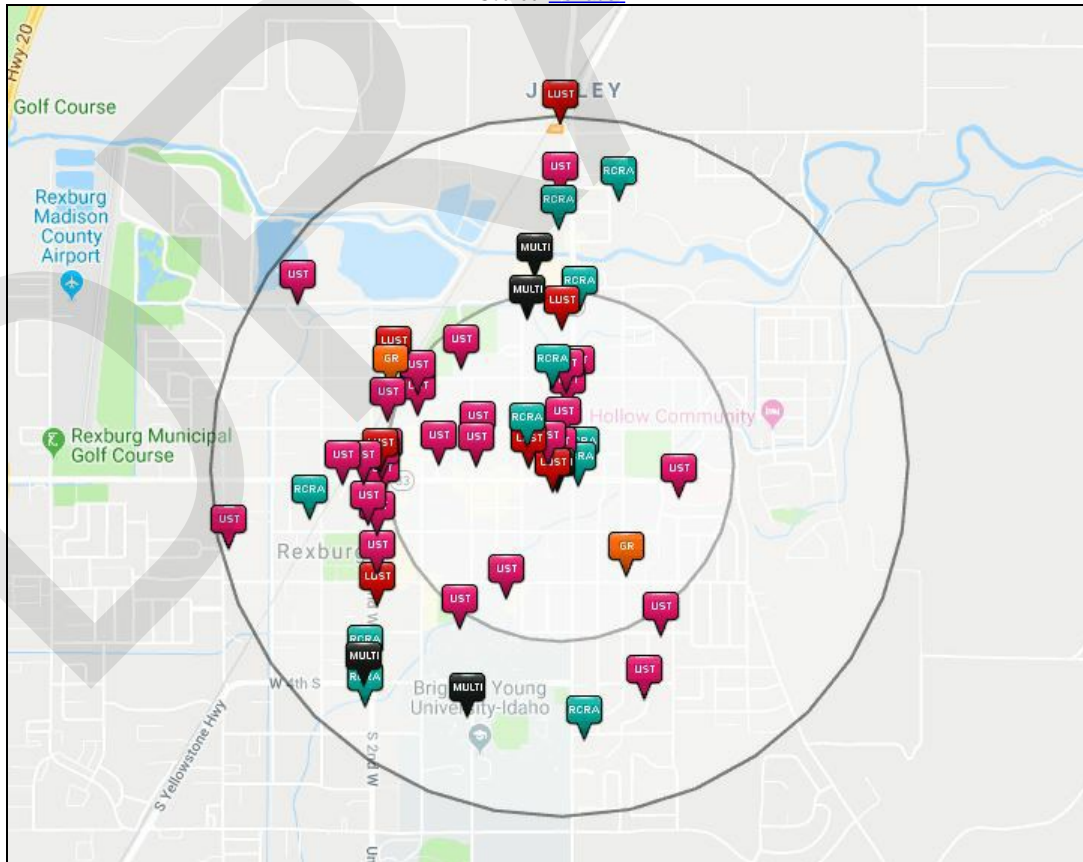
Source: [EPA](#)







While only limited instances of hazardous materials releases in Madison County are available in public databases, given the transportation of hazardous materials through the County and the connection of hazardous materials to the agricultural industry, this hazard will continue to impact the County. Isolated and low impact events occur with recurrent regularity. This is highlighted on the IDEQ Waste Management and Remediation Division webpage. The IDEQ Waste Management and Remediation Division oversees various sites and facilities which generate or manage wastes or which have released wastes into the environment which require remediation. The IDEQ Waste Management and Remediation Division Facility Mapper (Facility Mapper) highlighted below shows all the locations within a 1-mile radius of the Madison County Court House that are tracked by the agency.

FIGURE: Facility Mapper for a One-Mile Radius from the Madison County Court House

Source: [Terradex](#)



1.	 Leaking Underground Storage Tank (LUST)
2.	 Underground Storage Tanks (UST)
3.	 Resource Conservation and Recovery Act Hazardous Waste (RCRA)
4.	 Brownfields (BF)
5.	 Voluntary Cleanup Program (VCP)
6.	 National Priority List (NPL, Superfund)
7.	 Installation Restoration Program (IRP)
8.	 Mine (Preliminary Assessment, Phosphate Mining, Cyanidation Permitting, Remedial Action, and General/New Mining)
9.	 Solid Waste
10.	 General Remediation
11.	 Formerly Used Defense (FUDS)
12.	 Multiple Programs
13.	 Other- Industrial Preliminary Assessment Program

Geographic Location for Hazardous Materials Incident Hazard

The hazardous material incident hazards are countywide and primarily are associated with the transport of materials by highway, railroad, and/or river barge, underground storage tanks, waste sites, and solid waste. Additionally, agricultural is one of the main industries in the County and can yield hazardous material waste.

TABLE: Sites by IDEQ Waste Management and Remediation Division Program
Source: [Terradex](#)

Name	Street	City	County	Program
MADISON COUNTY COURTHOUSE	159 E MAIN	Rexburg	Madison	Underground Storage Tanks
MADISON COUNTY IMPLEMENT	38 N 2ND E	Rexburg	Madison	RCRA Hazardous Waste Site
MADISON COUNTY ROAD & BRIDGE	529 AIRPORT RD	Rexburg	Madison	Underground Storage Tanks
MADISON COUNTY SHERIFFS OFFICE	145 E MAIN	Rexburg	Madison	Underground Storage Tanks
MADISON COUNTY SOLID WASTE		Rexburg	Madison	Solid Waste
MADISON FORD MERCURY INC	535 S YELLOWSTONE AVE	Rexburg	Madison	Underground Storage Tanks
MADISON HOSPITAL	450 E MAIN ST	Rexburg	Madison	Underground Storage Tanks
MADISON SD 321	290 N 1ST E	Rexburg	Madison	Multiple Programs
MADISON SD 321 JR HS	60 W MAIN ST	Rexburg	Madison	Underground Storage Tanks
REXBURG MADISON COUNTY AIRPORT	T6N R39E S24 (1 MI NW OF CITY CENTER)	Rexburg	Madison	Multiple Programs

The Intermountain Gas pipeline runs through the County. The Eastern Idaho Railroad (EIRR) passes through Madison County between Idaho Falls and Ashton. Major highways through Madison County include US Route 20 and State Highway 33 and the existing roadway network consists of local, collector and arterial streets. US Route 30 is a north/south route that bisects the County just west of Rexburg ([Madison County Transportation Plan](#)).

FIGURE: Pipelines in Idaho
Source: [Idaho Public Utilities Commission](#)

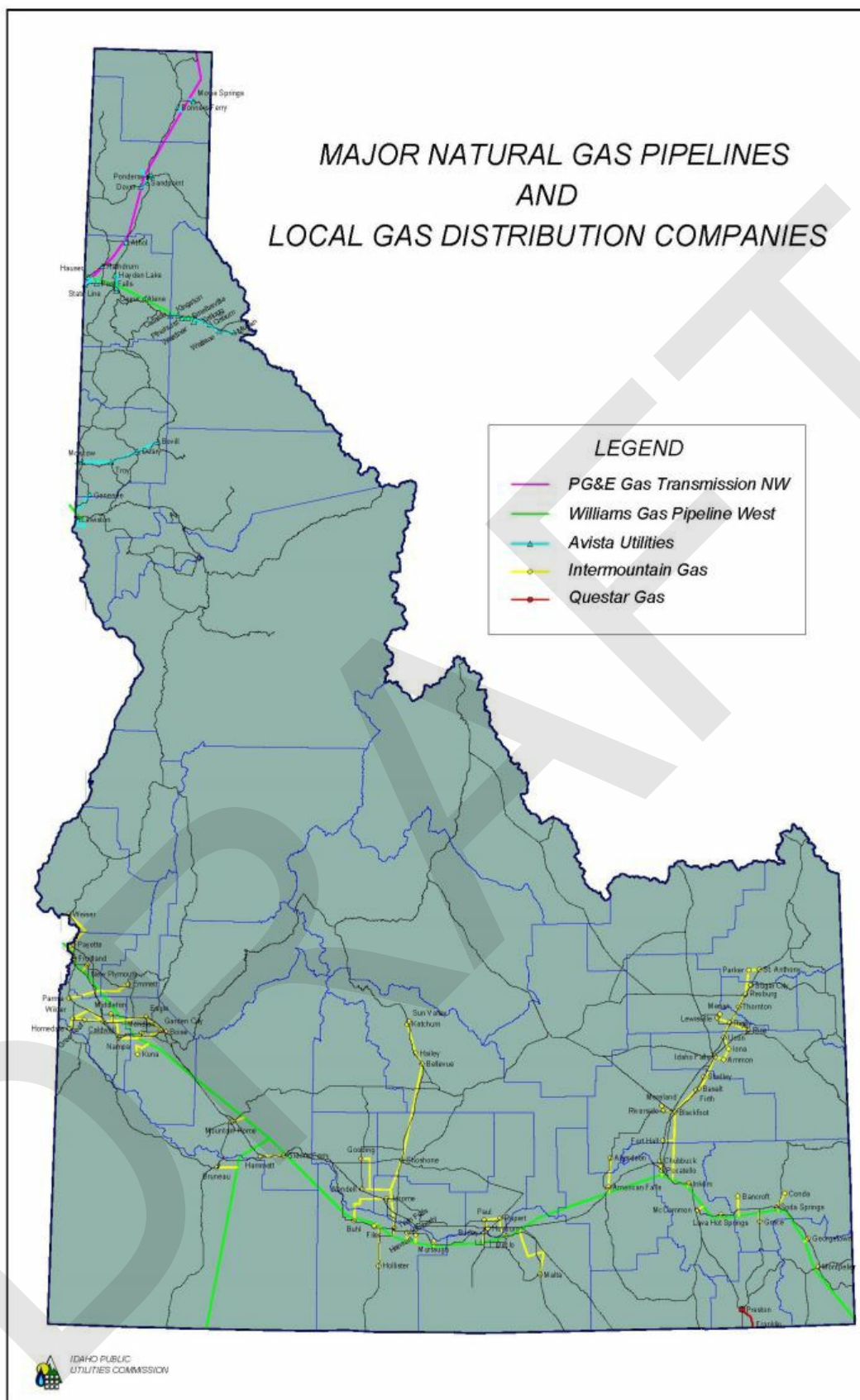
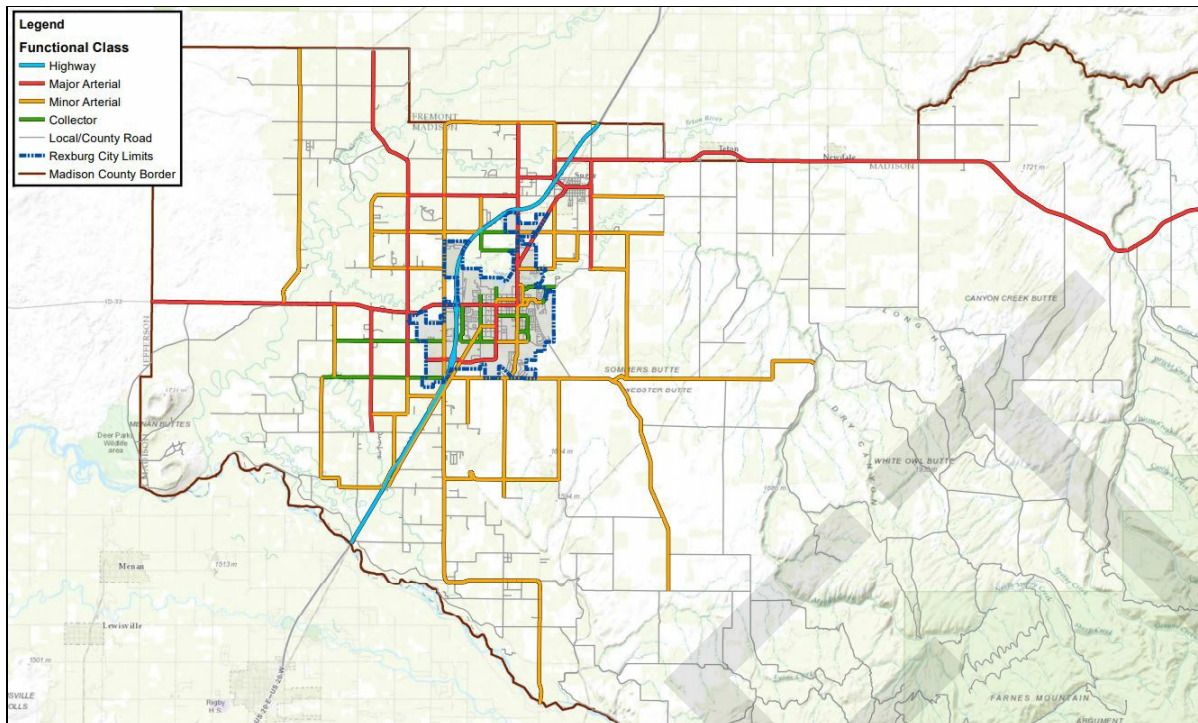


FIGURE: Roadways in Madison County
Source: [Madison County Transportation Plan](#)



The farms in the County do store large amounts of fertilizer and pesticides. While these are currently being stored securely, it is possible that a tornado or flood could cause a spill issue.

Hazard Extent for Hazardous Materials Incident

The extent of the hazardous material incident hazard varies in terms of the quantity of material being transported as well as the specific content of the container. The Toxics Release Inventory (TRI) records the toxic chemical releases and pollution prevention activities reported by industrial and federal facilities. In 2017, there was 1 TRI facility in County that released 18 pounds of toxic chemicals, which is significantly lower than the previous years ([EPA](#)).

TABLE: Hazardous Materials Incident Hazard Extent

Hazard Type	Affected Jurisdictions	Extent (based on historical events)		Comments
		Minimum	Maximum	
Hazardous Materials Incident	County-wide	Minor spill/release	Rail tanker(s) explosion or explosion at fixed facility releasing heavy plumes of toxic chemicals	The maximum extent represents a hypothetical, but realistic scenario.

Analysis for Community Development Trends

Because hazardous materials are so widely used, stored and transported, a hazardous material event could take place almost anywhere. Further, many hazardous materials are used, stored and transported in very large quantities so that the impacts of an event may be widespread and powerful. Regulations and safety practices make such large scale events unlikely, but smaller-scale incidents may have severe impacts including:

- Human deaths, injuries, and permanent disabilities
- Livestock/animal deaths
- Destruction of vegetation and crops
- Property damage and destruction
- Pollution of groundwater, drinking water supplies, and the environment
- Contamination of foodstuffs, property, land, and structures Temporary or long-term closure of transportation routes and/or facilities
- Loss of business and industrial productivity
- Utility outages
- Clean-up and restoration costs
- Losses and inconvenience due to evacuation
- Loss of valuable chemical product

As the County's population increases, the likelihood of more significant hazardous materials incidents is likely to increase.

Vulnerability to Future Assets/Infrastructure for Hazardous Materials Incident Hazard

All future buildings will be exposed to hazardous materials incidents. While direct structural damages may be limited, secondary impacts are a possibility.

Vulnerability Analysis for Hazardous Materials Incident Hazard

Hazardous material impacts are an equally distributed threat across the entire jurisdiction; therefore, the entire county is vulnerable to a hazardous material release and can expect the same impacts within the affected area. The main concern during a release or spill is the population affected. This plan will, therefore, consider all buildings located within the county as vulnerable.

Impact on Madison County Residents

Hazardous material releases can cause significant short and long-term sickness or injury to residents, depending on the specific substance. In extreme cases, death may occur due to exposure to hazardous substances. It is also possible that explosions due to hazardous materials releases could damage residential or commercial property.

Impact on Essential Facilities and Other Property

All facilities and communities within the county are at risk. An essential facility will encounter many of the same impacts as any other building within the jurisdiction. These impacts include structural failure due to fire or explosion and loss of function of the facility (e.g., a damaged police station will no longer be able to serve the community).

Building Inventory: All facilities within the county are at risk. While actual structural damage to the facility is not likely, secondary hazards and access to those buildings may be adversely affected.

Impact on Critical Infrastructure

During a hazardous material release, the types of infrastructure that could be impacted include roadways, utility lines/pipes, water/wastewater assets, railroads, bridges, and ports. The impacts on these structures include broken, failed, or impassable roadways; broken or failed utility lines (e.g., loss of power or gas to the community); and railway failure from broken or impassable railways. Bridges could fail or become impassable, causing risk to traffic. In terms of numbers and types of buildings and infrastructure, typical scenarios are described to gauge the anticipated impacts of hazardous material release events in the county.

Impact on the Environment

Hazardous materials releases can often have a devastating effect on the local air and land. Besides human injury caused by these releases, wildlife and their habitat can often be damaged long term. Certain releases can spark fires that damage the landscape. A hazardous substance release onto the land or water can severely contaminate and impact both land and marine-based ecosystems.

According to the Idaho Surface Water Assessment Plan published by DEQ, in Idaho, major contaminants of concern on an areawide or "nonpoint source" basis include nitrates and pesticides. Nitrate is attributable to agricultural activities, particularly fertilizers. Major point source contaminants include volatile organic compounds and petroleum compounds. Point source contamination can come from industrial facilities, waste disposal sites, and large accidental spills, as well as small businesses and residential activities, including abandoned family water wells.

Impact on Operations

A hazardous materials release can often require the deployment of special units to deal with the incident. Depending on the location and severity of the event, entire areas may need to be evacuated or quarantined, potentially shutting down operations along key roads, railroads, or city blocks. Medical personnel may be required to respond to any injuries that may have occurred. In the event of a hazardous materials explosion or massive leak, the strain on first responders may become significant.

Hazardous Material Event Hazard Evaluation and Impact/Consequence Assessment

Frequency & Probability ¹	Somewhat Vulnerable - 31		
Potential Magnitude and Scale ¹	Minimally Vulnerable - 20		
Physical Vulnerability Hazard Impact ¹	Somewhat Vulnerable - 41		
Social Vulnerability Hazard Impact ¹	Somewhat Vulnerable - 48		
Community Conditions Hazard Impact ¹	Somewhat Vulnerable - 32		
Overall Capability and Capacity ²	Capable - 71		
Mitigation ²	Capable - 67		
Hazard Consequence & Impact Score ¹	Somewhat Vulnerable - 35		
Overall Risk Rating ³	Medium - 33		
Legend			
Score	1: Vulnerability Rating	2: Capability and Capacity Rating	3: Overall Risk Rating
0 – 25	Minimally Vulnerable	Minimally Capable	Low
26 – 50	Somewhat Vulnerable	Somewhat Capable	Medium
51 – 75	Vulnerable	Capable	High
76 - 100	Very Vulnerable	Very Capable	Extreme
N/A	Not Applicable/Unknown	Not Applicable/Unknown	Not Applicable/Unknown

1.6.3.5.4 Riot/Demonstration/Civil Disorder

Description

Civil disorder is a wide-ranging term that encompasses any incident involving large groupings of individuals participating in activities that disrupt public order and put the safety of the public, businesses, or critical infrastructure at risk. This can include rioting, looting, and violent demonstrations.

The civil disorder can be a spontaneous impact of a triggering event such as the looting seen following disasters (Hurricane Katrina) or can be a specific hazard unrelated to any other hazard (WTO riots). It can arise from peaceful events, gatherings, or demonstrations or can be pre-planned and intentional. Ultimately, civil disorder is rooted in highly complex social, economic, and political interactions.

[State of Idaho statutes define riot as follows \(Idaho Statute 18-6401 – RIOT DEFINED\):](#)

Any action, use of force or violence, or threat thereof, disturbing the public peace, or any threat to use such force or violence, if accompanied by the immediate power of execution, by two (2) or more persons acting together, and without the authority of law, which results in:

- a. physical injury to any person; or
- b. damage or destruction to public or private property; or
- c. a disturbance of the public peace;

is a riot.

Also defined in the statutes ([Idaho Statute 18-8102 – DEFINITIONS](#)) is **civil disorder**:

"Civil disorder" means any public disturbance involving acts of violence by an assemblage of two (2) or more persons which acts cause an immediate danger of or result in damage or injury to the property or person of any other individual.

The term demonstration is not defined in this context in the Idaho statutes but the following is given for unlawful assembly (Idaho Statute 18-6404 - UNLAWFUL ASSEMBLY DEFINED):

Whenever two (2) or more persons assemble together to do an unlawful act, and separate without doing or advancing toward it, or do a lawful act in a violent, boisterous or tumultuous manner, such assembly is an unlawful assembly.

Riots are generally thought of as being spontaneous, violent events whereas demonstrations are usually planned events and are usually intended to be non-violent. Riots seem often to be motivated by frustration and anger, usually over some real or perceived unfair treatment of some group. There are instances, however, where riots have begun during celebrations and other events where the only initiating factor seems to have been the gathering of a crowd of people.

The potential for rioting, then, exists any time people gather but a number of factors are associated with the increased probability one will occur including:

- Drug and alcohol use
- Youth of crowd members
- Low socioeconomic status of members
- High level of emotions
- A history of rioting on the same or similar previous occasions
- Initiating event, person, or persons

Once violent or illegal activity is initiated, it escalates, possibly at least partly because of the perception that, because all are acting together, there is little probability that any given individual will be arrested or otherwise suffer consequences. Riots may range in scope from a very few people in a small area to thousands over an entire city. Once initiated, large riots are very difficult to suppress, particularly in the United States where law enforcement is constrained by constitutional guarantees as well as personnel limits. Early and decisive action by law enforcement may be effective in suppressing a riot, but police actions may also lead to further escalation.

Civil Disorder During Disasters

Civil disorder during disasters occurs during or immediately after a disaster. This type of civil disorder primarily manifests itself in the form of looting. Other forms of types of civil disorder such as rioting are extremely rare following a disaster.

It is argued that the cause of civil disorder during disasters results from many types of motivating factors. One factor is the chaos resulting from a disaster alters the environment and the resulting social norms allowing for the rationalization of acts previously considered contemptible. This change in behavior coupled with a displaced or overtaxed police force allows the civil disorder to grow during or after disasters. Another factor that may result in civil disorder during disasters is the lack of or the fear of the lack of basic human supplies. Disasters often disrupt a community's ability to provide food, clothing, and potable water for its citizenry. Fearing for survival, a populace may begin to loot for these basic necessities. Lastly, it has been argued that the genesis of civil disorder during disasters stems from social inequalities. There is a strong correlation between lower socioeconomic status and crime. There is evidence to suggest that during and immediately following disasters these conditions are exacerbated resulting in higher crime rates, specifically looting.

All this considered, differing opinions exist of the frequency of looting during disasters. Some argue that the occurrence of widespread looting is a misconception and that perceptions are influenced by misinterpreting behavior, misunderstandings over the ownership of property, exaggerating claims of looting, and sensational media coverage. In addition, it is widely observed that pro-social behaviors such as citizens volunteering to help and feed one another far outweigh anti-social behavior such as looting. Nonetheless, looting does exist in many disasters to some degree. Its origins are rooted in social issues but are probably influenced by a combination of the above factors.

Due to the resulting impacts of a disaster, the affected populace is already under duress; therefore, responders and emergency managers must take appropriate caution when responding to these events. Shifting search and rescue activities to trained strike teams may free up enough police to quell looting. Setting up disaster recovery operations as quickly and efficiently as possible will provide residents assistance in maintaining basic life needs. Finally, strong public information campaigns will help to inform the citizenry and quell fears.

Politically Motivation Civil Disorder

Politically motivated civil disorder results when a large group of individuals disturbs public order to affect political or social change. This can occur in a pre-planned fashion, in response to a significant social event, or spontaneously at large crowd gatherings. This type of civil disorder can manifest itself in rioting, looting, or unauthorized gatherings and the disrupting of the public order.

The politically motivated civil disorder can happen for a number of reasons. Some of these reasons are to affect change in socio-economic inequalities, to change existing laws, to take advantage of a lawless situation, or can be anarchist in nature. This type of civil disorder can occur but is not limited to the following scenarios: peaceful marches and parades, pre-planned summit and major political events, and large gatherings at concerts and sports arenas.

Often in politically motivated civil disorder, initial targets are symbolic acts of defiance against what the participants see as institutions upholding the societal norms they wish to change. This includes destructive behaviors towards police forces and their equipment, firefighters and their equipment, and other symbols of law and order. This destructive behavior often morphs to crimes of opportunity such as looting and theft. Finally, aggression toward the public and peacekeepers can take place.

In recent years, politically motivated civil disorder and those that participate in it have become increasingly organized. These individuals often attach their cause to otherwise innocuous or peaceful demonstrations to take advantage of a police force strained with other responsibilities. Anarchist groups such as the Black Bloc have incorporated guerilla tactics into their operations such as hiding their identity and using misdirection on police forces to have the greatest opportunity to inflict damage. Another tactic of these groups is to incite violence in the larger crowd. Exploiting already existing tensions on a variety of issues, such as hunger, poor employment opportunities, inadequate community services, poor housing, and labor issues can elevate tensions within a large group. When tensions are high, a seemingly minor incident, rumor, or act of injustice can ignite a crowd to riot and act violently. Further information on Hate Groups is provided under the [Terrorism Section](#).

The right of public assembly is protected by the First Amendment of the United States Constitution; accordingly, emergency managers must be careful to protect the rights of their citizenry. Disregard or perceived disregard for this right will be used by individuals participating in civil disorder to gain sympathy for their cause. Taking this into consideration, the most effective method to diminish politically motivated civil disorder is to stop it before it occurs. This involves significant planning by emergency managers and robust intelligence from law enforcement entities. Once a civil disorder has occurred, an assortment of riot quelling non-lethal weapons are available to responders. Finally, to protect the safety of the public, first responders, and other protesters, various options for lethal force can be used as a last resort.

Historical Frequencies

- There are no recorded riot events in Madison County; however, small protests have occurred at BYU-Idaho.
- Currently, 2 gangs are recorded as active in Rexburg with 150 members ([Inside Prison](#)).

Impacts

Riots may result in loss of life, injury and permanent disability (participants, bystanders, and law enforcement personnel) as well as looting, vandalism, setting of fires and other property destruction. Law enforcement, emergency medical services, and medical facilities and personnel, firefighting and other community resources may be overwhelmed and unavailable to the community at large. Transportation routes may be closed, infrastructure and utilities damaged or destroyed, and public buildings attacked, damaged or destroyed. Social and psychological effects may also cause great impacts. Lingering fear and resentment can be long-lasting and can greatly impair the ability of a community to function politically, socially and economically.

Loss Estimates

Civil Disobedience within Madison County is unlikely, but not ruled out as a possibility. Civil Disobedience within Madison County is a possibility due to the growing number of gangs that have organized in the area as the population increases.

Probability for Civil Disorder/Riot Hazard

Based on the [CVR2](#), this hazard is considered to be “Not Probable at All/Not Frequent At All”, because this hazard was determined to be extremely rare with little to no documented history of significant occurrences or events. While it is possible that low impact events may occur on occasion, the hazard’s overall impact on the County and participating jurisdictions would be very minor.

Geographic Location for Civil Disorder/Riot Hazard

Places of public gathering such as festivals, sporting and entertainment venues, colleges and universities, detention facilities and government facilities are the most likely places for a civil disturbance to occur.

Hazard Extent for Civil Disorder/Riot

The frequency of civil disorder is correlated with a subpopulation’s place in society and their relations with authority figures. It is more likely to occur when a combination of economic, social, and political factors create stress within a community. Its magnitude depends on the pre-existing tensions, the issues at hand, the size of the crowd, and the response of the police.

Large civil disturbances in Madison County are not common and typically are a result of the following causes:

- Labor disputes
- Controversial court judgment or government actions
- Resource shortages
- Demonstrations by special interest groups
- Unfair death or injury
- Celebrating a victory by a sports team

TABLE: Civil Disorder/Riot Hazard Extent

Hazard Type	Affected Jurisdictions	Extent (based on historical events)	
		Minimum	Maximum
Civil Disorder/Riot	County-wide	Small, organized labor strike	Major riot stemming from a real or perceived controversy

Analysis of Community Development Trends

Civil Disobedience within Madison County is unlikely, but not ruled out as a possibility. As Madison County’s population increases, the possibility of unrest will likely rise.

Vulnerability to Future Assets/Infrastructure for Civil Disorder/Riot Hazard

Vulnerability to future structures/assets is expected to be the same as for existing structures.

Vulnerability Analysis for Civil Disorder/Riot Hazard

Although civil disorder poses a threat to the public on its own, the many hazard impacts associated with civil disorder also pose a threat to the safety of the public.

Impact on Madison County Residents

There are many ways that civil disorder events can impact Madison County residents. Individuals engaging in civil disruption will often attach themselves to unrelated protests as a means of getting their message out and as a diversion for police. Unfortunately, residents of the county who are peaceful protesters could potentially be trapped in the chaos that ensues. With these types of events, injuries and fatalities are a possibility.

Impact on Essential Facilities and Other Property

Essential facilities may be impacted if they are near or the target of the civil disorder/riot. Businesses are often the focus of civil disruption as individuals will target these establishments for looting and vandalism. Also, in scenarios where supplies are limited, these businesses are often looted for their goods.

Building Inventory: Any building/edifice where the riot or disorder is taking place will be vulnerable to damages.

Impact on Critical Infrastructure

This hazard typically does not damage infrastructure, but large groups can block traffic (either because there are so many people at the gathering or as a protesting tactic).

Impact on the Environment

This hazard typically does not typically directly impact the environment, except in the unlikely event that hazardous materials were to be intentionally released.

Impact on Operations

First responders are at particular risk of civil disruption. First responders are most likely the first group of individuals on the scene as civil disruption occurs. This puts them at direct risk of injury during a disruption. Additionally, responders are viewed as part of the authority the disruption is protesting against and therefore, they could become targets. The nature of civil disturbances is such that local emergency response services are often overwhelmed.

Summary Vulnerability Analysis

Civil disorder events often involve acts of arson, looting, and vandalism which can result in devastating levels of property damage. The economic impact of a civil disturbance reaches far beyond emergency response costs and property damage. Economic recovery from civil disturbances is very slow and often requires government assistance to revive the local economy. This hazard can tarnish an area's image and deter potential investors and residents. The dollar cost impact on civil disorder/riot was not determined for this hazard.

Civil Disturbance/Civil Unrest Hazard Evaluation and Impact/Consequence Assessment

Frequency & Probability ¹	Minimally Vulnerable - 6		
Potential Magnitude and Scale ¹	Minimally Vulnerable - 3		
Physical Vulnerability Hazard Impact ¹	Somewhat Vulnerable - 46		
Social Vulnerability Hazard Impact ¹	Somewhat Vulnerable - 42		
Community Conditions Hazard Impact ¹	Somewhat Vulnerable - 34		
Overall Capability and Capacity ²	Capable - 59		
Mitigation ²	Somewhat Capable - 33		
Hazard Consequence & Impact Score ¹	Somewhat Vulnerable - 34		
Overall Risk Rating ³	Low - 15		
Legend			
Score	1: Vulnerability Rating	2: Capability and Capacity Rating	3: Overall Risk Rating
0 – 25	Minimally Vulnerable	Minimally Capable	Low
26 – 50	Somewhat Vulnerable	Somewhat Capable	Medium
51 – 75	Vulnerable	Capable	High
76 - 100	Very Vulnerable	Very Capable	Extreme
N/A	Not Applicable/Unknown	Not Applicable/Unknown	Not Applicable/Unknown

1.6.3.5.5 Terrorism

Description

Terrorism can take many forms. In recent years, terrorists have used explosive devices, guns, knives, biological weapons, kidnappings, and other methods to inflict terror on their target audience. Although much focus has been placed on international terrorist groups targeting the United States and other western countries, terrorists can also be citizens of the targeted country. Most terrorist attacks stem from a political or religious disagreement with the target country or population.

Terrorism is an unlawful act under both Federal and State of Idaho statutes. Definitions are as follows:

U.S. Code : Title 18 : Section 2331. Definitions

5. the term "domestic terrorism" means activities that -
 - A. involve acts dangerous to human life that are a violation of the criminal laws of the United States or of any State;
 - B. appear to be intended -
 - i. to intimidate or coerce a civilian population;
 - ii. to influence the policy of a government by intimidation or coercion; or
 - iii. to affect the conduct of a government by mass destruction, assassination, or kidnapping; and
 - C. occur primarily within the territorial jurisdiction of the United States.

Idaho Statute 18-8102 – DEFINITIONS

5. "Terrorism" means activities that:
 - a. Are a violation of Idaho criminal law; and
 - b. Involve acts dangerous to human life that are intended to:
 - i. Intimidate or coerce a civilian population;
 - ii. Influence the policy of a government by intimidation or coercion; or
 - iii. Affect the conduct of a government by the use of weapons of mass destruction, as defined in section 18-3322, Idaho Code.

The Federal Emergency Management Agency gives the following as general information on terrorism¹⁹:

Terrorism is the use of force or violence against persons or property in violation of the criminal laws of the United States for purposes of intimidation, coercion, or ransom.

Terrorists often use threats to:

- Create fear among the public.
- Try to convince citizens that their government is powerless to prevent terrorism.
- Get immediate publicity for their causes.

Acts of terrorism include threats of terrorism; assassinations; kidnappings; hijackings; bomb scares and bombings; cyber attacks (computer-based); and the use of chemical, biological, nuclear and radiological weapons.

High-risk targets for acts of terrorism include military and civilian government facilities, international airports, large cities, and high-profile landmarks. Terrorists might also target large public gatherings, water and food supplies, utilities, and corporate centers. Further, terrorists are capable of spreading fear by sending explosives or chemical and biological agents through the mail.¶

Acts of terrorism, then, are essentially the intentional initiation of the sorts of hazard events that have been discussed in previous sections.

According to the Southern Poverty Law Center, there are currently 10 organizations identified as hate groups in the State of Idaho.

TABLE: Hate Groups Active in Idaho in 2018

Source: [Southern Poverty Law Center](#)

Title of Organization	City	Ideology	Headquarters	Statewide
ACT for America	Meridian	Anti-Muslim	No	No
G416 Patriots	Meridian	Anti-Muslim	No	No
America's Promise Ministries	Sandpoint	Christian Identity	Yes	No
Independent History & Research	Coeur d'Alene	Holocaust Denial	Yes	No
American Guard		General Hate	No	Yes
Brother Nathanael Foundation, The	Priest River	General Hate	Yes	No
Lordship Church	Coeur d'Alene	General Hate	Yes	No
Endangered Souls RC/Crew 519		Neo-Nazi	No	Yes
Crew 38		Racist Skinhead	No	Yes
Northwest Hammerskins		Racist Skinhead	No	Yes

Historical Frequencies

- Since 1970, the Global Terrorism Database has recorded 16 terrorist incidents in Idaho. None of the incidents were in Madison County. Additionally, none of the attacks resulted in fatalities or injuries. The attacks in the 1970s and 80s primarily utilized explosives, bombs, and dynamite. The more recent attack, one as recent as 2016, use incendiary and focus on facility and infrastructure attacks. Targets range from religious figures, abortion rights, businesses, educational institutions, government institutions, and military ([GTD](#)).

Impacts

Since the events of September 11, 2001, no citizen of the United States is unaware of the enormous potential impacts of terrorist acts. The emotional impacts (fear, dread, anger, outrage, etc.) serve to compound the enormous physical, economic, and social damage. The continuing terrorist threat itself has a profound impact on many aspects of everyday life in this country and on the U.S. economy.

Similar to concerns about Civil Disturbances, Terrorism is not a hazard that residents of Madison County have confronted, nor does it seem likely in the near future. If such an event were to occur, it would most likely be directed at a government facility, the University, or a piece of critical infrastructure.

Active Shooter

BYU and the Police Department have proactively trained for active shooter events. BYU-Idaho has 10 armed officers on campus who are trained, certified and qualified to handle active shooter situations. Recently, active shooter training was done for all Madison Memorial Hospital employees.

Active shooter drills are run at least once a year at BYU. They have been through police academy training, and three are former police firearm instructors. The schools in the area also have active shooter plans. In the event of an active shooter attack at BYU, BYU-Idaho has access to a mass notification system. BYU-Idaho has numerous ways they can notify the public, including a mass text that can be sent out in minutes, a loud message system for the campus and a webpage message that continuously displays updates. Regarding emergency response, BYU officers will go to the scene and try to engage the shooter as quickly as possible. Other responders, such as rescue teams and paramedics, would show up as soon as possible.

An important aspect often overlooked following an active shooter case that BYU-Idaho has built into their planning, is business continuity. This aspect involves a group that gets together and works toward restoring as much normalcy as possible in the aftermath of a shooting attack. This group deals with responsibilities such as providing counseling, notifying next of kin and trying to keep parents updated ([Standard Journal](#)).

Loss Estimates

Specific loss estimates are not provided due to security policies.

Probability for Terrorism Hazard

Based on the [CVR2](#), this hazard is considered to be “Not Probable at All/Not Frequent At All”, because this hazard was determined to be extremely rare with little to no documented history of significant occurrences or events. While it is possible that low impact events may occur on occasion, the hazard’s overall impact on the County and participating jurisdictions would be very minor.

Geographic Location for Terrorism Hazard

Terrorism typically targets a specific location in accordance with their end goal. In Cincinnati, terrorists have historically targeted women's clinics and clinics that provide abortions. However, terrorists can also target certain population groups, such as minorities.

Hazard Extent for Terrorism

Terrorist events typically, but not always, aim to impact large numbers of people. Additionally, those who are not directly impacted by the event may still be indirectly impacted through fear, concern for safety, and reduced activity. Therefore, the impact of a terrorist event in MadisonCounty could impact every resident, either directly or indirectly.

TABLE: Terrorism Hazard Extent

Hazard Type	Affected Jurisdictions	Extent (based on historical events)		Comments
		Minimum	Maximum	
Cyberattack	County-wide	Arson or shooting (minimal casualties)	Major CBRNE attack (maximum casualties)	The maximum extent represents a hypothetical, but realistic scenario. The Oklahoma City bombing incident of 1995 represents a realistic scenario that could potentially occur in Madison County. This incident caused \$652 million worth of damage and resulted in 168 fatalities.

Analysis of Community Development Trends

The entire County and all future developments are vulnerable to a terrorist attack, but key facilities and infrastructure carry a higher risk.

Vulnerability to Future Assets/Infrastructure for Terrorism Hazard

Vulnerability to future structures/assets is expected to be the same as for existing structures.

Vulnerability Analysis for Terrorism Hazard

Madison County is one of the larger counties in the state and home to a large religious-based university. Larger cities are typically at greater risk for terrorism due to the large population. Additionally, religious centers have been the target of many terrorist attacks. As such, Madison County is vulnerable to a terrorist attack.

Impact on Madison County Residents

Since the events of September 11, 2001, no citizen of the United States is unaware of the enormous potential impacts of terrorist acts. The emotional impacts; fear, dread, anger, outrage, etc., serve to compound the enormous physical, economic, and social damage. The continuing terrorist threat itself has a profound impact on many aspects of everyday life.

Impact on Essential Facilities and Other Property

Terrorists may target essential facilities to disrupt normal life for Madison County residents. Airports, places of worship, communication and transit facilities, waterways, and commercial, industrial, and governmental buildings are all at a higher risk of being targeted.

Building Inventory: High profile locations are likely to be targeted as opposed to residential areas.

Impact on Critical Infrastructure

Terrorists may also target infrastructure. errorist acts carried out on public infrastructure can directly impact the County’s ability to operate essential facilities and provide services.

Impact on the Environment

This hazard does not typically impact the environment. Exceptions include the setting of wildfires, intentional hazardous materials releases, or destroying a dam. All of

these scenarios would likely result in significant damage to the environment as well as the loss of property and human life. Additional vulnerable areas are the agricultural areas and groundwater supply.

Impact on Operations

Law enforcement officials would likely be required to respond swiftly and with a large deployment to deal with a terrorist incident. If such an attack targets a major building or infrastructure many other first responders may be needed to fight fires or search for survivors trapped in the debris. Many law enforcement officials may put themselves in harm's way and potentially suffer injury or death. In addition, medical personnel would be needed to respond to the potentially large number of victims in need of assistance. The full impact on operations would likely be significant but depend upon the specific location and intention of the terrorist attack.

Summary Vulnerability Analysis

For this planning effort, it was not possible to analyze the number of lives or amount of property exposed to the impacts of a terrorist threat due to the unpredictable nature of the hazard.

Terrorism & Cyber Attack Hazard Evaluation and Impact/Consequence Assessment

Frequency & Probability ¹	Minimally Vulnerable - 19		
Potential Magnitude and Scale ¹	Minimally Vulnerable - 7		
Physical Vulnerability Hazard Impact ¹	Somewhat Vulnerable - 26		
Social Vulnerability Hazard Impact ¹	Somewhat Vulnerable - 42		
Community Conditions Hazard Impact ¹	Somewhat Vulnerable - 29		
Overall Capability and Capacity ²	Capable - 65		
Mitigation ²	Somewhat Capable - 39		
Hazard Consequence & Impact Score ¹	Somewhat Vulnerable - 29		
Overall Risk Rating ³	Low - 23		
Legend			
Score	1: Vulnerability Rating	2: Capability and Capacity Rating	3: Overall Risk Rating
0 – 25	Minimally Vulnerable	Minimally Capable	Low
26 – 50	Somewhat Vulnerable	Somewhat Capable	Medium
51 – 75	Vulnerable	Capable	High
76 - 100	Very Vulnerable	Very Capable	Extreme
N/A	Not Applicable/Unknown	Not Applicable/Unknown	Not Applicable/Unknown

1.6.3.5.5.1 Cyber Security Threat

Description

A cyberattack is an effort by hackers to gain access to an electronic network or system. Cyberattacks happen all day, every day, around the world. Major targets typically include governments, banks, and businesses, but any online network can be attacked.

Advancements in technology have increased the productivity of our nation and made daily operations and markets reliant on cyber systems. As a result, the United States has become, and will increasingly continue to be, vulnerable to non-traditional attacks including cyberattacks on information and operations. Cyberspace is the nervous system for all critical infrastructures and is composed of hundreds of thousands of interconnected computers, servers, routers, switches, and fiber optic cables that allow our critical infrastructures to work. Studies performed by the Government Accounting Office and the Computer Security Institute found that the number of cybersecurity threats to both public and private sectors is on the rise. In 2000 there were over 20,000 cyberattacks to commercial institutions and 30,000 cyber attacks to federal agencies. The aggressors range from nation-states to unorganized groups or individuals.

The attacks on computer systems can come in the form of viruses, Trojans, worms, spoofs, or hoaxes from virtually anywhere in the world. Computer viruses, ranging from devastating to simply annoying, are sent out daily by organizations and individual hackers, and intermittently by people who fail to protect their computer software.

Historical Frequency

- In October 2018, a cyber attack involving malicious ransomware infected County systems. The hacker blocked files, prevented employee emails, and demanded money to restore access to the system and files. Although the County was able to resolve the issue due to their IT staff, the attack came at a particularly bad time – threatening to impact payroll and the processing of absentee voter ballots. Forward-thinking backups of files and critical programs prevented this particular situation from being much worse than it could have been.
- Cyberattacks occur at a high rate but are not typically reported in a central database. A cursory list of cyberattacks on the U.S. over the last few decades can be found at risidata.com.

Probability for Cyberattack Hazard

Based on the [CVR2](#), this hazard is considered to be “Not Probable at All/Not Frequent At All”, because this hazard was determined to be extremely rare with little to no documented history of significant occurrences or events. While it is possible that low impact events may occur on occasion, the hazard’s overall impact on the County and participating jurisdictions would be very minor. At this time, no database exists that tracks all cyberattack attempts, which makes quantifying the number of attempts not possible.

Geographic Location for Cyberattack Hazard

Cyberattacks occur virtually. They can originate from anywhere in the world and can target anywhere in the world.

Hazard Extent for Cyberattack

Cyber attacks can target information or the physical manipulation of items connected to the network. In major cyberattacks, information can be stolen from millions of people.

TABLE: Cyberattack Hazard Extent

Hazard Type	Affected Jurisdictions	Extent (based on historical events)		Comments
		Minimum	Maximum	
Cyberattack	County-wide	Identity theft	Cyberattack on major utility (i.e. power grid)	The maximum extent represents a hypothetical, but realistic scenario.

Analysis of Community Development Trends

As society becomes increasingly dependent on technology, the threat and likelihood of cyber attacks will only increase.

Vulnerability to Future Assets/Infrastructure for Cyberattack Hazard

All existing and future assets/infrastructure are unlikely to receive direct damages. However, the systems and technologies that are integrated within these assets will undoubtedly be affected, especially as technology becomes more advanced and automated.

Vulnerability Analysis for Cyberattack Hazard

Madison County government offices, as well as businesses, non-profits, and private residents can be impacted by cyberattacks. Vulnerability is dependent on what actions the individual or group in charge of the network has done to protect it.

Impact on Madison County Residents

Any resident of Madison County that is connected to the internet is vulnerable to cyberattacks and identity theft. These incidents have long been a growing trend along with the increasing adoption of technology. Victims of this hazard are likely to experience substantial monetary loss or harassment.

Any disruption to Internet service or critical infrastructure information systems could potentially threaten lives, property, the economy, and national security.

Impact on Essential Facilities and Other Property

Any essential facility connected to a network is at risk for a cyber attack. For example, individuals and businesses are reliant on information systems and the Internet for daily tasks; without access to these systems, there could be major financial losses. Furthermore, delivery systems including water, electricity, even things such as groceries rely on information systems to coordinate and complete the delivery.

Building Inventory: This hazard typically does not impact the actual building itself.

Impact on Critical Infrastructure

While sabotage to computer systems normally would not lead to harm to health and safety, it is possible. As technology becomes more integrated into society, the more access hackers will have to sensitive systems. Integration of systems (such as electrical grids, air traffic control centers, traffic lights, etc) can leave these systems vulnerable to attack. If these systems are compromised, it is possible that people may be injured or killed.

Impact on the Environment

This hazard typically does not impact the environment.

Impact on Operations

Cyberattacks carried out on public infrastructure can directly impact the County's ability to operate essential facilities and provide services. Forms of sabotage to computer systems include the introduction of viruses, malware or spyware that can cripple a computer network or steal private and public information.

Emergency services, such as 911 dispatch would have difficulties because most phone lines work via the Internet. Medical response and care are reliant on electricity, water and information systems and the internet to access medical records. If the internet was not available, many information systems would be useless and operations for many of the critical infrastructure sectors may stop altogether, causing major problems for both the public and private sectors.

Summary Vulnerability Analysis

The potential structural dollar loss due to a cyberattack is estimated to be zero. For this planning effort, it was also not possible to analyze the number of potential lives lost or injured, because of the unpredictable nature of the hazard, and because any impact on human life would most likely be due to a secondary impact (i.e. compromising the power grid). The monetary and economic impact on business/government disruption should be analyzed in future updates as more local data becomes available.

Idaho has a Cyber Disruption Technical Working Group. Mitigation efforts can be coordinated with this group.

Terrorism & Cyber Attack Hazard Evaluation and Impact/Consequence Assessment

Frequency & Probability ¹	Minimally Vulnerable - 19		
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Overall Capability and Capacity ²	Capable - 65		
Mitigation ²	Somewhat Capable - 39		
Hazard Consequence & Impact Score ¹	Somewhat Vulnerable - 29		
Overall Risk Rating ³	Low - 23		
Legend			
Score	1: Vulnerability Rating	2: Capability and Capacity Rating	3: Overall Risk Rating
0 – 25	Minimally Vulnerable	Minimally Capable	Low
26 – 50	Somewhat Vulnerable	Somewhat Capable	Medium
51 – 75	Vulnerable	Capable	High
76 - 100	Very Vulnerable	Very Capable	Extreme
N/A	Not Applicable/Unknown	Not Applicable/Unknown	Not Applicable/Unknown

1.6.4 Community Capability Assessment

The capability assessment identifies current activities used to mitigate hazards. The capability assessment identifies the policies, regulations, procedures, programs, and projects that contribute to the lessening of disaster damages. The assessment also provides an evaluation of these capabilities to determine whether the activities can be improved to more effectively reduce the impact of future hazards. The following sections identify existing plans and mitigation capabilities within all of the communities listed in this Plan.

DRAFT

1.6.4.1 National Flood Insurance Program (NFIP)

Both of the jurisdictions within Madison County are members of the NFIP. Madison County's, along with Rexburg and the City of Sugar, initial FIRM was identified 06/03/1991 (which is the same date as the last update to the current effective map) and the initial FIRM was 01/31/1978 for Madison County, 12/07/1973 for Sugar City, and 12/17/1973 for Rexburg (FEMA, 2018). The table below identifies each community and the date each participant joined the NFIP. FEMA does not include townships in the NFIP Community Status Book Report.

Neither Madison County or the participating jurisdictions have chosen to participate in the NFIP's Community Rating System (CRS). The CRS is a voluntary incentive program that recognizes and encourages community floodplain management activities that exceed the minimum NFIP requirements. As a result, flood insurance premium rates are discounted to reflect the reduced flood risk resulting from the community actions, meeting the three goals of the CRS: 1) reduce flood losses; 2) facilitate accurate insurance ratings, and 3) promote the awareness of flood insurance.

The [Idaho HMP 2018 Chapter 3.2](#) reports that as of 2018, there are 53 NFIP policyholders in Madison County. 9 claims have been made for total loss payment of \$19,923. There have been no reports of repetitive flood loss or severe repetitive flood loss properties in Madison County.

Area located in the 1% Annual Chance Flood Event Boundary (100-year Flood Zone)

According to the spatial analysis done for the [2018 Idaho Hazard Mitigation Plan](#), Madison County has the highest percentage of the area located in the Special Flood Hazard Area (SFHA). SFHA is the area where the National Flood Insurance Program's (NFIP's) floodplain management regulations must be enforced and the area where the mandatory purchase of flood insurance applies (FEMA, 2019). While geographically not the largest in total area, 10.4% of the County is considered to be in the 1% flood event zone and none of this area is considered sufficiently protected by a levee.

FIGURE: Total NFIP Claims by County, Idaho

Source: [2018 Idaho Hazard Mitigation Plan](#)

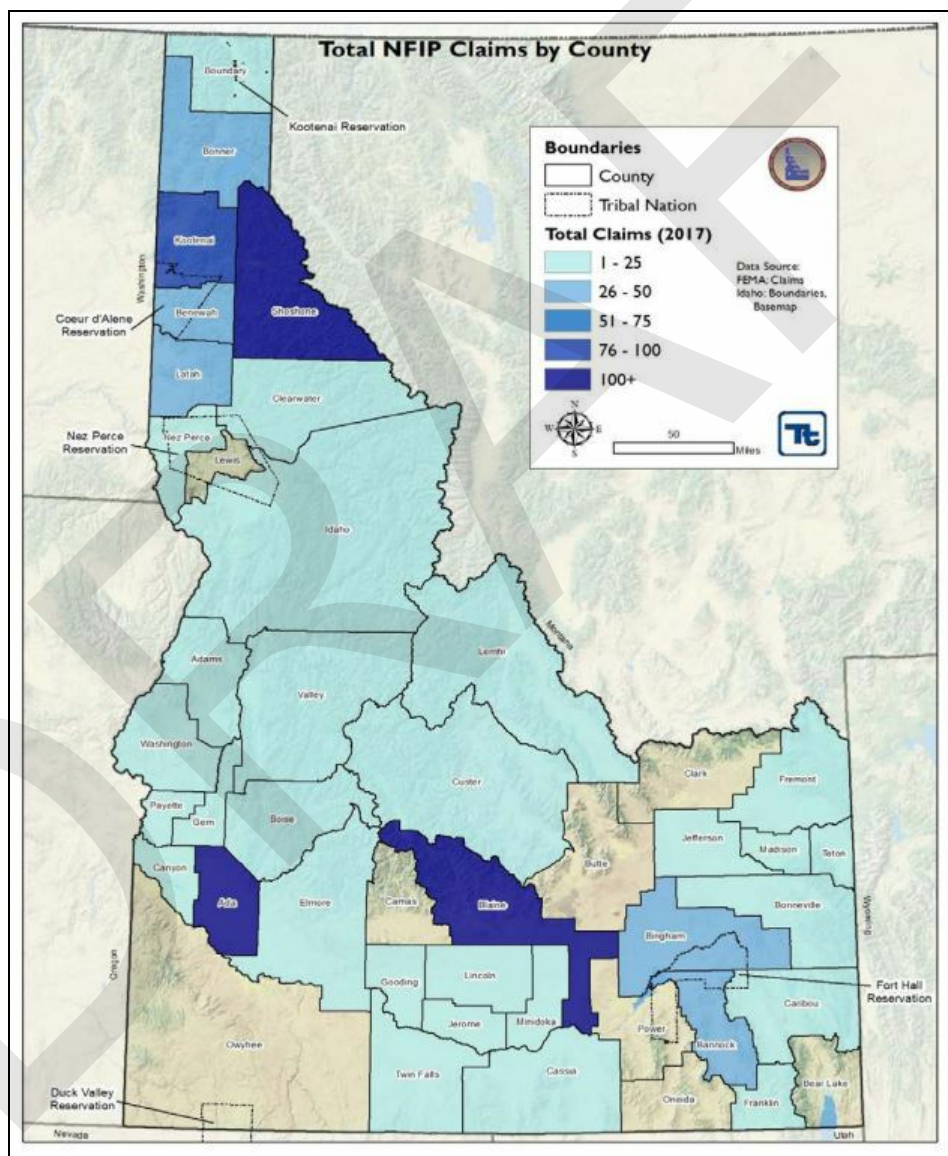
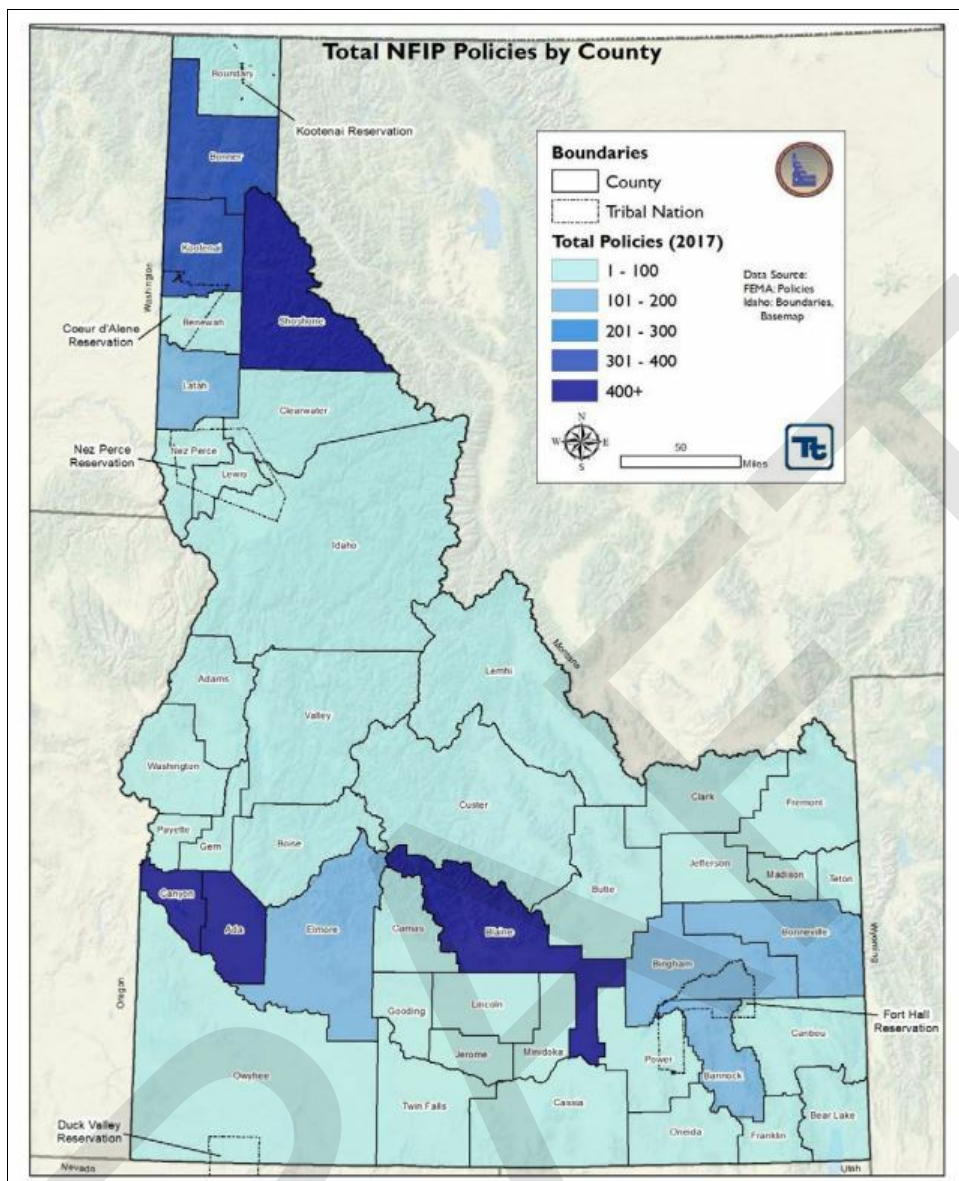


FIGURE: Total NFIP Policies by County, Idaho

Source: [2018 Idaho Hazard Mitigation Plan](#)



1.6.4.2 Plans and Ordinances

Build Codes and Ordinances

Madison County currently utilizes the **International Fire Code (IFC)** and the **International Residential Code (IRC)**. IRC is utilized for Single or Double family dwellings and townhouses only and encompasses architectural, structural, mechanical, energy design, plumbing, and electrical. Multiple family dwelling units (e.g., apartments) are regulated by the **International Building Code (IBC)**. Madison County Zoning Ordinance No. 176, Chapter 8.4 states that the 35' is the maximum height in residential zones. Additionally, the chart below highlights the design criteria with regard to climatic and geographical design criteria. Additional international codes relevant to buildings and zoning are highlighted in Madison County Code of Ordinances Chapter 103 (linked below).

Ground Snow Load	Wind speed	Seismic Design Category	Weathering	Minimum Frost Depth	Winter Design Temperature	Minimum Road Live Load
50 P.S.F.	90(40)	D1	Severe	36"	0.-10	35 P.S.F.

Setbacks for the County are (subdivisions may have code variance):

Front	Side of Property	Accessory	Residence
80' from the centerline of the road	10'	25' to back of the property	50' to back of the property

The **Building permit** is found [here](#). Specified on the permit is the inclusion of if the building is in a **floodplain** and if it is, further permits are required. Additionally, an **Energy Compliance Report or REScheck** is required with all building permit applications for homes. Commercial buildings and structures over 900 square feet require architecturally designed plans. Further details on Madison Code is highlighted below:

Relevant [Madison County Codes](#) to Mitigation are included as linked documents below:

- [CHAPTER 6. - LAND USE AND AGRICULTURE](#)
- [Chapter 10 - EMERGENCY MANAGEMENT AND EMERGENCY SERVICES](#)
 - [ARTICLE 54. - RESOLUTION NO. 343, ADOPTED JUNE 27, 2011. COUNTY EMPLOYEES VOLUNTEERING FOR EMERGENCY SERVICES](#)
 - [Section III. - Powers during a Madison County emergency or disaster.](#)
 - [ARTICLE 36. - RESOLUTION NO. 278, ADOPTED MAY 23, 2005. NATIONAL INCIDENT MANAGEMENT SYSTEM \(NIMS\)](#)
- [Chapter 103 - BUILDINGS AND BUILDING REGULATIONS](#)
 - [Sec. 117-63. - Floodplain Overlay \(FPO\) Zone](#)

1.6.5 Hazard Rankings

Each hazard was scored as to magnitude and frequency of occurrence. The table below entitled *2019 Hazard Risk Ranking* provides an overall risk ranking of the hazards. More details on the scoring process can be found in the [Risk Assessment Methodology](#) section.

The scores from the [2008 Hazard Mitigation Plan](#) and the [Community Preparedness Survey](#) are highlighted following the *2019 Hazard Risk Ranking* table.

TABLE: 2019 Hazard Risk Ranking

Ranking	Hazard	Community, Vulnerability, Risk and Resiliency (CVR2) Overall Risk Score
1	Winter Storms	51
2	Flooding: Riverine Flooding	48
3	Severe Storms	44
4	Extreme Cold/Freeze	42
5	Drought	39
6	Flooding: Flash Flooding	38
7 (tie)	Wildland Fire	37
7 (tie)	Structural Fires	37
9	Epidemic/Pandemic	34
10 (tie)	Hailstorms	33
10 (tie)	Hazardous Materials	33
12	Tornado	31
13	Lightning	26
14	Dam Failure	24
15 (tie)	Avalanche	23
15 (tie)	Extreme Heat	23
15 (tie)	Terrorism/Cyber Attack	23
18	Earthquake	22
19	Landslides	20
20 (tie)	Infrastructure Systems Failure	19
20 (tie)	Structural (Utilities) Failure	19
22	Civil Disturbance/ Civil Unrest	15
23	Nuclear Facility Accident	12

TABLE: Key for Hazard Magnitude and Frequency Scoring

Ranges	Frequency
Score: 0-24	Not Probable at All/Not Frequent At All
Score: 25-49	Somewhat Probable/Somewhat Frequent
Score: 50-74	Probable/Frequent
Score: 75-100	Very Probable/Very Frequent

TABLE: CVR2 Community Hazard Risk Assessment Summary

Source: Further details on the CVR2 assessment are in the [Risk Assessment Methodology](#) section

	Risk ranking	Frequency and Probability	Potential Magnitude Scale	Physical Vulnerability Hazard Impact Rating	Social Vulnerability Hazard Impact Rating	Community Conditions Hazard Impact Rating	Overall Capability & Capacity	Mitigation	Hazard Consequences & Impact Score
Natural Hazards	Medium								
Avalanche	Low	Minimally Vulnerable	Minimally Vulnerable	Somewhat Vulnerable	Somewhat Vulnerable	Minimally Vulnerable	Capable	Capable	Somewhat Vulnerable
Dam Failure	Low	Minimally Vulnerable	Somewhat Vulnerable	Somewhat Vulnerable	Vulnerable	Somewhat Vulnerable	Capable	Capable	Somewhat Vulnerable
Drought	Medium	Somewhat Vulnerable	Minimally Vulnerable	Somewhat Vulnerable	Somewhat Vulnerable	Somewhat Vulnerable	Capable	Capable	Somewhat Vulnerable
Earthquake	Low	Minimally Vulnerable	Minimally Vulnerable	Somewhat Vulnerable	Somewhat Vulnerable	Somewhat Vulnerable	Capable	Capable	Somewhat Vulnerable
Epidemic/Pandemic	Medium	Somewhat Vulnerable	Somewhat Vulnerable	Somewhat Vulnerable	Somewhat Vulnerable	Somewhat Vulnerable	Capable	Capable	Somewhat Vulnerable
Extreme Cold/Freeze	Medium	Somewhat Vulnerable	Somewhat Vulnerable	Somewhat Vulnerable	Somewhat Vulnerable	Minimally Vulnerable	Capable	Capable	Somewhat Vulnerable
Extreme Heat	Low	Minimally Vulnerable	Minimally Vulnerable	Somewhat Vulnerable	Somewhat Vulnerable	Minimally Vulnerable	Capable	Capable	Somewhat Vulnerable
Flooding: Flash Flooding	Medium	Somewhat Vulnerable	Somewhat Vulnerable	Somewhat Vulnerable	Somewhat Vulnerable	Somewhat Vulnerable	Capable	Capable	Somewhat Vulnerable
Flooding: Riverine Flooding	Medium	Somewhat Vulnerable	Somewhat Vulnerable	Vulnerable	Vulnerable	Somewhat Vulnerable	Capable	Capable	Somewhat Vulnerable
Hailstorms	Medium	Somewhat Vulnerable	Minimally Vulnerable	Somewhat Vulnerable	Somewhat Vulnerable	Minimally Vulnerable	Capable	Capable	Somewhat Vulnerable
Landslides	Low	Minimally Vulnerable	Somewhat Vulnerable	Somewhat Vulnerable	Somewhat Vulnerable	Somewhat Vulnerable	Capable	Capable	Somewhat Vulnerable
Lightning	Medium	Minimally Vulnerable	Minimally Vulnerable	Somewhat Vulnerable	Somewhat Vulnerable	Minimally Vulnerable	Capable	Capable	Somewhat Vulnerable
Severe Storms	Medium	Somewhat Vulnerable	Somewhat Vulnerable	Somewhat Vulnerable	Somewhat Vulnerable	Somewhat Vulnerable	Capable	Very Capable	Somewhat Vulnerable
Tornado	Medium	Minimally Vulnerable	Minimally Vulnerable	Vulnerable	Somewhat Vulnerable	Somewhat Vulnerable	Capable	Capable	Somewhat Vulnerable
Wildland Fire	Medium	Somewhat Vulnerable	Minimally Vulnerable	Vulnerable	Somewhat Vulnerable	Somewhat Vulnerable	Capable	Capable	Somewhat Vulnerable
Winter Storms	High	Vulnerable	Somewhat Vulnerable	Vulnerable	Vulnerable	Somewhat Vulnerable	Capable	Capable	Somewhat Vulnerable
Technological Hazards	Low								
Hazardous Materials	Medium	Somewhat Vulnerable	Minimally Vulnerable	Somewhat Vulnerable	Somewhat Vulnerable	Somewhat Vulnerable	Capable	Capable	Somewhat Vulnerable
Infrastructure Systems Failure	Low	Minimally Vulnerable	Minimally Vulnerable	Somewhat Vulnerable	Somewhat Vulnerable	Minimally Vulnerable	Capable	Capable	Somewhat Vulnerable
Nuclear Facility Accident	Low	Minimally Vulnerable	Minimally Vulnerable	Somewhat Vulnerable	Somewhat Vulnerable	Minimally Vulnerable	Capable	Capable	Minimally Vulnerable
Structural Failure	Low	Minimally Vulnerable	Minimally Vulnerable	Somewhat Vulnerable	Somewhat Vulnerable	Somewhat Vulnerable	Capable	Capable	Somewhat Vulnerable
Structural Fires	Medium	Somewhat Vulnerable	Minimally Vulnerable	Vulnerable	Somewhat Vulnerable	Minimally Vulnerable	Very Capable	Capable	Somewhat Vulnerable
Human-Caused Hazards	Low								
Civil Disturbance / Civil Unrest	Low	Minimally Vulnerable	Minimally Vulnerable	Somewhat Vulnerable	Somewhat Vulnerable	Somewhat Vulnerable	Capable	Somewhat Capable	Somewhat Vulnerable
Terrorism / Cyber Attack	Low	Minimally Vulnerable	Minimally Vulnerable	Somewhat Vulnerable	Somewhat Vulnerable	Somewhat Vulnerable	Capable	Somewhat Capable	Somewhat Vulnerable

Legend			
Score	1: Vulnerability Rating	2: Capability and Capacity Rating	3: Overall Risk Rating
0 – 25	Minimally Vulnerable	Minimally Capable	Low
26 – 50	Somewhat Vulnerable	Somewhat Capable	Medium
51 – 75	Vulnerable	Capable	High
76 - 100	Very Vulnerable	Very Capable	Extreme
N/A	Not Applicable/Unknown	Not Applicable/Unknown	Not Applicable/Unknown

As a point of comparison, the scoring from the 2008 Hazard Mitigation Plan is highlighted below:

TABLE: 2008 Hazard Magnitude and Frequency Scoring

Hazard	Magnitude	Frequency
Earthquake	36	L
Dam Failure	32	L
River/Stream Flooding	25	H
Terrorism	24	L
Extreme Cold	20	H
Hazardous Materials	20	H
Winter Storm	20	H
Epidemic	19	L
Nuclear	17	L
Wildfire	16	M
Structure Fire	14	H
Drought	13	M
Landslide	13	L
Flash Flood	13	M
Tomado	12	M
Snow Avalanche	12	L
Hail	11	H
Extreme Heat	11	L
Straight Line Wind	11	H
Riot/Civil Disobedience	11	L
Lightning	10	H
West Nile Virus	9	H

Ranges	Frequency
48-20 High	Extreme – \$100,000,000 in loss or greater
19-13 Medium	High – Yearly to Five Years
12-0 Low	Medium – Five Years to 25 Years
	Low 25 Years to Never Happened

TABLE: 2008 Hazard Ranking Madison County

		Magnitude		
Frequency		(Low) 1	(Medium) 2	(High) 3
	(Low) 1	Extreme Heat Riot/Demonstration/Civil Disobedience	Nuclear Epidemic Landslide	Terrorism Earthquake Dam Failure
	(Medium) 2	Snow Avalanche Tomado	Drought Flash Flood Wildfire	
	(High) 3	Hail Lightning Straight Line Wind West Nile Virus	Structure Fire	River/Stream Flooding Winter Storm Extreme Cold Hazardous Materials

Survey results highlighted in the next three images for the question, "Do you believe that your household and/or place of business might ever be threatened by the following hazards? Please rate what hazards present the greatest risk."

Do you believe that your household and/or place of business might ever be threatened by the following hazards? Please rate what hazards present the greatest risk.

Low Risk = Low impact on threat to life and property damage

Medium Risk = Medium impact on threat to life and property damage

High Risk = High impact on threat to life and property damage

	Low Risk		Medium Risk		High Risk		Not Applicable		Responses
	Count	Row %	Count	Row %	Count	Row %	Count	Row %	Count
Civil Disorder/Riot	149	73.0%	45	22.1%	7	3.4%	3	1.5%	204
Crop Failure (Heat, Disease, Insects/Pests, etc.)	87	42.9%	61	30.0%	37	18.2%	18	8.9%	203
Cyber Security Threat	35	17.2%	96	47.1%	70	34.3%	3	1.5%	204
Dam Failure	122	60.1%	56	27.6%	14	6.9%	11	5.4%	203
Severe or Prolonged Drought	48	23.6%	101	49.8%	50	24.6%	4	2.0%	203
Earthquake	42	20.5%	91	44.4%	72	35.1%	0	%	205
Extreme Cold Incident	19	9.3%	71	34.6%	115	56.1%	0	%	205
Extreme Heat Incident	95	46.6%	91	44.6%	17	8.3%	1	0.5%	204

Do you believe that your household and/or place of business might ever be threatened by the following hazards? Please rate what hazards present the greatest risk.

Low Risk = Low impact on threat to life and property damage

Medium Risk = Medium impact on threat to life and property damage

High Risk = High impact on threat to life and property damage

	Low Risk		Medium Risk		High Risk		Not Applicable		Responses
	Count	Row %	Count	Row %	Count	Row %	Count	Row %	Count
Flash Flooding/Overflowing and Flooding	55	27.1%	101	49.8%	46	22.7%	1	0.5%	203
Riverine Flooding	85	42.7%	83	41.7%	22	11.1%	9	4.5%	199
Hail	36	17.7%	115	56.7%	51	25.1%	1	0.5%	203
Hazardous Materials Release (example: Chemical Spill)	108	52.9%	77	37.7%	18	8.8%	1	0.5%	204
Infrastructure Failure (example: Bridge Collapse)	110	54.2%	78	38.4%	10	4.9%	5	2.5%	203
Landslide	152	74.9%	36	17.7%	6	3.0%	9	4.4%	203
Lightning	65	32.0%	103	50.7%	35	17.2%	0	%	203
Nuclear Event	102	50.5%	70	34.7%	28	13.9%	2	1.0%	202
Power Failure	18	8.8%	77	37.7%	108	52.9%	1	0.5%	204

Do you believe that your household and/or place of business might ever be threatened by the following hazards? Please rate what hazards present the greatest risk.

Low Risk = Low impact on threat to life and property damage

Medium Risk = Medium impact on threat to life and property damage

High Risk = High impact on threat to life and property damage

	Low Risk		Medium Risk		High Risk		Not Applicable		Responses
	Count	Row %	Count	Row %	Count	Row %	Count	Row %	Count
Public Health Emergency (example: Pandemic)	61	29.9%	106	52.0%	37	18.1%	0	%	204
Severe Winter Storm/Heavy Snowfall/Ice Storm	12	5.9%	73	35.8%	119	58.3%	0	%	204
Snow Avalanche	147	72.1%	35	17.2%	7	3.4%	15	7.4%	204
Straight Line Wind	53	26.8%	101	51.0%	41	20.7%	3	1.5%	198
Structural Fire	50	24.8%	100	49.5%	49	24.3%	3	1.5%	202
Terrorism Incident	135	67.2%	49	24.4%	16	8.0%	1	0.5%	201
Tornado and High Winds	75	37.1%	99	49.0%	28	13.9%	0	%	202
Wildfires	76	37.8%	85	42.3%	36	17.9%	4	2.0%	201

Survey results highlighted in the next three images for the question, "Based on YOUR PERCEPTION of your jurisdiction's hazards, to what degree of emphasis would you expect your jurisdiction to mitigate the following hazards? Mitigation definition: The purpose of mitigation planning is to identify policies and actions that can be implemented over the long term to reduce risk and future losses. Mitigation forms the foundation for a community's long-term strategy to reduce disaster losses and break the cycle of disaster damage, reconstruction, and repeated damage."

Based on YOUR PERCEPTION of your jurisdiction's hazards, to what degree of emphasis would you expect your jurisdiction to mitigate the following hazards? Mitigation definition: The purpose of mitigation planning is to identify policies and actions that can be implemented over the long term to reduce risk and future losses. Mitigation forms the foundation for a community's long-term strategy to reduce disaster losses and break the cycle of disaster damage, reconstruction, and repeated damage.

No Mitigation Needed = No mitigation on this hazard is expected or needed

Low Priority = This hazard should be mitigated, but is not a high priority compared to other hazards

Medium Priority = It is important to mitigate this hazard

High Priority = It is a high priority to emphasize mitigation for this hazard

	No Mitigation Needed		Low Priority		Medium Priority		High Priority		Responses
	Count	Row %	Count	Row %	Count	Row %	Count	Row %	Count
Civil Disorder/Riot	39	19.2%	102	50.2%	44	21.7%	18	8.9%	203
Crop Failure (Heat, Disease, Insects/Pests, etc.)	19	9.4%	58	28.6%	94	46.3%	32	15.8%	203
Cyber Security Threat	10	5.0%	38	18.9%	93	46.3%	60	29.9%	201
Dam Failure	46	22.8%	82	40.6%	48	23.8%	26	12.9%	202
Severe or Prolonged Drought	13	6.4%	57	28.2%	93	46.0%	39	19.3%	202
Earthquake	6	3.0%	55	27.4%	90	44.8%	50	24.9%	201
Extreme Cold Incident	4	2.0%	32	15.8%	74	36.6%	92	45.5%	202
Extreme Heat Incident	26	12.9%	94	46.8%	59	29.4%	22	10.9%	201

Based on YOUR PERCEPTION of your jurisdiction's hazards, to what degree of emphasis would you expect your jurisdiction to mitigate the following hazards? Mitigation definition: The purpose of mitigation planning is to identify policies and actions that can be implemented over the long term to reduce risk and future losses. Mitigation forms the foundation for a community's long-term strategy to reduce disaster losses and break the cycle of disaster damage, reconstruction, and repeated damage.

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Low Priority = This hazard should be mitigated, but is not a high priority compared to other hazards

Medium Priority = It is important to mitigate this hazard

High Priority = It is a high priority to emphasize mitigation for this hazard

	No Mitigation Needed		Low Priority		Medium Priority		High Priority		Responses
	Count	Row %	Count	Row %	Count	Row %	Count	Row %	Count
Flash Flooding/Overland Flooding	8	4.0%	58	29.0%	97	48.5%	37	18.5%	200
Riverine Flooding	17	8.6%	69	34.8%	88	44.4%	24	12.1%	198
Hail	35	17.4%	82	40.8%	69	34.3%	15	7.5%	201
Hazardous Materials Release (example: Chemical Spill)	15	7.5%	92	45.8%	62	30.8%	32	15.9%	201
Infrastructure Failure (example: Bridge Collapse)	11	5.5%	80	39.8%	70	34.8%	40	19.9%	201
Landslide	56	27.9%	106	52.7%	31	15.4%	8	4.0%	201
Lightning	37	18.5%	103	51.5%	49	24.5%	11	5.5%	200
Nuclear Event	27	13.5%	75	37.5%	59	29.5%	39	19.5%	200
Power Failure	0	%	19	9.5%	82	40.8%	100	49.8%	201

Based on YOUR PERCEPTION of your jurisdiction's hazards, to what degree of emphasis would you expect your jurisdiction to mitigate the following hazards? Mitigation definition: The purpose of mitigation planning is to identify policies and actions that can be implemented over the long term to reduce risk and future losses. Mitigation forms the foundation for a community's long-term strategy to reduce disaster losses and break the cycle of disaster damage, reconstruction, and repeated damage.

No Mitigation Needed = No mitigation on this hazard is expected or needed

Low Priority = This hazard should be mitigated, but is not a high priority compared to other hazards

Medium Priority = It is important to mitigate this hazard

High Priority = It is a high priority to emphasize mitigation for this hazard

	No Mitigation Needed		Low Priority		Medium Priority		High Priority		Responses
	Count	Row %	Count	Row %	Count	Row %	Count	Row %	Count
Public Health Emergency (example: Pandemic)	5	2.5%	45	22.3%	92	45.5%	60	29.7%	202
Severe Winter Storm/Heavy Snowfall/Ice Storm	2	1.0%	24	11.9%	76	37.6%	100	49.5%	202
Snow Avalanche	62	30.7%	84	41.6%	39	19.3%	17	8.4%	202
Straight Line Wind	20	10.0%	84	42.0%	75	37.5%	21	10.5%	200
Structural Fire	12	6.0%	67	33.7%	80	40.2%	40	20.1%	199
Terrorism Incident	23	11.4%	85	42.1%	65	32.2%	29	14.4%	202
Tornado and High Winds	13	6.4%	74	36.6%	85	42.1%	30	14.9%	202
Wildfires	7	3.5%	38	19.0%	96	48.0%	59	29.5%	200

1.6.5.1 Repetitive Loss Summary

According to the [Idaho HMP 2018](#), Idaho has 58 known repetitive loss properties, according to the National Flood Insurance Program (NFIP) Policies, Claims, and Repetitive Loss Statistics and no known Severe Repetitive Loss (SRL) properties. Based on the FEMA list which is based on the Biggerts Waters Flood Insurance Reform Act of 2012, none of these properties are in Madison County.

A **repetitive loss property** is a structure that:

- Has incurred flood-related damage on 2 occasions, in which the cost of the repair, on average, equaled or exceeded 25% of the market value of the structure at the time of each flood event; and
- At the time of the 2nd incidence of flood-related damage, the contract for flood insurance contains the increased cost of compliance coverage

A **severe repetitive loss property** is a structure that:

- Is covered under a contract for flood insurance made available under the NFIP; and
- Has incurred flood-related damage –
- For which 4 or more separate claims payments have been made under flood insurance coverage with the amount of each such claim exceeding \$5,000, and with the cumulative amount of such claims payments exceeding \$20,000; or
- For which at least 2 separate claims payments have been made under such coverage, with the cumulative amount of such claims exceeding the market value of the insured structure.

While no RL or SRL structures are in Madison County, many of the identified [Mitigation Strategies](#) highlight actions to reduce flooding to properties and structures.

1.7 Mitigation Strategies

Hazard mitigation is defined as any cost-effective action(s) that has the effect of reducing, limiting, or preventing vulnerability of people, culture, 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, culture, and property, fall into three categories:

1. Those that keep the hazard away from people, property, and structures,
2. Those that keep people, property, or structures away from the hazard, and
3. Those that reduce the impact of the hazard on victims, i.e., insurance.

This mitigation plan identifies key strategies that fall into all three categories.

Hazard mitigation measures must be practical, cost-effective, and culturally, environmentally, and politically acceptable. Actions taken to limit the vulnerability of society to hazards must not in themselves be more costly than the anticipated damages.

The primary focus of this Plan is on decision making for land use and capital investment. Mitigation proposals are made and prioritized based on a risk assessment that takes into account the magnitude of hazards, their frequency of occurrence, and the vulnerabilities of the community to them. This helps to assure that risk reduction efforts, whether for homes, roads, public utilities, pipelines, power plants, public works, or other projects, are both necessary and cost-effective.

In the past, hazard mitigation has been one of the most neglected emergency management programs. Because disaster events are generally infrequent and the nature and magnitude of the threat are often ignored or poorly understood priority to fund and implement mitigation measures is low. Mitigation success can be achieved, however, if accurate information is portrayed to decision-makers and the public through complete hazard identification and impact studies, followed by effective mitigation management.

1.7.1 Mitigation Goals

In this section of the Plan, the risk assessment identified Madison County as probable to experience impact from 1 hazard (winter storms) and somewhat probable to experience impact from 12 hazards (in order from likely highest to lowest frequency: riverine flooding, severe storms, extreme cold/freeze, drought, flash flooding, wildland fire, structural fire, epidemic/pandemic, hailstorms, hazardous materials, tornado, and lightning). For the remaining 10 hazards (in order from likely highest to lowest frequency: dam failure, avalanche, extreme heat, terrorism/cyber attack, earthquake, landslides, infrastructure systems failure, structural failure, civil disturbance/civil unrest, and nuclear failure)), the assessment indicated that impact from the hazards on the County is not probable. The steering committee and community stakeholders understand that although hazards cannot be eliminated altogether, the communities within Madison County can work together toward building disaster-resilient communities. The following are a list of goals and objectives for the County and the two cities.

Madison County

Goal 1: To Lessen the Impacts of Hazards to New and Existing Infrastructure, Residents, and Responders

Objective A: Retrofit critical facilities and structures with structural design practices and equipment that will withstand natural disasters and offer weather-proofing.
Objective B: Equip public facilities and communities to guard against damage caused by secondary effects of hazards
Objective C: Minimize the amount of infrastructure exposed to hazards.
Objective D: Evaluate and strengthen the communication and transportation abilities of emergency services throughout the community.

Goal 2: To Create New or Revise Existing Plans for the Community to Promote and Achieve Greater Resiliency

Objective A: Support compliance with the National Flood Insurance Program.
Objective B: Review and update existing, or create new, community plans and ordinances to support hazard mitigation.
Objective C: Conduct new studies/research to profile hazards and follow up with mitigation strategies.

Goal 3: To Inform Madison County Residents on the Potential Hazards that Could Affect the County

Objective A: Raise public awareness of hazard mitigation and emergency preparedness.
Objective B: Improve education and training of emergency personnel and public officials.

1.7.2 Mitigation Strategies and Actions

Plan participants assessed hazard mitigation strategies/actions, including strategies from FEMA documents, strategies from the 2019 Madison County Multi-Hazard Mitigation Plan and suggestions from participating communities and their respective stakeholders during a series of workshops that took place throughout the County in June 2019. These mitigation strategies/projects were further evaluated by the steering committee during the final meeting held on August 7, 2019, resulting in a prioritized list for the County of 12 new strategies/actions, in addition to 31 ongoing/updated mitigation strategies/actions from the 2008 Plan, and 1 completed strategies/actions. No strategies/actions were removed or considered as not relevant. 13 new mitigation actions were identified for the City of Rexburg in addition to the 9 ongoing actions. 14 new mitigation actions were identified for the City of Sugar City in addition to the 8 ongoing actions.

The mitigation strategies and actions from the County and participating jurisdictions are included in the following sections starting with [Madison County 2019 Hazard Mitigation](#).

This section includes the following:

- **Madison County Mitigation Strategies/Actions:** County Mitigation Actions (County Departments and Mitigation Actions that Apply to the County and All Participating Jurisdictions)
- **Municipal Mitigation Strategies/Actions** (Cities)

Each entities' Mitigation Strategies & Actions are organized as follows:

- **New Mitigation Actions** - New actions identified during this 2019 update process
- **Ongoing Mitigation Actions** - These ongoing actions were included in the previous update and have yet to be completed. Some of these actions have no definitive end. During the 2019 update, these "ongoing" mitigation strategies/actions were modified and/or amended, as needed, to better define the strategy/action.
- **Completed Mitigation Actions** - Completed actions since 2008. Completed actions also included a brief description of the "Resulting Reduction or Limitation of Hazard Impact(s) Achieved" in order to show the resulting benefits of implementing the mitigation initiative.

Mitigation Action Plan

The Action Plan for each mitigation project is presented in a table format. The table is designed to capture important details intended to support the implementation of the strategy/action. It is also designed to facilitate and encourage the annual review and maintenance of each mitigation strategy/action by allowing the Lead Agency/Organization to document the yearly status of the project prior to and/or during the Annual Steering Committee meeting.

Table: Mitigation Action Plan Form

Mitigation Action	
Year Initiated	2019
Applicable Jurisdiction	
Lead Agency/Organization	
Supporting Agencies/Organizations	
Applicable Goal	
Potential Funding Source	
Estimated Cost	
Benefits (loss avoided)	
Projected Completion Date	
Actual Completion Date	
Priority	

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	New, Ongoing, Revised, Complete	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	
	Total Score:

Mitigated Hazards	
	All Hazards
	Dam/Levee Failure
	Drought
	Earthquake
	Extreme Cold
	Extreme Heat
	Flood (Riverine)
	Flood (Urban/Flash Flooding)
	Landslide
	Severe Thunderstorms
	Severe Winter Weather/Heavy Snowfall/Ice Storm
	Subsidence (Sinkhole)
	Tornado and High Winds
	Wildfire
	Civil Disorder/Riot
	Cyber Attack
	Fire Hazards
	Hazardous Materials Release
	Infrastructure Failure
	Major Transportation Accident/Incident
	Public Health Emergency
	Radiological
	Structural Failure
	Terrorism
	Utility Failure
	Violent Mass Casualty Incident

Mitigation Strategy/Action Timeline Parameters

While the preference is to provide definitive project completion dates, this is not possible for every mitigation strategy/action. Therefore, the parameters for the timeline (**Projected Completion Date**) are as follows:

- **Short Term** = to be completed in 1 to 5 years
- **Long Term** = to be completed in greater than 5 years
- **Ongoing** = currently being funded and implemented under existing programs, and/or is seeking funding and necessary approvals.

Mitigation Strategy/Action Estimated Cost

While the preference is to provide definitive costs (dollar figures) for each mitigation strategy/action, this is not possible for every mitigation strategy/action. Therefore, the estimated costs for the mitigation initiatives identified in this Plan were identified as high, medium, or low, using the following ranges:

- **Low** – less than \$10,000

- **Medium** – from \$10,000 to \$100,000
- **High** – greater than \$100,000

Mitigation Strategy/Action Prioritization Process

The mitigation strategy/action must be prioritized according to a benefit/cost analysis of the proposed projects and their associated costs (44 CFR, Section 201.6(c)(3)(iii)). The benefits of proposed actions were weighed against multiple factors as part of the project prioritization process. The benefit/cost analysis was not of the detailed variety required by FEMA for project grant eligibility under the Hazard Mitigation Grant Program (HMGP) and Pre-Disaster Mitigation (PDM) grant program. A less formal approach was used because some actions/strategies may not be implemented for up to 10 years, and associated costs and benefits could change dramatically in that time. The mitigation strategies/actions were prioritized and evaluated as shown on the individual mitigation action worksheets (using the **STAPLEE** method) for each recommended mitigation initiative.

County and municipal stakeholders evaluated each mitigation strategy/action with the following categories and questions.

Social:

- Will the proposed action adversely affect one segment of the population?
- Will the action disrupt established neighborhoods, break up voting districts, or cause the relocation of lower-income people?

Technical:

- How effective is the action in avoiding or reducing future losses?
- Will it create more problems than it solves?
- Does it solve the problem or only a symptom?
- Does the mitigation strategy address continued compliance with the NFIP?

Administrative:

- Does the jurisdiction have the capability (staff, technical experts, and/or funding) to implement the action, or can it be readily obtained?
- Can the community provide the necessary maintenance?
- Can it be accomplished in a timely manner?

Political:

- Is there political support to implement and maintain this action?
- Is there a local champion willing to help see the action to completion?
- Is there enough public support to ensure the success of the action?
- How can the mitigation objectives be accomplished at the lowest cost to the public?

Legal:

- Does the community have the authority to implement the proposed action?
- Are the proper laws, ordinances, and resolutions in place to implement the action?
- Are there any potential legal consequences?
- Is there any potential community liability?
- Is the action likely to be challenged by those who may be negatively affected?
- Does the mitigation strategy address continued compliance with the NFIP?

Economic:

- Are there currently sources of funds that can be used to implement the action?
- What benefits will the action provide?
- Does the cost seem reasonable for the size of the problem and likely benefits?
- What burden will be placed on the tax base or local economy to implement this action?
- Does the action contribute to other community economic goals such as capital improvements or economic development?
- What proposed actions should be considered but be "tabled" for implementation until outside sources of funding are available?

Environmental:

- How will this action affect the environment (land, water, endangered species)?
- Will this action comply with local, state, and federal environmental laws and regulations?
- Is the action consistent with community environmental goals?

Table: STAPLEE Planning Factors

Category	Criteria
S – Social	Mitigation actions are acceptable to the community if they do not adversely affect a particular segment of the population, do not cause relocation of lower income people, and if they are compatible with the community's social and cultural values.
T – Technical	Mitigation actions are technically most effective if they provide a long-term reduction of losses and have minimal secondary adverse impacts.
A – Administrative	Mitigation actions are easier to implement if the jurisdiction has the necessary staffing and funding.
P – Political	Mitigation actions can truly be successful if all stakeholders have been offered an opportunity to participate in the planning process and if there is public support for the action.
L – Legal	It is critical that the jurisdiction or implementing agency have the legal authority to implement and enforce a mitigation action.
E – Economic	Budget constraints can significantly deter the implementation of mitigation actions. It is important to evaluate whether an action is cost-effective, as determined by a cost benefit review, and possible to fund.
E – Environmental	Sustainable mitigation actions that do not have an adverse effect on the environment, comply with federal, state, and local environmental regulations, and are consistent with the community's environmental goals, have mitigation benefits while being environmentally sound.

1.7.2.1 Madison County 2019 Hazard Mitigation Priorities

Madison County Hazard Mitigation Priorities

The implementation of the mitigation plan is critical to the overall success of the mitigation planning process. The first step is to decide, based upon many factors, which action will be undertaken first. In order to pursue the top priority first, the analysis and prioritization of the strategies/actions are important. Some actions may occur before the mitigation strategies representing the highest priority due to financial, engineering, environmental, permitting, and site control issues.

The planning team prioritized mitigation actions based on the STAPLEE (Social, Technical, Administrative, Political, Legal, Economic, and Environmental) criteria, explained in the [Mitigation Strategies and Actions](#) section, and discussion with the planning committees. Mitigation strategies/actions with the highest scores represent those mitigation initiatives that represent the highest priority. In addition to the STAPLEE Method, the steering committee identified those strategies/actions that represented the greatest importance and priority to the County. It should be noted that, although the STAPLEE Method provides a standardized process for assigning priority/importance across all participating jurisdictions, there may be additional factors and considerations that elevate the status of a particular mitigation strategy/action. This is why the steering committee's input is also an important consideration in this process.

TABLE: Hazard Mitigation Strategies/Actions

Mitigation Action/Strategy	Year Initiated	Applicable Jurisdiction	Lead Agency/Organization	Priority	Status	Hazard(s) Mitigated
Madison County (County-Led)						
Develop a sandbag filling strategy/plan for Madison County	2019	Madison County	Emergency Management	Low	New	<ul style="list-style-type: none"> Flood: Flash/Urban Flood Severe Thunderstorm Flood: Riverine or Stream
Identify reliable water supplies for fire suppression throughout the County	2019	Madison County	Madison Fire Department	High	New	<ul style="list-style-type: none"> Structural Fire Wildfires
Purchase water storage tanks that can be buried to support fire suppression in areas lacking a reliable water supply	2019	Madison County	Madison Fire Department	Medium	New	<ul style="list-style-type: none"> Structural Fire Wildfires
Conduct a study to assess bridge capacity and load rating with a specific focus on the bridges' capability to support emergency vehicles (i.e. vehicles equipped for firefighting)	2019	Madison County	Madison County Road Department	Medium	New	<ul style="list-style-type: none"> Infrastructure Failure Structural Fire Wildfires
Redesign and modify bridges that lack flow capacity overtopping and flooding will occur, leading to public hazards, erosion damage, and possible structural failure.	2019	Madison County	Madison County Road Department	High	New	<ul style="list-style-type: none"> Flood: Flash/Urban Flood Flood: Riverine or Stream Infrastructure Failure
Building Code Revision for Water Suppression	2019	Madison County	Madison County Planning and Zoning	Medium	New	<ul style="list-style-type: none"> Structural Fire Wildfires
Mitigate flooding in the Hibbard area by improving drainage and/or water flow	2019	Madison County	Madison County Planning and Zoning	Medium	New	<ul style="list-style-type: none"> Flood: Flash/Urban Flood Severe Thunderstorm
Mitigate flooding at Founder's Square by studying and implementing improved drainage	2019	Madison County	Public Works	High	New	<ul style="list-style-type: none"> Flood: Flash/Urban Flood Severe Thunderstorm
Develop a local drainage and flood inundation map that complements FEMA's floodplain maps	2019	Madison County	Madison County Planning and Zoning	Medium	New	<ul style="list-style-type: none"> Flood: Flash/Urban Flood Flood: Riverine or Stream Severe Thunderstorm

Mitigation Action/Strategy	Year Initiated	Applicable Jurisdiction	Lead Agency/Organization	Priority	Status	Hazard(s) Mitigated
Drainage study requirement for new developments	2019	Madison County	Madison County Planning and Zoning	Medium	New	<ul style="list-style-type: none"> Flood: Flash/Urban Flood Flood: Riverine or Stream Severe Thunderstorm
Develop a Levee Management Plan	2019	Madison County	Madison County Planning and Zoning & Madison County Emergency Management	Medium	New	<ul style="list-style-type: none"> Flood: Riverine or Stream
Study and assess the feasibility of creating a Mitigation Fund to support the implementation of key projects	2019	Madison County	Madison County Board of Commissioners	Low	New	<ul style="list-style-type: none"> All Hazards
Develop a Flood Operations Plan for the County	2019	Madison County	Madison County Emergency Management	Medium	New	<ul style="list-style-type: none"> Flood: Flash/Urban Flood Flood: Riverine or Stream
Research, develop, and implement methods to protect plants and fences on private properties, roads, and bridges from hazardous wind.	2008	Madison County	Madison County Emergency Management	Low	Ongoing	<ul style="list-style-type: none"> Severe Thunderstorm Severe Winter Storm Snow Avalanche Tornado and High Winds
Madison County will continue to participate in the National Flood Insurance Program and develop actions that will reduce the damage to County infrastructure due to flash and stream flooding	2008	Madison County	P & Z Administrator	High	Ongoing	<ul style="list-style-type: none"> Flood: Flash/Urban Flood Flood: Riverine or Stream Severe Thunderstorm
Seek Community Rating System (CRS) Status for the County	2008	Madison County	Floodplain Administrator	High	Ongoing	<ul style="list-style-type: none"> Flood: Flash/Urban Flood Flood: Riverine or Stream Severe Thunderstorm
Request and be provided updated FIRMs (Flood Insurance Rate Maps)	2008	Madison County	Floodplain Administrator	High	Ongoing	<ul style="list-style-type: none"> Flood: Flash/Urban Flood Flood: Riverine or Stream Severe Thunderstorm
Straighten the River Channel at the ninety-degree bend in the Teton River 1 mile east of Rexburg to reduce flooding on the Teton River	2008	Madison County	Floodplain Administrator/Corp of Engineers	Medium	Ongoing	<ul style="list-style-type: none"> Flood: Flash/Urban Flood Flood: Riverine or Stream Severe Thunderstorm
Develop a Culvert Maintenance Program on the foot hill roadways to improve drainage systems	2008	Madison County	Roads and Bridges	Medium	Ongoing	<ul style="list-style-type: none"> Flood: Flash/Urban Flood Flood: Riverine or Stream Severe Thunderstorm

Mitigation Action/Strategy	Year Initiated	Applicable Jurisdiction	Lead Agency/Organization	Priority	Status	Hazard(s) Mitigated
Identify Roads that need to be elevated and culverts that need to be replaced	2008	Madison County	Roads and Bridges	Medium	Ongoing	<ul style="list-style-type: none"> Flood: Flash/Urban Flood Flood: Riverine or Stream Severe Thunderstorm
Re-Channel the South Fork of the Snake River between the Rail Road Bridge and the Twin Bridges at Archer to pre 1997 conditions to protect Agricultural Interests and reduce flooding along the South Fork of the Snake River	2008	Madison County	Commissioners, Emergency Management, Lenroot Canal Company, and Corp of Engineers	High	Ongoing	<ul style="list-style-type: none"> Flood: Flash/Urban Flood Flood: Riverine or Stream Severe Thunderstorm
Rip Rap the north channel north side banks upstream of the Archer Highway North Twin Bridge to reduce flooding and protect Agricultural Interests along the South Fork of the Snake River	2008	Madison County	Commissioners, Emergency Management, and Corp of Engineers	High	Ongoing	<ul style="list-style-type: none"> Flood: Flash/Urban Flood Flood: Riverine or Stream Severe Thunderstorm
Rebuild the Lenroot Canal Diversion Dam in the North Channel of the South Fork of the Snake River to reduce flooding and protect Agricultural Interests along the South Fork of the Snake River	2008	Madison County	Lenroot Canal Company	High	Ongoing	<ul style="list-style-type: none"> Flood: Flash/Urban Flood Flood: Riverine or Stream
Develop a listing of schools and public buildings that need to be seismically retrofitted (and additional IBC updates)	2008	Madison County	Madison County Emergency Management and Building Officials	Medium	Ongoing	<ul style="list-style-type: none"> Earthquake Flood: Flash/Urban Flood Severe Thunderstorm Severe Winter Storm Tornado and High Winds
Protect Critical Infrastructure from Earthquakes (and additional hazards) through Protection or Hardening (using IBC) including the Madison County EOC, the County Jail, The Madison County 911 Dispatch Center, Community Center, and the County Court House	2008	Madison County	Madison County Emergency Management	Medium	Ongoing	<ul style="list-style-type: none"> Earthquake Flood: Flash/Urban Flood Severe Thunderstorm Severe Winter Storm Tornado and High Winds
Publish a special section in newspapers with emergency information on earthquakes (and all hazards) to increase public awareness of the risks associated with natural and human-made hazards	2008	Madison County	Madison County Emergency Management	Medium	Ongoing	<ul style="list-style-type: none"> All Hazards
Madison County will reduce the potential damage to property from Landslides by adopting codes and standards for construction in landslide-prone areas	2008	Madison County	P & Z Administrator	Medium	Ongoing	<ul style="list-style-type: none"> Flood: Flash/Urban Flood Flood: Riverine or Stream Landslide Snow Avalanche Wildfires

Mitigation Action/Strategy	Year Initiated	Applicable Jurisdiction	Lead Agency/Organization	Priority	Status	Hazard(s) Mitigated
Develop a Wildland Fire Ordinance which establishes the road widths, access, water supply, and building regulations suitable to ensure new structures can be protected	2008	Madison County	P & Z Administrator and Madison Fire Department	Medium	Ongoing	<ul style="list-style-type: none"> Wildfires
Develop a listing of roads, bridges, cattle guards, culverts, and other limiting conditions to improve access to areas prone to wildland fires. The listing should be incorporated into the Road and Bridge Department Transportation Plans	2008	Madison County	Road and Bridge and Madison Fire Department	High	Ongoing	<ul style="list-style-type: none"> Wildfires
Use GIS Technology to Link Red Zone Data to Landowner Parcel Maps	2008	Madison County	GIS Department and Madison Fire Department	Medium	Ongoing	<ul style="list-style-type: none"> Wildfires
Develop a standard practice for roadside vegetation management to reduce wildfires	2008	Madison County	Madison Fire Department and Private Property Owners	Medium	Ongoing	<ul style="list-style-type: none"> Wildfires
Develop wildfire fuel breaks around CRP Land	2008	Madison County	Madison Fire Department	Medium	Ongoing	<ul style="list-style-type: none"> Wildfires
Organize a group to jointly apply for grants and other funding avenues to implement WUI Fire Mitigation Actions	2008	Madison County	Madison Fire Department and Private Property Owners	Medium	Ongoing	<ul style="list-style-type: none"> Wildfires
Develop Additional Water Supplies for Fire Protection (wildfires)	2008	Madison County	Madison County Emergency Management	Medium	Ongoing	<ul style="list-style-type: none"> Wildfires
Install Road Signs as prescribed by NFPA Standards	2008	Madison County	Roads and Bridges	Low	Ongoing	<ul style="list-style-type: none"> All Hazards Wildfires
Work with all residents and business owners to ensure that all structures have minimum fire detection and protection devices	2008	Madison County	Madison Fire Department and Madison County Emergency Management	Medium	Ongoing	<ul style="list-style-type: none"> Structural Fires
Develop Additional Water Supplies for Fire Protection (structural fires)	2008	Madison County	Madison Fire Department	Medium	Ongoing	<ul style="list-style-type: none"> Structural Fires
Communicate risks posed through the INL ingestion pathway to the public	2008	Madison County	Madison County Emergency Management	Medium	Ongoing	<ul style="list-style-type: none"> Nuclear Events
Protect citizens from releases of hazardous materials	2008	Madison County	Madison County Emergency Management	Medium	Ongoing	<ul style="list-style-type: none"> Hazardous Materials Incident
Reduce the amount of Chlorine Stored at the Basic American Food facility in Rexburg	2008	Madison County	Facility Owner and Madison County Emergency Management	High	Ongoing	<ul style="list-style-type: none"> Hazardous Materials Incident
Educate the Public on Civil Disobedience Reporting	2008	Madison County	Sherriff's Office	Medium	Ongoing	<ul style="list-style-type: none"> Civil Disorder/Riot
Identify and protect potential terrorist targets	2008	Madison County	Madison County Emergency Management	Medium	Ongoing	<ul style="list-style-type: none"> Terrorism

Mitigation Action/Strategy	Year Initiated	Applicable Jurisdiction	Lead Agency/Organization	Priority	Status	Hazard(s) Mitigated
Protect Critical Infrastructure from terrorism based on the assessment	2008	Madison County	Madison County Emergency Management	Low	Ongoing	<ul style="list-style-type: none"> • Terrorism
West Nile	2008	Madison County	Health District	High	Completed	<ul style="list-style-type: none"> • Epidemic or pandemic
City of Rexburg						
Construct a bridge that serves as a secondary river crossing	2019	Rexburg	Rexburg Planning Department and Rexburg Public Works	High	New	<ul style="list-style-type: none"> • Flood: Flash/Urban Flood • Flood: Riverine or Stream
Procure a backup snow blower	2019	Rexburg	Rexburg Public Works	Medium	New	<ul style="list-style-type: none"> • Severe Winter Storm
Generator with greater capacity for Sewer/Wastewater Treatment Plant	2019	Rexburg	Rexburg Public Works	High	New	<ul style="list-style-type: none"> • Flood: Flash/Urban Flood • Flood: Riverine or Stream • Utility Failure
Procure backup generators and hookups for sewer and stormwater lift stations	2019	Rexburg	Rexburg Public Works	High	New	<ul style="list-style-type: none"> • Flood: Flash/Urban Flood • Flood: Riverine or Stream • Utility Failure
Move Mill Hollow Sewer Lift Station	2019	Rexburg	Rexburg Public Works	High	New	<ul style="list-style-type: none"> • Flood: Flash/Urban Flood • Flood: Riverine or Stream
Implement Stormwater Improvements Projects	2019	Rexburg	Rexburg Public Works and Planning Department	Medium	New	<ul style="list-style-type: none"> • Flood: Flash/Urban Flood • Severe Thunderstorm
Develop Stormwater Master Plan	2019	Rexburg	Rexburg Public Works	Medium	New	<ul style="list-style-type: none"> • Flood: Flash/Urban Flood • Flood: Riverine or Stream • Utility Failure
Mitigate flooding at 7th South by improving drainage	2019	Rexburg	Rexburg Public Works	Medium	New	<ul style="list-style-type: none"> • Flood: Flash/Urban Flood
Retrofit/Modify access to the schools to address enhanced security and access control	2019	Rexburg	Schools	Medium	New	<ul style="list-style-type: none"> • Civil Disorder/Riot • Terrorism
Purchase door barricade devices for schools	2019	Rexburg	Schools	High	New	<ul style="list-style-type: none"> • Civil Disorder/Riot • Terrorism
Purchase additional repeaters to address communication gaps	2019	Rexburg	Rexburg Police Department, Madison County Sheriff's Office, Madison County Emergency Management, and Madison County Fire Department	High	New	<ul style="list-style-type: none"> • All Hazards
Purchase jersey barriers	2019	Rexburg	Rexburg Police Department	Low	New	<ul style="list-style-type: none"> • Civil Disorder/Riot • Flood: Flash/Urban Flood • Flood: Riverine or Stream • Terrorism
Procure a mobile command center	2019	Rexburg	Rexburg Police Department	Medium	New	<ul style="list-style-type: none"> • All Hazards

Mitigation Action/Strategy	Year Initiated	Applicable Jurisdiction	Lead Agency/Organization	Priority	Status	Hazard(s) Mitigated
Install Emergency Generators and Identify Community Relocation Centers and Shelters	2008	Rexburg	Mayor, School District, Churches, and Volunteer Organizations	High	Ongoing	<ul style="list-style-type: none"> All Hazards
Seek Community Rating System (CRS) status and maintain NFIP requirements	2008	Rexburg	Floodplain Administrator	High	Ongoing	<ul style="list-style-type: none"> Flood: Flash/Urban Flood Flood: Riverine or Stream Severe Thunderstorm
Request and be provided updated FIRMs (Flood Insurance Rate Maps)	2008	Rexburg	Floodplain Administrator	High	Ongoing	<ul style="list-style-type: none"> Flood: Flash/Urban Flood Flood: Riverine or Stream Severe Thunderstorm
Develop a method to reduce ice jams at the Teton River Railroad Bridge	2008	Rexburg	Mayor and Public Works	High	Ongoing	<ul style="list-style-type: none"> Flood: Flash/Urban Flood Flood: Riverine or Stream
Pipe the canal behind the High School with the capability to act also as a storm water collection system	2008	Rexburg	Canal Company and Public Works	High	Ongoing	<ul style="list-style-type: none"> Flood: Flash/Urban Flood Flood: Riverine or Stream Severe Thunderstorm
Improve Drainage in the Hidden Valley area east of the City by installing catchment basins	2008	Rexburg	Mayor and Public Works	High	Ongoing	<ul style="list-style-type: none"> Flood: Flash/Urban Flood Flood: Riverine or Stream Severe Thunderstorm
Protect Library Patrons from tipping shelves and falling books through small improvement projects	2008	Rexburg	City Librarian	Medium	Ongoing	<ul style="list-style-type: none"> Earthquake Flood: Flash/Urban Flood Severe Thunderstorm Severe Winter Storm Tornado or High Winds
Work with all residents and business owners to ensure that all structures have minimum fire detection and protection devices	2008	Rexburg	Fire District and Madison County Emergency Management	Medium	Ongoing	<ul style="list-style-type: none"> Structural Fire
Develop Additional Water Supplies for Fire Protection	2008	Rexburg	Fire District	Medium	Ongoing	<ul style="list-style-type: none"> Structural Fire
City of Sugar City						
Mitigate flooding by integrating/constructing elevated trails	2019	Sugar City	Mayor and City Engineer	Medium	New	<ul style="list-style-type: none"> Flood: Flash/Urban Flood Flood: Riverine or Stream
Seismic Retrofit Older Buildings	2019	Sugar City	Mayor and City Engineer	Medium	New	<ul style="list-style-type: none"> Earthquake
Create a flood drainage system by utilizing the fields south of the High School	2019	Sugar City	Mayor and City Engineer	Medium	New	<ul style="list-style-type: none"> Flood: Flash/Urban Flood Flood: Riverine or Stream
Develop a master diversion plan to mitigate flooding	2019	Sugar City	Mayor and City Engineer	Medium	New	<ul style="list-style-type: none"> Flood: Riverine or Stream

Mitigation Action/Strategy	Year Initiated	Applicable Jurisdiction	Lead Agency/Organization	Priority	Status	Hazard(s) Mitigated
Reassess levees protecting the City and modify/improve levees that are assessed to be inadequate	2019	Sugar City	City Engineer and Public Works	Medium	New	<ul style="list-style-type: none"> Flood: Riverine or Stream
Develop a stormwater management plan	2019	Sugar City	Mayor and City Engineer	Medium	New	<ul style="list-style-type: none"> Flood: Flash/Urban Flood Flood: Riverine or Stream Severe Thunderstorm
Install sprinklers in key public buildings	2019	Sugar City	Mayor, City Engineer, and Public Works	Medium	New	<ul style="list-style-type: none"> Structural Fire
Install a backup generator for City Hall	2019	Sugar City	Mayor and Public Works	Medium	New	<ul style="list-style-type: none"> All Hazards
Procure generator and hookups for the lift station	2019	Sugar City	Public Works	High	New	<ul style="list-style-type: none"> Flood: Flash/Urban Flood Flood: Riverine or Stream Utility Failure
Develop a cybersecurity plan for Sugar City	2019	Sugar City	Mayor	Medium	New	<ul style="list-style-type: none"> Cyber Attack
Identify and retrofit buildings designated as community shelters	2019	Sugar City	Mayor and City Engineer	Medium	New	<ul style="list-style-type: none"> All Hazards
Construct a roundabout by the High School	2019	Sugar City	Mayor and City Engineer	Medium	New	<ul style="list-style-type: none"> Civil Disorder/Riot
Procure generators and hookups for each of the schools	2019	Sugar City	Sugar-Salem School District	Medium	New	<ul style="list-style-type: none"> All Hazards
Retrofit/Modify access to the High School to address enhanced security and access control	2019	Sugar City	Sugar-Salem School District	Medium	New	<ul style="list-style-type: none"> Civil Disorder/Riot Terrorism
Identify Evacuation Shelters Equip with Emergency Generators to help protect isolated individuals from Severe Winter Storms and Extreme Cold (and other hazards)	2008	Sugar City	Madison County Emergency Management	Medium	Ongoing	<ul style="list-style-type: none"> All Hazards
Seek Community Rating System (CRS) status and maintain NFIP requirements	2008	Sugar City	Floodplain Administrator	High	Ongoing	<ul style="list-style-type: none"> Flood: Flash/Urban Flood Flood: Riverine or Stream Severe Thunderstorm
Request and be provided updated FIRMs (Flood Insurance Rate Maps)	2008	Sugar City	Flood Plain Administrator	High	Ongoing	<ul style="list-style-type: none"> Flood: Flash/Urban Flood Flood: Riverine or Stream Severe Thunderstorm
Raise 2nd North one foot to act as a barrier against Teton River Flooding	2008	Sugar City	Mayor and Public Works	Medium	Ongoing	<ul style="list-style-type: none"> Flood: Flash/Urban Flood Flood: Riverine or Stream Severe Thunderstorm
Raise the road behind the High School to Barras Canal Road one foot to act as a barrier against Teton River Flooding	2008	Sugar City	Mayor and Public Works	Medium	Ongoing	<ul style="list-style-type: none"> Flood: Flash/Urban Flood Flood: Riverine or Stream Severe Thunderstorm

[illegible]

1.7.2.2 Plan Integration Strategy

Plan integration is the process by which communities look critically at their existing planning framework and align efforts with the goal of building a safer, smarter community. Plan integration involves a two-way exchange of information and incorporation of ideas and concepts between the Madison County Multi-Hazard Mitigation Plan and other community plans. Specifically, plan integration involves the incorporation of hazard mitigation principles and actions into community plans and community planning mechanisms.

The following new and ongoing mitigation strategies and actions demonstrate Madison County's and its participating jurisdictions' continued effort to integrate mitigation into other community plans and efforts:

Table: Plan Integration Mitigation Actions

Mitigation Action	Year Initiated	Applicable Jurisdiction	Lead Agency/Organization	Priority	Status

1.7.2.3 NFIP Mitigation Actions

The following mitigation strategies and actions demonstrate Madison County and its participating jurisdictions' continued support and compliance with NFIP requirements, as appropriate. Only those actions that demonstrate specific support and compliance with the program are included. Other flood-related projects were not included in this section.

Table: NFIP-Specific Mitigation Actions

[illegible]

1.8 Plan Maintenance & Implementation

The Disaster Mitigation Act of 2000 requires the monitoring, evaluation, and updating of the hazard mitigation plan every five years. This hazard mitigation plan is designed to be a "living" document and therefore will be reviewed and updated within five years from its approval date. The Madison County Hazard Mitigation Steering Committee will provide leadership and guidance throughout the plan's life cycle (i.e., monitoring, evaluating and updating.) Updates will allow municipal leaders and the public to provide input into the process. The public will be notified of this opportunity via legal public notices.

Madison County multi-hazard mitigation plan maintenance process includes a schedule for annual monitoring and evaluation of the programmatic outcomes established in the Plan and for producing a formal Plan revision every five years.

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1.8.1 Formal Review Process

Throughout the past five-year planning cycle, Madison County Emergency Management and the steering committee continued to monitor, evaluate, and update the Plan. The monitoring, evaluating, and updating process will continue throughout the next 5 years.

The Plan will be reviewed on an annual basis by the core planning team and reviewed and revised every five years by the steering committee to determine the effectiveness of programs and to reflect changes that may affect mitigation priorities. Madison County Emergency Management will be responsible for contacting the steering committee members and organizing the review. Committee members will be responsible for monitoring and evaluating the progress of the mitigation strategies in the Plan. The steering committee will review the goals and action items to determine their relevance to changing situations in the County, as well as changes in Federal policy, and to ensure they are addressing current and expected conditions. The steering committee will also review the risk assessment portion of the Plan to determine if this information should be updated or modified, given any new available data. The organizations responsible for the various action items will report on the status of the projects, the success of various implementation processes, difficulties encountered, the success of coordination efforts, and which strategies should be revised or removed.

Madison County Emergency Management will be responsible for ensuring the updating of the Plan. Madison County Emergency Management and the steering committee will also notify all holders of the Plan and affected stakeholders when changes have been made. The updated Plan will be submitted to the State of Idaho and to the Federal Emergency Management Agency for review and approval.

1.8.2 Monitoring, Evaluating and Updating the Plan

To ensure the Plan continues to provide an appropriate path for risk reduction throughout the County, it is necessary to regularly evaluate and update it. The core planning team will be responsible for monitoring the status of the Plan and gathering appropriate parties to report of the status of mitigation actions. The steering committee will convene on an annual basis to determine the progress of the identified mitigation actions. The steering committee will also be an active participant in the next plan update. As the Multi-Hazard Mitigation Plan matures, new stakeholders will be identified and encouraged to join the existing steering committee.

Madison County Emergency Management is responsible for contacting steering committee members and organizing the annual meeting. The steering committee's responsibilities include:

- Members of the steering committee will be readily available to engage via meetings or e-mail correspondence between annual meetings. If the need for a special meeting (due to new developments or a declared disaster) occurs in the County, the steering committee will meet to update mitigation strategies. Depending on grant opportunities and fiscal resources, mitigation projects may be implemented independently by individual communities or through local partnerships.
 - Reassess the Plan in light of any major hazard event. The committee will convene within 90 days of any major event to review all applicable data and to consider the risk assessment, plan goals, objectives, and action items given the impact of the hazard event.
- Annually reviewing each goal and objective to determine its relevance and appropriateness.
- Monitor and evaluate the mitigation strategies in this Plan to ensure the document reflects current hazard analyses, development trends, code changes and risk analyses and perceptions.
- Ensure the appropriate implementation of annual status reports and regular maintenance of the Plan. The steering committee will hear progress reports from the parties responsible for the various implementation actions to monitor progress.
- Create future action plans and mitigation strategies. These should be carefully assessed and prioritized using benefit-cost analysis (BCA) methodology that FEMA has developed.
- Ensure the public is invited to comment and be involved in mitigation plan updates.
- Ensure that the County complies with all applicable Federal statutes and regulations during the periods for which it receives grant funding, in compliance with 44 CFR.
- Review the multi-hazard mitigation plan in connection to other plans, projects, developments, and other significant initiatives.
 - Significant updates or modifications to the Plan during the five-year planning process will require a public notice and a meeting prior to submitting revisions to the individual jurisdictions for approval.
- Coordinate with appropriate municipalities and authorities to incorporate regional initiatives that transcend the boundaries of the County.
- Update the plan every five years and submit for FEMA approval.
- Amend the plan whenever necessary to reflect changes in State or Federal laws and statutes required in 44 CFR.

1.8.3 The Five-Year Action Plan

This section outlines the implementation agenda that the steering committee should follow five years following adoption of this Plan, and then every five years thereafter. The steering committee, led by Madison County Emergency Management, is responsible to ensure the Multi-Hazard Mitigation Plan is updated every five years.

The steering committee will consider the following an action plan for the first 5-year planning cycle. It should be noted that the schedule below can be modified as necessary and does not include any meetings and/or activities that would be necessary following a disaster event (which would include reconvening the steering committee within 90 days of a disaster or emergency to determine what mitigation projects should be prioritized during the community recovery). If an emergency meeting of the steering committee occurs, this proposed schedule may be altered to fit any new needs.

Year 0:

- 2019: Update Multi-Hazard Mitigation Plan, including a series of steering committee meetings & public meetings. Submit 2019 Multi-Hazard Mitigation Plan for State and FEMA approval.
- May 2019 – December 2019: Work on mitigation actions. The core planning team will stay in contact with lead departments/municipalities to keep tabs on mitigation project status and progress.
- Participating jurisdictions will formally adopt the 2019 Multi-Hazard Mitigation Plan upon State and FEMA approval.

Year 1:

- January 2020 - February 2020: Prepare for and promote first annual Plan Review and Public meetings. County departments and participating jurisdictions will provide a status update for each mitigation action/project.
- March 2020: Reconvene steering committee for first annual Mitigation Steering Committee meeting. Introduce the concept of mitigation plan integration with other planning documents. Host first annual public meeting.
- April 2020 – December 2020: Work on mitigation actions. The core planning team will stay in contact with lead departments/municipalities to keep tabs on mitigation project status and progress. Encourage plan integration efforts.

Year 2:

- January 2021 - February 2021: Prepare for and promote the second annual Plan Review and Public meetings. County departments and participating jurisdictions will provide a status update for each mitigation action/project.
- March 2021: Reconvene steering committee for second annual Mitigation Steering Committee meeting. Review plan integration efforts. Host second annual public meeting.
- April 2021 – December 2021: Work on mitigation actions. The core planning team will stay in contact with lead departments/municipalities to keep tabs on mitigation project status and progress. Encourage plan integration efforts.

Year 3:

- January 2022 - February 2022: Prepare for and promote the third annual Plan Review and Public meetings. County departments and participating jurisdictions will provide a status update for each mitigation action/project.
- March 2022: Reconvene steering committee for third annual Mitigation Steering Committee meeting. Review plan integration efforts. Host second annual public meeting.
- April 2022 – December 2022: Work on mitigation actions. The core planning team will stay in contact with lead departments/municipalities to keep tabs on mitigation project status and progress. Encourage plan integration efforts.
- Madison County Emergency Management will ask steering committee members to volunteer for Contractor Sub-committee to begin the process of bringing in a contractor to make plan updates for 2023 completion.

Year 4:

- January 2023 - February 2023: Prepare for and promote the fourth annual Plan Review and Public meetings. County departments and participating jurisdictions will provide a status update for each mitigation action/project.
- March 2023: Reconvene steering committee for fourth annual Mitigation Steering Committee meeting. Review plan integration efforts. Host fourth annual public meeting.
- April 2023 – December 2023: Work on mitigation actions. The core planning team will stay in contact with lead departments/municipalities to keep tabs on mitigation project status and progress. Encourage plan integration efforts.

Year 5:

- January 2024 - December 2024: Update 2019 Multi-Hazard Mitigation Plan, including a series of Mitigation Steering Committee meetings & Public meetings.
- 2024: Submit 2024 Multi-Hazard Mitigation Plan for State and FEMA approval. Repeat.

1.8.4 Annual Mitigation Steering Committee Meetings

During each annual Mitigation Steering Committee meeting, the steering committee will be responsible for a brief evaluation of the 2019 Multi-Hazard Mitigation Plan and to review the progress on mitigation actions.

Plan Evaluation

To evaluate the plan, the mitigation steering committee should answer the following questions:

- Are the goals and objectives still relevant?
- Is the risk assessment still appropriate, or has the nature of the hazard and/or vulnerability changed over time?
- Are current resources appropriate for implementing this Plan?
- Have lead agencies participated as originally proposed?
- Has the public been adequately involved in the process? Are their comments being heard?
- Have departments been integrating mitigation into their planning documents?

If the answer to each of the above questions is “yes,” the plan evaluation is complete. If any questions are answered with a “no,” the identified gap must be addressed.

Review of Mitigation Actions

Once the plan evaluation is complete, the steering committee must review the status of the mitigation actions. To do so, the mitigation steering committee should answer the following questions:

- Have the Mitigation Actions been implemented as planned?
- Have outcomes been adequate?
- What problems have occurred in the implementation process?

Each mitigation action/strategy includes the following table to track annual updates and progress for each mitigation action. Lead agencies/organizations will be tasked to provide an annual status update for each action.

Table 142: Mitigation Action and Project Maintenance Form

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	New, Ongoing, Revised, Complete	
2020		
2021		
2022		
2023		

Meeting Documentation

Each annual Mitigation Steering Committee meeting must be documented, including the plan evaluation and review of Mitigation Actions. Mitigation Actions have been formatted to facilitate the annual review process.

1.8.5 Continued Public Involvement

Madison County Emergency Management is dedicated to involving the public directly in the review and updates of the Plan. The committee is responsible for the review and update of the Plan. The public will also have the opportunity to provide input into Plan revisions and updates. Copies of the Plan will be kept by appropriate County departments and municipalities.

Public meetings will be held when deemed necessary by the Committee. The meetings will provide a forum where the public can express concerns, opinions, or new alternatives that can then be included in the Plan. Madison County Emergency Management will be responsible for using County resources to publicize the public meetings and maintain public involvement.

To further facilitate continued public involvement in the planning process, the Madison County Emergency Management will ensure that:

- Once adopted, a digital copy of this plan will be maintained in each jurisdiction and in the Madison County Emergency Management Office. The County will keep a hard copy and digital copy of the Plan at the Madison County Emergency Management building for review and comment by the public.
- The County will conduct outreach after a disaster incident to remind members of the importance of mitigation and to solicit mitigation ideas to be included in the Plan.
- Education efforts for hazard mitigation will be ongoing through Madison County Emergency Management. The public will be notified of periodic planning meetings through notices in the local newspaper or press releases. Madison County Emergency Management Public Education campaign will include mitigation actions for residents to undertake, such as raising appliances in the lower level of homes and buying proper insurance
- Public meetings will be held immediately following Steering Committee meetings annually to give the public an opportunity to receive information on plan updates and offer input on plan improvements.
- As the Plan is updated annually, a summary of the changes will be added to Madison County Emergency Management's public-facing website with an updated version of the plan (to include 2020 action updates, etc.) in order for the public to monitor progress on specific actions and remain engaged.
- Comments from the public on the Plan will be received by Madison County Emergency Management and forwarded to the committee for discussion, as appropriate and as needed.

1.8.6 Implementation and Integration through Existing Plans and Programs

Hazard mitigation practices must be incorporated within existing plans, projects and programs. Therefore, the involvement of all departments, private non-profits, private industry, and appropriate jurisdictions is necessary in order to find mitigation opportunities within existing or planned projects and programs. To execute this, the steering committee will assist and coordinate resources for the mitigation actions and provide strategic outreach to implement mitigation actions that meet the goals and objectives identified in this plan.

The results of this Plan will be incorporated into ongoing planning efforts throughout the County. Madison County and its incorporated jurisdictions will update zoning plans and related ordinances, as necessary, and as part of regularly scheduled updates. Each community will be responsible for updating and integrating elements of the Plan into the community's own respective community plans and ordinances.

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1.9.1.1 Mitigation Strategies and Actions

The heart of the mitigation plan is the mitigation strategy, which serves as the long-term blueprint for reducing the potential losses identified in the risk assessment. The mitigation strategy describes how the community will accomplish the overall purpose, or mission, of the planning process. In this section, mitigation actions/projects were updated/amended, identified, evaluated, and prioritized. This section is organized as follows:

- New Mitigation Actions - New actions identified during this 2019 update process
- Ongoing Mitigation Actions - Ongoing actions with no definitive end or that are still in progress. During the 2019 update, these "ongoing" mitigation actions and projects were modified and/or amended, as needed.
- Completed Mitigation Actions - An archive of all identified and completed projects, including completed actions since 2008.

Please fill out the form to submit a New Mitigation Action/Project. Be sure to click "Submit" at the bottom of the form. Multiple projects can be submitted by refreshing this webpage. If you have any problems accessing this form on this webpage, please use this link instead: [New Mitigation Form](#)

By refreshing this webpage, a new form will appear. Upon submitting the form, you will receive an e-mail of your submission for your records. For assistance, please contact Daiko Abe at (208) 390-2021 or e-mail daiko.abe@i-s-consulting.com.

1.9.1.1.1 New Mitigation Actions

The following are new mitigation actions created during the 2019 update.

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1.9.1.1.1.1 Develop a sandbag filling strategy/plan

Mitigation Action	Develop a sandbag filling strategy/plan for Madison County
Year Initiated	2019
Applicable Jurisdiction	Madison County
Lead Agency/Organization	Emergency Management
Supporting Agencies/Organizations	Madison Fire Department
Applicable Goal	Goal 2: To Create New or Revise Existing Plans for the Community to Promote and Achieve Greater Resiliency
Applicable Objective	Objective B: Review and update existing, or create new, community plans and ordinances to support hazard mitigation.
Potential Funding Source	Local Funds
Estimated Cost	Low (less than \$10,000)
Benefits (loss avoided)	Protect infrastructure and building stock
Projected Completion Date	Short Term (to be completed in 1 to 5 years)
Priority and Level of Importance (Low, Medium, High)	Low Priority
Actual Completion Date	TBD

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	New	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Agree: 4
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Neither Agree or Disagree: 3
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Neither Agree or Disagree: 3
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Agree: 4
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Agree: 4
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Neither Agree or Disagree: 3
	Total Score: 25

Mitigated Hazards	
	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
X	Flood: Flash/Urban Flood
X	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
X	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
	Structural Fire
	Terrorism
	Tornado and High Winds
	Utility Failure
	Wildfires

1.9.1.1.2 Identify reliable water supplies for fire suppression

Mitigation Action	Identify reliable water supplies for fire suppression throughout the County
Year Initiated	2019
Applicable Jurisdiction	Madison County
Lead Agency/Organization	Madison Fire Department
Supporting Agencies/Organizations	
Applicable Goal	Goal 1: To Lessen the Impacts of Hazards to New and Existing Infrastructure, Residents, and Responders
Applicable Objective	Objective C: Minimize the amount of infrastructure exposed to hazards.
Potential Funding Source	Local Funds
Estimated Cost	Low – less than \$10,000
Benefits (loss avoided)	Increase water suppression capabilities to fight fires.
Projected Completion Date	Short Term = to be completed in 1 to 5 years
Priority and Level of Importance (Low, Medium, High)	High Priority
Actual Completion Date	TBD

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	New	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Strongly Agree: 5
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Strongly Agree: 5
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Agree: 4
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Agree: 4
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Agree: 4
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Agree: 4
	Total Score: 30

Mitigated Hazards	
	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
	Flood: Flash/Urban Flood
	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
X	Structural Fire
	Terrorism
	Tornado and High Winds
	Utility Failure
X	Wildfires

1.9.1.1.3 Purchase water storage tanks that can be buried to support fire suppression in areas lacking a reliable water supply

Mitigation Action	Purchase water storage tanks that can be buried to support fire suppression in areas lacking a reliable water supply
Year Initiated	2019
Applicable Jurisdiction	Madison County
Lead Agency/Organization	Madison Fire Department
Supporting Agencies/Organizations	
Applicable Goal	Goal 1: To Lessen the Impacts of Hazards to New and Existing Infrastructure, Residents, and Responders
Applicable Objective	Objective C: Minimize the amount of infrastructure exposed to hazards.
Potential Funding Source	Grants
Estimated Cost	Medium – from \$10,000 to \$100,000
Benefits (loss avoided)	Fire suppression
Projected Completion Date	Short Term = to be completed in 1 to 5 years
Priority and Level of Importance (Low, Medium, High)	Medium Priority
Actual Completion Date	

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	An example of an area that may need additional water suppression capabilities include, but are not limited to: Plano area

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	New	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Strongly Agree: 5
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Strongly Agree: 5
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Neither Agree or Disagree: 3
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Agree: 4
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Neither Agree or Disagree: 3
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Neither Agree or Disagree: 3
Total Score: 27	

Mitigated Hazards	
	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
	Flood: Flash/Urban Flood
	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
X	Structural Fire
	Terrorism
	Tornado and High Winds
	Utility Failure
X	Wildfires

1.9.1.1.4 Conduct a study to assess bridge capacity and load rating with a specific focus on the bridges' capability to support emergency vehicles

Mitigation Action	Conduct a study to assess bridge capacity and load rating with a specific focus on the bridges' capability to support emergency vehicles (i.e. vehicles equipped for firefighting)
Year Initiated	2019
Applicable Jurisdiction	Madison County
Lead Agency/Organization	Madison County Road Department
Supporting Agencies/Organizations	Madison Fire Department, Madison County Sheriff's Office, Madison County Planning and Zoning
Applicable Goal	Goal 2: To Create New or Revise Existing Plans for the Community to Promote and Achieve Greater Resiliency
Applicable Objective	Objective C: Conduct new studies/research to profile hazards and follow up with mitigation strategies.
Potential Funding Source	Local Funds, Grants
Estimated Cost	Medium – from \$10,000 to \$100,000
Benefits (loss avoided)	
Projected Completion Date	Short Term = to be completed in 1 to 5 years
Priority and Level of Importance (Low, Medium, High)	Medium Priority
Actual Completion Date	TBD

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	New	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Agree: 4
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Agree: 4
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Neither Agree or Disagree: 3
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Agree: 4
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Neither Agree or Disagree: 3
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Neither Agree or Disagree: 3
	Total Score: 25

Mitigated Hazards	
	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
	Flood: Flash/Urban Flood
	Flood: Riverine or Stream
	Hazardous Materials Incident
X	Infrastructure Failure
	Landslide
	Nuclear Event
	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
X	Structural Fire
	Terrorism
	Tornado and High Winds
	Utility Failure
X	Wildfires

1.9.1.1.1.5 Building Code Revision for Water Suppression

Mitigation Action	Study and assess building code revision requiring new developments in areas with limited water supply to include a 20,000-gallon water tank/storage for water suppression.
Year Initiated	2019
Applicable Jurisdiction	Madison County
Lead Agency/Organization	Madison County Planning and Zoning
Supporting Agencies/Organizations	Madison Fire Department
Applicable Goal	Goal 2: To Create New or Revise Existing Plans for the Community to Promote and Achieve Greater Resiliency
Applicable Objective	Objective B: Review and update existing, or create new, community plans and ordinances to support hazard mitigation. Objective C: Conduct new studies/research to profile hazards and follow up with mitigation strategies.
Potential Funding Source	
Estimated Cost	Low – less than \$10,000
Benefits (loss avoided)	
Projected Completion Date	Short Term = to be completed in 1 to 5 years
Priority and Level of Importance (Low, Medium, High)	Medium Priority
Actual Completion Date	TBD

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	New	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Agree: 4
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Agree: 4
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Neither Agree or Disagree: 3
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Agree: 4
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Agree: 4
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Agree: 4
	Total Score: 27

Mitigated Hazards	
	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
	Flood: Flash/Urban Flood
	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
X	Structural Fire
	Terrorism
	Tornado and High Winds
	Utility Failure
X	Wildfires

1.9.1.1.6 Mitigate flooding in the Hibbard area by improving drainage and/or water flow

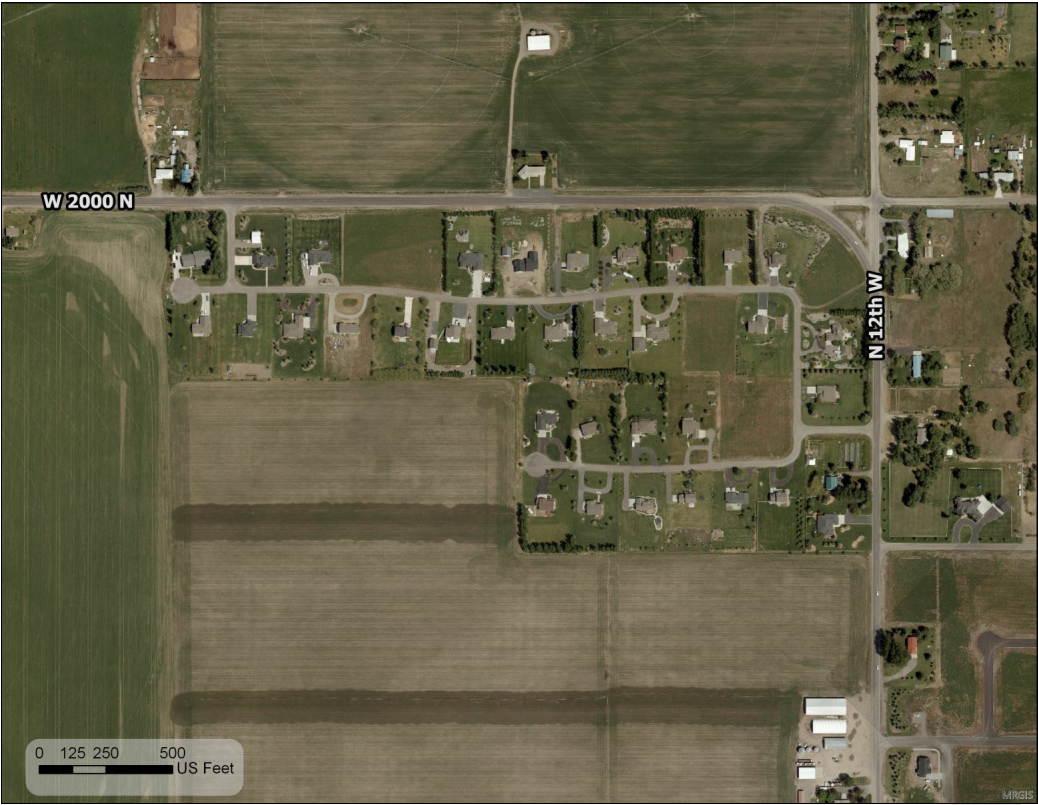
Mitigation Action	Mitigate flooding in the Hibbard area by improving drainage and/or water flow
Year Initiated	2019
Applicable Jurisdiction	Madison County
Lead Agency/Organization	Madison County Planning and Zoning
Supporting Agencies/Organizations	
Applicable Goal	Goal 1: To Lessen the Impacts of Hazards to New and Existing Infrastructure, Residents, and Responders
Applicable Objective	Objective C: Minimize the amount of infrastructure exposed to hazards.
Potential Funding Source	
Estimated Cost	Medium – from \$10,000 to \$100,000
Benefits (loss avoided)	
Projected Completion Date	Short Term = to be completed in 1 to 5 years
Priority and Level of Importance (Low, Medium, High)	Medium Priority
Actual Completion Date	TBD

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	New	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Strongly Agree: 5
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Agree: 4
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Neither Agree or Disagree: 3
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Agree: 4
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Neither Agree or Disagree: 3
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Agree: 4
Total Score: 27	

Mitigated Hazards	
	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
X	Flood: Flash/Urban Flood
	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
X	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
	Structural Fire
	Terrorism
	Tornado and High Winds
	Utility Failure
	Wildfires



1.9.1.1.1.7 Mitigate flooding at Founder's Square by studying and implementing improved drainage

Mitigation Action	Mitigate flooding at Founder's Square by studying and implementing improved drainage
Year Initiated	2019
Applicable Jurisdiction	Rexburg
Lead Agency/Organization	Public Works
Supporting Agencies/Organizations	
Applicable Goal	Goal 1: To Lessen the Impacts of Hazards to New and Existing Infrastructure, Residents, and Responders
Applicable Objective	Objective C: Minimize the amount of infrastructure exposed to hazards.
Potential Funding Source	
Estimated Cost	High – greater than \$100,000
Benefits (loss avoided)	
Projected Completion Date	Long Term = to be completed in greater than 5 years
Priority and Level of Importance (Low, Medium, High)	High Priority
Actual Completion Date	TBD

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	New	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Strongly Agree: 5
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Strongly Agree: 5
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Neither Agree or Disagree: 3
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Agree: 4
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Neither Agree or Disagree: 3
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Agree: 4
Total Score: 28	

Mitigated Hazards	
	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
X	Flood: Flash/Urban Flood
	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
X	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
	Structural Fire
	Terrorism
	Tornado and High Winds
	Utility Failure
	Wildfires



1.9.1.1.8 Develop a local drainage and flood inundation map that complements FEMA's floodplain maps

Mitigation Action	Develop a local drainage and flood inundation map that complements FEMA's floodplain maps
Year Initiated	2019
Applicable Jurisdiction	Madison County
Lead Agency/Organization	Madison County Planning and Zoning
Supporting Agencies/Organizations	
Applicable Goal	Goal 2: To Create New or Revise Existing Plans for the Community to Promote and Achieve Greater Resiliency
Applicable Objective	Objective C: Conduct new studies/research to profile hazards and follow up with mitigation strategies.
Potential Funding Source	Local Funds and Grants
Estimated Cost	Medium – from \$10,000 to \$100,000
Benefits (loss avoided)	
Projected Completion Date	Short Term = to be completed in 1 to 5 years
Priority and Level of Importance (Low, Medium, High)	Medium Priority
Actual Completion Date	TBD

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	New	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Agree: 4
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Agree: 4
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Neither Agree or Disagree: 3
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Agree: 4
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Neither Agree or Disagree: 3
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Agree: 4
Total Score: 26	

Mitigated Hazards	
	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
X	Flood: Flash/Urban Flood
X	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
X	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
	Structural Fire
	Terrorism
	Tornado and High Winds
	Utility Failure
	Wildfires

1.9.1.1.9 Drainage study requirement for new developments

Mitigation Action	Drainage study requirement for new developments
Year Initiated	2019
Applicable Jurisdiction	Madison County
Lead Agency/Organization	Madison County Planning and Zoning
Supporting Agencies/Organizations	
Applicable Goal	Goal 2: To Create New or Revise Existing Plans for the Community to Promote and Achieve Greater Resiliency
Applicable Objective	Objective C: Conduct new studies/research to profile hazards and follow up with mitigation strategies.
Potential Funding Source	Local Funds and Grants
Estimated Cost	Medium – from \$10,000 to \$100,000
Benefits (loss avoided)	
Projected Completion Date	Ongoing
Priority and Level of Importance (Low, Medium, High)	Medium Priority
Actual Completion Date	TBD

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	New	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Agree: 4
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Agree: 4
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Neither Agree or Disagree: 3
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Agree: 4
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Neither Agree or Disagree: 3
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Agree: 4
Total Score: 26	

Mitigated Hazards	
	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
X	Flood: Flash/Urban Flood
X	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
X	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
	Structural Fire
	Terrorism
	Tornado and High Winds
	Utility Failure
	Wildfires

1.9.1.1.10 Develop a Levee Management Plan

Mitigation Action	Develop a Levee Management Plan
Year Initiated	2019
Applicable Jurisdiction	Madison County
Lead Agency/Organization	Madison County Planning and Zoning & Madison County Emergency Management
Supporting Agencies/Organizations	
Applicable Goal	Goal 2: To Create New or Revise Existing Plans for the Community to Promote and Achieve Greater Resiliency
Applicable Objective	Objective B: Review and update existing, or create new, community plans and ordinances to support hazard mitigation. Objective C: Conduct new studies/research to profile hazards and follow up with mitigation strategies.
Potential Funding Source	Local Funds and Grants
Estimated Cost	Medium – from \$10,000 to \$100,000
Benefits (loss avoided)	
Projected Completion Date	Long Term = to be completed in greater than 5 years
Priority and Level of Importance (Low, Medium, High)	Medium Priority
Actual Completion Date	TBD

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	New	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Agree: 4
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Agree: 4
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Neither Agree or Disagree: 3
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Agree: 4
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Neither Agree or Disagree: 3
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Agree: 4
	Total Score: 26

Mitigated Hazards	
	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
	Flood: Flash/Urban Flood
X	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
	Structural Fire
	Terrorism
	Tornado and High Winds
	Utility Failure
	Wildfires



1.9.1.1.11 Study and assess the feasibility of creating a Mitigation Fund to support implementation of key projects

Mitigation Action	Study and assess the feasibility of creating a Mitigation Fund to support implementation of key project
Year Initiated	2019
Applicable Jurisdiction	Madison County
Lead Agency/Organization	Madison County Board of Commissioners
Supporting Agencies/Organizations	Madison County Planning and Zoning & Madison County Emergency Management
Applicable Goal	Goal 2: To Create New or Revise Existing Plans for the Community to Promote and Achieve Greater Resiliency
Applicable Objective	Objective B: Review and update existing, or create new, community plans and ordinances to support hazard mitigation.
Potential Funding Source	Local Funds
Estimated Cost	High – greater than \$100,000
Benefits (loss avoided)	
Projected Completion Date	Ongoing
Priority and Level of Importance (Low, Medium, High)	Low Priority
Actual Completion Date	TBD

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	New	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Agree: 4
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Agree: 4
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Neither Agree or Disagree: 3
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Agree: 4
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Neither Agree or Disagree: 3
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Agree: 4
	Total Score: 26

Mitigated Hazards	
X	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
	Flood: Flash/Urban Flood
	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
	Structural Fire
	Terrorism
	Tornado and High Winds
	Utility Failure
	Wildfires

1.9.1.1.12 Develop a Flood Operations Plan for the County

Mitigation Action	Develop a Flood Operations Plan for the County
Year Initiated	2019
Applicable Jurisdiction	Madison County
Lead Agency/Organization	Madison County Emergency Management
Supporting Agencies/Organizations	City of Rexburg, City of Sugar, Canal Companies, Madison County Fire Department, Madison County Sheriff's Office, Madison County Planning and Zoning, Madison County Roads Department
Applicable Goal	Goal 2: To Create New or Revise Existing Plans for the Community to Promote and Achieve Greater Resiliency
Applicable Objective	Objective B: Review and update existing, or create new, community plans and ordinances to support hazard mitigation. Objective C: Conduct new studies/research to profile hazards and follow up with mitigation strategies.
Potential Funding Source	Grants
Estimated Cost	Medium – from \$10,000 to \$100,000
Benefits (loss avoided)	
Projected Completion Date	Short Term = to be completed in 1 to 5 years
Priority and Level of Importance (Low, Medium, High)	Medium Priority
Actual Completion Date	TBD

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	New	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Agree: 4
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Agree: 4
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Neither Agree or Disagree: 3
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Agree: 4
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Neither Agree or Disagree: 3
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Agree: 4
	Total Score: 26

Mitigated Hazards	
	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
X	Flood: Flash/Urban Flood
X	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
	Structural Fire
	Terrorism
	Tornado and High Winds
	Utility Failure
	Wildfires

1.9.1.1.2 Ongoing Mitigation Actions

The following are ongoing actions with no definitive end or that are still in progress. During the 2019 update, these "ongoing" mitigation actions and projects were modified and/or amended, as needed.

DRAFT

1.9.1.1.2.1 Redesign and modify bridges

Mitigation Action	Redesign and modify bridges that lack flow capacity overtopping and flooding will occur, leading to public hazards, erosion damage, and possible structural failure.
Year Initiated	2019
Applicable Jurisdiction	Madison County
Lead Agency/Organization	Madison County Road Department
Supporting Agencies/Organizations	Madison County Planning and Zoning
Applicable Goal	Goal 1: To Lessen the Impacts of Hazards to New and Existing Infrastructure, Residents, and Responders
Applicable Objective	Objective A: Retrofit critical facilities and structures with structural design practices and equipment that will withstand natural disasters and offer weather-proofing.
Potential Funding Source	
Estimated Cost	High – greater than \$100,000
Benefits (loss avoided)	
Projected Completion Date	Long Term = to be completed in greater than 5 years
Priority and Level of Importance (Low, Medium, High)	High Priority
Actual Completion Date	TBD

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	Problem areas include, but are not limited to: Moody Bridge, Bridge at 3000 N, Bridge at 12th West, Bridge at 3000 West and HWY 37, Bridge on Salem HWY

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	New	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Strongly Agree: 5
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Strongly Agree: 5
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Neither Agree or Disagree: 3
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Agree: 4
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Neither Agree or Disagree: 3
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Agree: 4
	Total Score: 28

Mitigated Hazards	
	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
X	Flood: Flash/Urban Flood
X	Flood: Riverine or Stream
	Hazardous Materials Incident
X	Infrastructure Failure
	Landslide
	Nuclear Event
	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
	Structural Fire
	Terrorism
	Tornado and High Winds
	Utility Failure
	Wildfires



HWY 33



1.9.1.1.2.2 Research, develop, and implement methods to protect plants and fences on private properties, roads, and bridges from hazardous wind.

Mitigation Action	Research, develop, and implement methods to protect plants and fences on private properties, roads, and bridges from hazardous wind.
Year Initiated	2008
Applicable Jurisdiction	Madison County
Lead Agency/Organization	Madson County Emergency Management
Supporting Agencies/Organizations	Private Property Owners/Road and Bridge Owners (state and local)
Applicable Goal	<ul style="list-style-type: none"> To Create New or Revise Existing Plans for the Community to Promote and Achieve Greater Resiliency
Applicable Objective	<ul style="list-style-type: none"> Conduct new studies/research to profile hazards and follow up with mitigation strategies.
Potential Funding Source	Potentially shared cost with private property owners and the state
Estimated Cost	ROM - \$8/FT; initial costs will be determined in the identification process followed by agreements with landowners
Benefits (loss avoided)	Crop and property damage
Projected Completion Date	Ongoing
Priority and Level of Importance (Low, Medium, High)	Low Priority
Actual Completion Date	Ongoing

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	<p>Based on the outline from the 2008 plan:</p> <ul style="list-style-type: none"> In 2009, risk was identified. In 2010, agreements were to be made with landowners In 2011 - funding was sought out <p>As of 2019, funding has not been secured. The County is revisiting this action to determine if this is still a necessary mitigation action.</p>

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	Ongoing	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Agree: 4
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Neither Agree or Disagree: 3
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Neither Agree or Disagree: 3
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Neither Agree or Disagree: 3
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Disagree: 2
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Disagree: 2
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Neither Agree or Disagree: 3
Total Score out of 35	Total Score: 20

Mitigated Hazards	
	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
	Flood: Flash/Urban Flood
	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
X	Severe Thunderstorm
X	Severe Winter Storm
X	Snow Avalanche
	Structural Fire
	Terrorism
X	Tornado and High Winds
	Utility Failure
	Wildfires

1.9.1.1.2.3 Madison County will continue to participate in the National Flood Insurance Program and develop actions that will reduce the damage to County infrastructure due to flash and stream flooding

Mitigation Action	Madison County will continue to participate in the National Flood Insurance Program and develop actions that will reduce the damage to County infrastructure due to flash and stream flooding
Year Initiated	2008
Applicable Jurisdiction	Madison County
Lead Agency/Organization	P & Z Administrator
Supporting Agencies/Organizations	Madison County Emergency Management, Floodplain Administrator, and Environmental Resilience Group
Applicable Goal	<ul style="list-style-type: none"> To Create New or Revise Existing Plans for the Community to Promote and Achieve Greater Resiliency To Inform Madison County Residents on the Potential Hazards that Could Affect the County
Applicable Objective	<ul style="list-style-type: none"> Support compliance with the National Flood Insurance Program. Raise public awareness on hazard mitigation and emergency preparedness.
Potential Funding Source	TBD
Estimated Cost	\$25,000
Benefits (loss avoided)	Risk of flooding awareness increases with the potential to lessen flooding impact on residential properties and businesses
Projected Completion Date	On-going
Priority and Level of Importance (Low, Medium, High)	High Priority
Actual Completion Date	On-going

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	Maintain the NFIP Program in Madison County and host Public Meetings and provide education for those in Flood-Prone Areas.

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	Ongoing	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Agree: 4
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Agree: 4
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Strongly Agree: 5
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Agree: 4
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Agree: 4
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Agree: 4
Total Score out of 35	Total Score: 29

Mitigated Hazards	
	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
X	Flood: Flash/Urban Flood
X	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
X	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
	Structural Fire
	Terrorism
	Tornado and High Winds
	Utility Failure
	Wildfires

1.9.1.1.2.4 Seek Community Rating System (CRS) Status for the County

Mitigation Action	Seek Community Rating System (CRS) Status for the County
Year Initiated	2008
Applicable Jurisdiction	Madison County
Lead Agency/Organization	Floodplain Administrator
Supporting Agencies/Organizations	Madison County Emergency Management and Environmental Resilience Group
Applicable Goal	<ul style="list-style-type: none"> To Create New or Revise Existing Plans for the Community to Promote and Achieve Greater Resiliency To Inform Madison County Residents on the Potential Hazards that Could Affect the County
Applicable Objective	<ul style="list-style-type: none"> Support compliance with the National Flood Insurance Program. Review and update existing, or create new, community plans and ordinances to support hazard mitigation. Raise public awareness on hazard mitigation and emergency preparedness.
Potential Funding Source	No cost
Estimated Cost	No cost
Benefits (loss avoided)	Flood reduction through incentives for the community to enhance flood reduction. Strengthen the insurance aspects of the NFIP and have a comprehensive approach to floodplain management.
Projected Completion Date	On-going
Priority and Level of Importance (Low, Medium, High)	High Priority
Actual Completion Date	On-going

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	Currently, the County and jurisdictions do not participate in the Community Rating System. The County will explore the benefits and requirements of joining. If the County determines they have the capacity to become a CRS community, steps will be taken to become a CRS community.

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	Ongoing	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Agree: 4
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Agree: 4
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Agree: 4
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Neither Agree or Disagree: 3
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Neither Agree or Disagree: 3
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Strongly agree: 5
Total Score out of 35	Total Score: 27

Mitigated Hazards	
	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
X	Flood: Flash/Urban Flood
X	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
X	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
	Structural Fire
	Terrorism
	Tornado and High Winds
	Utility Failure
	Wildfires

1.9.1.1.2.5 Request and be provided updated FIRMs (Flood Insurance Rate Maps)

Mitigation Action	Request and be provided updated FIRMs (Flood Insurance Rate Maps).
Year Initiated	2008
Applicable Jurisdiction	Madison County
Lead Agency/Organization	Floodplain Administrator
Supporting Agencies/Organizations	Emergency Management
Applicable Goal	<ul style="list-style-type: none"> To Create New or Revise Existing Plans for the Community to Promote and Achieve Greater Resiliency To Inform Madison County Residents on the Potential Hazards that Could Affect the County
Applicable Objective	<ul style="list-style-type: none"> Support compliance with the National Flood Insurance Program. Review and update existing, or create new, community plans and ordinances to support hazard mitigation. Raise public awareness on hazard mitigation and emergency preparedness.
Potential Funding Source	TBD
Estimated Cost	\$150,000
Benefits (loss avoided)	Improved understanding of flood-prone zones which can yield improved comprehensive flood reduction planning and mitigation projects ultimately lessening flood impact.
Projected Completion Date	On-going
Priority and Level of Importance (Low, Medium, High)	High Priority
Actual Completion Date	On-going

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	Reach out to FEMA to determine the cost and process to update FIRM maps. If the map update is feasible, work with FEMA on update.

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	Ongoing	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Neither Agree or Disagree: 3
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Agree: 4
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Agree: 4
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Neither Agree or Disagree: 3
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Neither Agree or Disagree: 3
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Strongly Agree: 5
Total Score out of 35	Total Score: 26

Mitigated Hazards	
	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
X	Flood: Flash/Urban Flood
X	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
X	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
	Structural Fire
	Terrorism
	Tornado and High Winds
	Utility Failure
	Wildfires

1.9.1.1.2.6 Straighten the River Channel at the ninety-degree bend in the Teton River 1 mile east of Sugar City to reduce flooding on the Teton River

Mitigation Action	Straighten the River Channel at the ninety-degree bend in the Teton River 1 mile east of Sugar City to reduce flooding on the Teton River
Year Initiated	2008
Applicable Jurisdiction	Madison County
Lead Agency/Organization	Floodplain Administrator/Corp of Engineers
Supporting Agencies/Organizations	Emergency Management and Environmental Resilience Group
Applicable Goal	<ul style="list-style-type: none"> To Lessen the Impacts of Hazards to New and Existing Infrastructure, Residents, and Responders
Applicable Objective	<ul style="list-style-type: none"> Retrofit critical facilities and structures with structural design practices and equipment that will withstand natural disasters and offer weather-proofing.
Potential Funding Source	TBD
Estimated Cost	\$150,000
Benefits (loss avoided)	Flood reduction
Projected Completion Date	2100
Priority and Level of Importance (Low, Medium, High)	Medium Priority
Actual Completion Date	On-going

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	The Corps of Engineers will first have to approve the project (likely conduct a feasibility study) and then funding can be sought. The 2008 plan predicted that this project would take until 2100 to fully complete, highlighting the long-term nature of this project.

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	Ongoing	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Agree: 4
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Agree: 4
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Neither Agree or Disagree: 3
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Agree: 4
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Neither Agree or Disagree: 3
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Neither Agree or Disagree: 3
Total Score out of 35	Total Score: 25

Mitigated Hazards	
	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
X	Flood: Flash/Urban Flood
X	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
X	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
	Structural Fire
	Terrorism
	Tornado and High Winds
	Utility Failure
	Wildfires

1.9.1.1.2.7 Develop a Culvert Maintenance Program on the foot hill roadways to improve drainage systems

Mitigation Action	Develop a Culvert Maintenance Program on the foot hill roadways to improve drainage systems
Year Initiated	2008
Applicable Jurisdiction	Madison County
Lead Agency/Organization	Road and Bridges
Supporting Agencies/Organizations	Emergency Management, Floodplain administrator, and Environmental Resilience Group
Applicable Goal	<ul style="list-style-type: none"> To Lessen the Impacts of Hazards to New and Existing Infrastructure, Residents, and Responders
Applicable Objective	<ul style="list-style-type: none"> Retrofit critical facilities and structures with structural design practices and equipment that will withstand natural disasters and offer weather-proofing. Minimize the amount of infrastructure exposed to hazards.
Potential Funding Source	LHTAC grants and others TBD
Estimated Cost	\$150,000 plus yearly maintenance cost (TBD)
Benefits (loss avoided)	Flood reduction
Projected Completion Date	TBD
Priority and Level of Importance (Low, Medium, High)	Medium Priority
Actual Completion Date	On-going

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	Prior to culvert replacement, evaluate all culverts in the County to determine priority replacement. Starting with priority culverts, repair or replacement of culverts will commence following the evaluation and dependent on funding.

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	Ongoing	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Agree: 4
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Agree: 4
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Neither Agree or Disagree: 3
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Agree: 4
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Neither Agree or Disagree: 3
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Neither Agree or Disagree: 3
Total Score out of 35	Total Score: 25

Mitigated Hazards	
	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
X	Flood: Flash/Urban Flood
X	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
X	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
	Structural Fire
	Terrorism
	Tornado and High Winds
	Utility Failure
	Wildfires

1.9.1.1.2.8 Identify Roads that need to be elevated and culverts that need to be replaced

Mitigation Action	Identify Roads that need to be elevated and culverts that need to be replaced.
Year Initiated	2008
Applicable Jurisdiction	Madison County
Lead Agency/Organization	Roads and Bridge
Supporting Agencies/Organizations	Emergency Management, Floodplain Administrator, and Environmental Resilience Group
Applicable Goal	<ul style="list-style-type: none"> To Lessen the Impacts of Hazards to New and Existing Infrastructure, Residents, and Responders
Applicable Objective	<ul style="list-style-type: none"> Retrofit critical facilities and structures with structural design practices and equipment that will withstand natural disasters and offer weather-proofing.
Potential Funding Source	TBD
Estimated Cost	\$150,000
Benefits (loss avoided)	County Roads protected from flooding (washout).
Projected Completion Date	TBD
Priority and Level of Importance (Low, Medium, High)	Medium Priority
Actual Completion Date	On-going

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	Prior to project construction, an evaluation of all roadways in flood prone areas in the County is needed to determine priority elevation. Once the priority areas are determined and funding is secured, the elevation of roadways and installation of culverts can begin. Following installation and elevation, these areas would need yearly maintenance to sustain effectiveness at flood reduction.

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	Ongoing	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Agree: 4
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Agree: 4
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Neither Agree or Disagree: 3
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Agree: 4
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Neither Agree or Disagree: 3
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Neither Agree or Disagree: 3
Total Score out of 35	Total Score: 25

Mitigated Hazards	
	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
X	Flood: Flash/Urban Flood
X	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
X	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
	Structural Fire
	Terrorism
	Tornado and High Winds
	Utility Failure
	Wildfires

1.9.1.1.2.9 Re-Channel the South Fork of the Snake River between the Rail Road Bridge and the Twin Bridges at Archer to pre1997 conditions to protect Agricultural Interests and reduce flooding along the South Fork of the Snake River

Mitigation Action	Re-Channel the South Fork of the Snake River between the Rail Road Bridge and the Twin Bridges at Archer to pre1997 conditions to protect Agricultural Interests and reduce flooding along the South Fork of the Snake River.
Year Initiated	2008
Applicable Jurisdiction	Madison County
Lead Agency/Organization	Commissioners/Emergency Management/Lenroot Canal Company/Corp of Engineers
Supporting Agencies/Organizations	Floodplain Administrator and Environmental Resilience Group
Applicable Goal	<ul style="list-style-type: none"> To Lessen the Impacts of Hazards to New and Existing Infrastructure, Residents, and Responders
Applicable Objective	<ul style="list-style-type: none"> Retrofit critical facilities and structures with structural design practices and equipment that will withstand natural disasters and offer weather-proofing. Equip public facilities and communities to guard against damage caused by secondary effects of hazards Minimize the amount of infrastructure exposed to hazards.
Potential Funding Source	TBD
Estimated Cost	\$550,000
Benefits (loss avoided)	Flood reduction and decrease crop damage
Projected Completion Date	TBD
Priority and Level of Importance (Low, Medium, High)	High Priority
Actual Completion Date	On-going

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	Initially, coordination will be needed to draft a plan that the Corps of Engineers will need to approve. Once approved, funding will need to be secured and coordination between agencies will need to continue. Construction can begin once funding is secured.

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	Ongoing	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Strongly Agree: 5
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Agree: 4
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Neither Agree or Disagree: 3
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Agree: 4
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Disagree: 4
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Agree: 4
Total Score out of 35	Total Score: 26

Mitigated Hazards	
	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
X	Flood: Flash/Urban Flood
X	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
X	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
	Structural Fire
	Terrorism
	Tornado and High Winds
	Utility Failure
	Wildfires

1.9.1.1.2.10 Rip Rap the north channel north side banks upstream of the Archer Highway North Twin Bridge to reduce flooding and protect Agricultural Interests along the South Fork of the Snake River

Mitigation Action	Rip Rap the north channel north side banks upstream of the Archer Highway North Twin Bridge to reduce flooding and protect Agricultural Interests along the South Fork of the Snake River.
Year Initiated	2008
Applicable Jurisdiction	Madison County
Lead Agency/Organization	Commissioners and Emergency Management/Corp of Engineers
Supporting Agencies/Organizations	Floodplain Administrator and Environmental Resilience Group
Applicable Goal	<ul style="list-style-type: none"> To Lessen the Impacts of Hazards to New and Existing Infrastructure, Residents, and Responders
Applicable Objective	<ul style="list-style-type: none"> Retrofit critical facilities and structures with structural design practices and equipment that will withstand natural disasters and offer weather-proofing. Equip public facilities and communities to guard against damage caused by secondary effects of hazards Minimize the amount of infrastructure exposed to hazards.
Potential Funding Source	TBD; potentially NRCS
Estimated Cost	\$300,000
Benefits (loss avoided)	Flood reduction and decrease crop damage
Projected Completion Date	TBD
Priority and Level of Importance (Low, Medium, High)	High Priority
Actual Completion Date	On-going

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	Initially, coordination will be needed to draft a plan that the Corps of Engineers will need to approve. Once approved, funding will need to be secured and coordination between agencies will need to continue. Rip rap installation on the banks can begin once funding is secured.

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	Ongoing	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Strongly Agree: 5
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Agree: 4
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Neither Agree or Disagree: 3
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Agree: 4
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Neither Agree or Disagree: 3
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Agree: 4
Total Score out of 35	Total Score: 27

Mitigated Hazards	
	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
X	Flood: Flash/Urban Flood
X	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
X	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
	Structural Fire
	Terrorism
	Tornado and High Winds
	Utility Failure
	Wildfires

1.9.1.1.2.11 Rebuild the Lenroot Canal Diversion Dam in the North Channel of the South Fork of the Snake River to reduce flooding and protect Agricultural Interests along the South Fork of the Snake River

Mitigation Action	Rebuild the Lenroot Canal Diversion Dam in the North Channel of the South Fork of the Snake River to reduce flooding and protect Agricultural Interests along the South Fork of the Snake River.
Year Initiated	2008
Applicable Jurisdiction	Madison County
Lead Agency/Organization	Lenroot Canal Company
Supporting Agencies/Organizations	Emergency Management, Commissioners, Floodplain Administrator, and Environmental Resilience Group
Applicable Goal	<ul style="list-style-type: none"> To Lessen the Impacts of Hazards to New and Existing Infrastructure, Residents, and Responders
Applicable Objective	<ul style="list-style-type: none"> Retrofit critical facilities and structures with structural design practices and equipment that will withstand natural disasters and offer weather-proofing. Equip public facilities and communities to guard against damage caused by secondary effects of hazards Minimize the amount of infrastructure exposed to hazards.
Potential Funding Source	TBD; potentially the Irrigation District
Estimated Cost	\$150,000
Benefits (loss avoided)	Flood reduction and decrease crop damage
Projected Completion Date	TBD
Priority and Level of Importance (Low, Medium, High)	High Priority
Actual Completion Date	On-going

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	Once funding is secure, the dam can be rebuilt and then must be maintained.

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	Ongoing	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Strongly Agree: 5
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Agree: 4
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Agree: 4
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Agree: 4
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Neither Agree or Disagree: 3
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Neither Agree or Disagree: 3
Total Score out of 35	Total Score: 27

Mitigated Hazards	
	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
X	Flood: Flash/Urban Flood
X	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
X	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
	Structural Fire
	Terrorism
	Tornado and High Winds
	Utility Failure
	Wildfires

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Strongly Agree: 5
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Agree: 4
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Neither Agree or Disagree: 3
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Agree: 4
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Agree: 4
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Agree: 4
Total Score out of 35	Total Score: 28

Mitigated Hazards	
	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
X	Flood: Flash/Urban Flood
X	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
	Structural Fire
	Terrorism
	Tornado and High Winds
	Utility Failure
	Wildfires

1.9.1.1.2.12 Develop a listing of schools and public buildings that need to be seismically retrofitted (and additional IBC updates)

Mitigation Action	Develop a listing of schools and public buildings that need to be seismically retrofitted (and additional IBC updates).
Year Initiated	2008
Applicable Jurisdiction	Madison County
Lead Agency/Organization	Emergency Management and Building Officials
Supporting Agencies/Organizations	
Applicable Goal	<ul style="list-style-type: none"> To Lessen the Impacts of Hazards to New and Existing Infrastructure, Residents, and Responders
Applicable Objective	<ul style="list-style-type: none"> Equip public facilities and communities to guard against damage caused by secondary effects of hazards Minimize the amount of infrastructure exposed to hazards.
Potential Funding Source	TBD
Estimated Cost	\$50,000
Benefits (loss avoided)	Improved buildings to withstand earthquakes and aftershocks
Projected Completion Date	TBD
Priority and Level of Importance (Low, Medium, High)	Medium Priority
Actual Completion Date	Ongoing

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	<p>Funding must be secured to have structural evaluations. Once evaluations occur, a prioritization list for buildings to be retrofitted can be developed.</p> <p>*In addition, buildings should be inspected for flooding, snow and ice, and wind following the International Building Code, which is listed under completed mitigation actions.</p>

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	Ongoing	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Agree: 5
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Agree: 4
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Neither Agree or Disagree: 3
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Agree: 4
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Agree: 4
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Neither Agree or Disagree: 3
Total Score out of 35	Total Score: 27

Mitigated Hazards	
	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
X	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
X	Flood: Flash/Urban Flood
	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
X	Severe Thunderstorm
X	Severe Winter Storm
	Snow Avalanche
	Structural Fire
	Terrorism
X	Tornado and High Winds
	Utility Failure
	Wildfires

1.9.1.1.2.13 Protect Critical Infrastructure from Earthquakes (and additional hazards) through Protection or Hardening (using IBC) including the Madison County EOC, the County Jail, The Madison County 911 Dispatch Center, Community Center, and the County Court House

Mitigation Action	Protect Critical Infrastructure from Earthquakes (and additional hazards) through Protection or Hardening (using IBC) including the Madison County EOC, the County Jail, The Madison County 911 Dispatch Center, Community Center, and the County Court House.
Year Initiated	2008
Applicable Jurisdiction	Madison County
Lead Agency/Organization	Emergency Management
Supporting Agencies/Organizations	
Applicable Goal	<ul style="list-style-type: none"> To Lessen the Impacts of Hazards to New and Existing Infrastructure, Residents, and Responders
Applicable Objective	<ul style="list-style-type: none"> Equip public facilities and communities to guard against damage caused by secondary effects of hazards Minimize the amount of infrastructure exposed to hazards.
Potential Funding Source	TBD
Estimated Cost	\$500,000
Benefits (loss avoided)	Improved seismic control of critical infrastructure
Projected Completion Date	TBD
Priority and Level of Importance (Low, Medium, High)	Medium Priority
Actual Completion Date	Ongoing

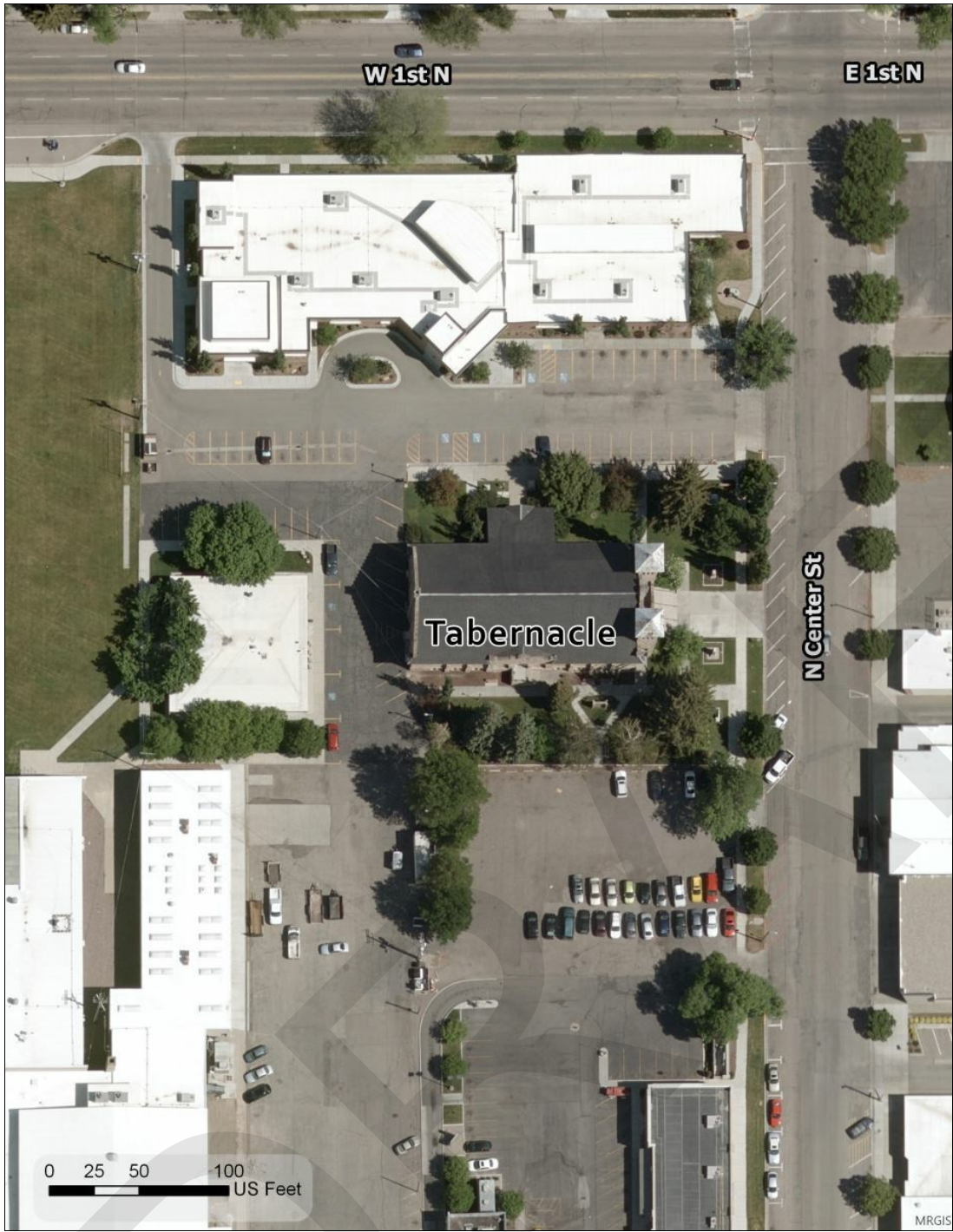
Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	<p>Funding must be secured to have structural evaluations. Once evaluations occur, a prioritization list for buildings to be retrofitted can be developed.</p> <p>*In addition, buildings should be retrofitted using the International Building Code to minimize the impact of flooding, snow and ice, and wind following the International Building Code, which is listed under completed mitigation actions.</p>

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	Ongoing	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Agree: 5
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Agree: 4
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Neither Agree or Disagree: 3
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Agree: 4
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Disagree: 2
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Neither Agree or Disagree: 3
Total Score out of 35	Total Score: 25

Mitigated Hazards	
	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
X	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
X	Flood: Flash/Urban Flood
	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
X	Severe Thunderstorm
X	Severe Winter Storm
	Snow Avalanche
	Structural Fire
	Terrorism
X	Tornado and High Winds
	Utility Failure
	Wildfires





1.9.1.1.2.14 Publish a special section in newspapers with emergency information on earthquakes (and all hazards) to increase public awareness of the risks associated with natural and human-made hazards

Mitigation Action	Publish a special section in newspapers with emergency information on earthquakes (and all hazards) to increase public awareness of the risks associated with natural and human-made hazards
Year Initiated	2008
Applicable Jurisdiction	Madison County
Lead Agency/Organization	Emergency Management
Supporting Agencies/Organizations	Public Media, BHS mitigation Officer, Red Cross, and CERT
Applicable Goal	<ul style="list-style-type: none"> To Inform Madison County Residents on the Potential Hazards that Could Affect the County
Applicable Objective	<ul style="list-style-type: none"> Raise public awareness on hazard mitigation and emergency preparedness.
Potential Funding Source	N/A
Estimated Cost	None (there may be a cost if a weekly or monthly section of the newspaper is dedicated to public awareness of hazards)
Benefits (loss avoided)	Increased public awareness can lead to hazard risk reduction
Projected Completion Date	On-going
Priority and Level of Importance (Low, Medium, High)	Medium Priority
Actual Completion Date	On-going

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	<p>Ideally, a regular publication timeframe can be established to provide the public with information on hazards and risk reduction measures. Once the platform and timeframe are established, materials would need to be provided to the media on a regular basis. Social media platforms can be utilized to enhance information sharing.</p> <p>*While earthquakes are not a high threat hazard to Madison County, other natural and technological hazards are. The mitigation goal can be expanded to include public awareness of all hazards.</p>

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	Ongoing	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Agree: 4
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Agree: 4
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Neither Agree or Disagree: 3
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Agree: 4
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Strongly Agree: 5
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Agree: 4
Total Score out of 35	Total Score: 28

Mitigated Hazards	
X	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
	Flood: Flash/Urban Flood
	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
	Structural Fire
	Terrorism
	Tornado and High Winds
	Utility Failure
	Wildfires

1.9.1.1.2.15 Madison County will reduce the potential damage to property from Landslides by adopting codes and standards for construction in landslide-prone areas

Mitigation Action	Madison County will reduce the potential damage to property from Landslides by adopting codes and standards for construction in landslide-prone areas.
Year Initiated	2008
Applicable Jurisdiction	Madison County
Lead Agency/Organization	P & Z Administrator
Supporting Agencies/Organizations	Emergency Management
Applicable Goal	<ul style="list-style-type: none"> To Create New or Revise Existing Plans for the Community to Promote and Achieve Greater Resiliency
Applicable Objective	<ul style="list-style-type: none"> Review and update existing, or create new, community plans and ordinances to support hazard mitigation.
Potential Funding Source	TBD
Estimated Cost	\$15,000
Benefits (loss avoided)	Reduction of impact from the hazard on buildings in critical infrastructure and lives located in areas prone to landslides.
Projected Completion Date	On-going
Priority and Level of Importance (Low, Medium, High)	Medium Priority
Actual Completion Date	TBD

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	<p>Develop an ordinance that places restrictions on building in landslide-prone areas.</p> <p>*Ordinances focused on not building in a wildfire, flood, and snow-avalanche zones should be considered too.</p>

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	Ongoing	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Neither Agree or Disagree: 3
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Agree: 4
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Neither Agree or Disagree: 3
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Neither Agree or Disagree: 3
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Neither Agree or Disagree: 3
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Agree: 4
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Strongly Agree: 5
Score Out of 35	Total Score: 25

Mitigated Hazards	
	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
X	Flood: Flash/Urban Flood
X	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
X	Landslide
	Nuclear Event
	Severe Thunderstorm
	Severe Winter Storm
X	Snow Avalanche
	Structural Fire
	Terrorism
	Tornado and High Winds
	Utility Failure
X	Wildfires

1.9.1.1.2.16 Develop a Wildland Fire Ordinance which establishes the road widths, access, water supply, and building regulations suitable to ensure new structures can be protected

Mitigation Action	Develop a Wildland Fire Ordinance which establishes the road widths, access, water supply, and building regulations suitable to ensure new structures can be protected.
Year Initiated	2008
Applicable Jurisdiction	Madison County
Lead Agency/Organization	P & Z Administrator and Madison Fire Department
Supporting Agencies/Organizations	Emergency Management
Applicable Goal	<ul style="list-style-type: none"> To Create New or Revise Existing Plans for the Community to Promote and Achieve Greater Resiliency
Applicable Objective	<ul style="list-style-type: none"> Review and update existing, or create new, community plans and ordinances to support hazard mitigation.
Potential Funding Source	TBD
Estimated Cost	\$15,000
Benefits (loss avoided)	Wildfire impact on infrastructure reduction.
Projected Completion Date	On-going
Priority and Level of Importance (Low, Medium, High)	Medium Priority
Actual Completion Date	TBD

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	Adopt and enforce applicable components of NFPA Code 1144 that addresses the unique needs of Madison County

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	Ongoing	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Strongly Agree: 5
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Agree: 4
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Neither Agree or Disagree: 3
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Agree: 4
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Agree: 4
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Agree: 4
Score Out of 35	Total Score: 28

Mitigated Hazards	
	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
	Flood: Flash/Urban Flood
	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
	Structural Fire
	Terrorism
	Tornado and High Winds
	Utility Failure
X	Wildfires

1.9.1.1.2.17 Develop a listing of roads, bridges, cattle guards, culverts, and other limiting conditions to improve access to areas prone to wildland fires. The listing should be incorporated into the Road and Bridge Department Transportation Plans

Mitigation Action	Develop a listing of roads, bridges, cattle guards, culverts, and other limiting conditions to improve access to areas prone to wildland fires. The listing should be incorporated into the Road and Bridge Department Transportation Plans.
Year Initiated	2008
Applicable Jurisdiction	Madison County
Lead Agency/Organization	Road and Bridge and Madison Fire Department
Supporting Agencies/Organizations	Emergency Management
Applicable Goal	<ul style="list-style-type: none"> To Lessen the Impacts of Hazards to New and Existing Infrastructure, Residents, and Responders
Applicable Objective	<ul style="list-style-type: none"> Evaluate and strengthen the communication and transportation abilities of emergency services throughout the community.
Potential Funding Source	TBD; potentially an LHTAC Grant
Estimated Cost	\$150,000 plus annual maintenance
Benefits (loss avoided)	Wildfire impact on infrastructure reduction.
Projected Completion Date	On-going
Priority and Level of Importance (Low, Medium, High)	High Priority
Actual Completion Date	TBD

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	Madison County will reduce the losses caused by wildfire by continuing the Wildland Urban Interface Mitigation Program. The program can extend into other planning areas and in this mitigation action necessitates working with the Road and Bridge Department to enhance the transportation plans. Once the listing is made, priorities set, and funding secure, repairs and replacements of damaged culverts, bridges, etc. should occur.

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	Ongoing	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Strongly Agree: 5
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Strongly Agree: 5
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Neither Agree or Disagree: 3
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Agree: 4
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Neither Agree or Disagree: 3
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Agree: 4
Score Out of 35	Total Score: 28

Mitigated Hazards	
	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
	Flood: Flash/Urban Flood
	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
	Structural Fire
	Terrorism
	Tornado and High Winds
	Utility Failure
X	Wildfires

1.9.1.1.2.18 Use GIS Technology to Link Red Zone Data to Landowner Parcel Maps

Mitigation Action	Use GIS Technology to Link Red Zone Data to Landowner Parcel Maps.
Year Initiated	2008
Applicable Jurisdiction	Madison County
Lead Agency/Organization	GIS Department and Madison Fire Department
Supporting Agencies/Organizations	Emergency Management
Applicable Goal	<ul style="list-style-type: none"> To Lessen the Impacts of Hazards to New and Existing Infrastructure, Residents, and Responders To Create New or Revise Existing Plans for the Community to Promote and Achieve Greater Resiliency
Applicable Objective	<ul style="list-style-type: none"> Evaluate and strengthen the communication and transportation abilities of emergency services throughout the community. Conduct new studies/research to profile hazards and follow up with mitigation strategies.
Potential Funding Source	TBD; potentially BLM
Estimated Cost	\$5,000
Benefits (loss avoided)	Improved communication and reduced wildfire impact on infrastructure.
Projected Completion Date	On-going
Priority and Level of Importance (Low, Medium, High)	Medium Priority
Actual Completion Date	TBD

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	As part of the Wildland Urban Interface Mitigation Program, GIS can be used to improve hazard communications tools.

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	Ongoing	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Agree: 4
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Agree: 4
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Neither Agree or Disagree: 3
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Agree: 4
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Agree: 4
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Agree: 4
Total Score out of 35	Total Score: 27

Mitigated Hazards	
	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
	Flood: Flash/Urban Flood
	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
	Structural Fire
	Terrorism
	Tornado and High Winds
	Utility Failure
X	Wildfires

1.9.1.1.2.19 Develop a standard practice for roadside vegetation management to reduce wildfires

Mitigation Action	Develop a standard practice for roadside vegetation management to reduce wildfires.
Year Initiated	2008
Applicable Jurisdiction	Madison County
Lead Agency/Organization	Madison Fire Department
Supporting Agencies/Organizations	Emergency Management
Applicable Goal	<ul style="list-style-type: none"> To Create New or Revise Existing Plans for the Community to Promote and Achieve Greater Resiliency
Applicable Objective	<ul style="list-style-type: none"> Review and update existing, or create new, community plans and ordinances to support hazard mitigation.
Potential Funding Source	N/A
Estimated Cost	No Cost
Benefits (loss avoided)	Improved communication and reduced wildfire impact on infrastructure.
Projected Completion Date	On-going
Priority and Level of Importance (Low, Medium, High)	Medium Priority
Actual Completion Date	TBD

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	Balance watershed planning, natural resource management, and land use planning with natural hazard mitigation to protect life, property, and the environment. Develop standard as part of WUI Planning ongoing effort.

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	Ongoing	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Agree: 4
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Agree: 4
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Neither Agree or Disagree: 3
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Agree: 4
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Strongly Agree: 5
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Strongly Agree: 5
Total Score out of 35	Total Score: 29

Mitigated Hazards	
	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
	Flood: Flash/Urban Flood
	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
	Structural Fire
	Terrorism
	Tornado and High Winds
	Utility Failure
X	Wildfires

1.9.1.1.2.20 Develop wildfire fuel breaks around CRP Land

Mitigation Action	Develop wildfire fuel breaks around CRP Land.
Year Initiated	2008
Applicable Jurisdiction	Madison County
Lead Agency/Organization	Madison Fire Department and Private Property Owners
Supporting Agencies/Organizations	Emergency Management
Applicable Goal	<ul style="list-style-type: none"> To Create New or Revise Existing Plans for the Community to Promote and Achieve Greater Resiliency
Applicable Objective	<ul style="list-style-type: none"> Review and update existing, or create new, community plans and ordinances to support hazard mitigation.
Potential Funding Source	TBD
Estimated Cost	TBD
Benefits (loss avoided)	Improved communication and reduced wildfire impact on infrastructure.
Projected Completion Date	On-going
Priority and Level of Importance (Low, Medium, High)	Medium Priority
Actual Completion Date	TBD

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	Preserve, rehabilitate, and enhance natural systems to serve natural hazard mitigation functions. The cost still needs to be determined. Once the cost is determined and funding is secured, the project can begin. The WUI Working group will develop a priority list of CRP Land to be protected included acreage and liner feet of fuel breaks. Private property owners must be engaged through the whole process in order to secure buy-in.

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	Ongoing	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Neither Agree or Disagree: 3
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Agree: 4
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Neither Agree or Disagree: 3
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Agree: 4
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Neither Agree or Disagree: 3
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Agree: 4
Total Score out of 35	Total Score: 25

Mitigated Hazards	
	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
	Flood: Flash/Urban Flood
	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
	Structural Fire
	Terrorism
	Tornado and High Winds
	Utility Failure
X	Wildfires

1.9.1.1.2.21 Organize a group to jointly apply for grants and other funding avenues to implement WUI Fire Mitigation Actions

Mitigation Action	Organize a group to jointly apply for grants and other funding avenues to implement WUI Fire Mitigation Actions.
Year Initiated	2008
Applicable Jurisdiction	Madison County
Lead Agency/Organization	Madison County Emergency Mangement
Supporting Agencies/Organizations	Madison Fire Department
Applicable Goal	<ul style="list-style-type: none"> To Lessen the Impacts of Hazards to New and Existing Infrastructure, Residents, and Responders To Inform Madison County Residents on the Potential Hazards that Could Affect the County
Applicable Objective	<ul style="list-style-type: none"> Review and update existing, or create new, community plans and ordinances to support hazard mitigation. Improve education and training of emergency personnel and public officials. Retrofit critical facilities and structures with structural design practices and equipment that will withstand natural disasters and offer weather-proofing. Minimize the amount of infrastructure exposed to hazards.
Potential Funding Source	N/A
Estimated Cost	None
Benefits (loss avoided)	Improved communication and reduced wildfire impact on infrastructure.
Projected Completion Date	On-going
Priority and Level of Importance (Low, Medium, High)	Medium Priority
Actual Completion Date	TBD

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	Maintain the WUI Working Group and expand to grant applications to ensure the coordination and feasibility of WUI Fire Mitigation Projects.

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	Ongoing	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Agree: 4
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Agree: 4
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Neither Agree or Disagree: 3
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Agree: 4
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Strongly Agree: 5
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Agree: 4
Total Score out of 35	Total Score: 28

Mitigated Hazards	
	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
	Flood: Flash/Urban Flood
	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
	Structural Fire
	Terrorism
	Tornado and High Winds
	Utility Failure
X	Wildfires

1.9.1.1.2.22 Develop Additional Water Supplies for Fire Protection (wildfires)

Mitigation Action	Develop Additional Water Supplies for Fire Protection (wildfires)
Year Initiated	2008
Applicable Jurisdiction	Madison County
Lead Agency/Organization	Madison Fire Department
Supporting Agencies/Organizations	Madison County Emergency Management
Applicable Goal	<ul style="list-style-type: none"> To Lessen the Impacts of Hazards to New and Existing Infrastructure, Residents, and Responders
Applicable Objective	<ul style="list-style-type: none"> Equip public facilities and communities to guard against damage caused by secondary effects of hazards Minimize the amount of infrastructure exposed to hazards.
Potential Funding Source	BHS SHSP
Estimated Cost	\$5,000
Benefits (loss avoided)	Improved communication and reduced wildfire impact on infrastructure.
Projected Completion Date	On-going
Priority and Level of Importance (Low, Medium, High)	Medium Priority
Actual Completion Date	TBD

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	Develop an agreement with developers and private landowners for access to and use of water sources for fire protection.

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	Ongoing	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Agree: 4
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Agree: 4
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Neither Agree or Disagree: 3
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Agree: 4
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Agree: 4
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Agree: 4
Total Score out of 35	Total Score: 27

Mitigated Hazards	
	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
	Flood: Flash/Urban Flood
	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
	Structural Fire
	Terrorism
	Tornado and High Winds
	Utility Failure
X	Wildfires

1.9.1.1.2.23 Install Road Signs as prescribed by NFPA Standards

Mitigation Action	Install Road Signs as prescribed by NFPA Standards
Year Initiated	2008
Applicable Jurisdiction	Madison County
Lead Agency/Organization	Roads and Bridges
Supporting Agencies/Organizations	Emergency Management
Applicable Goal	<ul style="list-style-type: none"> To Inform Madison County Residents on the Potential Hazards that Could Affect the County
Applicable Objective	<ul style="list-style-type: none"> Raise public awareness on hazard mitigation and emergency preparedness.
Potential Funding Source	potentially BLM or LTHAC grants; seek additional sources
Estimated Cost	\$50,000
Benefits (loss avoided)	Improved communication and reduced wildfire impact on infrastructure.
Projected Completion Date	On-going
Priority and Level of Importance (Low, Medium, High)	Low Priority
Actual Completion Date	TBD

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	Update and Improve Road Signing and Rural Addressing *Listed under Wildfires; however, road signage can be used to alert residents of other hazards in the area.

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	Ongoing	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Agree: 4
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Neither Agree or Disagree: 3
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Neither Agree or Disagree: 3
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Neither Agree or Disagree: 3
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Agree: 4
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Agree: 4
Total Score out of 35	Total Score: 25

Mitigated Hazards	
X	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
	Flood: Flash/Urban Flood
	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
	Structural Fire
	Terrorism
	Tornado and High Winds
	Utility Failure
X	Wildfires

1.9.1.1.2.24 Work with all residents and business owners to ensure that all structures have minimum fire detection and protection devices

Mitigation Action	Work with all residents and business owners to ensure that all structures have minimum fire detection and protection devices.
Year Initiated	2008
Applicable Jurisdiction	Madison County
Lead Agency/Organization	Madison Fire Department and Madison County Emergency Management
Supporting Agencies/Organizations	
Applicable Goal	<ul style="list-style-type: none"> To Lessen the Impacts of Hazards to New and Existing Infrastructure, Residents, and Responders To Inform Madison County Residents on the Potential Hazards that Could Affect the County
Applicable Objective	<ul style="list-style-type: none"> Raise public awareness on hazard mitigation and emergency preparedness. Equip public facilities and communities to guard against damage caused by secondary effects of hazards
Potential Funding Source	Assistance to Fire Fighters Safety Grant Program and other grants
Estimated Cost	\$300,000
Benefits (loss avoided)	Early fire detection to reduce fire damages and impact on lives and buildings; reduce losses from structural fire.
Projected Completion Date	On-going
Priority and Level of Importance (Low, Medium, High)	Medium Priority
Actual Completion Date	On-going

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	Encouraging private property owners to install and maintain smoke detectors on all levels of the residences and to place detectors in all bedrooms. Once funding is secured and detectors purchased, distribute detectors.

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	Ongoing	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Strongly Agree: 5
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Agree: 4
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Neither Agree or Disagree: 3
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Agree: 4
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Neither Agree or Disagree: 3
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Agree: 4
Total Score out of 35	Total Score: 27

Mitigated Hazards	
	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
	Flood: Flash/Urban Flood
	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
X	Structural Fire
	Terrorism
	Tornado and High Winds
	Utility Failure
	Wildfires

1.9.1.1.2.25 Develop Additional Water Supplies for Fire Protection (structural fires)

Mitigation Action	Develop Additional Water Supplies for Fire Protection (structural fires).
Year Initiated	2008
Applicable Jurisdiction	Madison County
Lead Agency/Organization	Madison Fire Department
Supporting Agencies/Organizations	Madison County Emergency Management
Applicable Goal	<ul style="list-style-type: none"> To Create New or Revise Existing Plans for the Community to Promote and Achieve Greater Resiliency
Applicable Objective	<ul style="list-style-type: none"> Review and update existing, or create new, community plans and ordinances to support hazard mitigation.
Potential Funding Source	BHS and SHSP
Estimated Cost	\$5,000
Benefits (loss avoided)	Reduce losses from structural fire.
Projected Completion Date	On-going
Priority and Level of Importance (Low, Medium, High)	Medium Priority
Actual Completion Date	TBD

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	Develop an agreement with developers and private landowners for access to and use of water sources for fire protection. Once funding is secured, develop and execute standard agreements and requirements.

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	Ongoing	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Agree: 4
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Agree: 4
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Neither Agree or Disagree: 3
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Agree: 4
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Agree: 4
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Neither Agree or Disagree: 3
	Total Score: 27

Mitigated Hazards	
	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
	Flood: Flash/Urban Flood
	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
X	Structural Fire
	Terrorism
	Tornado and High Winds
	Utility Failure
	Wildfires

1.9.1.1.2.26 Communicate risks posed through the INL ingestion pathway to the public

Mitigation Action	Communicate risks posed through the INL ingestion pathway to the public.
Year Initiated	2008
Applicable Jurisdiction	Madison County
Lead Agency/Organization	Madison County Emergency Management
Supporting Agencies/Organizations	INL
Applicable Goal	<ul style="list-style-type: none"> To Inform Madison County Residents on the Potential Hazards that Could Affect the County
Applicable Objective	<ul style="list-style-type: none"> Raise public awareness on hazard mitigation and emergency preparedness. Improve education and training of emergency personnel and public officials.
Potential Funding Source	N/A
Estimated Cost	None
Benefits (loss avoided)	Reduce risks to the community from the nuclear facility (INL) through awareness and education.
Projected Completion Date	On-going
Priority and Level of Importance (Low, Medium, High)	Medium Priority
Actual Completion Date	TBD

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	Provide Public Education Information on Ingestion Pathway Planning to those residing in the southwestern corner of the County. Invite INL Safety Liaison and INL Oversight Public Information Officer to LEPC Meetings to provide education

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	Ongoing	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Agree: 4
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Neither Agree or Disagree: 3
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Agree: 4
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Agree: 4
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Strongly Agree: 5
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Agree: 4
Score Out of 35	Total Score: 28

Mitigated Hazards	
	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
	Flood: Flash/Urban Flood
	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
X	Nuclear Event
	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
	Structural Fire
	Terrorism
	Tornado and High Winds
	Utility Failure
	Wildfires

1.9.1.1.2.27 Protect citizens from releases of hazardous materials

Mitigation Action	Protect citizens from releases of hazardous materials
Year Initiated	2008
Applicable Jurisdiction	Madison County
Lead Agency/Organization	Madison County Emergency Management
Supporting Agencies/Organizations	Transportation Department
Applicable Goal	<ul style="list-style-type: none"> To Lessen the Impacts of Hazards to New and Existing Infrastructure, Residents, and Responders
Applicable Objective	<ul style="list-style-type: none"> Equip public facilities and communities to guard against damage caused by secondary effects of hazards Minimize the amount of infrastructure exposed to hazards. Evaluate and strengthen the communication and transportation abilities of emergency services throughout the community.
Potential Funding Source	HMEP Grant
Estimated Cost	\$8,000
Benefits (loss avoided)	Identify hazardous material flow running through the County to ensure harmful impacts from the material can be mitigated against.
Projected Completion Date	On-going
Priority and Level of Importance (Low, Medium, High)	Medium Priority
Actual Completion Date	TBD

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	Conduct hazardous materials flow study for Highway 20 and the railroad line running through the County.

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	Ongoing	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Agree: 4
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Neither Agree or Disagree: 3
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Neither Agree or Disagree: 3
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Agree: 4
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Agree: 4
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Agree: 4
Score Out of 35	Total Score: 26

Mitigated Hazards	
	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
	Flood: Flash/Urban Flood
	Flood: Riverine or Stream
X	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
	Structural Fire
	Terrorism
	Tornado and High Winds
	Utility Failure
	Wildfires

1.9.1.1.2.28 Reduce the amount of Chlorine Stored at the Basic American Food facility in Rexburg

Mitigation Action	Reduce the amount of Chlorine Stored at the Basic American Food facility in Rexburg
Year Initiated	2008
Applicable Jurisdiction	Madison County
Lead Agency/Organization	Facility Owner and Emergency Management
Supporting Agencies/Organizations	
Applicable Goal	<ul style="list-style-type: none"> To Lessen the Impacts of Hazards to New and Existing Infrastructure, Residents, and Responders
Applicable Objective	<ul style="list-style-type: none"> Minimize the amount of infrastructure exposed to hazards.
Potential Funding Source	TBD
Estimated Cost	\$15,000
Benefits (loss avoided)	Reduction of hazardous materials in the County
Projected Completion Date	On-going
Priority and Level of Importance (Low, Medium, High)	High Priority
Actual Completion Date	TBD

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	Meet with American Basic Food to request process change and implement process change.

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	Ongoing	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Neither Agree or Disagree: 3
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Strongly Agree: 5
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Agree: 4
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Agree: 4
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Neither Agree or Disagree: 3
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Neither Agree or Disagree: 3
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Strongly Agree: 5
Score Out of 35	Total Score: 27

Mitigated Hazards	
	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
	Flood: Flash/Urban Flood
	Flood: Riverine or Stream
X	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
	Structural Fire
	Terrorism
	Tornado and High Winds
	Utility Failure
	Wildfires

1.9.1.1.2.29 Educate the Public on Civil Disobedience Reporting

Mitigation Action	Educate the Public on Civil Disobedience Reporting
Year Initiated	2008
Applicable Jurisdiction	Madison County
Lead Agency/Organization	Sherriff's Office
Supporting Agencies/Organizations	Emergency Management
Applicable Goal	<ul style="list-style-type: none"> To Inform Madison County Residents on the Potential Hazards that Could Affect the County
Applicable Objective	<ul style="list-style-type: none"> Raise public awareness on hazard mitigation and emergency preparedness.
Potential Funding Source	Law Enforcement Grant or other grants
Estimated Cost	\$10,000
Benefits (loss avoided)	Increase public knowledge of how to notice and report civil disobedience and decrease civil disobedience
Projected Completion Date	On-going
Priority and Level of Importance (Low, Medium, High)	Medium Priority
Actual Completion Date	TBD

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	Madison County will conduct a public education program to assist the citizens of the County in recognizing and reporting civil disobedience events to County Law Enforcement.

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	Ongoing	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Strongly Agree: 5
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Neither Agree or Disagree: 3
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Neither Agree or Disagree: 3
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Agree: 4
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Agree: 4
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Neither Agree or Disagree: 3
Score Out of 35	Total Score: 26

Mitigated Hazards	
	All Hazards
X	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
	Flood: Flash/Urban Flood
	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
	Structural Fire
	Terrorism
	Tornado and High Winds
	Utility Failure
	Wildfires

1.9.1.1.2.30 Identify and protect potential terrorist targets

Mitigation Action	Identify and protect potential terrorist targets
Year Initiated	2008
Applicable Jurisdiction	Madison County
Lead Agency/Organization	Emergency Management
Supporting Agencies/Organizations	BYU-Idaho
Applicable Goal	<ul style="list-style-type: none"> To Create New or Revise Existing Plans for the Community to Promote and Achieve Greater Resiliency
Applicable Objective	<ul style="list-style-type: none"> Conduct new studies/research to profile hazards and follow up with mitigation strategies.
Potential Funding Source	Potentially work with BYU-Idaho
Estimated Cost	No cost was listed; however, an assessment of this nature would likely cost a minimum of \$50,000
Benefits (loss avoided)	Identify terrorism targets to reduce the impact
Projected Completion Date	On-going
Priority and Level of Importance (Low, Medium, High)	Medium Priority
Actual Completion Date	TBD

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	Conduct a County Terrorism assessment.

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	Ongoing	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Strongly Agree: 5
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Neither Agree or Disagree: 3
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Disagree: 2
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Agree: 4
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Neither Agree or Disagree: 3
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Neither Agree or Disagree: 3
Score Out of 35	Total Score: 24

Mitigated Hazards	
	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
	Flood: Flash/Urban Flood
	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
	Structural Fire
X	Terrorism
	Tornado and High Winds
	Utility Failure
	Wildfires

1.9.1.1.2.31 Protect Critical Infrastructure from terrorism based on the assessment

Mitigation Action	Protect Critical Infrastructure from terrorism based on the assessment.
Year Initiated	2008
Applicable Jurisdiction	Madison County
Lead Agency/Organization	Madison County Emergency Management
Supporting Agencies/Organizations	
Applicable Goal	<ul style="list-style-type: none"> To Create New or Revise Existing Plans for the Community to Promote and Achieve Greater Resiliency
Applicable Objective	<ul style="list-style-type: none"> Conduct new studies/research to profile hazards and follow up with mitigation strategies.
Potential Funding Source	TBD
Estimated Cost	While cost was listed as not able to be determined at this time, this type of listing would be similar to the bridges and roads so an estimate would be \$150,000 for the listing. The actual protection design implementation would be dependent on the buildings and the design but a budget of at least \$250,000 would be needed (likely more).
Benefits (loss avoided)	Terrorism impact reduction
Projected Completion Date	On-going
Priority and Level of Importance (Low, Medium, High)	Low Priority
Actual Completion Date	TBD

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	<ul style="list-style-type: none"> Develop a listing of critical infrastructure to be protect. Seek Funding to design and engineer protection alternatives. Conduct Engineering Assessment. Seek Funding to Implement Solutions. Begin Implementation.

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	Ongoing	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Strongly Agree: 5
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Neither Agree or Disagree: 3
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Neither Agree or Disagree: 3
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Agree: 4
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Strongly Disagree:1
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Neither Agree or Disagree: 3
Score Out of 35	Total Score: 23

Mitigated Hazards	
	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
	Flood: Flash/Urban Flood
	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
	Structural Fire
X	Terrorism
	Tornado and High Winds
	Utility Failure
	Wildfires

1.9.1.1.3 Completed Mitigation Actions

The following section represents completed mitigation actions, and serves as an archive of identified and completed projects.

DRAFT

1.9.1.1.3.1 Completed Mitigation Action

Mitigation Action	Adopt the International Building Code Countywide
Year Initiated	2008
Applicable Jurisdiction	Madison County
Lead Agency/Organization	P & Z Administrator
Supporting Agencies/Organizations	
Applicable Goal	<ul style="list-style-type: none"> To Lessen the Impacts of Hazards to New and Existing Infrastructure, Residents, and Responders To Inform Madison County Residents on the Potential Hazards that Could Affect the County
Applicable Objective	<ul style="list-style-type: none"> Minimize the amount of infrastructure exposed to hazards. Raise public awareness on hazard mitigation and emergency preparedness. Improve education and training of emergency personnel and public officials.
Potential Funding Source	
Estimated Cost	\$10,000
Benefits (loss avoided)	Seismic risk reduction
Projected Completion Date	
Priority and Level of Importance (Low, Medium, High)	High Priority
Actual Completion Date	

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	Ensure enforcement of seismic building code provisions in the International Building Code for Madison County and jurisdictions to reduce potential damage to infrastructure and structures.

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	Ongoing	
2020		
2021		
2022		
2023		

Mitigated Hazards	
	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
X	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
	Flood: Flash/Urban Flood
	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
	Structural Fire
	Terrorism
	Tornado and High Winds
	Utility Failure
	Wildfires

1.9.1.1.3.2 West Nile

Mitigation Action	Build knowledge of West Nile Virus in the general public.
Year Initiated	2008
Applicable Jurisdiction	Madison County
Lead Agency/Organization	Health District
Supporting Agencies/Organizations	Madison County Emergency Management
Applicable Goal	<ul style="list-style-type: none"> To Inform Madison County Residents on the Potential Hazards that Could Affect the County
Applicable Objective	<ul style="list-style-type: none"> Raise public awareness on hazard mitigation and emergency preparedness.
Potential Funding Source	N/A
Estimated Cost	No cost - however, costs may be incurred for public awareness campaigns
Benefits (loss avoided)	Reduced outbreaks if the public takes precautionary actions and proactively seeks treatment.
Projected Completion Date	
Priority and Level of Importance (Low, Medium, High)	High Priority
Actual Completion Date	

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	<p>Madison County seeks to reduce the exposure of humans and animals to the West Nile Virus.</p> <p>*West Nile is no longer of pandemic concern; however, new pandemic and epidemic occurrences will occur and Madison County will strategically plan campaigns similar to the West Nile campaign.</p>

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	Ongoing	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Neither Agree or Disagree: 3
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Neither Agree or Disagree: 3
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Neither Agree or Disagree: 3
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Neither Agree or Disagree: 3
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Neither Agree or Disagree: 3
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Neither Agree or Disagree: 3
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Neither Agree or Disagree: 3
Score Out of 35	Total Score: 21

Mitigated Hazards	
	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
X	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
	Flood: Flash/Urban Flood
	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
	Structural Fire
	Terrorism
	Tornado and High Winds
	Utility Failure
	Wildfires

1.9.2 City of Rexburg



Image: City of Rexburg Painting

1.9.2.1 Community Profile

The following is a summary of key information about the jurisdiction and its history:

- **Date of Incorporation:** 1883
- **Current Population:** The 2016 estimate indicates the population estimate was 28,222 with likely discrepancies due to the hardship of counting university students in the Census.
- **Population Growth:** Based on the data available Rexburg has seen exponential growth in the past two decades. In 2000, the population was 17,257 and drastically increased to 25,484 in 2010.
- **Location and Description:** Rexburg is located at 43°49'N 111°47'W,[13] at an elevation of 4,865 feet (1,483 m) above sea level. According to the Census Bureau, the city has a total area of 9.84 square miles, of which, 9.76 square miles is land and 0.08 square miles is water. Rexburg is close to the St. Anthony Sand Dunes, the West Entrance of Yellowstone National Park, and the Teton Range. The city's volcanic soil and the cool summer nights due to the region's high elevation are ideal for growing potatoes and sugar beets. Surface and subsurface water is plentiful, even though average annual precipitation is only 11-12 inches. Irrigation water comes from rivers and reservoirs and is controlled by canal companies. Sugar City has not used surface water for irrigation since the 1976 Teton Dam flood, however, surrounding farms rely on it. Much of the city, including BYU-Idaho and the LDS Church's Rexburg Idaho Temple, rests on top of a shield volcano just north of Rigby, ID. Eruptions are not expected in the near future. Many different types of volcanoes exist near Rexburg, including cinder cones, spatter cones, other shield volcanoes, and volcanic fissures. There are lava fields to the west and south of Rexburg, the results of open fissure eruptions from about two thousand years ago. Sediment deposits enriched by volcanic activity make the surrounding area famous for its production of large starch-rich potatoes. US Highways 20 and 33 passes through Rexburg bringing 1.4 million visitors through Yellowstone's West Gate in 2009 alone.
- **Brief History:** The city of Rexburg was founded by a group of pioneers sent by church leaders in Salt Lake City that decided to settle along the banks of the Teton River. The new community attracted men and women eager to bring industry and civilization to the West. By the time Idaho entered the Union as the 43rd state in 1890, Rexburg was the second-largest city in the state. The city fathers recognized education and commerce as essential ingredients to building a strong, family-centered community. Along with preparing the community by cultivating and irrigating the semiarid land, the city fathers organized Bannock Stake Academy, the first primary school in the area. In 1888, the civic and church leaders founded Ricks Academy, eventually becoming Ricks College (the largest private junior college in the US) and later (2001) Brigham Young University-Idaho (BYU-Idaho), a four-year liberal arts college. BYU-Idaho is one of the fastest-growing universities in the entire country ([Rexburg website](#)).
- **Climate:** Rexburg has a humid continental climate with cold winters and hot summers; however, even in the summer, nights are chilly and frosts have occurred in all months of the year. Rexburg receives 14 inches of rain and 42 inches of snow on average per year.
- **Public Services:** The city has many public services including these departments: Arts, Community Development, Economic Development, Financial Management, Geographic Information Systems, Legal, Human Resources, Madison Fire Department, Parks, Planning Department, Public Works, Recreation, Police Department, and Information Technology. The City and Madison County provide fire and medical protection to the community.
- **Governing Body Format:** Rexburg has an elected mayor and elected city council members. Regular Council meetings and Planning and Zoning meetings are held monthly.
- **Development Trends:** In 2001, BYU-Idaho was converted to a four-year college which coincided with the rapid population increase. Given the expanding student population, housing trends, employment opportunities, and age demographics have shifted. Rexburg's city leaders understand the pressing need for economic development to keep pace with its rapid growth. Opportunities abound for businesses operating in the hospitality, technology, retail, financial and professional services, construction, production, agriculture, and manufacturing industries. Even with the population and business development, Rexburg maintains a safe, community-oriented city for all residents. ([Rexburg 2020 Comprehensive Plan](#)).



The information contained in this map is for reference purposes only. Madison County and the City of Resburg cannot be held responsible for misuse of the data.

Updated: 27 March 2015
Last Amended: 16 November 2010
Adopted: 3 September 2006



Source: [Rexburg GIS](#)

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1.9.2.3 Mitigation Strategies and Actions

The heart of the mitigation plan is the mitigation strategy, which serves as the long-term blueprint for reducing the potential losses identified in the risk assessment. The mitigation strategy describes how the community will accomplish the overall purpose, or mission, of the planning process. In this section, mitigation actions/projects were updated/amended, identified, evaluated, and prioritized. This section is organized as follows:

- New Mitigation Actions - New actions identified during this 2019 update process
- Ongoing Mitigation Actions - Ongoing actions with no definitive end or that are still in progress. During the 2019 update, these "ongoing" mitigation actions and projects were modified and/or amended, as needed.
- Completed Mitigation Actions - An archive of all identified and completed projects, including completed actions since 2008.

Please fill out the form to submit a New Mitigation Action/Project. Be sure to click "Submit" at the bottom of the form. Multiple projects can be submitted by refreshing this webpage. If you have any problems accessing this form on this webpage, please use this link instead: [New Mitigation Form](#)

By refreshing this webpage, a new form will appear. Upon submitting the form, you will receive an e-mail of your submission for your records. For assistance, please contact Daiko Abe at (208) 390-2021 or e-mail daiko.abe@i-s-consulting.com.

1.9.2.3.1 New Mitigation Actions

The following are new mitigation actions created during the 2019 update.

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1.9.2.3.1.1 Construct a bridge that serves as a secondary river crossing

Mitigation Action	Identify and construct a road and bridge that serves as a secondary river crossing
Year Initiated	2019
Applicable Jurisdiction	Rexburg
Lead Agency/Organization	Rexburg Planning Department, Rexburg Public Works
Supporting Agencies/Organizations	Madison County Planning and Zoning, Madison County Road Department
Applicable Goal	Goal 1: To Lessen the Impacts of Hazards to New and Existing Infrastructure, Residents, and Responders
Applicable Objective	Objective D: Evaluate and strengthen the communication and transportation abilities of emergency services throughout the community.
Potential Funding Source	Grants
Estimated Cost	High – greater than \$100,000
Benefits (loss avoided)	
Projected Completion Date	Long Term = to be completed in greater than 5 years
Priority and Level of Importance (Low, Medium, High)	High Priority
Actual Completion Date	TBD

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	New	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Strongly Agree: 5
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Strongly Agree: 5
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Neither Agree or Disagree: 3
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Agree: 4
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Neither Agree or Disagree: 3
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Neither Agree or Disagree: 3
Total Score: 27	

Mitigated Hazards	
	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
X	Flood: Flash/Urban Flood
X	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
	Structural Fire
	Terrorism
	Tornado and High Winds
	Utility Failure
	Wildfires

1.9.2.3.1.2 Procure a backup snow blower

Mitigation Action	Procure a backup snow blower
Year Initiated	2019
Applicable Jurisdiction	Rexburg
Lead Agency/Organization	Rexburg Public Works
Supporting Agencies/Organizations	
Applicable Goal	Goal 1: To Lessen the Impacts of Hazards to New and Existing Infrastructure, Residents, and Responders
Applicable Objective	Objective D: Evaluate and strengthen the communication and transportation abilities of emergency services throughout the community.
Potential Funding Source	Local Funds and Grants
Estimated Cost	High – greater than \$100,000
Benefits (loss avoided)	
Projected Completion Date	Short Term = to be completed in 1 to 5 years
Priority and Level of Importance (Low, Medium, High)	Medium Priority
Actual Completion Date	TBD

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	Major snow events block roads. 7th South is particularly a major problem area.

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	New	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Strongly Agree: 5
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Agree: 4
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Neither Agree or Disagree: 3
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Agree: 4
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Neither Agree or Disagree: 3
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Neither Agree or Disagree: 3
	Total Score: 26

Mitigated Hazards	
	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
	Flood: Flash/Urban Flood
	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
	Severe Thunderstorm
X	Severe Winter Storm
	Snow Avalanche
	Structural Fire
	Terrorism
	Tornado and High Winds
	Utility Failure
	Wildfires

1.9.2.3.1.3 Generator with greater capacity for Sewer/Wastewater Treatment Plant

Mitigation Action	Sewer/Wastewater Treatment Plant needs a generator with greater capacity to prevent water entering the river without proper treatment in the event of a power outage.
Year Initiated	2019
Applicable Jurisdiction	Rexburg
Lead Agency/Organization	Public Works
Supporting Agencies/Organizations	
Applicable Goal	Goal 1: To Lessen the Impacts of Hazards to New and Existing Infrastructure, Residents, and Responders
Applicable Objective	Objective A: Retrofit critical facilities and structures with structural design practices and equipment that will withstand natural disasters and offer weather-proofing. Objective B: Equip public facilities and communities to guard against damage caused by secondary effects of hazards Objective C: Minimize the amount of infrastructure exposed to hazards.
Potential Funding Source	Grants
Estimated Cost	Medium – from \$10,000 to \$100,000
Benefits (loss avoided)	
Projected Completion Date	Short Term = to be completed in 1 to 5 years
Priority and Level of Importance (Low, Medium, High)	High Priority
Actual Completion Date	TBD

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	New	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Agree: 4
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Strongly Agree: 5
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Neither Agree or Disagree: 3
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Agree: 4
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Neither Agree or Disagree: 3
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Agree: 4
	Total Score: 27

Mitigated Hazards	
	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
X	Flood: Flash/Urban Flood
X	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
	Structural Fire
	Terrorism
	Tornado and High Winds
X	Utility Failure
	Wildfires

1.9.2.3.1.4 Procure backup generators and hookups for sewer and stormwater lift stations

Mitigation Action	Procure backup generators and hookups for sewer and stormwater lift stations
Year Initiated	2019
Applicable Jurisdiction	Rexburg
Lead Agency/Organization	Public Works
Supporting Agencies/Organizations	
Applicable Goal	Goal 1: To Lessen the Impacts of Hazards to New and Existing Infrastructure, Residents, and Responders
Applicable Objective	Objective A: Retrofit critical facilities and structures with structural design practices and equipment that will withstand natural disasters and offer weather-proofing. Objective B: Equip public facilities and communities to guard against damage caused by secondary effects of hazards Objective C: Minimize the amount of infrastructure exposed to hazards.
Potential Funding Source	
Estimated Cost	High – greater than \$100,000
Benefits (loss avoided)	
Projected Completion Date	Ongoing
Priority and Level of Importance (Low, Medium, High)	High Priority
Actual Completion Date	TBD

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	New	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Agree: 4
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Strongly Agree: 5
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Neither Agree or Disagree: 3
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Agree: 4
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Neither Agree or Disagree: 3
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Agree: 4
	Total Score: 27

Mitigated Hazards	
	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
X	Flood: Flash/Urban Flood
X	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
	Structural Fire
	Terrorism
	Tornado and High Winds
X	Utility Failure
	Wildfires

1.9.2.3.1.5 Move Mill Hollow Sewer Lift Station

Mitigation Action	Move Mill Hollow Sewer Lift Station
Year Initiated	2019
Applicable Jurisdiction	Rexburg
Lead Agency/Organization	Public Works
Supporting Agencies/Organizations	
Applicable Goal	Goal 1: To Lessen the Impacts of Hazards to New and Existing Infrastructure, Residents, and Responders
Applicable Objective	Objective C: Minimize the amount of infrastructure exposed to hazards.
Potential Funding Source	Local Funds and Grants
Estimated Cost	Medium – from \$10,000 to \$100,000
Benefits (loss avoided)	
Projected Completion Date	Short Term = to be completed in 1 to 5 years
Priority and Level of Importance (Low, Medium, High)	High Priority
Actual Completion Date	TBD

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	Stormwater is inundating the sewer system. There is a need to move the lift station to a higher location.

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	New	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Strongly Agree: 5
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Agree: 4
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Neither Agree or Disagree: 3
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Agree: 4
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Neither Agree or Disagree: 3
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Agree: 4
	Total Score: 27

Mitigated Hazards	
	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
X	Flood: Flash/Urban Flood
X	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
	Structural Fire
	Terrorism
	Tornado and High Winds
	Utility Failure
	Wildfires

1.9.2.3.1.6 Implement Stormwater Improvements Projects

Mitigation Action	Implement Stormwater Improvements Projects based on the findings of the Stormwater Master Plan or Other Engineering Analyses
Year Initiated	2019
Applicable Jurisdiction	Rexburg
Lead Agency/Organization	Public Works, Planning Department
Supporting Agencies/Organizations	
Applicable Goal	Goal 1: To Lessen the Impacts of Hazards to New and Existing Infrastructure, Residents, and Responders
Applicable Objective	Objective A: Retrofit critical facilities and structures with structural design practices and equipment that will withstand natural disasters and offer weather-proofing. Objective B: Equip public facilities and communities to guard against damage caused by secondary effects of hazards Objective C: Minimize the amount of infrastructure exposed to hazards. Objective D: Evaluate and strengthen the communication and transportation abilities of emergency services throughout the community.
Potential Funding Source	Local Funds and Grants
Estimated Cost	High – greater than \$100,000
Benefits (loss avoided)	
Projected Completion Date	Ongoing
Priority and Level of Importance (Low, Medium, High)	Medium Priority
Actual Completion Date	TBD

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	New	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Agree: 4
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Agree: 4
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Neither Agree or Disagree: 3
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Agree: 4
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Neither Agree or Disagree: 3
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Neither Agree or Disagree: 3
	Total Score: 25

Mitigated Hazards	
	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
X	Flood: Flash/Urban Flood
	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
X	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
	Structural Fire
	Terrorism
	Tornado and High Winds
	Utility Failure
	Wildfires

1.9.2.3.1.7 Develop Stormwater Master Plan

Mitigation Action	Develop Stormwater Master Plan
Year Initiated	2019
Applicable Jurisdiction	Rexburg
Lead Agency/Organization	Public Works
Supporting Agencies/Organizations	
Applicable Goal	Goal 2: To Create New or Revise Existing Plans for the Community to Promote and Achieve Greater Resiliency
Applicable Objective	Objective B: Review and update existing, or create new, community plans and ordinances to support hazard mitigation. Objective C: Conduct new studies/research to profile hazards and follow up with mitigation strategies.
Potential Funding Source	Local Funds and Grants
Estimated Cost	Medium – from \$10,000 to \$100,000
Benefits (loss avoided)	
Projected Completion Date	Short Term = to be completed in 1 to 5 years
Priority and Level of Importance (Low, Medium, High)	Medium Priority
Actual Completion Date	TBD

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	New	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Agree: 4
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Agree: 4
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Neither Agree or Disagree: 3
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Agree: 4
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Neither Agree or Disagree: 3
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Agree: 4
	Total Score: 26

Mitigated Hazards	
	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
X	Flood: Flash/Urban Flood
X	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
X	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
	Structural Fire
	Terrorism
	Tornado and High Winds
	Utility Failure
	Wildfires

1.9.2.3.1.8 Mitigate flooding at 7th South by improving drainage

Mitigation Action	Mitigate flooding at 7th South by improving drainage.
Year Initiated	2019
Applicable Jurisdiction	Rexburg
Lead Agency/Organization	Public Works
Supporting Agencies/Organizations	
Applicable Goal	Goal 1: To Lessen the Impacts of Hazards to New and Existing Infrastructure, Residents, and Responders
Applicable Objective	Objective A: Retrofit critical facilities and structures with structural design practices and equipment that will withstand natural disasters and offer weather-proofing. Objective B: Equip public facilities and communities to guard against damage caused by secondary effects of hazards Objective C: Minimize the amount of infrastructure exposed to hazards.
Potential Funding Source	Local Funds and Grants
Estimated Cost	High – greater than \$100,000
Benefits (loss avoided)	
Projected Completion Date	Long Term = to be completed in greater than 5 years
Priority and Level of Importance (Low, Medium, High)	Medium Priority
Actual Completion Date	TBD

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	This mitigation action may require a study to determine the best option to mitigate flooding at this location.

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	New	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Strongly Agree: 5
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Strongly Agree: 5
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Neither Agree or Disagree: 3
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Agree: 4
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Neither Agree or Disagree: 3
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Agree: 3
	Total Score: 28

Mitigated Hazards	
	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
X	Flood: Flash/Urban Flood
	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
	Structural Fire
	Terrorism
	Tornado and High Winds
	Utility Failure
	Wildfires

1.9.2.3.1.9 Retrofit/Modify access to the schools to address enhanced security and access control

Mitigation Action	Retrofit/Modify access to the schools to address enhanced security and access control
Year Initiated	2019
Applicable Jurisdiction	Rexburg
Lead Agency/Organization	Schools
Supporting Agencies/Organizations	Rexburg Police Department
Applicable Goal	Goal 1: To Lessen the Impacts of Hazards to New and Existing Infrastructure, Residents, and Responders
Applicable Objective	Objective A: Retrofit critical facilities and structures with structural design practices and equipment that will withstand natural disasters and offer weather-proofing.
Potential Funding Source	
Estimated Cost	Medium – from \$10,000 to \$100,000
Benefits (loss avoided)	
Projected Completion Date	Short Term = to be completed in 1 to 5 years
Priority and Level of Importance (Low, Medium, High)	Medium Priority
Actual Completion Date	TBD

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	New	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Strongly Agree: 5
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Agree: 4
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Neither Agree or Disagree: 3
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Agree: 4
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Neither Agree or Disagree: 3
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Neither Agree or Disagree: 3
	Total Score: 26

Mitigated Hazards	
	All Hazards
X	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
	Flood: Flash/Urban Flood
	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
	Structural Fire
X	Terrorism
	Tornado and High Winds
	Utility Failure
	Wildfires

1.9.2.3.1.10 Purchase door barricade devices for schools

Mitigation Action	Purchase door barricade devices for schools
Year Initiated	2019
Applicable Jurisdiction	Rexburg
Lead Agency/Organization	Schools
Supporting Agencies/Organizations	Rexburg Police Department
Applicable Goal	Goal 1: To Lessen the Impacts of Hazards to New and Existing Infrastructure, Residents, and Responders
Applicable Objective	Objective A: Retrofit critical facilities and structures with structural design practices and equipment that will withstand natural disasters and offer weather-proofing.
Potential Funding Source	
Estimated Cost	Low – less than \$10,000
Benefits (loss avoided)	
Projected Completion Date	Short Term = to be completed in 1 to 5 years
Priority and Level of Importance (Low, Medium, High)	High Priority
Actual Completion Date	TBD

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	New	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Strongly Agree: 5
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Agree: 4
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Neither Agree or Disagree: 3
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Agree: 4
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Agree: 4
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Neither Agree or Disagree: 3
	Total Score: 27

Mitigated Hazards	
	All Hazards
X	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
	Flood: Flash/Urban Flood
	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
	Structural Fire
X	Terrorism
	Tornado and High Winds
	Utility Failure
	Wildfires

1.9.2.3.1.11 Purchase additional repeaters to address communication gaps

Mitigation Action	Purchase additional repeaters to address communication gaps
Year Initiated	2019
Applicable Jurisdiction	Rexburg
Lead Agency/Organization	Rexburg Police Department, Madison County Sheriff's Office, Madison County Emergency Management, Madison County Fire Department
Supporting Agencies/Organizations	
Applicable Goal	Goal 1: To Lessen the Impacts of Hazards to New and Existing Infrastructure, Residents, and Responders
Applicable Objective	Objective D: Evaluate and strengthen the communication and transportation abilities of emergency services throughout the community.
Potential Funding Source	Grants
Estimated Cost	High – greater than \$100,000
Benefits (loss avoided)	
Projected Completion Date	Short Term = to be completed in 1 to 5 years
Priority and Level of Importance (Low, Medium, High)	High Priority
Actual Completion Date	TBD

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	New	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Strongly Agree: 5
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Strongly Agree: 5
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Strongly Agree: 5
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Strongly Agree: 5
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Strongly Agree: 5
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Neither Agree or Disagree: 3
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Neither Agree or Disagree: 3
	Total Score: 31

Mitigated Hazards	
X	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
	Flood: Flash/Urban Flood
	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
	Structural Fire
	Terrorism
	Tornado and High Winds
	Utility Failure
	Wildfires
Strongly Agree: 5	

1.9.2.3.1.12 Purchase jersey barriers

Mitigation Action	Purchase jersey barriers
Year Initiated	2019
Applicable Jurisdiction	Rexburg
Lead Agency/Organization	Rexburg Police Department
Supporting Agencies/Organizations	
Applicable Goal	Goal 1: To Lessen the Impacts of Hazards to New and Existing Infrastructure, Residents, and Responders
Applicable Objective	Objective A: Retrofit critical facilities and structures with structural design practices and equipment that will withstand natural disasters and offer weather-proofing. Objective B: Equip public facilities and communities to guard against damage caused by secondary effects of hazards Objective C: Minimize the amount of infrastructure exposed to hazards.
Potential Funding Source	Local Funds and Grants
Estimated Cost	Medium – from \$10,000 to \$100,000
Benefits (loss avoided)	
Projected Completion Date	Short Term = to be completed in 1 to 5 years
Priority and Level of Importance (Low, Medium, High)	Low Priority
Actual Completion Date	TBD

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	New	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Neither Agree or Disagree: 3
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Neither Agree or Disagree: 3
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Agree: 4
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Agree: 4
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Neither Agree or Disagree: 3
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Neither Agree or Disagree: 3
	Total Score: 24

Mitigated Hazards	
	All Hazards
X	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
X	Flood: Flash/Urban Flood
X	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
	Structural Fire
X	Terrorism
	Tornado and High Winds
	Utility Failure
	Wildfires

1.9.2.3.1.13 Procure a mobile command center

Mitigation Action	Procure a mobile command center
Year Initiated	2019
Applicable Jurisdiction	Rexburg
Lead Agency/Organization	Rexburg Police Department
Supporting Agencies/Organizations	
Applicable Goal	Goal 1: To Lessen the Impacts of Hazards to New and Existing Infrastructure, Residents, and Responders
Applicable Objective	Objective D: Evaluate and strengthen the communication and transportation abilities of emergency services throughout the community.
Potential Funding Source	Grants
Estimated Cost	High – greater than \$100,000
Benefits (loss avoided)	
Projected Completion Date	Long Term = to be completed in greater than 5 years
Priority and Level of Importance (Low, Medium, High)	Medium Priority
Actual Completion Date	TBD

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	New	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Agree: 4
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Strongly Agree: 5
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Agree: 4
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Agree: 4
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Strongly Agree: 5
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Neither Agree or Disagree: 3
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Neither Agree or Disagree: 3
	Total Score: 28

Mitigated Hazards	
X	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
	Flood: Flash/Urban Flood
	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
	Structural Fire
	Terrorism
	Tornado and High Winds
	Utility Failure
	Wildfires

1.9.2.3.2 Ongoing Mitigation Actions

The following are ongoing actions with no definitive end or that are still in progress. During the 2019 update, these "ongoing" mitigation actions and projects were modified and/or amended, as needed.

DRAFT

1.9.2.3.2.1 Install Emergency Generators and Identify Community Relocation Centers and Shelters

Mitigation Action	Install Emergency Generators and Identify Community Relocation Centers and Shelters
Year Initiated	2008
Applicable Jurisdiction	Rexburg
Lead Agency/Organization	Mayor, School District, Churches, and Volunteer Organizations
Supporting Agencies/Organizations	Emergency Management
Applicable Goal	<ul style="list-style-type: none"> To Lessen the Impacts of Hazards to New and Existing Infrastructure, Residents, and Responders
Applicable Objective	<ul style="list-style-type: none"> Equip public facilities and communities to guard against damage caused by secondary effects of hazards
Potential Funding Source	TBD; work with School District to identify funding options
Estimated Cost	\$300,000
Benefits (loss avoided)	Protect isolated individuals from Severe Winter Storms and Extreme Cold.
Projected Completion Date	On-going
Priority and Level of Importance (Low, Medium, High)	High Priority
Actual Completion Date	TBD

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	The City of Rexburg will develop methods to protect the life safety of its citizens from harm due to severe weather events. Work with School District, community organizations, and churches to identify a shelter location, seek funding, and then install a generator(s).

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	Ongoing	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Strongly Agree: 5
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Strongly Agree: 5
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Neither Agree or Disagree: 3
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Agree: 4
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Disagree: 4
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Neither Agree or Disagree: 3
Score Out of 35	Total Score: 27
Total Score:	

Mitigated Hazards	
X	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
	Flood: Flash/Urban Flood
	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
	Structural Fire
	Terrorism
	Tornado and High Winds
	Utility Failure
	Wildfires

1.9.2.3.2.2 Seek Community Rating System (CRS) status and maintain NFIP requirements

Mitigation Action	Seek Community Rating System (CRS) status and maintain NFIP requirements.
Year Initiated	2008
Applicable Jurisdiction	Rexburg
Lead Agency/Organization	Floodplain Administrator
Supporting Agencies/Organizations	Emergency Management
Applicable Goal	<ul style="list-style-type: none"> To Create New or Revise Existing Plans for the Community to Promote and Achieve Greater Resiliency To Inform Madison County Residents on the Potential Hazards that Could Affect the County
Applicable Objective	<ul style="list-style-type: none"> Support compliance with the National Flood Insurance Program. Raise public awareness on hazard mitigation and emergency preparedness.
Potential Funding Source	TBD
Estimated Cost	While no cost was listed, the Madison County action noted this would cost \$25,000.
Benefits (loss avoided)	Flooding reduction through active participation in the NFIP.
Projected Completion Date	On-going
Priority and Level of Importance (Low, Medium, High)	High Priority
Actual Completion Date	TBD

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	The City of Rexburg will continue to participate in the National Flood Insurance Program and seek CRS status. The city will develop actions that will reduce the damage to City property and infrastructure due to flooding on the Teton River.

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	Ongoing	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Agree: 4
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Agree: 4
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Strongly Agree: 5
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Agree: 4
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Agree: 4
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Agree: 4
Total Score out of 35	Total Score: 29

Mitigated Hazards	
	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
X	Flood: Flash/Urban Flood
X	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
X	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
	Structural Fire
	Terrorism
	Tornado and High Winds
	Utility Failure
	Wildfires

1.9.2.3.2.3 Request and be provided updated FIRMs (Flood Insurance Rate Maps)

Mitigation Action	Request and be provided updated FIRMs (Flood Insurance Rate Maps).
Year Initiated	2008
Applicable Jurisdiction	Rexburg
Lead Agency/Organization	Floodplain Administrator
Supporting Agencies/Organizations	Emergency Management
Applicable Goal	<ul style="list-style-type: none"> To Create New or Revise Existing Plans for the Community to Promote and Achieve Greater Resiliency To Inform Madison County Residents on the Potential Hazards that Could Affect the County
Applicable Objective	<ul style="list-style-type: none"> Support compliance with the National Flood Insurance Program. Review and update existing, or create new, community plans and ordinances to support hazard mitigation. Raise public awareness on hazard mitigation and emergency preparedness.
Potential Funding Source	TBD
Estimated Cost	\$150,000
Benefits (loss avoided)	Improved understanding of flood-prone zones which can yield improved comprehensive flood reduction planning and mitigation projects ultimately lessening flood impact.
Projected Completion Date	On-going
Priority and Level of Importance (Low, Medium, High)	High Priority
Actual Completion Date	On-going

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	Work with the County to reach out to FEMA to determine the cost and process to update FIRM maps. If the map update is feasible, work with FEMA on update.

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	Ongoing	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Neither Agree or Disagree: 3
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Agree: 4
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Agree: 4
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Neither Agree or Disagree: 3
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Neither Agree or Disagree: 3
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Strongly Agree: 5
Total Score out of 35	Total Score: 26

Mitigated Hazards	
	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
X	Flood: Flash/Urban Flood
X	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
X	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
	Structural Fire
	Terrorism
	Tornado and High Winds
	Utility Failure
	Wildfires

1.9.2.3.2.4 Develop a method to reduce ice jams at the Teton River Railroad Bridge

Mitigation Action	Develop a method to reduce ice jams at the Teton River Railroad Bridge
Year Initiated	2008
Applicable Jurisdiction	Rexburg
Lead Agency/Organization	Mayor and Public Works
Supporting Agencies/Organizations	Emergency Management and Floodplain Administrator
Applicable Goal	<ul style="list-style-type: none"> To Lessen the Impacts of Hazards to New and Existing Infrastructure, Residents, and Responders
Applicable Objective	<ul style="list-style-type: none"> Retrofit critical facilities and structures with structural design practices and equipment that will withstand natural disasters and offer weather-proofing.
Potential Funding Source	FMA Grant or other grants
Estimated Cost	\$1,000,000
Benefits (loss avoided)	Flood reduction
Projected Completion Date	On-going
Priority and Level of Importance	High Priority
Actual Completion Date	TBD

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	Conduct design and engineering solution followed by a cost estimate. Once funds are secured and design approved, begin construction.

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	Ongoing	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Agree: 4
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Agree: 4
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Agree: 4
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Agree: 4
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Disagree: 2
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Neither Agree or Disagree: 3
Total Score out of 35	Total Score: 2

Mitigated Hazards	
	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
X	Flood: Flash/Urban Flood
X	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
	Structural Fire
	Terrorism
	Tornado and High Winds
	Utility Failure
	Wildfires

1.9.2.3.2.5 Pipe the canal behind the High School with the capability to act also as a storm water collection system

Mitigation Action	Pipe the canal behind the High School with the capability to act also as a storm water collection system.
Year Initiated	2008
Applicable Jurisdiction	Rexburg
Lead Agency/Organization	Canal Company and Public Works
Supporting Agencies/Organizations	Emergency Management and Floodplain Administrator
Applicable Goal	<ul style="list-style-type: none"> To Lessen the Impacts of Hazards to New and Existing Infrastructure, Residents, and Responders
Applicable Objective	<ul style="list-style-type: none"> Retrofit critical facilities and structures with structural design practices and equipment that will withstand natural disasters and offer weather-proofing.
Potential Funding Source	HMA Grant or other grants
Estimated Cost	\$300,000
Benefits (loss avoided)	Flood reduction
Projected Completion Date	On-going
Priority and Level of Importance (Low, Medium, High)	High Priority
Actual Completion Date	TBD

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	Design canal piping and storm water collection, and once funds are available, construct.

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	Ongoing	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Agree: 4
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Agree: 4
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Agree: 4
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Agree: 4
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Disagree: 2
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Disagree: 2
Total Score out of 35	Total Score: 24

Mitigated Hazards	
	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
X	Flood: Flash/Urban Flood
X	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
X	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
	Structural Fire
	Terrorism
	Tornado and High Winds
	Utility Failure
	Wildfires

1.9.2.3.2.6 Improve Drainage in the Hidden Valley area east of the City by installing catchment basins

Mitigation Action	Improve Drainage in the Hidden Valley area east of the City by installing catchment basins.
Year Initiated	2008
Applicable Jurisdiction	Madison County
Lead Agency/Organization	Mayor and Public Works
Supporting Agencies/Organizations	Emergency Management and Floodplain Administrator
Applicable Goal	<ul style="list-style-type: none"> To Lessen the Impacts of Hazards to New and Existing Infrastructure, Residents, and Responders
Applicable Objective	<ul style="list-style-type: none"> Retrofit critical facilities and structures with structural design practices and equipment that will withstand natural disasters and offer weather-proofing.
Potential Funding Source	HMA Grant or other grants
Estimated Cost	\$10,000
Benefits (loss avoided)	Flood reduction
Projected Completion Date	On-going
Priority and Level of Importance (Low, Medium, High)	High Priority
Actual Completion Date	TBD

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	Design Catchment Sytem and submit a HMA Grant. Once funds are secured, install catchment basins.

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	Ongoing	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Agree: 4
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Agree: 4
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Agree: 4
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Agree: 4
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Agree: 4
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Agree: 4
Total Score out of 35	Total Score: 28

Mitigated Hazards	
	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
X	Flood: Flash/Urban Flood
X	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
X	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
	Structural Fire
	Terrorism
	Tornado and High Winds
	Utility Failure
	Wildfires



1.9.2.3.2.7 Protect Library Patrons from tipping shelves and falling books through small improvement projects

Mitigation Action	Protect Library Patrons from tipping shelves and falling books through small improvement projects.
Year Initiated	2008
Applicable Jurisdiction	Rexburg
Lead Agency/Organization	City Librarian
Supporting Agencies/Organizations	Emergency Management
Applicable Goal	<ul style="list-style-type: none"> To Lessen the Impacts of Hazards to New and Existing Infrastructure, Residents, and Responders
Applicable Objective	<ul style="list-style-type: none"> Equip public facilities and communities to guard against damage caused by secondary effects of hazards Minimize the amount of infrastructure exposed to hazards.
Potential Funding Source	TBD
Estimated Cost	\$10,000
Benefits (loss avoided)	Improved seismic control of critical infrastructure
Projected Completion Date	TBD
Priority and Level of Importance (Low, Medium, High)	Medium Priority
Actual Completion Date	Ongoing

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	<p>Place restraining hardware on the City Library Shelves to reduce earthquake impact. Place restraining bars or trim along the front to the book shelves.</p> <p>*In addition, buildings should be retrofitted to minimize the impact of flooding, snow and ice, and wind following the International Building Code, which is listed under completed mitigation actions.</p>

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	Ongoing	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Agree: 5
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Agree: 4
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Neither Agree or Disagree: 3
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Agree: 4
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Neither Agree or Disagree: 3
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Neither Agree or Disagree: 3
Total Score out of 35	Total Score: 26

Mitigated Hazards	
	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
X	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
X	Flood: Flash/Urban Flood
	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
X	Severe Thunderstorm
X	Severe Winter Storm
	Snow Avalanche
	Structural Fire
	Terrorism
X	Tornado and High Winds
	Utility Failure
	Wildfires

1.9.2.3.2.8 Work with all residents and business owners to ensure that all structures have minimum fire detection and protection devices

Mitigation Action	Work with all residents and business owners to ensure that all structures have minimum fire detection and protection devices.
Year Initiated	2008
Applicable Jurisdiction	Rexburg
Lead Agency/Organization	Fire District and Emergency Management
Supporting Agencies/Organizations	
Applicable Goal	<ul style="list-style-type: none"> To Lessen the Impacts of Hazards to New and Existing Infrastructure, Residents, and Responders To Inform Madison County Residents on the Potential Hazards that Could Affect the County
Applicable Objective	<ul style="list-style-type: none"> Raise public awareness on hazard mitigation and emergency preparedness. Equip public facilities and communities to guard against damage caused by secondary effects of hazards
Potential Funding Source	Assistance to Fire Fighters Safety Grant Program and other grants
Estimated Cost	\$150,000 (50% of County estimate)
Benefits (loss avoided)	Early fire detection to reduce fire damages and impact on lives and buildings; reduce losses from structural fire.
Projected Completion Date	On-going
Priority and Level of Importance (Low, Medium, High)	Medium Priority
Actual Completion Date	On-going

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	Encouraging private property owners to install and maintain smoke detectors on all levels of the residences and to place detectors in all bedrooms. Once funding is secured and detectors purchased, distribute detectors.

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	Ongoing	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Strongly Agree: 5
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Agree: 4
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Neither Agree or Disagree: 3
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Agree: 4
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Neither Agree or Disagree: 3
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Agree: 4
Total Score out of 35	Total Score: 27

Mitigated Hazards	
	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
	Flood: Flash/Urban Flood
	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
X	Structural Fire
	Terrorism
	Tornado and High Winds
	Utility Failure
	Wildfires

1.9.2.3.2.9 Develop Additional Water Supplies for Fire Protection

Mitigation Action	Develop Additional Water Supplies for Fire Protection (structural fires).
Year Initiated	2008
Applicable Jurisdiction	Rexburg
Lead Agency/Organization	Fire District
Supporting Agencies/Organizations	Emergency Management
Applicable Goal	<ul style="list-style-type: none"> To Create New or Revise Existing Plans for the Community to Promote and Achieve Greater Resiliency
Applicable Objective	<ul style="list-style-type: none"> Review and update existing, or create new, community plans and ordinances to support hazard mitigation.
Potential Funding Source	BHS and SHSP
Estimated Cost	\$5,000
Benefits (loss avoided)	Reduce losses from structural fire.
Projected Completion Date	On-going
Priority and Level of Importance (Low, Medium, High)	Medium Priority
Actual Completion Date	TBD

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	Develop an agreement with developers and private landowners for access to and use of water sources for fire protection. Once funding is secured, develop and execute standard agreements and requirements.

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	Ongoing	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Agree: 4
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Agree: 4
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Neither Agree or Disagree: 3
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Agree: 4
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Agree: 4
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Neither Agree or Disagree: 3
	Total Score: 27

Mitigated Hazards	
	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
	Flood: Flash/Urban Flood
	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
X	Structural Fire
	Terrorism
	Tornado and High Winds
	Utility Failure
	Wildfires

1.9.2.3.3 Completed Mitigation Actions

The following section represents completed mitigation actions, and serves as an archive of identified and completed projects.

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1.9.3 City of Sugar

Sugar City Sugar Beet Factory



In August 1903, Mark Austin negotiated the purchase of a section of land here, the south half to be used as this town site and the north half, about 1/2 mile northeast, to be used for a sugar beet factory for the Fremont County Sugar Company. By October 1903, E. H. Dyer had contracted to build the \$750,000 factory. Early in 1904, the company signed an additional contract with Dyer providing for the erection of an auxiliary plant at Parker, bringing the total to nearly \$1 million.

On December 8, 1903, President Joseph F. Smith, elected president of the company, laid the cornerstone of the factory which processed 35,000 tons of beets the next fall. The Church of Jesus Christ of Latter-day Saints sent 3 chemists from Germany to teach the people how to make sugar.

Growing beets required very hard labor. Planting, cultivating, and digging were done with horses, but the difficult thinning, weeding, irrigating, topping, and loading were done by hand by the farmer and his family. In 1906 the company paid laborers and growers \$3/4 million. The town grew and 20 businesses flourished here.

At the slicer in Parker, beet juice was extracted and pumped almost 6 miles away through a pipeline to the factory in Sugar City. The slicer was closed in 1913 because of difficulties incident to the extremely cold weather. Juice would freeze in the pipeline, and the water and beets would freeze in the flume.

Because of limitations of acreage and labor, the factory was closed in 1940 and 1941 but reopened for the last campaign in 1942. The factory was dismantled in 1947.



1999

No. 525

Sugar City Camp

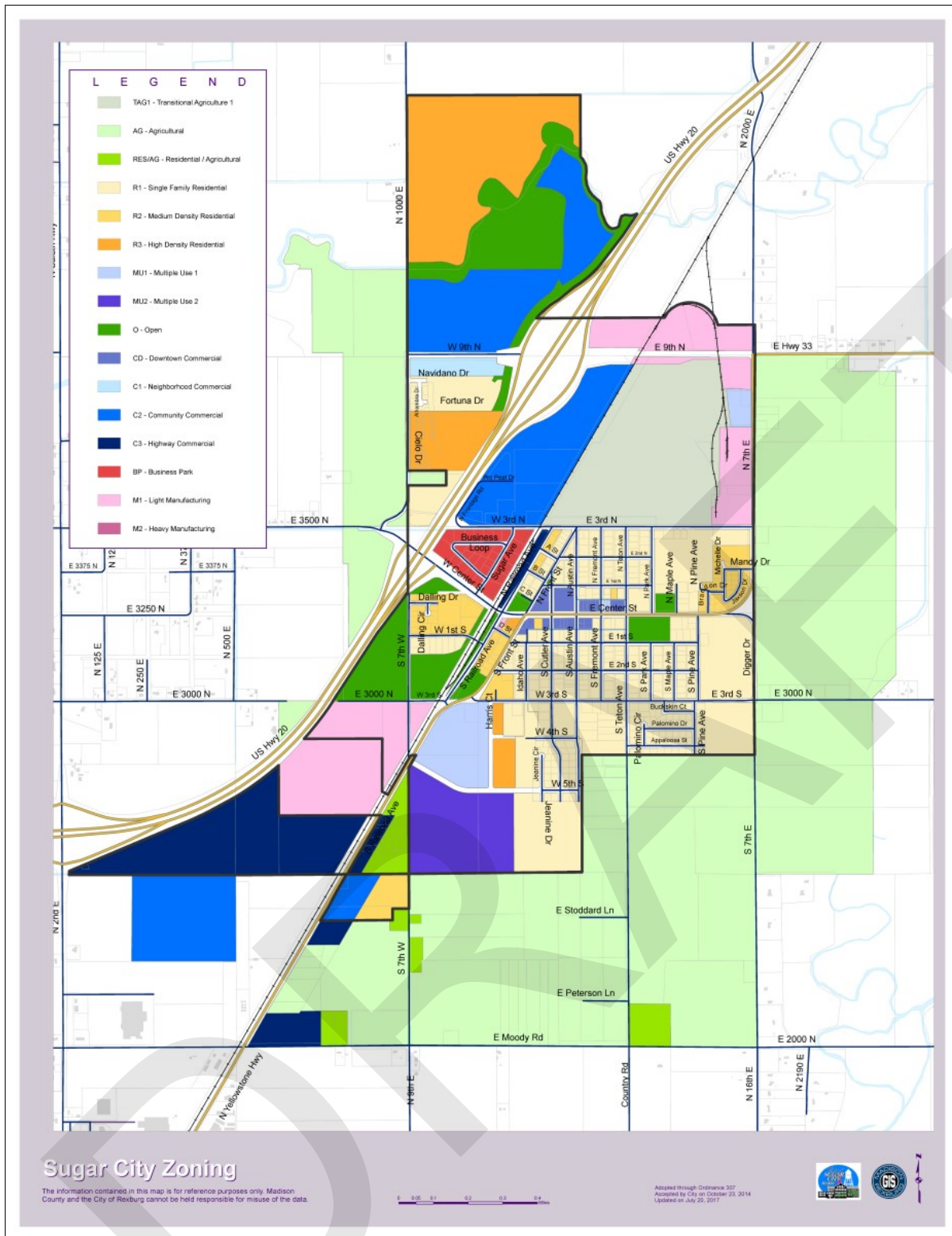
Image: Sugar City Sugar Beet Company

Source: [Sugar City Website](#)

1.9.3.1 Community Profile

The following is a summary of key information about the jurisdiction and its history:

- **Date of Incorporation:** 1906 (chartered in 1903)
- **Current Population:** The 2016 estimate indicates the population estimate was 1,361.
- **Population Growth:** Based on the data available Sugar City had a population of 1,242 in 2000 which increased to 1,514 in 2010. While the current population is lower than in 2010, development trends suggest a slight increase in the future.
- **Location and Description:** Sugar City is located at the intersection of U.S. 20, Madison County's major arterial, and Idaho 33, which connects Rexburg to Sugar City and then runs east to Teton County and the Wyoming line. Sugar City is located on a total land area of 1.71 square miles and 0.01 square miles of water. Sugar City lies at 44 degrees north latitude at an elevation 4890 feet, with a dry climate of moderate summers and cold winters. The terrain is flat and the soil is comprised of silty clay loam and areas of river gravel. Because of the clay, some areas are not well-drained. High groundwater levels generally prevent basements.
- **Brief History:** When Sugar City was incorporated, the Upper Snake River Valley was being developed into farms and ranches. Sugar City was originally laid out to be near the largest factory of the Utah & Idaho Sugar Company, built in 1904. The Union Pacific Railroad opened the region to national markets, including, sugar, livestock, grains, potatoes, and timber. Due to changes in technology and marketing, the sugar factory closed in 1942. Today, Sugar City is home to farmers, educators, businessmen, and workers in varied other vocations and is still a small, family-focused community ([Sugar City website](#)).
- **Climate:** The city's volcanic soil and the cool summer nights due to the region's high elevation are ideal for growing potatoes and sugar beets. Surface and subsurface water is plentiful, even though average annual precipitation is only 11-12 inches. Irrigation water comes from rivers and reservoirs and is controlled by canal companies. Sugar City has not used surface water for irrigation since the 1976 Teton Dam flood, however, surrounding farms rely on it.
- **Public Services:** The city's street department clears snow, does backhoe work, and makes minor street repairs. Wastewater treatment is by contract with Rexburg, with capacity available to Sugar City for a population of up to 2,700. In 2007, Rexburg's treatment facility was upgraded to a capacity of 3.6 million gallons per day, and is presently operating at approximately 3.0 million gallons per day. Fire protection, law enforcement, public library, and emergency medical service are provided by arrangement with Madison County. Madison County also provides emergency medical services, with personnel and ambulances. The Madison Memorial Hospital in Rexburg is only four miles from Sugar City.
- **Governing Body Format:** Sugar City has an elected mayor and elected city council members. Appointed officials of Sugar City include the clerk-treasurer, deputy-clerk, and attorney, who are office staff, the Planning and Zoning Commission, and other committees, which is currently one committee entitled Tree and Beautification Committee. Regular Council meetings are held every second and fourth Thursday at 6:30 p.m. Regular Planning and Zoning meetings are held every first and third Thursday at 7:00 p.m.
- **Development Trends:** Sugar City was conceived as a single-family residential community, and it remains largely so today. The city was rebuilt during the two years after the 1976 flood, with few housing units added in the subsequent 20 years. After the 1976 flood, a mobile home park with 15 units was installed on West 3rd South. Sixteen apartment/condominium units were built at Center and Front Streets in 2003-4. Historic buildings are few in Sugar City since most of the town disappeared in the 1976 flood. Also after the Teton Dam flood in 1976, the majority of businesses in Sugar City did not reopen. Most Sugar City residents are still employed outside the city. For the foreseeable future, this will continue to be the case, which allows Sugar City to maintain the goal of being a small-town, family-focused community. Growth in the region will likely bring growth to Sugar City, resulting in the expansion of residential areas and also expanding needs and opportunities for commercial and public services. As the city grows, the municipal government will strive to preserve open space, uncongested streets, and other features that contribute to Sugar City's small-town character. The primary goal of Sugar City is to maintain and perpetuate the features of the city such as clean air, pure water, quiet neighborhoods, public morals, high-quality services, and low taxes ([Sugar City 2015 Comprehensive Plan](#)).



Map: Sugar City Zoning Map

Source: [Sugar City website](#)

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1.9.3.3 Mitigation Strategies and Actions

The heart of the mitigation plan is the mitigation strategy, which serves as the long-term blueprint for reducing the potential losses identified in the risk assessment. The mitigation strategy describes how the community will accomplish the overall purpose, or mission, of the planning process. In this section, mitigation actions/projects were updated/amended, identified, evaluated, and prioritized. This section is organized as follows:

- New Mitigation Actions - New actions identified during this 2019 update process
- Ongoing Mitigation Actions - Ongoing actions with no definitive end or that are still in progress. During the 2019 update, these "ongoing" mitigation actions and projects were modified and/or amended, as needed.
- Completed Mitigation Actions - An archive of all identified and completed projects, including completed actions since 2008.

Please fill out the form to submit a New Mitigation Action/Project. Be sure to click "Submit" at the bottom of the form. Multiple projects can be submitted by refreshing this webpage. If you have any problems accessing this form on this webpage, please use this link instead: [New Mitigation Form](#)

By refreshing this webpage, a new form will appear. Upon submitting the form, you will receive an e-mail of your submission for your records. For assistance, please contact Daiko Abe at (208) 390-2021 or e-mail daiko.abe@i-s-consulting.com.

1.9.3.3.1 New Mitigation Actions

The following are new mitigation actions created during the 2019 update.

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1.9.3.3.1.1 Mitigate flooding by integrating/constructing elevated trails

Mitigation Action	Mitigate sheet flooding impacts in Sugar City by integrating and constructing elevated trails that serve the recreational needs of the community but also mitigate flooding.
Year Initiated	2019
Applicable Jurisdiction	Sugar City
Lead Agency/Organization	Mayor and City Engineer
Supporting Agencies/Organizations	Public Works
Applicable Goal	Goal 1: To Lessen the Impacts of Hazards to New and Existing Infrastructure, Residents, and Responders
Applicable Objective	Objective C: Minimize the amount of infrastructure exposed to hazards.
Potential Funding Source	Grants
Estimated Cost	High – greater than \$100,000
Benefits (loss avoided)	Mitigate flooding and enhance the safety of students
Projected Completion Date	Long Term = to be completed in greater than 5 years
Priority and Level of Importance (Low, Medium, High)	Medium Priority
Actual Completion Date	TBD

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	The elevated path would mitigate flooding but also serve to enhance the safety of students walking to school.

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	New	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Strongly Agree: 5
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Strongly Agree: 5
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Neither Agree or Disagree: 3
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Agree: 4
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Neither Agree or Disagree: 3
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Neither Agree or Disagree: 3
Total Score: 27	

Mitigated Hazards	
	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
X	Flood: Flash/Urban Flood
X	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
	Structural Fire
	Terrorism
	Tornado and High Winds
	Utility Failure
	Wildfires

1.9.3.3.1.2 Seismic Retrofit Older Buildings

Mitigation Action	Retrofit older buildings (that pre-date the Teton Dam Flood) to be more resilient to seismic activity.
Year Initiated	2019
Applicable Jurisdiction	Sugar City
Lead Agency/Organization	Mayor and City Engineer
Supporting Agencies/Organizations	Public Works
Applicable Goal	Goal 1: To Lessen the Impacts of Hazards to New and Existing Infrastructure, Residents, and Responders
Applicable Objective	Objective A: Retrofit critical facilities and structures with structural design practices and equipment that will withstand natural disasters and offer weather-proofing.
Potential Funding Source	
Estimated Cost	High – greater than \$100,000
Benefits (loss avoided)	
Projected Completion Date	Long Term = to be completed in greater than 5 years
Priority and Level of Importance (Low, Medium, High)	Medium Priority
Actual Completion Date	TBD

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	New	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Strongly Agree: 5
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Neither Agree or Disagree: 3
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Neither Agree or Disagree: 3
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Agree: 4
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Neither Agree or Disagree: 3
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Neither Agree or Disagree: 3
	Total Score: 25

Mitigated Hazards	
	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
X	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
	Flood: Flash/Urban Flood
	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
	Structural Fire
	Terrorism
	Tornado and High Winds
	Utility Failure
	Wildfires
Neither Agree or Disagree: 3	
Neither Agree or Disagree: 3	

1.9.3.3.1.3 Create a flood drainage system by utilizing the fields south of the High School

Mitigation Action	Create a flood drainage system by utilizing the fields south of the High School
Year Initiated	2019
Applicable Jurisdiction	Sugar City
Lead Agency/Organization	Mayor and City Engineer
Supporting Agencies/Organizations	Sugar-Salem High School
Applicable Goal	Goal 1: To Lessen the Impacts of Hazards to New and Existing Infrastructure, Residents, and Responders
Applicable Objective	Objective C: Minimize the amount of infrastructure exposed to hazards.
Potential Funding Source	Grants
Estimated Cost	High – greater than \$100,000
Benefits (loss avoided)	
Projected Completion Date	Long Term = to be completed in greater than 5 years
Priority and Level of Importance (Low, Medium, High)	Medium Priority
Actual Completion Date	TBD

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	New	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Agree: 4
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Agree: 4
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Neither Agree or Disagree: 3
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Agree: 4
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Neither Agree or Disagree: 3
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Neither Agree or Disagree: 3
Total Score: 25	

Mitigated Hazards	
	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
X	Flood: Flash/Urban Flood
X	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
	Structural Fire
	Terrorism
	Tornado and High Winds
	Utility Failure
	Wildfires

1.9.3.3.1.4 Develop a master diversion plan to mitigate flooding

Mitigation Action	Develop a master diversion plan to mitigate flooding
Year Initiated	2019
Applicable Jurisdiction	Sugar City
Lead Agency/Organization	Mayor and City Engineer
Supporting Agencies/Organizations	Public Works, Canal Company, Madison County Emergency Management
Applicable Goal	Goal 2: To Create New or Revise Existing Plans for the Community to Promote and Achieve Greater Resiliency
Applicable Objective	Objective B: Review and update existing, or create new, community plans and ordinances to support hazard mitigation. Objective C: Conduct new studies/research to profile hazards and follow up with mitigation strategies.
Potential Funding Source	Local Funds, Grants
Estimated Cost	Medium – from \$10,000 to \$100,000
Benefits (loss avoided)	
Projected Completion Date	Short Term = to be completed in 1 to 5 years
Priority and Level of Importance (Low, Medium, High)	Medium Priority
Actual Completion Date	TBD

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	New	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Agree: 4
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Strongly Agree: 5
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Neither Agree or Disagree: 3
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Agree: 4
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Neither Agree or Disagree: 3
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Neither Agree or Disagree: 3
	Total Score: 26

Mitigated Hazards	
	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
	Flood: Flash/Urban Flood
X	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
	Structural Fire
	Terrorism
	Tornado and High Winds
	Utility Failure
	Wildfires

1.9.3.3.1.5 Reassess levees protecting the City and modify/improve levees that are assessed to be inadequate

Mitigation Action	Reassess levees protecting the City and modify/improve levees that are assessed to be inadequate
Year Initiated	2019
Applicable Jurisdiction	Sugar City
Lead Agency/Organization	Engineer, Public Works
Supporting Agencies/Organizations	
Applicable Goal	Goal 1: To Lessen the Impacts of Hazards to New and Existing Infrastructure, Residents, and Responders
Applicable Objective	Objective C: Minimize the amount of infrastructure exposed to hazards.
Potential Funding Source	Grants, Local Funds
Estimated Cost	High – greater than \$100,000
Benefits (loss avoided)	
Projected Completion Date	Ongoing
Priority and Level of Importance (Low, Medium, High)	Medium Priority
Actual Completion Date	TBD

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	New	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Agree: 4
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Agree: 4
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Neither Agree or Disagree: 3
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Agree: 4
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Neither Agree or Disagree: 3
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Neither Agree or Disagree: 3
Total Score: 25	

Mitigated Hazards	
	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
	Flood: Flash/Urban Flood
X	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
	Structural Fire
	Terrorism
	Tornado and High Winds
	Utility Failure
	Wildfires

1.9.3.3.1.6 Develop a stormwater management plan

Mitigation Action	Develop a stormwater management plan
Year Initiated	2019
Applicable Jurisdiction	Sugar City
Lead Agency/Organization	Mayor, Engineer
Supporting Agencies/Organizations	Public Works
Applicable Goal	Goal 2: To Create New or Revise Existing Plans for the Community to Promote and Achieve Greater Resiliency
Applicable Objective	Objective B: Review and update existing, or create new, community plans and ordinances to support hazard mitigation. Objective C: Conduct new studies/research to profile hazards and follow up with mitigation strategies.
Potential Funding Source	Grants, Local Funds
Estimated Cost	Medium – from \$10,000 to \$100,000
Benefits (loss avoided)	
Projected Completion Date	Short Term = to be completed in 1 to 5 years
Priority and Level of Importance (Low, Medium, High)	Medium Priority
Actual Completion Date	TBD

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	New	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Agree: 4
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Strongly Agree: 5
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Neither Agree or Disagree: 3
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Agree: 4
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Neither Agree or Disagree: 3
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Neither Agree or Disagree: 3
	Total Score: 26

Mitigated Hazards	
	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
X	Flood: Flash/Urban Flood
X	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
X	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
	Structural Fire
	Terrorism
	Tornado and High Winds
	Utility Failure
	Wildfires

1.9.3.3.1.7 Install sprinklers in key public buildings

Mitigation Action	Install sprinklers in key public buildings
Year Initiated	2019
Applicable Jurisdiction	Sugar City
Lead Agency/Organization	Mayor, Engineer, Public Works
Supporting Agencies/Organizations	Madison County Fire Department
Applicable Goal	Goal 1: To Lessen the Impacts of Hazards to New and Existing Infrastructure, Residents, and Responders
Applicable Objective	Objective A: Retrofit critical facilities and structures with structural design practices and equipment that will withstand natural disasters and offer weather-proofing. Objective C: Minimize the amount of infrastructure exposed to hazards.
Potential Funding Source	Local Funds and Grants
Estimated Cost	Medium – from \$10,000 to \$100,000
Benefits (loss avoided)	
Projected Completion Date	Ongoing
Priority and Level of Importance (Low, Medium, High)	Medium Priority
Actual Completion Date	TBD

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	New	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Strongly Agree: 5
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Agree: 4
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Neither Agree or Disagree: 3
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Agree: 4
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Neither Agree or Disagree: 3
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Neither Agree or Disagree: 3
	Total Score: 26

Mitigated Hazards	
	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
	Flood: Flash/Urban Flood
	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
X	Structural Fire
	Terrorism
	Tornado and High Winds
	Utility Failure
	Wildfires

1.9.3.3.1.8 Install a backup generator for City Hall

Mitigation Action	Install a backup generator for City Hall
Year Initiated	2019
Applicable Jurisdiction	Sugar City
Lead Agency/Organization	Mayor, Public Works
Supporting Agencies/Organizations	
Applicable Goal	Goal 1: To Lessen the Impacts of Hazards to New and Existing Infrastructure, Residents, and Responders
Applicable Objective	Objective A: Retrofit critical facilities and structures with structural design practices and equipment that will withstand natural disasters and offer weather-proofing. Objective B: Equip public facilities and communities to guard against damage caused by secondary effects of hazards
Potential Funding Source	Grants
Estimated Cost	Medium – from \$10,000 to \$100,000
Benefits (loss avoided)	
Projected Completion Date	Short Term = to be completed in 1 to 5 years
Priority and Level of Importance (Low, Medium, High)	Medium Priority
Actual Completion Date	TBD

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	New	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Agree: 4
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Strongly Agree: 5
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing/funding to carry-out this mitigation action.	Neither Agree or Disagree: 3
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Agree: 4
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Neither Agree or Disagree: 3
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Agree: 4
	Total Score: 27

Mitigated Hazards	
X	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
	Flood: Flash/Urban Flood
	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
	Structural Fire
	Terrorism
	Tornado and High Winds
	Utility Failure
	Wildfires

1.9.3.3.1.9 Procure generator and hookups for the lift station

Mitigation Action	Procure generator and hookups for the lift station
Year Initiated	2019
Applicable Jurisdiction	Sugar City
Lead Agency/Organization	Public Works
Supporting Agencies/Organizations	
Applicable Goal	Goal 1: To Lessen the Impacts of Hazards to New and Existing Infrastructure, Residents, and Responders
Applicable Objective	Objective A: Retrofit critical facilities and structures with structural design practices and equipment that will withstand natural disasters and offer weather-proofing. Objective B: Equip public facilities and communities to guard against damage caused by secondary effects of hazards Objective C: Minimize the amount of infrastructure exposed to hazards.
Potential Funding Source	Grants
Estimated Cost	Medium – from \$10,000 to \$100,000
Benefits (loss avoided)	
Projected Completion Date	Short Term = to be completed in 1 to 5 years
Priority and Level of Importance (Low, Medium, High)	High Priority
Actual Completion Date	TBD

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	New	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Agree: 4
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Strongly Agree: 5
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Neither Agree or Disagree: 3
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Agree: 4
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Neither Agree or Disagree: 3
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Agree: 4
	Total Score: 27

Mitigated Hazards	
	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
X	Flood: Flash/Urban Flood
X	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
	Structural Fire
	Terrorism
	Tornado and High Winds
X	Utility Failure
	Wildfires

1.9.3.3.1.10 Develop a cybersecurity plan for Sugar City

Mitigation Action	Develop a cybersecurity plan for Sugar City
Year Initiated	2019
Applicable Jurisdiction	Sugar City
Lead Agency/Organization	Mayor
Supporting Agencies/Organizations	
Applicable Goal	Goal 2: To Create New or Revise Existing Plans for the Community to Promote and Achieve Greater Resiliency
Applicable Objective	Objective B: Review and update existing, or create new, community plans and ordinances to support hazard mitigation. Objective C: Conduct new studies/research to profile hazards and follow up with mitigation strategies.
Potential Funding Source	Grants
Estimated Cost	Low – less than \$10,000
Benefits (loss avoided)	
Projected Completion Date	Short Term = to be completed in 1 to 5 years
Priority and Level of Importance (Low, Medium, High)	Medium Priority
Actual Completion Date	TBD

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	New	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Strongly Agree: 5
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Agree: 4
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Neither Agree or Disagree: 3
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Agree: 4
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Agree: 4
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Disagree: 2
	Total Score: 26

Mitigated Hazards	
	All Hazards
	Civil Disorder/Riot
X	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
	Flood: Flash/Urban Flood
	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
	Structural Fire
	Terrorism
	Tornado and High Winds
	Utility Failure
	Wildfires

1.9.3.3.1.11 Identify and retrofit buildings designated as community shelters

Mitigation Action	Identify and retrofit buildings designated as community shelters
Year Initiated	2019
Applicable Jurisdiction	Sugar City
Lead Agency/Organization	Mayor, Engineer
Supporting Agencies/Organizations	American Red Cross
Applicable Goal	Goal 1: To Lessen the Impacts of Hazards to New and Existing Infrastructure, Residents, and Responders
Applicable Objective	Objective A: Retrofit critical facilities and structures with structural design practices and equipment that will withstand natural disasters and offer weather-proofing.
Potential Funding Source	Grants
Estimated Cost	High – greater than \$100,000
Benefits (loss avoided)	
Projected Completion Date	Long Term = to be completed in greater than 5 years
Priority and Level of Importance (Low, Medium, High)	Medium Priority
Actual Completion Date	TBD

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	New	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Strongly Agree: 5
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Agree: 4
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Neither Agree or Disagree: 3
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Agree: 4
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Neither Agree or Disagree: 3
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Neither Agree or Disagree: 3
	Total Score: 26

Mitigated Hazards	
X	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
	Flood: Flash/Urban Flood
	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
	Structural Fire
	Terrorism
	Tornado and High Winds
	Utility Failure
	Wildfires

1.9.3.3.1.12 Construct a roundabout by the High School

Mitigation Action	Construct a roundabout by the High School
Year Initiated	2019
Applicable Jurisdiction	Sugar City
Lead Agency/Organization	Mayor, Engineer
Supporting Agencies/Organizations	
Applicable Goal	Goal 1: To Lessen the Impacts of Hazards to New and Existing Infrastructure, Residents, and Responders
Applicable Objective	Objective D: Evaluate and strengthen the communication and transportation abilities of emergency services throughout the community.
Potential Funding Source	Grants
Estimated Cost	High – greater than \$100,000
Benefits (loss avoided)	Safety of students
Projected Completion Date	Long Term = to be completed in greater than 5 years
Priority and Level of Importance (Low, Medium, High)	Medium Priority
Actual Completion Date	TBD

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	New	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Agree: 4
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Disagree: 2
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Neither Agree or Disagree: 3
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Agree: 4
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Disagree: 2
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Disagree: 2
	Total Score: 21

Mitigated Hazards	
	All Hazards
X	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
	Flood: Flash/Urban Flood
	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
	Structural Fire
	Terrorism
	Tornado and High Winds
	Utility Failure
	Wildfires

1.9.3.3.1.13 Procure generators and hookups for each of the schools

Mitigation Action	Procure generators and hookups for each of the schools
Year Initiated	2019
Applicable Jurisdiction	Sugar City
Lead Agency/Organization	Sugar-Salem School District
Supporting Agencies/Organizations	Madison County Emergency Management
Applicable Goal	Goal 1: To Lessen the Impacts of Hazards to New and Existing Infrastructure, Residents, and Responders
Applicable Objective	Objective A: Retrofit critical facilities and structures with structural design practices and equipment that will withstand natural disasters and offer weather-proofing. Objective B: Equip public facilities and communities to guard against damage caused by secondary effects of hazards
Potential Funding Source	Grants
Estimated Cost	High – greater than \$100,000
Benefits (loss avoided)	
Projected Completion Date	Short Term = to be completed in 1 to 5 years
Priority and Level of Importance (Low, Medium, High)	Medium Priority
Actual Completion Date	TBD

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	New	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Agree: 4
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Strongly Agree: 5
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Neither Agree or Disagree: 3
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Agree: 4
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Neither Agree or Disagree: 3
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Agree: 4
	Total Score: 27

Mitigated Hazards	
X	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
	Flood: Flash/Urban Flood
	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
	Structural Fire
	Terrorism
	Tornado and High Winds
	Utility Failure
	Wildfires

1.9.3.3.1.14 Retrofit/Modify access to the High School to address enhanced security and access control

Mitigation Action	Retrofit/Modify access to the High School to address enhanced security and access control
Year Initiated	2019
Applicable Jurisdiction	Sugar City
Lead Agency/Organization	Sugar-Salem School District
Supporting Agencies/Organizations	Madison County Sheriff's Office
Applicable Goal	Goal 1: To Lessen the Impacts of Hazards to New and Existing Infrastructure, Residents, and Responders
Applicable Objective	Objective A: Retrofit critical facilities and structures with structural design practices and equipment that will withstand natural disasters and offer weather-proofing.
Potential Funding Source	Grants
Estimated Cost	Medium – from \$10,000 to \$100,000
Benefits (loss avoided)	
Projected Completion Date	Short Term = to be completed in 1 to 5 years
Priority and Level of Importance (Low, Medium, High)	Medium Priority
Actual Completion Date	TBD

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	New	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Strongly Agree: 5
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Agree: 4
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Neither Agree or Disagree: 3
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Agree: 4
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Neither Agree or Disagree: 3
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Neither Agree or Disagree: 3
	Total Score: 26

Mitigated Hazards	
	All Hazards
X	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
	Flood: Flash/Urban Flood
	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
	Structural Fire
X	Terrorism
	Tornado and High Winds
	Utility Failure
	Wildfires

1.9.3.3.2 Ongoing Mitigation Actions

The following are ongoing actions with no definitive end or that are still in progress. During the 2019 update, these "ongoing" mitigation actions and projects were modified and/or amended, as needed.

DRAFT

1.9.3.3.2.1 Identify Evacuation Shelters Equip with Emergency Generators to help protect isolated individuals from Severe Winter Storms and Extreme Cold (and other hazards)

Mitigation Action	Identify Evacuation Shelters Equip with Emergency Generators to help protect isolated individuals from Severe Winter Storms and Extreme Cold (and other hazards).
Year Initiated	2008
Applicable Jurisdiction	City of Sugar
Lead Agency/Organization	Emergency Management
Supporting Agencies/Organizations	City Council, Church, and volunteer organizations
Applicable Goal	<ul style="list-style-type: none"> To Lessen the Impacts of Hazards to New and Existing Infrastructure, Residents, and Responders
Applicable Objective	<ul style="list-style-type: none"> Equip public facilities and communities to guard against damage caused by secondary effects of hazards
Potential Funding Source	TBD
Estimated Cost	While no cost was listed, funding may be needed for a generator and emergency supplies including food and water for those sheltered.
Benefits (loss avoided)	Reduction in weather impact for individuals that do not have safe shelter.
Projected Completion Date	On-going
Priority and Level of Importance (Low, Medium, High)	Medium Priority
Actual Completion Date	TBD

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	The City of Sugar City will develop methods to protect the life safety of its citizens from harm due to severe weather events by identify shelter space and securing a generator(s) for the space.

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	Ongoing	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Strongly Agree: 5
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Strongly Agree: 5
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Neither Agree or Disagree: 3
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Agree: 4
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Agree: 4
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Neither Agree or Disagree: 3
Score Out of 35	Total Score: 28

Mitigated Hazards	
X	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
	Flood: Flash/Urban Flood
	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
	Structural Fire
	Terrorism
	Tornado and High Winds
	Utility Failure
	Wildfires

1.9.3.3.2.2 Seek Community Rating System (CRS) status and maintain NFIP requirements

Mitigation Action	Seek Community Rating System (CRS) status and maintain NFIP requirements.
Year Initiated	2008
Applicable Jurisdiction	City of Sugar
Lead Agency/Organization	Floodplain Administrator
Supporting Agencies/Organizations	Emergency Management
Applicable Goal	<ul style="list-style-type: none"> To Create New or Revise Existing Plans for the Community to Promote and Achieve Greater Resiliency To Inform Madison County Residents on the Potential Hazards that Could Affect the County
Applicable Objective	<ul style="list-style-type: none"> Support compliance with the National Flood Insurance Program. Raise public awareness on hazard mitigation and emergency preparedness.
Potential Funding Source	TBD
Estimated Cost	While no cost was listed, the Madison County action noted this would cost \$25,000.
Benefits (loss avoided)	Flooding reduction through active participation in the NFIP.
Projected Completion Date	On-going
Priority and Level of Importance (Low, Medium, High)	High Priority
Actual Completion Date	TBD

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	The City of Sugar City will continue to participate in the National Flood Insurance Program and seek CRS status. The city will develop actions that will reduce the damage to City property and infrastructure due to flooding on the Teton River.

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	Ongoing	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Agree: 4
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Agree: 4
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Strongly Agree: 5
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Agree: 4
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Agree: 4
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Agree: 4
Total Score out of 35	Total Score: 29

Mitigated Hazards	
	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
X	Flood: Flash/Urban Flood
X	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
X	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
	Structural Fire
	Terrorism
	Tornado and High Winds
	Utility Failure
	Wildfires

1.9.3.3.2.3 Request and be provided updated FIRMs (Flood Insurance Rate Maps)

Mitigation Action	Request and be provided updated FIRMs (Flood Insurance Rate Maps).
Year Initiated	2008
Applicable Jurisdiction	City of Sugar
Lead Agency/Organization	Floodplain Administrator
Supporting Agencies/Organizations	Emergency Management
Applicable Goal	<ul style="list-style-type: none"> To Create New or Revise Existing Plans for the Community to Promote and Achieve Greater Resiliency To Inform Madison County Residents on the Potential Hazards that Could Affect the County
Applicable Objective	<ul style="list-style-type: none"> Support compliance with the National Flood Insurance Program. Review and update existing, or create new, community plans and ordinances to support hazard mitigation. Raise public awareness on hazard mitigation and emergency preparedness.
Potential Funding Source	TBD
Estimated Cost	\$150,000
Benefits (loss avoided)	Improved understanding of flood-prone zones which can yield improved comprehensive flood reduction planning and mitigation projects ultimately lessening flood impact.
Projected Completion Date	On-going
Priority and Level of Importance (Low, Medium, High)	High Priority
Actual Completion Date	On-going

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	Work with the County to reach out to FEMA to determine the cost and process to update FIRM maps. If the map update is feasible, work with FEMA on update.

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	Ongoing	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Neither Agree or Disagree: 3
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Agree: 4
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Agree: 4
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Neither Agree or Disagree: 3
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Neither Agree or Disagree: 3
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Strongly Agree: 5
Total Score out of 35	Total Score: 26

Mitigated Hazards	
	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
X	Flood: Flash/Urban Flood
X	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
X	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
	Structural Fire
	Terrorism
	Tornado and High Winds
	Utility Failure
	Wildfires

1.9.3.3.2.4 Raise 2nd North one foot to act as a barrier against Teton River Flooding

Mitigation Action	Raise 2nd North one foot to act as a barrier against Teton River Flooding
Year Initiated	2008
Applicable Jurisdiction	City of Sugar
Lead Agency/Organization	Mayor and Public Works
Supporting Agencies/Organizations	Emergency Management and Floodplain Administrator
Applicable Goal	<ul style="list-style-type: none"> To Lessen the Impacts of Hazards to New and Existing Infrastructure, Residents, and Responders
Applicable Objective	<ul style="list-style-type: none"> Retrofit critical facilities and structures with structural design practices and equipment that will withstand natural disasters and offer weather-proofing.
Potential Funding Source	HMA Grant or other grants
Estimated Cost	\$750,000
Benefits (loss avoided)	Flood reduction
Projected Completion Date	On-going
Priority and Level of Importance (Low, Medium, High)	Medium Priority
Actual Completion Date	TBD

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	Conduct Design, Cost Estimate and BCA then submit a HMA Grant. Once funds are secured, raise the road.

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	Ongoing	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Agree: 4
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Agree: 4
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Agree: 4
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Agree: 4
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Disagree: 2
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Disagree: 2
Total Score out of 35	Total Score: 24

Mitigated Hazards	
	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
X	Flood: Flash/Urban Flood
X	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
X	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
	Structural Fire
	Terrorism
	Tornado and High Winds
	Utility Failure
	Wildfires

1.9.3.3.2.5 Raise the road behind the High School to Barras Canal Road one foot to act as a barrier against Teton River Flooding

Mitigation Action	Raise the road behind the High School to Barras Canal Road one foot to act as a barrier against Teton River Flooding
Year Initiated	2008
Applicable Jurisdiction	City of Sugar
Lead Agency/Organization	Mayor and Public Works
Supporting Agencies/Organizations	Emergency Management and Floodplain Administrator
Applicable Goal	<ul style="list-style-type: none"> To Lessen the Impacts of Hazards to New and Existing Infrastructure, Residents, and Responders
Applicable Objective	<ul style="list-style-type: none"> Retrofit critical facilities and structures with structural design practices and equipment that will withstand natural disasters and offer weather-proofing.
Potential Funding Source	HMA Grant or other grants
Estimated Cost	\$500,000
Benefits (loss avoided)	Flood reduction
Projected Completion Date	On-going
Priority and Level of Importance (Low, Medium, High)	Medium Priority
Actual Completion Date	TBD

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	Conduct Design, Cost Estimate and BCA then submit a HMA Grant. Once funds are secured, raise the road.

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	Ongoing	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Agree: 4
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Agree: 4
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Agree: 4
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Agree: 4
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Disagree: 2
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Disagree: 2
Total Score out of 35	Total Score: 24

Mitigated Hazards	
	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
X	Flood: Flash/Urban Flood
X	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
X	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
	Structural Fire
	Terrorism
	Tornado and High Winds
	Utility Failure
	Wildfires

1.9.3.3.2.6 Protect Library Patrons from tipping shelves and falling books through small improvement projects

Mitigation Action	Protect Library Patrons from tipping shelves and falling books through small improvement projects.
Year Initiated	2008
Applicable Jurisdiction	City of Sugar
Lead Agency/Organization	City Librarian
Supporting Agencies/Organizations	Emergency Management
Applicable Goal	<ul style="list-style-type: none"> To Lessen the Impacts of Hazards to New and Existing Infrastructure, Residents, and Responders
Applicable Objective	<ul style="list-style-type: none"> Equip public facilities and communities to guard against damage caused by secondary effects of hazards Minimize the amount of infrastructure exposed to hazards.
Potential Funding Source	TBD
Estimated Cost	\$10,000
Benefits (loss avoided)	Improved seismic control of critical infrastructure
Projected Completion Date	TBD
Priority and Level of Importance (Low, Medium, High)	Medium Priority
Actual Completion Date	Ongoing

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	<p>Place restraining hardware on the City Library Shelves to reduce earthquake impact. Place restraining bars or trim along the front to the book shelves.</p> <p>*In addition, buildings should be retrofitted to minimize the impact of flooding, snow and ice, and wind following the International Building Code, which is listed under completed mitigation actions.</p>

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	Ongoing	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Agree: 5
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Agree: 4
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Neither Agree or Disagree: 3
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Agree: 4
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Neither Agree or Disagree: 3
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Neither Agree or Disagree: 3
Total Score out of 35	Total Score: 26

Mitigated Hazards	
	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
X	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
X	Flood: Flash/Urban Flood
	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
X	Severe Thunderstorm
X	Severe Winter Storm
	Snow Avalanche
	Structural Fire
	Terrorism
X	Tornado and High Winds
	Utility Failure
	Wildfires

1.9.3.3.2.7 Work with all residents and business owners to ensure that all structures have minimum fire detection and protection devices

Mitigation Action	Work with all residents and business owners to ensure that all structures have minimum fire detection and protection devices.
Year Initiated	2008
Applicable Jurisdiction	City of Sugar
Lead Agency/Organization	Fire District and Emergency Management
Supporting Agencies/Organizations	
Applicable Goal	<ul style="list-style-type: none"> To Lessen the Impacts of Hazards to New and Existing Infrastructure, Residents, and Responders To Inform Madison County Residents on the Potential Hazards that Could Affect the County
Applicable Objective	<ul style="list-style-type: none"> Raise public awareness on hazard mitigation and emergency preparedness. Equip public facilities and communities to guard against damage caused by secondary effects of hazards
Potential Funding Source	Assistance to Fire Fighters Safety Grant Program and other grants
Estimated Cost	\$100,000 (30% of County estimate)
Benefits (loss avoided)	Early fire detection to reduce fire damages and impact on lives and buildings; reduce losses from structural fire.
Projected Completion Date	On-going
Priority and Level of Importance (Low, Medium, High)	Medium Priority
Actual Completion Date	On-going

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	Encouraging private property owners to install and maintain smoke detectors on all levels of the residences and to place detectors in all bedrooms. Once funding is secured and detectors purchased, distribute detectors.

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	Ongoing	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Strongly Agree: 5
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Agree: 4
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Neither Agree or Disagree: 3
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Agree: 4
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Neither Agree or Disagree: 3
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Agree: 4
Total Score out of 35	Total Score: 27

Mitigated Hazards	
	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
	Flood: Flash/Urban Flood
	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
X	Structural Fire
	Terrorism
	Tornado and High Winds
	Utility Failure
	Wildfires

1.9.3.3.2.8 Develop Additional Water Supplies for Fire Protection (structural fires)

Mitigation Action	Develop Additional Water Supplies for Fire Protection (structural fires)
Year Initiated	2008
Applicable Jurisdiction	City of Sugar
Lead Agency/Organization	Fire District
Supporting Agencies/Organizations	Emergency Management
Applicable Goal	<ul style="list-style-type: none"> To Create New or Revise Existing Plans for the Community to Promote and Achieve Greater Resiliency
Applicable Objective	<ul style="list-style-type: none"> Review and update existing, or create new, community plans and ordinances to support hazard mitigation.
Potential Funding Source	BHS and SHSP
Estimated Cost	\$5,000
Benefits (loss avoided)	Reduce losses from structural fire.
Projected Completion Date	On-going
Priority and Level of Importance (Low, Medium, High)	Medium Priority
Actual Completion Date	TBD

Recommended Mitigation Action/Implementation Plan and Project Description	
Action/Implementation Plan and Project Description:	Develop an agreement with developers and private landowners for access to and use of water sources for fire protection. Once funding is secured, develop and execute standard agreements and requirements.

Mitigation Action and Project Maintenance		
Year	Status	Comments
2019	Ongoing	
2020		
2021		
2022		
2023		

STAPLEE Prioritization Table	
Item	Score
Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower-income people, and is compatible with the community's social and cultural values.	Agree: 4
Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts.	Agree: 4
Administrative: Do you agree that your jurisdiction/organization has the necessary staffing funding to carry-out this mitigation action.	Neither Agree or Disagree: 3
Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process.	Agree: 4
Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action.	Agree: 4
Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost-benefit review, and is possible to fund.	Agree: 4
Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals.	Neither Agree or Disagree: 3
	Total Score: 27

Mitigated Hazards	
	All Hazards
	Civil Disorder/Riot
	Cyber Attack
	Dam Failure
	Drought
	Earthquake
	Epidemic or pandemic
	Extreme Cold
	Extreme Heat
	Flood: Flash/Urban Flood
	Flood: Riverine or Stream
	Hazardous Materials Incident
	Infrastructure Failure
	Landslide
	Nuclear Event
	Severe Thunderstorm
	Severe Winter Storm
	Snow Avalanche
X	Structural Fire
	Terrorism
	Tornado and High Winds
	Utility Failure
	Wildfires

1.9.3.3.3 Completed Mitigation Actions


The following section represents completed mitigation actions, and serves as an archive of identified and completed projects.

DRAFT

1.10 Appendix B: Public Involvement & Steering Committee Meetings

Public involvement was a critical component of the Hazard Mitigation Plan and Appendix B highlights the main involvements of the public. Below are the invite and the press release that was sent to community stakeholders and media sources to promote the Community Preparedness Survey and Hazard Mitigation Plan Review. Following these images are examples of the advertisement that went out to the community.

COMMUNITY PREPAREDNESS & READINESS FORUM



The Madison County Emergency Management Department invites you to the
Community Preparedness & Readiness Forum

When: Thursday, June 13, 2019 from 6-7:30 PM
Where: City Hall in the Council Room, 35 North 1st

The forum will be an opportunity for you to share how you would like to see the County better prepare for emergencies and disasters, learn about the Hazard Mitigation Plan update, and hear the results of the Community Preparedness Survey.

You will also get to learn about all the great organizations that support emergency preparedness and how you can benefit and become involved.

Light refreshments will be served.

Questions? Please contact the Madison County Emergency Manager at robertk@rexburg.org or call 208-359-3010.



ROBERT E. KOHLER
DIRECTOR

MADISON COUNTY EMERGENCY MANAGEMENT
26 NORTH CENTER STREET
REXBURG, IDAHO
83440

PHONE: 208-359-3010
E-MAIL: ROBERTK@REXBURG.ORG

FOR IMMEDIATE RELEASE

Contact:

Robert E. Kohler, Emergency Manager
Madison County Emergency Management
Phone: 208-359-3010; Email: robertk@rexburg.org

MADISON COUNTY RESIDENTS
INVITED TO PARTICIPATE IN COMMUNITY PREPAREDNESS STUDY

MADISON COUNTY, IDAHO – Madison County residents and businesses can help the county update its emergency preparedness plans by participating in a voluntary online questionnaire. Feedback from the confidential 10-minute survey will enable the Madison County Emergency Management to better serve residents and businesses before, during, and after an emergency or disaster.

"Madison County commits to improving our emergency preparedness capabilities continuously, and this can only be done by involving the community in our efforts," Robert Kohler, Madison County Emergency Manager, said. "This voluntary and confidential questionnaire will assist our emergency preparedness staff in identifying which hazards are of most concern to our residents and businesses as well as which services the community may need during an emergency."

Here are sample questions from the survey:

Please indicate where you go to obtain emergency and disaster preparedness related information?

- Do you believe that your household and/or place of business might ever be threatened by the following hazards?
- What might prevent you from leaving your place of residence if there was an evacuation order?
- In an evacuation, would you or anyone in your household require special assistance?



ROBERT E. KOHLER
MADISON COUNTY
EMERGENCY MANAGER

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E-MAIL: ROBERTK@REXBURG.ORG

FOR IMMEDIATE RELEASE

Contact:

Robert E. Kohler, Emergency Manager
Madison County Emergency Management
Phone: 208-359-3010; Email: robertk@rexburg.org

**MADISON COUNTY RESIDENTS
INVITED TO PARTICIPATE IN COMMUNITY PREPAREDNESS & READINESS FORUM**

MADISON COUNTY, IDAHO – Madison County residents and the business community are invited to participate in the *Madison County Preparedness & Readiness Forum* hosted by the Madison County Emergency Management Department.

- Date: Thursday, June 13, 2019
- Time: 6:00-7:30 PM
- Location: City Hall in the Council Room, 35 North 1st East

The *Madison County Preparedness & Readiness Forum* will feature speakers and groups that will help the County better prepare for emergencies and disasters.

Robert E. Kohler, the County's Emergency Manager, says "I encourage you to come out to the forum so you can share how you would like the County to better prepared for disasters and emergencies. Your input is essential." The Emergency Management Department will use the feedback to finalize the Hazard Mitigation Plan update.

Also, residents will walk away from this meeting with a better understanding of how to prepare households and workplaces. Kohler notes, "At the forum, you will also learn about where you can find preparedness support in the community and how you can be more involved with these groups."

The Madison County Emergency Management Department would like to thank all residents and individuals that work in the County that participated in the *Community Preparedness Survey*. The overall results of the survey will be presented at this meeting.

Questions can be directed to Madison County Emergency Management at robertk@rexburg.org or by phone at 208-359-3010.

HAZARD MITIGATION PLAN PUBLIC REVIEW



The Madison County Emergency Management
Department invites you to the
Hazard Mitigation Plan Draft Review

When: Wednesday, August 7, 2019 at 8:30 AM

Where: 60 W. Main; Madison School District Office;
SOC Training Room

Madison County Emergency Management is excited to present the full draft of the Hazard Mitigation Plan. The plan details the hazards and risks that have the potential to impact the County and strategies to mitigate these hazards.

During this meeting, highlights of the plan will be shared and time will be provided for the public to ask questions and provide feedback. The Hazard Mitigation Plan will also be open for public comment through Wednesday, August 14, 2019 and available at <https://www.co.madison.id.us/departments/homeland-security>

Questions? Please contact the Madison County
Emergency Manager at robertk@rexburg.org or
call 208-359-3010.



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E-MAIL: ROBERTK@REXBURG.ORG

FOR IMMEDIATE RELEASE

Contact:

Robert E. Kohler, Emergency Manager
Madison County Emergency Management
Phone: 208-359-3010; Email: robertk@rexburg.org

**MADISON COUNTY RESIDENTS
INVITED TO REVIEW AND PROVIDE FEEDBACK ON THE HAZARD MITIGATION PLAN DRAFT**

MADISON COUNTY, IDAHO – Madison County Emergency Management is excited to present the full draft of the Hazard Mitigation Plan. The plan details the hazards and risks that have the potential to impact the County and strategies to mitigate these hazards.

Madison County residents and the business community are invited to review and provide feedback on the updated Madison County Hazard Mitigation Plan. There are two ways to provide feedback. The first is to attend the *Hazard Mitigation Plan Public Review* meeting:

- Date: Wednesday, August 7, 2019
- Time: starting at 8:30 AM
- Location: 60 W. Main; Madison School District Office; SOC Training Room

"I encourage you to come out to the meeting so you can share how you would like the County to be better prepared for disasters and emergencies. Your input is essential," said Robert E. Kohler, the County's Emergency Manager. The Emergency Management Department will use the feedback to finalize the Hazard Mitigation Plan update.

During this meeting, highlights of the plan will be shared and time will be provided for the public to ask questions and provide feedback. The Hazard Mitigation Plan will also be open for public comment through Wednesday, August 14, 2019 and available at <https://www.co.madison.id.us/departments/homeland-security>

Questions? Please contact the Madison County Emergency Manager at robertk@rexburg.org or call 208-359-3010.

-###-

County residents asked to give input on Hazard Mitigation Plan draft

PRESS RELEASE Madison County Emergency Management Aug 2, 2019



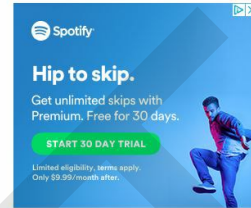
File photo

Buy Now

MADISON COUNTY – Madison County Emergency Management is excited to present the full draft of the Hazard Mitigation Plan. The plan details the hazards and risks that have the potential to impact the County and strategies to mitigate these hazards.



Madison County residents and the business community are invited to review and provide input on the draft Madison County Hazard Mitigation Plan. There are two ways to



https://www.rexburgstandardjournal.com/rexburg/county-residents-asked-to-give-input-on-hazard-mitigation-plan/article_eb39e51b-d51d-5197-951f-87f139989351.html

County residents asked to give input on Hazard Mitigation Plan draft

PRESS RELEASE Madison County Emergency Management 2 hrs ago



File photo

Buy Now

MADISON COUNTY – Madison County Emergency Management is seeking input from residents and business owners on the updated Hazard Mitigation Plan. The plan details the impact the County and strategies to mitigate the effects of natural disasters.

Madison County residents and the business community are invited to provide input on the updated Madison County Hazard Mitigation Plan. The first is to attend the Hazard Mitigation Plan public meeting on Tuesday, October 10, 2017, at 6:00 PM in the Madison County Courthouse.



· Date: Wednesday, August 7, 2019

· Time: starting at 8:30 AM

· Location: 60 W. Main; Madison School District Office; SOC Training Room

"I encourage you to come out to the meeting so you can share how you would like the County to be better prepared for disasters and emergencies. Your input is essential," said Robert E. Kohler, the County's Emergency Manager. The Emergency Management Department will use the feedback to finalize the Hazard Mitigation Plan update.

During this meeting, highlights of the plan will be shared and time will be provided for the public to ask questions and provide feedback. The Hazard Mitigation Plan will also be open for public comment through Wednesday, August 14, 2019 and available at <https://www.co.madison.id.us/departments/homeland-security>

Questions? Please contact the Madison County Emergency Manager at robertk@rexburg.org or call 208-359-3010.

To contact Victoria email her at vvarnedoe@uvsj.com or call her at 208.356.5441. at extension 13.

VictoriaVarnedoe





AUG
7

Hazard Mitigation Plan Update Public Meeting

Public · Hosted by Madison County Emergency Management

★ Interested ✓ Going

↗ Share ⋮


🕒 Wednesday, August 7, 2019 at 8:30 AM – 9:30 AM MDT
2 days from now · 59–88°F Cloudy

📍 60 W Main St, Rexburg, ID 83440-1825, United States [Show Map](#)

👤 Hosted by Madison County Emergency Management [Follow Page](#)
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Madison Fire Department
June 5 · 🌐

Madison County Emergency Management



COMMUNITY PREPAREDNESS & READINESS FORUM

EMERGENCY MANAGEMENT
Madison County

The Madison County Emergency Management Department invites you to the **Community Preparedness & Readiness Forum**

When: Thursday, June 13, 2019 from 6-7:30 PM
Where: City Hall in the Council Room, 35 North 1st


The forum will be an opportunity for you to share how you would like to see the County better prepare for emergencies and disasters, learn about the Hazard Mitigation Plan update, and hear the results of the Community Preparedness Survey.

You will also get to learn about all the great organizations that support emergency preparedness and how you can benefit and become involved.

Light refreshments will be served.

Questions? Please contact the Madison County Emergency Manager at robertk@rexburg.org or call 208-359-3010.

https://www.co.madison.id.us/departments/homeland-security/81-community-preparedness-survey



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Community Preparedness Survey

[Community Preparedness Survey](#)

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Madison County Emergency Management

June 13 · 🌐

Tonight is our Preparedness and Readiness Forum, held at the Rexburg City Hall, Council Chambers. Starts at 6:00 pm. Come join in the conversations, enjoy a refreshment, and learn more about what Madison County Emergency Management has to offer. Bring your family and friends. See you tonight!

1 Share

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Comment

Share



Write a comment...

👍 📷 📄 🗨️




Madison County Emergency Management

June 3 · 🌐

Madison County will be hosting a public Forum on June 13th. Please come and join us!

**COMMUNITY
PREPAREDNESS &
READINESS FORUM**



The Madison County Emergency Management Department invites you to the
Community Preparedness & Readiness Forum

When: Thursday, June 13, 2019 from 6-7:30 PM
Where: City Hall in the Council Room, 35 North 1st

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Light refreshments will be served.

Questions? Please contact the Madison County

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Betsy Lopez

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Dedicated to protecting the lives and property of Madison County's residents, the Madison Fire Department maintains a standard of excellence in Firefighting, Emergency Medical Services, Rescue, Fire Prevention, Public Education, and Community Service.

The Madison Fire Department is a well coordinated team of professionals who serve the community with Integrity, Honor, Pride, and Courage.

You can learn more about our department, fire safety, health and wellness tips, burn regulations, and other educational information by exploring our website.



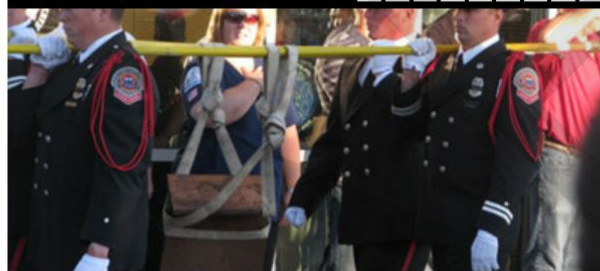
LEARN ABOUT THE MADISON MEDICAL TRAILER

Madison FD Recent Alarms

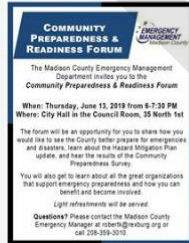
- (A) ACCIDENT PD 1.5 hr ago
REXBURG
- (B) AMBULANCE 1.8 hr ago
Madison County
- (C) AMBULANCE 4.8 hr ago
REXBURG
- (D) FIRE CALL 5.4 hr ago
REXBURG
- (E) AMBULANCE 5.5 hr ago
REXBURG

an Active911 Active Response Agency

September 11, 2011 Memorial



Wildland Fire Danger




Madison Fire Department
about a month ago

Madison County
Emergency Management

2 Comments 4 Likes



https://www.co.madison.id.us/departments/homeland-security



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The County has an Emergency Operations Plan in place and we are in the process of updating it. This will be in conjunction with both cities and BYUL.

As this is done, we will have a public copy to view on this site. We will also announce the public meetings to help us better prepare.

We have a Local Emergency Planning Committee that consist of the elected officials, emergency personnel, local church, BYUL, Red Cross, State agencies, and local business. We meet once a month.

FEMA puts out a publication entitled "Are You Ready"

Copies of Are You Ready? and the Facilitator Guide are available through the FEMA publications warehouse (1.800.480.2520).

Programs that are available:

The Community Emergency Response Team (CERT) Program educates people about disaster preparedness and trains them in basic disaster response skills, such as fire safety, light search and rescue, and disaster medical operations. Using their training, CERT members can assist others in their neighborhood or workplace following an event and can take a more active role in preparing their community. We have on going classes. If you are interested in have a team, contact us.

Volunteers in Police Service (VIPS) works to enhance the capacity of state and local law enforcement to utilize volunteers. VIPS serves as a gateway to resources and information for and about law enforcement volunteer programs. Funded by DOJ, VIPS is managed and implemented by International Association of Chiefs of Police.

10 ▾

Title	Hits
Community Preparedness Survey	Hits: 217

From: Nextdoor Digest [mailto:no-reply@rs.email.nextdoor.com]
Sent: Monday, June 3, 2019 3:34 PM
To: Robert Kohler <robertk@rexburg.org>
Subject: Top post: Community Preparedness and Readiness Forum

Madison County Emergency Management will be hosting a Community Forum. Please come join us for an evening focused on what is offered in Madison County for Emergency Preparedness.

Nextdoor Rexburg City



Introducing your new Daily Digest! [Learn more](#)

Today's top posts

Community Preparedness and Readiness Forum

Robert Kohler, Rexburg City | Madison County Emergency Management will be hosting a Community Forum. Please come join us for an evening... [See more](#)



Betsy Lopez

To: Robert Kohler
Subject: RE: August LEPC

From: Robert Kohler <robertk@rexburg.org>
Sent: Thursday, August 1, 2019 5:11 PM
To: Betsy Lopez <betsy.lopez@i-s-consulting.com>
Subject: FW: August LEPC

Rebecca Squires is with Jefferson County, Jill Egan is with Clark County, Keith Ritchey is with Fremont County, and Greg Adams is Teton County.

From: Robert Kohler
Sent: Wednesday, July 31, 2019 4:22 PM
To: 'Rebecca Squires' <rsquires@co.jefferson.id.us>; 'Jegan@co.clark.id.us' <jegan@co.clark.id.us>; Keith Ritchey (<krichey@co.fremont.id.us>) <krichey@co.fremont.id.us>; Greg Adams (<gadams@co.teton.id.us>) <gadams@co.teton.id.us>
Subject: August LEPC

Good afternoon everyone,

August 7th will be our next Steering Committee meeting. The agenda for this meeting will be a brief report from the Radio Net that we have been practicing followed by a review of the final draft of the Hazard Mitigation plan (see attachment). Your input into this plan will be invaluable. The public will also be invited to this meeting so that they also have the opportunity to comment on the final plan draft as well. This is the final portion of a FEMA requirement for the Hazard Mitigation Plan. Integrated Solutions will be here to present the plan. Please noted that due to the public being invited to the meeting, we will be holding it at an alternate location. Please attend the meeting at:

60 West Main Street, Madison School District Office, SOC training room.

The meeting will begin at 8:30. Hopefully you can attend. Be Safe!

Sincerely,

Robert E. Kohler

Betsy Lopez

From: Robert Kohler <robertk@rexburg.org>
Sent: Thursday, July 25, 2019 4:58 PM
To: bmarnell4@q.com; jarnold@co.madison.id.us; brejan1971@gmail.com; Justin Beard; cbradshaw@sugarsalem.com; alan.brower@mmhnet.org; Sam Butikofer; Corey Child; clarkw@byui.edu; mclements@bhs.idaho.gov; bclements@eiph.idaho.gov; jcline@seasonsmedical.com; jcor88@gmail.com; marvin.crain@isp.idaho.gov; David Davis; aaron.m.decker3.mil@mail.mil; carl.farmer@inl.gov; GILBERTB@byui.edu; GUNDERSONG@byui.edu; hamptonr@msd321.com; HarmstonE@byui.edu; charles.haszier@intgas.com; RHENRY@MadisonSheriff.com; Dave Hope; burleyrjohnson@msn.com; Scott Johnson; jjohnson@co.madison.id.us; jkindred@madisonsheriff.com; klinest@byui.edu; Brent.Larson@imd.idaho.gov; lordsr@msd321.com; jmagee@lifeflight.org; mmarsh@bhs.idaho.gov; Doug.McBride@mmhnet.org; bmendenhall@co.madison.id.us; lamontmerrill@gmail.com; Troyce Miskin; MooreT@byui.edu; Bonnie Moore; ki7dad@gmail.com; tnelson@eiph.idaho.gov; hpeterston@eiph.idaho.gov; Dale Pickering; bquayle@madisonsheriff.com; lrasmussen@madisonsheriff.com; croberston@co.madison.id.us; scott.robinson@itd.idaho.gov; jake.robinson@intgas.com; sampsonb@byui.edu; Gregory Schneider; marlys.shelton@gmail.com; Todd Smith; cstanford@madisonsheriff.com; stumpfm@byui.edu; Rexburg Police Department; mtaylor@eiph.idaho.gov; teri.tengao@intgas.com; jerry@ecihammat.com; chris.weadick@isp.idaho.gov; mwilson@df-foods.com; mwinegardner@eiph.idaho.gov
Cc: Corey Child; Troyce Miskin; David Davis; Dale Pickering; Betsy Lopez; Daiko Abe
Subject: August LEPC
Attachments: August 7th LEPC and Public Meeting Invite.pdf

Good afternoon everyone,

August 7th will be our next LEPC meeting. The agenda for this meeting will be a brief report from the Radio Net that we have been practicing followed by a review of the final draft of the Hazard Mitigation plan (see attachment). Your input into this plan will be invaluable. The public will also be invited to this meeting so that they also have the opportunity to comment on the final plan draft as well. This is the final portion of a FEMA requirement for the Hazard Mitigation Plan. Integrated Solutions will be here to present the plan. Please noted that due to the public being invited to the meeting, we will be holding it at an alternate location. Please attend the meeting at:

60 West Main Street, Madison School District Office, SOC training room.

The meeting will begin at 8:30. Thank you all for attending.

Sincerely,

Robert E. Kohler

1.10.1 Survey Questions

2019 Madison County Idaho Community Preparedness Survey

Instructions

Residency

1) **Do you live and/or work in Madison County? Please select the best answer that applies to your current situation.***

- ☐ Yes, I live in Madison County
 - ☐ Yes, I live and work in Madison County
 - ☐ Yes, I live in Madison County, but work in another county
 - ☐ Yes, I work in Madison County, but live in another county
 - ☐ No, I do not live or work in Madison County
 - ☐ Do Not Know
 - ☐ Other (please specify): _____
-

Residency and Employment Information

2) **Approximately how many years have you lived in Madison County?**

- ☐ 0-2 years
- ☐ 3-5 years
- ☐ 6-10 years
- ☐ 11-20 years
- ☐ 21 or more years
- ☐ Not Applicable
- ☐ Do Not Know
- ☐ Other (please specify): _____

3) **Approximately how many years have you worked in Madison County?**

- ☐ 0-2 years
- ☐ 3-5 years
- ☐ 6-10 years
- ☐ 11-20 years
- ☐ 21 or more years
- ☐ Not Applicable
- ☐ Do Not Know
- ☐ Other (please specify): _____

4) **Please indicate which community in Madison County you live in.**

- ☐ Rexburg
- ☐ Sugar City
- ☐ Other (please specify): _____

5) **Please indicate which community in Madison County you work in.**

- ☐ Rexburg
 - ☐ Sugar City
 - ☐ Other (please specify): _____
-

General Preparedness

6) **Please indicate what type of device(s) you use to access the internet. Select ALL that apply.**

- ☐ Computer/laptop at home
- ☐ Computer/laptop at work/office
- ☐ iPad/tablet
- ☐ Cell phone
- ☐ Public computer (i.e. library)
- ☐ I do not have access to the Internet
- ☐ Do Not Know
- ☐ Other (please specify): _____

7) **Please indicate those activities you have done to prepare for emergencies and disasters. Please select ALL that apply.**

I have...

- ☐ Smart 911/Rave Alert
- ☐ an emergency preparedness plan
- ☐ flood Insurance
- ☐ a 72 hour kit/Disaster supply kit
- ☐ visited local government web site(s) for emergency preparedness information
- ☐ an evacuation plan
- ☐ a weather radio
- ☐ signed up for emergency alerts for Madison County (from any source)
- ☐ done nothing
- ☐ Other (please specify): _____

8) **Have any of the reasons below prevented you from pursuing additional preparedness activities? Please select ALL that apply.**

- ☐ I don't think it will make a difference.
- ☐ I don't know what to do.

- ☐ I don't have the time.
☐ It costs too much.
☐ I don't need to prepare because emergency responders (fire, police, etc.) will help me during an emergency.
☐ None of the above apply to me.
☐ Other (please specify): _____

9) Please indicate where you go to obtain emergency and disaster preparedness related information? Please select ALL that apply.

- ☐ Municipal government websites
☐ County government website
☐ State government website
☐ Federal government websites (example: www.fema.gov)
☐ Web search (example: bing.com, google.com)
☐ Social media (example: facebook, twitter, google , etc.)
☐ Voluntary organizations (example: American Red Cross, Salvation Army, etc.)
☐ Religious Organization
☐ Local English-speaking television
☐ Local English-speaking radio
☐ Local Spanish-speaking radio
☐ National News (Radio and Television)
☐ Print Media - English (example: newspapers)
☐ Brochures and Newsletters
☐ Word of Mouth (example: friends, family, co-workers)
☐ Other (please specify): _____
☐ Do Not Know
☐ Not Applicable

10) Please indicate how you expect to receive alerts and information during an emergency. Please select ALL that apply.

- ☐ A weather radio
☐ Private Weather Phone Applications (ex. Weather Channel, Wunderground, Weather Bug, AccuWeather, etc.)
☐ Preparedness Phone Applications (ex. FEMA, Red Cross, etc.)
☐ Local Media Phone Applications
☐ Madison County Emergency Management website
☐ Local Television Media (ex. Local News 8, KIDK 3, FOX 5, East Idaho News, etc.)
☐ Local Radio
☐ Social Media
☐ Word of Mouth
☐ Do Not Know
☐ Other (please specify): _____

11) Would you agree or disagree with the following statements?

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree	Do Not Know
Madison County is providing the services necessary to prepare me for a disaster.	()	()	()	()	()	()
I am familiar with Madison County's website and can easily obtain information about emergencies and disasters.	()	()	()	()	()	()
During times of emergency, information is provided in a language and format I can understand.	()	()	()	()	()	()
I can easily obtain emergency information in times of crisis.	()	()	()	()	()	()

12) Please indicate how Madison County can better assist you in preparing for emergencies and disasters (example: provide preparedness materials in my language).

13) If a disaster (i.e. snowstorm) impacted Madison County, knocking out electricity and running water, would your household be able to manage on its own for at least three (3) days?

- ☐ Yes
☐ Maybe
☐ No
☐ Do Not Know

14) Which of the following may prevent you from recovering from a disaster? Please select ALL that apply.

- ☐ Lack of financial savings
☐ Disruption in employment
☐ No access to healthcare
☐ Mental health concerns
☐ Lack of insurance (i.e. home owners insurance, renter's insurance, flood insurance, etc.)
☐ Lack of alternative housing options
☐ Lack of outside support from family
☐ Limited food supply
☐ Limited water supply
☐ No alternative power supply
☐ Not Applicable
☐ Do Not Know
☐ Other (please specify): _____

15) Do you believe that your household and/or place of business might ever be threatened by the following hazards? Please rate what hazards present the greatest risk.

Low Risk = Low impact on threat to life and property damage

Medium Risk = Medium impact on threat to life and property damage

High Risk = High impact on threat to life and property damage

	Low Risk	Medium Risk	High Risk	Not Applicable
Civil Disorder/Riot	()	()	()	()
Crop Failure (Heat, Disease, Insects/Pests, etc.)	()	()	()	()
Cyber Security Threat	()	()	()	()
Dam Failure	()	()	()	()
Severe or Prolonged Drought	()	()	()	()
Earthquake	()	()	()	()
Extreme Cold Incident	()	()	()	()
Extreme Heat Incident	()	()	()	()
Flash Flooding/Overland Flooding	()	()	()	()
Riverine Flooding	()	()	()	()
Hail	()	()	()	()
Hazardous Materials Release (example: Chemical Spill)	()	()	()	()
Infrastructure Failure (example: Bridge Collapse)	()	()	()	()
Landslide	()	()	()	()
Lightning	()	()	()	()
Nuclear Event	()	()	()	()
Power Failure	()	()	()	()
Public Health Emergency (example: Pandemic)	()	()	()	()
Severe Winter Storm/Heavy Snowfall/Ice Storm	()	()	()	()
Snow Avalanche	()	()	()	()
Straight Line Wind	()	()	()	()
Structural Fire	()	()	()	()
Terrorism Incident	()	()	()	()
Tornado and High Winds	()	()	()	()
Wildfires	()	()	()	()

16) Please select the answer that best describes your experience.

- () I have never experienced property damage or loss from a disaster(s)
 () I have experienced minor property damage and loss from a disaster(s)
 () I have experienced major property damage and loss from a disaster(s)
 () I have experienced catastrophic property damage and loss from a disaster(s)

17) If you have experienced any damage(s) or injury(ies) from a disaster, please list the hazard(s) that caused the damages/losses and/or injuries (Example: flooding, wind, winter storm)

18) If you have experienced any damage(s) or injury(ies) from a disaster, please indicate where this occurred (Example: my home, on a roadway or intersection, at work, on vacation, etc.)

19) If you have experienced any damage(s) or injury(ies) from a disaster, please describe the damages and/or injuries. (Example: basement flooded, roof was damaged, vehicle was damaged, broken bones, lacerations, etc.)

20) Please select the best answer. The risks associated with Madison County's most prevalent hazards are:

- () increasing quickly
 () increasing slowly
 () staying the same
 () decreasing slowly
 () decreasing quickly
 () Do Not Know
 () Not Applicable
 () Other (please specify): _____

21) Based on YOUR PERCEPTION of your jurisdiction's hazards, to what degree of emphasis would you expect your jurisdiction to mitigate the following hazards?

Mitigation definition: The purpose of mitigation planning is to identify policies and actions that can be implemented over the long term to reduce risk and future losses. Mitigation forms the foundation for a community's long-term strategy to reduce disaster losses and break the cycle of disaster damage, reconstruction, and repeated damage.

•No Mitigation Needed = No mitigation on this hazard is expected or needed

•Low Priority = This hazard should be mitigated, but is not a high priority compared to other hazards

•Medium Priority = It is important to mitigate this hazard

•High Priority = It is a high priority to emphasize mitigation for this hazard

	No Mitigation Needed	Low Priority	Medium Priority	High Priority
Civil Disorder/Riot	()	()	()	()
Crop Failure (Heat, Disease, Insects/Pests, etc.)	()	()	()	()
Cyber Security Threat	()	()	()	()
Dam Failure	()	()	()	()
Severe or Prolonged Drought	()	()	()	()
Earthquake	()	()	()	()
Extreme Cold Incident	()	()	()	()
Extreme Heat Incident	()	()	()	()
Flash Flooding/Overland Flooding	()	()	()	()
Riverine Flooding	()	()	()	()
Hail	()	()	()	()
Hazardous Materials Release (example: Chemical Spill)	()	()	()	()
Infrastructure Failure (example: Bridge Collapse)	()	()	()	()
Landslide	()	()	()	()
Lightning	()	()	()	()
Nuclear Event	()	()	()	()
Power Failure	()	()	()	()
Public Health Emergency (example: Pandemic)	()	()	()	()
Severe Winter Storm/Heavy Snowfall/Ice Storm	()	()	()	()
Snow Avalanche	()	()	()	()
Straight Line Wind	()	()	()	()
Structural Fire	()	()	()	()
Terrorism Incident	()	()	()	()
Tornado and High Winds	()	()	()	()
Wildfires	()	()	()	()

Evacuation

22) If an evacuation was ordered for your area, please indicate how likely you would be to do the following.

	Very Likely	Somewhat Likely	Not Very Likely	Not Likely at All	Do Not Know	Not Applicable
Immediately evacuate as instructed.	()	()	()	()	()	()
I would first consult with family and friends outside my household before making a decision to evacuate.	()	()	()	()	()	()
Wait and see how bad the situation is going to be before deciding to evacuate.	()	()	()	()	()	()
Refuse to evacuate no matter what.	()	()	()	()	()	()

23) What might prevent you from leaving your place of residence if there was an evacuation order? Please select ALL that apply.

- ☐ Pet
☐ Livestock
☐ Job
☐ Need to care for another person
☐ Spouse/Significant Other won't leave
☐ Need to stay and protect property
☐ Lack of money
☐ No place to go
☐ No transportation
☐ Traffic
☐ Lack of gas/fuel for vehicle
☐ Disability/Health Issues
☐ Other (please specify): _____
☐ No obstacles would prevent me from evacuating
☐ I would refuse to evacuate no matter what

24) If you were to evacuate, where would you most likely stay? Please select the best answer.

- ☐ Shelter/evacuation center
☐ Church or place of worship
☐ Workplace
☐ Home of a friend or relative
☐ Hotel/motel
☐ Do Not Know
☐ Other (please specify): _____

25) In an evacuation, would you or anyone in your household require special assistance?

- ☐ Yes
☐ Maybe
☐ No
☐ Do Not Know
☐ Not applicable
☐ Other (please specify): _____

26) If yes, would that assistance be provided by someone within your household, by an outside agency, or by a friend or relative outside your household?

- ☐ Within household
☐ Friend/Relative (outside household)
☐ Outside Agency
☐ Do Not Know
☐ Not Applicable
☐ Other (please specify): _____

27) If applicable, please indicate what kind of outside assistance your household may need during an evacuation (i.e. Transportation, Medical, etc.)

Demographic Questions

28) What type of structure do you live in?

- ☐ Detached single family home
☐ Duplex, triplex, quadruple home
☐ Multi-family building – 2 stories or more (apartment/condo)
☐ Mobile home
☐ Manufactured home
☐ Recreational vehicle (RV)
☐ Some other type of structure
☐ Do Not Know
☐ Not Applicable
☐ Other (please specify): _____

29) Do you own or rent your home/place of residence?

- ☐ Own
☐ Rent
☐ Do Not Know
☐ Not Applicable
☐ Other (please specify): _____

30) How many persons, including yourself, are currently living in your household?

	1	2	3	4	5	6	7	8	9	10 or more
Under age 5										
Ages 6 - 10										
Ages 11 - 19										
Ages 20 - 44										
Ages 45 - 64										
Ages 65-79										
Ages 80										

31) Which of the following best describes your race/ethnicity? Please select ALL that apply.

- ☐ American Indian or Alaska Native
☐ Hawaiian or Other Pacific Islander
☐ Asian or Asian American
☐ Black or African American
☐ Hispanic or Latino
☐ Non-Hispanic White
☐ Other (please specify): _____

32) Please indicate the language(s) spoken in your household. Please select ALL that apply.

- ☐ English
☐ Spanish
☐ Other Indo-European language
☐ Asian and Pacific Island language
☐ Other (please specify): _____

33) Please indicate your sex.

- ☐ Female
☐ Male
☐ Not Applicable

Contact

34) (OPTIONAL): Would you like more information on how you can be more prepared?

- ☐ Yes
☐ No

35) (OPTIONAL): Would you be interested in participating in a free training led by The Community Emergency Response Team (CERT) Program on disaster preparedness? More information on the CERT Program is available on the next page.

- ☐ Yes
☐ No

36) (OPTIONAL): Would you like to be entered into the raffle for the prize?

- ☐ Yes
☐ No

37) To be entered into the prize drawing, receive information on Madison County Emergency Management, and/or be contacted about the CERT Program, please provide your name, e-mail, and phone number below. We will ensure your information is kept confidential.

Name: _____

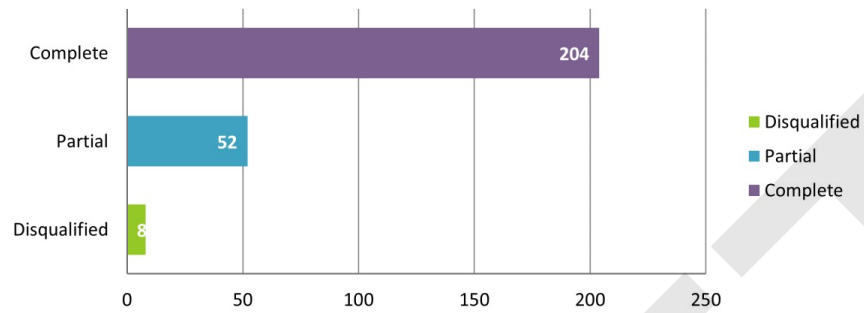
Phone: _____

E-mail: _____

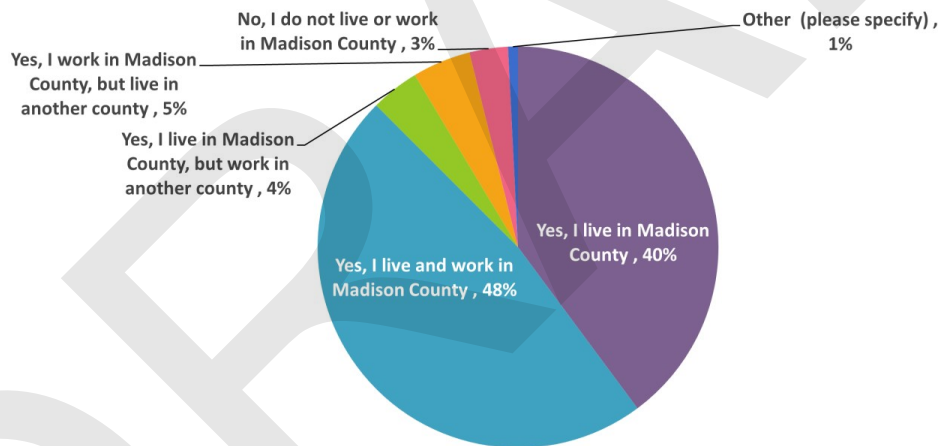
Thank You!

1.10.2 Survey Results

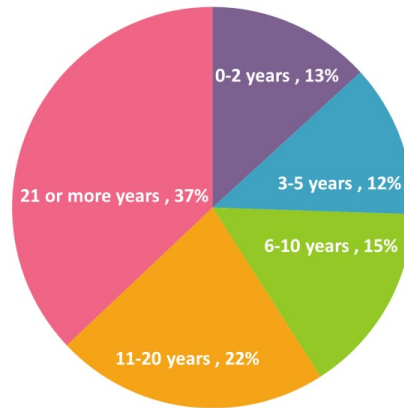
Response Statistics



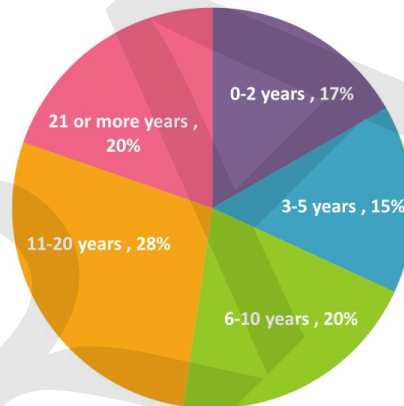
Do you live and/or work in Madison County? Please select the best answer that applies to your current situation.



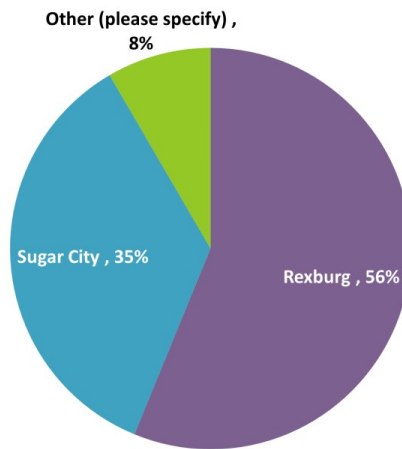
Approximately how many years have you lived in Madison County?



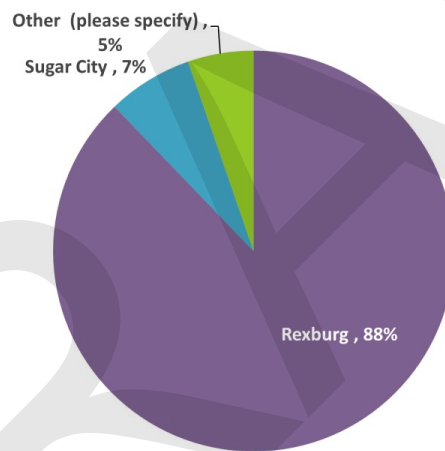
Approximately how many years have you worked in Madison County?



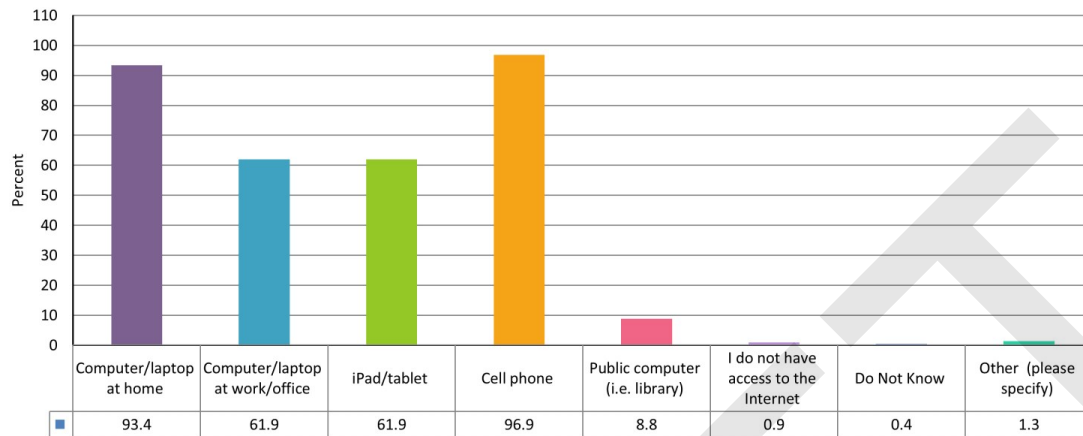
Please indicate which community in Madison County you live in.



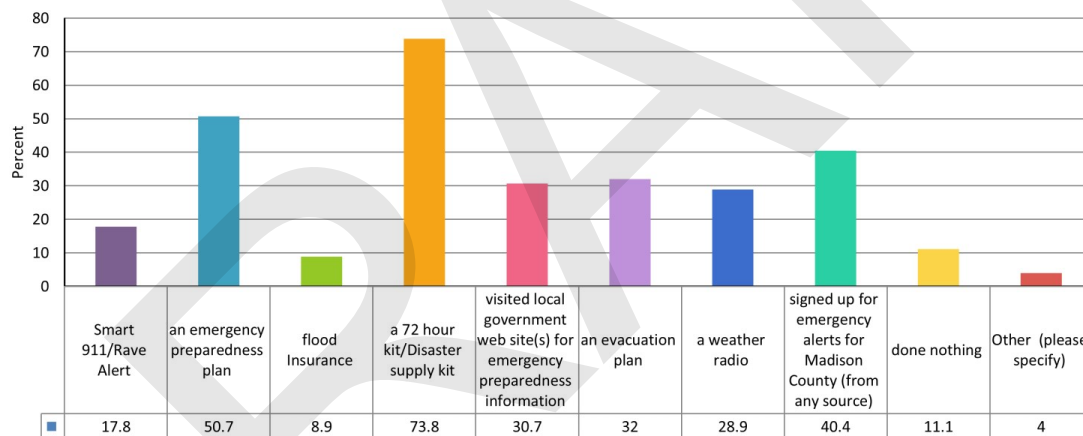
Please indicate which community in Madison County you work in.



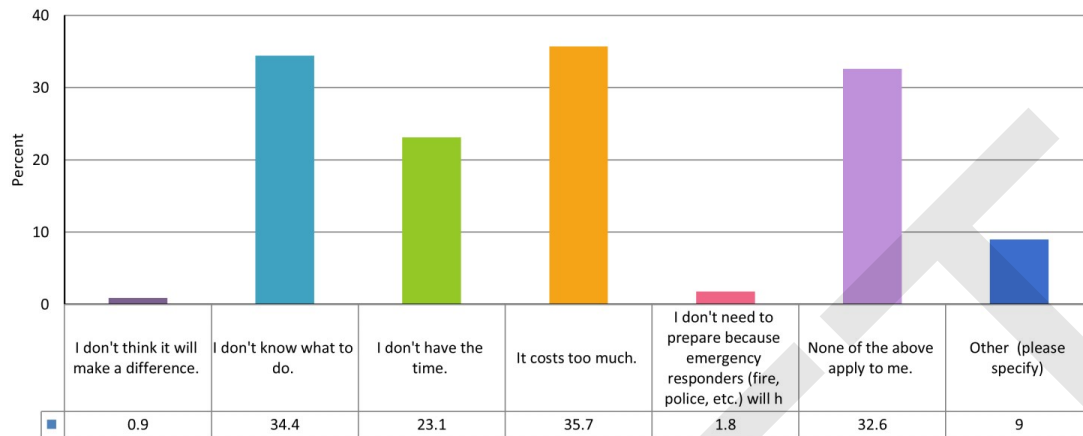
Please indicate what type of device(s) you use to access the internet.
Select ALL that apply.



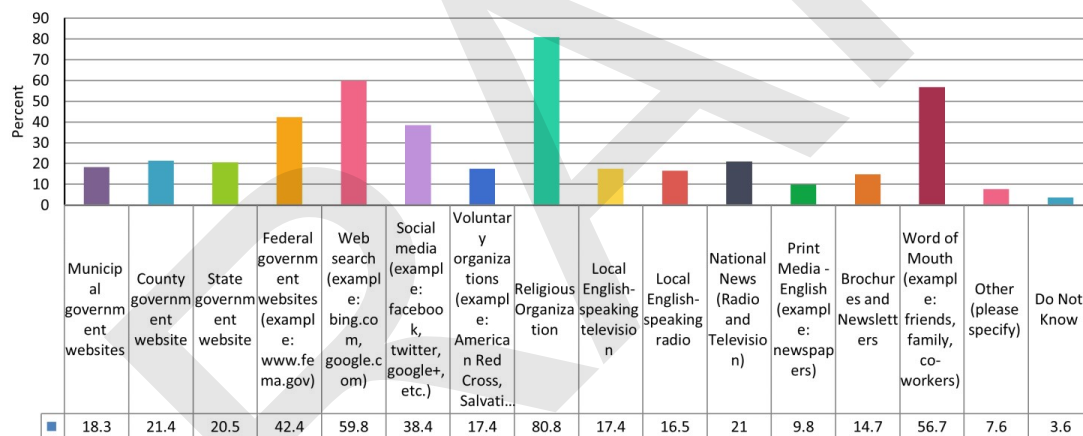
Please indicate those activities you have done to prepare for emergencies and disasters. Please select ALL that apply.
I have...



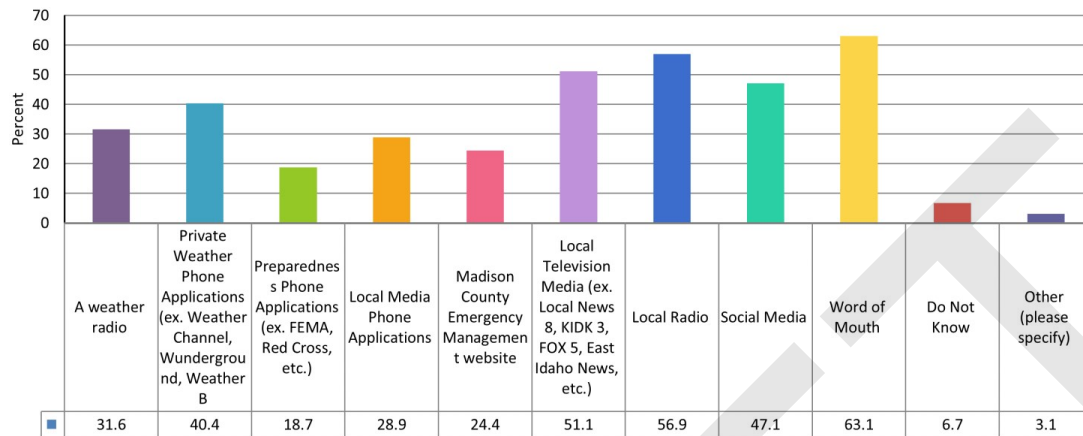
Have any of the reasons below prevented you from pursuing additional preparedness activities? Please select ALL that apply.



Please indicate where you go to obtain emergency and disaster preparedness related information? Please select ALL that apply.



Please indicate how you expect to receive alerts and information during an emergency. Please select ALL that apply.



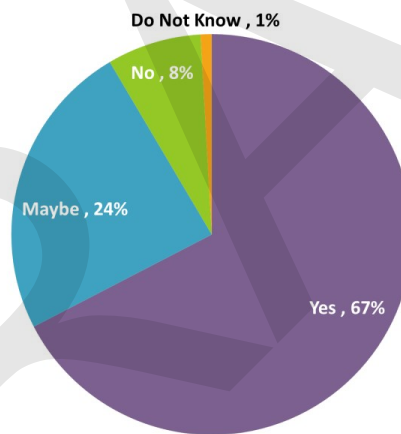
Would you agree or disagree with the following statements?

	Strongly Agree		Agree		Neither Agree nor Disagree		Disagree		Strongly Disagree		Do Not Know		Responses
	Count	Row %	Count	Row %	Count	Row %	Count	Row %	Count	Row %	Count	Row %	
Madison County is providing the services necessary to prepare me for a disaster.	9	4.1%	47	21.3%	90	40.7%	14	6.3%	3	1.4%	58	26.2%	221
I am familiar with Madison County's website and can easily obtain information about emergencies and disasters.	7	3.2%	23	10.5%	60	27.3%	74	33.6%	27	12.3%	29	13.2%	220

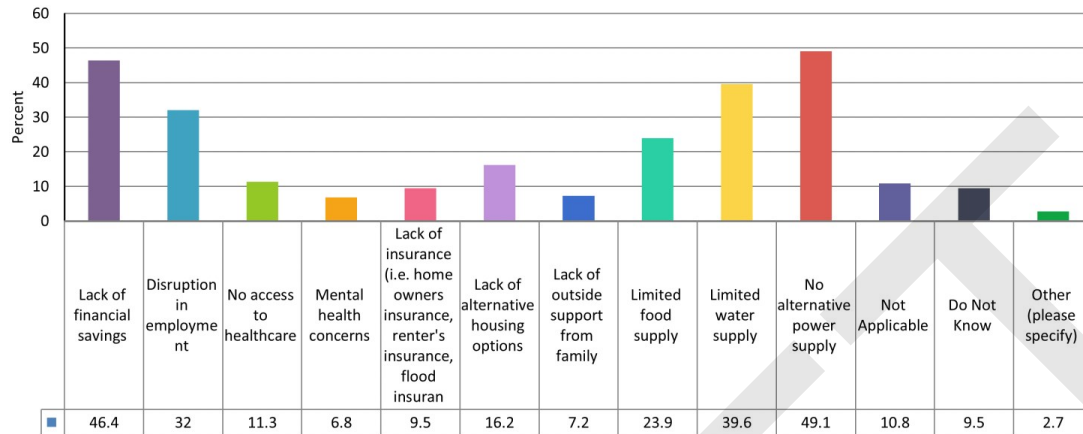
Would you agree or disagree with the following statements?

	Strongly Agree		Agree		Neither Agree nor Disagree		Disagree		Strongly Disagree		Do Not Know		Responses
	Count	Row %	Count	Row %	Count	Row %	Count	Row %	Count	Row %	Count	Row %	Count
During times of emergency, information is provided in a language and format I can understand.	55	24.9%	99	44.8%	29	13.1%	0	%	0	%	38	17.2%	221
I can easily obtain emergency information in times of crisis.	16	7.2%	98	44.3%	51	23.1%	17	7.7%	2	0.9%	37	16.7%	221

If a disaster (i.e. snowstorm) impacted Madison County, knocking out electricity and running water, would your household be able to manage on its own for at least three (3) days?



Which of the following may prevent you from recovering from a disaster? Please select ALL that apply.



Do you believe that your household and/or place of business might ever be threatened by the following hazards? Please rate what hazards present the greatest risk.

Low Risk = Low impact on threat to life and property damage

Medium Risk = Medium impact on threat to life and property damage

High Risk = High impact on threat to life and property damage

	Low Risk		Medium Risk		High Risk		Not Applicable		Responses
	Count	Row %	Count	Row %	Count	Row %	Count	Row %	Count
Civil Disorder/Riot	149	73.0%	45	22.1%	7	3.4%	3	1.5%	204
Crop Failure (Heat, Disease, Insects/Pests, etc.)	87	42.9%	61	30.0%	37	18.2%	18	8.9%	203
Cyber Security Threat	35	17.2%	96	47.1%	70	34.3%	3	1.5%	204
Dam Failure	122	60.1%	56	27.6%	14	6.9%	11	5.4%	203
Severe or Prolonged Drought	48	23.6%	101	49.8%	50	24.6%	4	2.0%	203
Earthquake	42	20.5%	91	44.4%	72	35.1%	0	%	205
Extreme Cold Incident	19	9.3%	71	34.6%	115	56.1%	0	%	205
Extreme Heat Incident	95	46.6%	91	44.6%	17	8.3%	1	0.5%	204

Do you believe that your household and/or place of business might ever be threatened by the following hazards? Please rate what hazards present the greatest risk.

Low Risk = Low impact on threat to life and property damage

Medium Risk = Medium impact on threat to life and property damage

High Risk = High impact on threat to life and property damage

	Low Risk		Medium Risk		High Risk		Not Applicable		Responses
	Count	Row %	Count	Row %	Count	Row %	Count	Row %	Count
Flash Flooding/Overflowing Flooding	55	27.1%	101	49.8%	46	22.7%	1	0.5%	203
Riverine Flooding	85	42.7%	83	41.7%	22	11.1%	9	4.5%	199
Hail	36	17.7%	115	56.7%	51	25.1%	1	0.5%	203
Hazardous Materials Release (example: Chemical Spill)	108	52.9%	77	37.7%	18	8.8%	1	0.5%	204
Infrastructure Failure (example: Bridge Collapse)	110	54.2%	78	38.4%	10	4.9%	5	2.5%	203
Landslide	152	74.9%	36	17.7%	6	3.0%	9	4.4%	203
Lightning	65	32.0%	103	50.7%	35	17.2%	0	%	203
Nuclear Event	102	50.5%	70	34.7%	28	13.9%	2	1.0%	202
Power Failure	18	8.8%	77	37.7%	108	52.9%	1	0.5%	204

Do you believe that your household and/or place of business might ever be threatened by the following hazards? Please rate what hazards present the greatest risk.

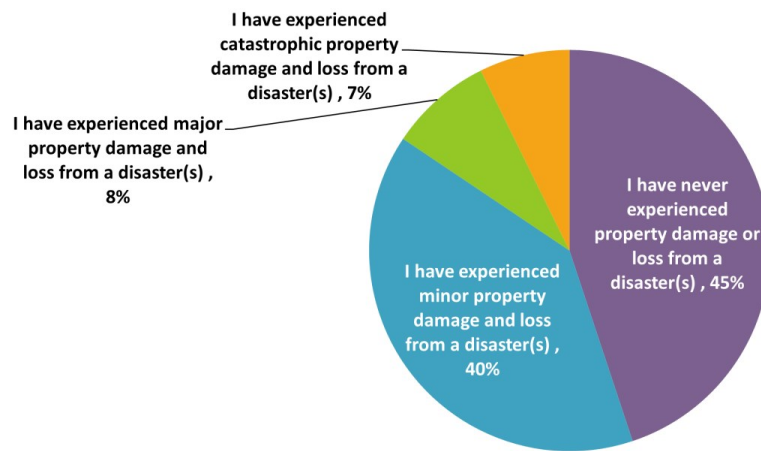
Low Risk = Low impact on threat to life and property damage

Medium Risk = Medium impact on threat to life and property damage

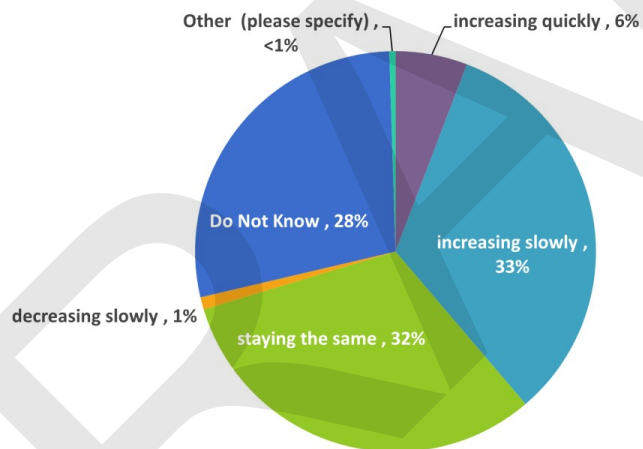
High Risk = High impact on threat to life and property damage

	Low Risk		Medium Risk		High Risk		Not Applicable		Responses
	Count	Row %	Count	Row %	Count	Row %	Count	Row %	Count
Public Health Emergency (example: Pandemic)	61	29.9%	106	52.0%	37	18.1%	0	%	204
Severe Winter Storm/Heavy Snowfall/Ice Storm	12	5.9%	73	35.8%	119	58.3%	0	%	204
Snow Avalanche	147	72.1%	35	17.2%	7	3.4%	15	7.4%	204
Straight Line Wind	53	26.8%	101	51.0%	41	20.7%	3	1.5%	198
Structural Fire	50	24.8%	100	49.5%	49	24.3%	3	1.5%	202
Terrorism Incident	135	67.2%	49	24.4%	16	8.0%	1	0.5%	201
Tornado and High Winds	75	37.1%	99	49.0%	28	13.9%	0	%	202
Wildfires	76	37.8%	85	42.3%	36	17.9%	4	2.0%	201

Please select the answer that best describes your experience.



Please select the best answer. The risks associated with Madison County's most prevalent hazards are:



Based on YOUR PERCEPTION of your jurisdiction's hazards, to what degree of emphasis would you expect your jurisdiction to mitigate the following hazards? Mitigation definition: The purpose of mitigation planning is to identify policies and actions that can be implemented over the long term to reduce risk and future losses. Mitigation forms the foundation for a community's long-term strategy to reduce disaster losses and break the cycle of disaster damage, reconstruction, and repeated damage.

No Mitigation Needed = No mitigation on this hazard is expected or needed

Low Priority = This hazard should be mitigated, but is not a high priority compared to other hazards

Medium Priority = It is important to mitigate this hazard

High Priority = It is a high priority to emphasize mitigation for this hazard

	No Mitigation Needed		Low Priority		Medium Priority		High Priority		Responses
	Count	Row %	Count	Row %	Count	Row %	Count	Row %	Count
Civil Disorder/Riot	39	19.2%	102	50.2%	44	21.7%	18	8.9%	203
Crop Failure (Heat, Disease, Insects/Pests, etc.)	19	9.4%	58	28.6%	94	46.3%	32	15.8%	203
Cyber Security Threat	10	5.0%	38	18.9%	93	46.3%	60	29.9%	201
Dam Failure	46	22.8%	82	40.6%	48	23.8%	26	12.9%	202
Severe or Prolonged Drought	13	6.4%	57	28.2%	93	46.0%	39	19.3%	202
Earthquake	6	3.0%	55	27.4%	90	44.8%	50	24.9%	201
Extreme Cold Incident	4	2.0%	32	15.8%	74	36.6%	92	45.5%	202
Extreme Heat Incident	26	12.9%	94	46.8%	59	29.4%	22	10.9%	201

Based on YOUR PERCEPTION of your jurisdiction's hazards, to what degree of emphasis would you expect your jurisdiction to mitigate the following hazards? Mitigation definition: The purpose of mitigation planning is to identify policies and actions that can be implemented over the long term to reduce risk and future losses. Mitigation forms the foundation for a community's long-term strategy to reduce disaster losses and break the cycle of disaster damage, reconstruction, and repeated damage.

No Mitigation Needed = No mitigation on this hazard is expected or needed

Low Priority = This hazard should be mitigated, but is not a high priority compared to other hazards

Medium Priority = It is important to mitigate this hazard

High Priority = It is a high priority to emphasize mitigation for this hazard

	No Mitigation Needed		Low Priority		Medium Priority		High Priority		Responses
	Count	Row %	Count	Row %	Count	Row %	Count	Row %	Count
Flash Flooding/Overland Flooding	8	4.0%	58	29.0%	97	48.5%	37	18.5%	200
Riverine Flooding	17	8.6%	69	34.8%	88	44.4%	24	12.1%	198
Hail	35	17.4%	82	40.8%	69	34.3%	15	7.5%	201
Hazardous Materials Release (example: Chemical Spill)	15	7.5%	92	45.8%	62	30.8%	32	15.9%	201
Infrastructure Failure (example: Bridge Collapse)	11	5.5%	80	39.8%	70	34.8%	40	19.9%	201
Landslide	56	27.9%	106	52.7%	31	15.4%	8	4.0%	201
Lightning	37	18.5%	103	51.5%	49	24.5%	11	5.5%	200
Nuclear Event	27	13.5%	75	37.5%	59	29.5%	39	19.5%	200
Power Failure	0	%	19	9.5%	82	40.8%	100	49.8%	201

Based on YOUR PERCEPTION of your jurisdiction's hazards, to what degree of emphasis would you expect your jurisdiction to mitigate the following hazards? Mitigation definition: The purpose of mitigation planning is to identify policies and actions that can be implemented over the long term to reduce risk and future losses. Mitigation forms the foundation for a community's long-term strategy to reduce disaster losses and break the cycle of disaster damage, reconstruction, and repeated damage.

No Mitigation Needed = No mitigation on this hazard is expected or needed

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Medium Priority = It is important to mitigate this hazard

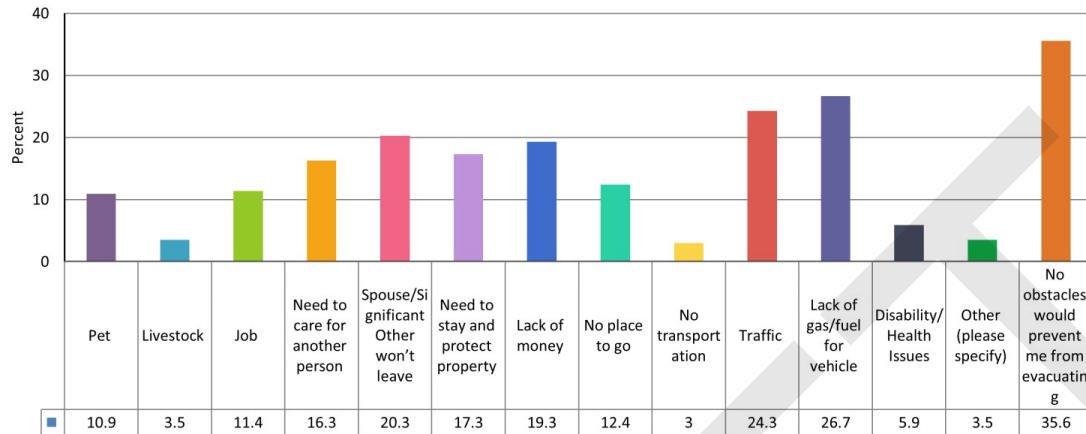
High Priority = It is a high priority to emphasize mitigation for this hazard

	No Mitigation Needed		Low Priority		Medium Priority		High Priority		Responses
	Count	Row %	Count	Row %	Count	Row %	Count	Row %	Count
Public Health Emergency (example: Pandemic)	5	2.5%	45	22.3%	92	45.5%	60	29.7%	202
Severe Winter Storm/Heavy Snowfall/Ice Storm	2	1.0%	24	11.9%	76	37.6%	100	49.5%	202
Snow Avalanche	62	30.7%	84	41.6%	39	19.3%	17	8.4%	202
Straight Line Wind	20	10.0%	84	42.0%	75	37.5%	21	10.5%	200
Structural Fire	12	6.0%	67	33.7%	80	40.2%	40	20.1%	199
Terrorism Incident	23	11.4%	85	42.1%	65	32.2%	29	14.4%	202
Tornado and High Winds	13	6.4%	74	36.6%	85	42.1%	30	14.9%	202
Wildfires	7	3.5%	38	19.0%	96	48.0%	59	29.5%	200

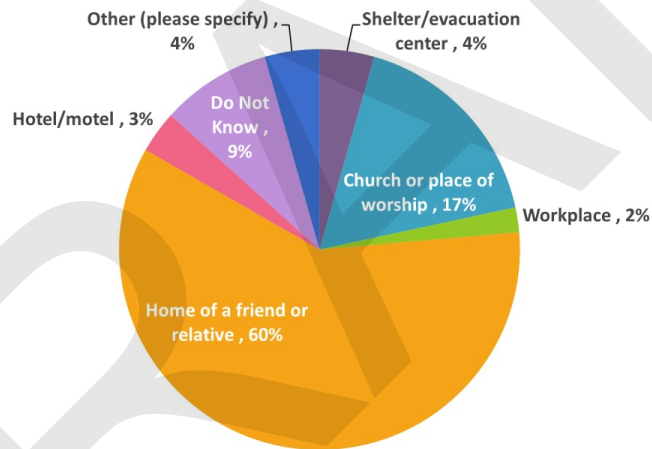
If an evacuation was ordered for your area, please indicate how likely you would be to do the following.

	Very Likely		Somewhat Likely		Not Very Likely		Not Likely at All		Do Not Know		Not Applicable		Responses
	Count	Row %	Count	Row %	Count	Row %	Count	Row %	Count	Row %	Count	Row %	Count
Immediately evacuate as instructed.	120	59.4%	68	33.7%	9	4.5%	2	1.0%	3	1.5%	0	%	202
I would first consult with family and friends outside my household before making a decision to evacuate.	70	35.0%	76	38.0%	35	17.5%	17	8.5%	1	0.5%	1	0.5%	200
Wait and see how bad the situation is going to be before deciding to evacuate.	13	6.5%	70	35.2%	69	34.7%	43	21.6%	3	1.5%	1	0.5%	199
Refuse to evacuate no matter what.	2	1.0%	6	3.0%	38	19.1%	146	73.4%	3	1.5%	4	2.0%	199

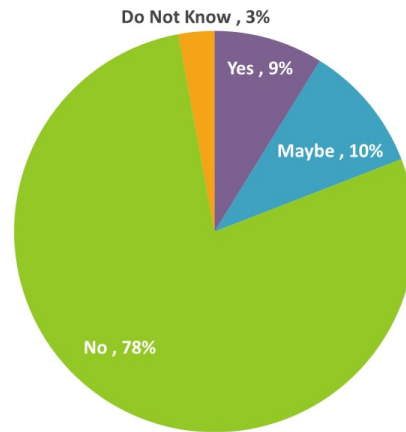
What might prevent you from leaving your place of residence if there was an evacuation order? Please select ALL that apply.



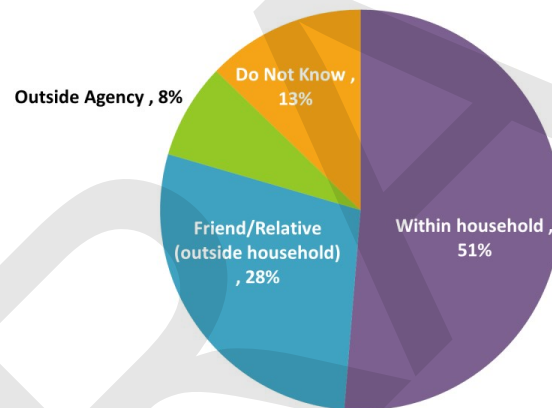
If you were to evacuate, where would you most likely stay? Please select the best answer.



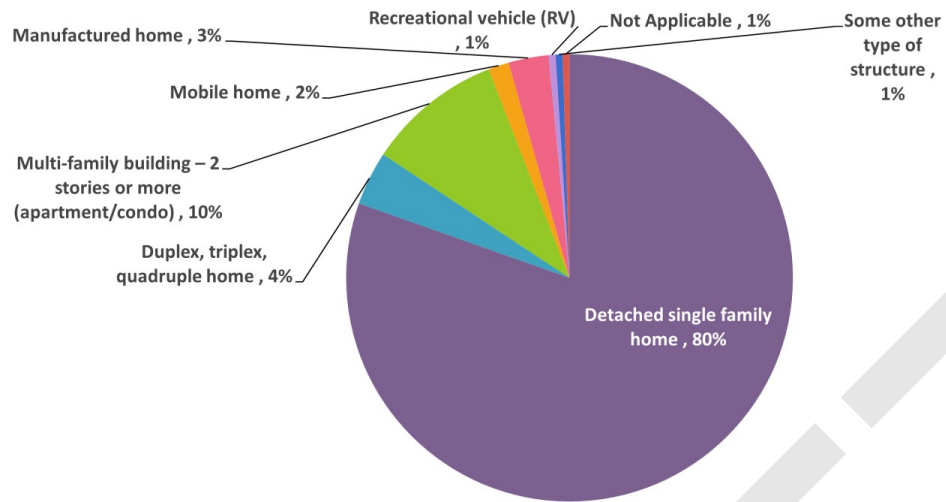
In an evacuation, would you or anyone in your household require special assistance?



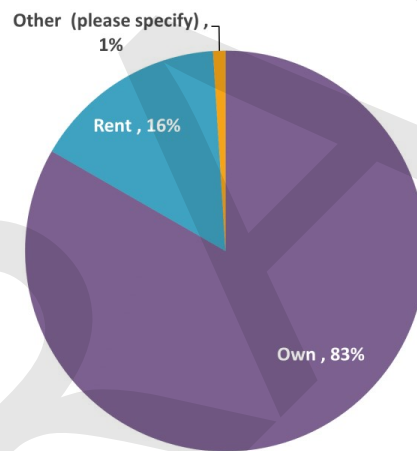
If yes, would that assistance be provided by someone within your household, by an outside agency, or by a friend or relative outside your household?



What type of structure do you live in?



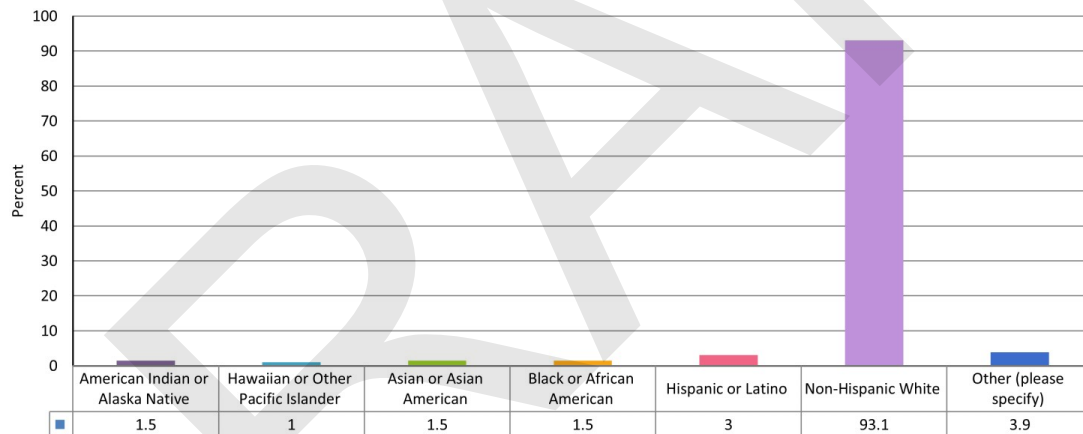
Do you own or rent your home/place of residence?



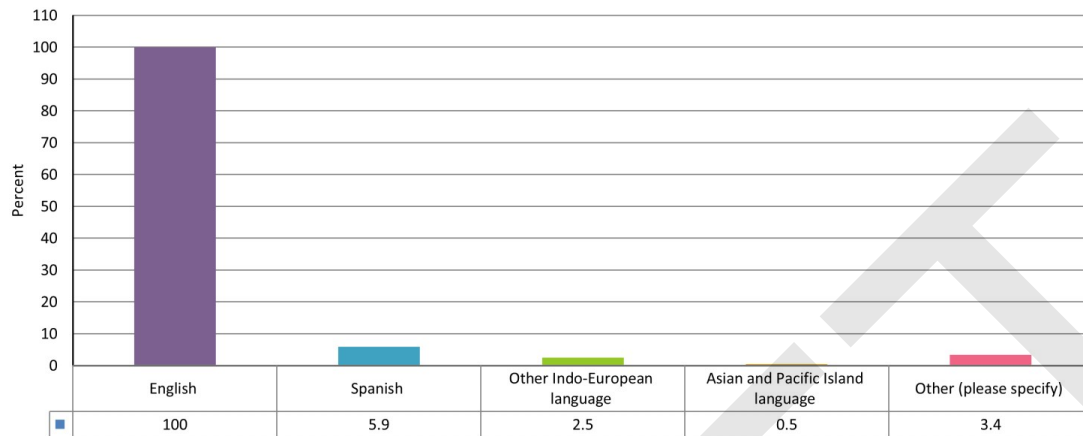
How many persons, including yourself, are currently living in your household?

	1		2		3		4		5		6		7		8		9		10 or more		Responses
	Row %	Count	Row %	Count	Row %	Count	Row %	Count	Row %	Count	Row %	Count	Row %	Count	Row %	Count	Row %	Count	Row %	Count	
Under age 5	51.8%	29	39.3%	22	7.1%	4	1.8%	1	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	56
Ages 6 - 10	59.7%	40	37.3%	25	3.0%	2	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	67
Ages 11 - 19	43.5%	47	29.6%	32	16.7%	18	8.3%	9	1.9%	2	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	108
Ages 20 - 44	26.0%	33	66.1%	84	4.7%	6	1.6%	2	1.6%	2	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	127
Ages 45 - 64	34.4%	32	65.6%	61	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	93
Ages 65 - 79	54.8%	17	45.2%	14	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	31
Ages 80+	60.0%	6	40.0%	4	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	10
Total											492										

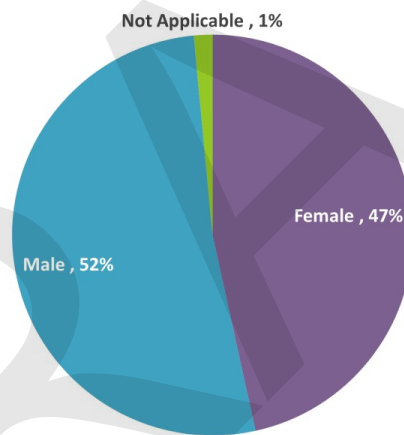
Which of the following best describes your race/ethnicity? Please select ALL that apply.



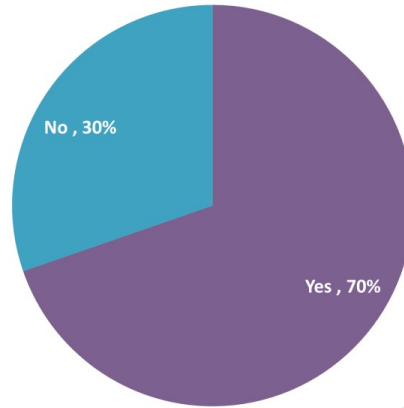
Please indicate the language(s) spoken in your household. Please select ALL that apply.



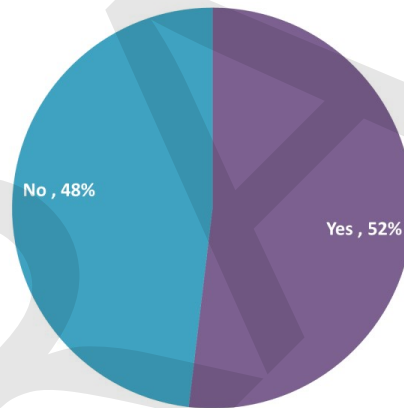
Please indicate your sex.



(OPTIONAL): Would you like more information on how you can be more prepared?



(OPTIONAL): Would you be interested in participating in a free training led by The Community Emergency Response Team (CERT) Program on disaster preparedness? More information on the CERT Program is available on the next page.



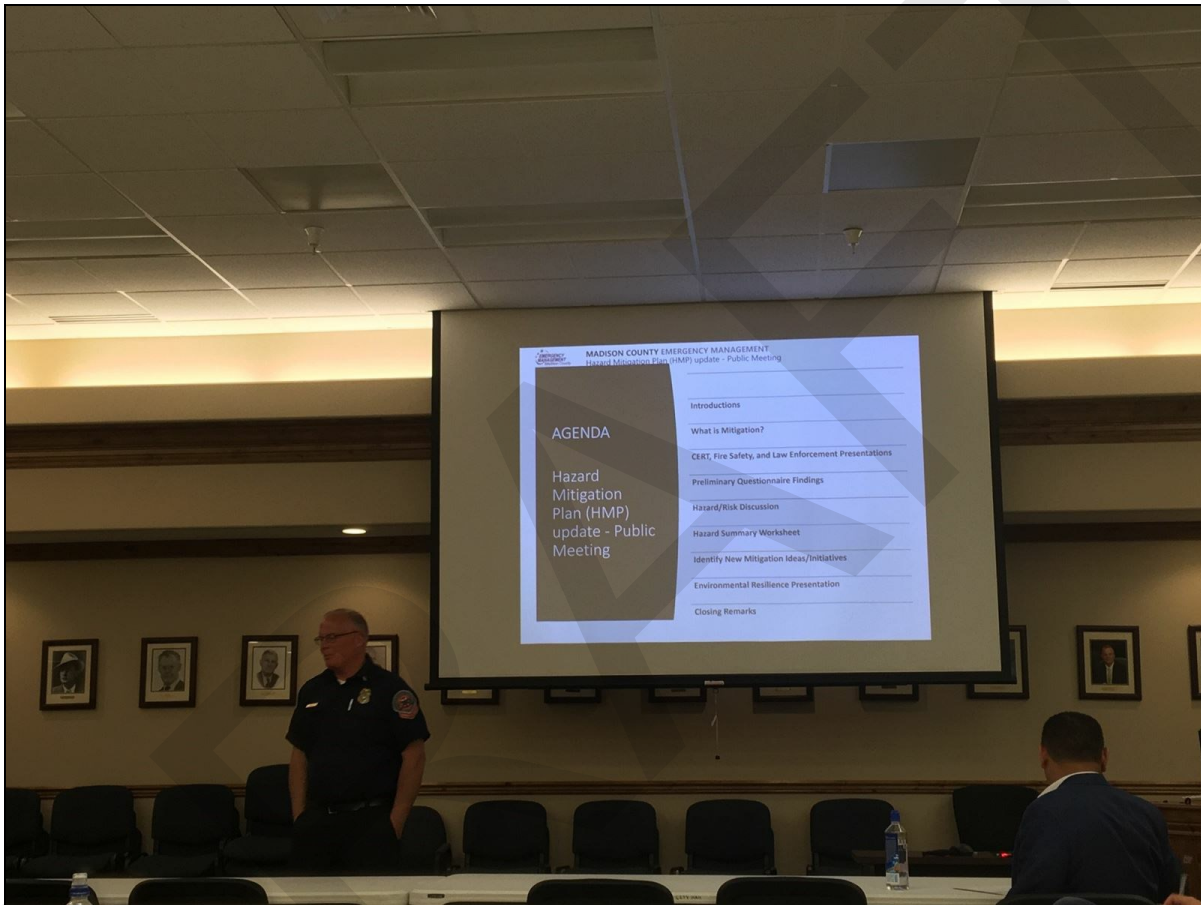
1.10.3 Public & Steering Committee Meetings

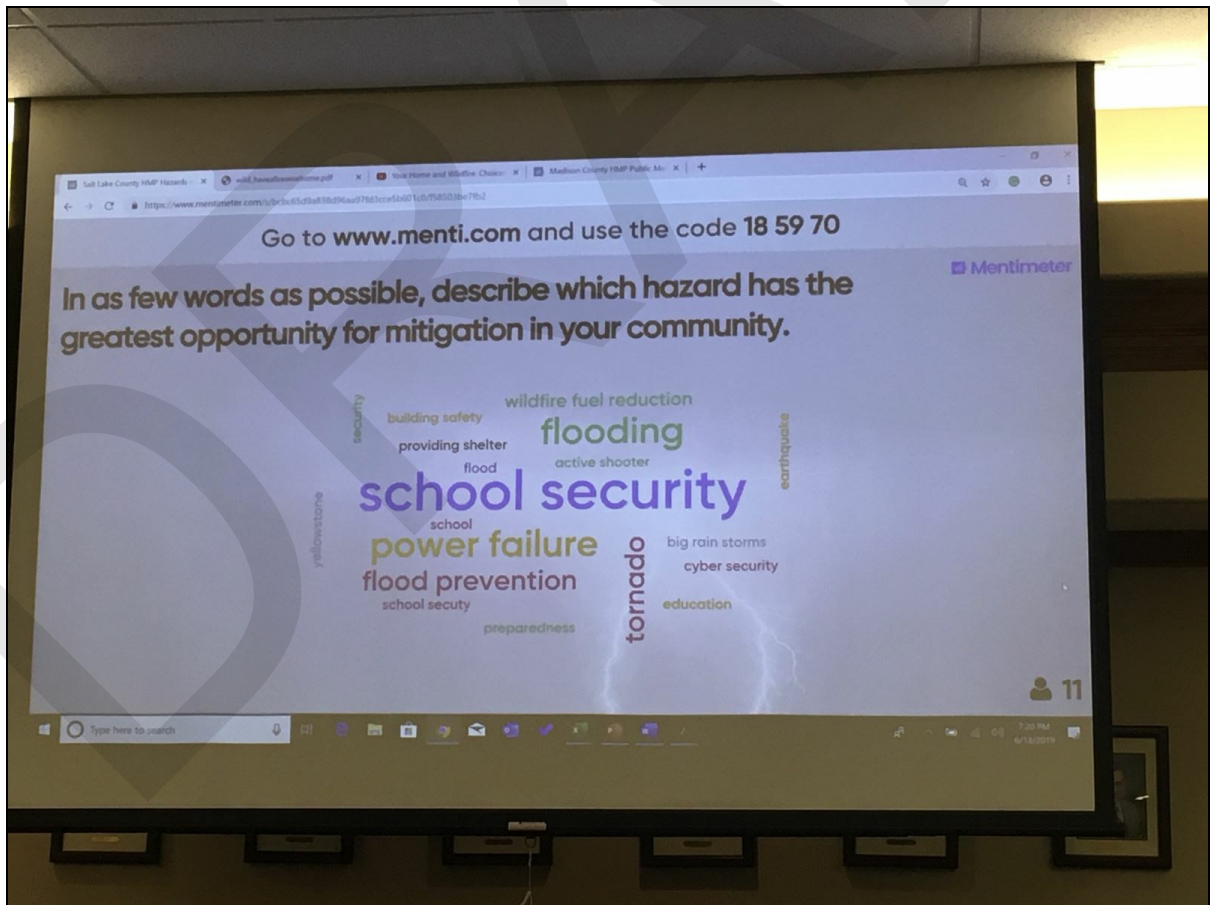
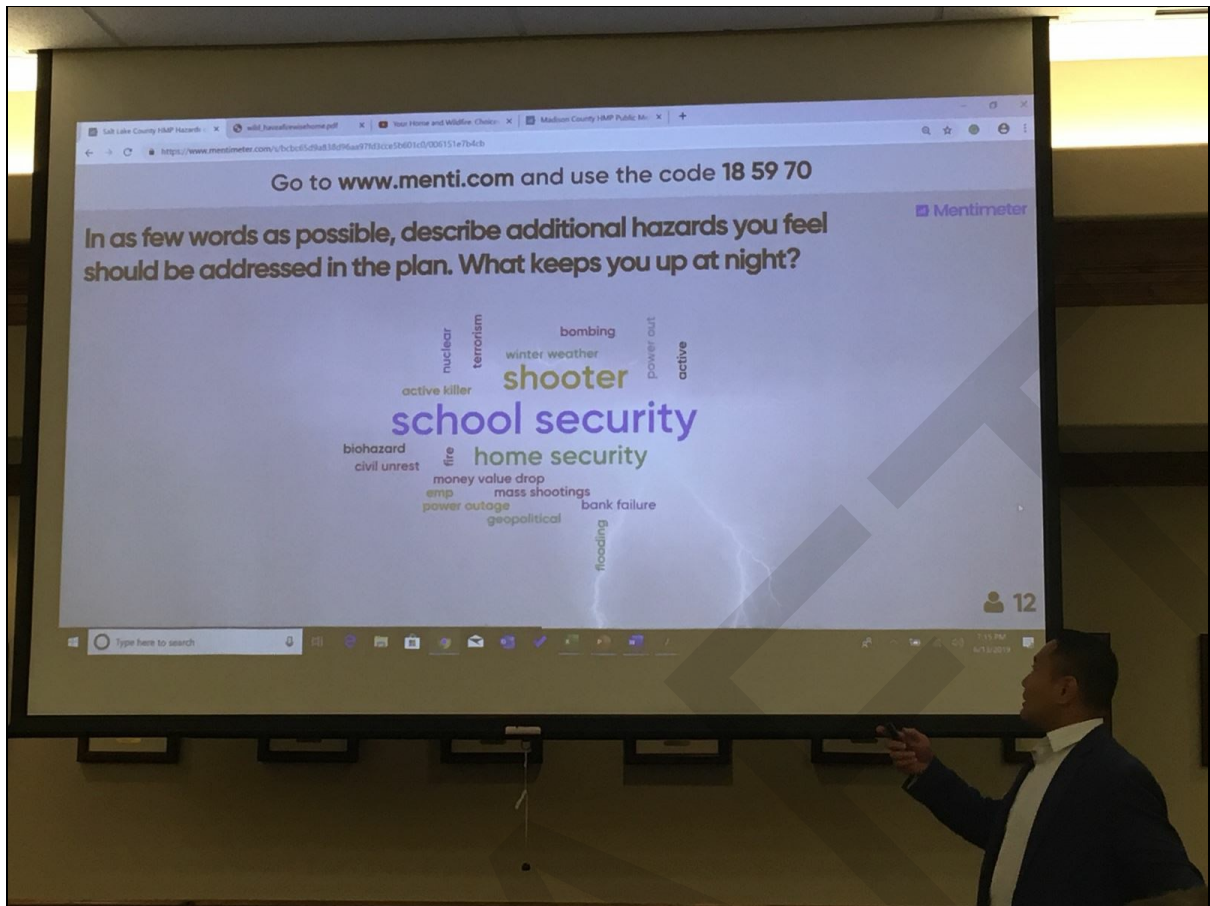
The Core Planning Team met every week and additionally, frequently met outside of regularly scheduled meeting times. The Core Planning Team met virtually and weekly attendance sheet can be accessed [here](#). The Steering Committee convened three times and members of the committee met with the Core Planning Team to review portions of the plan relevant to their field. Two public meetings were held as part of the Hazard Mitigation Plan update.

The first steering committee meeting occurred on March 7, 2019. The sign-in sheet can be found through this [link](#). At the meeting, the hazards list and jurisdiction participation were confirmed, as well as completion of hazard worksheets by all participants to identify hazard risks and potential mitigation actions.

The first public meeting was held on June 13, 2019. The Community Preparedness Survey results were shared along with sharing information on the Hazard Mitigation Plan, sharing community resources to build community awareness, and the participants were polled on their viewpoints on hazard mitigation. The sign-in sheet can be accessed through this [link](#) and pictures from the meeting are highlighted below. Prior to the public meeting, a Steering Committee meeting was held. At the meeting, the participants reviewed the survey results and completed the mitigation action worksheets. The sign-in for this meeting can be found in this [link](#).

A second public meeting and third Steering Committee meeting was held on August 7, 2019, after the Hazard Mitigation Plan Draft was publicly shared. The plan was reviewed, with special attention paid to highlighting the mitigation actions, hazard risk rankings, and integration with existing and upcoming plans. Feedback was given and integrated into the final version of the HMP. The sign-in sheet for this meeting can be found through this [link](#).







1.11 Appendix C: References

- † Code of Ordinances | Madison County, ID | Municode Library." https://library.municode.com/id/madison_county/codes/code_of_ordinances (August 1, 2019).
- "06-GA50553-02b_Web.Pdf." https://www.id.energy.gov/News/PDF/06-GA50553-02b_Web.pdf (August 1, 2019).
- "1981-2010 Normals | Data Tools | Climate Data Online (CDO) | National Climatic Data Center (NCDC)." <https://www.ncdc.noaa.gov/cdo-web/data/tools/normals> (August 1, 2019).
- "2017 TRI Factsheet for Madison County, ID | TRI Explorer | US EPA." https://iaspub.epa.gov/triexplorer/tri_factsheet/factsheet?&pYear=2017&pstate=ID&pcounty=madison&pParent=NAT (August 1, 2019).
- "2018 IRC - International Residential Code for One and Two Family Dwellings | Building America Solution Center." <https://basc.pnnl.gov/resources/2018-irc-international-residential-code-one-and-two-family-dwellings> (August 1, 2019).
- admin. "Hail Map for Rexburg, ID." *Interactive Hail Maps*. <http://www.interactivehailmaps.com/local-hail-map/rexburg-id/> (August 1, 2019a).
- . "Parks - Rexburg Area Chamber of Commerce | Connect | Partner | Prosper." *Rexburg Area Chamber of Commerce | Connect | Partner | Prosper*. <http://rexburgchamber.org/activities-in-and-around-rexburg/parks/> (August 1, 2019b).
- ajacobc@juvsi.com, By Adam Jacobs. "FEMA Plans Floodplain Expansion for Madison County." *Standard Journal*. https://www.rexburgstandardjournal.com/news/local/fema-plans-floodplain-expansion-for-madison-county/article_6ff2739e-46cf-5965-a769-772ca351b4fb.html (August 1, 2019).
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