2016

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TETON COUNTY

TETON

ALL HAZARD MITIGATION PLAN

ESTABLISHED 1915

TETON COUNTY

STATE OF IDAHO

All Hazard Mitigation Plan

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Teton County, Idaho
Multi-Jurisdiction All Hazard Mitigation Plan

UPDATE

February 2016

Prepared for:

Teton County
150 Courthouse Drive
Driggs, ID 83422

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Preface

Teton County Multi-Jurisdiction All Hazard Mitigation Plan 2008
The Teton County All Hazard Mitigation Plan was developed in late fall of 2006 through the spring of 2008. It contains information relative to the hazards and vulnerabilities facing Teton County. The jurisdictions participating in this version of the Plan included Teton County and the cities of Victor, Driggs, and Tetonia.

As a requirement of the Disaster Mitigation Act of 2000, this plan is updated every five years.

Teton County Multi-Jurisdiction All Hazard Mitigation Plan 2016
The Teton County Multi-Jurisdiction All Hazard Mitigation was updated in 2016, and represents the most current version of the plan.

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Promulgation and Adoption

Teton County Resolution 2016-0725B

Resolution Adopting the
Teton County All Hazard Mitigation Plan

WHEREAS, the County recognizes the threat that natural hazards pose to people and property; and

WHEREAS, undertaking hazard mitigation actions before disasters occur will reduce the potential for harm to people and property and save taxpayer dollars; and

WHEREAS, an adopted all hazard mitigation plan is required by FEMA as a condition of future grant funding for mitigation projects under FEMA pre- and post-disaster mitigation grant programs; and

WHEREAS, Teton County participated jointly in the planning and update process with cities of Driggs, Tetonia and Victor to prepare an All Hazard Mitigation Plan, which was made available for review and will reside permanently in the Teton County Office of Emergency Management; and

WHEREAS, The Idaho Office of Emergency Management and Federal Emergency Management Agency, Region X, officials reviewed the 2016 update and approved it contingent upon this official adoption by the participating governing body; and

NOW THEREFORE IT IS HEREBY RESOLVED that Teton County hereby adopts the 2016 Teton County All Hazards Mitigation Plan as an official plan, and do hereby endorse and agree to participate in the implementation of the Teton County All Hazard Mitigation Plan as it applies to this jurisdiction.

Passed this 25th day of July 2016

Commissioner Bill Leake

ATTEST:

County Clerk Mary Lou Hansen

U.S. Department of Homeland Security
FEMA Region 10
130 – 228th Street, SW
Bothell, Washington 98021-8627

FEMA

September 13, 2016

Honorable Bill Leake
Chair, Teton County Commissioners
150 Courthouse Drive
Driggs, Idaho 83422

Dear Chair Leake:

On September 9, 2016, the U.S. Department of Homeland Security's Federal Emergency Management Agency (FEMA), Region 10, approved the ***Teton County Hazard Mitigation Plan*** as a multi-jurisdictional local plan as outlined in Code of Federal Regulations Title 44 Part 201. This approval provides the below jurisdictions eligibility to apply for the Robert T. Stafford Disaster Relief and Emergency Assistance Act's, Hazard Mitigation Assistance (HMA) grants projects through September 8, 2021. Through your state:

COUNTY / CITIES / TOWNS		
Teton County	**City of Driggs**	**City of Tetonia**
City of Victor		

FEMA individually evaluates all application requests for funding according to the specific eligibility requirements of the applicable program. Though a specific mitigation activity or project identified in the plan may meet the eligibility requirements, it may not automatically receive approval for FEMA funding under any of the aforementioned programs.

Over the next five years, we encourage your communities to follow the plan's schedule for monitoring and updating, and to develop further mitigation actions. To continue eligibility, jurisdictions must review, revise as appropriate, and resubmit the plan within five years of the original approval date.

If you have questions regarding your plan's approval or FEMA's mitigation grant programs, please contact Ben Roeber, Senior Mitigation Planner with Idaho Office of Emergency Management, at (208) 258-6544, who coordinates and administers these efforts for local entities.

Sincerely,

Mark Carey, Director
Mitigation Division

cc: Susan Cleverley, Idaho Office of Emergency Management

Enclosure

BH:vl

www.fema.gov

Notice of Endorsement & Participation

City of Driggs
Resolution #318-16

Resolution Adopting the
Teton County All Hazard Mitigation Plan

WHEREAS, the City recognizes the threat that natural hazards pose to people and property; and

WHEREAS, undertaking hazard mitigation actions before disasters occur will reduce the potential for harm to people and property and save taxpayer dollars; and

WHEREAS, an adopted all hazard mitigation plan is required by FEMA as a condition of future grant funding for mitigation projects under FEMA pre- and post-disaster mitigation grant programs; and

WHEREAS, the City of Driggs participated jointly in the planning and update process with Teton County and the cities of Tetonia and Victor to prepare an All Hazard Mitigation Plan, which was made available for review and will reside permanently in the Teton County Office of Emergency Management; and

WHEREAS, The Idaho Office of Emergency Management and Federal Emergency Management Agency, Region X, officials reviewed the 2016 update and approved it contingent upon this official adoption by the participating governing body; and

NOW THEREFORE IT IS HEREBY RESOLVED that The City of Driggs hereby adopts the 2016 Teton County All Hazards Mitigation Plan as an official plan, and do hereby endorse and agree to participate in the implementation of the Teton County All Hazard Mitigation Plan as it applies to this jurisdiction.

Passed this 19th day of July, 2016

Mayor Hyrum Johnson

ATTEST:

Driggs City Clerk

Resolution 2016-3

City of Tetonia

Resolution 2016-3

Resolution Adopting the
Teton County All Hazard Mitigation Plan

WHEREAS, the City recognizes the threat that natural hazards pose to people and property; and

WHEREAS, undertaking hazard mitigation actions before disasters occur will reduce the potential for harm to people and property and save taxpayer dollars; and

WHEREAS, an adopted all hazard mitigation plan is required by FEMA as a condition of future grant funding for mitigation projects under FEMA pre- and post-disaster mitigation grant programs; and

WHEREAS, the City of Tetonia participated jointly in the planning and update process with Teton County and the cities of Driggs and Victor to prepare an All Hazard Mitigation Plan, which was made available for review and will reside permanently in the Teton County Office of Emergency Management; and

WHEREAS, The Idaho Office of Emergency Management and Federal Emergency Management Agency, Region X, officials reviewed the 2016 update and approved it contingent upon this official adoption by the participating governing body; and

NOW THEREFORE IT IS HEREBY RESOLVED that The City of Tetonia hereby adopts the 2016 Teton County All Hazards Mitigation Plan as an official plan, and do hereby endorse and agree to participate in the implementation of the Teton County All Hazard Mitigation Plan as it applies to this jurisdiction.

Passed this 8th day of August 2016

Gloria Hoopes
Mayor Gloria Hoopes

ATTEST:

Brittney Bauwser
Tetonia City Clerk

Resolution 16-07-27 (3)

A Resolution of the City of Victor Adopting the Teton County All Hazard Mitigation Plan

WHEREAS, the City recognizes the threat that natural hazards pose to people and property; and

WHEREAS, undertaking hazard mitigation actions before disasters occur will reduce the potential for harm to people and property and save taxpayer dollars; and

WHEREAS, an adopted all hazard mitigation plan is required by FEMA as a condition of future grant funding for mitigation projects under FEMA pre- and post-disaster mitigation grant programs; and

WHEREAS, the City of Victor participated jointly in the planning and update process with Teton County and the cities of Driggs and Tetonia to prepare an All Hazard Mitigation Plan, which was made available for review and will reside permanently in the Teton County Office of Emergency Management; and

WHEREAS, The Idaho Office of Emergency Management and Federal Emergency Management Agency, Region X, officials reviewed the 2016 update and approved it contingent upon this official adoption by the participating governing body; and

NOW THEREFORE IT IS HEREBY RESOLVED that The City of Victor hereby adopts the 2016 Teton County All Hazards Mitigation Plan as an official plan, and does hereby endorse and agree to participate in the implementation of the Teton County All Hazard Mitigation Plan as it applies to this jurisdiction.

Passed this 27th day of July, 2016

Mayor Jeff Potter

ATTEST:

Victor City Clerk

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Section 1: Planning Process

Introduction

Teton County Idaho and the incorporated Cities that lie within the County boundaries are vulnerable to natural, technological, and man-made hazards that have the possibility of causing serious threats to the health, welfare, and security of its residents. The cost of response to and recovery from the potential disasters, in terms of 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 All Hazard Mitigation Plan 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 threat to life and property. The Plan is based on the premise that hazard mitigation works! With increased attention to managing natural hazards, communities can reduce the threats to citizens and through proper land use and emergency planning to avoid creating new problems in the future. Many solutions can be implemented at minimal cost and social impact.

This is not an emergency response or management plan. Certainly, the Plan can be used to identify weaknesses and refocus emergency response planning. Enhanced emergency response planning is an important mitigation strategy. However, the focus of this Plan is to support better decision making directed toward avoidance of future risk, 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.

Plan Organization

- Section 1 [Planning Process] of the Plan provides a general overview of the process, the scope, purpose, and overall goals of the plan.
- Section 2 [Community Profile] of the Plan gives a general background or description of the County's demographic, economic, cultural, and physiographic characteristics.
- Section 3 [Public Participation] summarizes the public involvement component of the Plan.
- In Section 4 [Risk Assessment], all hazards identified as affecting the County are briefly defined, analyzed at the County and incorporated City level, and then summarized.
- Section 5 [Mitigation Goals & Objectives] presents the mitigation goals and objectives.
- Section 6 [Mitigation Actions & Implementation] provides the actions and projects along with selected Mitigation Alternatives with supporting project descriptions.
- Section 7 [Plan Integration] is a review of County and City plans with observations and suggestions for integration between the Hazard Mitigation Plan and other planning efforts.

- Section 8 [Plan Maintenance] presents the plan maintenance process to update and maintain this plan as defined in DMA 2000.

- The plan also includes a number of Attachments, which are included at the end of this document.

Plan Use

The Plan should be used to help County and participating 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-jurisdictional 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 (DMA 2000).

Hazard Mitigation & Hazards

Hazard mitigation is defined as cost-effective actions that have the effect of reducing, limiting, or preventing the 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.

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 costlier than the anticipated damages.

Hazard mitigation planning must be based on vulnerabilities and its primary focus must be on the point where capital investment and land use decisions are made. The placement of capital investments, whether for homes, roads, public utilities, pipelines, power plants, or public works, determine to a large extent the nature and degree of a community's hazard vulnerability. Once a capital facility is in place, there is little opportunity to reduce hazard vulnerability through correction of errors in location or construction. It is for this reason that often the most effective mitigation tools are zoning and other ordinances that manage development in high vulnerability areas, and building codes that ensure that new buildings are constructed to withstanding the damaging forces of anticipated hazards.

Because disaster events are generally infrequent, the nature and magnitude of the threat is often ignored or poorly understood. Thus, the priority to implement mitigation measures is low and implementation is slowed. 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: Avalanche
Drought
Extreme Cold
Hail
High Wind Event
Tornado
Lightning
Severe Winter Storm

Flooding: Flooding

Geologic: Earthquake
Landslide/Mudslide
Volcanic Eruption/Ashfall

Other: Animal Disease
Public Health
Vector-Borne Disease
Wildfire

Technological (Manmade) and Political Hazards

Animal Related Accidents
Cybersecurity
Hazardous Material Event
Major Transportation Incident
Nuclear Event
Riot/Demonstration/Civil Disorder
Structural Fire
Terrorism
Utility Disruption

Purpose

The purposes of this Plan are to:

- 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

Although DMA 2000 only requires local governments to address natural hazards, the County decided it was imperative to address all hazards, including technological and political hazards.

The 2008 Multi-Jurisdiction Plan covered the areas within Teton County Idaho including the incorporated cities of Driggs, Victor, and Tetonia.

The 2016 All Hazard Mitigation Plan Update included the following jurisdictions:

- Teton County
- Driggs
- Victor
- Tetonia

Mission Statement

The Teton County Multi-Jurisdiction All Hazards Mitigation Plan 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 manmade hazards.

Teton All Hazard Mitigation Planning Committee

The initial Teton All Hazard Mitigation Planning Committee was formed on February 28, 2007. Committee membership was comprised of representatives from the Teton County Local Emergency Planning Committee, Teton County Department heads, and representatives from the incorporated cities, representatives from the major utility providers, interested media, and members of the public.

Committee Rosters, Key Stakeholders, and Agencies/Organizations are provided on the following pages:

TABLE 1.2: 2008 All Hazard Planning Committee Members

Agency	Representative	Position	E-mail
Teton County Emergency Management	Greg Adams	Coordinator	tetonemc@silverstar.com
Teton County Sheriff	Kim Cooke	Sheriff	
Idaho State Police	Terry Anderson	HAZMAT Specialist	terry.anderson@isp.idaho.gov
East Idaho Health	Mike Dronen	Env. Health	mdronen@silverstar.com
Eastern Idaho Health	Tamara Cox	HPPS Coordinator	tcox@phd7.idaho.gov
Teton Valley Ambulance	Ken Schwab	Coordinator	kschwab@tetonvalleyhospital.com
Teton Fire District	Mike Hoyle	Fire Chief	firechief@tetontel.com
KCHQ	Dave Plourde	Media	dave@q102fm.net
TCRB	Ralph Egbert	R&B Supervisor	
Teton Road and Bridge	Clay Smith	Foreman	
Teton Valley Hospital	*Susan Kunz		skunz@tetonvalleyhospital.com
Teton Fire	Bret Campbell	Assistant Chief	firemarsh@tetontel.com
Teton County SAR	Kelly Circle	Commander	circle@tetontel.com
City of Victor	Craig Sherman	Administrator	victcity@tetontel.com
Teton County Sheriff	Valee Wells	Supervisor	vwells@co.teton.id.us
BHS Regional Exercise Coordinator	*Val Judy	NE Area	vjudy@co.Teton.id.us
	(*indicates retired since start of plan)		
LEPC/TVH	Bonnie Burlage	RN	bburlage@tvhcare.org
City of Driggs	Louis B Christensen	Mayor	
Teton Fire	Bret Campbell	Assistant Chief	firemarsh@tetontel.com

Teton County Search & Rescue	Kelly Circle	Commander	circle@tetontel.com
Teton Valley Hospital	Susan Kunz	CEO	skunz@tetonvalleyhospital.com
Teton Valley Hospital	Floyd Bounds	CEO	fbounds@tvhcare.org
City of Driggs	Jared D Gunderson	Public Works	pwdriggs@pdt.net
Teton County	Bruce Nye	Building Official	bnye@co.teton.us
Teton County	Tom Davis	Building Inspector	tdavis@co.teton.us
City of Tetonia	Lyndsy Anderson	Clerk	tetoniagov@tetontel.com
City of Victor	Dan Thompson	Mayor	victorcity@tetontel.com
Teton Valley Alliance	Barbara Boyle	Asst. Coordinator TVA	barbboyle@gmail.com
Teton Valley Alliance	Nolan Boyle	Executive Coordinator TVA	nolanboyle@gmail.com
Teton School District	Gordon Wooley	Superintendent	gowool@d401.k12.id.us
Teton County	Louis Simonet	Engineer	lsimonet@co.teton.id.us
Teton Valley News	Garrett Woodward	Reporter	reporter@tetonvalleynews.net
Teton County	Larry Young	Commissioner	lyoung@co.teton.id.us
Teton County	Alice Stevenson	Commissioner	astevenson@co.teton.id.us
Teton County	Mark Trupp	Commissioner	mtrupp@co.teton.id.us
Teton County	Phillip Fox	Search and Rescue	pfox@silverstar.com

The 2016 Committee Roster is provided below:

TABLE 1.3: 2016 All Hazard Planning Committee Members

Name	Agency	Email	Phone
Greg Adams	TCEMC	gadams@co.teton.id.us	354-2703
Tom Davis	Teton County	tdavis@co.teton.id.us	313-5106

Tony Liford	Teton Sheriff	tliford@co.teton.id.us	354-2323
Bret Campbell	Teton Fire		
Kristin Rader	Teton County	krader@co.teton.id.us	354-2593
Keith Birch	IDL	birchkel@silverstar.com	354-8239
Bill Leake	Teton County	bleake@co.teton.id.us	521-4689
Darryl Johnson	Teton County	djohnson@co.teton.id.us	354-0245
John Dobbins	TVH	jdobbins@tvhcare.org	354-2383
Martell Gibbons	USFS	mdgibbons@fs.fed.us	520-5685
Mike Clements	IBHS	mclements@bhs.idaho.gov	589-0754
Jared Gunderson	Driggs	jgunderson@driggsidaho.org	354-2362
Rob Marin	Teton County	rmarin@co.teton.id.us	354-2593
Wendi Celino	Fall River Elec.	wendi.celino@fallriverelectric.com	652-7110
Lynn Bagley	Soil Conservation	jllbagley@hotmail.com	313-7562

TABLE 1.4: 2016 Organization and Agency Participation

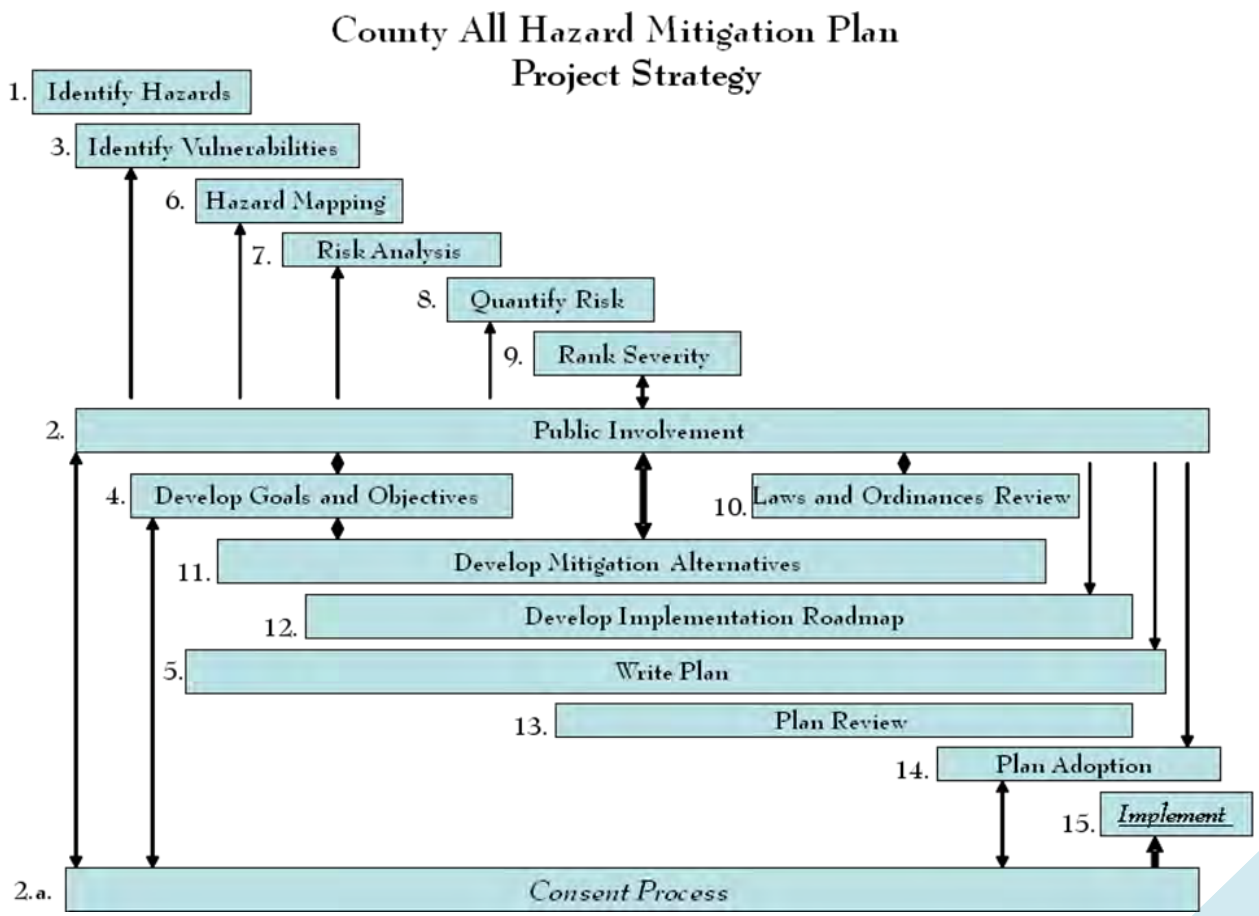
Teton County Agencies/Organizations
Teton County Emergency Management
Teton County Building Department
Teton County Sheriff's Office
Teton County Fire and Rescue
Teton County Planning and Zoning
Idaho Department of Labor
Teton County Board of County Commissioners
Teton County Public Works
Teton Valley Health Care
United States Forest Service
Idaho Bureau of Homeland Security
City of Driggs
Teton County GIS (Geographic Information Systems) – Mapping
Fall River Electric

City of Tetonia
City of Victor
Idaho Transportation Department
Silverstar Communications
Teton County Assessor
Teton County Search & Rescue
Teton County Ambulance District
Idaho Department of Lands
Teton Soil Conservation District

Planning Process

The Planning Process was initiated with the organization of a Teton County Hazard Mitigation Committee. The Committee was established under the direction of the Teton County Emergency Management Coordinator. The Fifteen Step Planning Process that was used in the development of the Teton County AHMP.

FIGURE 1.1



Step 1: Identify Hazards

Teton 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, National Weather Service weather data from the past 50 years,
- Data from the United States Geological Survey (USGS) and the Idaho State Geological Survey (ISGS), and 100-year historical analysis of hazardous event occurrences published local newspapers.

Step 2: Public Involvement

A community questionnaire was made available to residents in the County, and over 90 residents completed the questionnaire. Meetings were made open to the public, and a special Public Workshop was held in Driggs. Meetings were publicized in local newspapers, and community social media sites were used to promote meetings.

Additional public involvement took place as the Plan was reviewed at the final meeting, and the Plan was posted on the County's web site for final comment.

Step 3: Identify Vulnerabilities

The Committee examined the potential effects on the County of the listed hazards by identifying vulnerable populations, infrastructure, critical services, facilities, and the environment. Vulnerabilities were geographically identified using Geographical Information System (GIS) technology.

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 the requirements set forth by FEMA in the FEMA Criteria Crosswalk. Plan drafts were presented in hard and electronic copy as requested by the Committee. The finished Plan includes information on Plan adoption, including a promulgation page for the County and an agreement to endorse and participate for each participating City.

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 was linked electronically to the maps using GIS technology.

Step 7: Hazard Analyses

A risk analysis was conducted using the information gathered in steps 1-4 and 6. For each hazard, three kinds of information are required in order to assess risk. They are: 1) information concerning the potential amount of damage a hazard event can cause (hazard magnitude); 2) how frequently such events are likely to occur (hazard frequency); and, 3) if frequent, is the loss repetitive. 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.

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.

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.

Step 10: Laws and Ordinances Review

The Teton 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.

Step 11: Develop Mitigation Alternatives

Potential projects to address identified risk are developed and listed in the plan. The project descriptions and associated tables have addressed approximate costs, and possible returns on investments. Engineering cost estimates based on the conceptual design will be included if provided by the County.

Step 12: Develop Implementation Roadmap

Roadmapping is essentially the development of a high level project schedule and maintenance plan. The Plan Maintenance sections outlines the schedule for review and implementation, and each project is organized in a way that facilitates annual review and progress.

Step 13: Plan Review

The initial plan review was conducted by the Committee during Plan development. The Committee assessed the Plan, and the most current FEMA AHMP Review Crosswalks was utilized. Once the Plan was completed, it was submitted, along with the completed the Cross Walk, to the Idaho Bureau of Homeland Security's Hazard Mitigation Officer, and then to FEMA Region 10's Hazard Mitigation Officer for review.

Step 14: Plan Adoption

Upon State and FEMA approval, the County Emergency Management Coordinator will make formal public presentation to the Teton County Board of County Commissioners seeking their approval of the Plan. 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 Teton County Mitigation Committee and partnering stakeholders will continue the maintenance of the plan and implement the identified mitigation actions.

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Section 2: Community Profile

Teton County ranks 35th among Idaho counties in population and 43rd in area. Incorporated cities include Driggs, Tetonia and Victor. Unincorporated areas include, but are not limited to Bates, Cache, Cedron, Chapin, Clawson, Clementsville, Darby, Felt, Fox Creek, Judkins, Sam, The String, Twin Forks, and Two Forks. Driggs is the County seat. Teton County is near the popular tourist locations of Jackson Hole, Wyoming and Grand Targhee Ski Resort in Wyoming. Its proximity to these locations as well as the pristine landscape makes it ideal for many people who own second homes. The summertime residents and vacationers increase the total population by about 30-50%. Many workers in the County commute to Teton County, Wyoming for work and another small percentage commute elsewhere out of the County.

Location

Teton County is located in eastern Idaho. It is bordered on the north by Fremont County and Bitch Creek, on the east by Wyoming and the Teton Mountains, on the south by Bonneville County, and the west by Madison County. There are 450 square miles in Teton County.

Topography and Geography

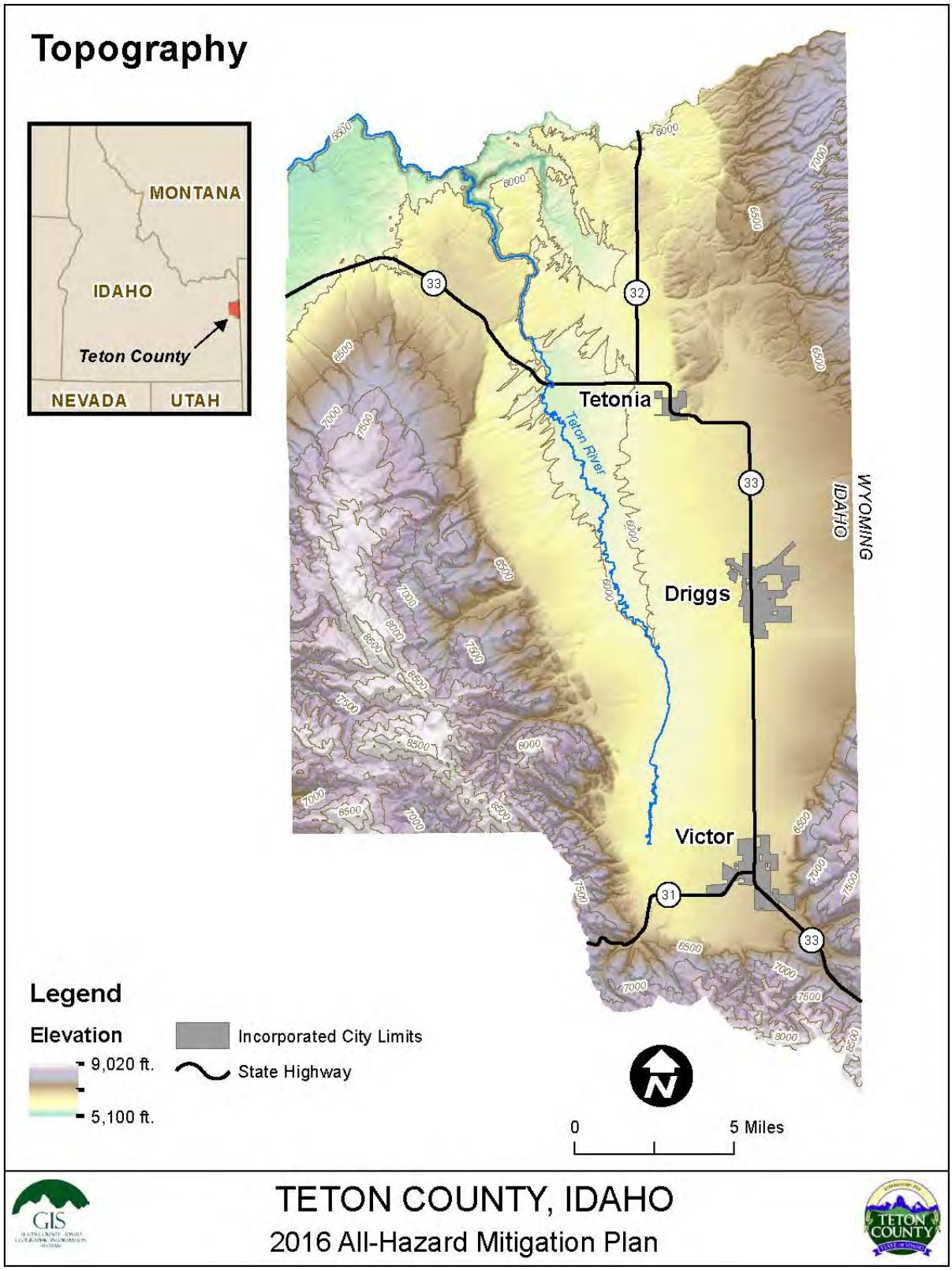
The topography in Teton County is comprised of parts of two mountain ranges and one valley. On the east side of the County is the Teton Range, which rises to a height of 12,605 at Mt. Moran; however, the border lies at the foothills of this range. On the southwest is the Big Hole Mountains (part of the Snake River Range) that rise to an elevation of 9,016 at Garns Mountain. The valley that lies between these mountain ranges is called the Teton Basin. The valley is about 15 miles wide in the central part, 8-10 miles wide at both ends and 30 miles long. The Teton River runs nearly its entire length from south to north. The elevation at Victor on the south end of the Teton Basin is 6,207.

Elevation slowly decreases northward toward Driggs, which sits at 6,116 and Tetonia at 6,060.

Hazard Risk Impact & Mitigation Implications

The topography and geography has not changed since the last update. Therefore, no additional hazard impacts are likely.

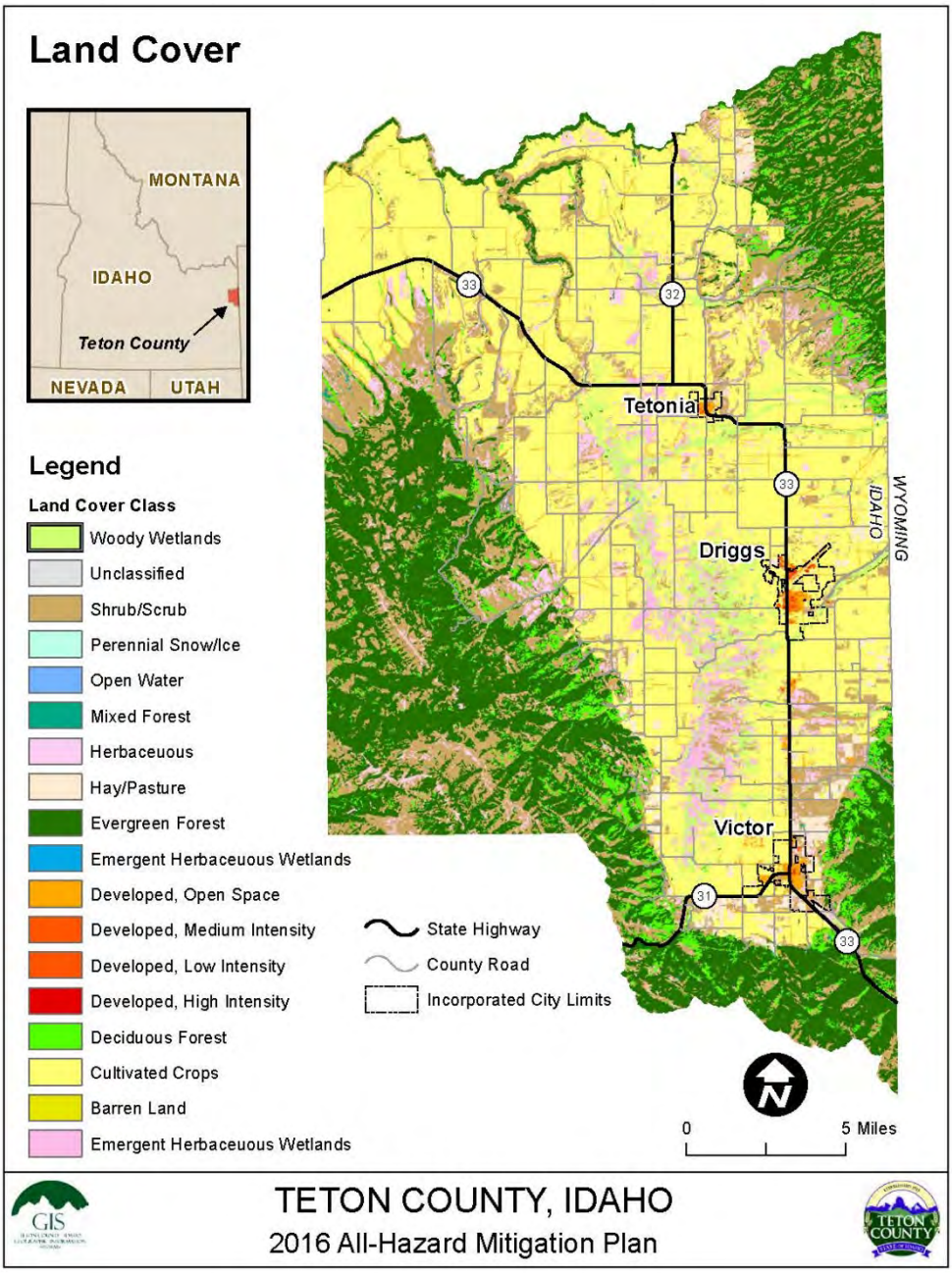
FIGURE 2.1: Topographical Map



Vegetation

Teton County is predominantly a high elevation valley habitat. There are riparian areas of grasses, sedges and low brushes on the valley floor. Sagebrush communities are common at lower elevations and on south or southwest facing slopes. The lower elevations transition to mixed conifer forests in most of the County with mixed fir at higher elevations on north and east aspects. Spruce/fir and Lodgepole pine forests are also common at higher elevations.

FIGURE 2.2 Land Cover



Hazard Risk Impact & Mitigation Implications

The vegetation in the County has not undergone significant changes since the last update. Therefore, no additional hazard impacts are likely.

Geology

Most of the soils of the valley area formed in alluvium washed from the surrounding mountains. The alluvium was deposited as large, gently sloping, coalescing alluvial fans. As is usual with water-transported material, the sediments are coarser textured on the upper part of the alluvial fans and finer textured near the bottom of the valley. In many places, loess overlies the alluvium.

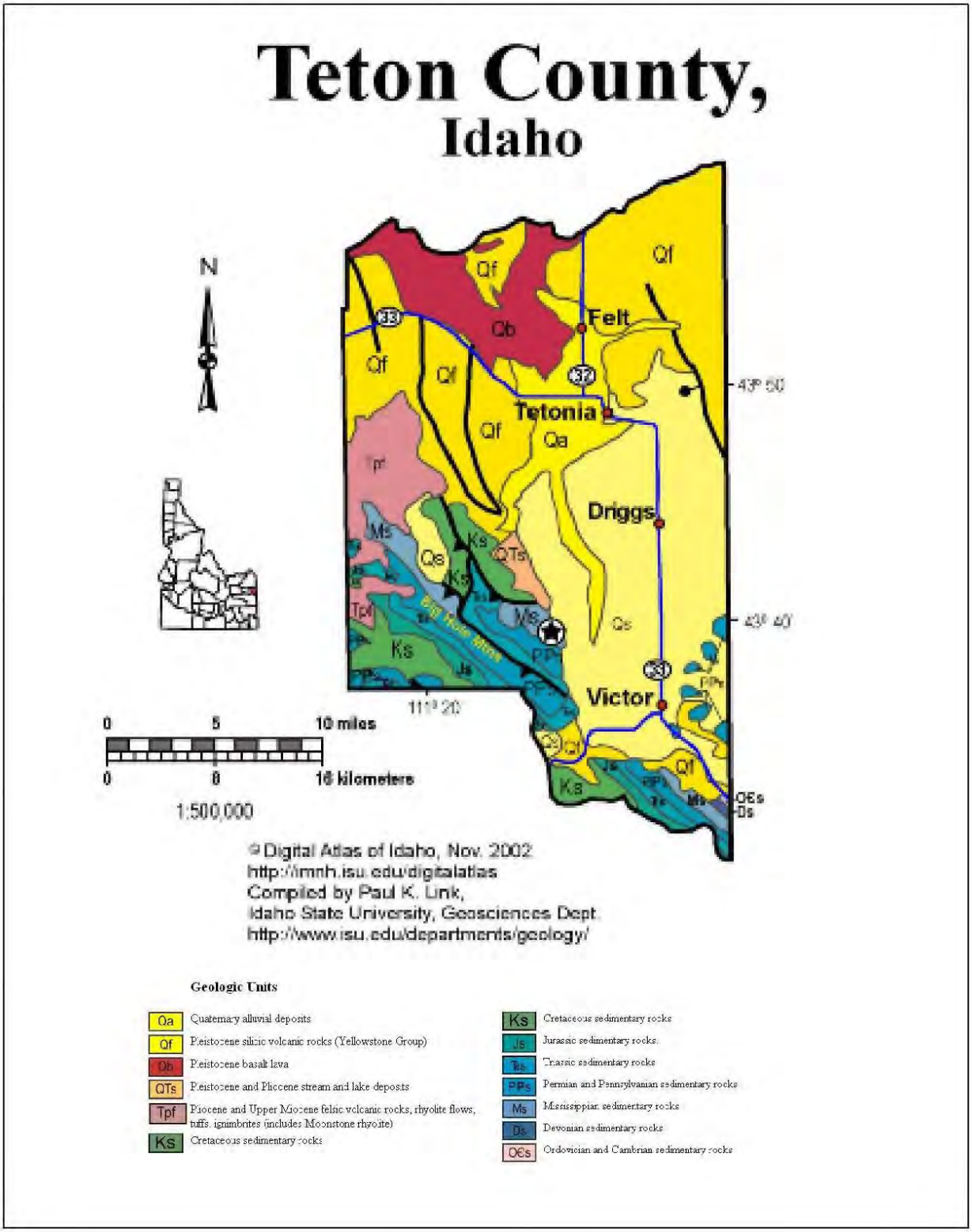
The alluvium is derived from rocks of different mineral composition, some of which comes from granite and gneiss of the Teton peaks. Other minerals include, mica flakes, sandstone, quartzite, rhyolite, limestone, dolomite, and other rocks. The northern section of the Big Horn Mountains as well as the northeast section of the County contains mostly felsic pryoclastic rock with mafic volcanic flow northwest of Tetonia. The southern section of the Big Horn Mountains is a mix a miogeosynclinal, carbonate, shale and mudstone.

There is at least one hot spring located in Teton County just west of Victor called Taylor Spring. It has a temperature of 68 degrees Fahrenheit.

Hazard Risk Impact & Mitigation Implications

The geology has not changed since the last update. Therefore, no additional hazard impacts are likely.

FIGURE 2.3: Geology Map



Climate

The climate in Teton County consists of long cold winters and moderately warm summers. Snow cover is continuous on the valley floor for about 140 days each winter. Rain is common in the spring and early summer with dry spells late in summer and early autumn. Freezing weather can occur any month of the year. The prevailing wind in the Teton Valley is from the southwest and has a mean velocity of 10-15 mph.

July is the hottest month with January being the coldest month. Average daily high for the County is about 80.6 degrees Fahrenheit and the average daily low is 4.1 degrees Fahrenheit. Average annual precipitation is between 13.8 and 16.7 inches and average annual snowfall is 73.7 inches. The driest month is November, and the wettest month is June.

Table 2.1 shows the average maximums recorded at Driggs. Table 2.2 shows the average maximum temperature recorded at the Tetonia Experimental Station.

TABLE 2.1

Average Maximum Temperature at Driggs, Idaho (1904 – 2015)

Average Maximum Temperature (F)												
Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Annual
29.3	33.7	40.2	51.5	61.9	70.9	80.6	79.2	70.0	57.8	41.1	31.2	53.9

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

TABLE 2.2

Average Maximum Temperature at the Tetonia Experimental Station, Idaho (1949-2015)

Average Maximum Temperature (F)												
Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Annual
27.8	32.3	39.4	49.9	61.5	70.4	80.6	79.1	69.5	56.3	39.5	29.4	53.0

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

FIGURE 2.4: Average Annual Precipitation for Idaho

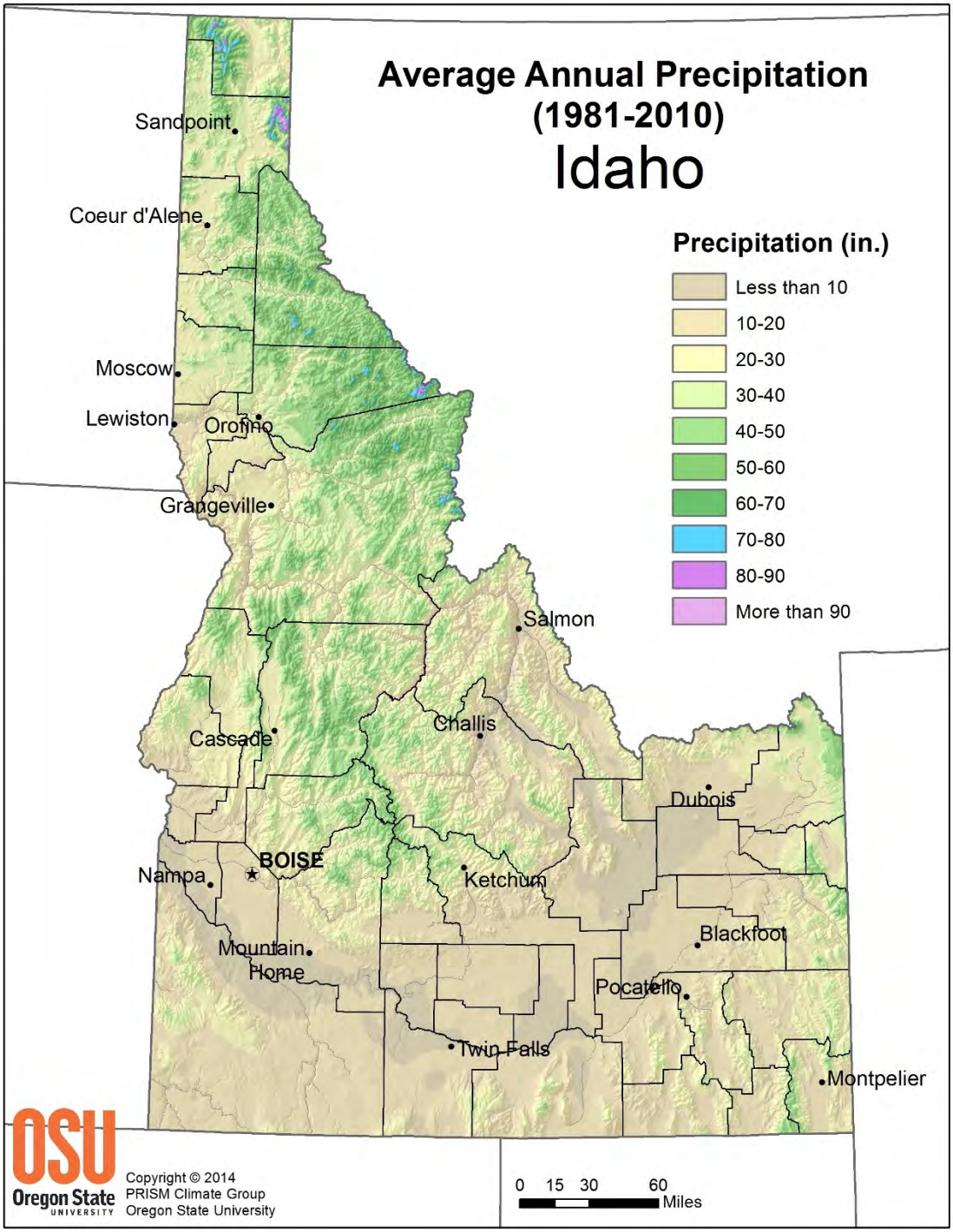
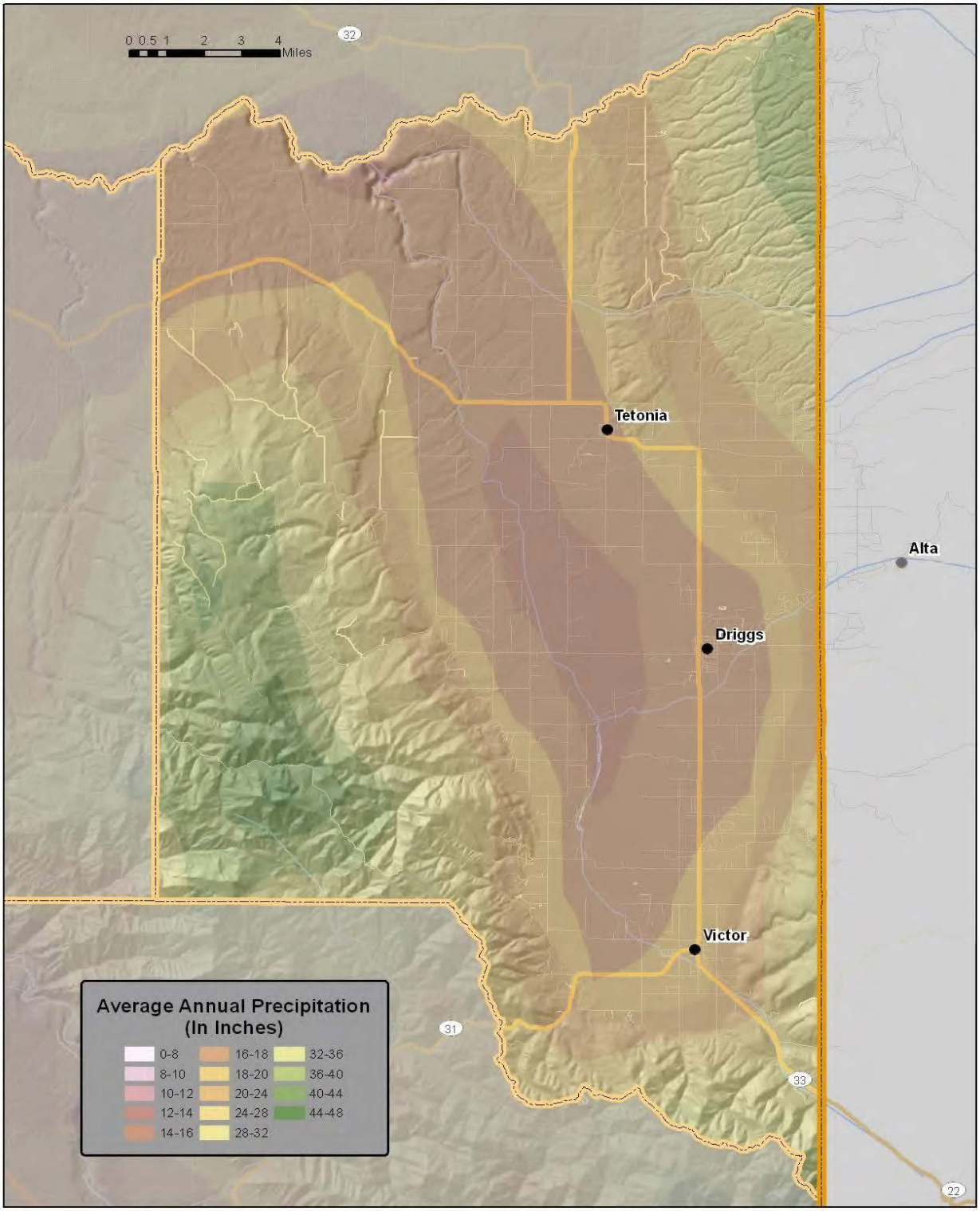


FIGURE 2.5: Average Annual Precipitation in the County



Hazard Risk Impact & Mitigation Implications

The climate has not changed significantly since the last update. Therefore, no additional hazard impacts are likely.

Land Ownership

The following data is related to development in unincorporated Teton County as of May 2012. This does not include areas within the city limits of Driggs, Victor, and Tetonia unless specifically noted.

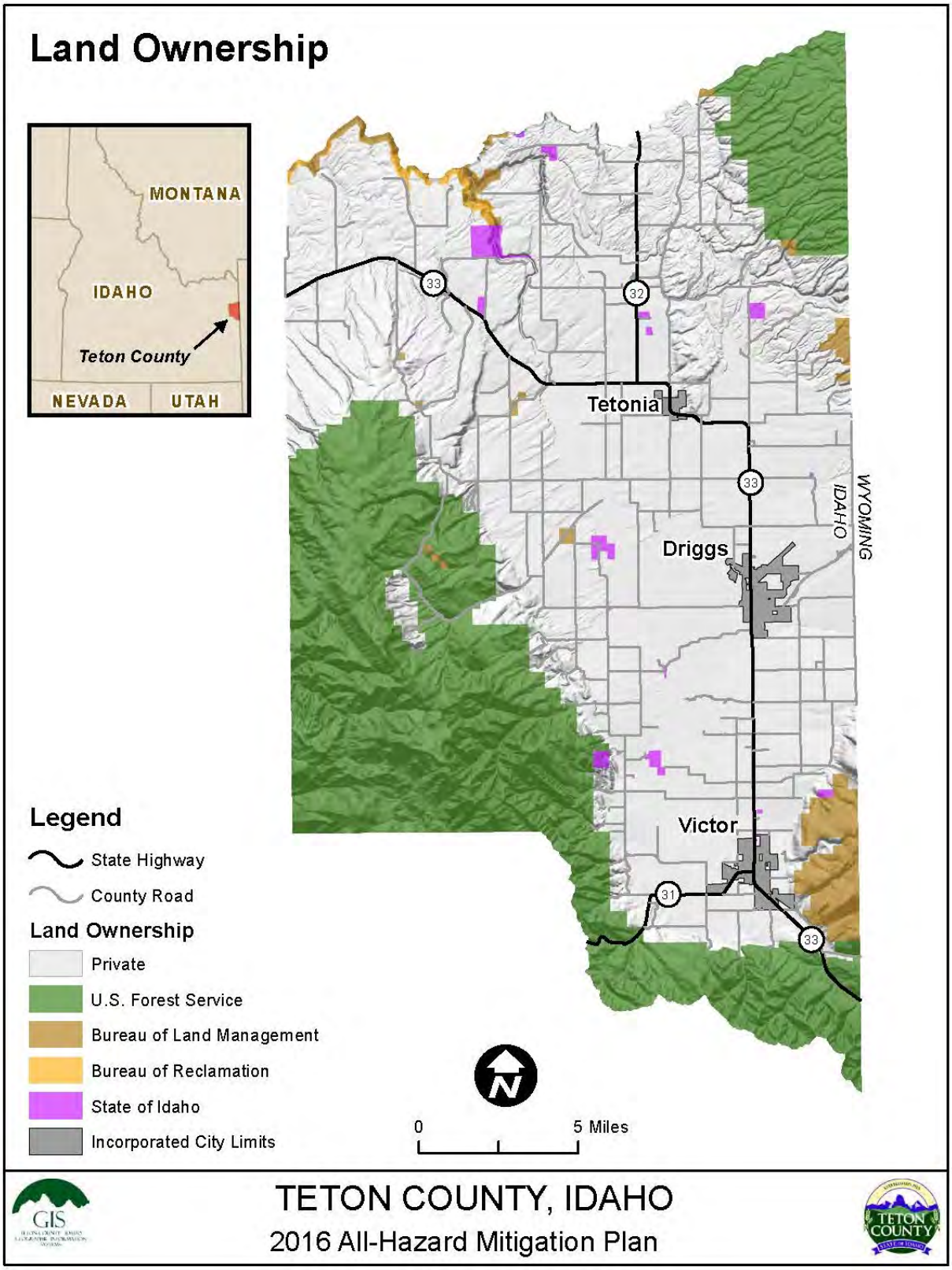
TABLE 2.3: Land Ownership

Land Ownership	Area (acres)	% of Total
Total Area of County (including cities)	288,376	100%
Public Land (USFS, BLM, State, County)	95,923	33%
City Limits (Driggs, Victor, Tetonia)	4,128	1%
Agricultural Land	148,422	52%
Other	39,903	14%

Hazard Risk Impact & Mitigation Implications

The landownership distribution has not changed significantly since the last update. Therefore, no additional hazard impacts are likely.

FIGURE 2.6: Landownership



Land Use and Natural Resources

Agriculture is the dominant land type in Teton County with 148,422 acres with Forest and Rangeland making up most of the remaining acres. Agriculture and Rangeland together make up over 70% of the total acres.

In 2002, there were 302 farms in Teton County with a total of 124,613 acres. Total acres in farms decreased by 10% since 1997, while number of farms only increased slightly (301 farms in 1997). Average size of farm in 2002 was 413 acres which is also down 10% since 1997.

As of 2012, there are 291 farms with a total of 133,199 acres. Average size of farms is 458 acres. Recreation is also a very common land use in Teton County. Not only is Teton County adjacent to Teton County, Wyoming (home to Jackson Hole and Grand Teton National Park), but it also offers many outdoor recreational opportunities within its borders. Recreation and the scenic beauty of the area bring many visitors to Teton County during the summer and winter months.

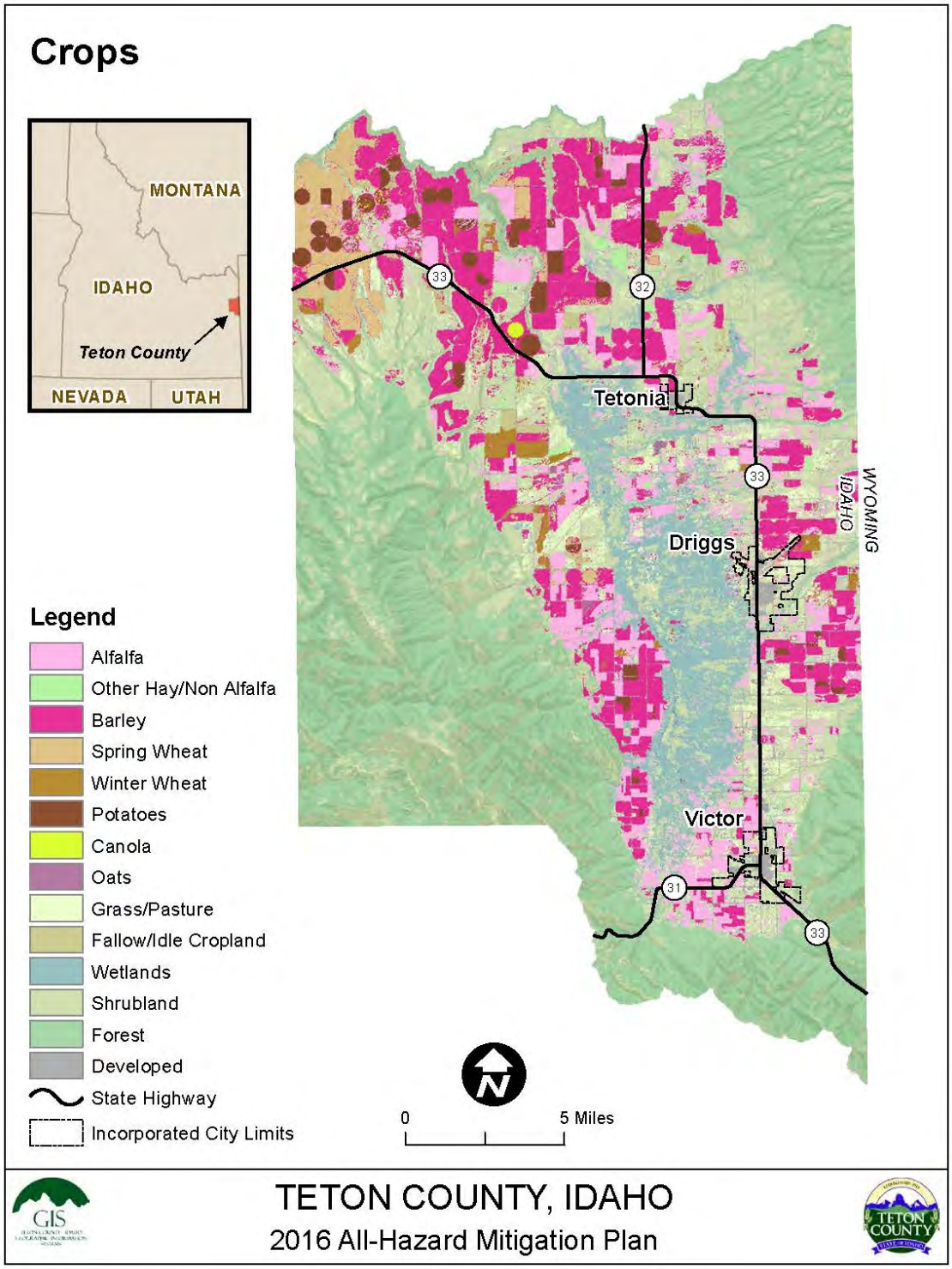
There are eight mines located in Teton County, seven of which are on Garns Mountain and one on Fourth of July Peak near the Teton/Teton County border. However, none of them are active.

The primary extractable resources in Teton County are gravel and timber products.

Hazard Risk Impact & Mitigation Implications

The land use and natural resource distribution in the County has not changed significantly since the last update. While there are fewer farms, the change is not significant. Therefore, no additional hazard impacts are likely.

FIGURE 2.7: Crops



History

For about a quarter of a century, the Teton Valley was called "Pierre's Hole" after Vieux Pierre, an Iroquios Indian trapper, found his way with some companion trappers into the valley in 1818. Prior to that, the valley was called the "Broad Valley" by some of the Indians in the area. John Colter was the first white man to enter the valley in 1808. The settlers of the Snake River Valley were the first to call the valley "Teton Basin" after the peaks of the Tetons which were named "Trois Tetons" by Canadian trappers.

The first permanent settlers arrived in the area in the mid 1880's. Significant settlement began in 1888 with the settlement of what later became Driggs by a group of Mormon colonists from Salt Lake City. About that same time, Victor was settled by a group from Cache Valley (on the border of Idaho and Utah). Within a few years the valley was dotted with small farms and communities. In 1912, the Union Pacific Railroad completed a branch line to Driggs. In 1915, Teton County was created from portions of Madison, Fremont and Teton Counties and Driggs was named the County seat.

The City of Driggs was dedicated in 1909. Prior to that the closest town post office was near Rexburg, Idaho and the settlers in the Teton Valley had a difficult time knowing where to designate their address. B.W. Driggs saw the difficulty shortly after arriving in the valley in the spring of 1891; he at once drew up a petition to the postal department at Washington asking for a post office to be established in the Teton Valley. At the time, the majority of those who resided in the area were relatives of B.W. Driggs. The department in Washington, seeing so many by the name of Driggs named the post office the same. The land was entered as a desert entry by Henry Wallace and when he obtained title, he platted it, and on December 21, 1909 dedicated it as the town site of Driggs.

Demographics

Population Trends

Between 2004 and 2014 Teton County has grown faster than any other county in the state. The population was up 38 percent from 7,460 to 10,341. The county has attracted many second homeowners near the popular Wyoming tourist locations of Jackson Hole and Grand Targhee Ski Resort. Many employers and employees of Wyoming businesses commute from Teton County. With natural, pristine landscapes and close access to Jackson, Wyo., increases in population are expected to continue. Declines in construction slowed growth in recent years.

FIGURE 2.8: Population

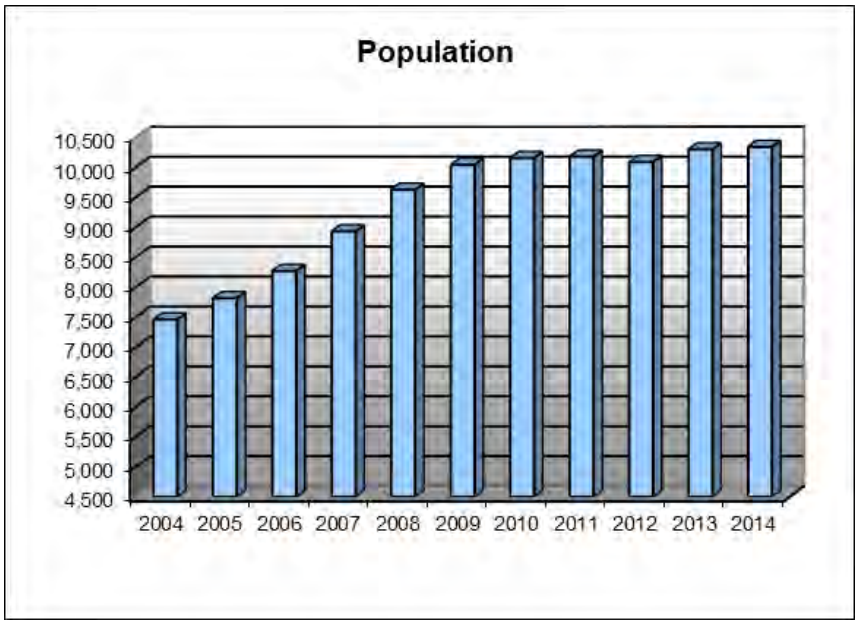


TABLE 2.4
Population Growth for Incorporated Cities in Teton County

Population Growth for Each Incorporated City of Teton County						
	1990	**2000**	**2005**	**2010**	**% change 1990-2000**	**% change 2005-2010**
County	3,439	5,999	7,467	10,170	74.4%	36.2%
Driggs	846	1,100	1,197	1,660	30%	38.6%
Tetonia	132	247	243	269	87.1%	10.7%
Victor	292	840	1,365	1,928	187.7%	41.2%
Rest of County	2,169	3,812	4,662	6,313	75.7%	35.4%

Source: Bureau of Economic Analysis and US census Bureau

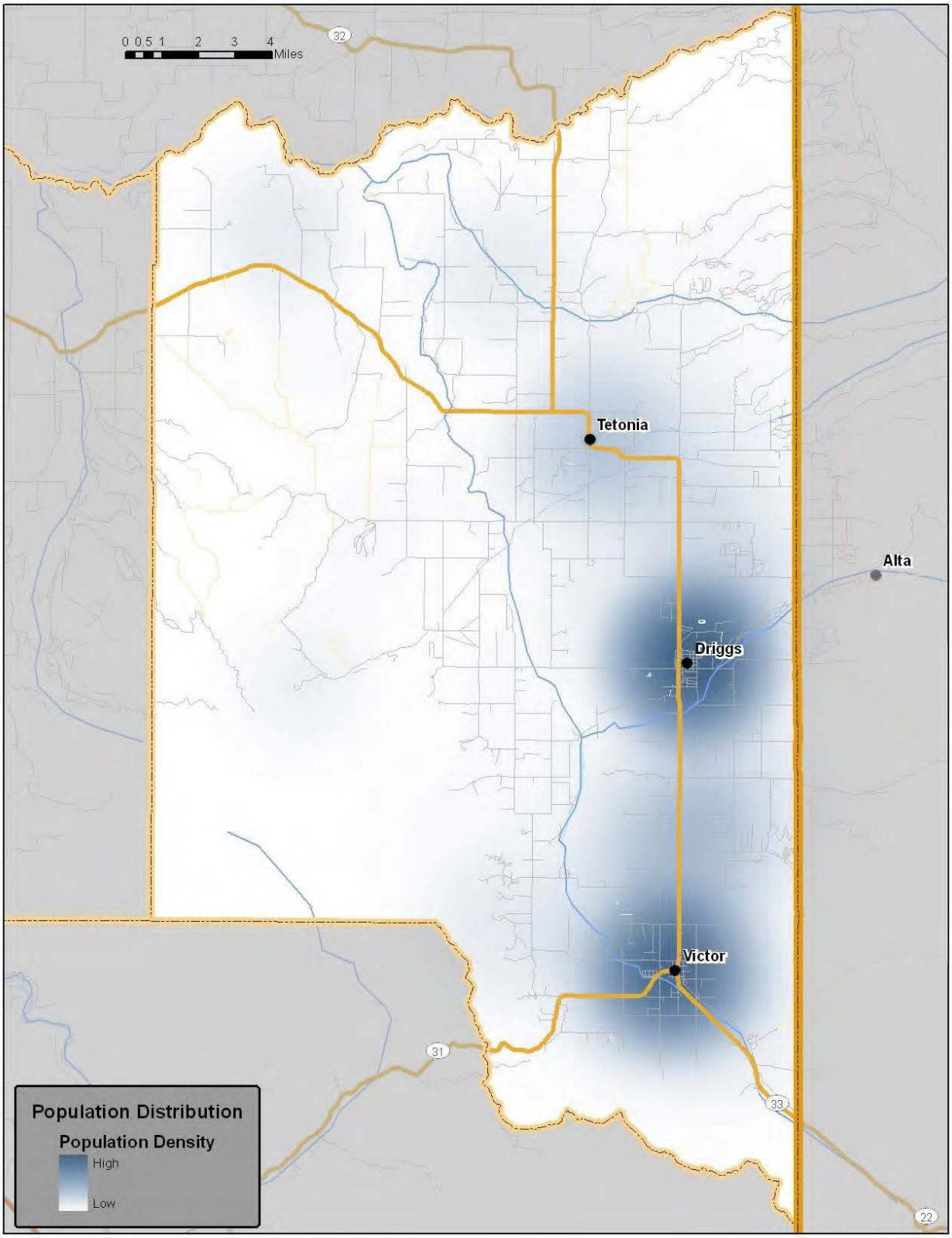
The County is 100% rural with no large urban centers. In 2014, there were 22.9 persons per square mile. The table below shows the racial and ethnic distribution of Teton County for 2013.

TABLE 2.5
Teton County Racial and Ethnic Distribution, 2013

Teton County Racial and Ethnic Distribution	
White persons	97.1%
Black persons	0.3%
American Indian or Alaska Native	0.7%
Asian	0.6%
Native Hawaiian /Pacific Islander	0.2%
Persons reporting two or more races	1.2%
Persons of Hispanic or Latino origin	17.3%
White persons not Hispanic	80.9%

Source: US census Bureau

FIGURE 2.9: Population Density



It should also be noted that the population in the County is getting older. In 1990, the median age was 30.2 and by 2010 had increased to 33.2.

In 2010, there were 3,651 households with 2.78 persons per household. The home ownership rate in 2000 was 73.5%; however, home ownership is currently at 72.1%. Currently, there are over 4,500 housing units in the County.

TABLE 2.6
Comparable Growth in Neighboring Counties

County	2000 Census	2010 Census	% change
Clark County, ID	1,022	982	-3.9%
Jefferson County, ID	19,155	26,140	+36.5%
Madison County, ID	27,467	37,536	+36.7%
Teton County, ID	5,999	10,170	+69.5%
Teton County, WY	18,251	21,294	+16.7%
Fremont County, ID	**11,819**	**13,242**	**+12.0%**

Hazard Risk Impact & Mitigation Implications

Population trends suggest significant growth. Between 2004 and 2014, Teton County has grown faster than any other county in the state. The population was up 38 percent from 7,460 to 10,341. As the County and its municipalities grow, building codes, land use policies, and other strategic plans must account for new development and growth, especially to deter development in hazard prone areas.

Economic Profile

The primarily agricultural economy lasted through much of the 1900s. The loss of the freight railroad to the area in 1981 made it harder for farmers to send their crops to market. In the late 1990s, the economy began to shift to a recreation and real estate based economy. In 2010, 36% of the total personal income in Teton County was non labor income that funneled directly into household mailboxes and bank accounts in the form of retirement income, investment dividends, social security and other similar sources. In 2013, much of the economic growth has been based primarily on lifestyle provided by the area's physical beauty and recreational opportunities.

In the late 1990s and early 2000s, the Teton Valley experienced a tremendous residential housing boom. That boom collapsed with the national recession in 2007 leaving the community with many vacant lots and homes and generally devalued real estate prices.

Jobs

Teton County has had one of the lowest unemployment rates in the state, dipping to 1.6 percent in 2007. The rate has been significantly below both the state and national rates since 1998. Much of

the county's employment is seasonal and depends on tourism, but officials are working toward more year-round employment. The 2001 recession had a marginal effect compared to the recent national recession, which has impacted the county to a much greater degree. But the county still has one of Idaho's lowest unemployment rates. The five main industries are leisure and hospitality, trade, government, professional and business services and construction. State and local government jobs along with hospital and school employment make government the top employer. Trade, leisure and hospitality depend on the local and national tourism market. With population growing so rapidly, residential and commercial construction had been heavy when weather permitted, but both have slowed with the onset of the recession. Many people commute from neighboring counties in Idaho for construction jobs in the area.

FIGURE 2.10: Job Growth

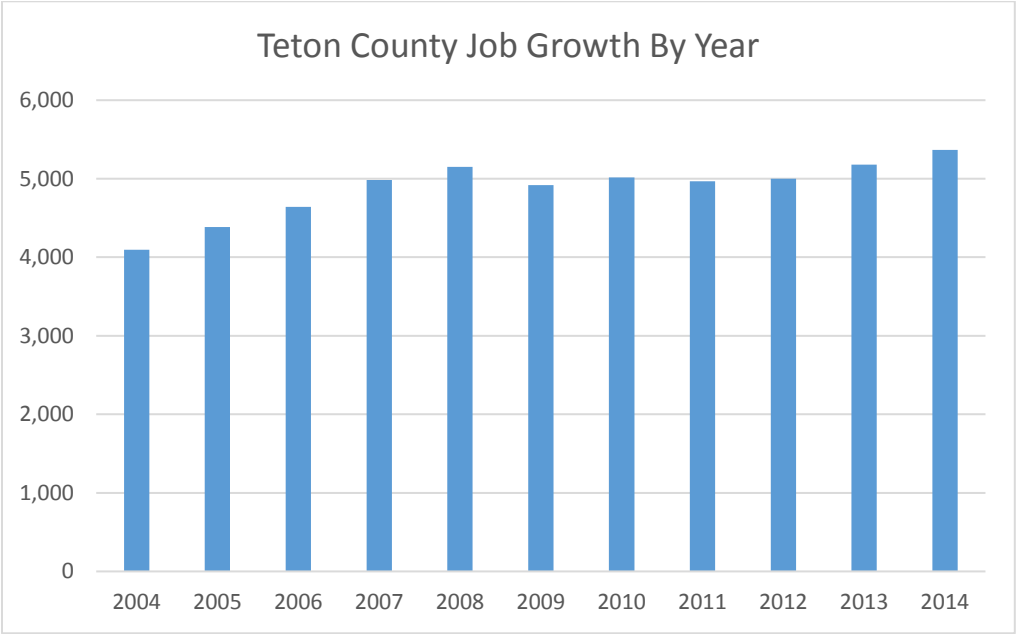


TABLE 2.7
Labor Force

Labor Force	2014	2015
Civilian Labor Force	5920	5122
Total Unemployment	5671	4715
Unemployed	249	226
% of Labor Force Unemployed	4.2	3.9
State of Idaho % Unemployed	4.5	3.9
U.S. Percent Unemployed	5.8	5.0

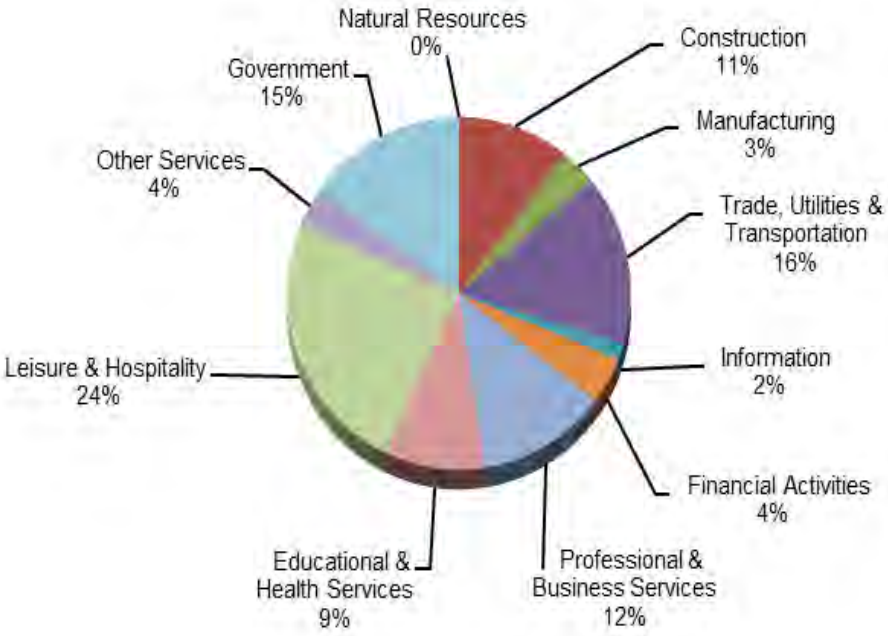
Source: Idaho Department of Labor

TABLE 2.8
Labor Force By Year

Labor Force	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Civilian Labor Force	4,228	4,518	4,736	5,069	5,304	5,287	5,446	5,324	5,313	5,453	5,589
Unemployment	133	134	96	86	155	367	428	356	313	272	220
% of Labor Force Unemployed	3.1	3.0	2.0	1.7	2.9	6.9	7.9	6.7	5.9	5.0	3.9
Employment	4,095	4,384	4,641	4,983	5,149	4,920	5,018	4,967	5,000	5,181	5,369

Source: Idaho Department of Labor

FIGURE 2.11: Job Type



Because so many Teton County residents commute to comparatively higher-paying jobs in Wyoming, the covered employment and wages for the county are essentially depressed since job and wage data are gathered at the place of work, not residence. Covered employment in Teton County grew by 149 jobs between 2013 and 2014, up 6 percent. Construction reported the largest job growth between 2013 and 2014. Covered employment includes employers subject to state and federal unemployment insurance laws. These laws apply to approximately 92 percent of Idaho's employees.

TABLE 2.9
Wages in Eastern Idaho

Eastern Idaho Occupational Wages*	Median Wages
Agricultural Workers	$8.52
Assemblers and Fabricators	$14.89
Cashiers	$8.12
Computer Support Specialists	$19.57
Customer Service Reps	$11.08
Farming Occupations	$9.99
Food and Beverage Serving Workers	$7.77
Licensed Practical and Vocational Nurses	$17.27
Nursing Aides, Orderlies, and Attendants	$9.91
Retail Sales Workers	$8.96
Secretaries and Administrative Assistants	$15.03
Woodworkers	$11.43

Source: Idaho Department of Labor

TABLE 2.10
Average Annual Wages By Job

Covered Employment & Average Annual Wages Per Job for 2004, 2013 & 2014	2004		2013		2014	
	Average Employment	Average Wages	Average Employment	Average Wages	Average Employment	Average Wages
Total Covered Wages	2,192	$23,426	2,714	$30,254	2,863	$30,948
Agriculture	111	$17,426	133	$20,923	131	$23,178
Mining	*	*	0	$0	0	$0
Construction	386	$27,130	225	$35,061	297	$36,855
Manufacturing	100	$23,399	94	$27,085	93	$28,506
Trade, Utilities & Transportation	383	$20,734	456	$27,680	459	$28,913
Information	39	$34,325	49	$41,232	47	$36,995
Financial Activities	89	$24,616	118	$28,490	112	$33,413
Professional and Business Services	173	$32,547	324	$43,541	347	$42,020
Educational and Health Services	105	$20,653	233	$34,949	279	$37,100
Leisure and Hospitality	278	$12,584	524	$18,605	583	$18,128
Other Services	72	$23,806	82	$32,676	87	$32,102
Government	454	$26,627	476	$34,035	429	$34,873

Source: Idaho Department of Labor

TABLE 2.11
Major Employers

Major Employers
Broulim's Supermarket
MD Landscaping Inc
Owen PC Construction
Teton County
Teton County School District #401
Teton Valley Hospital

Source: Idaho Department of Labor

TABLE 2.12
Per Capita Income

Per Capita Income	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Teton County	$23,773	$24,799	$27,105	$29,694	$30,351	$27,197	$25,877	$27,876	$29,903	$30,910
State of Idaho	$28,974	$29,989	$32,035	$33,057	$32,819	$31,688	$32,100	$33,677	$35,142	$36,146
United States	$34,300	$35,888	$38,127	$39,804	$40,873	$39,379	$40,144	$42,332	$44,200	$44,765

Source: Idaho Department of Labor

Hazard Risk Impact & Mitigation Implications

The economic profile of the county has changed over the years. As tourism has grown due to the allure of the beautiful scenery the area has to offer, this has drawn new types of residents and tourists. Tourism and recreation have increased exposure of residents and visitors to the many hazards prevalent in the area. Additionally, as new residents build homes in the area, it becomes increasingly important to balance building codes and other land use ordinances, while still allowing residents to take advantage of the scenic conditions the Teton Valley has to offer.

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Section 3: Public Participation

Broad public participation in the planning process helps ensure that diverse points of view about the planning area's needs are considered and addressed. The public must have opportunities to comment on disaster mitigation plans during the drafting stages and prior to plan approval (44 CFR, Section 201.6(b)(1)). The strategy for involving the public in this plan emphasized the following elements:

- Use a questionnaire to determine the public's perception of risk and support of hazard mitigation activities.
- Attempt to reach as many planning area citizens as possible using multiple strategies, including social media and workshops open to the public.
- Identify and involve planning area stakeholders.
- Make the plan available on the Teton County Web site for public review and comment.

Questionnaire

A hazard mitigation plan questionnaire was developed to gauge household preparedness, perception of risk, and the perceived need to mitigate certain hazards. The questionnaire was made available on-line and hard copies were distributed throughout the County. The answers to its questions helped guide the Steering Committee in prioritizing hazards of impact and in validating goals, objectives and mitigation strategies.

95 surveys were completed during the course of this planning process. The complete questionnaire and a summary of its findings can be found in **Attachment III**.

Meetings and Public Workshop

All meetings were open to the public and some were held, in some instances, in conjunction with the LEPC meetings in order to solicit broader public and agency participation. Meetings were also held in Driggs in order to facilitate broader participation of all participating jurisdictions due to its centralized location. A total of four (4) meetings were held.

- May 14, 2015
- June 25, 2015
- August 19, 2015
- February 11, 2016

Meeting agendas and attendee lists are available in **Attachment IV: Public Participation.**

The public was invited to review the plan, which was posted on the County web site prior to submission.

Teton County 5/14/15 AHMP Kick-Off Meeting

Name	Agency	Email	Phone
Greg Adams	Teton EMC	gadams@co.teton.id.us	354-2703
Tom Davis	TC Building Dept.	tdavis@co.teteon.id.us	313-5106
Tony Liford	Teton County S.O.	tliford@co.teton.id.us	354-2323
Bret Campbell	Teton Fire	bcampbell@tetoncountyfire.com	354-2760
Kristin Rader	Teton County	krader@co.teton.id.us	354-2593 ext 200
Keith Birch	IDL	birchkei@silverstar.com	313-8239
Bill Leake	BOCC	bleake@co.teton.id.us	521-4689
Darryl Johnson	TC Engineer	djohnson@co.teton.id.us	354-0245
John Dobbins	Hospital	jdobbins@tvhcare.org	354-2383
Martell Gibbons	USFS	mdgibbons@fs.fed.us	520-5685
Mike Clements	IBHS	mclements@bhs.idaho.gov	589-0754
Jared D Gunderson	City of Driggs	jgunderson@driggsidaho.org	354-2362
Rob Marin	Teton Co GIS	rmarin@co.teton.id.gis	354-2593 ext205
Wendi Celino	Fall River Elec.	wendi.celino@fallriverelectric.com	652-7110
Lynn Bagley	Soil Conservation	jllbagley@hotmail.com	313-7562

Teton County 6/25/15 AHMP Projects Meeting

Name	Agency	Email	Phone
Greg Adams	Teton EMC	gadams@co.teton.id.us	354-2703
Martell Gibbons	USFS	mdgibbons@fs.fes.us	520-5685
Dave Ferguson	TVHC	jdobbins@tvhcare.org	201-6227
Mike Clements	IBHS	mclements@bhs.idaho.gov	589-0754
Mitch Smaellie	Tetonia PW	msmaellie@gmail.com	521-1719
Jason Boal	County P&Z	jboal@co.teton.id.us	354-2593
Randy Drake	ITD	randy.drake@itd.idaho.gov	745-5609
John Dobbins	TVHC	jdobbins@tvhcare.org	201-6227
Ashley Koehler	Driggs P&Z	akoehler@driggsidaho.org	354-2362
Jared D Gunderson	City of Driggs	jgunderson@driggsidaho.org	270-0209
Mitch Golden	TCSO	mgolden@co.teton.id.us	354-2723
Gloria Hoopes	Tetonia Mayor	gloria5852@silverstar.com	

Darryl Johnson	TC Engineer	djohnson@co.teton.id.us	
Jud Tolman	Silverstar	jtolman@silverstar.net	399-6710

Teton County 8/19/15 AHMP Projects Meeting

Name	Agency	Email	Phone
Greg Adams	Teton EMC	gadams@co.teton.id.us	354-2703
Kelly Park	BOCC	kpark@co.teton.id.us	390-2615
John Dobbins	TVHC	jdobbins@tvhcare.org	201-6227
Dave Ferguson	TVHC	jdobbins@tvhcare.org	201-6227
Keith Birch	IDL	birchkei@silverstar.com	313-3446
Jared D Gunderson	City of Driggs	jgunderson@driggsidaho.org	270-0209
Bill Leake	BOCC	bleake@co.teton.id.us	521-4689
Mitch Smaellie	Tetonia City	msmaellie@gmail.com	521-1719
Bonnie Beard	Co Assessor	bbeard@co.teton.id.us	354-3509
Mitch Golden	TCSO	mgolden@co.teton.id.us	354-8788

Teton County 2/11/2016 AHMP Project Meeting

Name	Agency	Email	Phone
Greg Adams	Teton EMC	gadams@co.teton.id.us	354-2703
Kelly Park	BOCC	kpark@co.teton.id.us	390-2615
Mike Clements	IBHS	mclements@bhs.idaho.gov	589-0754
Gloria Hoopes	Tetonia Mayor	gloria5852@silverstar.com	238-1450
Brittany Skelton	Victor	brittanys@victorcityidaho.com	787-2940
Mitch Smaellie	Tetonia City	msmaellie@gmail.com	
Earl Giles	Teton Fire	egiles@tetoncountyfire.com	354-2760
Bret Campbell	Teton Fire	bcampbell@tetoncountyfire.com	354-2760
Jeff Potter	Victor	mayor@victorcityidaho.com	787-2940
Jason Boal	County P&Z	jboal@co.teton.id.us	354-2593
Jay Millin	Teton County	jmillin@co.teton.id.us	881-4048
Holly Welgamott	Teton County	Welgamott@co.teton.id.us	354-8775
Eric Tackett	TVHC	etackett@tvhcare.org	200-4368
John Dobbins	TVHC	jdobbins@tvhcare.org	201-6227
Jared D Gunderson	City of Driggs	jgunderson@driggsidaho.org	270-0209

Rob Marin	Teton Co GIS	rmarin@co.teton.id.gis	354-2593 ext205
Daiko Abe	ISC	Daiko.abe@i-s-consulting.com	390-2021
Michelle Smith	Victor	michelles@victorcityidaho.com	716-8534
Monte Woolstenhulme	TSD 401	mrw@d401.k12.id.us	228-5923

Social Media and Advertisements

Social media (i.e. Facebook), press releases, and advertisements were used to help promote the questionnaire and meetings. E-mails to key stakeholders were sent to solicit participation, and personalized phone calls from the Emergency Management Coordinator were placed prior to each meeting.

Flyers were created and were posted in key locations to advertise and invite the public to the meetings. These locations included, but are not limited to:

- Post Office
- Law Enforcement Center
- Court House
- Stores

Examples of promotional materials are provided in **Attachment IV: Public Participation**.

JUNE 25TH 2015
6:30 – 8 PM
TETON COUNTY HAZARDS MTG.

Come join us to discuss the hazards that we face and identify potential projects that can lessen the effects of these hazards on our community.

Location:
Teton High School Cafeteria

Refreshments will be served

Learn about our All-Hazards Mitigation Plan

See the projects we have accomplished in the last 5 years

Group discussions for each jurisdiction to identify potential projects

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TETON COUNTY EMERGENCY MANAGEMENT
230 N. Main
354-2703

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Section 4: Risk Assessment

Hazard Risk Summary

Teton County recognizes that a community's All Hazard Risk Assessment is the fundamental building block of the four core functions of emergency management: prepare, respond, recover, and mitigate. In today's hazard environment, emergency management is the crux of solving the complex challenges that face our communities during an emergency or following a disaster. The disaster activity over the past several years has re-emphasized the importance for communities to invest in creating thorough strategies to develop comprehensive emergency plans and to test, train, and exercise all emergency operations.

The objective of the risk methodology is to devise a process to compare and evaluate which natural, technological, and political 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 three categories of hazards: Natural, Technological, and Political. Natural hazards are those events that are a result of our surrounding environment, such as wildfires 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. Political hazards are those events that are a result of local, national, or international societal interactions, such as terrorism or civil disturbances.

Each hazard category will elaborate upon and define the different types of hazards that are associated with each, identify historical events that have occurred locally and/or regionally, define the hazard profiles, parameters, and characteristics; assess possible vulnerabilities; determine probable scenarios; and model select hazards. The hazards investigated were identified through extensive research that utilized input from Teton County, Federal Emergency Management Agency (FEMA), Department of Homeland Security (DHS), hazard experts, historical occurrences, Geographic Information System databases, and hazard specific data such as Flood Insurance Maps.

Disasters Are Not Isolated Events

Past disaster events, both natural and manmade, 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 viewed as "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:

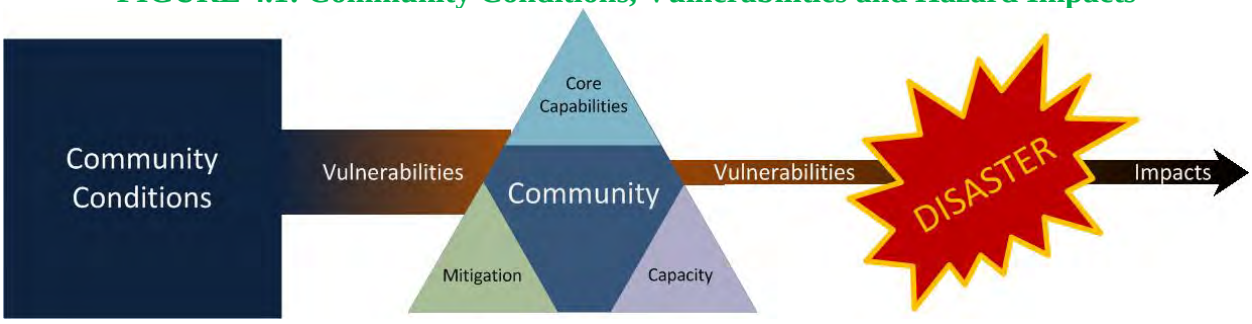
> *"Many disaster losses – rather than stemming from unexpected events – are the predictable result of interactions among three major systems: the physical environment, which includes hazardous events; the social and demographic characteristics of the communities that experience them; and the buildings, 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 between 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 constructed environment, it can also be attributed to the fact that "all these systems – and their interactions – are becoming more complex with each passing year".

The figure below provides a general illustration of this relationship between the pre-existing conditions in a community (i.e. pre-disaster vulnerability and efforts to mitigate and build capabilities) and the potential impact from various hazards.

FIGURE 4.1: Community Conditions, Vulnerabilities and Hazard Impacts



Source: Integrated Solutions Consulting

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 report. Hazards that were determined to not occur in Idaho were removed from the Risk Assessment.

Hazard Profile

Each hazard profile is broken down into four (4) sections: 1) Hazard Description; 2) Historical Frequencies; 3) Impacts; 4) Loss Estimates.

1. **Hazard Description**
   The description gives an overarching picture of the hazard.

2. **Historical Frequencies**
   This section describes how often the hazard has occurred. The National Climatic Data Center was used to populate this section for many natural hazards. If there were no previous examples of this hazard affecting the County, or the County was only minimally affected,

other geographical areas were considered, including State, National and in some cases, International locations.

3. **Impacts**
   Differences in the hazard's impact area, amount and severity of damage, duration of the event, and direct and indirect economic impacts make it difficult to develop empirical values that can be universally applied to each hazard category. Therefore, the risk methodology developed was based on a function of the probability of the event occurring and its potential impact. Each hazard risk assessment went through a review process involving a Planning Committee consisting of County representatives. The risk associated with each hazard was evaluated based on the hazard's probability and frequency of occurrence, consequences of past events, and potential damage to the physical vulnerabilities (i.e. critical infrastructure, building stock, etc.), social vulnerabilities (i.e., special populations, socio-economic conditions), and community conditions (i.e. community organizations, environment, government) of the County.

4. **Loss Estimates**
   When possible, loss estimates were assigned to each hazard.

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 County's Hazard Mitigation Plan should be considered an initial step to evaluate the community's hazards. A hazard analysis 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 a 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 important to periodically update this document. A hazard risk assessment does provide a guide to evaluate the Teton County's risks and guide the mission of protecting their members and interests.

Hazard Loss Modeling

To supplement the impact analysis and risk determination, a hazard loss model and analysis was performed for select scenarios of each hazard category. The scenarios selected were based on historical occurrences of disasters, availability of data, and the severity of the hazard risk. The hazard loss analysis process utilized Hazards U.S. Multi Hazard (HAZUS-MH) modeling, Geographic Information Systems (GIS) analysis, and historical disaster data and information to conduct quantitative analysis to estimate the loss due to the selected natural, technological and political hazard events. HAZUS-MH is a powerful risk assessment software program for analyzing

potential losses from floods and earthquakes. In HAZUS-MH, current scientific and engineering knowledge is coupled with the latest (GIS) technology to produce estimates of hazard related damage before, or after, a disaster occurs. The analysis reports obtained from the HAZUS-MH model includes the following:

- Estimation of the losses to structures and contents
- Estimation of the losses to structure use and function
- Projection of human losses
- Estimation of the primary direct and indirect loss

Many of the human-induced hazards provide some unique implications for loss estimation because these events can take place with different magnitudes, in any location, at any time, and under various circumstances. Because the characteristics of many of the human-induced events are not definitive, a generalized loss analysis was conducted.

Hazard Risk Determination

The determination of the risks associated with each hazard were not based on empirical values, but instead 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 Teton County.

At the most fundamental level, both DHS and FEMA recognize that risk is equal to 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 occur but there is no impact or consequence, the level of risk is negated or substantially reduced.

Whereas measuring frequency/probability of a hazard is often straightforward, defining and measuring the consequence is more complex. At the most basic level, consequence is an assessment of the potential impact(s) if the attack or hazard event actually occurs.

The assignment of risk scores for this plan update utilized a number of key considerations:

1. Risk scores from the previous plan were considered by the Planning Committee.
2. The Planning Committee reviewed the 2012 Teton County THIRA. The THIRA was conducted by an outside consulting firm, and uses a sophisticated risk methodology that analyzes pre-incident community conditions along with hazard characteristics.
3. Using input from the aforementioned sources and upon analyzing the updated hazard information for the County, the Planning Committee, with input from local subject-matter experts, reassigned hazard rating scores, as necessary.

2016 Hazard Risk Update Explanation

As mentioned in the previous section, Teton County conducted a thorough risk assessment in 2012. In order to incorporate the findings from the 2012 THIRA, the Planning Committee compared risk

scores from the previous plan with the 2012 THIRA findings. Using input from the aforementioned sources and additional input from local subject-matter experts, residents from a survey, and planning committee participants, the hazard ratings were assigned. This new methodology was adopted to incorporate the THIRA, and to utilize a more rigorous approach than the previous version.

TABLE 4.1: 2012 THIRA Risk Scores

Probability		Consequence							OVERALL RISK SCORE
Hazards	Frequency & Probability	Potential Magnitude & Scale	Impact Analysis			Capabilities & Capacity	Mitigation	Hazard Consequence & Impact Score	
			Social Vulnerabilities Hazard Impact Rating	Physical Vulnerabilities Hazard Impact Rating	Community Conditions Impact Rating	Capabilities Index			
Natural Hazards									
Drought	44%	18%	26%	17%	29%	51%	63%	37%	40%
Extreme Cold/Freeze	63%	18%	42%	17%	32%	56%	63%	41%	51%
Extreme Heat	25%	9%	34%	17%	29%	59%	54%	35%	30%
Flooding	50%	36%	51%	43%	49%	51%	67%	59%	54%
Hailstorms	56%	24%	26%	26%	33%	69%	50%	39%	47%
Heavy Rain	38%	4%	26%	17%	26%	63%	54%	31%	34%
Lightning	63%	0%	26%	17%	26%	79%	63%	27%	41%
Severe Winter Weather (i.e. Winter Storm/Ice Storm)	75%	38%	55%	40%	32%	57%	67%	54%	64%
Avalanche	56%	20%	26%	26%	26%	74%	50%	35%	45%
Space (i.e. Meteorites, Solar Flares)	13%	7%	26%	17%	32%	63%	N/A	29%	19%
Tornado	25%	16%	55%	43%	45%	52%	75%	54%	37%
Volcano (i.e. Ash, Dust)	13%	29%	59%	53%	45%	51%	50%	56%	26%
Windstorms	69%	7%	34%	43%	42%	63%	75%	43%	55%
Wildland Fire	50%	16%	51%	43%	44%	63%	63%	51%	50%
Earthquake	44%	40%	66%	62%	56%	49%	54%	65%	53%

Probability		Consequence							OVERALL RISK SCORE
Hazards	Frequency & Probability	Potential Magnitude & Scale	Impact Analysis			Capabilities & Capacity	Mitigation	Hazard Consequence & Impact Score	
			Social Vulnerabilities Hazard Impact Rating	Physical Vulnerabilities Hazard Impact Rating	Community Conditions Impact Rating	Capabilities Index			
Public Health Hazards									
Animal and Plant Disease Outbreak	38%	11%	26%	17%	38%	61%	N/A	31%	34%
Food Borne Illness Incident	38%	8%	42%	17%	32%	69%	46%	37%	37%
Meningitis	38%	11%	42%	17%	29%	73%	54%	36%	37%
Plague	6%	13%	55%	32%	37%	57%	50%	48%	17%
Anthrax	13%	11%	26%	24%	36%	52%	38%	40%	22%
Pandemic/Epidemic	31%	39%	66%	32%	41%	52%	58%	59%	43%
Water Contamination	13%	7%	51%	40%	34%	63%	42%	46%	24%

Frequency	Consequence	Capability/Mitigation	Overall Risk
Not Probable/Frequent	Minimal Impact	Very Capable/Adequate	Low Risk
Somewhat Probable/Frequent	Moderately Low Impact	Capable/Adequate	Moderately Low Risk
Probable/Frequent	Moderately High Impact	Somewhat Capable/ Adequate	Moderately High Risk
Very Probable/Frequent	High Impact	Not Capable or Adequate	High Risk

Probability		Consequence								
Hazards	Frequency & Probability	Potential Magnitude & Scale	Impact Analysis			Capabilities & Capacity	Mitigation	Hazard Consequence & Impact Score		OVERALL RISK SCORE
			Social Vulnerabilities Hazard Impact Rating	Physical Vulnerabilities Hazard Impact Rating	Community Conditions Impact Rating	Capabilities Index				
Technological Hazards										
Electric Utility Failure	50%	11%	38%	40%	33%	63%	58%	43%		46%
Hazardous Materials Release	38%	18%	55%	40%	34%	51%	50%	52%		44%
INL/Radiological	6%	9%	51%	17%	35%	63%	71%	40%		16%
Structural Fires	63%	17%	51%	43%	33%	77%	71%	46%		54%
Transportation Incident	69%	19%	26%	17%	26%	77%	71%	32%		47%
Water/Waste Water Incident	19%	6%	34%	40%	35%	63%	50%	41%		28%

Frequency	Consequence	Capability/Mitigation	Overall Risk
Not Probable/Frequent	Minimal Impact	Very Capable/Adequate	Low Risk
Somewhat Probable/Frequent	Moderately Low Impact	Capable/Adequate	Moderately Low Risk
Probable/Frequent	Moderately High Impact	Somewhat Capable/ Adequate	Moderately High Risk
Very Probable/Frequent	High Impact	Not Capable or Adequate	High Risk

CRIMINAL/TERRORISM HAZARDS

Probability		Consequence								
Hazards	Frequency & Probability	Potential Magnitude & Scale	Impact Analysis			Capabilities & Capacity	Mitigation	Hazard Consequence & Impact Score		OVERALL RISK SCORE
			Social Vulnerabilities Hazard Impact Rating	Physical Vulnerabilities Hazard Impact Rating	Community Conditions Impact Rating	Capabilities Index				
Criminal/Terrorism Hazards										
Terrorism	13%	24%	55%	50%	53%	51%	54%	60%		27%
Bomb Threat Incident	38%	0%	26%	32%	30%	63%	75%	34%		35%
Civil Disobedience/Civil Unrest	19%	4%	26%	24%	43%	57%	71%	37%		26%
Cyber-Security Incident	13%	4%	42%	32%	33%	59%	42%	42%		23%

Frequency	Consequence	Capability/Mitigation	Overall Risk
Not Probable/Frequent	Minimal Impact	Very Capable/Adequate	Low Risk
Somewhat Probable/Frequent	Moderately Low Impact	Capable/Adequate	Moderately Low Risk
Probable/Frequent	Moderately High Impact	Somewhat Capable/ Adequate	Moderately High Risk
Very Probable/Frequent	High Impact	Not Capable or Adequate	High Risk

2012 THIRA Hazard Frequency Ranking

Winter Weather / Ice	75%
Transportation Incident	69%
Windstorm	69%
Lightning	63%
Structural Fire	63%
Extreme Cold	63%
Avalanche	56%
Hailstorms	56%
Electric Utility Failure	50%
Wildfires	50%
Flooding	50%
Droughts	44%
Earthquakes	44%
Heavy Rain	38%
Meningitis	38%
Animal / Plant Disease Outbreak	38%
Food Borne Illness	38%
Hazardous Materials Release	38%
Bomb Threat	38%
Pandemic / Epidemic	31%
Tornadoes	25%
Extreme Heat	25%
Water / Wastewater Incident	19%
Civil Unrest	19%
Cyber Security	13%
Space	13%
Volcano (Ash)	13%
Terrorism	13%
Anthrax	13%
Water Contamination	13%
INL/Radiological	6%
Plague	6%

Frequency
Not Probable/Frequent
Somewhat Probable/Frequent
Probable/Frequent
Very Probable/Frequent

2012 THIRA Hazard Consequence Ranking

Earthquakes	65%
Terrorism	60%
Flooding	59%
Pandemic / Epidemic	59%
Volcano (Ash)	56%
Winter Weather / Ice	54%
Tornadoes	54%
Hazardous Materials Release	52%
Wildfires	51%
Plague	48%
Structural Fires	46%
Water Contamination	46%
Windstorm	43%
Electric Utility Failure	43%
Cyber Security	42%
Extreme Cold	41%
Water / Wastewater Incident	41%
INL/Radiological	40%
Anthrax	40%
Hailstorms	39%
Droughts	37%
Civil Unrest	37%
Food Borne Illness	37%
Meningitis	36%
Extreme Heat	35%
Avalanche	35%
Bomb Threat	34%
Transportation Incident	32%
Animal / Plant Disease Outbreak	31%
Heavy Rain	31%
Space	29%
Lightning	27%

Consequence/Impact
Minimal Impact
Moderately Low Impact
Moderately High Impact
High Impact

2012 THIRA Overall Risk Ranking

Winter Weather / Ice	64%
Windstorm	55%
Flooding	54%
Structural Fires	54%
Earthquakes	53%
Extreme Cold	51%
Wildfires	50%
Hailstorms	47%
Transportation Incident	47%
Electric Utility Failure	46%
Avalanche	45%
Hazardous Materials Release	44%
Pandemic / Epidemic	43%
Lightning	41%
Droughts	40%
Meningitis	37%
Tornadoes	37%
Food Borne Illness	37%
Bomb Threat	35%
Heavy Rain	34%
Animal / Plant Disease Outbreak	34%
Extreme Heat	30%
Water / Wastewater Incident	28%
Terrorism	27%
Civil Unrest	26%
Volcano (Ash)	26%
Water Contamination	24%
Cyber Security	23%
Anthrax	22%
Space	19%
Plague	17%
INL/Radiological	16%

Overall Risk
Low Risk
Moderately Low Risk
Moderately High Risk
High Risk

Overall Risk Scores for Teton County

The following tables represent the new overall risk scores for Teton County based on the described methodology. Risk scores are further delineated in the individual hazard profiles for each participating jurisdiction.

TABLE 4.2: Hazard Risk Scores

Severe Winter Storm	High
Flooding	Moderately High
Earthquake	Moderately High
High Wind Event	Moderately High
Extreme Cold	Moderately High
Public Health	Moderately High
Structural Fire	Moderately High
Drought	Moderately Low
Hail	Moderately Low
Utility Disruption	Moderately Low
Wildfire	Moderately Low
Hazardous Material Event	Moderately Low
Lightning	Moderately Low
Avalanche	Moderately Low
Animal Disease	Moderately Low
Major Transportation Incident	Moderately Low
Volcanic Eruption/Ashfall	Moderately Low
Animal Related Accidents	Moderately Low
Cybersecurity	Moderately Low
Vector-Borne Disease	Moderately Low
Riot/Demonstration/Civil Disorder	Moderately Low
Tornado	Low
Terrorism	Low
Nuclear Event	Low
Landslide/Mudslide	Low

Avalanche

Hazard Overview			
Location:	County-wide		
Frequency/Previous Occurrences:	Medium/Low		
Impact/Consequence:	Low		
Community Vulnerability:	Low		
Overall Hazard Risk Ranking By Jurisdiction			
Teton County	**Tetonia**	**Driggs**	**Victor**
Moderately Low	**Low**	**Low**	**Low**

Snow avalanches occur primarily in the back country of Teton County and primarily on Federal lands. The jurisdictions of Tetonia, Driggs, and Victor have a low overall risk to this hazard.

Hazard Description

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 development of avalanche conditions. They are often categorized as either "loose snow" or "slab" types. A loose snow avalanche is initiated when snow is dislodged at a point upslope and, in turn, dislodges more snow as it moves downward. Such avalanches usually grow wider and larger as they proceed but are usually somewhat limited in size. The generally more dangerous slab avalanche occurs when a cohesive mass of snow breaks free and moves downward, either as a single unit, or breaking into smaller pieces traveling together. Four factors combine to produce a slab avalanche: 1) a large mass of snow that is cohesive as a result of a single, large snowfall, or some physical change due to temperature, introduction of water content, or other factors, 2) some source of instability or weakness that forms a boundary capable of breaking free, 3) a surface, called a sliding layer, upon which the slab may easily slide and, 4) a triggering event, such as increased weight, strong vibration, wind, or a temperature increase, that overcomes the binding forces at, or further weakens the boundary of instability. (It is estimated that around 90% of avalanches where victims are involved are triggered by their victims or those who accompany them.)

Avalanches are comprised of three zones – the release zone where the mass breaks free and accelerates, the track where the mass travels downward at a relatively constant speed (often approaching 80 mph), and the runout zone where the mass slows and comes to rest. 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.

Historical Frequencies

The table below provides a listing of the avalanches that have occurred in Teton County over the past 100 years where there was an injury or loss of life.

Avalanche Incidents with Injury or Fatality

Place	Date	Event	Details	Reported Damage
Victor	1/23/1912	Avalanche	Snow slide in Trail Creek Area	Killed one man, injured another
Victor	3/12/2002	Avalanche	Big Hole Mountain near Victor	16-year-old snowmobiler killed
Steve Baugh Bowl	12/19/2002	Avalanche	Skier triggered avalanche.	Skier injured
Darby Canyon	1/4/2003	Avalanche	Snowmobiler triggered avalanche	Snowmobiler injured
Garns Mountain, Big Hole Range	1/30/2010	Avalanche	Snowmobiler fatality	Snowmobiler fatality

Impacts

It is common for avalanche impacts to be somewhat limited. In the case of Teton County, avalanches are the largest threat to roadways and related infrastructure. Because avalanches usually occur in remote areas, the most frequent victims are recreational users of the slopes on which they occur. Of those who die in avalanches, approximately one third of the deaths are a result of trauma while the remaining two thirds are from suffocation. Trauma may be the result of being carried into obstructions such as boulders and trees or over cliffs, or from rocks, trees or large chunks of snow being carried downward at high speed. Avalanches may also damage or destroy structures, break power lines, block roadways and railroads, and damage trees and vegetation.

Loss Estimates

Snow avalanches occur primarily in the back country of Teton County and primarily on Federal lands. As with landslides, losses from snow avalanches come from damage to roadways and the resulting snow and debris removal costs. Teton County has approximately 89 miles of roadway that are in areas prone to snow avalanches.

Three (3) deaths from avalanches in Teton County and many more in neighboring counties.

The Teton Pass area has the County's highest avalanche risk. This area attracts many recreationists in the winter. Snowmobilers are at a higher risk than other recreationists because of the noise and weight associated with snowmobiles.

Repetitive Loss – Avalanches do occur repetitively on the Teton Pass in neighboring Teton County, Wyoming and in the back country. The repetitive nature of the loss is the cost of cleanup of the snow and debris on the highway.

Drought

Hazard Overview			
Location:	County-wide		
Frequency/Previous Occurrences:	Low		
Impact/Consequence:	Medium		
Community Vulnerability:	Medium		
Overall Hazard Risk Ranking By Jurisdiction			
Teton County	**Tetonia**	**Driggs**	**Victor**
Moderately Low	**Moderately Low**	**Moderately Low**	**Moderately Low**

This hazard affects every community in Teton County.

Hazard Description

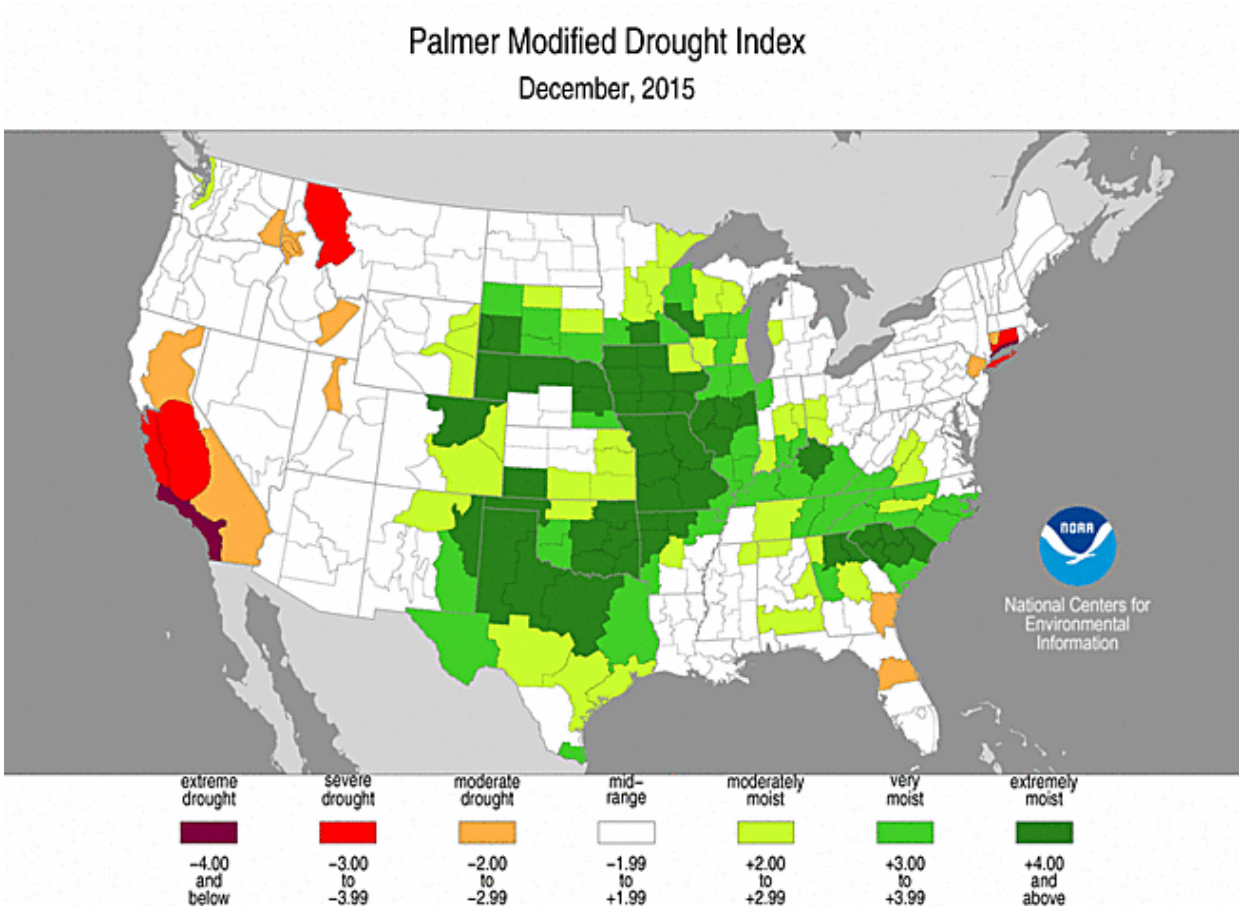
Drought is an expected phase in the climactic cycle of almost any geographical region. Certainly that is the case in the State of Idaho. Objective, quantitative definitions for drought exist but most authorities agree that, because of the many factors contributing to it and because its onset and relief are slow and indistinct, none is entirely satisfactory. According to the National Drought Mitigation Center, drought "originates 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. According to the NOAA National Climactic Data Center, much of the State of Idaho most recently experienced moderate to extreme drought conditions from the years 2000 through 2013. Drought Emergency Declarations were issued for various counties by the Idaho Department of Water Resources in the years 2002 through 2013. Idaho's only Federal Drought Emergency Declaration was issued in 1977.

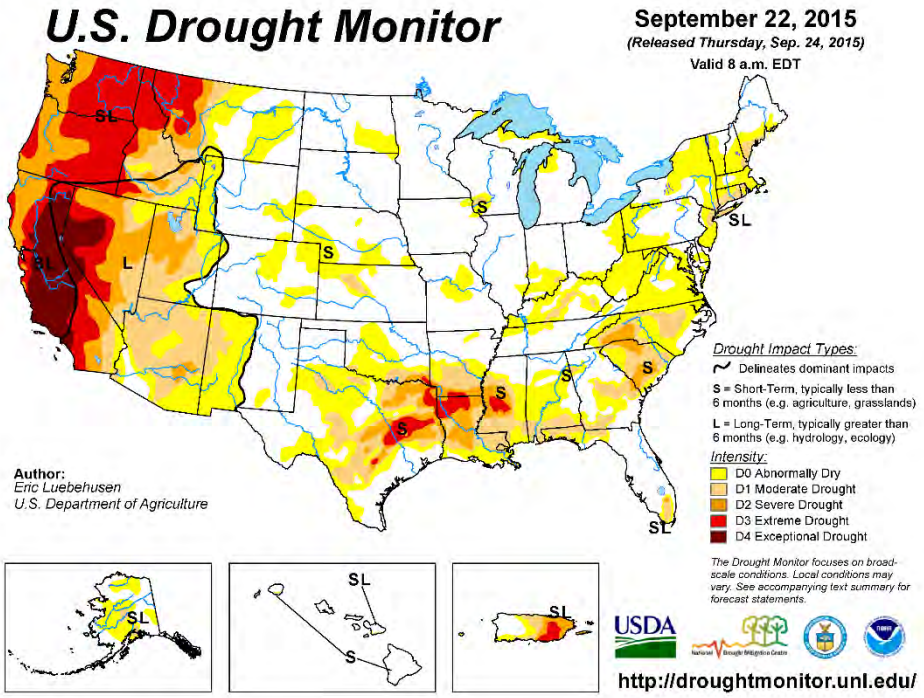
The Palmer Modified Drought Index (PMDI) is a means of Palmer Modified Drought Index for Teton County quantifying drought in terms of moisture demands versus moisture supply.

Moisture demands include plant requirements and water needed for recharge of soil moisture supplies. An allowance is also included for runoff amounts necessary for recharging both ground water and surface water supplies such as rivers, lakes, aquifers and reservoirs. The PMDI balances the moisture demands against the moisture supply available.

The PMDI expresses this comparison of moisture demand to moisture supply on a numerical scale that usually ranges from positive six to negative six. Positive values reflect excess moisture supplies while negative values indicate moisture demands in excess of supplies



Drought Conditions



The National Integrated Drought Information System (NIDIS) provides alerts when conditions are favorable for drought. The following table provides information on the different alerts for the National Weather Service:

National Integrated Drought Information System Alerts for Droughts

Alert	Criteria	Palmer Drought Index
D0 Abnormally Dry	Going into drought: short-term dryness slowing planting, growth of crops or pastures. Coming out of drought: some lingering water deficits; pastures or crops not fully recovered.	-1.0 to -1.9
D1 Moderate Drought	Some damage to crops, pastures, streams, reservoirs, or wells low, some water shortages developing or imminent, and voluntary water-use restrictions requested.	-2.0 to -2.9
D2 Severe Drought	Crop or pasture losses are likely, water shortages common and water restrictions imposed.	-3.0 to -3.9
D3 Extreme Drought	Major crop and pasture losses with widespread water shortages or restrictions.	-4.0 to -4.9
D4 Exceptional Drought	Exceptional and widespread crop and pasture loss, shortages of water in reservoirs, streams, and wells creating water emergencies.	-5.0 or less

Source: U.S. Drought Monitor Classification Scheme, from the United States Drought Monitor

Historical Frequencies

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. Principal drought in Idaho, indicated by stream flow records, occurred during 1929-41, 1944-45, 1959-61, 1977, and 1987-92. The most prolonged drought in Idaho was during the 1930s. For most of the State, that drought lasted for 11 years (1929-41) despite greater than average stream flows in 1932 and 1938. In 1977, the worst single year on record, a severe water shortage occurred throughout Idaho and the West. Stream flows were below normal from 1979 to 1981. A federal declaration was issued in 1977 for the State of Idaho and counties neighboring Teton County.

According to the Idaho Department of Water Resouces (IDWR) the following Drought Emergency Declarations were issued for Teton County:

- 1988
- 1991
- 2001
- 2003
- 2004

- 2007
- 2010
- 2012
- 2013

Impacts

Drought is agriculture's most expensive, frequent, and widespread form of natural disaster. The current drought in the interior West is part of a multi-year drought that began in 1999, worsened in 2000, and has continued, with some interruptions through 2004. As a result, the drought in the West was slow to develop, and likewise, will be slow to recede.

One important aspect of reducing vulnerability is to understand the impacts of drought. Each drought produces a unique set of impacts, depending not only on the drought's severity, duration, and spatial extent but also on ever-changing social conditions. These impacts are often symptoms of other underlying problems (vulnerabilities). So, in order to understand vulnerability, a good place to start is to investigate drought impacts.

Drought 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.

Impacts are commonly referred to as direct or indirect. Reduced crop, rangeland, and forest productivity; increased fire hazard; reduced water levels; increased livestock and wildlife mortality rates; and damage to wildlife and fish habitat are a few examples of direct impacts. The consequences of these impacts illustrate indirect impacts. For example, a reduction in crop, rangeland, and forest productivity may result in reduced income for farmers and agribusiness, increased prices for food and timber, unemployment, reduced tax revenues because of reduced expenditures, increased crime, foreclosures on bank loans to farmers and businesses, migration, and disaster relief programs. Direct or primary impacts are usually biophysical. Conceptually speaking, the more removed the impact from the cause, the more complex the link to the cause. In fact, the web of impacts becomes so diffuse that it is very difficult to come up with financial estimates of damages. The impacts of drought can be categorized as economic, environmental or social.

Many economic impacts occur in agricultural and related sectors because of the reliance of these sectors on surface and subsurface water supplies. 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. 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.

Loss Estimates

Income loss is another indicator used in assessing the impacts of drought because so many sectors are affected. Reduced income for farmers has a ripple effect. Retailers and others who provide goods and services to farmers face reduced business. This leads to unemployment, increased credit risk for financial institutions, capital shortfalls, and loss of tax revenue for local, State, and Federal government. Less discretionary income affects the recreation and tourism industries. 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. Hydropower production may also be curtailed significantly.

Crop insurance claims from 2008 to 2014 for drought total $334,629.75.

Hazard Evaluation

The effects of drought on Teton County are moderate. Rural Teton County is built around an agricultural economy and tourism. Farming, including the row crops of potatoes and grains, is extremely vulnerable to drought.

Wildfires are a significant risk to the rural areas as well. Drought, coupled with dry lighting, is a major source of wildfires in the County. Drought is also impacting the forested areas of Teton County. The Lodge Pole Pine Beetle infestation in the area is exacerbated by prolonged drought. The magnitude of drought was determined based on the scoring below. The County receives drought disaster assistance through the State of Idaho through a Drought Declaration facilitated through the Idaho Department of Water Resources. Areas impacted typically include the entire County. Drought brings about little bodily harm. The potential economic loss in Teton County is significant. Even though the County has a significant economic base associated with tourism, agriculture still plays a vital role in the County's total economic picture. Warning lead times for Drought are usually in months as the National Weather Service is fairly accurate in climate predictions however, the effects of drought decrease the warning lead times for impacts such as wildfire to minutes.

The frequency of drought cycles in Teton County is between five (5) to twenty –five years. Drought cycles last an average of seven years.

Repetitive Loss - Drought has occurs in cycles on the high desert plains of Idaho. The losses are significant and repetitive.

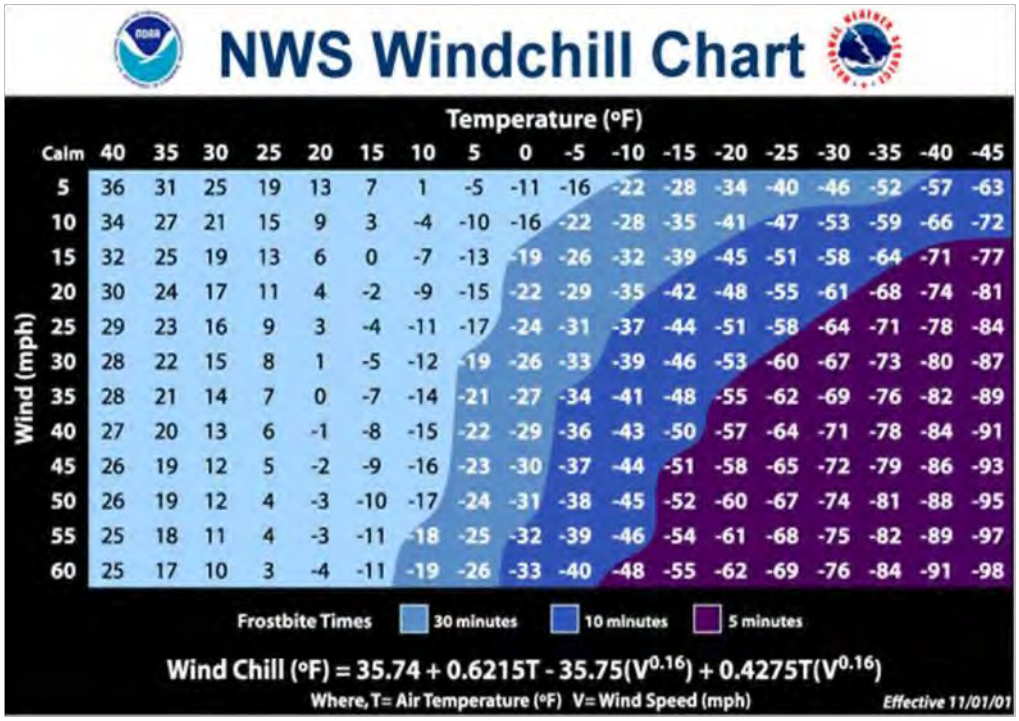
Extreme Cold

Hazard Overview			
Location:	County-wide		
Frequency/Previous Occurrences:	Medium		
Impact/Consequence:	Medium		
Community Vulnerability:	Medium		
Overall Hazard Risk Ranking By Jurisdiction			
Teton County	**Tetonia**	**Driggs**	**Victor**
Moderately High	**Moderately High**	**Moderately High**	**Moderately High**

This hazard affects every community in Teton County.

Hazard Description

"Extreme cold" is a term describing hazardous conditions 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 and in this region issues wind chill advisories when the wind chill temperatures 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 temperature 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.



Wind (mph)	Calm	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45
5		36	31	25	19	13	7	1	-5	-11	-16	-22	-28	-34	-40	-46	-52	-57	-63
10		34	27	21	15	9	3	-4	-10	-16	-22	-28	-35	-41	-47	-53	-59	-66	-72
15		32	25	19	13	6	0	-7	-13	-19	-26	-32	-39	-45	-51	-58	-64	-71	-77
20		30	24	17	11	4	-2	-9	-15	-22	-29	-35	-42	-48	-55	-61	-68	-74	-81
25		29	23	16	9	3	-4	-11	-17	-24	-31	-37	-44	-51	-58	-64	-71	-78	-84
30		28	22	15	8	1	-5	-12	-19	-26	-33	-39	-46	-53	-60	-67	-73	-80	-87
35		28	21	14	7	0	-7	-14	-21	-27	-34	-41	-48	-55	-62	-69	-76	-82	-89
40		27	20	13	6	-1	-8	-15	-22	-29	-36	-43	-50	-57	-64	-71	-78	-84	-91
45		26	19	12	5	-2	-9	-16	-23	-30	-37	-44	-51	-58	-65	-72	-79	-86	-93
50		26	19	12	4	-3	-10	-17	-24	-31	-38	-45	-52	-60	-67	-74	-81	-88	-95
55		25	18	11	4	-3	-11	-18	-25	-32	-39	-46	-54	-61	-68	-75	-82	-89	-97
60		25	17	10	3	-4	-11	-19	-26	-33	-40	-48	-55	-62	-69	-76	-84	-91	-98

Historical Frequencies

Record low temperatures for Teton County was determined by looking at climatology records from 1950 to 2015. The record low for the County was -50°F recorded on February 9, 1933 at Driggs.

Date	Type
05/08/2002	Extreme Cold/wind Chill
01/11/2007	Extreme Cold/wind Chill
02/02/2007	Extreme Cold/wind Chill
01/16/2008	Extreme Cold/wind Chill
12/10/2009	Extreme Cold/wind Chill
01/07/2010	Extreme Cold/wind Chill
02/01/2011	Extreme Cold/wind Chill
12/04/2011	Extreme Cold/wind Chill
12/06/2013	Extreme Cold/wind Chill
12/09/2013	Extreme Cold/wind Chill
02/06/2014	Extreme Cold/wind Chill
11/12/2014	Extreme Cold/wind Chill

Impacts

Health effects of exposure to extreme cold include hypothermia and frostbite, both of which can be life-threatening. Infants and the elderly are most susceptible. In the United States, nearly 700 deaths are directly attributed to hypothermia annually.

Loss Estimates

Extreme cold may cause loss of wildlife and vegetation, 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. River flooding may take place as a result of the formation of ice jams.

Crop insurance claims for 2008 to 2014 for cold winter, freeze and frost total $4,382,451.64

Extreme cold affects the individual, families, cities, and the County. Damage typically occurs to individual properties; however, city water systems are usually vulnerable to extreme cold. Repairs to water line freeze ups and breaks typically require the roadways to be excavated necessitating additional maintenance and repairs during the warmer months. The record low temperature in Teton County is -50 degrees recorded at the Driggs Airport.

Extreme Cold can cause death and injury especially to those working or stranded outside for prolonged periods. Economic loss is related to private individuals, businesses, and government agencies in heating of homes and facilities. Additional losses can be expected to the livestock industry. During extreme cold periods the schools are closed to protect children traveling to and from school.

During the spring and early summer, temperatures can drop low enough to produce frost. While such temperatures are not low enough to damage infrastructure or require extra heating costs, it can be devastating to crops. Warning lead times in Teton County usually are a day or two based on forecasts made by the National Weather Service in Pocatello.

Repetitive Loss – Extreme cold occurs frequently in Teton County and losses due to freezing and breaking of pipes occurs annually. Other losses include death of livestock and business closure due to loss of electricity during extreme cold events. The loss of electricity due to extreme cold is the largest single contributor to the economic loss.

Hail

Hazard Overview			
Location:	County-wide		
Frequency/Previous Occurrences:	Medium		
Impact/Consequence:	Low		
Community Vulnerability:	Low		
Overall Hazard Risk Ranking By Jurisdiction			
Teton County	**Tetonia**	**Driggs**	**Victor**
Moderately Low	**Moderately Low**	**Moderately Low**	**Moderately Low**

This hazard affects every community in Teton County.

Hazard Description

The NWS definition of "hail" is: Showery precipitation in the form of irregular pellets or balls of ice more than 5 mm in diameter, falling from a cumulonimbus cloud. Its size can vary from the defined minimum, a little over a quarter of an inch, up to 4.5 inches or larger. "Severe hail" is defined as being 0.75 inches or more in diameter. The largest hailstones are formed in supercell thunderstorms because of their sustained updrafts and long duration. Hail and severe hail are relatively uncommon in Idaho. In the ten-year period from 1986 to 1995, the NWS recorded severe hail in Idaho on 113 occasions while in the same time period severe hail was recorded in Colorado nearly 1,400 times.

Historical Frequencies

Location	County/Zone	St.	Date	Type	Mag
TETON CO.	TETON CO.	ID	07/14/1975	Hail	0.75 in.
TETON CO.	TETON CO.	ID	07/09/1983	Hail	1.75 in.
VICTOR	TETON CO.	ID	06/03/1996	Hail	0.25 in.
TETONIA	TETON CO.	ID	06/22/1996	Hail	0.75 in.
TETONIA	TETON CO.	ID	06/14/1998	Hail	1.00 in.
TETONIA	TETON CO.	ID	08/04/2000	Hail	0.75 in.
TETONIA	TETON CO.	ID	09/13/2001	Hail	0.88 in.
DRIGGS	TETON CO.	ID	07/23/2002	Hail	0.75 in.
VICTOR	TETON CO.	ID	07/04/2004	Hail	0.75 in.
VICTOR	TETON CO.	ID	07/09/2004	Hail	1.00 in.
DRIGGS	TETON CO.	ID	06/14/2006	Hail	0.75 in.
VICTOR	TETON CO.	ID	07/22/2008	Hail	1.00 in.

VICTOR	TETON CO.	ID	07/22/2008	Hail	1.00 in.
DRIGGS	TETON CO.	ID	07/22/2008	Hail	0.88 in.
VICTOR	TETON CO.	ID	05/31/2014	Hail	1.00 in.
TETONIA	TETON CO.	ID	05/31/2014	Hail	1.75 in.
TETONIA	TETON CO.	ID	06/01/2015	Hail	1.25 in.

Impacts

Deaths and injuries due to hail have occurred, but are rare.

Loss Estimates

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.

Crop insurance claims for 2008 to 2014 for hail total $5,320,030.85
One storm in May of 2014 had hail that was 1.75 inch in size

High Wind Event

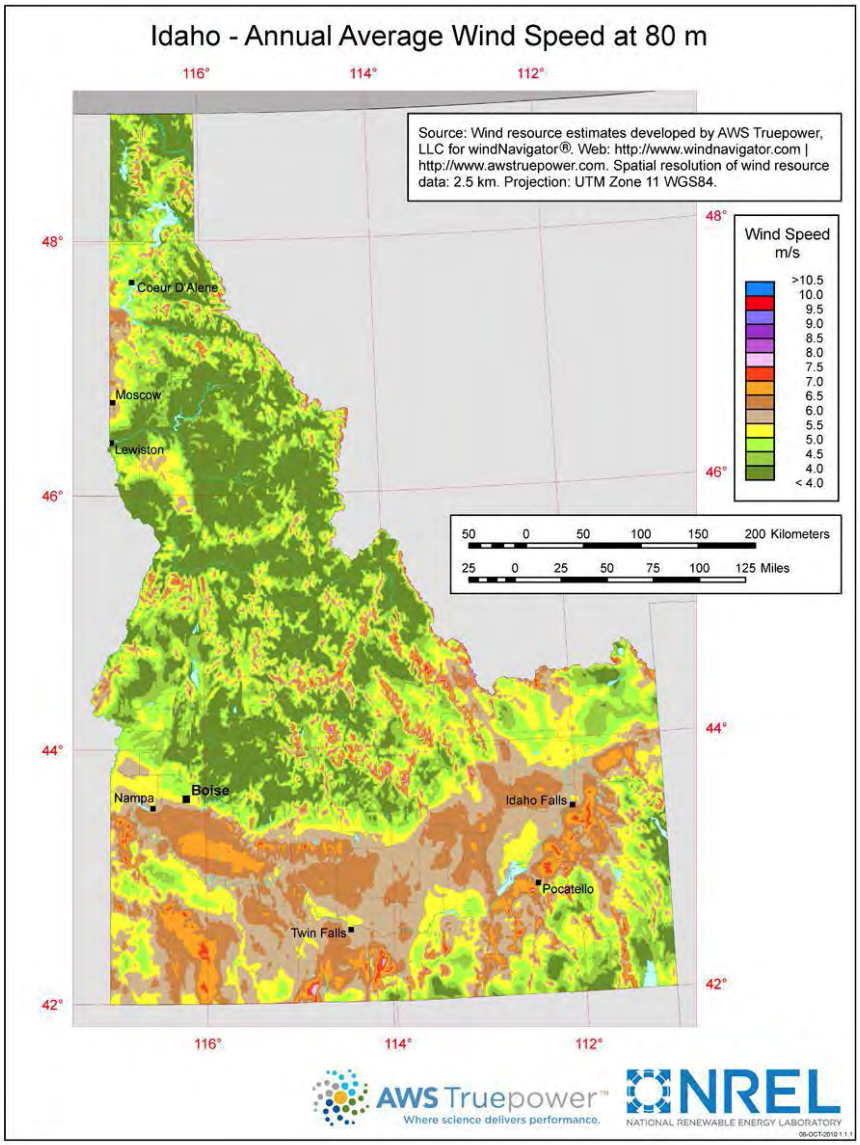
Hazard Overview			
Location:	County-wide		
Frequency/Previous Occurrences:	Medium		
Impact/Consequence:	Medium		
Community Vulnerability:	Medium		
Overall Hazard Risk Ranking By Jurisdiction			
Teton County	**Tetonia**	**Driggs**	**Victor**
Moderately High	**Moderately High**	**Moderately High**	**Moderately High**

This hazard affects every community in Teton County.

Hazard Description

The term "straight line wind" is used to describe any wind not associated with rotation, particularly tornadoes. Of concern is "high wind," defined by the NWS as, "Sustained wind speeds of 40 mph or greater lasting for 1 hour or longer, or winds of 58 mph or greater for any duration."

Like tornadoes, strong, straight line winds are generated by thunderstorms and they can cause similar damage. Straight line wind speeds can approach 150 mph, equivalent to those in an F3 tornado. Two categories of straight line winds are "down-bursts" and "derechoes." A downburst is a small area of rapidly descending rain and rain-cooled air beneath a thunderstorm. The winds produced from a down-burst often travel in one direction, and the worst damage is usually on the forward side of the down-burst. Derechoes are created by the merging of many thunderstorm cells into a cluster or solid line extending for many miles. The width of such a storm can range from 20 to 65 miles, and the length can reach 100 miles or more. In extreme cases these storms can create maximum wind gusts of 150 mph and they are also capable of producing small tornadoes. Damaging, straight line winds are much more common than tornadoes and their damage is often incorrectly attributed to tornadoes. Derechoes are not common in Idaho, averaging less than one per year, while downburst associated straight line winds occur more frequently.



Source: Wind Powering America

Historical Frequencies

There have been over 70 wind incidents since 1960. The following represent significant incidents that have affected the county.

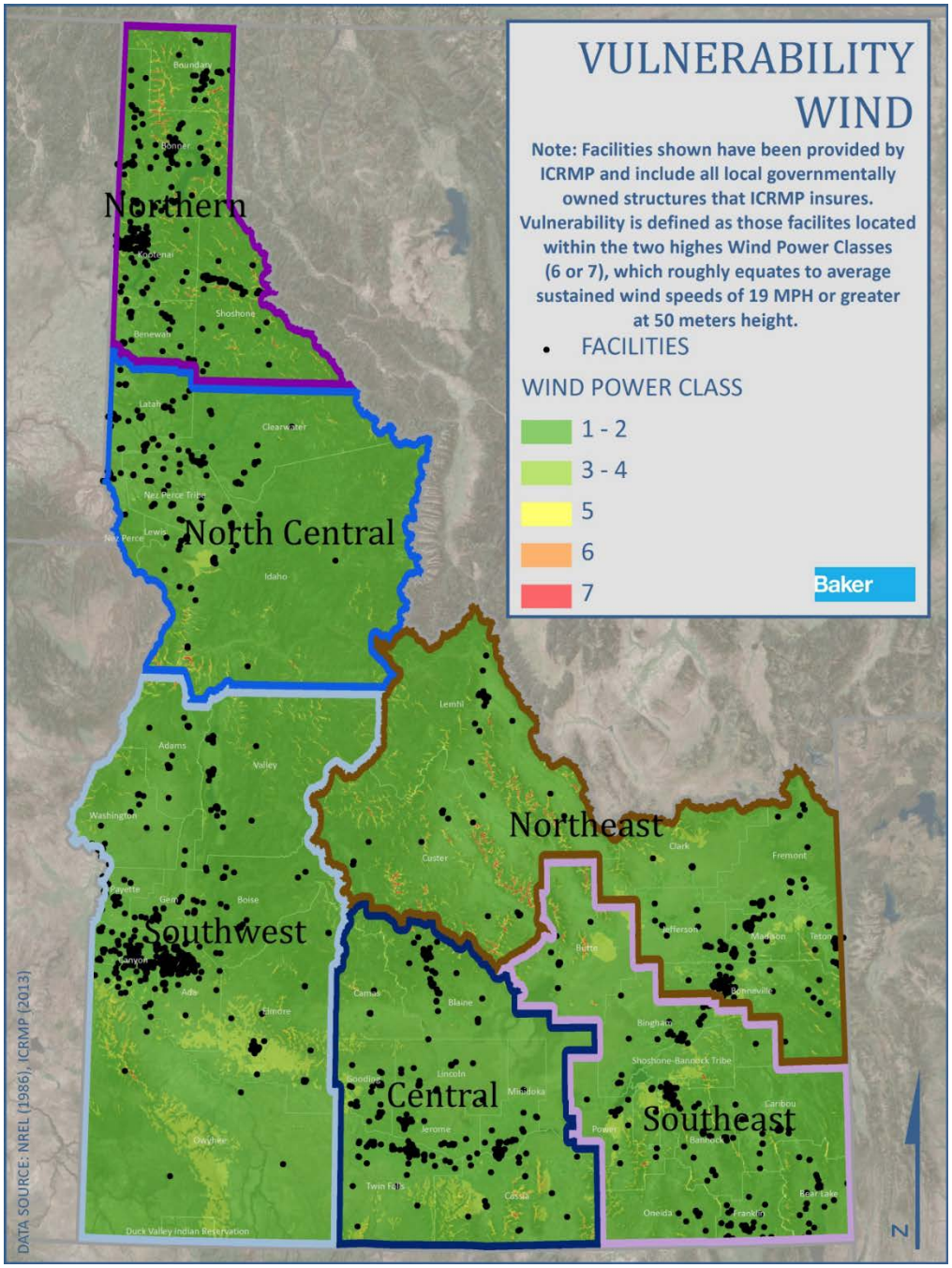
Location	County/Zone	St.	Date	Type	Mag
County	Teton	ID	7/9/1983	High Wind	unknown
Victor	Teton	ID	6/17/1997	High Wind	43 kts
County	Teton	ID	04/23/2002	High Wind	unknown

Driggs	Teton	ID	8/22/2003	High Wind	60 kts
County	Teton	ID	10/29/2003	High Wind	44 kts.
County	Teton	ID	03/06/2004	High Wind	60 kts.
County	Teton	ID	05/20/2008	High Wind	61 kts.
County	Teton	ID	05/12/2009	High Wind	52 kts.
County	Teton	ID	06/29/2011	High Wind	56 kts.
County	Teton	ID	04/29/2013	High Wind	58 kts.
County	Teton	ID	09/30/2013	High Wind	50 kts.

Impacts

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.

Of greatest concern to the County is modular homes, and specifically schools (District 401) that use modular structures. There is a need to assess schools with modular buildings, inspect tie downs, and assess wind load.



Source: 2013 State of Idaho Hazard Mitigation Plan

Loss Estimates

Crop insurance claims for 2008 to 2014 for wind total $111,511.00.
On May 12th 2009, 60 MPH winds knocked down power lines in Driggs.

Tornado

Hazard Overview			
Location:	County-wide		
Frequency/Previous Occurrences:	Low		
Impact/Consequence:	Low		
Community Vulnerability:	Low		
Overall Hazard Risk Ranking By Jurisdiction			
Teton County	**Tetonia**	**Driggs**	**Victor**
Low	**Low**	**Low**	**Low**

While tornado occurrences are low in the County, no community in the County is immune from this hazard.

Hazard Description

The NWS describes 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. On a local scale, it 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. Wind speeds within tornadoes are estimated based on the damage caused and expressed using the Enhanced Fujita (EF) Scale.

NWS Alerts for Tornadoes

Alert	Criteria
Tornado Watch	This is issued by the National Weather Service when conditions are favorable for the development of tornadoes in and close to the watch area. Their size can vary depending on the weather situation. They are usually issued for a duration of 4 to 8 hours. They normally are issued well in advance of the actual occurrence of severe weather. During the watch, people should review tornado safety rules and be prepared to move a place of safety if threatening weather approaches. A Tornado Watch is issued by the Storm Prediction Center (SPC) in Norman, Oklahoma. Prior to the issuance of a Tornado Watch, SPC will usually contact the affected local National Weather Forecast Office (NWFO) and they will discuss what their current thinking is on the weather situation. Afterwards, SPC will issue a preliminary Tornado Watch and then the affected NWFO will then adjust the watch (adding or eliminating counties/parishes) and then issue it to the public. After adjusting the watch, the NWFO will let the public know which counties are included by way of a Watch Redefining Statement. During the watch, the NWFO will keep the public informed on what is happening in the watch area and also let the public know when the watch has expired or been canceled.
Tornado Warning	This is issued when a tornado is indicated by the WSR-88D radar or sighted by spotters; therefore, people in the affected area should seek safe shelter immediately.

	They can be issued without a Tornado Watch being already in effect. They are usually issued for a duration of around 30 minutes. A Tornado Warning is issued by your local National Weather Service office (NWFO). It will include where the tornado was located and what towns will be in its path. If the tornado will affect the near shore or coastal waters, it will be issued as the combined product--Tornado Warning and Special Marine Warning. If the thunderstorm which is causing the tornado is also producing torrential rains, this warning may also be combined with a Flash Flood Warning. If there is an ampersand (&) symbol at the bottom of the warning, it indicates that the warning was issued as a result of a severe weather report. After it has been issued, the affected NWFO will followed it up periodically with Severe Weather Statements. These statements will contain updated information on the tornado and they will also let the public know when warning is no longer in effect.

Source: National Weather Service

Enhanced Fujita (EF) Scale

On February 1, 2007, the National Weather Service adopted "Enhanced Fujita (EF) Scale". The EF Scale evaluates and categorizes tornado events by intensity. Both the original Fujita Scale and the EF Scale estimate the intensity of a tornado (3-second gust speed) based on the magnitude of damage. The original scale had a lack of damage indicators and with the increasing standards for buildings, rating of tornadoes was becoming inconsistent. The EF Scale evaluates tornado damage with a set of 28 indicators (see NOAA website). Each indicator is a structure with a typical damage description for each magnitude of a tornado.

Fujita vs. Enhanced Fujita Scale

FUJITA SCALE			DERIVED EF SCALE		OPERATIONAL EF SCALE	
F Number	Fastest 1/4-mile (mph)	3 Second Gust (mph)	EF Number	3 Second Gust (mph)	EF Number	3 Second Gust (mph)
0	40-72	45-78	0	65-85	0	65-85
1	73-112	79-117	1	86-109	1	86-110
2	113-157	118-161	2	110-137	2	111-135
3	158-206	162-209	3	138-167	3	136-165
4	207-260	210-261	4	168-199	4	166-200

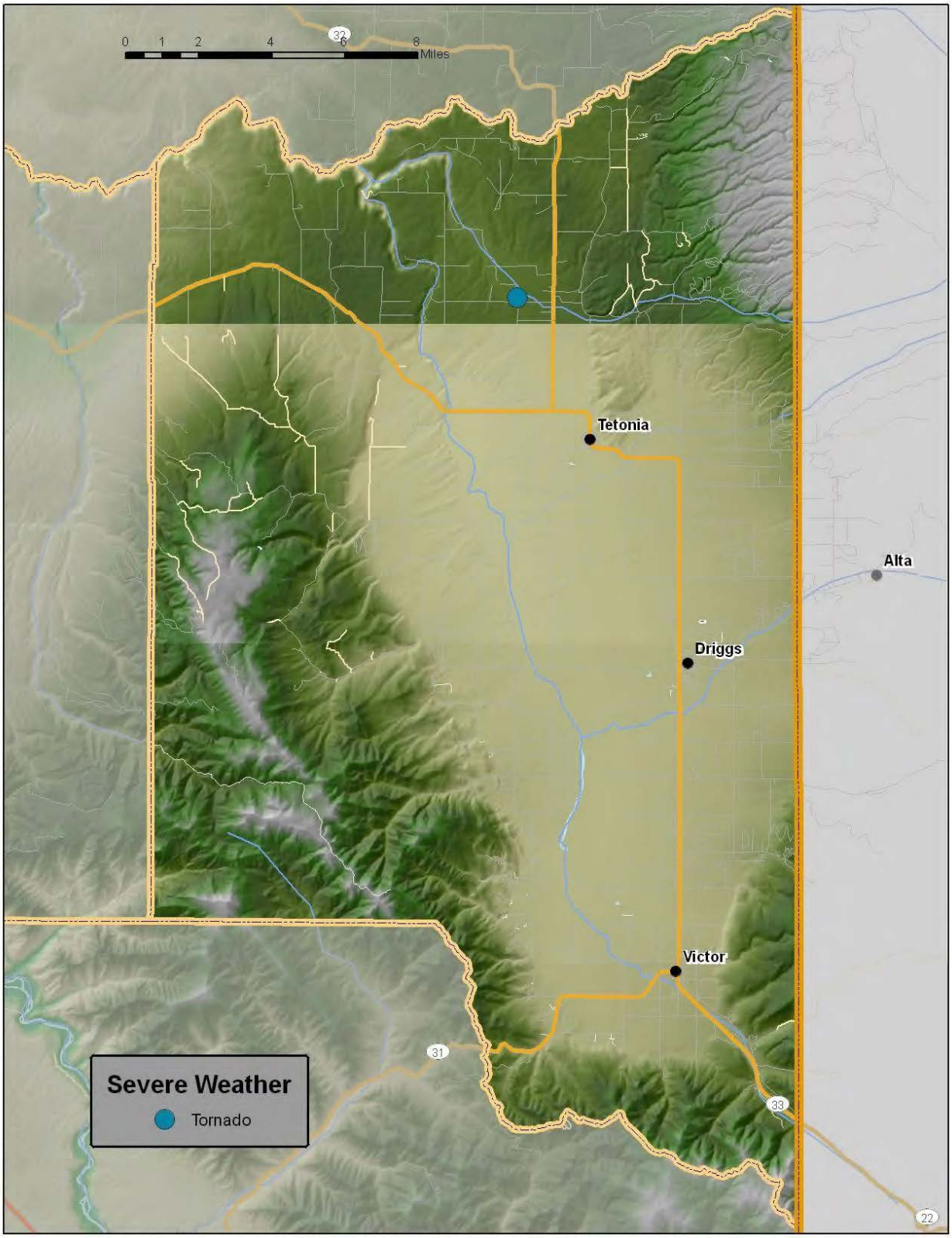
5	261-318	262-317	5	200-234	5	Over 200

Source: National Oceanic and Atmospheric Administration

Historical Frequencies

Location	Date	Time	Event	Magnitude	Reported Damage
Driggs	5/19/1932		Tornado	unknown	Boy killed, grandstand at ball park destroyed
Teton	6/9/1954	4:00 PM	Tornado	unknown	
Driggs	5/31/1997	11:07 AM	Funnel Cloud	n/a	
Driggs	9/1/2000	12:10 PM	Funnel Cloud	n/a	

Significant Tornado Incidents



Impacts

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. Agriculturally, crop and livestock loss is also possible as is loss of timber production.

Of greatest concern to the County is modular homes, and specifically schools (District 401) that use modular structures. There is a need to assess schools with modular buildings, inspect tie downs, assess wind load.

Loss Estimates

There is no record of actual dollar losses in Teton County due to Tornados. There was a death record in 1932 as well as damage. Depending on location it is possible that extreme damage could be possible due to a Tornado.

On May 19, 1932 a tornado in Driggs killed a boy and destroyed grandstands at the ballpark.

Lightning

Hazard Overview			
Location:	County-wide		
Frequency/Previous Occurrences:	Medium		
Impact/Consequence:	Low		
Community Vulnerability:	Low		
Overall Hazard Risk Ranking By Jurisdiction			
Teton County	**Tetonia**	**Driggs**	**Victor**
Moderately Low	**Moderately Low**	**Moderately Low**	**Moderately Low**

This hazard affects every community in Teton County.

Hazard Description

Lightning is defined by the NWS as, "A visible electrical discharge produced by a thunderstorm. The discharge may occur within or between clouds, between the cloud and air, between a cloud and the ground or between the ground and a cloud." A lightning discharge may be over five miles in length, generate temperatures upwards of 50,000ºF, and carry 50,000 volts of electrical potential. Lightning is most often associated with thunderstorm clouds but lightning can strike as far as five to ten miles from a storm. Thunder is caused by the rapid expansion of air heated by a lightning strike. Cloud-to-ground lightning strikes occur with much less frequency in the northwestern U.S. than in other parts of the country.

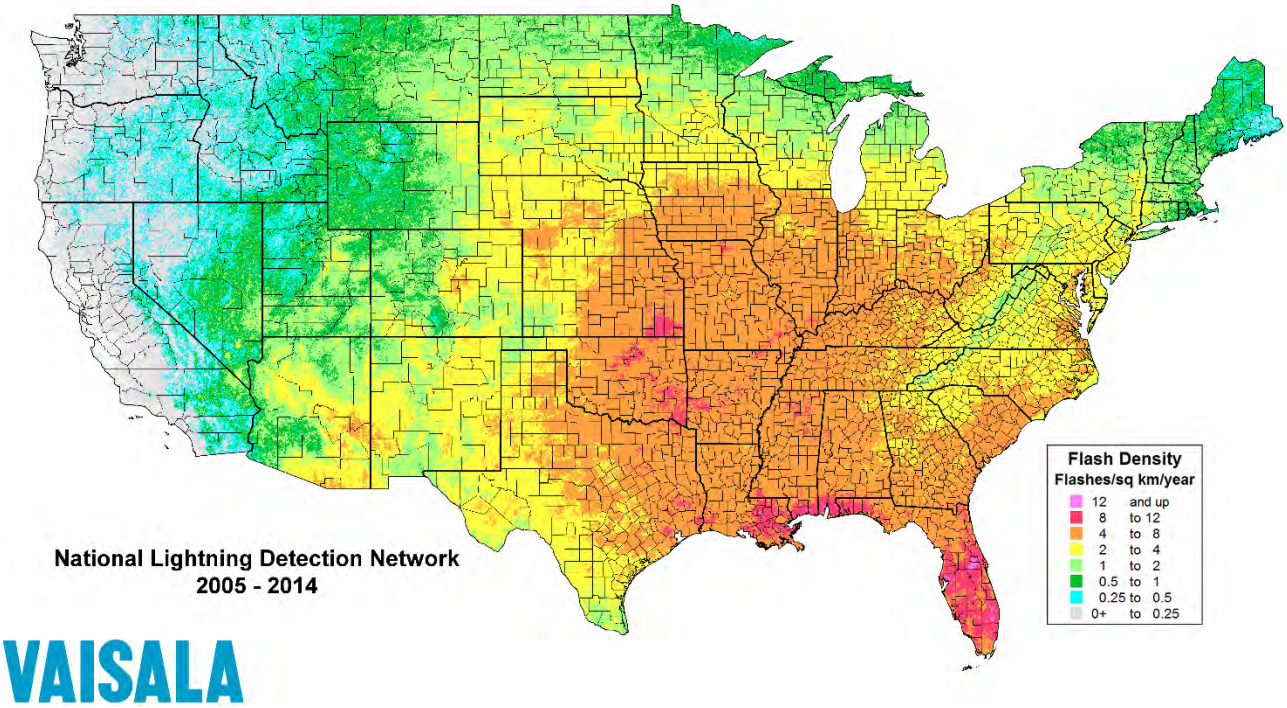
Lightning Types

Category	Criteria
Cloud to Ground	A lightning discharge between cloud and ground initiated by a downward-moving stepped leader.
Ground to Cloud	A lightning discharge between cloud and ground initiated by an upward-moving stepped leader originating from an object on the ground. Ground-to-Cloud lightning strikes are common on tall towers and skyscrapers.
Intracloud	A lightning discharge inside a single storm cloud, jumping between different charge regions in the cloud. All or parts of the actual channel may be obscured inside the cloud, and may or may not be visible to an observer on the ground.
Anvil Crawlers	A lightning discharge with movement that is slow enough that a human observer or normal-speed video camera can see the rapid motion across the sky.
Bolt from the Blue	A lightning discharge that strikes far away from its parent thunderstorm. A 'bolt from the blue' typically originates in the highest regions of a cumulonimbus cloud, traveling horizontally a good distance away from the thunderstorm before making a vertical descent to earth in locations with clear skies.
Sheet	A lightning discharge where the actual lightning channel is either inside the clouds or below the horizon but not visible to the observer.

Category	Criteria
Bead	The decaying stage of a lightning channel in which the luminosity of the channel breaks up into segments. Nearly every lightning discharge will exhibit beading as the channel cools immediately after a return stroke.
Ribbon	The visual appearance of a photographed lightning flash's individual return strokes being separated by visible gaps on the final exposure. This is typically caused by wind blowing the lightning channel sideways during the exposure.
Cloud to Air	A lightning discharge or a portion of a discharge jumping from a cloud into clear air.
Cloud to Cloud	A lightning discharge between two or more completely separate storm clouds.
Ball	A rare phenomenon described as a floating, illuminated sphere that occurs during thunderstorms. It may move fast, slow or stay stationary, it may be quiet or produce a hissing or crackling noise, it may pass through windows, last from seconds to minutes, and disappear slowly or suddenly either quietly or with a loud bang.

Source: Storm Highway

FLASH DENSITY MAP, 2005-2014



Source: Vaisala

Historical Frequencies

There have been multiple incidents, but the following represent lightning incidents in which injuries or fatalities have been recorded.

Place	Date	Event	Details	Reported Damage
Cache	7/15/1940	Lightning	Two people struck killed	unknown
Driggs	9/28/1947	Lightning	88 sheep killed when lightning struck the field	$20/head
12 miles east of Driggs	8/1/1951	Lightning	5 people killed when lightning struck, 36 injured	unknown
Bates	5/1917	Lightning	Man struck and killed, 2 horses killed	unknown
Driggs	5/15/1917	Lightning	Woman struck and injured	unknown
Lamont	7/4/1929	Lightning	Man struck and killed	unknown
Victor	6/17/1937	Lightning	Man struck and killed, one injured	unknown
Driggs	6/22/1945	Lightning	A cow and 2 goats struck and killed	unknown
Victor	7/18/1921	Lightning	Young man struck and injured severely	unknown
Teton County	7/29/1909	Lightning	Woman struck and killed, others injured	unknown
Driggs	7/18/1999	Lightning	15 head of cattle killed when lightning struck nearby tree	21 K
Tetonia	10/13/2013	Lightning		20 K

Impacts

Lightning is the second deadiest weather phenomenon in the U.S., being second only to floods. On average, sixty to seventy deaths per year are attributed to lightning nationally and in Idaho the average is less than one per year. Despite the enormous energy carried by lightning, only about 10% of strikes are fatal. Injuries include central nervous system damage, burns, cardiac effects, hearing loss, and trauma. The effects of central nervous system injuries tend to be long-lasting

and severe, leading to such disorders as depression, alcoholism, and chronic fatigue and in some cases to suicide. Lightning also strikes structures causing fires and damaging electrical equipment. Wildland fires are often initiated by lightning strikes as are petroleum storage tank fires. About one third of all power outages are lightning-related.

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.

Since 1940, 11 people have been killed and 39 people injured by lightning. In addition, 88 sheep, two horses, 30 cows and 2 goats have also been killed by lightning.

Severe Winter Storm

Hazard Overview			
Location:	County-wide		
Frequency/Previous Occurrences:	High		
Impact/Consequence:	Medium		
Community Vulnerability:	High		
Overall Hazard Risk Ranking By Jurisdiction			
Teton County	**Tetonia**	**Driggs**	**Victor**
High	**High**	**High**	**High**

This hazard affects every community in Teton County.

Hazard Description

The NWS describes "Winter Storm" as weather conditions that produce heavy snow or significant ice accumulations. For purposes of this analysis, Severe Winter Storm is defined as any winter condition where the potential exists for a blizzard (winds >= 35mph and falling/drifting snow frequently reduce visibility < ¼ 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.

The National Weather Service issues advisories, watches, and warnings for winter weather related events. These warnings can be used as the basis for preparing for a possible winter weather emergency.

NWS Alerts for Severe Winter Weather

Alert	Criteria
Winter Weather Advisories	Are issued for accumulations of snow, freezing rain, freezing drizzle, and sleet which will cause significant inconveniences and, if caution is not exercised, could lead to life-threatening situations.
Winter Strom Watch	Alerts the public to the possibility of a blizzard, heavy snow, heavy freezing rain, or heavy sleet. Winter Storm Watches are usually issued 12 to 48 hours before the beginning of a Winter Storm.
Winter Storm Warning	Issued when hazardous winter weather in the form of heavy snow, heavy freezing rain, or heavy sleet is imminent or occurring. Winter Storm Warnings are usually issued 12 to 24 hours before the event is expected to begin.

Source: National Weather Service

Historical Frequencies

The following tables list significant winter-related incidents in the County.

Blizzards

County/Zone	St.	Date	Type
Teton County	ID	12/14/2000	Blizzard
Teton County	ID	12/05/2001	Blizzard
Teton County	ID	12/28/2003	Blizzard
Teton County	ID	01/01/2004	Blizzard
Teton County	ID	11/23/2010	Blizzard

Heavy Snow

(Note: Teton County is included in the Upper Snake Highlands Zone)

Area	Date	Type
UPPER SNAKE HIGHLANDS (ZONE)	12/20/1996	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	12/25/1996	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	1/23/1997	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	3/1/1997	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	10/23/1997	Heavy Snow
CLARK/FREMONT/TETON (ZONE)	11/19/1997	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	1/10/1998	Heavy Snow
CLARK/FREMONT/TETON (ZONE)	1/19/1998	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	2/21/1998	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	11/8/1998	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	11/21/1998	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	12/3/1998	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	12/25/1998	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	12/27/1998	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	1/14/1999	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	1/19/1999	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	1/22/1999	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	2/2/1999	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	2/16/1999	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	2/18/1999	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	2/25/1999	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	1/4/2000	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	3/19/2000	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	11/8/2000	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	11/29/2000	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	12/17/2000	Heavy Snow

UPPER SNAKE HIGHLANDS (ZONE)	1/11/2001	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	2/20/2001	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	4/7/2001	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	4/11/2001	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	6/3/2001	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	6/12/2001	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	10/10/2001	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	11/23/2001	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	11/24/2001	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	11/28/2001	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	12/1/2001	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	12/2/2001	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	12/13/2001	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	12/16/2001	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	12/18/2001	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	1/25/2002	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	2/19/2002	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	2/23/2002	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	2/28/2002	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	3/7/2002	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	3/12/2002	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	4/15/2002	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	5/21/2002	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	6/9/2002	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	10/23/2002	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	10/30/2002	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	11/9/2002	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	11/23/2002	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	12/16/2002	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	12/27/2002	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	12/30/2002	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	1/29/2003	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	2/16/2003	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	3/25/2003	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	5/5/2003	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	11/16/2003	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	11/25/2003	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	12/6/2003	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	12/13/2003	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	2/7/2004	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	2/25/2004	Heavy Snow

UPPER SNAKE HIGHLANDS (ZONE)	10/23/2004	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	12/6/2004	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	12/8/2004	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	3/27/2005	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	12/1/2005	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	12/22/2005	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	12/28/2005	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	12/30/2005	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	1/2/2006	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	1/10/2006	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	1/17/2006	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	1/30/2006	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	4/17/2006	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	11/27/2006	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	12/13/2006	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	12/26/2006	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	1/3/2007	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	2/26/2007	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	12/2/2007	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	12/18/2007	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	12/19/2007	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	12/29/2007	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	1/4/2008	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	1/19/2008	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	2/3/2008	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	2/5/2008	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	3/13/2008	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	12/12/2008	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	12/21/2008	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	1/1/2009	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	2/26/2009	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	3/5/2009	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	3/25/2009	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	4/1/2009	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	4/2/2009	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	12/12/2009	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	12/15/2009	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	1/1/2010	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	1/22/2010	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	1/31/2010	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	4/2/2010	Heavy Snow

UPPER SNAKE HIGHLANDS (ZONE)	11/8/2010	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	11/18/2010	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	12/28/2010	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	3/15/2011	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	12/30/2011	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	1/17/2012	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	1/20/2012	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	2/22/2012	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	2/29/2012	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	3/15/2012	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	10/25/2012	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	12/1/2012	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	12/16/2012	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	12/22/2012	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	11/16/2013	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	12/6/2013	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	12/20/2013	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	1/8/2014	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	1/11/2014	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	2/7/2014	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	2/12/2014	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	3/2/2014	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	3/9/2014	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	11/13/2014	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	11/22/2014	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	11/24/2014	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	12/20/2014	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	12/27/2014	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	2/2/2015	Heavy Snow
UPPER SNAKE HIGHLANDS (ZONE)	3/3/2015	Heavy Snow

Winter Storm

(Note: Teton County is included in the Upper Snake Highlands Zone)

Area	Date	Type
UPPER SNAKE HIGHLANDS (ZONE)	12/1/1996	Winter Storm
UPPER SNAKE HIGHLANDS (ZONE)	12/4/1996	Winter Storm
UPPER SNAKE HIGHLANDS (ZONE)	2/11/1997	Winter Storm
UPPER SNAKE HIGHLANDS (ZONE)	2/6/1999	Winter Storm
UPPER SNAKE HIGHLANDS (ZONE)	2/9/1999	Winter Storm
UPPER SNAKE HIGHLANDS (ZONE)	2/21/1999	Winter Storm

UPPER SNAKE HIGHLANDS (ZONE)	4/5/1999	Winter Storm
UPPER SNAKE HIGHLANDS (ZONE)	4/8/1999	Winter Storm
UPPER SNAKE HIGHLANDS (ZONE)	12/2/1999	Winter Storm
UPPER SNAKE HIGHLANDS (ZONE)	12/12/1999	Winter Storm
UPPER SNAKE HIGHLANDS (ZONE)	1/10/2000	Winter Storm
UPPER SNAKE HIGHLANDS (ZONE)	2/24/2000	Winter Storm
UPPER SNAKE HIGHLANDS (ZONE)	1/21/2002	Winter Storm
UPPER SNAKE HIGHLANDS (ZONE)	2/7/2002	Winter Storm
UPPER SNAKE HIGHLANDS (ZONE)	11/8/2002	Winter Storm
UPPER SNAKE HIGHLANDS (ZONE)	3/5/2003	Winter Storm
UPPER SNAKE HIGHLANDS (ZONE)	12/25/2003	Winter Storm
UPPER SNAKE HIGHLANDS (ZONE)	1/24/2004	Winter Storm
UPPER SNAKE HIGHLANDS (ZONE)	1/28/2004	Winter Storm
UPPER SNAKE HIGHLANDS (ZONE)	1/7/2005	Winter Storm
UPPER SNAKE HIGHLANDS (ZONE)	1/27/2008	Winter Storm
UPPER SNAKE HIGHLANDS (ZONE)	1/31/2008	Winter Storm
UPPER SNAKE HIGHLANDS (ZONE)	2/7/2008	Winter Storm
UPPER SNAKE HIGHLANDS (ZONE)	10/11/2008	Winter Storm
UPPER SNAKE HIGHLANDS (ZONE)	12/18/2008	Winter Storm
UPPER SNAKE HIGHLANDS (ZONE)	12/24/2008	Winter Storm
UPPER SNAKE HIGHLANDS (ZONE)	12/27/2008	Winter Storm
UPPER SNAKE HIGHLANDS (ZONE)	1/25/2009	Winter Storm
UPPER SNAKE HIGHLANDS (ZONE)	3/29/2009	Winter Storm
UPPER SNAKE HIGHLANDS (ZONE)	2/25/2012	Winter Storm
UPPER SNAKE HIGHLANDS (ZONE)	1/10/2013	Winter Storm
UPPER SNAKE HIGHLANDS (ZONE)	2/22/2013	Winter Storm
UPPER SNAKE HIGHLANDS (ZONE)	3/17/2013	Winter Storm
UPPER SNAKE HIGHLANDS (ZONE)	12/1/2013	Winter Storm
UPPER SNAKE HIGHLANDS (ZONE)	2/3/2014	Winter Storm
UPPER SNAKE HIGHLANDS (ZONE)	3/1/2014	Winter Storm
UPPER SNAKE HIGHLANDS (ZONE)	12/24/2014	Winter Storm
UPPER SNAKE HIGHLANDS (ZONE)	1/4/2015	Winter Storm

Impacts

The impacts of the very cold temperatures that may accompany a severe winter storm are discussed above. Other life threatening impacts 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 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. Fatalities in Idaho due to winter storms are somewhat unusual with ten being reported during the ten-year period from 1995 through 2004.

Teton County

- Highway 33 and 32 are susceptible to heavy snow and road closures.
- Water/sewer lines in the County are susceptible to freezing.
- Many of the roads, including Badger Creek Road, are susceptible to heavy snow due to blowing snow.

City of Driggs

- The area between the High School and Jr. High School in Driggs is susceptible to blowing and heavy snow accumulations.

City of Tetonia

- The main highway between Newdale and Tetonia can be treacherous during heavy snow events, resulting in many accidents.

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, 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.

The County routinely has severe winter storms that can cause car accidents, contribute to house fires, isolate the community from outside help and services, and make emergency response extremely difficult.

Repetitive Loss – Severe Winter Storms occur several times a year. There is some repetitive loss to structures; however, it is almost always to private property as government entities appear to take actions to "storm proof" their facilities. There is also some loss of business revenue associated with the closure of roads and business.

Flooding

Flooding is defined by NWS as "the inundation of normally dry areas as a result of increased water levels in an established water course." 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 (see Flash Flood), snowmelt, and ice jams. In addition to these natural events, there are a number of factors controlled by human activity that may cause or contribute to flooding. These include dam failure (discussed below), levee failure, and activities that increase the rate and amount of runoff such as paving, reducing ground cover, and clearing forested areas. 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 (NIFP) is the "100-year floodplain." This area is chosen using historical data such that in any given year there is a one percent 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. Floods occur in Idaho every one to two years and are considered the most serious and costly natural hazard affecting the State. 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 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.

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 the flood having a 1% chance of being equaled or exceeded in any given year. Also referred to as the "100-year flood".
- Floodplain: A floodplain is land adjacent to a lake, river, stream, estuary or other 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 storm water overflow; rapid snowmelt; rising ground-water (generally in conjunction with heavy prolonged rainfall and saturated conditions); riverine ice jams; flash floods; and alluvial fan flooding

Floodplain Management

Teton County participates in the National Flood Insurance Program as well as the City of Victor and Driggs. The City of Tetonia does not participate in the NFIP.

Teton County has no communities within the 100-year floodplain hazard areas that are not participating in the NFIP, however, the City of Tetonia has a potential for flooding from intermittent streams have experienced losses related to flash flooding and spring runoff. The Teton County Floodplain Administrator will work with the City to encourage their participation in the NFIP.

Teton County has no communities under suspension or revocation of participation in the NFIP. The Teton County Flood Plain Administrator is the Planning and Zoning Department Coordinator. An important part of being an NFIP community is the availability of low cost flood insurance for those homes and business within designated floodplains, or in areas that are subject to flooding, but that are not designated as Special Flood Hazard Areas.

As evidenced in the Community Questionnaire from 2008, overall participation by individuals and business in the NFIP appeared to be low. Potential reasons for continuing low participation in the program are:

- Current cost of insurance is prohibitive.
- A lack of knowledge about the existence of the availability of low cost flood insurance.
- Home and business owners unaware of their vulnerability to flood events.

The last two reasons can be addressed through public education. The first could be addressed by all communities in the County taking advantage of 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 of annual flood insurance premiums. Neither the County, nor any of the incorporated cities participate in the Community Rating System.

Flash Flood

Hazard Overview			
Location:	County-wide		
Frequency/Previous Occurrences:	Low		
Impact/Consequence:	Low		
Community Vulnerability:	Medium		
Overall Hazard Risk Ranking By Jurisdiction			
Teton County	**Tetonia**	**Driggs**	**Victor**
Moderately Low	**Moderately Low**	**Moderately Low**	**Moderately Low**

Flash flooding is an issue in outlying areas in the County, but is less likely in Driggs, Victor, and Tetonia.

Hazard 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 flood waters." 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 pavement has replaced exposed soil. Flash floods may also arise as the result of dam failure (discussed below) or the breakup of ice jams.

Flood Types

Category	Criteria
Flash Flooding	A rapid rise of water along a stream or low-lying urban area. Flash flooding occurs within six hours of a significant rain event and is usually caused by intense storms that produce heavy rainfall in a short amount of time. Excessive rainfall that causes rivers and streams to swell rapidly and overflow their banks is frequently associated with hurricanes and tropical storms, large clusters of thunderstorms, supercells, or squall lines. Other types of flash floods can occur from dam or levee failures.

Source: National Weather Service

Historical Frequencies

Place	Date	Event	Details	Reported Damage
Driggs	6/22/1945	Flash Flood	Streets flooded with 14" of water.	unknown
Felt	6/7/2011	Flash Flood	Heavy rain on top of snowmelt caused Badger Creek to flood causing damage to County Road 10000 North. It was closed for several weeks.	2,000
Victor	6/10/2015	Flash Flood	Heavy rains from a thunderstorm caused several inches of water to collect on roads and residential areas in the town of Victor. No damage reports were received.	

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 Teton County, losses due to flash flooding have the potential to significantly increase due to the building of new subdivisions and the related increase of impervious surfaces that are created.

River or Stream Flooding

Hazard Overview			
Location:	County-wide		
Frequency/Previous Occurrences:	Low		
Impact/Consequence:	High		
Community Vulnerability:	Medium		
Overall Hazard Risk Ranking By Jurisdiction			
Teton County	**Tetonia**	**Driggs**	**Victor**
Moderately High	**Moderately High**	**Moderately High**	**Moderately High**

Flooding impacts the County and municipalities.

Hazard Description

River or Stream 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.

Flooding is defined by NWS as "the inundation of normally dry areas as a result of increased water levels in an established water course." 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 (see Flash Flood above), snowmelt, and ice jams. In addition to these natural events, there are a number of factors controlled by human activity that may cause or contribute to flooding. These include dam failure (discussed below), levee failure, and activities that increase the rate and amount of runoff such as paving, reducing ground cover, and clearing forested areas. 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 (NIFP) is the "100-year floodplain." This area is chosen using historical data such that in any given year there is a one percent chance of a "Base Flood" (also known as "100-year Flood" or "Regulatory Flood".)

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.

The following table provides information on the different flooding alerts for the National Weather Service:

National Weather Service Alerts for Flooding

Alert	Criteria
Flood Watch	Atmospheric conditions over a large area, varying in size from multiple counties to multiple states, support the development of heavy rain and/or thunderstorms that are capable of producing flooding. A flood watch implies a longer period of relatively lighter rains, adding up to a large amount of rain. Longer-term flooding implies a slower or steadier rise in the water levels of creeks, streams and larger rivers. Roads can also become flooded, but it is usually more gradual, allowing motorists to monitor conditions more closely.
Flood Warning	A Flood Warning is issued by the National Weather Service when heavy rain has been occurring, and flooding is either occurring or will occur within a specified time, usually within 60 minutes.
Flash Flood Watch	Implies a shorter period of heavier rain. Generally, if flooding is expected within six hours of the onset of rain, a Flash Flood Watch is most appropriate. Flash flooding by definition suggests rapidly rising water, such as a surge of water heading rapidly downstream in a creek or small river. It could also be rapidly rising water on roadways, which can cause motorists to become stranded in vehicles, or even worse, washed into creeks and small rivers due to rapid runoff.
Flash Flood Warning	Atmospheric conditions over a large area, varying in size from multiple counties to multiple states, support the development of heavy rain and/or thunderstorms that are capable of producing flash flooding: A Flash Flood Warning is issued by the National Weather Service when heavy rain has been occurring, and flash flooding is either occurring or will occur within a specified time, usually within 60 minutes.
Urban and Small Stream Advisory	Flooding of small streams, streets and low-lying areas, such as railroad underpasses and urban storm drains is occurring.

Source: National Weather Service

Historical Frequencies

On 6/1/2011, Teton County experienced significant flooding. Prior to that, there have been no significant reports of major flooding or river flooding events in the historical records reviewed for Teton County; however, annual spring runoff from snow melt almost always occurs and causes some damage in Teton County.

The pictures provided below illustrate some flooding that occurred during the spring of 2008 along the Badger Creek Road.

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. 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.

Teton County:
Certain roadways (including bridges and culverts) are in flood prone areas. These areas include roadways near Badger Creek, Fox Creek, and Trail Creek.

City of Tetonia:
In Tetonia, there is an abandoned irrigation canal with a failing headgate. During a high water event, it could potentially result in water impacting the downtown area.

City of Driggs:
In the City of Driggs, the Teton Creek floods during high water events, and could inundate Ski Hill Road and the shops near Broulims. Residential areas in the southwest corner of Driggs would also be affected.

Driggs is also in need of a storm water drainage system.

City of Victor:
In Victor, Trail Creek is on the edge of town and floods during high water events. The southern part of town, including a gas station, shops, and homes could be flooded.

Loss Estimates

The loss estimates for the 2011 flood that affected the county are:

- $13,196.53 for Teton County
- $60,290.98 for the City of Driggs

In 2011, Teton County had its first declared disaster for flooding. Many homes, roadways and even the Driggs Wastewater treatment facility was impacted, with over $10,000 in County road damage alone.

Repetitive Loss – As described above, there is repetitive flood loss in the Badger Creek area. The loss as illustrated is primarily to county and privately owned roadways.

A recent mitigation success to address losses in the Badger Creak area include the following:

Badger Creek Bridge on W 3000 N

- Total Project Cost $236,988.49
- Total Teton County Cash Match $29,839.85

Before Picture:

After Picture:

Another successful project to address flooding issues in the county includes the Teton Creek.

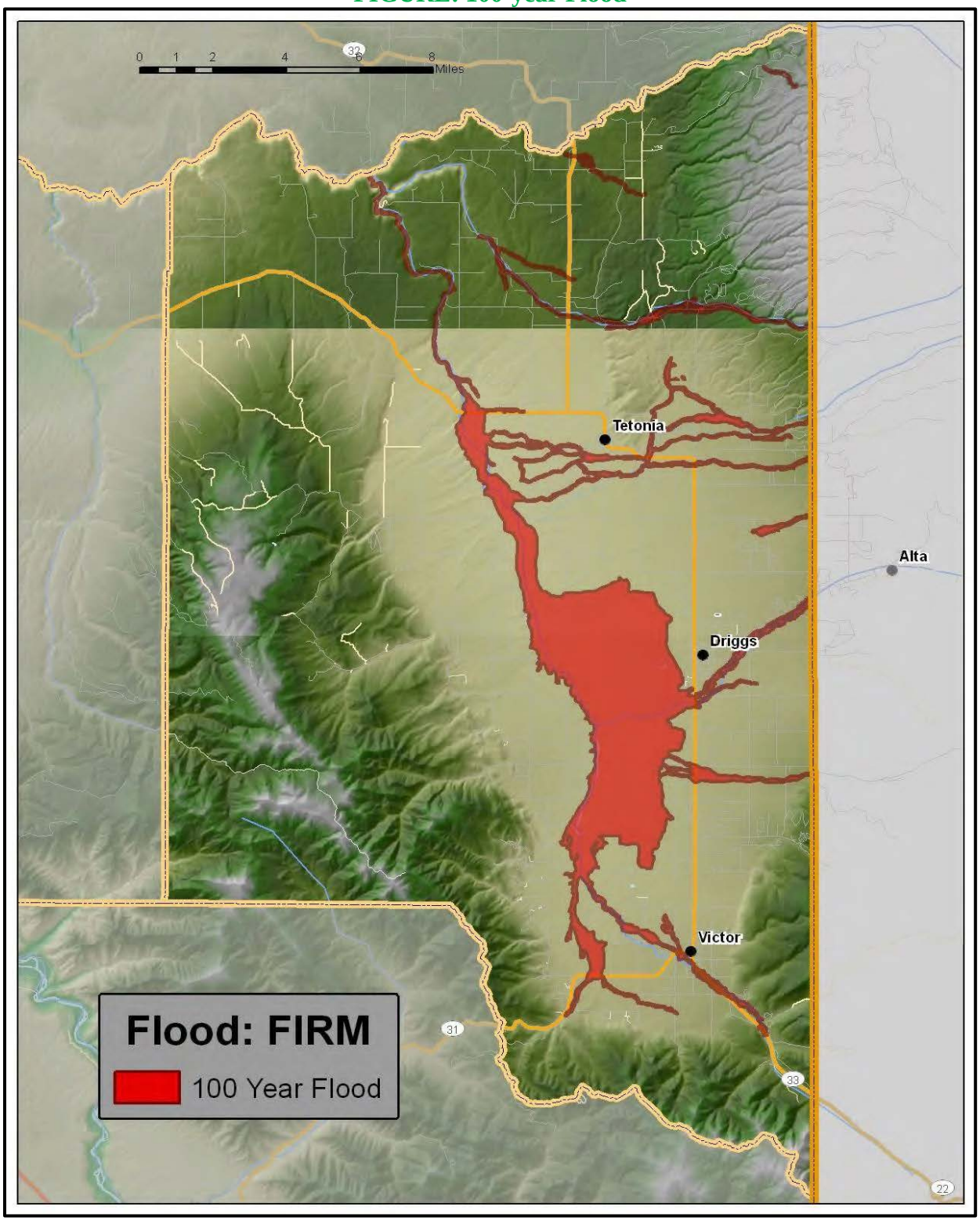
Teton Creek

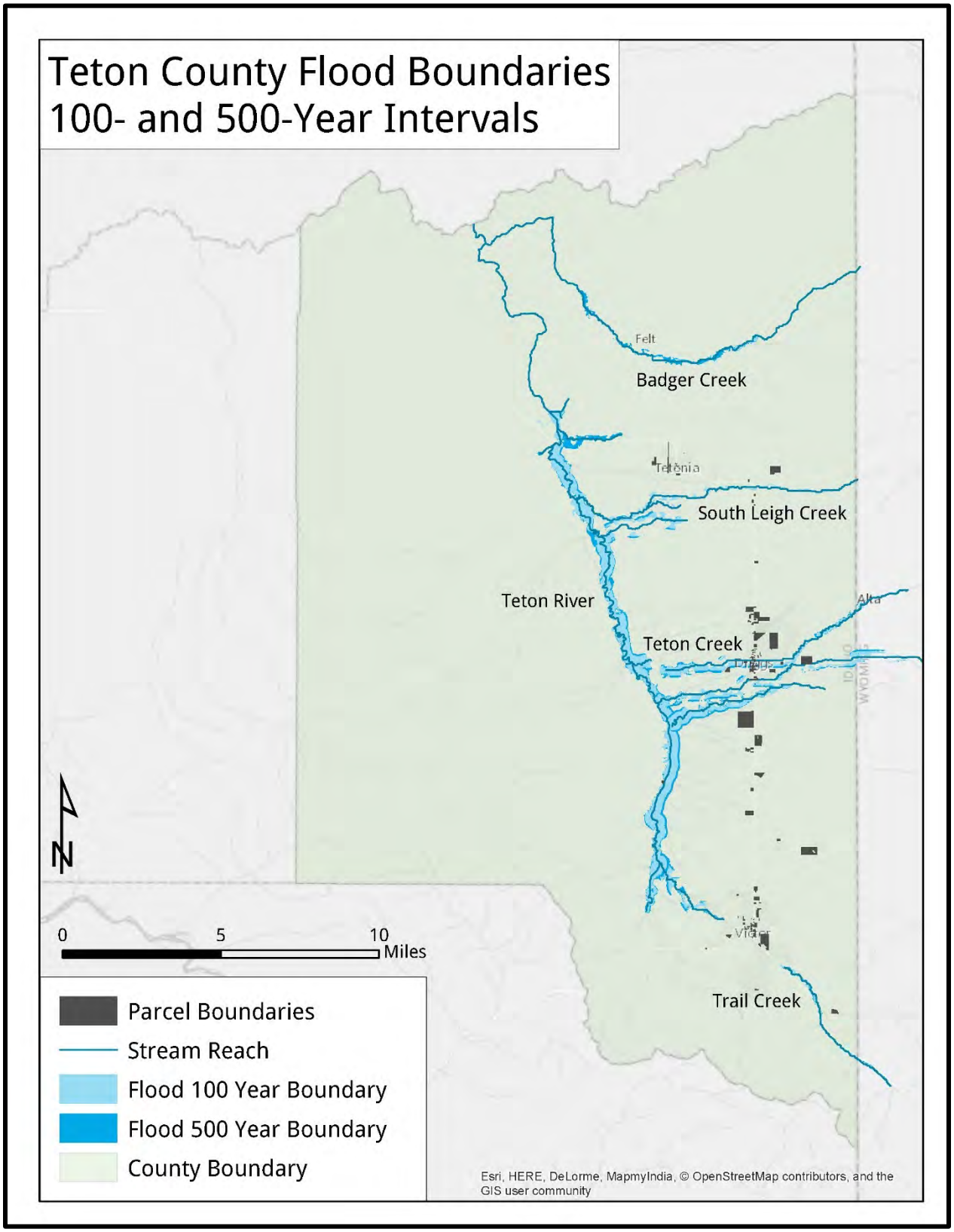
- Total Project Cost $1,398,152.39
- Total Teton County Cash Match $85,000.00

Before Picture:

After Picture:

FIGURE: 100-year Flood




Teton County Flood Boundaries
100- and 500-Year Intervals
Felt
Badger Creek
Tetonia
South Leigh Creek
Teton River
Alta
Teton Creek
Driggs
WYOMING
Victor
Trail Creek
N
0
5
10
Miles
Parcel Boundaries
Stream Reach
Flood 100 Year Boundary
Flood 500 Year Boundary
County Boundary
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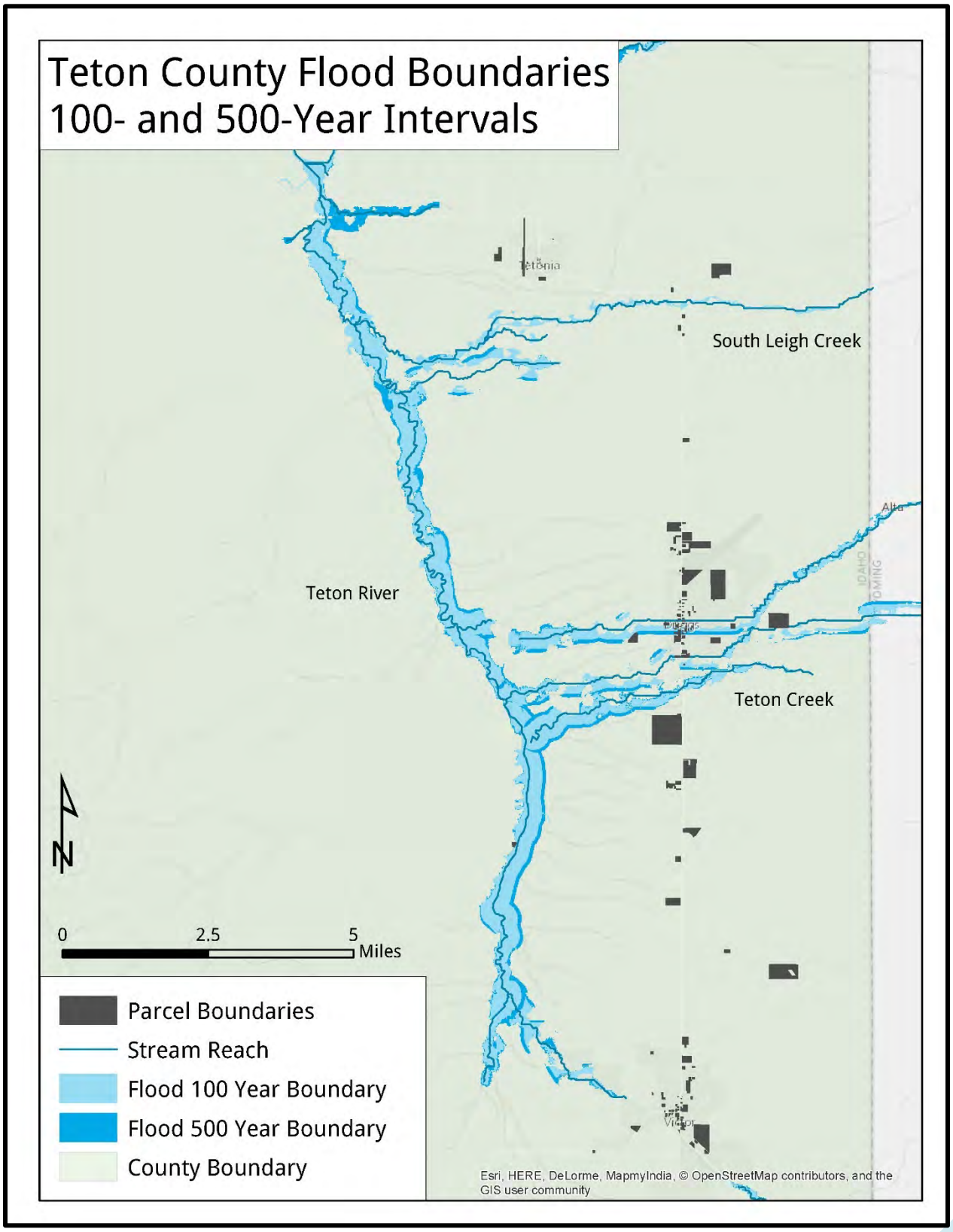

Teton County Flood Boundaries
100- and 500-Year Intervals
Tetonia
South Leigh Creek
Alta
IDAHO
WYOMING
Teton River
Teton Creek
Victor
N
0
2.5
5
Miles
Parcel Boundaries
Stream Reach
Flood 100 Year Boundary
Flood 500 Year Boundary
County Boundary
Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors, and the GIS user community

HAZUS Level 2

Teton County: 25-year Flood

HAZUS estimates that about 12 buildings will be at least moderately damaged. This is over 43% of the total number of buildings in the scenario. One building will be completely destroyed.

Expected Building Damage by Occupancy

	1-10		11-20		21-30		31-40		41-50		Substantially	
Occupancy	**Count**	**%**	**Count**	**%**	**Count**	**%**	**Count**	**%**	**Count**	**%**	**Count**	**%**
Agriculture	0	0	0	0	0	0	0	0	0	0	0	0
Commercial	0	0	0	0	0	0	0	0	0	0	0	0
Education	0	0	0	0	0	0	0	0	0	0	0	0
Government	0	0	0	0	0	0	0	0	0	0	0	0
Industrial	0	0	0	0	0	0	0	0	0	0	0	0
Religion	0	0	0	0	0	0	0	0	0	0	0	0
Residential	0	0	1	8.33	6	50	2	16.67	2	16.67	1	8.33
Total	0	-	1	-	6	-	2	-	2	-	1	-

Expected Damage to Essential Facilities

		# of Facilities		
	Total	**At Least Moderate**	**At Least Substantial**	**Loss of Use**
Fire Stations	3	0	0	0
Hospitals	1	0	0	0
Police Stations	1	0	0	0
Schools	7	0	0	0

Building-Related Economic Loss Estimates
(Millions of Dollars)

	Area	Residential	Commercial	Industrial	Others	Total
Building Loss						
	Building	2.19	0.52	0.15	0.03	2.89
	Content	1.38	1.94	0.30	0.17	3.79
	Inventory	0.00	0.05	0.05	0.01	0.11
	Subtotal	3.57	2.50	0.50	0.22	6.79
Business Interruption						
	Income	0.00	0.01	0.00	0.00	0.01
	Relocation	0.00	0.00	0.00	0.00	0.00
	Rental Income	0.00	0.00	0.00	0.00	0.00
	Wage	0.01	0.01	0.00	0.01	0.03
	Subtotal	0.01	0.02	0.00	0.01	0.04
All	Total	3.58	2.52	0.50	0.22	6.83

The total economic loss estimated for the flood is 6.83 million dollars, which represents 3.50% of the total replacement value of the scenario buildings.

The total building-related losses were 6.79 million dollars. 1% of the estimated losses were related to the business interruption of the region. The residential occupancies made up 52.41% of the total loss.

Shelter Requirements: HAZUS estimates the number of households that are expected to be displaced from their homes due to the flood and the associated potential evacuation. HAZUS also estimates those displaced people that will require accommodations in temporary public shelters. The model estimates 107 households will be displaced due to the flood. Displacement includes households evacuated from within or very near to the inundated area. Of these, 90 people (out of a total population of 5,999) will seek temporary shelter in public shelters.

HAZUS Level 2

Teton County: 100-year Flood

HAZUS estimates that about 25 buildings will be at least moderately damaged. This is over 53% of the total number of buildings in the scenario. There are an estimated 3 buildings that will be completely destroyed.

Expected Building Damage by Occupancy

	1-10		11-20		21-30		31-40		41-50		Substantially	
Occupancy	**Count**	**%**	**Count**	**%**	**Count**	**%**	**Count**	**%**	**Count**	**%**	**Count**	**%**
Agriculture	0	0	0	0	0	0	0	0	0	0	0	0
Commercial	0	0	0	0	0	0	0	0	0	0	0	0
Education	0	0	0	0	0	0	0	0	0	0	0	0
Government	0	0	0	0	0	0	0	0	0	0	0	0
Industrial	0	0	0	0	0	0	0	0	0	0	0	0
Religion	0	0	0	0	0	0	0	0	0	0	0	0
Residential	0	0	1	4	11	44	5	20	5	20	3	12
Total	0	-	1	-	11	-	5	-	5	-	3	-

Expected Damage to Essential Facilities

		# of Facilities		
	Total	**At Least Moderate**	**At Least Substantial**	**Loss of Use**
Fire Stations	3	0	0	0
Hospitals	1	0	0	0
Police Stations	1	0	0	0
Schools	7	0	0	0

Building-Related Economic Loss Estimates
(Millions of Dollars)

	Area	Residential	Commercial	Industrial	Others	Total
Building Loss						
	Building	3.72	0.72	0.23	0.06	4.73
	Content	2.34	2.38	0.47	0.27	5.46
	Inventory	0.00	0.06	0.08	0.02	0.17
	Subtotal	6.06	3.16	0.78	0.36	10.35
Business Interruption						
	Income	0.00	0.01	0.00	0.00	0.02
	Relocation	0.00	0.00	0.00	0.00	0.00
	Rental Income	0.01	0.00	0.00	0.00	0.01
	Wage	0.01	0.01	0.00	0.01	0.03
	Subtotal	0.02	0.02	0.00	0.01	0.06
All	Total	6.08	3.19	0.78	0.37	10.41

The total economic loss estimated for the flood is 10.41 million dollars, which represents 5.16% of the total replacement value of the scenario buildings.

The total building-related losses were 10.35 million dollars. 1% of the estimated losses were related to the business interruption of the region. The residential occupancies made up 58.40% of the total loss.

HAZUS estimates the number of households that are expected to be displaced from their homes due to the flood and the associated potential evacuation. HAZUS also estimates those displaced people that will require accommodations in temporary public shelters. The model estimates 135 households will be displaced due to the flood. Displacement includes households evacuated from within or very near to the inundated area. Of these, 139 people (out of a total population of 5,999) will seek temporary shelter in public shelters.

HAZUS Level 2

Teton County: 500-year Flood

HAZUS estimates that about 34 buildings will be at least moderately damaged. This is over 50% of the total number of buildings in the scenario. There are an estimated 2 buildings that will be completely destroyed.

Expected Building Damage by Occupancy

	1-10		11-20		21-30		31-40		41-50		Substantially	
Occupancy	**Count**	**%**	**Count**	**%**	**Count**	**%**	**Count**	**%**	**Count**	**%**	**Count**	**%**
Agriculture	0	0	0	0	0	0	0	0	0	0	0	0
Commercial	0	0	0	0	0	0	0	0	0	0	0	0
Education	0	0	0	0	0	0	0	0	0	0	0	0
Government	0	0	0	0	0	0	0	0	0	0	0	0
Industrial	0	0	0	0	0	0	0	0	0	0	0	0
Religion	0	0	0	0	0	0	0	0	0	0	0	0
Residential	0	0	2	5.88	17	50	5	14.71	8	23.53	2	5.88
Total	0	-	2	-	17	-	5	-	8	-	2	-

Expected Damage to Essential Facilities

		# of Facilities		
	Total	**At Least Moderate**	**At Least Substantial**	**Loss of Use**
Fire Stations	3	0	0	0
Hospitals	1	0	0	0
Police Stations	1	0	0	0
Schools	7	0	0	0

Building-Related Economic Loss Estimates
(Millions of Dollars)

	Area	Residential	Commercial	Industrial	Others	Total
Building Loss						
	Building	5.87	1.15	0.52	0.14	7.69
	Content	3.64	3.52	1.05	0.46	8.67
	Inventory	0.00	0.10	0.17	0.05	0.32
	Subtotal	9.52	4.76	1.75	0.65	16.67
Business Interruption						
	Income	0.00	0.02	0.00	0.00	0.02
	Relocation	0.00	0.00	0.00	0.00	0.01
	Rental Income	0.01	0.00	0.00	0.00	0.01
	Wage	0.01	0.02	0.00	0.02	0.05
	Subtotal	0.02	0.04	0.00	0.02	0.08
All	Total	9.54	4.80	1.75	0.67	16.75

The total economic loss estimated for the flood is 16.75 million dollars, which represents 8.12% of the total replacement value of the scenario buildings.

The total building-related losses were 16.67 million dollars. 0% of the estimated losses were related to the business interruption of the region. The residential occupancies made up 56.93% of the total loss.

HAZUS estimates the number of households that are expected to be displaced from their homes due to the flood and the associated potential evacuation. HAZUS also estimates those displaced people that will require accommodations in temporary public shelters. The model estimates 191 households will be displaced due to the flood. Displacement includes households evacuated from within or very near to the inundated area. Of these, 202 people (out of a total population of 5,999) will seek temporary shelter in public shelters.

Dam Failure

Hazard Overview			
Location:	County-wide		
Frequency/Previous Occurrences:	Low		
Impact/Consequence:	Low		
Community Vulnerability:	Low		
Overall Hazard Risk Ranking By Jurisdiction			
Teton County	**Tetonia**	**Driggs**	**Victor**
Low	**Low**	**Low**	**Low**

No cities would be impacted by dam failure. Dam failure only affects a small part of the County, and the inundation area is a field.

Hazard Description

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.

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 manmade 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 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 (as are mine tailings impoundment structures). The Dam Safety Section inspects these dams or tailings structures every other year unless one has a particular problem.

Dam Classifications
Each dam inspected by Idaho Water Resources is given both a 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. There are no large dams in Teton County.

Risk Classification

This classification is used by IDWR to classify potential losses and damages anticipated in downstream areas that could be attributable to 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 flood water 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 are potentially inundated with flood water 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.

Purposes Categories:

N-Industrial, B-Mining, O-Other, C-Commercial, P-Power, D-Domestic, Q-Fire Protection, EErosion 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, LDomestic 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, AUXDAM-Auxillary Dam

There is only one dam in Teton County, the Felt Power Dam.

Name	**Stream**	**Purpose**	**Risk Category**	**Size Category**	**Type**	**Storage Capacity** (Acre Ft.)	**Height** (Ft.)
Felt	Teton River	P	3	3	CNGRV	40	12

Historical Frequencies

There has never been a dam failure in Teton County according to recorded history.

Impacts

Impacts from dam failures can be extremely devastating as evidenced by the failure of the Teton Dam in 1976. This failure changed the entire Region's perception of hazard mitigation and emergency preparedness. Through firsthand observation of neighboring Madison County, Teton 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.

Teton County:

- The impact area of a dam failure is a field.

Loss Estimates

There have been no dam failures in Teton County. Losses from a failure of the Felt Dam would be extremely limited.

Repetitive Loss - **none**

Earthquake

Hazard Overview			
Location:	County-wide		
Frequency/Previous Occurrences:	Medium		
Impact/Consequence:	Medium		
Community Vulnerability:	Medium		
Overall Hazard Risk Ranking By Jurisdiction			
Teton County	**Tetonia**	**Driggs**	**Victor**
Moderately High	**Moderately High**	**Moderately High**	**Moderately High**

This hazard affects every community in Teton County.

Hazard Description

The U.S. Geological Survey (USGS) defines earthquake 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." The hazards associated with 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. 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 thirty seconds.

Earthquakes are measured both in terms of their inherent "magnitude" and in terms of their local "intensity."

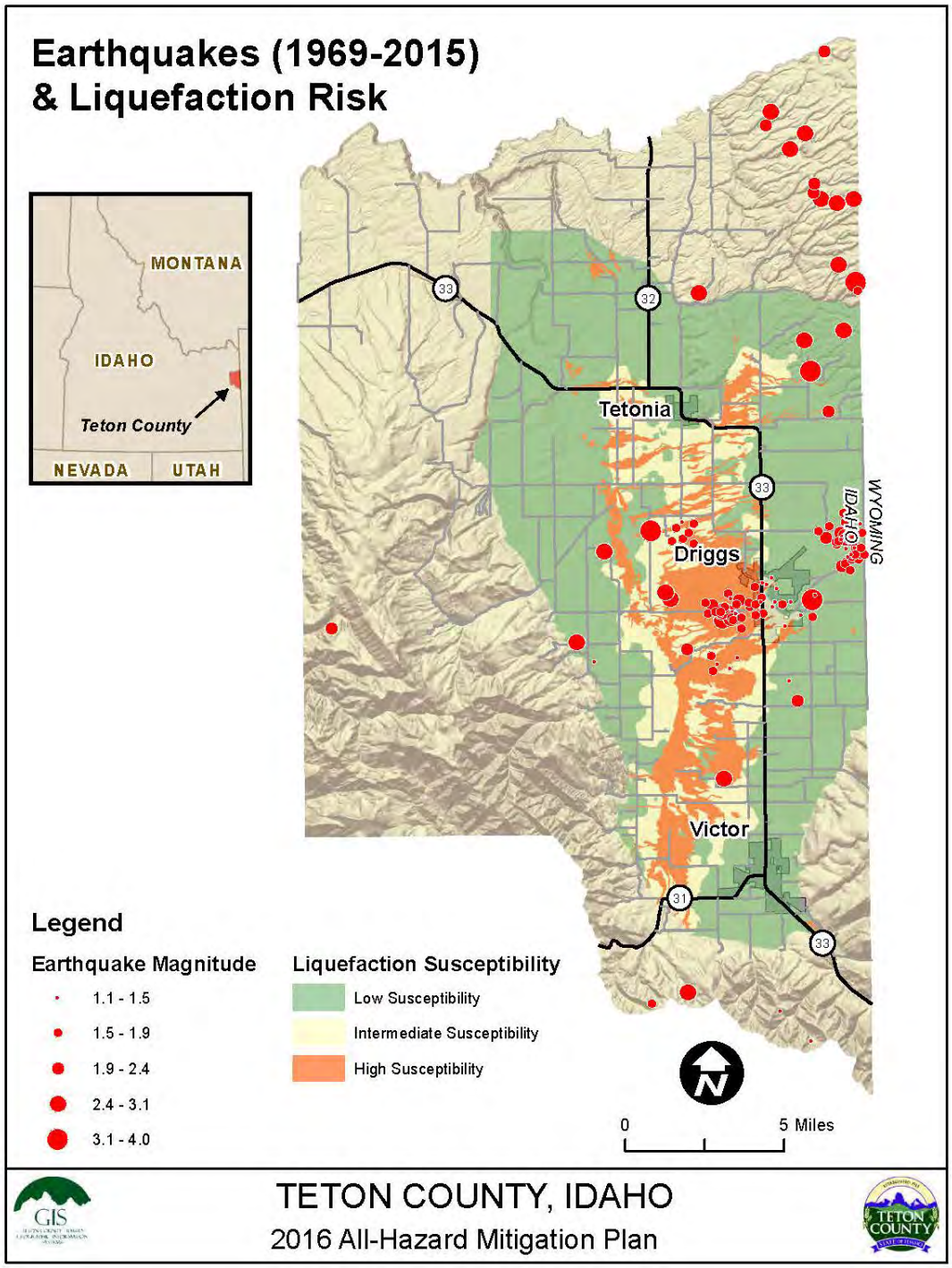
The magnitude of an earthquake is essentially a relative estimate of the total amount of seismic energy released and may be expressed using the familiar "Richter Scale" or using the "moment magnitude scale" now favored by most technical authorities. Both the Richter Scale and the moment magnitude scale are based on logarithmic formulae meaning that a difference of one unit on the scales represents about a thirty-fold difference in 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, 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.

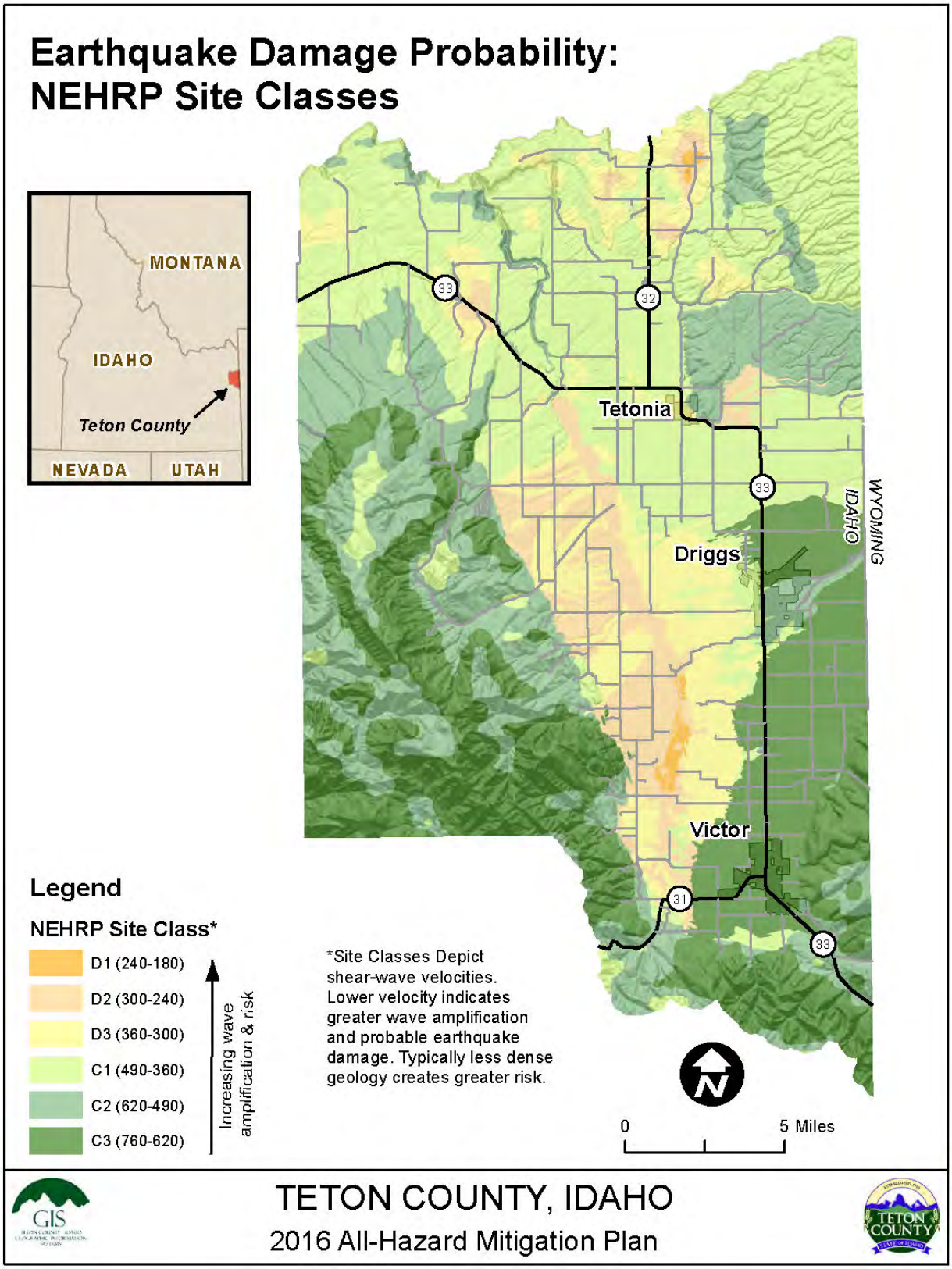
Historical Frequencies

The map below provides a representation of the earthquake events that have occurred in the county.

Teton County Earthquake Events



Teton County Earthquake NEHRP Site Class

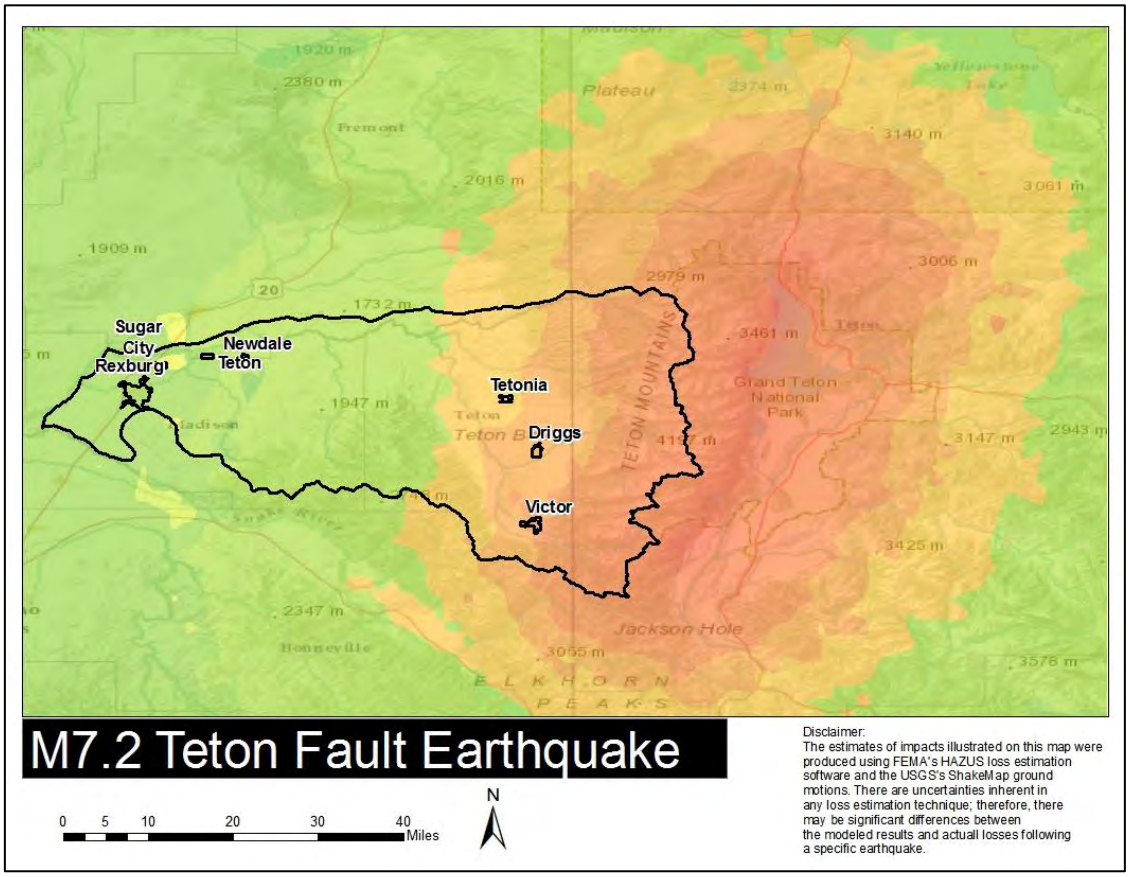


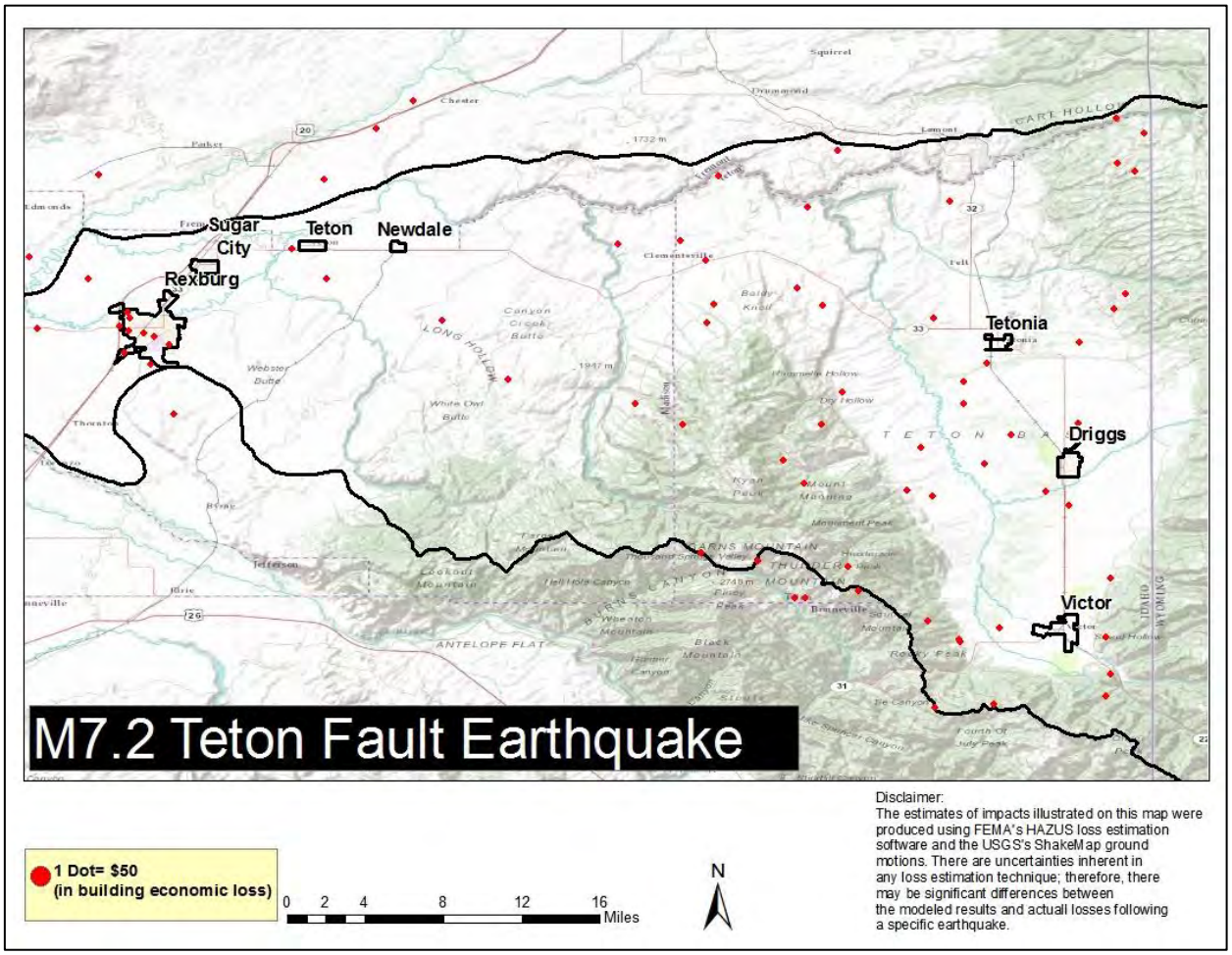
Impacts

Earthquakes are capable of catastrophic consequences, especially in urban areas. Worldwide, earthquakes have been known to cost thousands of lives and enormous economic and social losses. In minor earthquakes, damage may be done only to household goods, merchandise, and other building contents and people are occasionally injured or killed by falling objects. More violent earthquakes may cause the full or partial collapse of buildings, bridges and overpasses, and other structures. Fires due to broken gas lines, downed power lines, and other sources are common following an earthquake and often account for much of the damage. Economic losses arise from destruction of structures and infrastructure, interruption of business activity, and innumerable other sources. Utilities may be lost for long periods of time and all modes of transportation may be disrupted. Disaster Services including medical may be both disabled and overwhelmed. In addition to broken gas lines, other hazardous materials may be released.

HAZUS

Below is a USGS ShakeMap based on a scenario event for a 7.1M earthquake on the Grand Valley Fault. The fault is located near the Idaho-Wyoming state line. Areas of red are the highest intensity shaking. This ShakeMap was created by the USGS in 2010 and updated in 2012. The following maps are the results of a Hazus run using default Hazus Level 1 building Inventory and liquefaction data for Teton County.





The above shows building-related economic losses resulting from a M7.2 Teton Fault Earthquake. The red dots represent direct building losses. Direct building losses are the estimated costs to repair or replace the damage caused to building and its contents.

Building-related losses equal $2,420,382 for Teton County under this scenario.

The biggest concern of an earthquake in Teton County are the structures built with unreinforced masonry. Seismic retrofit projects are needed for Victor's City Hall, Victor's Water Storage Facility, and the schools.

Loss Estimates

Two Idaho earthquakes, Hebgen Lake in 1959 and Borah Peak 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 having been centered in relatively remote locations.

The County has several faults around and through the valley, and has the 2nd highest earthquake risk in the State with a 90% chance of a 5.0 or greater earthquake within 50 kilometers of the County in any 50-year period.
The strongest recorded earthquake was a 4.0 on April 3, 1992 east of Felt.

Landslide/Mudslide

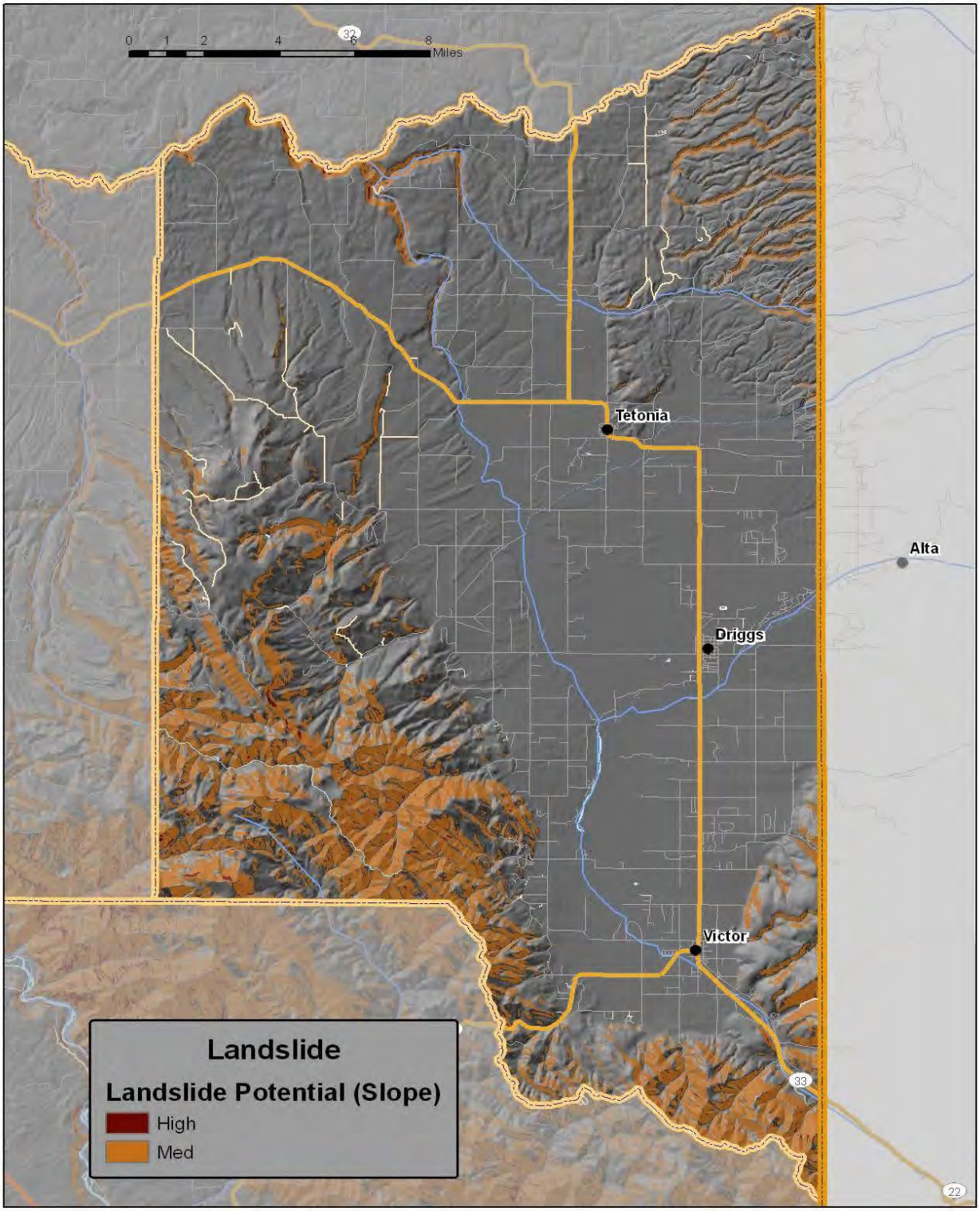
Hazard Overview			
Location:	County-wide		
Frequency/Previous Occurrences:	Low		
Impact/Consequence:	Low		
Community Vulnerability:	Low		
Overall Hazard Risk Ranking By Jurisdiction			
Teton County	**Tetonia**	**Driggs**	**Victor**
Low	**Low**	**Low**	**Low**

This hazard occurs primarily in the back country of Teton County. The jurisdictions of Tetonia, Driggs, and Victor have a low overall risk to this hazard.

Hazard Description

The term "landslide" encompasses several types of occurrence (including mudslides) in which slope-forming materials such as rock and soil move downward under the influence of gravity. Such downward movement may occur as the result of an increase in the weight of slope-forming materials, an increase in the gradient (angle) of the slope, a decrease in the forces resisting downward motion (friction or material strength) or a combination of these factors. Factors that may trigger a landslide include: weather related events such as heavy rainfall (one of the most common contributors), erosion, and freeze-thaw weakening of geologic structures, human causes such as excavation and mining, deforestation, and vibration from explosions or other sources, and such geologic causes as earthquake, volcanic activity, and shearing or fissuring. The speed of descent ranges from sudden and rapid to an almost imperceptibly slow creep where effects are only observable over a period of months or years.

Landslide Potential Areas in the County



Historical Frequencies

There are no recorded landslides in Teton County; however minor slides have occurred on Highway 22 in Wyoming which impacts the traveling public moving between Teton County, Idaho and Teton County, Wyoming.

Impacts

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 tourist revenues and recreational opportunities
- Damage or destroyed infrastructure and utilities
- Damming or alteration of the course of streams and resulting flooding Reduced water quality

Loss Estimate

Losses due to Landslide events are generally tied to the repair of roadways or the removal of debris on roadways. Teton County has 89 miles of Country owned roadway that is within potential landslide areas. The majority of the landslide areas are in the back Country which is primarily Federal Lands.

Volcanic Eruption/Ashfall

Hazard Overview			
Location:	County-wide		
Frequency/Previous Occurrences:	Low		
Impact/Consequence:	High		
Community Vulnerability:	Low		
Overall Hazard Risk Ranking By Jurisdiction			
Teton County	**Tetonia**	**Driggs**	**Victor**
Moderately Low	**Moderately Low**	**Moderately Low**	**Moderately Low**

An eruption would affect every community in Teton County.

Hazard Description

Often forming along boundaries of the Earth's crust, the USGS describes volcanoes as vents "at the Earth's surface through which magma (molten rock) and associated gases erupt, and also the cone built by effusive and explosive eruptions." Volcanic eruptions have created 80% of the Earth's surface. Although volcanoes can cause widespread damage during eruptions, they also create nutrient rich soil, and are a source of geothermal energy for many countries.

Volcanoes are classified as active, dormant, or extinct, although scientists disagree on defining criteria due to the long lifespans of volcanoes. A volcano is considered active if it is currently erupting or showing signs of a potential eruption, including spewing gas or localized earthquakes. A dormant volcano is one that is not currently active, but scientists believe could erupt again. An extinct volcano is one that scientists believe will likely not erupt again.

There are multiple types of volcanoes; two of the most important types are shield volcanoes and composite volcanoes (also called stratovolcanoes). Shield volcanoes are the largest types of volcanoes, and typically spew basalt lava over their wide, gentle slopes, allowing the lava to travel for miles before cooling. The largest volcano on Earth, Mauna Loa in Hawaii, is a shield volcano. Composite volcanoes are steep and conical, built through the eruptions of different types of lava. These volcanoes can create explosive eruptions due to the built-up pressure behind its viscous magma. Many well-known volcanoes are composite volcanoes, including Mt. Vesuvius in Italy, Mount St. Helens in Washington, and Mount Fuji in Japan. Other types of volcanoes and volcanic vents include calderas, cinder cones, hornitos, maars, mud volcanoes, spatter cones, and volcanic domes.

Yellowstone Caldera

The hydrothermal features of the Yellowstone National Park area are fueled by the large magma plume (the "hotspot") that lies below the region. These features are volcanic activity, although not of a generally hazardous nature. The high levels of seismic activity and active deformation of the surface in the area also indicate the volcanic potential of Yellowstone. However, if one were to use past eruptions as a guide, the yearly probability of another catastrophic eruption within Yellowstone is 1 in 730,000 (the average of the years between past events). A more likely type of volcanic eruption from Yellowstone (averaging every 16,000 years in the past) is a basaltic

eruption along the margins, including the basin of Island Park, Idaho. The principle hazard from such an event would be coverage of an area of several square kilometers by lava, one to a few tens of meters thick.

Snake River Plain
Most past volcanic activity in the Snake River Plain was confined to "volcanic rift zones," linear areas of cracks in the earth's crust. Volcanic activity in this area has been characterized by eruptions of basaltic lavas resulting in extensive lava flows. These flows resulted from eight distinct eruptive periods with an average recurrence interval of 2,000 years. As the most recent flows in the area occurred approximately 2,000 years ago, extrapolation suggests that activity may resume in the not too distant future; however, there has not been recent evidence of activity.

Historical Frequencies

The only significant volcanic event in Idaho during recorded history was ashfall from the eruption of Mount St. Helens in 1980. In the Yellowstone region, major explosive eruptions occurred 2, 1.3, and 0.6 million years ago. The most recent eruptions, 75,000- 150,000 years ago, produced thick lava flows.

Impacts

In areas of the State where proximal volcanic hazard exists, a volcanic eruption could cause dramatic environmental effects. Vegetative communities, wildlife, historic and archeological sites, farms, and parks could be buried, crushed and burned by a lava flow. Volcanic eruption would affect geology and soils in areas of Idaho proximal to the event. Long-term effects could include forced changes in land-use patterns. Throughout the State, distal volcanic hazards could reduce air quality, damage historic resources (e.g., ashfall on old roofs), clog streams, and have health impacts on fish and wildlife.

All infrastructure could be at risk of ashfall from a major eruption. Critical facilities near Island Park are at greater risk than other areas of the State for lava flow.

Loss Estimate

There have been no volcanoes in Teton County in modern history. Losses from a volcano would be catastrophic.

Repetitive Loss - **none**

Animal Disease

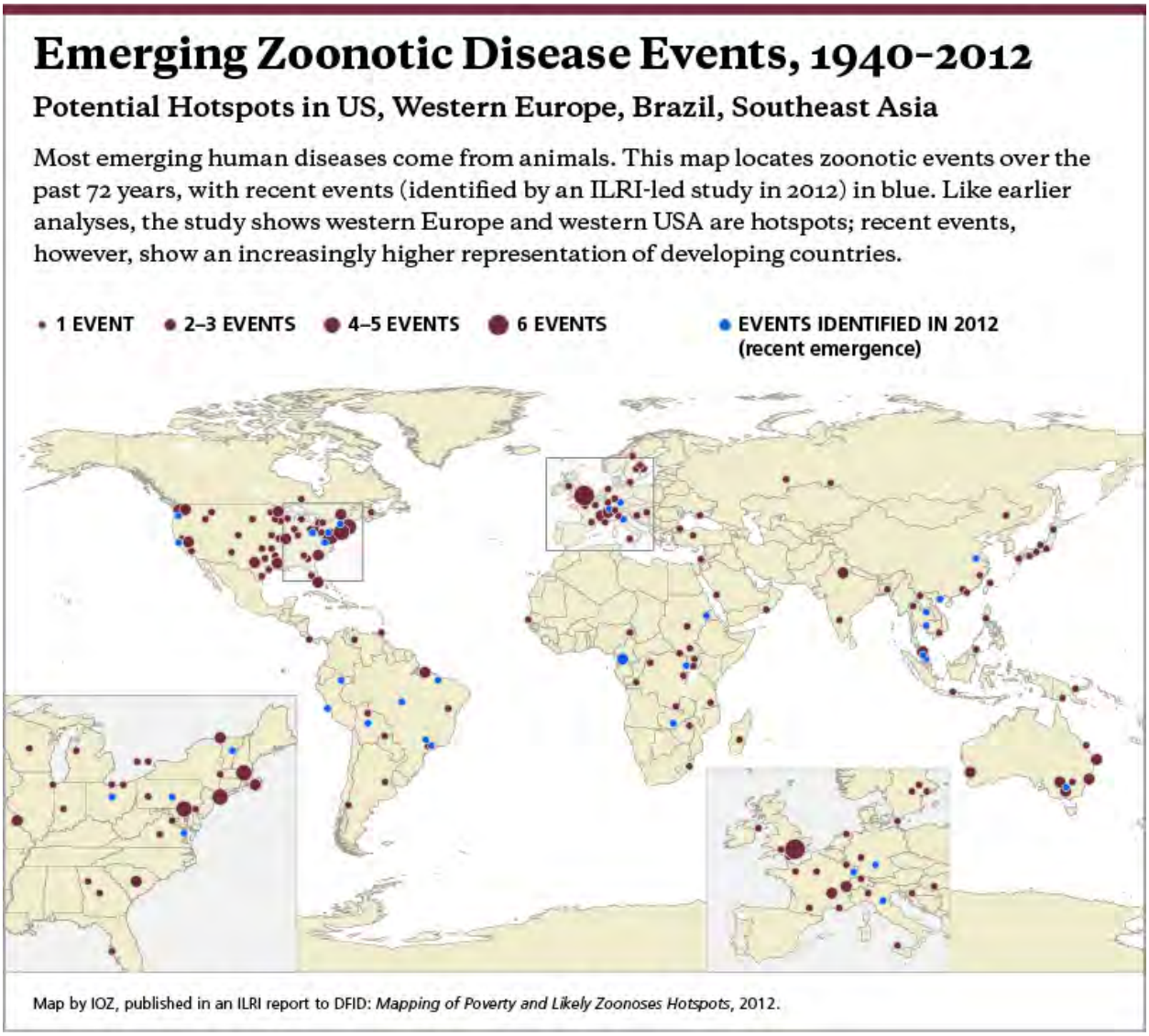
Hazard Overview			
Location:	County-wide		
Frequency/Previous Occurrences:	Medium		
Impact/Consequence:	Low		
Community Vulnerability:	Low		
Overall Hazard Risk Ranking By Jurisdiction			
Teton County	**Tetonia**	**Driggs**	**Victor**
Moderately Low	**Moderately Low**	**Moderately Low**	**Moderately Low**

This hazard affects every community in Teton County.

Hazard Description

Animal disease outbreaks are hazardous for two main reasons: the disease may be transmissible to humans (zoonotic disease), or the disease may kill large portions of animal herds, straining the food supply chain for human consumption and driving up prices. Zoonotic outbreaks tend to garner more attention due to their threat to human life.

According to the Pan American Health Organization, any disease or infection that is naturally transmissible from vertebrate animals to humans and vice-versa is classified as a zoonosis. The causative agent classifies the hundreds of zoonotic diseases; agents include bacteria, parasites, viruses, fungi, or unconventional agents. Out of all known human pathogens, 60% are zoonotic, and 75% of emerging infectious diseases in humans have been traced back to animal origin. The 13 most important zoonoses, in terms of their impact on human death, the livestock sector, and disease severity, have been identified as: zoonotic gastrointestinal disease, leptospirosis, cysticercosis, zoonotic tuberculosis (TB), rabies, leishmaniasis, brucellosis, echinococcosis, toxoplasmosis, Q fever, zoonotic trypanosomiasis (sleeping sickness), hepatitis E, and anthrax. Other notable zoonoses include rabies, salmonella, Lyme disease, and roundworms, influenza, bubonic plague, HIV/AIDS, West Nile virus and Ebola.



Historical Frequencies

Animal diseases have always posed a threat to animal and human populations. A few recent animal diseases include:

- **Mad Cow Disease** (Peak: January 1993): First discovered in 1986 in the United Kingdom, Mad Cow Disease (bovine spongiform encephalopathy or BSE) fatally attacks the central nervous system of cattle. At its peak, 1,000 new cases were being reported per week in the UK. It is spread through the consumption of infected brain and spinal cord material to other cattle and can also be spread to humans in the same manner. When present in humans, the disease causes a fatal brain disorder called variant Creutzfeldt-Jakob disease (vCJD). Hundreds of thousands of cases of BSE have been confirmed in cattle, and more than 220 cases of vCJD have been confirmed in humans since the beginning of the outbreak.

- **Porcine Epidemic Diarrhea virus** (PEDv) (2013-2014): First identified in 2013, PEDv has killed up to 7 million pigs in 30 states (10% of the U.S. hog population) and prices have reached all time highs (as of May 2014, the price was $113.75 per hundredweight). Farms began reporting secondary outbreaks of the disease in May 2014 amid concerns about the stability of pork production. Approximately 30% of farms hit by PEDv in 2013 are expected to experience a second outbreak. PEDv was fatal to nearly all piglets born during the first outbreak, and appears to be fatal to 30% of piglets in the second wave. According to the USDA, the disease does not pose a risk to human health and is not a food concern.

- **SARS & MERS** (2002-2003, 2012-2014): Severe Acute Respiratory Syndrome (SARS) and the Middle East Respiratory Syndrome (MERS) are both caused by the coronavirus (which also causes the common cold). Unknown before 2002, SARS infected over 8,000 people and caused 774 deaths. The pathogen is believed to have come from bats. Although from the same coronavirus family as SARS, MERS is suspected to have come from camels. Circulating in the Arabian Peninsula since 2012, MERS has infected at least 262 people in 12 countries and caused at least 93 deaths.

Impacts

Impacts include loss of life (zoonotic) and significant economic hardship to livestock owners.

Loss Estimates

While losses, specifically to livestock owners, have occurred in the County, estimated losses (in dollars) have not been recorded, and are therefore unavailable.

Public Health

Hazard Overview			
Location:	County-wide		
Frequency/Previous Occurrences:	Low		
Impact/Consequence:	High		
Community Vulnerability:	Medium		
Overall Hazard Risk Ranking By Jurisdiction			
Teton County	**Tetonia**	**Driggs**	**Victor**
Moderately High	**Moderately High**	**Moderately High**	**Moderately High**

A public health related emergency would affect every community in Teton County.

Hazard Description

Any community has the potential to face numerous diseases and public health crises. Because the Eastern Idaho Public Health documents and plans for these incidents, this analysis will focus mostly on large-scale epidemic/pandemic concerns. However, this does not suggest that other public health concerns are not a priority or a concern to the County.

Epidemic/Pandemic is defined as a disease that appears as new cases in the human population at a rate, during a given time period and location, that substantially exceeds the number expected. It is, thus, a relative term and there is no quantitative criterion for designating a health crisis as an epidemic. In addition to its application to infectious diseases, the term is sometimes used to describe outbreaks of other adverse health effects including those stemming from chemical exposure, sociological problems, and psychological disorders. A "pandemic" is a worldwide epidemic while the term "outbreak" may be applied to more geographically limited medical problem as, for instance, in a single community rather than statewide or nationwide. The term "cluster" is often used with reference to non-communicable diseases.

Health agencies closely monitor for diseases with the potential to cause an epidemic and seek to develop immunizations and eliminate vectors. While this effort has been remarkably successful, there are many diseases of concern and the HIV/AIDS pandemic is still not controlled despite more than 25 years of effort since recognition of the disease in 1981.

Pandemic influenza versus regular influenza season

A flu pandemic has little or nothing in common with the annual flu season. A pandemic flu would be a new strain and a much more serious and contagious flu virus. Humans would have no natural resistance to a new strain of influenza. Also, there is a vaccine for seasonal flu, but there is no vaccine available at this time for a pandemic flu.

If a new, highly contagious strain of influenza begins to infect humans, it would likely cause widespread illness and death within a matter of months, and could last up to two years. The Centers for Disease Control and Prevention (CDC) predict that as much as 25% to 30% of the U.S. population could be sick, hospitalized, and many may die as a result of severe illness.

Eastern Idaho Public Health has a plan to limit the spread of a pandemic influenza and to maintain essential health care and community services if an outbreak should occur. In fact, governments all around the world are preparing for the possibility of a pandemic outbreak.

Although the Federal government is stockpiling large quantities of medical supplies and antiviral drugs, no country in the world has enough anti-virals to protect their citizens. There currently is no vaccine to protect humans against a pandemic influenza virus; however, vaccine development efforts are under way to protect humans against the current H5N1 bird flu virus.

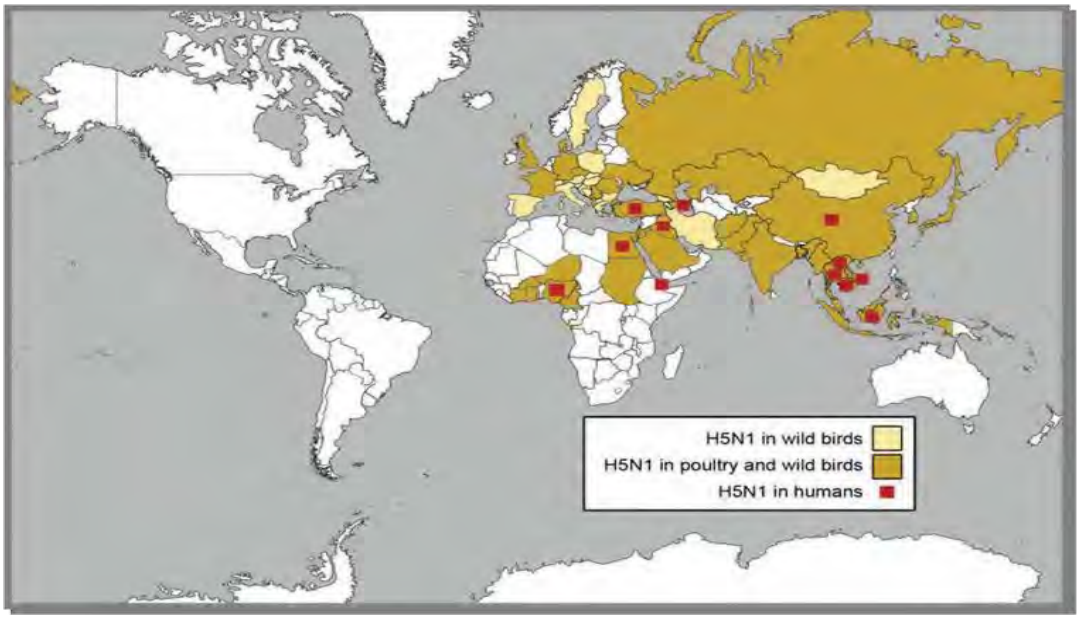
Pandemic Flu:

H5N1 "Bird Flu"

The danger is that the bird flu virus may mutate into a new form of human flu that would be easily spread person to person. Some migratory waterfowl carry the H5N1 virus, with no apparent harm, but transmit the virus to susceptible domestic poultry. The highly lethal H5N1 outbreak among domestic poultry is widespread and uncontrolled and has directly infected a small number of humans. People who have close contact with infected birds or surfaces that have been contaminated with droppings from infected birds are at risk of becoming infected themselves.

A history of poultry consumption in an infected country is not a risk factor, provided the food was thoroughly cooked and the person was not involved in food preparation. Simply traveling to a country with ongoing outbreaks in poultry or sporadic human cases does not place a traveler at increased risk of infection, provided the person does not visit live poultry markets, farms or other environments where exposure to diseased birds may occur. More than 200 million birds in affected countries have either died from the disease or were killed in order to try to control the outbreak.

Bird Flu Outbreaks Worldwide



The reported symptoms of bird flu in humans range from typical influenza-like symptoms (e.g., fever, cough, sore throat, and muscle aches), to eye infections (conjunctivitis), pneumonia, acute respiratory distress, viral pneumonia, and other severe and life threatening complications. Diarrhea, vomiting, abdominal pain, chest pain, and bleeding from the nose and gums have also been reported as early symptoms in some cases. In many cases, health deteriorates rapidly leading to a high percentage of death in those infected**.**

H1N1 "Swine Flu"
The H1N1 flu virus caused a world-wide pandemic in 2009. It is now a human seasonal flu virus that also circulates in pigs.

Severe Acute Respiratory Syndrome (SARS)
Severe acute respiratory syndrome (SARS) is a viral respiratory illness caused by a coronavirus, called SARS-associated coronavirus (SARS-CoV). SARS was first reported in Asia in February 2003. Over the next few months, the illness spread to more than two dozen countries in North America, South America, Europe, and Asia before the SARS global outbreak of 2003 was contained.

According to the World Health Organization (WHO), a total of 8,098 people worldwide became sick with SARS during the 2003 outbreak. Of these, 774 died. In the United States, only eight people had laboratory evidence of SARS-CoV infection. All of these people had traveled to other parts of the world with SARS. SARS did not spread more widely in the community in the United States.

In general, SARS begins with a high fever (temperature greater than 100.4°F [>38.0°C]). Other symptoms may include headache, an overall feeling of discomfort, and body aches. Some people also have mild respiratory symptoms at the outset. About 10 percent to 20 percent of patients have diarrhea. After 2 to 7 days, SARS patients may develop a dry cough. Most patients develop pneumonia.

The main way that SARS seems to spread is by close person-to-person contact. The virus that causes SARS is thought to be transmitted most readily by respiratory droplets (droplet spread) produced when an infected person coughs or sneezes. Droplet spread can happen when droplets from the cough or sneeze of an infected person are propelled a short distance (generally up to 3 feet) through the air and deposited on the mucous membranes of the mouth, nose, or eyes of persons who are nearby. The virus also can spread when a person touches a surface or object contaminated with infectious droplets and then touches his or her mouth, nose, or eye(s). In addition, it is possible that the SARS virus might spread more broadly through the air (airborne spread) or by other ways that are not now known.

Historic Epidemic/Pandemic Events

Teton County has had almost 300 reportable disease cases since 2005. However, the County has not experienced a major public health crisis in recent history. The following documents historical events to provide some perspective regarding this hazard:

- **Black Death (14th-18th centuries):** Estimated to have killed at least 75 million people worldwide, the plague decimated Europe, killing between 20-30 million Europeans in a six year period. Between the first plague in 1348 and the 18th century, more than 100 plague epidemics ravaged Europe.

- **Cholera Pandemics (1816-1966):** In 150 years, seven cholera pandemics swept through various parts of the world, killing millions. In the second outbreak, the disease traveled around the Northern Hemisphere in the span of a single year.

- **The 1918 -1920 Spanish Flu:**
  The first cases were reported in Canyon County (northwest of Boise) on September 30th. Within three weeks, the disease was raging all across the state.

- **Asian Flu 1957 -1958:**
  First identified in China, this virus caused roughly 70,000 deaths in the United States during the 1957-58 season. Because this strain has not circulated in humans since 1968, no one under 30 years old has immunity to this strain.

- **Kong Flu 1968-1969:**
  First detected in Hong Kong in the early 1968 and spread to the United States later that year. The Hong Kong Flu killed about 34,000 people in the United States and one million people worldwide.

- **Smallpox (eradicated in 1979):** Estimated to be responsible for 300-500 millions deaths during the 20th century, smallpox is one of only two human infectious disease to be completely eradicated. Before its eradication, up to 50 million were infected with smallpox yearly.

- **HIV & AIDS (~1981-Present):** Although the virus likely entered the United States in the 1960s, the human immunodeficiency virus infection/acquired immunodeficiency syndrome (HIV/AIDS) rose to prominence in the early 1980s. HIV is the world's leading infectious killer and has claimed over 36 million lives as of 2012. The pandemic has infection rates as high as 25% in the hardest hit countries, with 95% of new infections coming from low- and middle-income countries, particularly in Sub-Saharan Africa. Although there is still no cure, antiretroviral drugs have been able to improve the quality of life for those with HIV infections.

Impacts

The following are potential impacts from a worldwide pandemic event. The impacts in Teton County would be similar on a local level.

- Rapid Worldwide Spread
- Health Care Systems Overloaded
- Medical Supplies Inadequate

- Economic and Social Disruption

Loss Estimates

Historically, epidemics have claimed far more lives than any other type of disaster. While modern epidemiology and medical advances make the decimation of populations much less likely, new forms of disease continue to appear. The potential, therefore, exists for epidemic to cause widespread loss of life and disability, overwhelm medical resources and have tremendous economic impacts

Since 2005, the County has had 295 documented cases of reportable diseases in Teton County. The worst pandemic in recent history was the Spanish Flu in 1918. It had an attack rate of up to 35%. If a similar pandemic impacted the community, one could expect an estimated maximum of 296 deaths and 1,220 hospitalizations.

Vector-Borne Disease

Hazard Overview			
Location:	County-wide		
Frequency/Previous Occurrences:	Medium		
Impact/Consequence:	Low		
Community Vulnerability:	Low		
Overall Hazard Risk Ranking By Jurisdiction			
Teton County	**Tetonia**	**Driggs**	**Victor**
Moderately Low	**Moderately Low**	**Moderately Low**	**Moderately Low**

This hazard affects every community in Teton County.

Hazard Description

"Vectors" are organisms that transmit pathogens and parasites from one infected animal to another, including:

- Mosquitoes
- Fleas
- Ticks

Because it is so difficult to control mosquitoes, fleas and ticks, it is very difficult to control the spread of these diseases.

Most of the diseases carried by vectors can infect both animals and humans. The most serious and/or common diseases include:

- West Nile virus
- Lyme disease
- Rocky Mountain spotted fever
- Dengue virus
- Plague
- Tularemia
- Malaria

Vector-borne diseases account for 17% of estimated global burden of all infectious diseases, according to the Centers for Disease Control and Prevention.

There are many vector borne diseases that can impact the County. The following vector-borne diseases have recent occurrences in the County.

- Lyme
- Rabies
- Spotted Fever

- West Nile

Historical Frequencies of Vector-borne Diseases

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 West Nile Virus with 996 cases being reported to the State Health Department. In addition to people, West Nile Virus was also detected in 338 horses, 127 birds and numerous mosquitoes.

Reportable Cases Since 2005 for Teton County

Type	Occurrences
Lyme	**1**
Rabies	**7**
Spotted fever	**1**
West Nile	**4**

Impacts

West Nile Virus
West Nile fever may include a fever, headache, body aches, a rash and swollen glands. The symptoms of West Nile fever may last for days or linger for weeks to months. Serious illness infecting the brain or spinal cord can occur in some individuals, and although anyone can experience the more severe form of the disease, it tends to occur in people over the age of 50 or those with other underlying medical conditions or weakened immune systems. The severe symptoms may include high fever, headache, neck stiffness, stupor, disorientation, coma, tremors, convulsions, muscle weakness, vision loss, numbness and paralysis. These symptoms may last several weeks or more, and neurological effects may be permanent. Usually, symptoms occur from 5 to 15 days after the bite of an infected mosquito. There is no specific treatment for infection, but hospitalization and treatment of symptoms may improve the chances of recovery for severe infections. There is no vaccine available for humans.

Lyme Disease
According to the CDC, Lyme disease is caused by the bacterium Borrelia burgdorferi and is transmitted to humans through the bite of infected blacklegged ticks. Typical symptoms include fever, headache, fatigue, and a characteristic skin rash called erythema migrans. If left untreated, infection can spread to joints, the heart, and the nervous system. Lyme disease is diagnosed based on symptoms, physical findings (e.g., rash), and the possibility of exposure to infected ticks. Laboratory testing is helpful if used correctly and performed with validated methods. Most cases of Lyme disease can be treated successfully with a few weeks of antibiotics.

Rabies
Rabies is a preventable viral disease of mammals most often transmitted through the bite of a rabid animal. The vast majority of rabies cases reported to the Centers for Disease Control and Prevention (CDC) each year occur in wild animals like raccoons, skunks, bats, and foxes.

The rabies virus infects the central nervous system, ultimately causing disease in the brain and death. The early symptoms of rabies in people are similar to that of many other illnesses, including fever, headache, and general weakness or discomfort. As the disease progresses, more specific symptoms appear and may include insomnia, anxiety, confusion, slight or partial paralysis, excitation, hallucinations, agitation, hypersalivation (increase in saliva), difficulty swallowing, and hydrophobia (fear of water). Death usually occurs within days of the onset of these symptoms.

Rocky Mountain Spotted Fever

Rocky Mountain spotted fever (RMSF) is a tickborne disease caused by the bacterium Rickettsia rickettsii. This organism is a cause of potentially fatal human illness in North and South America, and is transmitted to humans by the bite of infected tick species. In the United States, these include the American dog tick (Dermacentor variabilis), Rocky Mountain wood tick (Dermacentor andersoni), and brown dog tick (Rhipicephalus sanguineus). Typical symptoms include: fever, headache, abdominal pain, vomiting, and muscle pain. A rash may also develop, but is often absent in the first few days, and in some patients, never develops. Rocky Mountain spotted fever can be a severe or even fatal illness if not treated in the first few days of symptoms. Doxycycline is the first line treatment for adults and children of all ages, and is most effective if started before the fifth day of symptoms. The initial diagnosis is made based on clinical signs and symptoms, and medical history, and can later be confirmed by using specialized laboratory tests. RMSF and other tickborne diseases can be prevented.

Loss Estimates

Losses brought about by the effects of vector-borne disease are centered on loss of income for those affected by the disease as well as a loss of productivity by businesses. Death has occurred in Idaho from the West Nile virus both in humans and animals.

Costs can also be associated with eradicating the vector.

Wildfire

Hazard Overview			
Location:	County-wide		
Frequency/Previous Occurrences:	Medium		
Impact/Consequence:	Low		
Community Vulnerability:	Low		
Overall Hazard Risk Ranking By Jurisdiction			
Teton County	**Tetonia**	**Driggs**	**Victor**
Moderately Low	**Moderately Low**	**Moderately Low**	**Moderately Low**

This hazard affects every community in Teton County.

Hazard Description

Please see Attachment II. The Wildfire hazard is covered in the Teton County Community Wildfire Protection Plan.

Animal Related Accidents

Hazard Overview			
Location:	County-wide		
Frequency/Previous Occurrences:	Medium		
Impact/Consequence:	Low		
Community Vulnerability:	Low		
Overall Hazard Risk Ranking By Jurisdiction			
Teton County	**Tetonia**	**Driggs**	**Victor**
Moderately Low	**Moderately Low**	**Moderately Low**	**Moderately Low**

This hazard affects every community in Teton County.

Hazard Description

Highway crashes that involve animals struck by vehicular traffic occur throughout the US. Invariably, these crashes are most damaging to the animals while humans usually escape with relatively less severe injuries. However, during 1991-2000, a total of 1,353 human fatalities were reported in 1,270 crashes involving 1,536 vehicles. Based on some estimates, the loss from these fatal crashes is well over one billion dollars. Injury and property damage costs from crashes not involving human fatalities are not included in the above estimate.

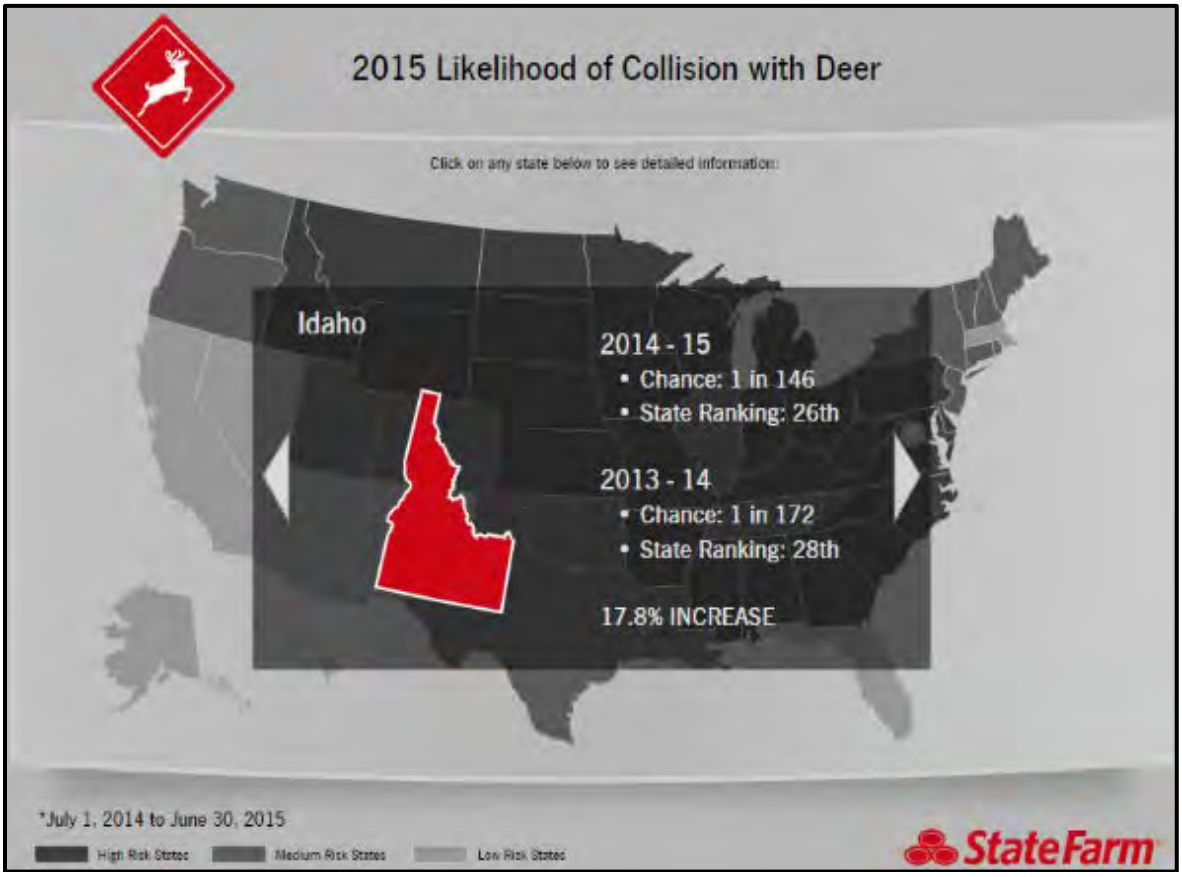
Animal-related vehicular crashes are increasing over time and these crashes mostly involve deer. Vehicle speed, animal population, and land cover influence crash frequency. Animal-related crashes occur more often during November and December and usually involve passenger cars.

In Teton County, animal-related accidents include livestock in addition to wild animals, such as deer.

Historical Frequencies

According to County records, there have been 393 animal related incidents since 1997.

State Farm Deer Collision Assessment



Impacts

Based on County records, since 1997 there have been 1 fatality and multiple injuries associated with animal-related accidents. Additional impacts include damages to property, namely vehicles, and injury or death to livestock that are struck by vehicles.

Loss Estimates

Significant losses can be incurred by the property owner involved in the animal-related accident. Livestock that are injured or killed in these accidents can also represent a significant loss to the owner.

Cybersecurity

Hazard Overview			
Location:	County-wide		
Frequency/Previous Occurrences:	High		
Impact/Consequence:	Low		
Community Vulnerability:	Low		
Overall Hazard Risk Ranking By Jurisdiction			
Teton County	**Tetonia**	**Driggs**	**Victor**
Moderately Low	**Moderately Low**	**Moderately Low**	**Moderately Low**

This hazard affects every community in Teton County.

Hazard Description

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 cyber security threats to both public and private sectors are on the rise. In 2000, there were over 20,000 cyberattacks to commercial institutions and 30,000 cyberattacks 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.

There are many changes taking place in the computer security arena, including:

- Decline of unauthorized computer system use and reported dollar amount of annual financial losses resulting from security breaches
- Virus attacks and denial of service outpaced theft of proprietary information

Cyberattacks can be divided into two main categories: attacks against data, and attacks against physical infrastructure. Because our society is so dependent on technology, a large-scale cyberattack could overwhelm government and/or private-sector resources quickly, as well as threaten lives, property, the economy and national security.

Attacks against data are more disruptive in nature:

- DoS attacks (Denial of Service) (prevents legitimate usage of service or access of data)
- Malware (virus or worm) (can be essentially harmless)

- Unauthorized intrusions (compromise confidentiality or availability)
- Website defacement (meant to send a message)

Attacks against physical infrastructure can be disruptive or destructive:

- Malware (virus or worm) (shut down or delete systems/data)
- Unauthorized intrusion (shut off or destroy systems

Historical Frequencies

Cyberattacks have increased nationwide in recent years, particularly targeting the energy sector. Cyberattacks have also increased in the banking and finance sectors. Hackers have attacked company computers, distracting employees and interfering with Internet Security Providers (ISP) to divert resources, take proprietary information, and steal PII. Small devices can wreak havoc and disrupt systems. Some USBs have been manufactured with viruses or may become infected and spread viruses to multiple computers. Firewalls, access via signatures, and anti-virus are becoming antiquated security methods.

While specific data on the number of occurrences are not known, the probability of future cyberattacks is high.

Impacts

Cyberattacks can have a wide range of impacts, ranging from minimal to significant, depending on if the County or its jurisdictions are the main target for the attack or if they are one of many targets. Some of these attacks may be malicious and can result in catastrophic damages to the nervous system of a community's cyber infrastructure. Back-up systems, redundancy, heightened awareness, integrity restoration, and recovery will provide means to adequately manage the consequence of an attack.

Direct Damage

Cyberattacks can inflict damage on physical systems by manipulating the technology supporting the built environment.

Economic Damage

Cyberattacks can inflict huge amounts of economic damage in many different ways. Cyberattacks targeting financial institutions (banks, stock markets, etc.) can directly impact the overall economy while other attacks may target individual businesses.

Loss Estimates

No Teton County losses have been documented to-date.

Hazardous Materials Incident

Hazard Overview			
Location:	County-wide		
Frequency/Previous Occurrences:	Low		
Impact/Consequence:	Medium		
Community Vulnerability:	Low		
Overall Hazard Risk Ranking By Jurisdiction			
Teton County	**Tetonia**	**Driggs**	**Victor**
Moderately Low	**Moderately Low**	**Moderately Low**	**Moderately Low**

This hazard affects every community in Teton County.

Hazard Description

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. There are currently 355 specifically listed extremely hazardous substances listed along with their individual "threshold planning quantities" (TPQ). 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.

DOT regulations provide the following definition for the term "hazardous material":

> *Hazardous material* means a substance or material that the Secretary of Transportation has determined is capable of posing an unreasonable risk to health, safety, and property when transported in commerce, and has designated as hazardous under section 5103 of Federal hazardous materials transportation law (49 U.S.C. 5103). The term includes hazardous substances, hazardous wastes, marine pollutants, elevated temperature materials, materials designated as hazardous in the Hazardous Materials Table (see 49 CFR 172.101), and materials that meet the defining criteria for hazard classes and divisions in part 173 of subchapter C of this chapter.

When a substance meets the DOT definition of a hazardous material, it must be transported under safety regulations providing for appropriate packaging, communication of hazards, and proper shipping controls.

In addition to EPA 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 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 a 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.

Historical Frequencies

According to the Idaho State Communications Center there was one (1) hazardous materials event in 2007.

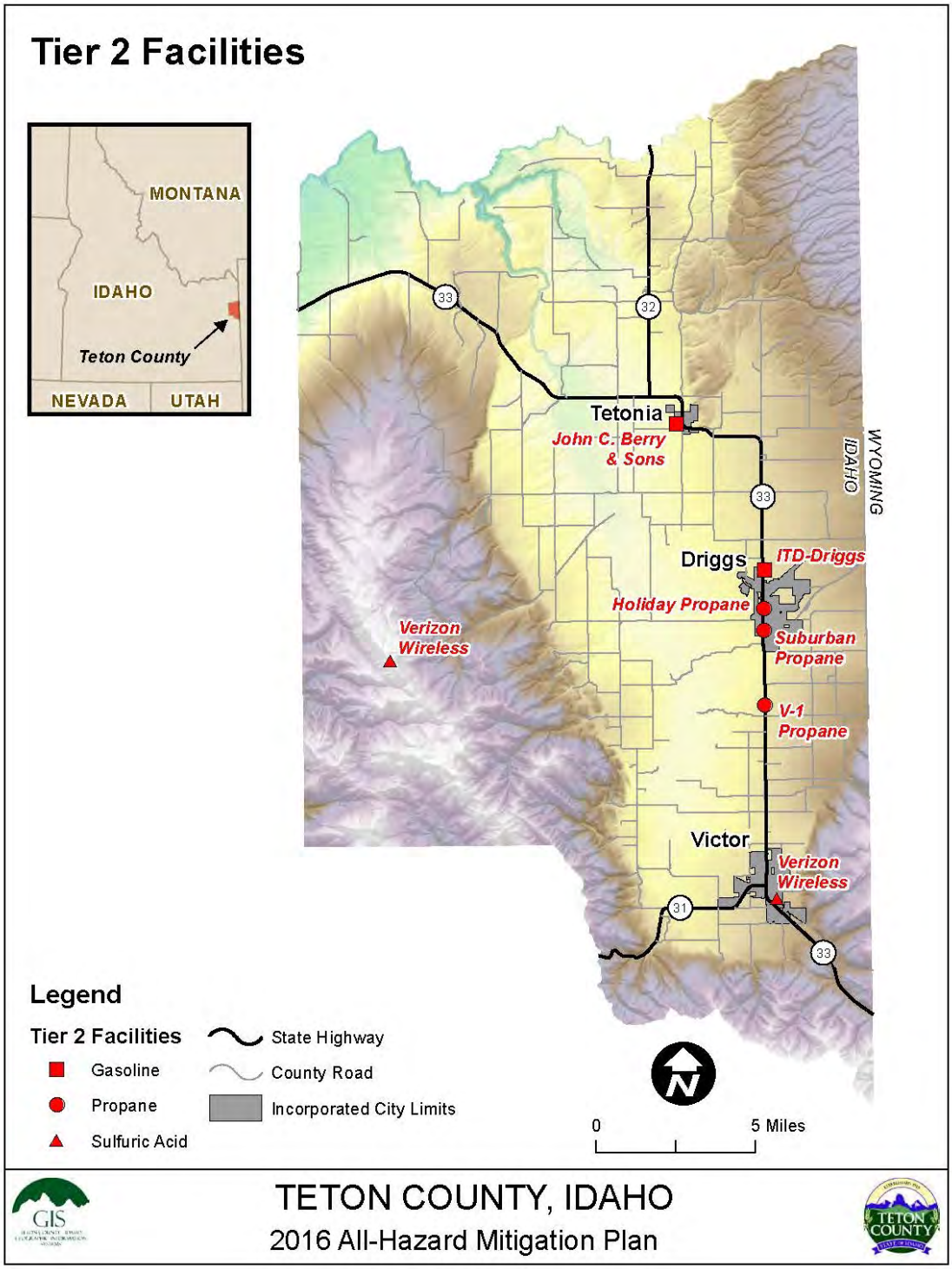
Place	Date	Chemical	Classification
Teton	06/28/2007	Explosive Material	Level II

***State of Idaho Hazardous Materials Response Classification Levels –**

- Level I – An incident involving any response, public or private to an incident involving hazardous materials that can be contained, extinguished, and/or abated using resources immediately available to the responders having jurisdiction.
- Level II – An incident involving hazardous materials that is beyond the capabilities of the first responders on the scene, and may be beyond the capabilities of the public sector response agency having jurisdiction. Level II incidents may require the services of the State of Idaho Regional Response Team, or other State/Federal Assistance.
- Level III – An incident involving weapons of mass destruction/hazardous materials that will require multiple State of Idaho Regional Response Teams or resources that do not exist within the State of Idaho. These incidents may require resources from State and Federal agencies and/or private industry.

Impacts

Tier 2 Facilities in Teton County



The specific impacts posed by a hazardous material event are usefully summarized by reference to the NFPA 704 scheme.

Flammability hazards

- Ignite spontaneously and burn rapidly or explosively on contact with air
- Explode or burn readily and rapidly when mixed with air and provided with an ignition source
- Ignite and/or react explosively in contact with water
- Emit toxic combustion products
- Emit high heat capable of igniting other combustible materials

Flammable liquids compose, by volume, more than half of the hazardous materials shipped, stored and used in the United States.

Health hazards

- Toxic (poison) – when in the body, interferes with biochemical processes, damages organs or tissues, or otherwise causes injury to health
- Asphyxiant – dilutes or removes respired oxygen or otherwise prevents oxygen from reaching organs or satisfying metabolic needs
- Damages genetic material – carcinogens and mutagens

Instability hazards

- Self-reactive (e.g. explosives, organic peroxides, certain monomers)
- React violently or explosively with water
- Decompose violently (usually on heating)
- Sensitive to thermal or mechanical shock

Special hazards – oxidizer (OX)

- Cause spontaneous ignition on contact with combustibles
- Cause combustibles to burn extremely rapidly or explosively

Special hazards – water reactive (~~W~~)

- Ignite spontaneously or explode on contact with water
- Emit flammable gas on contact with water
- Emit toxic gas on contact with water

In terms of physical form, gaseous materials are particularly hazardous because they may travel freely and engulf exposures. When stored and transported, they are commonly contained under high pressure or liquefied at very low temperature. When released, all but oxygen and air itself are asphyxiation hazards in addition to any other chemical or toxic characteristics.

Loss Estimates

Losses due to a hazardous materials release in Teton County would be related to response activities, including evacuation-related business interruption, and clean-up costs. Teton County

has not had significant hazardous materials incidents. For smaller incidents, clean up of these releases is the responsibility of the spiller.

Major Transportation Incident

Hazard Overview			
Location:	County-wide		
Frequency/Previous Occurrences:	High		
Impact/Consequence:	Low		
Community Vulnerability:	Low		
Overall Hazard Risk Ranking By Jurisdiction			
Teton County	**Tetonia**	**Driggs**	**Victor**
Moderately Low	**Moderately Low**	**Moderately Low**	**Moderately Low**

This hazard affects every community in Teton County.

Hazard Description

The nation's transportation system is a vast, open, interdependent networked system that moves people and goods throughout the country. This safe, efficient, and secure movement of people and goods through the transportation is critical to the nation's way of life and its economy. Every day, the transportation system connects cities, producers, manufacturers, and retailers, moving substantial quantities of people and goods through six different subsections, or modes. For Teton County, these different modes primarily include:

- **Aviation**
- **Highway**

While it is feasible that disruption of the transportation system could occur due to an internal failure within the system, i.e. bridge collapse, it is considered more likely that a failure would ensue as a resulting impact from another hazard. For example, transportation infrastructure could sustain physical damage inflicted by a natural hazard such as a flood or earthquake.

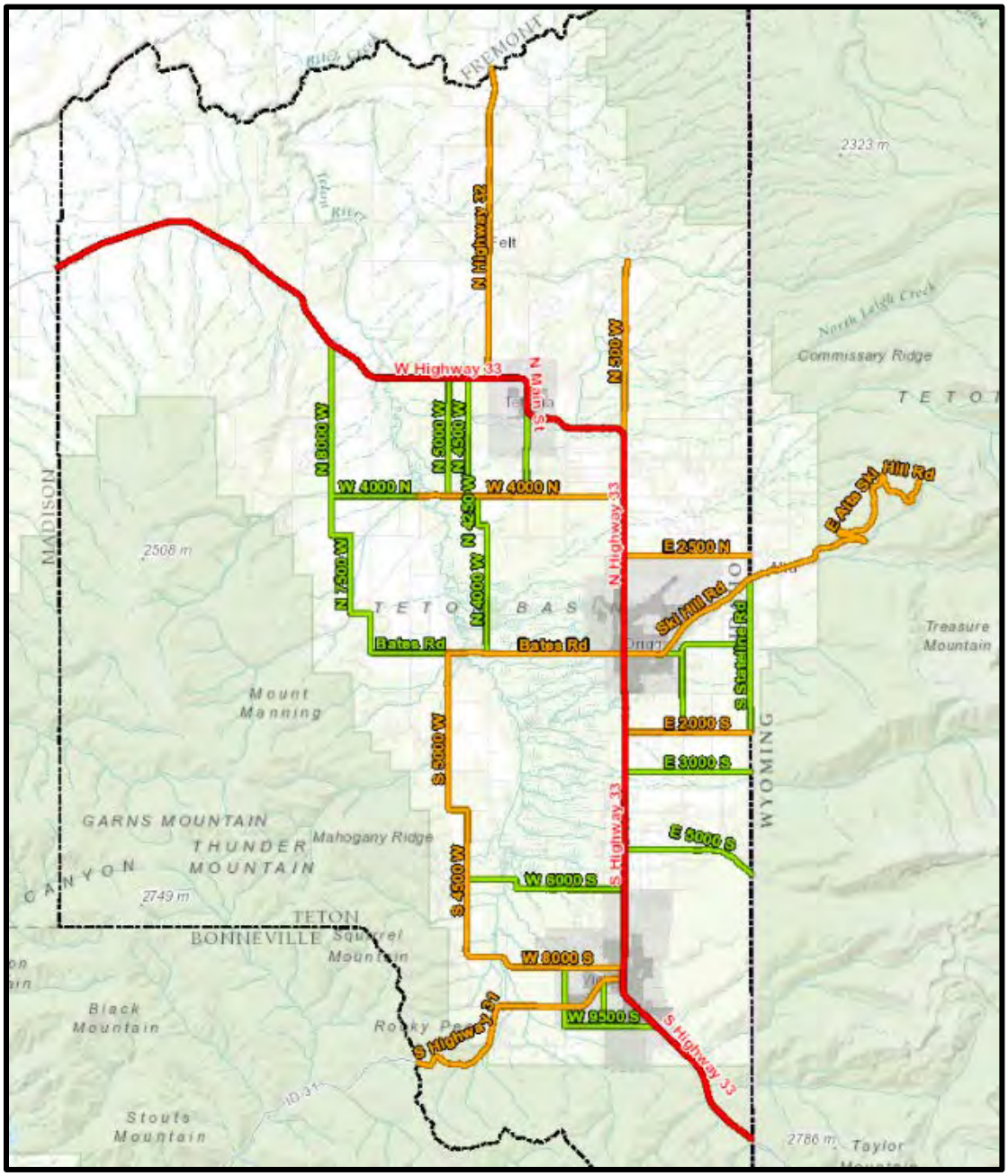
A significant disaster or event can create a dual set of challenges for the transportation system. Routine transportation activities could be hampered during the event by damage to facilities, equipment, or the infrastructure itself, requiring repairs or replacements to occur before that component of the system becomes useable thereby creating a situation of diminished capacity. At the same time that the system may be facing diminished capacity, there may also be a heightened level of demand on transportation assets. The transportation system may be required to bring in necessary response and recovery assets in the form of personnel, equipment, and supplies to assist in providing relief. Thus, the transportation system may be faced with both the challenge of returning to normal operating capabilities while concurrently attempting to move critical goods and people into the disaster area.

Historical Frequencies

In Teton County, vehicular incidents occur often in the County. According to the NTSB, there have been three fatalities and 23 recorded plane crashes (no fatalities).

Impacts

Major Roadways in Teton County



Commuters or other travelers: Stranded commuters or travelers can become a significant problem in the event of a transportation system breakdown. Mass care and sheltering may become necessary in the event of a transportation system disruption of significant magnitude and/or duration.

Emergency responders and public safety personnel: Damage or disruption to the transportation infrastructure, especially the roadway system, can create threats to rescuer safety when transiting to and from events. The inability or delay of rescue vehicles reach the scene of an event could potentially postpose critical treatment to the injured and therefore could increase potential life loss.

Evacuees: Damage or disruption to the transportation infrastructure, especially the roadway system, could create potential challenges with evacuating individuals out of impacted areas, especially in the aftermath of an event with a fast onset that allowed for little to no evacuation time prior to its occurrence. It may also delay re-entry into disaster areas which has implications for mass care and sheltering.

Businesses and other commercial ventures: Depending on the magnitude of the transportation system disturbance, economic disruption might occur ranging from limited to severe. Impassible roads and transportation corridors will impact delivery and services of goods. Lost worker time also needs to be considered from transportation disruption. Businesses in the immediate vicinity of an event that rely on the shipment of goods either in or out of their location could be potentially impacted the most. However, businesses not in the immediate impact area, but that either transit good or people through the impacted area or have a significant customer base in the immediate impact area might also be negatively affected.

Hospitals and public health facilities: The hospital relies on the transportation network for delivery of critical supplies such as medicine, supplies, and equipment for patient care. These facilities and their patients could be facing a shortage of necessary supplies in the event of a transportation disruption of significant duration or magnitude.

Institutions with large numbers of people: In addition to hospitals, other institutions that serve large numbers of people, such as nursing homes may face the potential of supply shortage of food and other necessary commodities to care for the people who reside in the facility in the event of a transportation disruption of significant duration or magnitude.

Loss Estimates

Losses, to-date, have mostly been incurred by property (i.e. vehicle) owners. No major transportation incidents have occurred in the County.

Nuclear Event

Hazard Overview			
Location:	County-wide		
Frequency/Previous Occurrences:	Low		
Impact/Consequence:	Low		
Community Vulnerability:	Low		
Overall Hazard Risk Ranking By Jurisdiction			
Teton County	**Tetonia**	**Driggs**	**Victor**
Low	**Low**	**Low**	**Low**

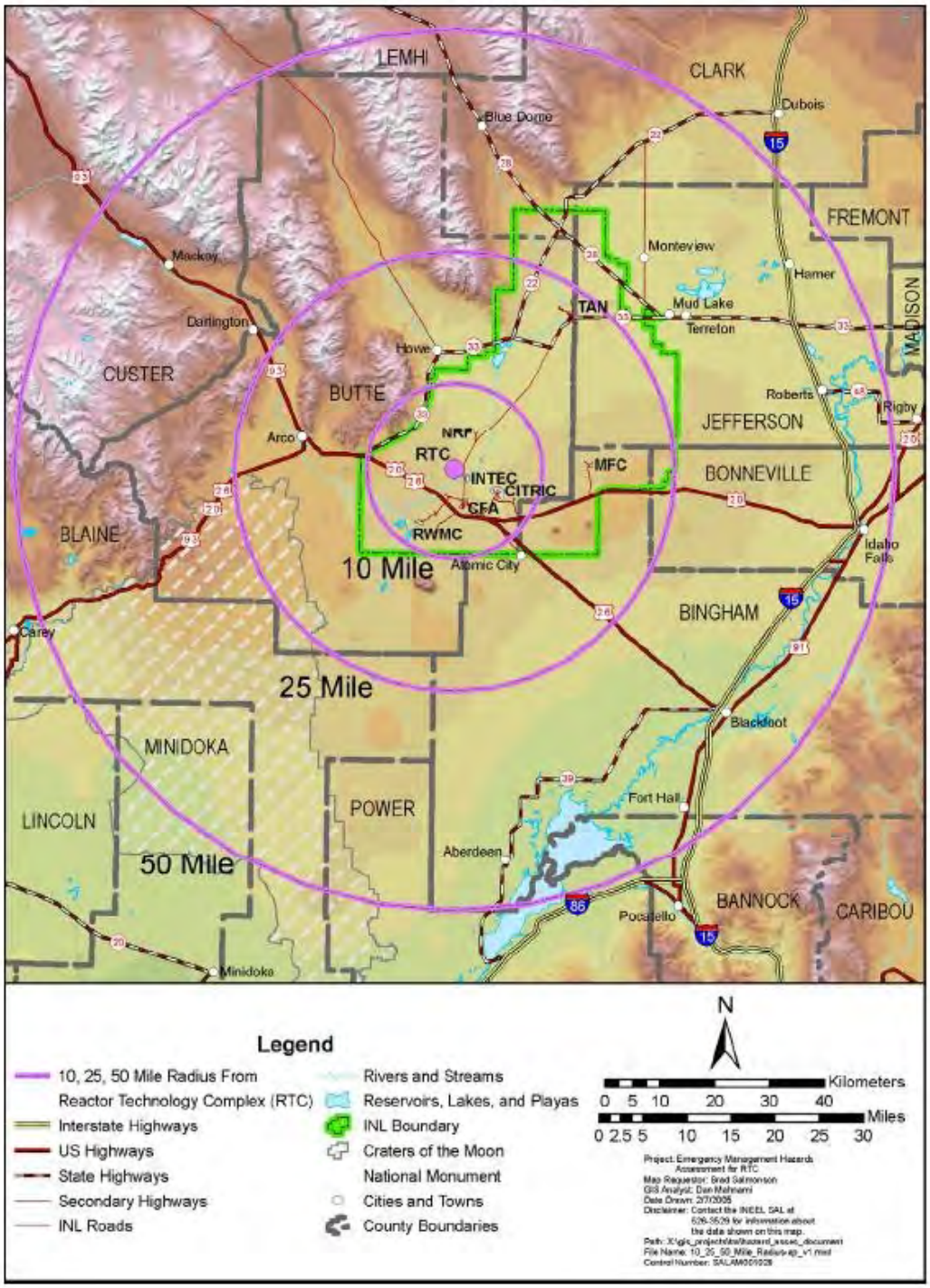
This hazard affects every community in Teton County.

Hazard 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. They include shock wave, 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. Of primary concern is the release of radioactive contamination in the form of airborne gases and particulate material. This radioactive material has the potential 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 intentional or unintentional human actions.

The closet threat to a nuclear incident for Teton County is the Idaho National Laboratory. However, the Idaho National Laboratory does not pose a major risk to Teton County due to its distance.

Distance from Reactor Technology Complex



Historical Frequencies

There are no recorded nuclear events in Teton County.

Impacts

Radiation exposure may also occur due to the spread of radioactive contamination. Radioactive contamination is material containing radioisotopes. When such material becomes airborne, it can reach human victims over long distances. When it does so, it may be deposited on clothing and skin, and may be internalized by inhalation, ingestion, skin absorption, or through skin breaks. Particularly when contamination is internal, the victim receives radiation exposure. Radiation exposure, whatever the source and depending on its type, intensity and duration, can cause acute and/or chronic health effects. Acute health effects are those that appear within a relative short time period – a few hours to a few days – and may include:

- Hair loss
- Skin burns
- Gastrointestinal damage leading to nausea, vomiting, diarrhea, dehydration and loss of appetite
- Decreased red and white blood cell and platelet production leading to infection, weakness and fatigue, and uncontrolled bleeding

Because radioactive contamination presents such hazards, it also can render an area and anything within it uninhabitable until it is removed or has lost its radioactivity through decay. Clean-up of contaminated areas, where it is possible at all, is difficult, costly, and may be hazardous to those carrying it out.

Loss Estimates

Indirect costs in such a situation would almost certainly exceed those of clean-up. In addition, because the stigma carried by radiation and radioactive with the general public, affected areas and persons may be shunned out of proportion with the actual hazard. In fact, the social and political impacts of a nuclear event may well greatly exceed any justifiable limits.

Riot/Demonstration/Civil Disorder

Hazard Overview			
Location:	County-wide		
Frequency/Previous Occurrences:	Low		
Impact/Consequence:	Medium		
Community Vulnerability:	Low		
Overall Hazard Risk Ranking By Jurisdiction			
Teton County	**Tetonia**	**Driggs**	**Victor**
Moderately Low	**Moderately Low**	**Moderately Low**	**Moderately Low**

This hazard affects every community in Teton County.

Hazard Description

Definition/Description: 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 immediate power of execution, by two (2) or more persons acting together, and without 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;

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 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 socio-economic 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.

Historical Frequencies

There are no recorded riot events in Teton County.

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

Losses from Riot/Demonstration/Civil Disobedience comes primarily damage to community and private property. It is difficult to estimate specific losses but losses would be consistent with those due to structure fires and similar incidents.

Structural Fire

Hazard Overview			
Location:	County-wide		
Frequency/Previous Occurrences:	High		
Impact/Consequence:	Low		
Community Vulnerability:	Low		
Overall Hazard Risk Ranking By Jurisdiction			
Teton County	**Tetonia**	**Driggs**	**Victor**
Moderately High	**Moderately High**	**Moderately High**	**Moderately High**

This hazard affects every community in Teton County.

Hazard 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.

Historical Frequencies

The table below provides an example of the frequency of fires and losses in Teton County.

Structure Fire History for Teton Fire Department 1/1/2007 to 5/27/2015	
Department	Fire-related Incidents
Teton County FD	44

Impacts

Indirect dollar losses, as is often the case, may be much larger than direct losses. Costs also include those for 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.

Loss Estimates

Losses from structural fires exceed $100,000.

Terrorism

Hazard Overview			
Location:	County-wide		
Frequency/Previous Occurrences:	Low		
Impact/Consequence:	Medium		
Community Vulnerability:	Low		
Overall Hazard Risk Ranking By Jurisdiction			
Teton County	**Tetonia**	**Driggs**	**Victor**
Low	**Low**	**Low**	**Low**

This hazard affects every community in Teton County.

Hazard Description

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 terrorism (http://www.fema.gov/hazard/terrorism/info.shtm):

"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; cyberattacks (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.

Historical Frequencies

There are no recorded terrorism events in Teton County.

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.

Loss Estimates

Specific loss estimates are not provided due to security policies.

Utility Disruption

Hazard Overview			
Location:	County-wide		
Frequency/Previous Occurrences:	High		
Impact/Consequence:	Low		
Community Vulnerability:	Low		
Overall Hazard Risk Ranking By Jurisdiction			
Teton County	**Tetonia**	**Driggs**	**Victor**
Moderately Low	**Moderately Low**	**Moderately Low**	**Moderately Low**

This hazard affects every community in Teton County.

Hazard Description

An electric power outage (also power failure or power loss) is the loss of the electricity supply to a geographic area. The area of an outage (scale) can range from a single facility or neighborhood to a multi-state region. The length of the outage (scope) is determined by combination of factors to include the scale of the outage, weather, and redundant equipment and capacity.

A power outage can be described as a blackout if power is lost completely or as a brownout if the voltage level is below the normal minimum level specified for the system. The reasons for a power outage can, for instance, be a defect in a power station, damage to a power line or other part of the distribution system, a short circuit, or the overloading of electricity mains. 'Load shedding' is a common term for a controlled way of rotating available generation capacity between various districts or customers, thus avoiding total wide area blackouts.

Power outages are particularly serious for hospitals and other critical facilities and operations. Our society is extremely reliant upon life-critical medical devices, communications, and electronic information all of which require reliable (uninterrupted) electric power.

The entire energy system is complex and consists of three major parts: generation, transmission, and distribution. The control and communication between these parts are extremely important as the failure of one part could disrupt the entire system. The energy system is reliant upon the following factors: continual maintenance, equipment replacement and redundancy, and additional high-load capacity. These factors have to be carefully balanced against operating cost and profit i.e. these initiatives are expensive but the costs cannot be readily push down to the consumer due to public pressure and opinion.

Historical Frequencies

Teton County has several short power outages (i.e., lasting less than six hours) per year but does not have a history of extended power outages. The possibility always exists that a man- made or natural disaster could affect the power system for an extended period of time.

Outages from 2000 to 2015

# of Incidents	Average Hours of Outage	Average Number of People Affected
195	6.4 hours	60

Impacts

Essential Service Disruption:

- Disruption of essential government services.
- The loss of water treatment or distribution can be lead to additional expense for citizens in buying potable water and complicated logistics for support agencies i.e. water is heavy and is bulky to transport.
- A typical family can lose hundreds of dollars in food stored in the refrigerator or freezer if the outage exceeds 36 hours. Additionally, people may unwisely eat spoiled food resulting in illness or possibly death.

Special Considerations:

- People on life support at the hospital, care facility, or at home are in possibly life threatening danger.
- People with health conditions, the elderly and infirmed are at increased risk if environmental factors such as excessive heat / humidity and cold go beyond a highly maintained comfort level.

Direct Damage:

- Millions of dollars in losses to the equipment supporting the electrical system will be eventually passed to the consumer in the form of higher rates and fees.

Economic Damage:

- Economic losses occur hourly and mount exponentially as the outage impacts business and commercial enterprises that are interconnected and reliant upon each other's ability to produce goods, services, personnel, and expertise.

Emergency Services:

- 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.
- Emergency response and evacuation and may be adversely affected due to a lack of electric power to fuel pumps at fleet operations centers and service stations.

Social Factors:

- The loss of alarm systems, lights, gates and other security systems will increase the likelihood of criminal and civil disturbance activity. People, particularly the elderly, will feel less secure and emotionally distressed.
- Down power lines are especially and directly dangerous during thunderstorms, winter storms, and flooding. The dangers of electrically charged lines in pools of water are a real danger to pedestrians and motorists.

Loss Estimates

In general, Teton County has a medium/high likelihood of utility failures with a low risk of damage, death or injury due to a loss. Obviously, power outages are more likely to occur and the severity is greater in areas of higher human population (i.e., urban areas) but the loss of power to rural customers, while affecting fewer people, generally lasts longer and can be as life-threatening, especially if a person with special needs (e.g., the elderly, the young, those on special medical equipment) is involved.

Dollar losses due to power outages is not typically recorded or assessed.

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Section 5: Mitigation Goals & Objectives

AHMP Goals describe the broad direction that Teton County and participating incorporated cities will take to select mitigating projects which are designed specifically to address risks posed by natural and manmade hazards. The goals are stepping-stones between the mission statement and the specific objectives developed for the individual mitigation projects.

Overall Hazard Goals and Objectives

These overall goals represent the priorities for the County and all participating jurisdictions.

GOALS
1. Reduce the potential of loss of life and injury • Identify natural and manmade hazards that threaten life in Teton County.
2. To preserve and enhance the quality of life throughout Teton County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage and economic losses. • Implement programs and projects that assist in protecting lives by making homes, businesses, essential facilities, critical infrastructure, and other property more resistant to losses from all hazards. • Improve hazard assessment information to make recommendations for discouraging new development and encouraging preventive measures for existing development in areas vulnerable to natural hazards. • Protect life and property by implementing state-of-the-art standards, codes and construction procedures.
3. Improved collaboration and cooperation throughout Teton County and partnering jurisdictions • Continue developing and strengthening inter-jurisdictional coordination and cooperation in the area of emergency services. • Continue providing County and City emergency services with training and equipment to address all identified hazards.
4. Incorporate hazard mitigation into all appropriate plans and policies
5. Enhanced communication of risks and threats in Teton County to empower personal preparedness and responsibility

• Increase public awareness of existing threats and the means to reduce these threats by conducting educational and outreach programs to all the various community groups in the County. • Provide informational items, partnership opportunities and funding resource information to assist in implementing mitigation activities.
6. Continuity of government services and business operations

Changes in Priorities

The planning committee and participating jurisdictions agreed to adopt a common set of goals and priorities as part of the update process. Previously, the County and Cities adopted goals for each hazard. For the update, the committee adopted a broader set of goals that reflected the vision and priorities of the County and its municipalities in safeguarding life, property, and the environment. New goals, such as maintaining and improving the quality of life, enhancing individual preparedness, and an added emphasis on continuity of government and businesses services were added during the update process. These new goals and priorities were added to address the increased growth and development in the Teton Valley, and a slow, but evolving economic change toward tourism and recreation.

The decision to adopt a broader set of goals and priorities was made to enable the planning committee to better prioritize individual mitigation actions/projects, and to drive what new actions were needed.

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Section 6: Mitigation Actions & Implementation

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 2016 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 2016 update, these "ongoing" mitigation actions and projects were modified and/or amended, as needed, to better define the action/project.
- Completed Mitigation Actions - Completed actions since 2008

Participation

The following jurisdictions demonstrated their participation and commitment to the plan by identifying, modifying, and completing projects/actions.

- Teton County
- Driggs
- Victor
- Tetonia

Prioritization Considerations

Prioritization was based on a scale of High, Medium and Low. Steering Committee members ranked all the mitigation actions by hazard (with “1” being the highest priority). The High, Medium, and Low designation was based on the ranking assessment and an average of all the members’ scores. Additionally, members of the committee ranked/selected the top 10 actions for the County. The contributing factors for the planning committee was 1). Estimated Cost, 2). Benefit to the County or City in relation to the hazards mitigated, 3) number of hazards that would be mitigated, 4) and Access to funding source and amount of funding that would likely be available.

New Actions: County and All Cities

Recommended Mitigation Actions					
Mitigation Action: Create a public education campaign to educate our citizens on all of our hazards					
Applicable Jurisdiction(s): County and all Cities					
Primary and Support Agency(ies): County Emergency Manager and PIO					
Applicable Goal: Enhanced communication of risks and threats in Teton County to empower personal preparedness and responsibility.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
H	New	Increased self-preparedness will reduce disaster response needs	$5,000	Grants, Local Budgets	2018
Hazards that will be mitigated					
General					
Comments					
Campaign will include alternate heat sources, assessing propane lines after an earthquake, securing hot water heaters, washing hands and staying home when sick, chimney fire and home fire safety, and landlines vs. cell phones during a disaster.					

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Recommended Mitigation Actions					
Mitigation Action: Procure resources and supplies for responding to and managing disasters					
Applicable Jurisdiction(s): County and Cities					
Primary and Support Agency(ies): County and City Agencies, First Response Agencies					
Applicable Goal: Reduce the potential of loss of life and injury.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
M	New	Having the resources and supplies to respond to any disaster will allow us to protect lives and property.	$3,000,000	Grants, Local Budgets	Ongoing
Hazards that will be mitigated					
General					
Comments					
Resources and supplies include, but are not limited to: trailers, generators, resources for public works and Fire District, and CERT.					

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Recommended Mitigation Actions					
Mitigation Action: Educate and train first responders, agency heads, and elected officials					
Applicable Jurisdiction(s): County and Cities					
Primary and Support Agency(ies): Emergency Management and all County and City Agencies					
Applicable Goal: Improved collaboration and cooperation throughout Teton County and partnering jurisdictions.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
H	New	By training regularly our capacity to respond and server our citizens will increase.	$5,000 Annually	Grants, Local Budgets	Ongoing
Hazards that will be mitigated					
General					
Comments					

Plan Maintenance		
Year	Status	Comments
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Recommended Mitigation Actions					
Mitigation Action: Recruit and train EOC staff					
Applicable Jurisdiction(s): County and Cities					
Primary and Support Agency(ies): Emergency Management					
Applicable Goal: Improved collaboration and cooperation throughout Teton County and partnering jurisdictions					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
M	New	By having staff trained and ready to go our ability to carry out EOC functions will be greatly improved.	$3,000 Annually	Grants, Local Budgets	Ongoing
Hazards that will be mitigated					
General					
Comments					

Plan Maintenance		
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Recommended Mitigation Actions					
Mitigation Action: 700 MHz radios for public works to be able to communicate with first responders more easily					
Applicable Jurisdiction(s): County and Cities					
Primary and Support Agency(ies): Public Works Agencies					
Applicable Goal: Improved collaboration and cooperation throughout Teton County and partnering jurisdictions.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
H	New	Increasing our ability to communicate effectively between first response agencies will save lives and property.	$150,000	Grants, Local Budgets	Ongoing
Hazards that will be mitigated					
General					
Comments					

Plan Maintenance		
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2019		
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Recommended Mitigation Actions					
Mitigation Action: Develop Emergency Action Plans (EAPs) for specific public buildings in the County					
Applicable Jurisdiction(s): County and Cities					
Primary and Support Agency(ies): Emergency Management, Facility Managers					
Applicable Goal: Reduce the potential for loss of life and injury					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
H	New	Reduce the potential of loss of life and injury	$50,000	Grants, Local Budgets	2018
Hazards that will be mitigated					
General					
Comments					

Plan Maintenance		
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Recommended Mitigation Actions					
Mitigation Action: Provide daily avalanche danger information during avalanche season via local radio or social media					
Applicable Jurisdiction(s): County and Cities					
Primary and Support Agency(ies): County PIO, Emergency Management					
Applicable Goal: Enhanced communication of risks and threats in Teton County to empower personal preparedness and responsibility.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
H	New	By increasing the available information to the recreating citizens they can be better informed regarding hazardous snow conditions	$2,000 per year	Grants, Local Budgets	2018
Hazards that will be mitigated					
Avalanche					
Comments					

Plan Maintenance		
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Recommended Mitigation Actions					
Mitigation Action: Placement of warning signs on trailheads					
Applicable Jurisdiction(s): County					
Primary and Support Agency(ies): County Road & Bridge, Forest Service, BLM, IDL					
Applicable Goal: Enhanced communication of risks and threats in Teton County to empower personal preparedness and responsibility.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
L	New	Increasing the public's understanding of hazardous conditions will reduce the loss of life and injuries.	$10,000	Grants, Local Budgets	2019
Hazards that will be mitigated					
Avalanche, Lightning, Wildfire					
Comments					

Plan Maintenance		
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2019		
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Recommended Mitigation Actions					
Mitigation Action: Provide outreach to groups that use the snow regarding avalanche dangers, i.e. snowmobile clubs, skiing organizations					
Applicable Jurisdiction(s): County and Cities					
Primary and Support Agency(ies): Emergency Management, PIO's, TVTAP					
Applicable Goal: Enhanced communication of risks and threats in Teton County to empower personal preparedness and responsibility.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
M	New	This will reduce the lives lost to avalanches.	$1,000 Annually	Grants, Local Budgets	2019
Hazards that will be mitigated					
Avalanche					
Comments					

Plan Maintenance		
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Recommended Mitigation Actions					
Mitigation Action: Provide water conservation education, and target neighborhoods that have access to irrigation water. Provide education on native grasses & drought resistant landscaping to the public.					
Applicable Jurisdiction(s): County and Cities					
Primary and Support Agency(ies): Extension Agent, Weeds supervisor, Emergency Manager, Public Works					
Applicable Goal:					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
H	New	This will increase our drought resistance.	$4,000 annually	Grants, Local Budgets	2019
Hazards that will be mitigated					
Drought					
Comments					

Plan Maintenance		
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Recommended Mitigation Actions					
Mitigation Action: Cloud seeding					
Applicable Jurisdiction(s): County and Cities					
Primary and Support Agency(ies): BOCC, Mayors, Extension Agent, High Country RC&D					
Applicable Goal: To preserve and enhance the quality of life throughout Teton County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage and economic losses.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
L	New	Increasing the amount of rainfall will reduce our risk of drought.	$5,000 per year	Grants, Local Budgets	Ongoing
Hazards that will be mitigated					
Drought					
Comments					

Plan Maintenance		
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Recommended Mitigation Actions					
Mitigation Action: Pipe canals to reduce water loss					
Applicable Jurisdiction(s): County and Cities					
Primary and Support Agency(ies): Extension Agent, Water Districts, Water Rights Users					
Applicable Goal: To preserve and enhance the quality of life throughout Teton County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage and economic losses.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
L	New	Reduce water loss	$6 million	Grants, Local Budgets	2025
Hazards that will be mitigated					
Drought					
Comments					

Plan Maintenance		
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Recommended Mitigation Actions					
Mitigation Action: Provide education to the public to mitigate frozen pipes during extreme cold incidents					
Applicable Jurisdiction(s): Cities					
Primary and Support Agency(ies): City Public Works, County					
Applicable Goal: Enhanced communication of risks and threats in Teton County to empower personal preparedness and responsibility.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
M	New	By increasing the understanding of our citizens we will be able to reduce our need to provide additional services to them during times of extreme cold.	$2,000 per year	Grants, Local Budgets	2019
Hazards that will be mitigated					
Extreme Cold					
Comments					

Plan Maintenance		
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Recommended Mitigation Actions					
Mitigation Action: Assess schools with modular buildings, inspect tie downs, assess wind load, and evaluate seismic standards					
Applicable Jurisdiction(s): Cities					
Primary and Support Agency(ies): School District 401, Emergency Management, City P&Z Departments, Building Inspectors					
Applicable Goal: Reduce the potential of loss of life and injury.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
M	New	Reduce loss of life.	$10,000	Grants, Local Budgets	2018
Hazards that will be mitigated					
High Wind Incident, Earthquake					
Comments					

Plan Maintenance		
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Recommended Mitigation Actions					
Mitigation Action: Evaluate building codes and ensure they are adequate for the county's wind hazard rating					
Applicable Jurisdiction(s): County and Cities					
Primary and Support Agency(ies): County and City P&Z, Building Inspectors					
Applicable Goal: Incorporate hazard mitigation into all appropriate plans and policies.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
M	New	Incorporating hazard mitigation into all plans and processes will reduce loss	$2,000	Grants, Local Budgets	2018
Hazards that will be mitigated					
High Wind Incident					
Comments					

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Recommended Mitigation Actions					
Mitigation Action: Develop and conduct a school and summer program outreach initiative on lightning safety					
Applicable Jurisdiction(s): County and Cities					
Primary and Support Agency(ies): National Weather Service, School District 401, Emergency Management					
Applicable Goal: Enhanced communication of risks and threats in Teton County to empower personal preparedness and responsibility.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
M	New	Through increased training on lightning hazards the public will be better able to protect themselves.	$3,000 per year	Grants, Local Budgets	2019
Hazards that will be mitigated					
Lightning					
Comments					

Plan Maintenance		
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Recommended Mitigation Actions					
Mitigation Action: Ensure public facilities are sufficiently grounded and have surge arrestors					
Applicable Jurisdiction(s): County and Cities					
Primary and Support Agency(ies): Facility Managers for public entities, schools					
Applicable Goal: To preserve and enhance the quality of life throughout Teton County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage and economic losses.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
H	New	Reduction in equipment replacement cost.	$300,000	Grants, Local Budgets	2020
Hazards that will be mitigated					
Lightning					
Comments					

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Recommended Mitigation Actions					
Mitigation Action: Ensure grounding on light poles especially at outdoor playing fields such as the high school, fair grounds, and rodeo grounds					
Applicable Jurisdiction(s): County and Cities					
Primary and Support Agency(ies): School District 401, Public Works Departments					
Applicable Goal: Reduce the potential of loss of life and injury.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
M	New	Reducing the risk of loss of life from lighting and cost of replacing damaged equipment.	$75,000	Grants, Local Budgets	2025
Hazards that will be mitigated					
Lightning					
Comments					

Plan Maintenance		
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Recommended Mitigation Actions					
Mitigation Action: Procure equipment for public works, such as snow removal equipment					
Applicable Jurisdiction(s): County and Cities					
Primary and Support Agency(ies): Public Works Departments					
Applicable Goal: Continuity of government services and business operations.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
H	New	Increase our capacity to handle severe winter storm events.	$1,000,000	Grants, Local Budgets	Ongoing
Hazards that will be mitigated					
Severe Winter Storm					
Comments					

Plan Maintenance		
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Recommended Mitigation Actions					
Mitigation Action: Place electronic signage on the three major highways to notify of closures					
Applicable Jurisdiction(s): County and Cities					
Primary and Support Agency(ies): ITD, Public Works Departments, Emergency Management					
Applicable Goal: Enhanced communication of risks and threats in Teton County to empower personal preparedness and responsibility.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
M	New	By increasing our ability to communicate hazardous conditions to the public we will save lives.	$600,000	Grants, Local Budgets, ITD	2025
Hazards that will be mitigated					
Severe Winter Storm					
Comments					
ITD may have matching funds					

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Recommended Mitigation Actions					
Mitigation Action: Place new road closure gates on highway 33 and 32					
Applicable Jurisdiction(s): County					
Primary and Support Agency(ies): County Road & Bridge, ITD					
Applicable Goal: Enhanced communication of risk and threats in Teton County to empower personal preparedness and responsibility.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
M	New	Reduce loss of life on unsafe roads	$200,000	Grants, Local Budgets, ITD	2025
Hazards that will be mitigated					
Severe Winter Storm					
Comments					

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Recommended Mitigation Actions					
Mitigation Action: Place a living snow fence between High school and Jr. High					
Applicable Jurisdiction(s): City of Driggs					
Primary and Support Agency(ies): City of Driggs Public Works, School District 401					
Applicable Goal: To preserve and enhance the quality of life throughout Teton County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage and economic losses.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
L	New	This will reduce potential loss of life from hazardous driving conditions and increase our ability to utilize these schools as shelters during an event.	$8/foot	Grants, Local Budgets	2025
Hazards that will be mitigated					
Severe Winter Storm					
Comments					

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Recommended Mitigation Actions					
Mitigation Action: Obtain food and fuel storage for critical entities/facilities					
Applicable Jurisdiction(s): County and Cities					
Primary and Support Agency(ies): County and Cities					
Applicable Goal: Improved collaboration and cooperation throughout Teton County and partnering jurisdictions.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
L	New	Increased readiness	$120,000	Grants, Local Budgets	Ongoing
Hazards that will be mitigated					
Severe Winter Storm					
Comments					

Plan Maintenance		
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Recommended Mitigation Actions					
Mitigation Action: Procure more ITD cameras to see road conditions in real-time					
Applicable Jurisdiction(s): County and Cities					
Primary and Support Agency(ies): ITD, County R&B					
Applicable Goal: Enhanced communication of risks and threats in Teton County to empower personal preparedness and responsibility.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
M	New	Increased ability for citizens to view real-time road conditions.	$75,000	Grants, Local Budgets, ITD	2026
Hazards that will be mitigated					
Severe Winter Storm					
Comments					
HWY 31 is a high priority location. Also, put cameras on the gates.					

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Recommended Mitigation Actions					
Mitigation Action: Increase the standards near the floodplain, and ensure building in the floodplain isn't allowed					
Applicable Jurisdiction(s): County and Cities					
Primary and Support Agency(ies): County and City P&Z's					
Applicable Goal: To preserve and enhance the quality of life throughout Teton County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage and economic losses.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
M	New	Reduced flood risk	$10,000	Grants, Local Budgets	2019
Hazards that will be mitigated					
Flooding					
Comments					

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Recommended Mitigation Actions

Mitigation Action: Evaluate the creation of flood control districts

Applicable Jurisdiction(s): County, Cities

Primary and Support Agency(ies):BOCC, Cities

Applicable Goal: To preserve and enhance the quality of life throughout Teton County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage and economic losses.

Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
M	New	Increased oversight of flood risk, and greater capacity to accomplish mitigation projects.	$4,000	Grants, Local Budgets	2025

Hazards that will be mitigated

Flooding

Comments

Plan Maintenance

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Recommended Mitigation Actions

Mitigation Action: Install gauging and alarming equipment at critical areas in the flood plain and streams

Applicable Jurisdiction(s): County and Cities

Primary and Support Agency(ies): County, Emergency Management, Flood Control District, Friends of the Teton River,

Applicable Goal: To preserve and enhance the quality of life throughout Teton County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage and economic losses.

Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
M	New	Increased ability to monitor flooding	$150,000	Grants, Local Budgets	2020

Hazards that will be mitigated

Flooding

Comments

Install gauges on the major streams in the Teton Valley.

Plan Maintenance

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Recommended Mitigation Actions					
Mitigation Action: Replace the bridge on 1000 E. And 3500 S.					
Applicable Jurisdiction(s): County					
Primary and Support Agency(ies): County Public Works					
Applicable Goal: To preserve and enhance the quality of life throughout Teton County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage and economic losses.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
M	New	Reduce flood risk and maintain critical roadway	$400,000	Grants, Local Budgets	2025
Hazards that will be mitigated					
Flooding					
Comments					

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Recommended Mitigation Actions					
Mitigation Action: Create green space to mitigate flooding					
Applicable Jurisdiction(s): County and Cities					
Primary and Support Agency(ies): County and City P&Z's, County and City Public Works					
Applicable Goal: To preserve and enhance the quality of life throughout Teton County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage and economic losses.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
M	New	Reduce flood risk	$500,000	Grants, Local Budgets	2025
Hazards that will be mitigated					
Flooding					
Comments					

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Recommended Mitigation Actions					
Mitigation Action: Research and procure quick disconnect lines for propane tanks for critical infrastructure & schools					
Applicable Jurisdiction(s): County and Cities					
Primary and Support Agency(ies): Facility Managers and schools					
Applicable Goal: To preserve and enhance the quality of life throughout Teton County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage and economic losses.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
H	New	Reduce fire and explosion risk	$10,000	Grants, Local Budgets	2022
Hazards that will be mitigated					
Earthquake					
Comments					
Allow the quick disconnection of propane lines from tanks in case of broken or damaged lines.					

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Recommended Mitigation Actions					
Mitigation Action: Procure resources to better filter the air going into public facilities and for public equipment / vehicles					
Applicable Jurisdiction(s): County and Cities					
Primary and Support Agency(ies): Facility Managers and Fleet Managers					
Applicable Goal: To preserve and enhance the quality of life throughout Teton County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage and economic losses.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
L	New	Increase survivability of critical infrastructure and equipment.	$120,000	Grants, Local Budgets	2028
Hazards that will be mitigated					
Volcanic Eruption/Ashfall					
Comments					

Plan Maintenance		
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Recommended Mitigation Actions					
Mitigation Action: Produce and provide animal producer education and outreach regarding animal disease and reporting					
Applicable Jurisdiction(s): County and Cities					
Primary and Support Agency(ies): Extension Agent, Emergency Management					
Applicable Goal: Enhanced communication of risks and threats in Teton County to empower personal preparedness and responsibility.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
M	New	Reduced risk of animal diseases	$3,000 Annually	Grants, Local Budgets	Ongoing
Hazards that will be mitigated					
Animal Disease					
Comments					

Plan Maintenance		
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Recommended Mitigation Actions					
Mitigation Action: Stockpile pandemic supplies					
Applicable Jurisdiction(s): County and Cities					
Primary and Support Agency(ies): Eastern Idaho Public Health District, Emergency Management, Teton Valley Hospital					
Applicable Goal: To preserve and enhance the quality of life throughout Teton County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage and economic losses.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
H	New	Increased preparedness	$100,000	Grants, Local Budgets	Ongoing
Hazards that will be mitigated					
Public Health					
Comments					

Plan Maintenance		
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2021		

Recommended Mitigation Actions					
Mitigation Action: Conduct vaccination education and outreach					
Applicable Jurisdiction(s): County and Cities					
Primary and Support Agency(ies): Eastern Idaho Public Health District, Emergency Management, PIO's					
Applicable Goal: Enhanced communication of risks and threats in Teton County to empower personal preparedness and responsibility.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
M	New	Increased protection from diseases	$5,000 Annually	Grants, Local Budgets	Ongoing
Hazards that will be mitigated					
Public Health					
Comments					

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Recommended Mitigation Actions					
Mitigation Action: Develop a free hand sanitizer program					
Applicable Jurisdiction(s): County and Cities					
Primary and Support Agency(ies): Eastern Idaho Public Health District, Emergency Management					
Applicable Goal: To preserve and enhance the quality of life throughout Teton County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage and economic losses.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
L	New	Reduced pandemic risk	$2,000	Grants, Local Budgets	2019
Hazards that will be mitigated					
Public Health					
Comments					

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Recommended Mitigation Actions					
Mitigation Action: Exercise plans for how to respond to infectious diseases, including 911 calls, EMS transport, ER admittance, public information, isolation & quarantine, etc.					
Applicable Jurisdiction(s): County and Cities					
Primary and Support Agency(ies): Eastern Idaho Public Health District, Emergency Management, First Response Agencies, Teton Valley Hospital					
Applicable Goal: Improved collaboration and cooperation throughout Teton County and partnering jurisdictions.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
M	New	Increased capacity to respond to public health incidents.	$5,000	Grants, Local Budgets	Ongoing
Hazards that will be mitigated					
Public Health					
Comments					

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Recommended Mitigation Actions					
Mitigation Action: Revise the Mass Fatality Plan					
Applicable Jurisdiction(s): County and Cities					
Primary and Support Agency(ies): County Coroner, Emergency Management					
Applicable Goal: Reduce the potential of loss of life and injury.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
L	New	Increase our preparedness for a mass fatality incident	$10,000	Grants, Local Budgets	2018
Hazards that will be mitigated					
Public Health					
Comments					

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Recommended Mitigation Actions					
Mitigation Action: Provide hand sanitizer stations in schools and public buildings					
Applicable Jurisdiction(s): County and Cities					
Primary and Support Agency(ies): Eastern Idaho Public Health, Emergency Management, Facility Managers, School District 401					
Applicable Goal: To preserve and enhance the quality of life throughout Teton County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage and economic losses.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
L	New	Reduce risk of pandemics	$2,000	Grants, Local Budgets	2019
Hazards that will be mitigated					
Public Health					
Comments					

Plan Maintenance		
Year	Status	Comments
2017		
2018		
2019		
2020		
2021		

Recommended Mitigation Actions					
Mitigation Action: Reduce disease carrying vector's habitat through source reduction projects					
Applicable Jurisdiction(s): County and Cities					
Primary and Support Agency(ies): Mosquito Abatement District, County and City Public Works					
Applicable Goal: Reduce the potential of loss of life and injury.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
L	New	Reduce vector-borne disease risk	$200,000	Grants, Local Budgets	Ongoing
Hazards that will be mitigated					
Vector-Borne Disease					
Comments					

Plan Maintenance		
Year	Status	Comments
2017		
2018		
2019		
2020		
2021		

Recommended Mitigation Actions					
Mitigation Action: Conduct fuels reduction on trails, roads, and at-risk structures					
Applicable Jurisdiction(s): County and Cities					
Primary and Support Agency(ies): Teton County Fire District, Idaho Department of Lands, Forest Service, Bureau of Land Management					
Applicable Goal: To preserve and enhance the quality of life throughout Teton County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage and economic losses.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
M	New	Reduce wildfire risk	$75,000	Grants, Local Budgets	Ongoing
Hazards that will be mitigated					
Wildfire					
Comments					

Plan Maintenance		
Year	Status	Comments
2017		
2018		
2019		
2020		
2021		

Recommended Mitigation Actions					
Mitigation Action: Mitigate fuels on vacant lots and areas around abandoned structures					
Applicable Jurisdiction(s): County and Cities					
Primary and Support Agency(ies): Weed Supervisor, County and City Public Works, Teton County Fire District					
Applicable Goal: To preserve and enhance the quality of life throughout Teton County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage and economic losses.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
M	New	Reduced wildfire risk	$25,000 Annually	Grants, Local Budgets	Ongoing
Hazards that will be mitigated					
Wildfire					
Comments					

Plan Maintenance		
Year	Status	Comments
2017		
2018		
2019		
2020		
2021		

Recommended Mitigation Actions					
Mitigation Action: Allow firewood collection to thin the wildfire threat					
Applicable Jurisdiction(s): County					
Primary and Support Agency(ies): Teton County Fire District, Forest Service					
Applicable Goal: To preserve and enhance the quality of life throughout Teton County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage and economic losses.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
L	New	Reduce wildfire risk	$5,000	Grants, Local Budgets	Ongoing
Hazards that will be mitigated					
Wildfire					
Comments					

Plan Maintenance		
Year	Status	Comments
2017		
2018		
2019		
2020		
2021		

Recommended Mitigation Actions

Mitigation Action: Review herd district opportunities

Applicable Jurisdiction(s): County and Cities

Primary and Support Agency(ies): Extension Agent, Emergency Management, ITD, and Fish and Game

Applicable Goal: To preserve and enhance the quality of life throughout Teton County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage and economic losses.

Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
M	New	Reduce animal vs. vehicle collisions	$5,000	Grants, Local Budgets	2018

Hazards that will be mitigated

Animal Related Accidents

Comments

Plan Maintenance

Year	Status	Comments
2017		
2018		
2019		
2020		
2021		

Recommended Mitigation Actions					
Mitigation Action: Increase stock and wildlife roadway signage					
Applicable Jurisdiction(s): County and Cities					
Primary and Support Agency(ies): County and City Public Works, ITD, Fish and Game					
Applicable Goal: To preserve and enhance the quality of life throughout Teton County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage and economic losses.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
L	New	Reduced animal vs. vehicle accidents	$20,000	Grants, Local Budgets	2020
Hazards that will be mitigated					
Animal Related Accidents					
Comments					

Plan Maintenance		
Year	Status	Comments
2017		
2018		
2019		
2020		
2021		

Recommended Mitigation Actions					
Mitigation Action: Provide training for all public employees, with a focus on IT administrators					
Applicable Jurisdiction(s): County and Cities					
Primary and Support Agency(ies): County and City IT Departments, County and City Leadership					
Applicable Goal: Enhanced communication of risks and threats in Teton County to empower personal preparedness and responsibility.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
M	New	Reduced exposure to cyber-incidents.	$12,000 Annually	Grants, Local Budgets	Ongoing
Hazards that will be mitigated					
Cybersecurity					
Comments					

Plan Maintenance		
Year	Status	Comments
2017		
2018		
2019		
2020		
2021		

Recommended Mitigation Actions					
Mitigation Action: Procure funds for IT infrastructure and technology to make networks more resilient and secure					
Applicable Jurisdiction(s): County and Cities					
Primary and Support Agency(ies): County and City IT Departments					
Applicable Goal: To preserve and enhance the quality of life throughout Teton County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage and economic losses.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
M	New	Decreased exposure to cyber-incidents and increased network resilience and health	$100,000 Annually	Grants, Local Budgets	Ongoing
Hazards that will be mitigated					
Cybersecurity					
Comments					

Plan Maintenance		
Year	Status	Comments
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2018		
2019		
2020		
2021		

Recommended Mitigation Actions					
Mitigation Action: Purchase cybersecurity devices/services/software for public agencies					
Applicable Jurisdiction(s): County and Cities					
Primary and Support Agency(ies): County and City IT Departments					
Applicable Goal: To preserve and enhance the quality of life throughout Teton County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage and economic losses.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
M	New	Decreased exposure to cyber-incidents and increased network resilience and health	$75,000	Grants, Local Budgets	2018
Hazards that will be mitigated					
Cybersecurity					
Comments					

Plan Maintenance		
Year	Status	Comments
2017		
2018		
2019		
2020		
2021		

Recommended Mitigation Actions					
Mitigation Action: Create County/City cybersecurity response plan/procedures					
Applicable Jurisdiction(s): County and Cities					
Primary and Support Agency(ies): County and City IT Departments					
Applicable Goal: To preserve and enhance the quality of life throughout Teton County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage and economic losses.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
M	New	Decreased exposure to cyber-incidents and increased network resilience and health	$25,000	Grants, Local Budgets	2018
Hazards that will be mitigated					
Cybersecurity					
Comments					

Plan Maintenance		
Year	Status	Comments
2017		
2018		
2019		
2020		
2021		

Recommended Mitigation Actions					
Mitigation Action: Provide training for first responders, wastewater workers and solid waste workers					
Applicable Jurisdiction(s): County and Cities					
Primary and Support Agency(ies): Teton County Fire District, County and City Public Works Departments, First Response Agencies					
Applicable Goal: Reduce the potential of loss of life and injury.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
M	New	Increased capability to handle HAZMAT incidents.	$50,000 Annually	Grants, Local Budgets	Ongoing
Hazards that will be mitigated					
Hazardous Materials Incident, Nuclear Event					
Comments					
Hazwoper training					

Plan Maintenance		
Year	Status	Comments
2017		
2018		
2019		
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2021		

Recommended Mitigation Actions					
Mitigation Action: Map all local HAZMAT sources and utilize cities knowledge of where these source are located					
Applicable Jurisdiction(s): County and Cities					
Primary and Support Agency(ies): Teton County Fire District, GIS					
Applicable Goal: To preserve and enhance the quality of life throughout Teton County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage and economic losses.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
M	New	Increased preparedness for a HAZMAT event.	$50,000	Grants, Local Budgets	2019
Hazards that will be mitigated					
Hazardous Materials Incident					
Comments					

Plan Maintenance		
Year	Status	Comments
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2018		
2019		
2020		
2021		

Recommended Mitigation Actions					
Mitigation Action: Procure mass casualty equipment and supplies					
Applicable Jurisdiction(s): County and Cities					
Primary and Support Agency(ies): First Response Agencies, Emergency Management					
Applicable Goal: Reduce the potential of loss of life and injury.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
M	New	Increased capacity to respond to a Major Transportation Incident	$120,000	Grants, Local Budgets	Ongoing
Hazards that will be mitigated					
Major Transportation Incident					
Comments					

Plan Maintenance		
Year	Status	Comments
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2021		

Recommended Mitigation Actions					
Mitigation Action: Procure mass fatality equipment and supplies					
Applicable Jurisdiction(s): County and Cities					
Primary and Support Agency(ies): Coroner, Emergency Management					
Applicable Goal: Improved collaboration and cooperation throughout Teton County and partnering jurisdictions.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
M	New	Increased capacity to handle a mass fatality situation	$34,000	Grants, Local Budgets	2021
Hazards that will be mitigated					
Major Transportation Incident					
Comments					

Plan Maintenance		
Year	Status	Comments
2017		
2018		
2019		
2020		
2021		

Recommended Mitigation Actions					
Mitigation Action: Explore creating a truck route from E 2500 N to Stateline until E 250 N.					
Applicable Jurisdiction(s): County and Cities					
Primary and Support Agency(ies): County and City Public Works, ITD, County and City P&Z's					
Applicable Goal: To preserve and enhance the quality of life throughout Teton County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage and economic losses.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
M	New	Reduced risk for major transportation incidents	$100,000	Grants, Local Budgets	2019
Hazards that will be mitigated					
Major Transportation Incident					
Comments					

Plan Maintenance		
Year	Status	Comments
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2018		
2019		
2020		
2021		

Recommended Mitigation Actions					
Mitigation Action: Purchase a nuclear monitoring device for the community					
Applicable Jurisdiction(s): County and Cities					
Primary and Support Agency(ies): Emergency Management, INL					
Applicable Goal: To preserve and enhance the quality of life throughout Teton County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage and economic losses.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
L	New	Increased capacity to identify nuclear events	$450,000	Grants, Local Budgets	2030
Hazards that will be mitigated					
Nuclear Event					
Comments					

Plan Maintenance		
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2017		
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2019		
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2021		

Recommended Mitigation Actions					
Mitigation Action: Establish fire protection water supplies and inspections/inventorying					
Applicable Jurisdiction(s): County and Cities					
Primary and Support Agency(ies): Teton County Fire District, County, City PW					
Applicable Goal: To preserve and enhance the quality of life throughout Teton County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage and economic losses.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
H	New	Increased awareness of structural fire risk	$30,000 Annually	Grants, Local Budgets	Ongoing
Hazards that will be mitigated					
Structural Fire					
Comments					

Plan Maintenance		
Year	Status	Comments
2017		
2018		
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2021		

Recommended Mitigation Actions					
Mitigation Action: Establish a standard for Vacation Rentals (including AirBnB) requirements for fire inspections					
Applicable Jurisdiction(s): County and Cities					
Primary and Support Agency(ies): Teton County Fire District, County and City P&Z's					
Applicable Goal: Reduce the potential of loss of life and injury.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
L	New	Decreased likelihood of deaths from structural fire.	$5,000	Grants, Local Budgets	2018
Hazards that will be mitigated					
Structural Fire					
Comments					

Plan Maintenance		
Year	Status	Comments
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Recommended Mitigation Actions					
Mitigation Action: Create a 50-feet fire break around industrial parks and other hazard areas					
Applicable Jurisdiction(s): County and Cities					
Primary and Support Agency(ies): Teton County Fire District, Land Owners					
Applicable Goal: Reduce the potential of loss of life and injury.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
M	New	Reduced structural fire risk	$20,000 annually	Grants, Local Budgets	ongoing
Hazards that will be mitigated					
Structural Fire, Wildfire					
Comments					

Plan Maintenance		
Year	Status	Comments
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Recommended Mitigation Actions					
Mitigation Action: Create and implement the "See something say something" public education project/campaign					
Applicable Jurisdiction(s): County and Cities					
Primary and Support Agency(ies): Emergency Management, PIO's, Schools					
Applicable Goal: Enhanced communication of risks and threats in Teton County to empower personal preparedness and responsibility.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
L	New	Increased ability to identify terrorism.	$12,000	Grants, Local Budgets	2018
Hazards that will be mitigated					
Terrorism					
Comments					

Plan Maintenance		
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2021		

Recommended Mitigation Actions					
Mitigation Action: Provide training and equipment for first responders and public employees					
Applicable Jurisdiction(s): County and Cities					
Primary and Support Agency(ies): First Responder Agencies, Emergency Management, Public Works, Schools					
Applicable Goal: Reduce the potential of loss of life and injury.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
M	New	Increased readiness	$20,000 Annually	Grants, Local Budgets	Ongoing
Hazards that will be mitigated					
Terrorism					
Comments					
Including Sovereign Citizen Movement					

Plan Maintenance		
Year	Status	Comments
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2021		

Recommended Mitigation Actions					
Mitigation Action: Expand youth outreach programs to deter youth from engaging with terrorist groups					
Applicable Jurisdiction(s): County and Cities					
Primary and Support Agency(ies): County and Cities, School District 401, churches, scouting organizations, 4H					
Applicable Goal: To preserve and enhance the quality of life throughout Teton County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage and economic losses.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
L	New	Reduce terrorism risk	$5,000 Annually	Grants, Local Budgets	Ongoing
Hazards that will be mitigated					
Terrorism					
Comments					

Plan Maintenance		
Year	Status	Comments
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2018		
2019		
2020		
2021		

Recommended Mitigation Actions					
Mitigation Action: Procure generators and switches/adaptors for critical infrastructure locations and schools					
Applicable Jurisdiction(s): County and Cities					
Primary and Support Agency(ies): City Public Works, Emergency Management, Facility Managers, Schools					
Applicable Goal: Continuity of government services and business operations					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
H	New		$2,000,000	Grants, Local Budgets	2020
Hazards that will be mitigated					
Utility Disruption					
Comments					

Plan Maintenance		
Year	Status	Comments
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2021		

Recommended Mitigation Actions					
Mitigation Action: Strengthen backbone of core by building additional redundant paths on fiber optic routes into the valley					
Applicable Jurisdiction(s): County and Cities					
Primary and Support Agency(ies): Silverstar Communication					
Applicable Goal: Continuity of government services and business operations					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
M	New	Increased resilience for utility disruption events	unknown	Grants, Budget	2021
Hazards that will be mitigated					
Utility Disruption					
Comments					

Plan Maintenance		
Year	Status	Comments
2017		
2018		
2019		
2020		
2021		

Recommended Mitigation Actions					
Mitigation Action: Provide education and outreach for critical infrastructure owners					
Applicable Jurisdiction(s): County and Cities					
Primary and Support Agency(ies): Emergency Management					
Applicable Goal: Enhanced communication of risks and threats in Teton County to empower personal preparedness and responsibility.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
M	New	Reduced impact of utility disruption events	$5,000	Grants, Local Budgets	2019
Hazards that will be mitigated					
Utility Disruption					
Comments					

Plan Maintenance		
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2020		
2021		

Recommended Mitigation Actions					
Mitigation Action: Conduct joint exercises for utility owners and jurisdictions					
Applicable Jurisdiction(s): County and Cities					
Primary and Support Agency(ies): Emergency Management, Utility Companies, County and Cities					
Applicable Goal: Improved collaboration and cooperation throughout Teton County and partnering jurisdictions.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
M	New	Increased coordination and readiness	$5,000 Annually	Grants, Local Budgets	Ongoing
Hazards that will be mitigated					
Utility Disruption					
Comments					

Plan Maintenance		
Year	Status	Comments
2017		
2018		
2019		
2020		
2021		

New Actions: City of Driggs

Recommended Mitigation Actions					
Mitigation Action: Lightning rods for Driggs springs water source					
Applicable Jurisdiction(s): City of Driggs					
Primary and Support Agency(ies): City of Driggs Public Works Department					
Applicable Goal: To preserve and enhance the quality of life throughout Teton County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage and economic losses.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
H	New	Ensure the continuous operability of this critical piece of infrastructure and reduce equipment replacement costs.	$10,000	Grants, Local Budget	2018
Hazards that will be mitigated					
Lightning					
Comments					

Plan Maintenance		
Year	Status	Comments
2017		
2018		
2019		
2020		
2021		

Recommended Mitigation Actions					
Mitigation Action: Increase the standards near the floodplain, and ensure building in the floodplain isn't allowed					
Applicable Jurisdiction(s): City of Driggs					
Primary and Support Agency(ies): City P&Z					
Applicable Goal: To preserve and enhance the quality of life throughout Teton County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage and economic losses.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
M	New	Reduced flood risk	$10,000	Grants, Local Budgets	2019
Hazards that will be mitigated					
Flooding					
Comments					

Plan Maintenance		
Year	Status	Comments
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2021		

Recommended Mitigation Actions					
Mitigation Action: Evaluate the creation of flood control districts					
Applicable Jurisdiction(s): City of Driggs					
Primary and Support Agency(ies): City P&Z					
Applicable Goal: To preserve and enhance the quality of life throughout Teton County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage and economic losses.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
M	New	Increased oversight of flood risk, and greater capacity to accomplish mitigation projects.	$4,000	Grants, Local Budgets	2025
Hazards that will be mitigated					
Flooding					
Comments					

Plan Maintenance		
Year	Status	Comments
2017		
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2021		

Recommended Mitigation Actions					
Mitigation Action: Upgrade and create storm water drainage in Driggs					
Applicable Jurisdiction(s): Driggs					
Primary and Support Agency(ies): Driggs Public Works					
Applicable Goal: To preserve and enhance the quality of life throughout Teton County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage and economic losses.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
M	New	Reduce flood risk	$2,500,000	Grants, Local Budgets	2024
Hazards that will be mitigated					
Flooding					
Comments					

Plan Maintenance		
Year	Status	Comments
2017		
2018		
2019		
2020		
2021		

New Actions: City of Tetonia

Recommended Mitigation Actions					
Mitigation Action: New headgate for Tetonia Canal and restore streambed above the headgate					
Applicable Jurisdiction(s): City of Tetonia					
Primary and Support Agency(ies): City of Tetonia Public Works, County Public Works					
Applicable Goal: To preserve and enhance the quality of life throughout Teton County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage and economic losses.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
H	New	Reduced flood risk.	$150,000	Grants, Local Budgets	2020
Hazards that will be mitigated					
Flooding					
Comments					

Plan Maintenance		
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Recommended Mitigation Actions					
Mitigation Action: Crown roads down from the canal to keep excess water on the road in Tetonia					
Applicable Jurisdiction(s): City of Tetonia					
Primary and Support Agency(ies): Tetonia Public Woks					
Applicable Goal: To preserve and enhance the quality of life throughout Teton County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage and economic losses.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
M	New	Reduced flood risk	$100,000	Grants, Local Budgets	2019
Hazards that will be mitigated					
Flooding					
Comments					
Put ditch back in east end of Central Avenue for 4 blocks west and 400 feet north, 2,500 feet of ditch or pipe.					

Plan Maintenance		
Year	Status	Comments
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2021		

Recommended Mitigation Actions					
Mitigation Action: Increase the standards near the floodplain, and ensure building in the floodplain isn't allowed					
Applicable Jurisdiction(s): City of Tetonia					
Primary and Support Agency(ies): Tetonia P&Z					
Applicable Goal: To preserve and enhance the quality of life throughout Teton County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage and economic losses.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
M	New	Reduced flood risk	$10,000	Grants, Local Budgets	2019
Hazards that will be mitigated					
Flooding					
Comments					

Plan Maintenance		
Year	Status	Comments
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2019		
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2021		

Recommended Mitigation Actions

Mitigation Action: Evaluate the creation of flood control districts

Applicable Jurisdiction(s): City of Tetonia

Primary and Support Agency(ies): City P&Z

Applicable Goal: To preserve and enhance the quality of life throughout Teton County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage and economic losses.

Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
M	New	Increased oversight of flood risk, and greater capacity to accomplish mitigation projects.	$4,000	Grants, Local Budgets	2025

Hazards that will be mitigated

Flooding

Comments

Plan Maintenance

Year	Status	Comments
2017		
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2021		

Recommended Mitigation Actions					
Mitigation Action: Initiate a storm water drainage enhancement project in Tetonia by the church on Hwy 33					
Applicable Jurisdiction(s): City of Tetonia					
Primary and Support Agency(ies): Tetonia Public Works, ITD					
Applicable Goal: To preserve and enhance the quality of life throughout Teton County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage and economic losses.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
H	New	Reduced flood risk, increased ability to use Hwy 33	$500,000	Grants, Local Budgets	2020
Hazards that will be mitigated					
Flooding					
Comments					

Plan Maintenance		
Year	Status	Comments
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Recommended Mitigation Actions					
Mitigation Action: Procure an additional water storage tank for Tetonia's municipal water system					
Applicable Jurisdiction(s): Tetonia					
Primary and Support Agency(ies): City of Tetonia					
Applicable Goal: To preserve and enhance the quality of life throughout Teton County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage and economic losses.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
H	New	Increased capacity to fight fires.	$100,000	Grants, Local Budgets	2021
Hazards that will be mitigated					
Structural Fire					
Comments					

Plan Maintenance		
Year	Status	Comments
2017		
2018		
2019		
2020		
2021		

New Actions: City of Victor

Recommended Mitigation Actions					
Mitigation Action: Increase the standards near the floodplain, and ensure building in the floodplain isn't allowed					
Applicable Jurisdiction(s): City of Victor					
Primary and Support Agency(ies): City P&Z					
Applicable Goal: To preserve and enhance the quality of life throughout Teton County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage and economic losses.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
M	New	Reduced flood risk	$10,000	Grants, Local Budgets	2019
Hazards that will be mitigated					
Flooding					
Comments					

Plan Maintenance		
Year	Status	Comments
2017		
2018		
2019		
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2021		

Recommended Mitigation Actions

Mitigation Action: Evaluate the creation of flood control districts

Applicable Jurisdiction(s): City of Victor

Primary and Support Agency(ies): City P&Z

Applicable Goal: To preserve and enhance the quality of life throughout Teton County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage and economic losses.

Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
M	New	Increased oversight of flood risk, and greater capacity to accomplish mitigation projects.	$4,000	Grants, Local Budgets	2025

Hazards that will be mitigated

Flooding

Comments

Plan Maintenance

Year	Status	Comments
2017		
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Recommended Mitigation Actions					
Mitigation Action: Replace the Trail Creek headgate					
Applicable Jurisdiction(s): County, City of Victor					
Primary and Support Agency(ies): Victor Public Works, Trail Creek Irrigation District					
Applicable Goal: To preserve and enhance the quality of life throughout Teton County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage and economic losses.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
M	New	Reduced flood risk	$30,000	Grants, Local Budgets	2020
Hazards that will be mitigated					
Flooding					
Comments					

Plan Maintenance		
Year	Status	Comments
2017		
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Ongoing Actions: County and All Cities

These ongoing actions were included in the previous version of the plan, and have yet to be completed. Some of these actions have no definitive end. During the 2016 update, these "ongoing" mitigation actions and projects were modified and/or amended, as needed, to better define the action/project.

Recommended Mitigation Actions					
Mitigation Action: Increase local adoption and use of the county's mass notification system					
Applicable Jurisdiction(s): All County and Cities					
Primary and Support Agency(ies): Teton County Sheriff's Office, Teton County					
Applicable Goal: Reduce the potential of loss of life and injury.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
H	Ongoing	Better able to warn citizens of hazards	$4,000 Annually	Grants, Local Budgets	Ongoing
Hazards that will be mitigated					
General, Severe Winter Storms					
Comments					

Plan Maintenance		
Year	Status	Comments
2017		
2018		
2019		
2020		
2021		

Recommended Mitigation Actions					
Mitigation Action: Review public codes and policies for ways to reduce risk to the public					
Applicable Jurisdiction(s): County and All Cities					
Primary and Support Agency(ies):County and City Agencies					
Applicable Goal: Incorporate hazard mitigation into all appropriate plans and policies					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
M	Ongoing	By reducing the risk to our citizens we are able to accomplish our goals of protecting lives and property.	$12,000	Grants, Local Budgets	Ongoing
Hazards that will be mitigated					
General					
Comments					

Plan Maintenance		
Year	Status	Comments
2017		
2018		
2019		
2020		
2021		

Recommended Mitigation Actions					
Mitigation Action: Procure first responder communication resources					
Applicable Jurisdiction(s): County and Cities					
Primary and Support Agency(ies): First Response Agencies and Emergency Management					
Applicable Goal: Reduce the potential of loss of life and injury.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
H	Ongoing	Coordinating emergency and disaster response is essential and will save responder and citizens lives.	$2,000,000	Grants and Local Budgets	Ongoing
Hazards that will be mitigated					
General					
Comments					

Plan Maintenance		
Year	Status	Comments
2017		
2018		
2019		
2020		
2021		

Recommended Mitigation Actions					
Mitigation Action: Designate and prepare mass care shelter sites including installing generators					
Applicable Jurisdiction(s): County and Cities					
Primary and Support Agency(ies): Emergency Management, School District 401, Red Cross					
Applicable Goal: Reduce the potential of loss of life and injury					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
L	Ongoing	By increasing our ability to shelter our citizens we will reduce the loss of life during a disaster.	$750,000	Grants, Local Budgets	2025
Hazards that will be mitigated					
Extreme Cold, Utility Disruption					
Comments					

Plan Maintenance		
Year	Status	Comments
2017		
2018		
2019		
2020		
2021		

Recommended Mitigation Actions					
Mitigation Action: Bury water/sewer lines deeper under the streets to prevent frozen main lines					
Applicable Jurisdiction(s): Cities					
Primary and Support Agency(ies): City Public Works Departments					
Applicable Goal: To preserve and enhance the quality of life throughout Teton County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage and economic losses.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
H	Ongoing	By hardening our public infrastructure we can reduce damage and costs from freezing pipes.	$12,000,000	Grants, Local Budgets	2025
Hazards that will be mitigated					
Extreme Cold					
Comments					

Plan Maintenance		
Year	Status	Comments
2017		
2018		
2019		
2020		
2021		

Recommended Mitigation Actions					
Mitigation Action: Install SCADA monitoring on city water and sewer systems					
Applicable Jurisdiction(s): Cities					
Primary and Support Agency(ies):City Public Works Departments					
Applicable Goal: To preserve and enhance the quality of life throughout Teton County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage and economic losses.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
L	Ongoing	By actively monitoring our critical infrastructure we can more quickly be aware of damage from disasters.	$900,000	Grants, Local Budgets	2020
Hazards that will be mitigated					
Extreme Cold					
Comments					

Plan Maintenance		
Year	Status	Comments
2017		
2018		
2019		
2020		
2021		

Recommended Mitigation Actions					
Mitigation Action: Create a living snow fence along the Bates-Cedron loop					
Applicable Jurisdiction(s): County					
Primary and Support Agency(ies): Private Property Owners/Road and Bridge					
Applicable Goal: Reduce the potential of loss of life and injury					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
M	Ongoing	Increased life safety and reduced road clearing costs.	$8/FT	Grants, Local Budgets	2025
Hazards that will be mitigated					
Severe Winter Storm					
Comments					

Plan Maintenance		
Year	Status	Comments
2017		
2018		
2019		
2020		
2021		

Recommended Mitigation Actions					
Mitigation Action: Create a living snow fence along Badger Creek Road					
Applicable Jurisdiction(s): County					
Primary and Support Agency(ies): Private Property Owners/Road and Bridge					
Applicable Goal:Reduce the potential of loss of life and injury.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
M	Ongoing	Increased life safety and reduced road clearing costs.	$8/FT	Grants, Local Budgets	2027
Hazards that will be mitigated					
Severe Winter Storm					
Comments					

Plan Maintenance		
Year	Status	Comments
2017		
2018		
2019		
2020		
2021		

Recommended Mitigation Actions					
Mitigation Action: Install culverts/bridges or raise roadways in flood prone areas including Badger Creek, Fox Creek and Trail Creek					
Applicable Jurisdiction(s): County and Cities					
Primary and Support Agency(ies): Public Works Departments					
Applicable Goal: To preserve and enhance the quality of life throughout Teton County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage and economic losses.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
M	Ongoing	Reduce flood risk and ensure operability of critical roadways.	$3,000,000	Grants, Local Budgets	2023
Hazards that will be mitigated					
Flooding					
Comments					

Plan Maintenance		
Year	Status	Comments
2017		
2018		
2019		
2020		
2021		

Recommended Mitigation Actions					
Mitigation Action: Conduct an assessment and identify unreinforced masonry structures in the County with specific emphasis on County, City or School District owned structures					
Applicable Jurisdiction(s): County and Cities					
Primary and Support Agency(ies): County and City Public Works, School District					
Applicable Goal: To preserve and enhance the quality of life throughout Teton County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage and economic losses.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
M	Ongoing	Increased understanding of building collapse risk for critical public buildings	$50,000	Grants, Local Budgets	2020
Hazards that will be mitigated					
Earthquake					
Comments					

Plan Maintenance		
Year	Status	Comments
2017		
2018		
2019		
2020		
2021		

Recommended Mitigation Actions					
Mitigation Action: Conduct a seismic retrofit project for critical facilities, including Driggs, Tetonia and Victor City Halls, and Victor's water storage facility, and schools					
Applicable Jurisdiction(s): County and Cities					
Primary and Support Agency(ies): City Public Works, School District 401					
Applicable Goal: To preserve and enhance the quality of life throughout Teton County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage and economic losses.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
H	Ongoing	Increased survivability for critical infrastructure	$15,000,000	Grants, Local Budgets	2027
Hazards that will be mitigated					
Earthquake					
Comments					

Plan Maintenance		
Year	Status	Comments
2017		
2018		
2019		
2020		
2021		

Recommended Mitigation Actions					
Mitigation Action: Conduct a public information campaign regarding vector borne diseases. Campaign will focus on avoidance, known vectors, and treatment					
Applicable Jurisdiction(s): County and Cities					
Primary and Support Agency(ies): Eastern Idaho Public Health, Mosquito Abatement District					
Applicable Goal: Enhanced communication of risks and threats in Teton County to empower personal preparedness and responsibility.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
L	Ongoing	Reduced risk of vector-borne disease	$2,000 Annually	Grants, Local Budgets	Ongoing
Hazards that will be mitigated					
Vector-Borne Disease					
Comments					

Plan Maintenance		
Year	Status	Comments
2017		
2018		
2019		
2020		
2021		

Recommended Mitigation Actions					
Mitigation Action: Develop wildfire fuel breaks around CRP land					
Applicable Jurisdiction(s): County and Cities					
Primary and Support Agency(ies): Teton County Fire District, Forest Service, Bureau of Land Management, Idaho Department of Lands, Land Owners					
Applicable Goal: To preserve and enhance the quality of life throughout Teton County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage and economic losses.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
M	Ongoing	Reduced wildfire risk	$300,000	Grants, Local Budgets	Ongoing
Hazards that will be mitigated					
Wildfire					
Comments					

Plan Maintenance		
Year	Status	Comments
2017		
2018		
2019		
2020		
2021		

Recommended Mitigation Actions					
Mitigation Action: Conduct fuel reduction projects in the city watershed areas					
Applicable Jurisdiction(s): County and Cities					
Primary and Support Agency(ies): Teton Fire District, City Public Works, Forest Service					
Applicable Goal: To preserve and enhance the quality of life throughout Teton County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage and economic losses.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
M	Ongoing	Reduced wildfire risk for critical infrastructure	$150,000	Grants, Local Budgets	2019
Hazards that will be mitigated					
Wildfire					
Comments					

Plan Maintenance		
Year	Status	Comments
2017		
2018		
2019		
2020		
2021		

Recommended Mitigation Actions					
Mitigation Action: Update and improve road signing and rural addressing					
Applicable Jurisdiction(s): County and Cities					
Primary and Support Agency(ies): County and City Public Works, Teton County Fire District					
Applicable Goal: To preserve and enhance the quality of life throughout Teton County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage and economic losses.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
L	Ongoing	Reduced wildfire risk	$10,000	Grants, Local Budgets	Ongoing
Hazards that will be mitigated					
Wildfire					
Comments					

Plan Maintenance		
Year	Status	Comments
2017		
2018		
2019		
2020		
2021		

Recommended Mitigation Actions					
Mitigation Action: Improve access to Wildland Urban Interface areas by improving roads and bridges					
Applicable Jurisdiction(s): County and Cities					
Primary and Support Agency(ies): Teton County Fire Protection District, Forest Service, County Road & Bridge					
Applicable Goal: To preserve and enhance the quality of life throughout Teton County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage and economic losses.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
M	Ongoing	Increased capacity to respond to wildfire incidents	$3,000,000	Grants, Local Budgets	Ongoing
Hazards that will be mitigated					
Wildfire					
Comments					

Plan Maintenance		
Year	Status	Comments
2017		
2018		
2019		
2020		
2021		

Recommended Mitigation Actions					
Mitigation Action: Develop a standard for roadside vegetation management					
Applicable Jurisdiction(s): County and Cities					
Primary and Support Agency(ies): Weed Supervisor, County and City Public Works, ITD, Teton County Fire District					
Applicable Goal: To preserve and enhance the quality of life throughout Teton County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage and economic losses.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
L	Ongoing	Reduced wildfire risk	$10,000	Grants, Local Budgets	2018
Hazards that will be mitigated					
Wildfire					
Comments					

Plan Maintenance		
Year	Status	Comments
2017		
2018		
2019		
2020		
2021		

Recommended Mitigation Actions					
Mitigation Action: Develop a free smoke detector program					
Applicable Jurisdiction(s): County, Cities					
Primary and Support Agency(ies): Teton County Fire District					
Applicable Goal: Reduce the potential of loss of life and injury					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
M	Ongoing	Reduced loss of life from fire	$50,000	Grants, Local Budgets	2017
Hazards that will be mitigated					
Structural Fire					
Comments					

Plan Maintenance		
Year	Status	Comments
2017		
2018		
2019		
2020		
2021		

Recommended Mitigation Actions					
Mitigation Action: Encourage businesses and homeowners to install smoke detectors					
Applicable Jurisdiction(s): County and City					
Primary and Support Agency(ies): Teton County Fire District, Red Cross					
Applicable Goal: Reduce the potential of loss of life and injury.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
H	Ongoing	Increased self-preparedness	$5,000	Grants, Local Budgets	Ongoing
Hazards that will be mitigated					
Structural Fire					
Comments					

Plan Maintenance		
Year	Status	Comments
2017		
2018		
2019		
2020		
2021		

Recommended Mitigation Actions					
Mitigation Action: Improve fire water flow on municipal water systems					
Applicable Jurisdiction(s): Cities					
Primary and Support Agency(ies): Teton County Fire District, City Public Works Departments					
Applicable Goal: To preserve and enhance the quality of life throughout Teton County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage and economic losses.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
M	Ongoing	Increased capacity to fight fires.	$12,000,000	Grants, Local Budgets	Ongoing
Hazards that will be mitigated					
Structural Fire					
Comments					

Plan Maintenance		
Year	Status	Comments
2017		
2018		
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2021		

Recommended Mitigation Actions					
Mitigation Action: Increase fire water resources in needed areas					
Applicable Jurisdiction(s): County					
Primary and Support Agency(ies): Teton County Fire District, County and City P&Z's, Land Owners					
Applicable Goal: To preserve and enhance the quality of life throughout Teton County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage and economic losses.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
M	Ongoing	Increased capacity to fight fires.	$250,000	Grants, Local Budgets	Ongoing
Hazards that will be mitigated					
Structural Fire					
Comments					

Plan Maintenance		
Year	Status	Comments
2017		
2018		
2019		
2020		
2021		

Recommended Mitigation Actions					
Mitigation Action: Harden potential critical infrastructure targets to make them less desirable for terrorists to attack					
Applicable Jurisdiction(s): County and Cities					
Primary and Support Agency(ies): County and City critical infrastructure owners, Emergency Management					
Applicable Goal: Reduce the potential of loss of life and injury.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
L	Ongoing	Decreased terrorism risk	$8,000,000	Grants, Local Budgets	Ongoing
Hazards that will be mitigated					
Terrorism					
Comments					

Plan Maintenance		
Year	Status	Comments
2017		
2018		
2019		
2020		
2021		

Ongoing Actions: City of Driggs

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 2016 update, these "ongoing" mitigation actions and projects were modified and/or amended, as needed, to better define the action/project.

Recommended Mitigation Actions					
Mitigation Action: Review public codes and policies for ways to reduce risk to the public					
Applicable Jurisdiction(s): City of Driggs					
Primary and Support Agency(ies):City P&Z					
Applicable Goal: Incorporate hazard mitigation into all appropriate plans and policies					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
M	Ongoing	By reducing the risk to our citizens we are able to accomplish our goals of protecting lives and property.	$12,000	Grants, Local Budgets	Ongoing
Hazards that will be mitigated					
General					
Comments					

Plan Maintenance		
Year	Status	Comments
2017		
2018		
2019		
2020		
2021		

Recommended Mitigation Actions					
Mitigation Action: Bury water/sewer lines deeper under the streets to prevent frozen main lines					
Applicable Jurisdiction(s): City of Driggs					
Primary and Support Agency(ies): Driggs Public Works Departments					
Applicable Goal: To preserve and enhance the quality of life throughout Teton County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage and economic losses.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
H	Ongoing	By hardening our public infrastructure we can reduce damage and costs from freezing pipes.	$12,000,000	Grants, Local Budgets	2025
Hazards that will be mitigated					
Extreme Cold					
Comments					

Plan Maintenance		
Year	Status	Comments
2017		
2018		
2019		
2020		
2021		

Recommended Mitigation Actions

Mitigation Action: Install SCADA monitoring on city water and sewer systems

Applicable Jurisdiction(s): City of Driggs

Primary and Support Agency(ies): Driggs Public Works Departments

Applicable Goal: To preserve and enhance the quality of life throughout Teton County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage and economic losses.

Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
L	Ongoing	By actively monitoring our critical infrastructure we can more quickly be aware of damage from disasters.	$900,000	Grants, Local Budgets	2020

Hazards that will be mitigated

Extreme Cold

Comments

Plan Maintenance

Year	Status	Comments
2017		
2018		
2019		
2020		
2021		

Recommended Mitigation Actions					
Mitigation Action: Analyze the alluvial fan flooding potential, including east of Driggs. Map these areas and evaluate the level of development that should be allowed.					
Applicable Jurisdiction(s): City of Driggs					
Primary and Support Agency(ies): City P&Z					
Applicable Goal: To preserve and enhance the quality of life throughout Teton County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage and economic losses.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
M	Ongoing	Better understanding of flood risk.	$50,000	Grants, Local Budgets	2021
Hazards that will be mitigated					
Flooding, Landslide/Mudslide					
Comments					

Plan Maintenance		
Year	Status	Comments
2017		
2018		
2019		
2020		
2021		

Recommended Mitigation Actions					
Mitigation Action: Update aging water and sewer lines to current seismic standards					
Applicable Jurisdiction(s): City of Driggs					
Primary and Support Agency(ies): Driggs Public Works					
Applicable Goal: To preserve and enhance the quality of life throughout Teton County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage and economic losses.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
M	Ongoing	Increased survivability of critical infrastructure.	$10,000,000	Grants, Local Budgets	2025
Hazards that will be mitigated					
Earthquake					
Comments					

Plan Maintenance		
Year	Status	Comments
2017		
2018		
2019		
2020		
2021		

Ongoing Actions: City of Tetonia

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 2016 update, these "ongoing" mitigation actions and projects were modified and/or amended, as needed, to better define the action/project.

Recommended Mitigation Actions					
Mitigation Action: Review public codes and policies for ways to reduce risk to the public					
Applicable Jurisdiction(s): City of Tetonia					
Primary and Support Agency(ies):City P&Z					
Applicable Goal: Incorporate hazard mitigation into all appropriate plans and policies					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
M	Ongoing	By reducing the risk to our citizens we are able to accomplish our goals of protecting lives and property.	$12,000	Grants, Local Budgets	Ongoing
Hazards that will be mitigated					
General					
Comments					

Plan Maintenance		
Year	Status	Comments
2017		
2018		
2019		
2020		
2021		

Recommended Mitigation Actions					
Mitigation Action: Bury water/sewer lines deeper under the streets to prevent frozen main lines					
Applicable Jurisdiction(s): City of Tetonia					
Primary and Support Agency(ies): City Public Works Department					
Applicable Goal: To preserve and enhance the quality of life throughout Teton County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage and economic losses.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
H	Ongoing	By hardening our public infrastructure we can reduce damage and costs from freezing pipes.	$12,000,000	Grants, Local Budgets	2025
Hazards that will be mitigated					
Extreme Cold					
Comments					

Plan Maintenance		
Year	Status	Comments
2017		
2018		
2019		
2020		
2021		

Recommended Mitigation Actions

Mitigation Action: Install SCADA monitoring on city water and sewer systems

Applicable Jurisdiction(s): City of Tetonia

Primary and Support Agency(ies):City Public Works Department

Applicable Goal: To preserve and enhance the quality of life throughout Teton County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage and economic losses.

Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
L	Ongoing	By actively monitoring our critical infrastructure we can more quickly be aware of damage from disasters.	$900,000	Grants, Local Budgets	2020

Hazards that will be mitigated

Extreme Cold

Comments

Plan Maintenance

Year	Status	Comments
2017		
2018		
2019		
2020		
2021		

Recommended Mitigation Actions					
Mitigation Action: Create a living snow fence between Newdale and Tetonia					
Applicable Jurisdiction(s): County and City of Tetonia					
Primary and Support Agency(ies): Private Property Owners/Emergency Management, ITD					
Applicable Goal: Reduce the potential of loss of life and injury.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
M	Ongoing	Increased life safety and reduced road clearance costs.	$8/FT	Grants, Local Budgets	2030
Hazards that will be mitigated					
Severe Winter Storm					
Comments					

Plan Maintenance		
Year	Status	Comments
2017		
2018		
2019		
2020		
2021		

Recommended Mitigation Actions					
Mitigation Action: Cities will analyze the need to participate in the NFIP					
Applicable Jurisdiction(s): City of Tetonia					
Primary and Support Agency(ies): City Council, City P&Z					
Applicable Goal: To preserve and enhance the quality of life throughout Teton County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage and economic losses.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
M	Ongoing	Reduce financial impact of flooding	$25,000	Grants, Local Budgets	2018
Hazards that will be mitigated					
Flooding					
Comments					

Plan Maintenance		
Year	Status	Comments
2017		
2018		
2019		
2020		
2021		

Recommended Mitigation Actions					
Mitigation Action: Install a city-wide storm drainage system in Tetonia					
Applicable Jurisdiction(s): City of Tetonia					
Primary and Support Agency(ies): Tetonia Public Works					
Applicable Goal: To preserve and enhance the quality of life throughout Teton County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage and economic losses.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
M	Ongoing	Reduce flood risk for the City.	$6,000,000	Grants, Local Budgets	2023
Hazards that will be mitigated					
Flooding					
Comments					

Plan Maintenance		
Year	Status	Comments
2017		
2018		
2019		
2020		
2021		

Recommended Mitigation Actions					
Mitigation Action: Update aging water and sewer lines to current seismic standards					
Applicable Jurisdiction(s): City of Tetonia					
Primary and Support Agency(ies): Tetonia Public Works					
Applicable Goal: To preserve and enhance the quality of life throughout Teton County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage and economic losses.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
M	Ongoing	Increased survivability of critical infrastructure.	$10,000,000	Grants, Local Budgets	2025
Hazards that will be mitigated					
Earthquake					
Comments					

Plan Maintenance		
Year	Status	Comments
2017		
2018		
2019		
2020		
2021		

Ongoing Actions: City of Victor

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 2016 update, these "ongoing" mitigation actions and projects were modified and/or amended, as needed, to better define the action/project.

Recommended Mitigation Actions					
Mitigation Action: Review public codes and policies for ways to reduce risk to the public					
Applicable Jurisdiction(s): City of Victor					
Primary and Support Agency(ies): City P&Z					
Applicable Goal: Incorporate hazard mitigation into all appropriate plans and policies					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
M	Ongoing	By reducing the risk to our citizens we are able to accomplish our goals of protecting lives and property.	$12,000	Grants, Local Budgets	Ongoing
Hazards that will be mitigated					
General					
Comments					

Plan Maintenance		
Year	Status	Comments
2017		
2018		
2019		
2020		
2021		

Recommended Mitigation Actions					
Mitigation Action: Bury water/sewer lines deeper under the streets to prevent frozen main lines					
Applicable Jurisdiction(s): City of Victor					
Primary and Support Agency(ies): Victor Public Works					
Applicable Goal: To preserve and enhance the quality of life throughout Teton County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage and economic losses.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
H	Ongoing	By hardening our public infrastructure we can reduce damage and costs from freezing pipes.	$12,000,000	Grants, Local Budgets	2025
Hazards that will be mitigated					
Extreme Cold					
Comments					

Plan Maintenance		
Year	Status	Comments
2017		
2018		
2019		
2020		
2021		

Recommended Mitigation Actions

Mitigation Action: Install SCADA monitoring on city water and sewer systems

Applicable Jurisdiction(s): City of Victor

Primary and Support Agency(ies): Victor Public Works

Applicable Goal: To preserve and enhance the quality of life throughout Teton County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage and economic losses.

Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
L	Ongoing	By actively monitoring our critical infrastructure we can more quickly be aware of damage from disasters.	$900,000	Grants, Local Budgets	2020

Hazards that will be mitigated

Extreme Cold

Comments

Plan Maintenance

Year	Status	Comments
2017		
2018		
2019		
2020		
2021		

Recommended Mitigation Actions					
Mitigation Action: Conduct storm water piping augmentation in Victor at Main and Cedron					
Applicable Jurisdiction(s): City of Victor					
Primary and Support Agency(ies): Victor Public Works, ITD					
Applicable Goal: To preserve and enhance the quality of life throughout Teton County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage and economic losses.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
M	Ongoing	Reduce flood risk	$75,000	Grants, Local Budgets	2017
Hazards that will be mitigated					
Flooding					
Comments					

Plan Maintenance		
Year	Status	Comments
2017		
2018		
2019		
2020		
2021		

Recommended Mitigation Actions					
Mitigation Action: Update aging water and sewer lines to current seismic standards					
Applicable Jurisdiction(s): City of Victor					
Primary and Support Agency(ies): Victor Public Works					
Applicable Goal: To preserve and enhance the quality of life throughout Teton County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage and economic losses.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
M	Ongoing	Increased survivability of critical infrastructure.	$10,000,000	Grants, Local Budgets	2025
Hazards that will be mitigated					
Earthquake					
Comments					

Plan Maintenance		
Year	Status	Comments
2017		
2018		
2019		
2020		
2021		

Completed Actions

1. Badger Creek Bridge on W 10000 N
2. Hardening the Emergency Operations Center
3. Raising the road and improving culverts on W 10000 N and W 3000 N
4. Replacing the bridge on 2000 E
5. Box culvert on State Line Road
6. New culverts on bike path
7. Increase capacity of Wastewater Treatment Facility for Driggs

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Section 7: Plan Integration

Many of the strategy recommendations in the previous section have relationships to other plans and policies for which coordination, integration and consistency is vital. These related plans tend to fall within the following general categories:

- Local capital improvements plans and other budget documents. Most notable are infrastructure projects, such as those related to stormwater systems, water supplies, warning sirens, and communications equipment, which may be considered as part of local budgets. For instance, since the previous Plan, road and flood mitigation improvements have been made in some areas which may have addressed past flooding concerns.
- Regulations, agreements, and related procedures. These strategies are primarily identified in the policy strategies. Amendments can often be performed in concert with other ordinance updates. Some related actions may be accomplished procedurally without an ordinance amendment.
- Existing emergency operating or response plans. The County continues to update their emergency plans and procedures. County Emergency Management and other County offices will also work cooperatively with stakeholders regarding plans, procedures, and grant applications related to the issues identified within this plan.

Mitigation planning is on a different schedule than comprehensive planning, with most comprehensive plans likely to be updated no more frequently than once per decade.

While the mitigation plan was not specifically referenced in most participant plans, some of the mitigation recommendations are included as comprehensive plan policies.

Stormwater management and emergency services are other common themes in many local comprehensive plans. Even so, greater effort is needed to ensure that the hazard mitigation plan is considered during other local planning efforts, and vice versa.

As the mitigation plan strategies reflect, Teton County will continue to work with County Planning and Zoning and local municipalities to encourage coordination and consistency between comprehensive planning and the hazard mitigation plan, and provide instruction on how to incorporate mitigation strategies into their comprehensive plans and other planning mechanisms.

Since key County staff were actively involved in the development and update of the County mitigation plan, many of the mitigation strategies are based on staff recommendations and give confidence that a high level of coordination between these various planning efforts will continue.

Plans/Regulations that will be Integrated with the Mitigation Plan

Plan Integration
Teton County Comprehensive Plan 2012
Teton County Economic Development Plan May 2013
State of Idaho Mitigation Plan 2013
City of Tetonia Title 8 Building Regulations
City of Tetonia Comprehensive Plan 2009
City of Victor Title 7 Building Code

City of Victor Title 10 Land Use Code
Floodplain Ordinance: City of Victor Municipal Code Title 11, Flood Control
Land Use Ordinance: City of Victor Municipal Code Title 10, Zoning.
City of Victor Comprehensive Plan
City of Victor Transportation Plan
Driggs Ordinance 252-05 (Building Codes) has adopted the IBC and IRC 2012 and each successive version upon adoption by the State of Idaho
Driggs Flood Damage Prevention Ordinance 317-10 (adopted as City Code Title 11)
Driggs Resolution 230-07 Comprehensive Plan- Ch 12 Hazardous Areas

This section examines the relationship between the participating jurisdictions Comprehensive Plan, Land Use or Zoning Ordinances, and the AHMP. 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 risk to property owners can be reduced and future disaster related economic losses avoided. Land Use and Mitigation Planning Integration are seen as critical components of the mitigation program in Teton County.

The Teton County Comprehensive Plan was developed during 2001-2004 and most recently amended in 2012. As written, this plan incorporates, through policy and implementation goals, a vast majority of the issues and actions identified as part of the Teton County Multi-Jurisdiction All Hazard Mitigation Planning effort. If implemented as planned, both the County Comprehensive Plan and the All Hazard Mitigation Plan will act as complementary guidance documents to improve the safety of Teton County communities and will reduce the potential damage that can be expected from the profiled hazards in this Plan.

It is recommended that the Emergency Manager, the Planning and Zoning Administrator, the County Road and Bridge Supervisor, and the Fire District continue to work closely together to realize the success envisioned in the goals, policies, and implementation actions defined in these two complementary documents. The integration of land use planning between the County and the Cities appears to be outstanding.

City of Driggs

The City of Driggs has an excellent Land Use Planning Department. Their Comprehensive Plan, last updated in 2007, is fully aligned with this AHMP. They have very strong land use planning goals and objectives and have addressed those hazards that are potential risks to the jurisdiction including seismic, flooding, and wildfire. Their Land Use ordinances take into account building in hazard prone areas and they have adopted the International Building Code for all new construction and remodels in the City. There are no recommendations for improvements as part of this review process.

City of Victor

The City of Victor updated their Comprehensive Plan in 2006. The Plan's goals and objectives are compatible with this AHMP. Their hazard section addresses the hazards posed to their jurisdiction appropriately. The subdivision ordinances address building in hazard prone areas and they use the International Building Code to govern construction in the City. The hazards that they

focus on are flooding, seismic, landslides, and wildfire. There are no recommendations for improvements as part of this review.

City of Tetonia

The City of Tetonia adopted the latest revision of the City's Comprehensive Plan in 2010. For a small jurisdiction the Comprehensive Plan is outstanding and is completely aligned with this AHMP. The goals and objectives are appropriate to protect against those risks posed by the hazards located in the City. The subdivision ordinances reflect hazard control. There are no recommendations for improvement as part of this review.

The following represents identified mitigation actions that relate to the County's effort to integrate planning.

Recommended Mitigation Actions					
Mitigation Action: Review public codes and policies for ways to reduce risk to the public					
Applicable Jurisdiction(s): County and All Cities					
Primary and Support Agency(ies):County and City Agencies					
Applicable Goal: Incorporate hazard mitigation into all appropriate plans and policies					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
	Ongoing	By reducing the risk to our citizens we are able to accomplish our goals of protecting lives and property.	$12,000	Grants, Local Budgets	Ongoing
Hazards that will be mitigated					
General					

Recommended Mitigation Actions					
Mitigation Action: Increase the standards near the floodplain, and ensure building in the floodplain isn't allowed					
Applicable Jurisdiction(s): County and Cities					
Primary and Support Agency(ies): County and City P&Z					
Applicable Goal: To preserve and enhance the quality of life throughout Teton County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage and economic losses.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
	New	Reduced flood risk	$10,000	Grants, Local Budgets	2019
Hazards that will be mitigated					
Flooding					

Recommended Mitigation Actions					
Mitigation Action: Evaluate building codes and ensure they are adequate for our wind hazard rating					
Applicable Jurisdiction(s): County and Cities					
Primary and Support Agency(ies): County and City P&Z, Building Inspectors					
Applicable Goal: Incorporate hazard mitigation into all appropriate plans and policies.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
	New		$2,000	Grants, Local Budgets	2018
Hazards that will be mitigated					
High Wind Incident					

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Section 8: Plan Maintenance

Plan Maintenance

The Teton County AHMP 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 Management Coordinator 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 Coordinator of Emergency Management 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 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, success of coordination efforts, and which strategies should be revised or removed.

The Coordinator or designee will be responsible for ensuring the updating of the Plan. The Coordinator will also notify all holders of the Plan 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

Teton County Emergency Management is dedicated to involving the public directly in the review and updates of the Plan. The Coordinator 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.

Public meetings will be held when deemed necessary by the Coordinator. 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 the public meetings and maintain public involvement.

To further facilitate continued public involvement in the planning process, Teton County will ensure that:

- Copies of the plan will be catalogued and kept on hand at all public libraries. Teton County Emergency Management will keep a copy of the plan on hand at their office for review and comment by the public.
- Teton County Emergency Management will conduct outreach after a disaster event to remind members of the importance of mitigation and to solicit mitigation ideas to be included in the plan.
- A public meeting will be held annually to provide the public with a forum for discussing concerns, opinions, and ideas with the Mitigation Steering Committee.

Monitoring, Evaluation, and Updating the Plan

To ensure the County All Hazard Mitigation Plan continues to provide an appropriate path for risk reduction throughout the County, it is necessary to regularly evaluate and update it. Teton County Emergency Management will be responsible for monitoring the status of the plan and gathering appropriate parties to report of the status of Mitigation Actions. The County Mitigation Steering Committee will convene on an annual basis to determine the progress of the identified mitigation actions. The Mitigation Steering Committee will also be an active participant in the next plan update. As the County All Hazard Mitigation Plan matures, new stakeholders will be identified and encouraged to join the existing Mitigation Steering Committee.

Teton County Emergency Management is responsible for contacting committee members and organizing the annual meeting. The Committee's responsibilities include:

- 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 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.
- Reassess the plan in light of any major hazard event. The committee will convene within 45 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.
- Review the hazard mitigation plan in connection to other plans, projects, developments, and other significant initiatives.
- 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.

The Five Year Action Plan

This section outlines the implementation agenda that the Mitigation Committee should follow five years following adoption of this plan, and then every five years thereafter. The Mitigation Steering Committee, led by Teton County Emergency Management, is responsible to ensure the All Hazard Mitigation Plan is updated every five years.

The 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 Mitigation Steering Committee within 45 days of a disaster or emergency to determine what mitigation projects should be prioritized during the community recovery). If an emergency meeting of the Mitigation Steering Committee occurs, this proposed schedule may be altered to fit any new needs.

Year 0:

- **2016:** Update All Hazards Mitigation Plan, including a series of Mitigation Steering Committee meetings & Public meetings. Submit 2016 All Hazards Mitigation Plan for FEMA approval.
- **February 2016 – July, 2016:** Work on Mitigation Actions, Teton County Emergency Management to stay in contact with lead departments to keep tabs on project status.

Year 1:

- **June – July, 2017:** Prepare for and promote first annual Plan Review and Public meetings.
- **August, 2017:** Reconvene Committee for first annual Mitigation Steering Committee meeting. Introduce the concept of Mitigation Plan Integration with other planning documents. Host first annual Public meeting.
- **September, 2017 – July 2018:** Work on Mitigation Actions, Teton County Emergency Management to stay in contact with lead departments to keep tabs on project status. Encourage plan integration efforts.

Year 2:

- **June – July, 2018:** Prepare for and promote second annual Plan Review and Public meetings.
- **August, 2018:** Reconvene Committee for second annual Mitigation Steering Committee meeting. Review plan integration efforts. Host second annual Public meeting.
- **September, 2018 – July 2019:** Work on Mitigation Actions, Teton County Emergency Management to stay in contact with lead departments to keep tabs on project status. Encourage plan integration efforts.

Year 3:

- **June – July, 2019:** Prepare for and promote third annual Plan Review and Public meetings.
- **August, 2019:** Reconvene Committee for third annual Mitigation Steering Committee meeting. Review plan integration efforts. Host second annual Public meeting.

- **September, 2019 – July 2020:** Work on Mitigation Actions, Teton County Emergency Management to stay in contact with lead departments to keep tabs on project status. Encourage plan integration efforts.

Year 4:

- **June – July, 2020:** Prepare for and promote fourth annual Plan Review and Public meetings.
- **August, 2020:** Reconvene Committee for fourth annual Mitigation Steering Committee meeting. Review plan integration efforts. Host fourth annual Public meeting.
- **September, 2020 – July 2021:** Work on Mitigation Actions, Teton County Emergency Management to stay in contact with lead departments to keep tabs on project status. Encourage plan integration efforts.

Year 5:

- **January - July 2021:** Update 2016 All Hazards Mitigation Plan, including a series of Mitigation Steering Committee meetings & Public meetings.
- **August, 2021:** Submit 2020 All Hazards Mitigation Plan for FEMA approval. Repeat.

Annual Mitigation Steering Committee Meetings

During each annual Mitigation Steering Committee meeting, the Committee will be responsible for a brief evaluation of the 2016 All Hazards 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 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?

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.

Implementation through Existing 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, Teton County Emergency Management 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.

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Attachment I: NFIP

The following jurisdictions participate in NFIP.

Jurisdiction	NFIP Status			
	Yes	No	Comment	Community Rating System (CRS)
Teton County, Idaho	X			No
Victor, Idaho	X			No
Driggs, Idaho	X			No

Jurisdiction	Active Policies	Total Premium	Average Premium
Teton County, Idaho	77	$53,103	$690
Victor, Idaho	3	$2,858	$953

The City of Tetonia will investigate the need to participate in NFIP. The action associated with this objective is scheduled to be completed by 2018.

Mitigation Actions Applicable to NFIP

The following mitigation actions apply directly and indirectly to NFIP related activities.

Recommended Mitigation Actions					
Mitigation Action: Crown roads down from canal to keep excess water on road in Tetonia					
Applicable Jurisdiction(s): City of Tetonia					
Primary and Support Agency(ies): Tetonia Public Woks					
Applicable Goal: To preserve and enhance the quality of life throughout Teton County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage and economic losses.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
	New	Reduced flood risk	$100,000	Grants, Local Budgets	2019

Recommended Mitigation Actions					
Mitigation Action: Increase the standards near the floodplain, and ensure building in the floodplain isn't allowed					
Applicable Jurisdiction(s): County and Cities					
Primary and Support Agency(ies): County and City P&Z					
Applicable Goal: To preserve and enhance the quality of life throughout Teton County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage and economic losses.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
	New	Reduced flood risk	$10,000	Grants, Local Budgets	2019

Recommended Mitigation Actions					
Mitigation Action: Evaluate the creation of flood control districts					
Applicable Jurisdiction(s): County, Cities					
Primary and Support Agency(ies):BOCC, Cities					
Applicable Goal: To preserve and enhance the quality of life throughout Teton County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage and economic losses.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
	New	Increased oversight of flood risk, and greater capacity to accomplish mitigation projects.	$4,000	Grants, Local Budgets	2025

Recommended Mitigation Actions					
Mitigation Action: Replace the Trail Creek headgate					
Applicable Jurisdiction(s): County, City of Victor					
Primary and Support Agency(ies): Victor Public Works, Trail Creek Irrigation District					
Applicable Goal: To preserve and enhance the quality of life throughout Teton County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage and economic losses.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
	New	Reduced flood risk	$30,000	Grants, Local Budgets	

Recommended Mitigation Actions					
Mitigation Action: Conduct storm water piping augmentation in Victor at Main and Cedron					
Applicable Jurisdiction(s): City of Victor					
Primary and Support Agency(ies): Victor Public Works, ITD					
Applicable Goal: To preserve and enhance the quality of life throughout Teton County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage and economic losses.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
	Ongoing	Reduce flood risk	$75,000	Grants, Local Budgets	2017

Recommended Mitigation Actions					
Mitigation Action: Conduct a storm water drainage enhancement project in Tetonia by the church on Hwy 33					
Applicable Jurisdiction(s): City of Tetonia					
Primary and Support Agency(ies): Tetonia Public Works, ITD					
Applicable Goal: To preserve and enhance the quality of life throughout Teton County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage and economic losses.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
	New	Reduced flood risk, increased ability to use Hwy 33	$500,000	Grants, Local Budgets	2020

Recommended Mitigation Actions					
Mitigation Action: Install gauging and alarming equipment at critical areas in the flood plain and streams					
Applicable Jurisdiction(s): County and Cities					
Primary and Support Agency(ies): County, Emergency Management, Flood Control District, Friends of the Teton River,					
Applicable Goal: To preserve and enhance the quality of life throughout Teton County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage and economic losses.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
	New	Increased ability to monitor flooding	$150,000	Grants, Local Budgets	2020

Recommended Mitigation Actions					
Mitigation Action: Cities will analyze the need to participate in the NFIP					
Applicable Jurisdiction(s): Tetonia					
Primary and Support Agency(ies): City Councils, City P&Z's					
Applicable Goal: To preserve and enhance the quality of life throughout Teton County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage and economic losses.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
	Ongoing	Reduced financial flood losses	$25,000	Grants, Local Budgets	2018

Recommended Mitigation Actions					
Mitigation Action: Analyze the alluvial fan flooding potential, including east of Driggs. Map them and evaluate the level of development that should be allowed there.					
Applicable Jurisdiction(s): County, Cities					
Primary and Support Agency(ies): Driggs, County					
Applicable Goal: To preserve and enhance the quality of life throughout Teton County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage and economic losses.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
	Ongoing	Better understanding of flood risk.	$50,000	Grants, Local Budgets	2021

Recommended Mitigation Actions					
Mitigation Action: Install a city-wide storm drainage system in Tetonia					
Applicable Jurisdiction(s): Tetonia					
Primary and Support Agency(ies): Tetonia Public Works					
Applicable Goal: To preserve and enhance the quality of life throughout Teton County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage and economic losses.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
	Ongoing	Reduce flood risk for the City.	$6,000,000	Grants, Local Budgets	2023

Recommended Mitigation Actions					
Mitigation Action: Upgrade and create storm water drainage in Driggs					
Applicable Jurisdiction(s): Driggs					
Primary and Support Agency(ies): Driggs Public Works					
Applicable Goal: To preserve and enhance the quality of life throughout Teton County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage and economic losses.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
	Ongoing	Reduce flood risk	$2,500,000	Grants, Local Budgets	2024

Recommended Mitigation Actions					
Mitigation Action: Replace bridge on 1000 E. And 3500 S.					
Applicable Jurisdiction(s): County					
Primary and Support Agency(ies): County Public Works					
Applicable Goal: To preserve and enhance the quality of life throughout Teton County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage and economic losses.					
Priority	2016 Status	Benefit to County or City	Est. Cost	Funding Source	Target Completion Date
	New	Reduce flood risk and maintain critical roadway	$400,000	Grants, Local Budgets	2025

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Attachment II: Wildfire Mitigation Plan

2016

IDAHO

TETON COUNTY

TETON

WILDFIRE PROTECTION PLAN

ESTABLISHED 1915

TETON COUNTY

STATE OF IDAHO

Wildfire Protection Plan

PLAN ADOPTION

Adoption by the Teton County Commissioners

Bill Leake, Teton County Commissioner — Date: 2/15/16

Kelly Park, Teton County Commissioner — Date: 2/18/16

Cindy Riegel, Teton County Commissioner — Date: 2/17/16

Adoption by the Teton County Fire Commissioners

Jason Letham, Teton Co. Fire Commissioner — Date: 2/4/16

Scott Golden, Teton Co. Fire Commissioner — Date: 2/4/16

Kent Wagener, Teton Co. Fire Commissioner — Date: 2/10/16

Approval by Federal Fire Partner

Martell Gibbons, South Fork Zone Operations AFMO — Date: 2/16/2016

Approval by Idaho Department of Lands

Tyre Holfeltz, Community Fire Program Mgr. — Date: 3-21-16

EXECUTIVE SUMMARY

Teton County Wildfire Protection Plan Objective

The objective of the Teton County Wildfire Protection Plan (TCWPP) is to identify and prioritize hazards and needs associated with wildfire within Teton County. This objective will be accomplished by public and official participation in identifying and documenting areas at risk from wildfire. Actions identified to decrease wildfire hazards and risk within Teton County are focused on public safety, emergency services, county infrastructure, natural resources, and property protection. Additionally, this plan should provide Teton County residents, public and private organizations with assistance and recommendations to reduce risk and hazards brought about by wildfires within Teton County. Action items are focused on wildfire mitigation and as appropriate, all hazard mitigation.

Wildfire Plan Development and Organization

The TCWPP will tier to the Idaho State Implementation Strategy for the National Fire Plan. Development and review of the plan was accomplished by the Teton County Wildfire Group (TCWFG).

Participation in the TCWFG included representatives from:

- Teton County Commissioners
- Teton County GIS
- Teton County Planning and Zoning
- Teton County Emergency Management
- Teton County Assessor
- Teton County Fire Protection District
- Teton County Fire Fighters
- Teton County Fire Protection District Fire Chief
- Teton County Sheriff's Office
- Teton County Local Emergency Planning Committee
- Idaho Bureau of Homeland Security
- Idaho Department of Lands
- High Country Resource Conservation & Development
- Idaho Fish and Game Department
- County Residents and Land owners
- Bureau of Land Management, Idaho Falls District
- U.S. Forest Service, Caribou-Targhee National Forest

Public participation was integrated by utilizing questionnaires that address wildfire concerns and suggestions, participation by homeowners, landowners, and one public open house, information and data from community hazard identification, and mitigation reports conducted within Teton County by Teton County Fire District and the Bureau of Land Management & the U.S. Forest Service.

Teton County Wildfire Protection Plan Priorities

The priorities of the plan were developed by the Teton County Wildfire Group and are standard priorities for most risk assessments, hazard reduction activities and wildfire incidents.

- **Protection of Life**: Identify and provide mitigation recommendations for areas of high wildfire risks that are in or adjacent to homes and communities, and improve critical county infrastructure facilities.

- **Protection of Property**: Identify and provide mitigation recommendations for properties of moderate and high wildfire risk. Increase public awareness through education, training, and information sharing that addresses wildfire risks and mitigation measures.

- **Protection of Resources**: Identify resources that are at risk from wildfire and implement natural resource planning to protect these resources.

- **Improve Wildfire Emergency Services**: Improve county infrastructure and wildfire emergency service planning, training, communications, and equipment.

- **Increase Public Awareness of Wildfire Prevention**: Increase public awareness of Firewise practices and wildfire prevention through education, training, and information sharing.

- **Improve Partnerships for Implementation**: Utilize partnerships currently established and develop additional participation with State, Federal, and private organizations.

Teton County Wildfire Protection Plan Recommendations

The recommendations developed for Teton County's Wildfire Protection Plan are presented by Teton County Wildfire Group and are located on private, State and Federal land within the county. The recommendations have received input and review by all members of the TCWFG. The recommendations are formulated as "**Action Items**" for this plan.

Action Item Organization

The tabulated action items presented in Tables 4.1-4.5 include a short explanation to meet the stated objectives. The tables also describe the timeframe, hazard type, and coordinating organization for each item.

The action items primarily address wildfire hazards; however, numerous action items will also mitigate other emergency situations.

Organizational Collaboration for the TCWPP includes private land owners, communities, county, state, and federal agencies that have regulatory, programmatic, stewardship or oversight responsibilities and that can provide expertise, assistance, coordination, and organization for action item implementation.

Teton County Wildfire Protection Plan Adoption

As the administrators of the TCWPP, the Teton County Board of Fire Commissioners has the responsibility to adopt the plan. Final signature authority is provided by the Teton County Commissioners.

Plan Maintenance

The plan maintenance section includes recommendations for annual plan review, and monitoring. An annual re-evaluation of priorities for action items and progress is also recommended. A total plan revision should be completed every five years. This plan maintenance will be directed by the Teton County Fire Commissioners, and coordinated with the Teton County Fire Chief, Teton County Emergency Management Coordinator and the Teton County Fire Fighters. In addition, participation will be needed by various positions represented in the Teton County Wildfire Group, coupled with public input.

Economic Analysis

An economic analysis of potential loss as a result of wildfires in Teton County is provided in Appendix C. Though total potential loss from catastrophic wildfires is variable by year, the cost/effectiveness of fuel treatments, county infrastructure improvements, and emergency wildfire services improvements will provide benefits to the primary objectives: protection of life, and protection of property.

1.0 INTRODUCTION

Teton County was established January 26, 1915 from a part of Madison County, with its county seat at Driggs. It was named for the adjacent Teton Mountains and valley. The valley was formerly known as Pierre's Hole, named by Vieux Pierre who visited the area in 1812. The county is a significant recreational and tourism resource for the State of Idaho. As the access point to Grand Targhee Ski Resort located in Teton County, WY, that is the largest private employer in the County. Due to its proximity to National Forests (Caribou-Targhee and Bridger-Teton), National and State Parks (Grand Teton, Yellowstone and Harriman); visitor amenities, activities and services are of great importance to the county economics and development. During the past 40 years, residents and visitors to Teton County have experienced numerous wildfires, floods, landslides, earthquakes, severe winter storms, and hurricane force windstorms, greatly impacting life and property within the county.

1.1 Plan Methodology

The TCWPP was initiated by the Teton County Commissioners, Teton County, Idaho in May 2003 and updated in April 2009 and January 2016.

The Commissioners required that the plan:

- Coordinate with the Idaho State Strategic Plan for the implementation of the National Fire Plan, and
- Utilize the format developed for all hazard mitigation plans provided by the Federal Emergency Management Agency (FEMA).

The Teton County Plan is based on information, research, and data from numerous County, State, Federal and private sources and was developed by the Teton County Wildfire Group (TCWFG). This group consisted of Teton County residents, Fire Fighters, County Fire Chief and Fire Marshal, Teton County Planning and Zoning, Teton County Emergency Management Coordinator, Teton County Sheriff, Teton County Road & Bridge Department, Idaho Bureau of Homeland Security, Foresters and Fire Managers of the Idaho Department of Lands, Idaho Fish and Game, District Rangers, Land Managers and Fire/Fuels Managers of the U.S. Forest Service and the Bureau of Land Management. (Appendix C, Teton County Wildfire Group Participation).

1.2 Plan History

Originally, the Teton County Wildfire Group conducted monthly meetings from July 2003 through January 2004. Group Supervisors met with Team Leaders weekly or bi-monthly. Development of the TCWPP was achieved through input to and from the County Wildfire Group. (Appendix C, Monthly Meeting Reports). The local newspaper, "Teton Valley News", published progress and informative articles after each TCWFG meeting including the phone number and email address for public input, and participation.

Wildfire hazard questionnaires were distributed and completed by residents of the county. Affected public administrator interviews were conducted. Evaluation of wildfire hazards were completed on WUI areas in Teton County relating to their fuels type, condition, density, combined with slope, aspect and soil stability. Survivable space and structure evaluations were conducted by Dynamac Corporation Fire Specialist and the Teton County Fire District using NFPA 299 and NFPA 1144 hazard severity formats.

In January, 2009 the plan revision process began; hazard ratings, wildland-urban interface (WUI) areas, and action items including hazardous fuels projects, prevention & education, and facilities & equipment needs were updated. Meetings were held in January, February, and April with an open house held April 16th at the senior center.

In 2015, the process to update the plan was initiated. Some of the plan update meetings and public outreach activities were held in conjunction with the County's All Hazard Mitigation Plan update process. A series of four meetings were held, and an all hazards questionnaire was distributed to the public. Furthermore, maps were updated, the WUI definition was reevaluated and updated, and action items were identified and reassessed.

2.0 TETON COUNTY PROFILE

2.1 Geography

Teton County, Idaho consists of approximately 459 square miles (294,012 acres). The majority of the county is privately held (65%), with Federal or State managed lands constituting approximately 34% of the County. The remaining 1% of land base consists of waterways (Map 2.1, Land Ownership).

Elevations range from the high elevation Teton Basin (6,000 ft. average) that drains the Teton River and its tributaries, to the Big Hole Mountains in the southwest portion of the county, where peaks reach 9,000 ft. Counties that border Teton County include Bonneville, Madison, and Fremont Counties, as well as the State of Wyoming's own Teton County.

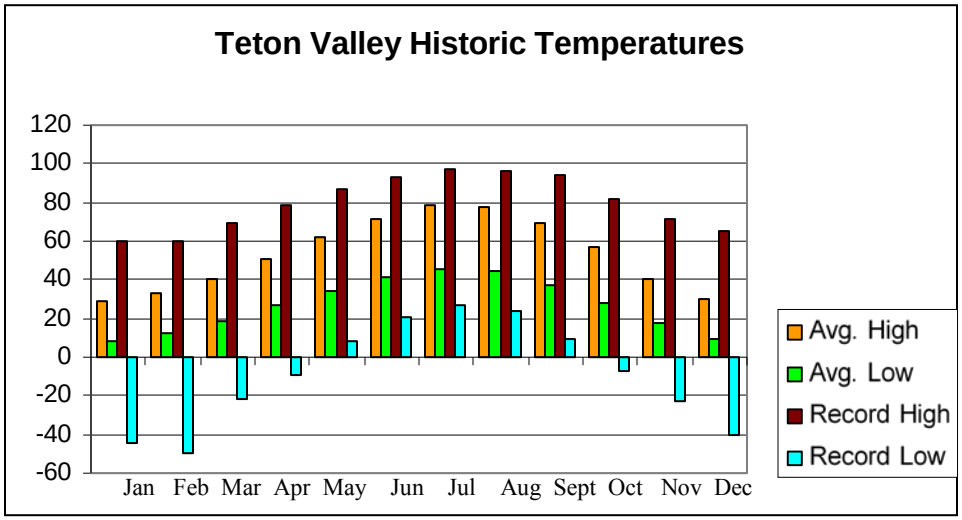
2.2 Current Population and Population Trends

The county seat is located in the city of Driggs, Idaho. Other populated areas include the cities of Victor and Tetonia, with development occurring county-wide. The population of Teton County was determined to be 3,000 for the 1990 census, and had more than doubled to 6,000 individuals by the 2000 census; a 100% increase. In the 2010 census, the County's population was 10,170, and census estimates for 2014 suggest the population may be even higher at 10,341. Teton County experiences a significant seasonal increase in population brought about by summer vacationers. This segment of the county's population has been estimated to be between 30% and 50% above the base population. Using census numbers to reflect the year round population, the addition of 50% results in up to 11,757 summertime residents.

2.3 Fire Weather & Climate

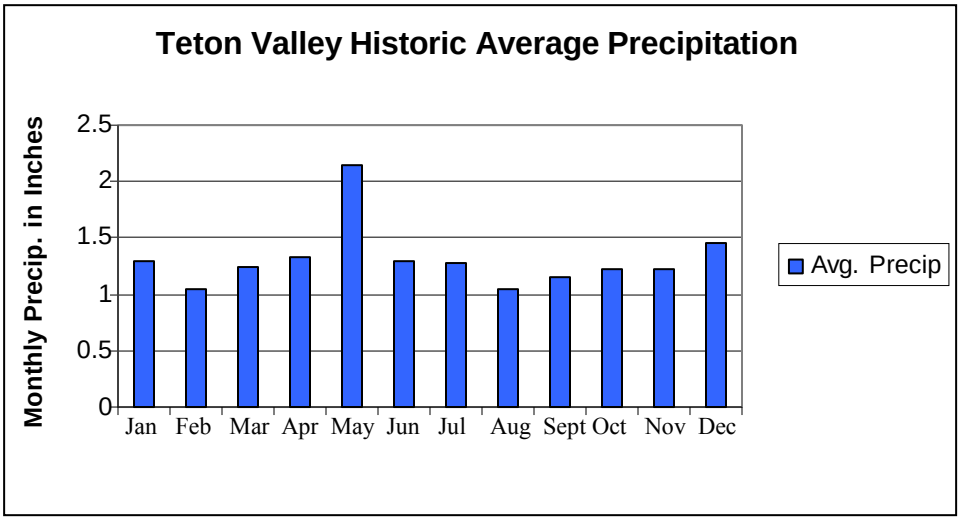
Typically, the wildfire season in Teton County lasts from July through October with the highest fire danger usually occurring in August and September. Historic large fires in Teton County also occurred during these months. Thunderstorms ignite most of the wildfires during the high fire danger periods and can often start several fires from one storm.

Temperatures:



Highest average daily maximum temperature occurs in July, and is 80.6º F. Lowest average daily minimum temperature occurs in January, and registers at 6 º F.

Precipitation:
Average annual precipitation at the 6,100 ft. level is 16 inches, with average annual snowfall of 64 inches. The driest months are typically February and August, and the wettest month is May.



1.

Winds:
High winds are a significant factor affecting fire spread throughout southern Idaho, including Teton County. Wind data taken for a potential wind farm in adjacent Madison County shows average wind speeds of 13.6 mph at 20 Meters with maximum average monthly wind speeds of up to 16.6 mph.

2.4 Vegetation

Vegetation in Teton County is instrumental in providing stability to and preventing soil erosion, maintaining water quality, and providing areas for recreation and wildlife habitat. Teton County is predominantly a high elevation valley habitat, with traditional riparian areas of grasses, sedges and low brush. Elevations above the valley floor are forested by Douglas-fir, sub-alpine fir, lodgepole pine, Engelmann spruce, and aspen. Understory within the forested areas includes numerous forbs, grasses and shrubs.

Sagebrush/grass communities are common at middle elevations and on south and southwest aspects at higher elevations. The lower elevation transitions to mixed conifer forests in most of the county with some mixed fir at higher elevations on North, and East aspects. At higher elevations spruce/fir and lodgepole pine forests are common. Most privately owned lands are within the Sagebrush/grass or the mixed conifer/quaking aspen vegetation types.

Historically fire played an important role in the development of the vegetation in the county. Exclusion of fire and reduced mechanical treatment of the mixed conifer and aspen forests of the county has resulted in increased wildland fuels accumulation with overabundant seedling and sapling sized trees on areas of private and public lands. This accumulation, combined with development in or adjacent to the forests of the county, has increased risk of economic loss by wildfire to residents of these areas.

The grass and shrub vegetation, cultivated fields and Conservation Reserve Program (CRP) lands in the lower elevations of the Teton Valley are near the county's main communities and pose an additional wildfire threat once cured.

2.5 Teton County Topography

The steep mountainous terrain of Teton County contributes to the wildfire hazard. Major drainages include extreme slopes and as much as half of the county is situated on slopes in excess of 40 percent. This terrain enhances increased rates of spread by wildfires though radiant heat, which preheats fuels uphill from a fire. The rugged topography in the county makes access to wildfire ignitions difficult and time consuming for ground wildfire suppression forces. Human caused fires in Teton County typically occur at lower elevations near residences, transportation corridors and camping areas. During periods of high or extreme fire danger these ignitions can rapidly spread uphill and may result in entrapment on dead end roads crossing through steep terrain.

2.6 Geology

Teton County is within the Wyoming Overthrust Belt System located in eastern Idaho and western Wyoming. Only the main basin that runs the center length of the County is relatively level, with the surrounding mountainous landscape brought about by historic uplifts, faults, fault blocks, alluvial deposits and stream cutting action that has created steep narrow canyons. Approximately 50% of Teton County has slopes steeper than 40%.

2.7 Soils

There are a wide variety of soils found throughout Teton County. Surface soils are typically moderate with coarse loams and soils weathered from igneous and sedimentary sources. These sandy loams have little adhesion or cohesion that readily erode without roots from vegetation to hold them in place. Sedimentation monitoring and mitigation can assist in stabilizing soils, especially on steep slopes. Crown fire activity on steep slopes is likely to result in mudslide/soil slumps in many areas and could result in loss of homes after the imminent threat from wildfire has passed.

2.8 Wildlife

Teton County has a wide variety of wildlife species and habitats. The Idaho Department of Fish and Game manages wildlife populations and the U.S. Forest Service, BLM and Idaho Department of Lands are responsible for wildlife habitats on lands they manage. Large mammals that are found in Teton County include mule deer, whitetail deer, moose, elk, grizzly bear, black bear, and gray wolves. Coyote, bobcat, wolverine, snowshoe hare, cottontail rabbits, red fox, badgers, beavers, pine martens, porcupines, skunks and an occasional lynx or big horn sheep can also be found within the county. Upland birds present in Teton County include blue grouse, spruce grouse, and sharp-tail grouse. Raptor species include golden eagles, osprey, prairie falcon, red-tailed hawk, and wintering bald eagles. Waterfowl habitat is widespread throughout the Teton Basin and provides habitat for: Canada geese, numerous duck species, trumpeter swans, and sandhill cranes. Other birds common to Teton County are flickers, woodpeckers, robins, killdeer, stellar jays, dippers, mountain blue birds, hummingbirds, red-winged blackbirds, ravens, crows, and magpies. All of these species developed with wildfire and are adapted to ecological changes resulting from wildfires.

2.9 Recreation

Recreation in Teton County is critical to the economy, but is also a sensitive and contentious issue. There are mixed feelings among the local population regarding results of expanded recreation user numbers, with the associated economic advantages, as compared with the quiet enjoyment of the valley that predominated in the past. The natural beauty of the valley, assets for fishing and hunting, prime snow conditions, and proximity to popular National Forests and Parks, contribute to make the recreation based activities within Teton County highly attractive.

Wildfires may result in an increase in big game habitat and long term improvement in hunting opportunities, but will likely reduce access and visual clarity during the event, which may impact the full spectrum of recreation activities in the area. As the population in counties adjacent to Teton County has increased, the recreational use of Teton County's Federal and State lands has also increased. Summer and winter recreational activities available in Teton County are also enjoyed by outdoor enthusiasts on a national, as well as an international basis.

Water-based recreational activities in Teton County are primarily limited to fishing. Land based activities include, but are not limited to: camping, hiking, mountain biking, birding,

hunting, snowmobiling, snowshoeing, snowboarding, downhill and cross country skiing. Grand Targhee Ski Area located in adjacent Teton County, Wyoming hosts numerous skiers during winter months.

2.10 Bodies of Water: Rivers, Creeks, Watersheds

The main waterway in Teton County is the Teton River, which forms the valley/basin that is the backbone and main thoroughfare within the county. Besides providing recreational opportunities and watershed provisions, the river and its tributaries provide a water source for engines and helicopters during wildfire suppression operations. Most rivers/creeks in Teton County are accessible, with either a direct or adjacent road access. River flow rates generally peak in June with low flow rates in August and September. Other important creeks and/or drainages in Teton County include: Trail Creek, Fox Creek, Darby Creek, Teton Creek, South Leigh Creek, North Leigh Creek, Badger Creek, Packsaddle Creek and Horseshoe Creek. Numerous other creeks, tributaries, and sub-watersheds support developed areas throughout Teton County. Watersheds in Teton County directly influence downstream water use for irrigated farmland within the County and neighboring counties. Municipal water supplies for Driggs & Victor are located on private lands in close proximity to forest service lands. Watershed protection, stabilization, and water quality are high priorities for the county's private, state, and federal land managers or owners.

2.11 Transportation

For an area of over 400 square miles, Teton County has a very limited network of improved highways. Timing, location, and expansion of transportation networks are important issues affecting future access.

The majority of vehicle transportation in Teton County occurs on one of three paved State Highways.

- State Highway 33 from the Madison County line southeasterly to the Wyoming State line.
- State Highway 31 from the Victor City limits to the top of Pine Creek Pass and the Bonneville County line.
- State Highway 32 from Bitch Creek and the Fremont County line south to its intersection with State Highway 33 north of Tetonia.

State Hwy 33, which turns into WY 22 at the state line, is a major travel route providing access to Jackson, WY and supports significant commuter & tourist traffic. Fire hazard adjacent to this route is currently very high due to the extraordinary quantity of bug killed timber adjacent to it.

Additionally, extended closure due to wildfire activity would result in significant economic impacts to Teton Co's. WY & ID as well as Madison, Fremont & Bonneville counties.

County Roads
The Teton County Road and Bridge Department is responsible for maintenance, and construction of roads in the county. The department has completed new road ordinances that are a part of the revised county comprehensive plan. These ordinances address future needs to facilitate population growth as well as fire protection requirements and access needs. Road funds come largely from County, State and Federal sources, augmented by PILT funds paid by the surrounding National Forests. There is extensive use of the road system in Teton County by out-of-county traffic. The existence of Federal and State forests and parks draws high numbers of recreational users participating in various spring, summer, fall, and winter activities. Teton County receives no additional funds for added maintenance or road deterioration associated with this use. Teton County is included in Idaho Highway District #6 with an office in Rigby, ID.

Forest Service Roads
The USDA Forest Service, Caribou-Targhee Forest, maintains numerous two-lane gravel roads throughout the county for recreation and logging access. Some of these have been closed and many are currently gated with access allowed seasonally or during a wildfire. The Caribou-Targhee National Forest has recommendations and requirements for these roads, and a travel plan with requirements for the trail system and off road or trail travel.

Transportation corridors, specifically State Highways 31 and 33 are vulnerable to closure by wildfires and smoke (both temporary and long term closure). All U.S. Forest Service roads are also vulnerable to closure by wildfire.

2.12 Aviation Facilities

Teton County has no regularly scheduled commercial (passenger) flights. Driggs/Reed Memorial Airport is a general aviation airport owned and operated by the City of Driggs, with a 7,300-foot runway. Airport extension and hangar construction are under way to improve safety. This airstrip exhibits increased traffic during weekends and holidays. It can also be used to support various fixed and rotor-wing aircraft during large or multiple wildfire incidents.

2.13 Rail Transportation

No railway exists within the county. Union Pacific Railroad removed the tracks several years ago and does not maintain any facilities including rights-of-way.

2.14 Emergency Services

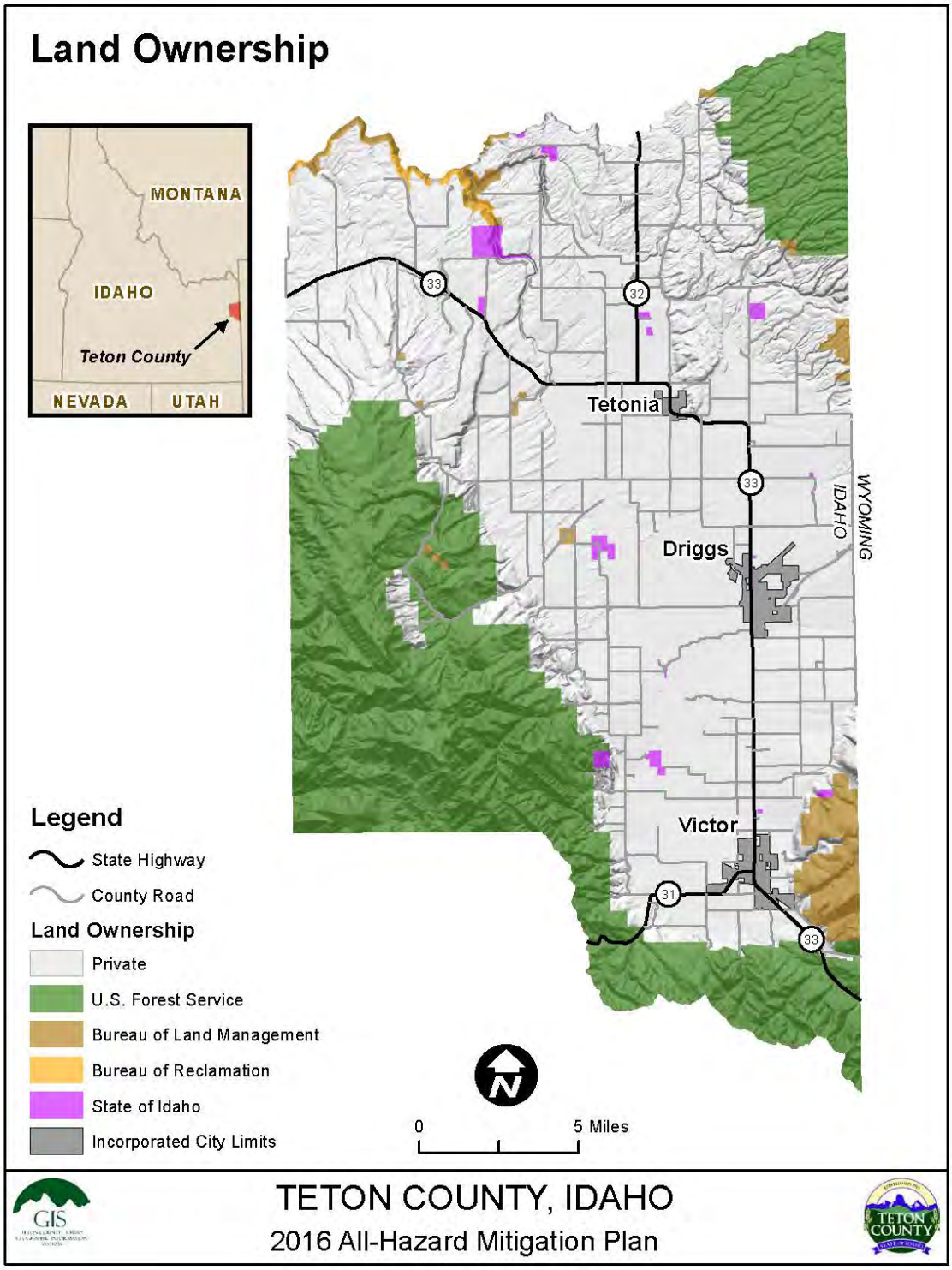
Law enforcement and 911/dispatch services throughout the county are provided by the Teton County Sheriff's Office (including the cities of Driggs, Victor and Tetonia). The Teton County Fire Protection District (TCFPD) was established in 1996 as an independent taxing district run by a board of three elected members. TCFPD staffs and equips fire stations in Driggs, Victor and Tetonia, providing 24-7 fire protection services throughout the county. A mutual assistance (aid) agreement between TCFPD, the U.S. Forest Service and the Bureau of Land Management

exists for wildfire protection in the county. The Teton County Ambulance Service District (ASD) is a separate taxing district responsible for providing emergency medical services and hospital transport to the citizens of Teton County. The Board of County Commissioners assumes the role of Commissioners for the ASD as per Idaho State Statue 31-3903. The ASD contracts with Teton Valley Heath Care (TVHC) to provide 24-7 ambulance service staffed with both EMTs and paramedics. TVHC staffs and maintains an ambulance at the hospital and has an agreement with TCFPD to staff and maintain additional ambulances at the Driggs and Victor fire stations. Teton County Search and Rescue (SAR) is a volunteer-supported non-profit that provides back country search and rescue resources when requested through the Teton County Sheriff's Office.

2.15 County Vulnerability

Teton County infrastructure, homes, transportation corridors, watersheds, air quality, and other natural resources are an important part of the welfare, quality of life, visitation and beauty of the county. The county currently has about 4,811 homes, a County Fire District with three stations, three major state highway transportation corridors, watersheds that are vulnerable to wildfire and support recreation, irrigation, and endangered species. Timber resources located on private, state and public lands are also vulnerable to loss due to high intensity wildfires. Teton County Fire District, the U.S. Forest Service and BLM provide fire protection for all of Teton County. County emergency services communications and computer support are critical to life and safety in Teton County. Improvement, updating and planning in these areas are necessary for future fulfillment of emergency service response to residents, visitors, cooperators, and those traveling though the county. Communication and computer support infrastructure upgrading requirements are identified in the hazard prioritization and mitigation strategy sections.

Map 2.1 – County Ownership



3.0 HAZARD IDENTIFICATION, RISK

Teton County has been the site of 100 wildfires on federal lands between 1970 and 2016, five of which were over ten acres in size. In the last 16 years countywide there have been 121 recorded fires, 5 of which were over 16 acres in size. The only large fire over 100 acres in the last ten years within Teton County is the River Fire that occurred in 2002. The fuels, weather and topography in Teton County combine to make wildfire a periodic hazard with associated risks.

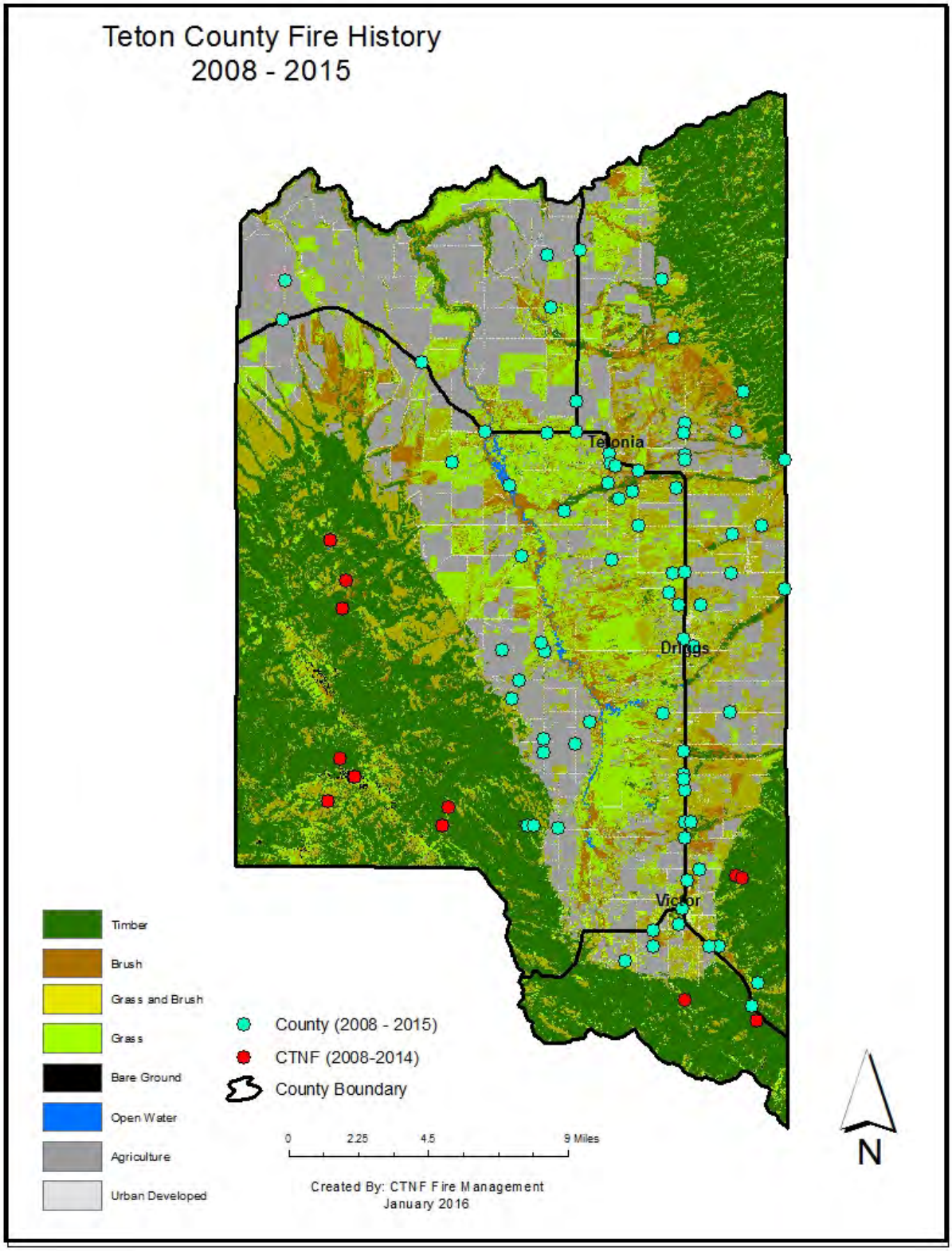
Landscape scars from historic large wildfires are visible in much of the county in the ring of aspen rising from the valley floor and the even aged stands of lodgepole at the northern end of the county. Additionally, historic photos taken by the U.S. Geological Survey show large burned areas dating back to 1872, 1911, & 1917. Since that time, the valley has largely gone without fire resulting in an accumulation of fuels that will increase fire intensity and make suppression difficult when a fire escapes initial attack.

3.1 Communities at Risk in Teton County as designated in the Federal Register

The Secretaries of Interior & Agriculture were required to publish in the Federal Register an updated list of Wildland-Urban Interface communities within the vicinity of Federal lands that are at high risk from wildfire. The following communities located in Teton County are listed as at risk in the Federal Register:

- Driggs
- Victor
- Tetonia

Map 3.1 Wildfire History



3.2 Wildland Fuel Fire Hazard

Fire Behavior Assessment

The fire behavior assessment completed for Teton County used a variety of resources available including Remote Automated Weather Stations (RAWS), FireFamily Plus software, LANDFIRE and FlamMap programs to further understand and illustrate the potential wildfire hazard for the County. Brief descriptions of the resources are provided below.

RAWS record and transmit daily weather and fuel observations to a database where the data can be used with several different fire behavior modeling tools or analysis programs.

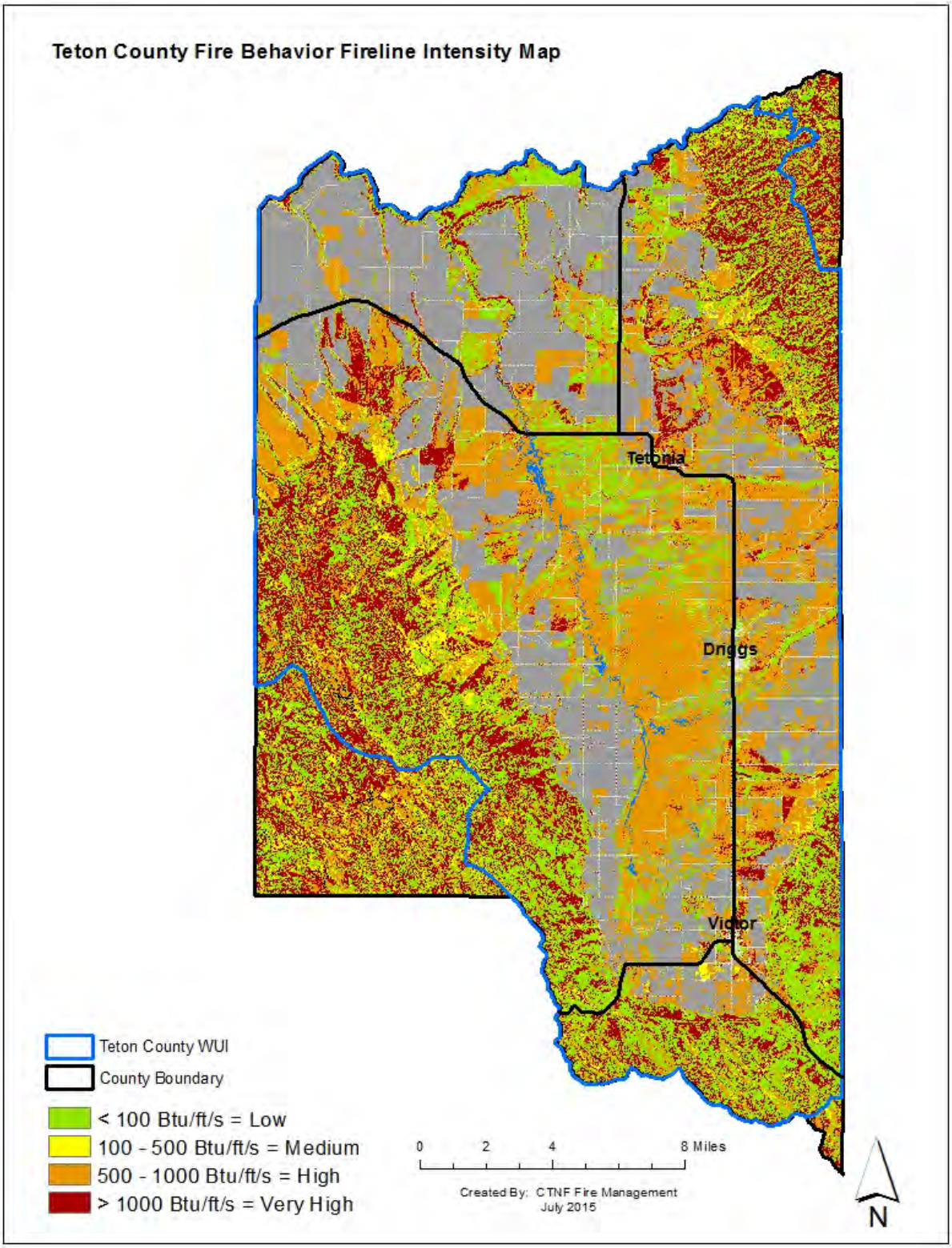
FireFamily Plus is a software system for summarizing and analyzing historical daily fire weather observations and computing fire danger indices based on the National Fire Danger Rating System. Fire occurrence data can also be analyzed and cross referenced with the weather data to help determine the critical levels for staffing and fire danger for an area. For more information on FireFamily Plus go to http://firelab.org/applications.

FlamMap is a fire behavior mapping and analysis program that computes potential fire behavior characteristics (spread rate, flame length, fireline intensity, etc.). For more information on FlamMap go to http://firelab.org/applications.

LANDFIRE 2010 (v1.2.0) data is national-level, landscape-scale, cross-boundary fuels data that exists for the conterminous United States and contains information representing topography (slope, elevation, aspect) fire behavior fuel model and canopy characteristics (canopy cover, canopy base height, canopy height, canopy bulk density) which serve to simulate crown fire activity. LANDFIRE data was imported into the fire behavior modeling software FlamMap to predict the potential fire behavior under serve fire weather conditions (97th percentile).

The fire behavior assessment focused on fireline intensity, flame length, and crown fire activity. Those three fire behavior characteristics are the most important considerations for determining the potential fire hazard and the effectiveness of suppression resources.

Map 3.2.1 – Fireline Intensity Map



Flame Length

Fire suppression strategies and tactics are dictated by fire behavior (flame length) and intensity. Table 3.2, portrays an interpretation of what resources will be effective suppressing a fire based on flame lengths and fireline intensity. Refer to the Teton County Fire Behavior Flame Length Class Map and Teton County Fire Behavior Fireline Intensity Map to determine modelled flame length and fireline intensity within Teton County. Referring to Table 3.2, the flame lengths in the "High" to "Very High" range will cause control or suppression efforts to be ineffective. This anticipated fire behavior provides a situation where firefighters will not engage the fire due to safety concerns associated with extreme fire behavior. Under this type of fire behavior, the risk is high for the public and safe protection of values at risk.

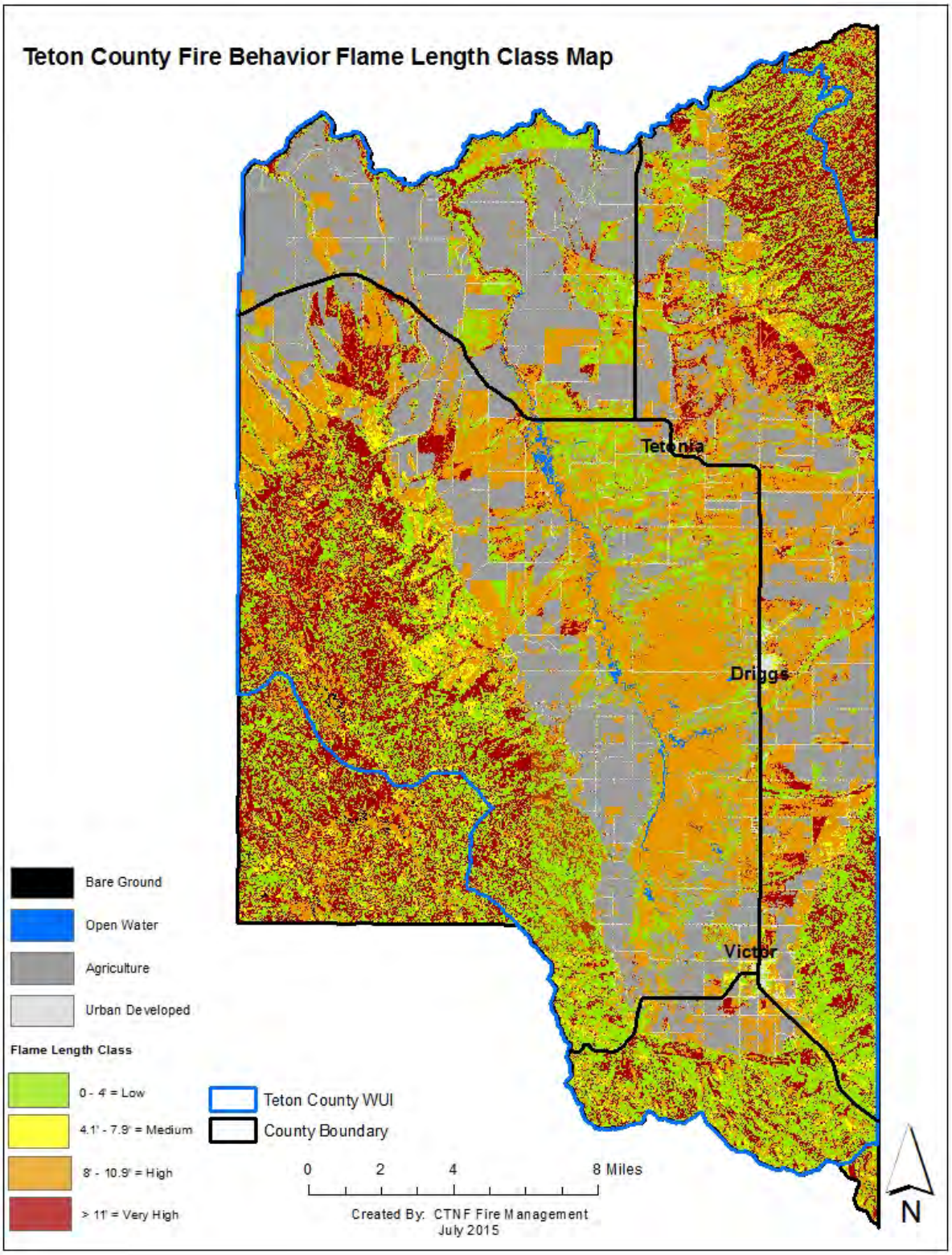
- Grasses, forbs and cropland will have "Low" to "Medium" Flame Length Classes.
- Sagebrush will have flame lengths within the "High" to "Very High" Flame Length Classes.
- Timbered areas across the county will be reflected within the "High" to "Very High" Flame Length Classes with "Low" intermixed throughout.

Table 3.2. Fire Suppression Interpretation of flame length and fireline intensity

Flame Length Class	Flame Length	Fireline Intensity	Fire Suppression Interpretations
Low	< 4 feet	< 100 Btu/ft/s	Fires can generally be attacked at the head or flanks by persons using hand tools. Handline should hold fire.
Medium	4 to 8 feet	100-500 Btu/ft/s	Fires are too intense for direct attack on the head by persons using hand tools. Handline cannot be relied on to hold the fire. Bulldozers, engines, and retardant drops can be effective.
High	8 to 11 feet	500-1000 Btu/ft/s	Fires may present serious control problems: torching, crowning, and spotting. Control efforts at the head will probably be ineffective.
Very High	> 11 feet	> 1000 Btu/ft/s	Crowning, spotting, and major fire runs are probable. Control efforts at the head of the fire are ineffective.

Source: Fireline Handbook, Appendix B: Fire Behavior, pg. B-59

Map 3.2.2 – Flame Length Class Map

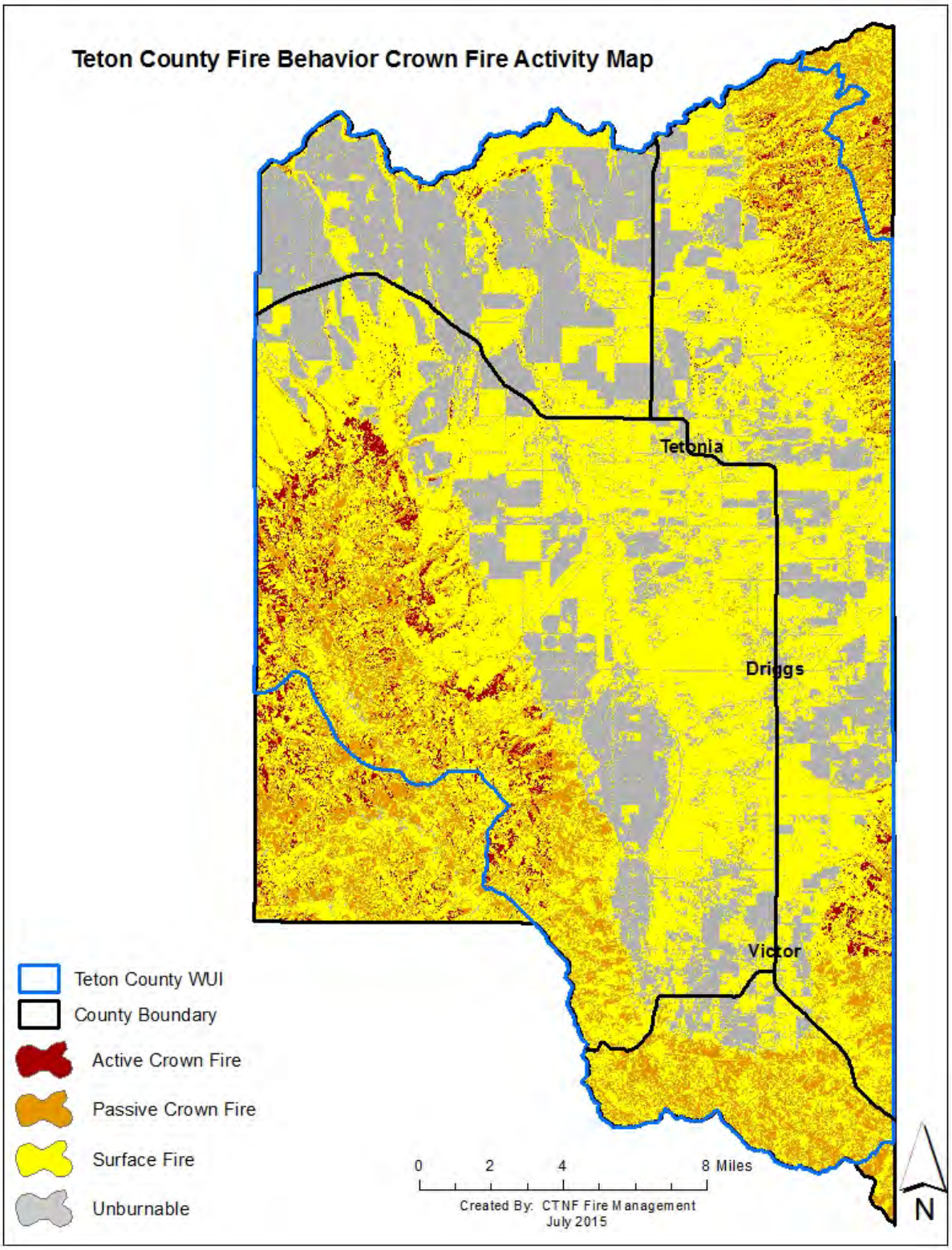


Crown Fire Activity

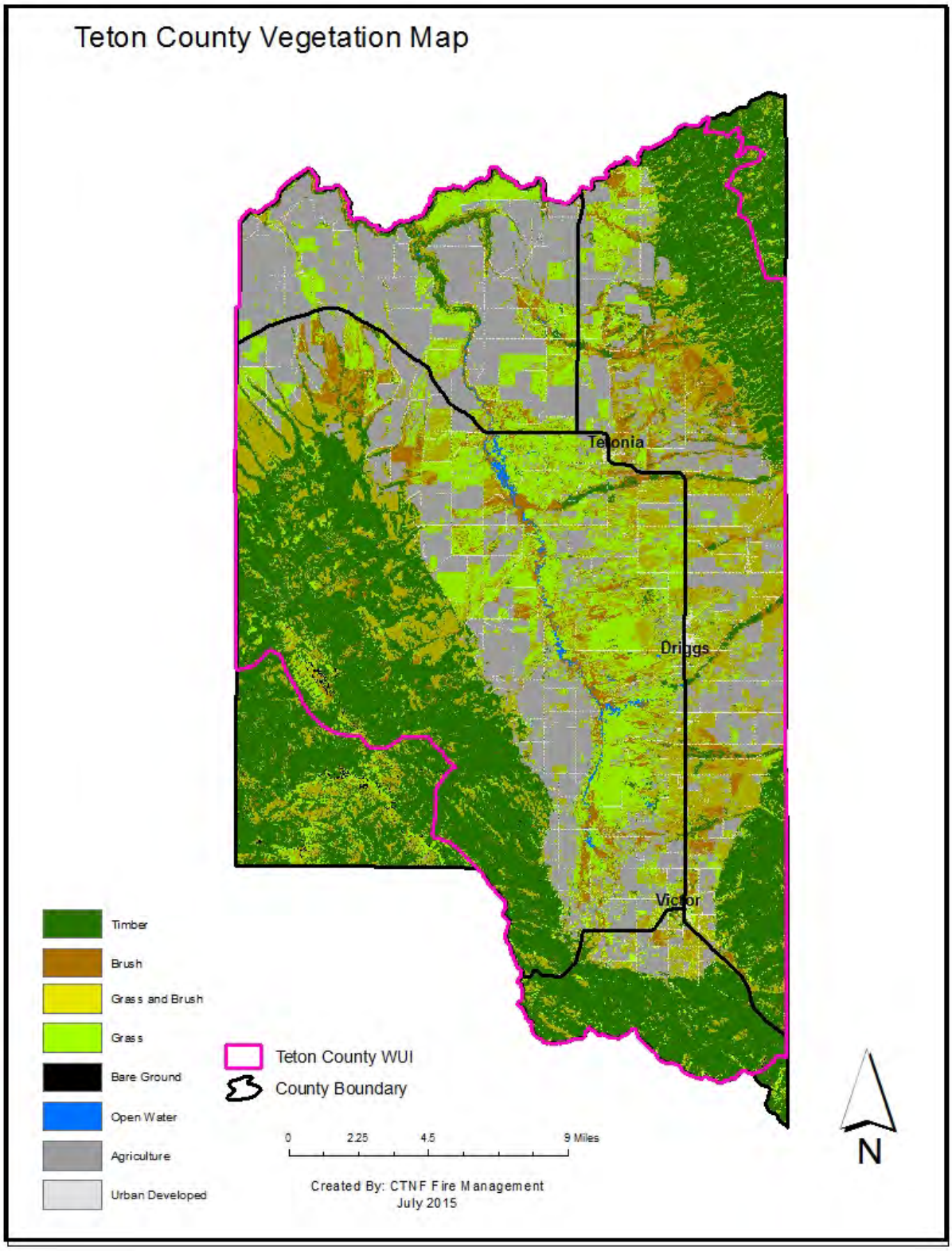
Canopy base height is defined as the lowest point in a stand where there is fuel available to propagate fire vertically through the canopy, meaning the closer the tree canopy is to the ground surface the greater the chance of a fire transitioning into the tree canopies. Crown fire activity appears to be almost evenly split between surface and passive crown fire with some active crown fire on steeper slopes. Passive and active crown fire will occur within the timbered fuel models. It is within these timbered areas that the surface fuels, small diameter logs and regeneration that facilitates fire spread and the canopy base height is in direct correlation to the ability of the fire to get into the canopy of the trees to initiate a passive or active crown fire.

Much of Teton Valley is depicting "No Fire" or "Unburnable". This is based on the LANDFIRE data interpreting these cropland areas as bare mineral soil or minimal ground cover. At any time throughout the summer these cropland areas can carry fire but is dependent upon the crop planted and whether irrigation is occurring within these areas.

Map 3.2.3 – Crown Fire Activity Map



Map 3.2.4 – Teton County Vegetation Map



The maps created by this group are for reference and planning purposes only. Further use of these maps requires on-site visits and specific interpretation for individual projects and plans.

3.3 Teton County Wildland Urban Interface, WUI

The WUI is defined as the line, area, or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuel (NWCG and NFPA Glossaries). The intent of a WUI boundary is to "define an area within or adjacent to private and public property where mitigation actions should occur to prevent damage and loss" (NWCG Memorandum # 024¬2010; Terminology Updates Resulting from Release of the Guidance for the Implementation of Federal Wildland Fire Management Policy, 2009). Capital improvements, houses, private land, major utility corridors, watersheds and communication sites, are examples of structures and human developments the planning group is collectively concerned about in the event of a wildfire. The existence and vulnerability of these values relative to the surrounding landscape shape the WUI boundary. The vulnerability of identified lands within the WUI boundary is based on fuels, topography, weather patterns, professional evaluation and input, and Idaho State University Fire Susceptibility Modeling. Defining the WUI boundary in this manner helps identify areas of concern to prioritize fuels reduction projects, community outreach and education efforts, and help managers develop the appropriate response to an emerging fire incident.

The Wildland Urban Interface map for Teton County also includes the Wildland Urban Intermix that is defined as: "An area where improved property and wildland fuels meet with no clearly defined boundary". (NFPA 1144, Standard for protection of life and property from wildfire 2002). For the purposes of this plan the Wildland Urban Interface and Intermix make up the WUI boundary.

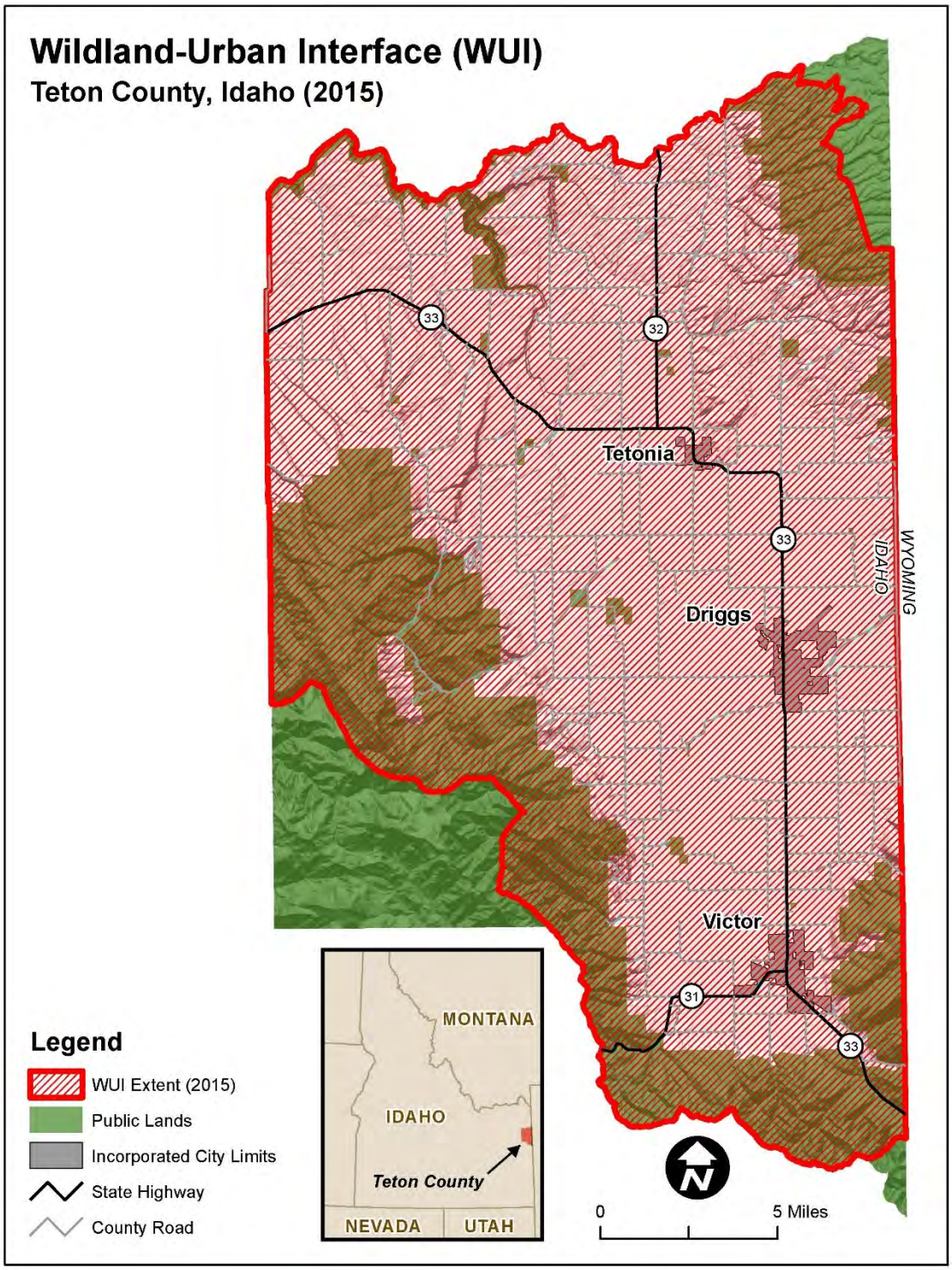
The Teton County Plan took the opportunity to establish a localized boundary for the wildland-urban interface (Preparing a Community Wildfire Protection Plan. March, 2004) using the methods that follow:

Teton County WUI Map Development

The Wildland Urban Interface delineations were developed by the previous two mapping exercises (2009 and 2015) in addition to local subject-matter expertise in an effort to qualitatively and quantitatively define the Wildland-Urban Interface for the county. Specifically, the WUI identifies the intersection and overlap of developed areas within the County with undeveloped areas in which adequate fuels exist to increase the wildfire risk.

Regardless of designation please take the time to evaluate your homesite and ensure that you are fire ready. Information on getting ready is available at the following website: http://www.firewise.org/ or stop by your local fire station and ask! Another great brochure on firewise landscaping is available at University of Idaho's website: http://www.cnr.uidaho.edu/extforest/FireProtectBro.pdf

Map 3.3 – WUI



The maps created by this group are for reference and planning purposes only. Further use of these maps requires on-site visits and specific interpretation for individual projects and plans.

4.0 WILDFIRE MITIGATION STRATEGY AND IMPLEMENTATION

The wildfire mitigation action items provide direction on specific activities that organizations and residents in Teton County can undertake to reduce risk and prevent loss from wildfire events. Each action item is followed by ideas for implementation that can be used by local entities to pursue strategies for implementation. For the following action items, the recommended lead organization (s) is in bold font.

Table 4.1 Completed Action Items

Teton County Fire District has accomplished a countywide assessment of needs within the district. **Coordinating Organizations:** Teton County Commissioners, Teton County Sheriff, Teton County Fire District
Integrate countywide 911 dispatching with emergency services computer support and centralize emergency services dispatching. **Coordinating Organizations:** Teton County Commissioners, Teton County Sheriff, Teton County Fire District
Develop cooperative agreements and plan for emergency use of cooperator frequencies and repeaters. Develop procurement plan for updated and compatible radios. **Coordinating Organizations:** Teton County Commissioners, Caribou-Targhee National Forest, Teton County Sheriff, Teton County Fire District, Teton County Emergency Management
Charter member of the Upper Snake River Interagency Wildfire Group (USIWG). The intent is to promote collaboration among the interagency firefighting partners in the Upper Snake River Valley. The overall goal of USWIG is to provide for a coordinated response and effective incident management on wildfires with a focus on emergency responder and public safety while protecting values at risk. **Coordinating Organizations:** Bingham, Bonneville, Clark, Fremont, Jefferson, Madison, and Teton counties, US Forest Service, Bureau of Land Management
Pole Canyon hazardous fuels project. – 226 acres on federal lands **Coordinating Organizations**: USFS, Teton County Fire District, Teton Springs
Pole Canyon hazardous fuels project – 125 acres on private lands **Coordinating organizations:** Private Landowners, Teton Springs Resort, IDL, Teton County Fire District
Smith Canyon HFT – 50 Acres on Private Lands **Coordinating Organizations:** Pvt. Landowners, IDL, Teton County Fire District
Smith Canyon HFT-Part 2 -10 Acres surrounding 5 houses south of Victor Coordinating Organizations: Private Landowners, IDL, High Country RC&D, Teton County Fire District
Sorensen Ck. – 30 Acres on Private Lands **Coordinating Organizations:** Private Landowners, IDL, High Country RC&D, Teton County Fire District
Continued update of county fire ordinances. **Coordinating Organizations:** Teton County Commissioners, Teton County Sheriff, Teton County Fire District
Countywide Red Zone Structure Assessment **Coordinating organizations:** BLM, Teton County Fire District

Alligator Lake Hazardous Fuels Reduction-640 Acres prescribed fire on federal lands-2006. **Coordinating Organizations:** Caribou-Targhee National Forest, Teton County Fire
Hill Creek Hazardous Fuels Reduction – 3,346 Acres prescribed fire on federal lands – 2008 – 2015: Implementation Ongoing **Coordinating Organizations:** Caribou-Targhee National Forest, Teton County Fire
Smith Canyon Fuel Reduction Timber Sale – 107 Acres on federal lands – 2012, 2014, 2015 **Coordinating Organizations:** Caribou-Targhee National Forest
Mud lake Fuels – 250 acres on Federal Lands -- 2008-2015 **Coordinating agency: BLM**
Red Creek Prescribed Fire – 1,068 Acres on federal lands – 2010, 2011 and 2015 Implementation Ongoing until 2020. **Coordinating Organizations:** Caribou-Targhee National Forest
Horseshoe Aspen Mechanical – 35 Acres on federal lands – 2013 – 2015 **Coordinating Organizations:** Caribou-Targhee National Forest
Treasure Mountain Boy Scout Camp – 15 Acres hazardous fuels reeducation (mechanical) on federal lands – 2015 **Coordinating Organizations:** Caribou-Targhee National Forest, Boy Scouts of America
Site plan review for building permits check-off. **Coordinating Organizations:** Teton County Fire District, Teton County Commissioners
Assessment of missing road signs and purchase and installation of missing signs on County roads. **Coordinating Organizations:** Teton County Road & Bridge, Teton County Commissioners

Table 4.2 – Fuels Treatment Action Items

Priority	Action Item	Lead Organization	Timeline	Description
High	Grove Creek Area	County/ IDL/BLM /USFS	2018	7000 South 5000 West area, Victor: multiple structures and building lots bordering the forest to the west. We would like to use this subdivision as a starting point for a District-wide attempt to triage and map all structures and hazards in the immediate area for the first arriving personnel for fire an event. When triage phase 2 is completed, it would include a community workshop for fire and hazard mitigation, awareness and defensible space education.
High	Teton Canyon	USFA	2017-2023	Area identified on USFS lands for future project to reduce fuels adjacent to private lands. Likely to include prescribed burning & limited mechanical removal of trees. Project area located approximately 3 miles east of Alta in Teton Co, Wyoming.
High	Badger Creek Thinning Project	USFS	2018	Thinning of lodgepole pine to increase growth and production. Additional benefit realized in the reduction of crown fire hazard adjacent to private lands. Implementation planned for late 2018. Project area located approximately 7 miles north east of Driggs, Idaho.
High	Game Creek Fuels	BLM	2020	Fuel reduction including limited commercial harvest. Treatments would focus on protecting Victor's municipal watershed from potential wildfire impacts. Project area located approximately 3 miles south east of Victor, Idaho.
High	Teton Pass Fuels Reduction	USFS	2020-2025	Area identified for future project to reduce fuels adjacent to ID 33 & WY 22. Likely to include prescribed burning & limited mechanical removal of trees. Project area located approximately 5 miles south east of Victor, Idaho.
High	Sorensen Creek/Shooting Star	USFS	2016-2019	Area identified on USFS lands for future project to reduce fuels adjacent to private lands on eastern side of valley. Likely to include prescribed burning & limited mechanical removal of trees. Project area located approximately 4 miles north east of Victor, Idaho in Teton Co, Wyoming.

Medium	Red Creek RX Fire	USFS	2015-2020	Prescribed burn to regenerate aspen and reduce fuels. Implementation to begin 2015. Project area located approximately 8 miles west of Victor, Idaho.
High	SE Big Holes	USFS	2018-2023	Area identified on USFS lands for future project to reduce fuels adjacent to private lands on southwest side of valley. Likely to include prescribed burning & limited mechanical removal of trees. Project area located approximately 8 miles west of Driggs, Idaho.
High	NE Bigholes HFRA EA	USFS	2020-2025	Area identified on USFS lands for future project to reduce fuels adjacent to private lands on northwest side of valley. Likely to include prescribed burning & commercial removal of trees. Project area located approximately 10 miles north west of Driggs, Idaho.
High	Bates/Twin Creek Area	County/ IDL/BLM	2020	Twin Creek Lane, Bates area.5500 West 2000 South Driggs. Structures on the west hillside border forest land and are scattered throughout the hillside. The project would include triage, mapping of structures, hazards and water source identification for a pre action plan.
High	Dry Henderson	County/ IDL/BLM	2020	A few other opportunities have lately presented themselves to include a wild fire last year in the Dry Henderson creek subdivision, 5750 South 5000 West. A lightning strike caused fire that was a close call for a few structures and had the possibility of spreading further to the West into Forest Service land. The recent activity provides an excellent opportunity to provide public awareness and a work shop for the concerned homeowners in the area.
High	Pole Canyon #2	USFS/Teton Fire	2017	Area identified on USFS for future project to reduce fuels adjacent to private lands south of Teton Springs. Likely to include commercial removal of conifer trees within aspen stands. Second phase of the Pole Creek Hazardous Fuels Project. Project area located approximately 4 miles south of Victor, Idaho. U.S.F.S fuels reduction projects in this area that are ongoing would also benefit Teton County if the Teton County Fire District could assist the Forest Service Fuels Crew with manpower, resources and funding to complete these project areas and continue on the defined areas of wildland mitigation strategy and implementation as listed in the C.W.P.P.

High	Dry Ridge Fuels	BLM	2020	Fuel reduction including limited commercial harvest. Treatments would focus on thinning the lodgepole pine component to increase growth and production, and reducing understory ladder fuels. Project area located approximately 6 miles north east of Driggs, Idaho.
High	Sweet Hollow Aspen	BLM	2020	Improve the aspen communities east of Victor by removing encroaching conifers and using prescribed fire to regenerate aspen stand and reduce treatment fuels. Project area located approximately 3 miles east of Victor, Idaho.
High	Alex Creek Aspen	BLM	2020	Improve the aspen communities east of Victor by removing encroaching conifers and using prescribed fire to regenerate aspen stand and reduce treatment fuels. Project area located approximately 3 miles east of Victor, Idaho.
High	County Wide	Teton Fire	Annually	Create firebreaks and complete fuels reduction projects annually with cooperating land owners.
Medium	County Wide	Teton Fire	Ongoing	Fuels reduction on trails and roads
Medium	County Wide	County	Ongoing	Weed management
Medium	County Wide	Teton Fire	Ongoing	Mow vacant lots and areas around abandoned structures
Medium	CRP Land	Teton Fire	Ongoing	Develop wildfire fuel breaks around CRP land
Medium	County Wide	Teton Fire	Ongoing	Allow firewood collection to thin the threat
Medium	Municipalities	Teton Fire	Ongoing	Conduct fuel reduction projects in the City watershed areas

Table 4.3 – Education Action Items

Priority	Action Item	Lead Organization	Timeline	Description
1	Homeowner Education	Teton Co. Fire District	Ongoing	Provide defensible space information to developers & homeowners (i.e. Ready, Set, Go and Idaho Firewise)
2	Emergency Action Plans	Teton Co. Fire District	Ongoing	Identify evacuation routes. Identify trigger or evaluation points.

Table 4.4 – Mitigation Action Items

Priority	Action Item	Lead Organization	Timeline	Description
1	Ingress/egress issues in older subdivisions.	Teton Co. Fire District	Ongoing	Identify ingress/egress constraints; assist in developing best value plan to alleviate problems.
2	Water source identification/ upgrade.	Teton Co. Fire District	Ongoing	Identify water shortage areas; assist in developing best value plan to alleviate problems.
3	Improve access to Wildland Urban Interface areas	County	Ongoing	Improve access to Wildland Urban Interface areas by improving roads and bridges
4	Develop a standard for roadside vegetation management	Teton Co. Fire District	Ongoing	Develop a standard for roadside vegetation management

5	Road signage and rural addressing	County	Ongoing	Update and improve road signing and rural addressing

Table 4.5 – Equipment & Facilities Action Items

Priority	Equipment/ Facility	Lead Organization	Timeline	Description
1	Training	Teton Co. Fire District	Ongoing	Utilize fire district's Needs Assessment to establish priorities that allow the district to receive the best value.
2	Personal Protective Equipment	Teton Co. Fire District	Ongoing	Utilize fire district's Needs Assessment to establish priorities that allow the district to receive the best value.
3	Apparatus	Teton Co. Fire District	Ongoing	Utilize fire district's Needs Assessment to establish priorities that allow the district to receive the best value.
4	Teton Co. Dispatch Communication System	Teton Co. Sheriff's/ Emergency Services	Ongoing	Update County Systems
5	Communications: First responder radio	Teton Co. Fire District	Ongoing	Update County emergency services communications capabilities.
6	Update software for emergency response and planning.	Teton Co. Fire District, County GIS	Ongoing	Update County emergency services software.

7	New Fire Station	Teton Co. Fire District	2018	Utilize fire district's Needs Assessment to establish priorities that allow the district to receive the best value.
8	Purchase Crossover Boxes	Teton Co. Fire District	2017	Will assist with communication interoperability between different agencies.
9	Purchase Radios (VHF BK Radios – Formerly known as Bendix Kings)	Teton Co. Fire District	2016	Radios will facilitate greater interoperability and communication with Federal partners.

5.0 MITIGATION PROGRAMS AND RESOURCES

Existing mitigation activities include current mitigation programs and activities that are being implemented by County, State and Federal agencies within Teton County. Prioritization of Hazards and Mitigation Goals is in accordance with the stated objectives, specifically protection of Life, Property and Values at risk. The prioritized mitigation proposals are included in the Wildfire Mitigation Action Items, Tables 4.2-4.5.

5.1 Local Programs

Teton County residents are served by the Teton County Fire District with three stations as well as by USFS and BLM. These entities meet to ensure coordination of resources, promote partnerships and information sharing as necessary throughout the year.

Continuous improvement priorities for the fire district are: training, communications, coordinated emergency services planning and response, personnel protective equipment, and apparatus.

5.2 County Codes

- Teton County Comprehensive Plan: Established road standards, conditions of design and construction. This document contains directions for review and updating of road standards to assure adequacy for long term needs of the County.
- Teton County Fire Protection Resolution for New Subdivisions: Includes requirements for fire district access, water supply and wildfire evaluation.
- Site plan review for building permits check-off.

5.3 State (IDL) Programs

- Provides education to property owners about fire hazards in wildland-urban interface areas.
- Manages the Hazardous Fuels Reduction Program to assist landowners or counties with grant funds for reduction of hazardous fuels.
- Manages Forest Stewardship program to assist landowners in forest and fire planning.
- Declares fire closures when wildfire danger ratings and conditions require.

5.4 Federal Programs

The role of the Federal land management agencies in Teton County is focused on reducing fuel hazards on the lands they administer. They also provide prevention and education programs, provide technical and financial assistance; develop agreements and partnerships with other agencies and private landowners in an effort to provide for safer communities within the wildlands. Some of the programs provide grants to fire districts.

Fire Suppression Assistance Grants may be provided to a State with an approved wildfire hazard protection plan. These grants are provided to protect life and improve property. The grant may include funds for training, equipment, supplies, and personnel. Provides suppression training as requested.

5.5 Toolbox

Fuels Treatment Options and Estimated Costs

Wildland fire can be good for people and the land. There is a need for periodic fire to create disturbances which in turn create healthier more resilient and diverse ecosystems. Removing fire from the landscape will eventually create unhealthy ecosystems: trees are stressed by overcrowding, fire-dependent species disappear, and flammable fuels build up and become hazardous. Land management agencies often utilize prescribed fire to benefit natural resources and protect communities and values at risk. However, in some places and under some conditions it may be too difficult to safely use prescribed fire with acceptable risk. This is where the mechanical treatment of hazardous fuels can be a valuable tool. Hazardous fuels treatments can benefit ecosystems and people by:

- Reducing the probability of catastrophic fires;
- Helping maintain and restore healthy and resilient ecosystems;
- Protecting human communities and values at risk.

Mechanical treatment of hazardous fuels means reducing the amount of vegetation which has built up to dangerous levels, or changing the arrangement of these fuels in the environment. Mechanical treatment can also provide opportunities for woody biomass utilization by providing a renewable source of energy and wood products for local communities.

Examples of mechanical treatment include the thinning of dense stands of trees, or other fuel treatments that make an area better able to withstand fire. Such treatments might be piling brush, pruning lower branches of trees, or creating fuel breaks to reduce fire intensity and severity. Tools that are used to carry out the mechanical treatment of hazardous fuels range from the use of hand tools such as chainsaws, to large machines like masticators and wood chippers.

Mechanical treatment can be used on its own or together with prescribed fire to change how wildfire behaves, so that when a fire does burn through a treated area, it is less destructive, less costly, and easier to control with less risk to public and emergency responders. Often, mechanical fuels treatments are followed by prescribed fire to create effective hazard reduction.

The costs associated with the different types of fuels treatment varies dramatically and is influenced by many factors including: fuel type, fuel density, fuel loading (tons per acre), location of the treatment, and availability of resources to perform the work. The following treatment types and estimated costs have been derived from past projects on private lands.

- Thinning and hand pile – $400-$800 per acre

- Limbing and hand pile – $300-$600 per acre
- Chipping – $300-$600 per acre
- Mastication – $200-$800 per acre
- Pile Burning – $90-$150 per acre

The project work completed on private lands has a rolling average across the state which usually includes the follow practices as a single cost: Cut/Pile/Chip for $1200-$1800 per acre.

For comparison purposes, the average wildfire suppression costs for all land management agencies within the Great Basin Geographical Area (Southern Idaho, Western Wyoming, Nevada and Utah):

- Average wildfire suppression costs - $27,600 per acre.

Grant Opportunities

Government agencies, non-government organizations, and cooperators have come together to offer various programs to assist property owners and communities in obtaining financial assistance for fuels reduction projects that reduce the likelihood of catastrophic wildfire, by creating a higher degree of defensibility in the Wildland-Urban Interface, and ultimately offering firefighters a higher probability of success.

Idaho Department of Lands offers two (2) grant opportunities in cooperation with the USFS for projects specifically identified in County Wildfire Protection Plans. First, the Western State Fire Managers (WSFM) grant supports hazardous fuels reduction on private and state lands, education of landowners and general public, and planning efforts related to the completion of a CWPP or implementation of project work. Second, the Hazardous Fuel Reduction (HFR) grant supports the reduction of hazardous fuels on private and state lands that are adjacent to USFS lands that has a project in the planning process or currently implementing a vegetative project.

Contact Information:

Tyre Holfeltz
Office: 208-666-8653
Cell: 208-819-9340
Email: tholfeltz@idl.idaho.gov
Or visit Idaho Department of Lands webpage at: http://www.idl.idaho.gov/

BLM Community at Risk Program
Reduce the Risk and Impact of Wildfire on Communities through Protection Planning, Hazardous Fuels Reduction, Maintenance and Monitoring, Mitigation and Education Activities.

http://www.federalgrants.com/BLM-Idaho-Communities-at-Risk-Assistance-Program-47352.html

High Country Resource Conservation and Development Council has partnered with several Southeastern Idaho districts, the BLM, Caribou-Targhee National Forest, Teton Soil Conservation District, local fire departments, and many others to help procure funding and facilitate projects that assist property owners in the implementation of Firewise practices that include thinning trees and brush, creating defensible space around their homes.

http://highcountryrcd.weebly.com/

Idaho Bureau of Homeland Security (BHS)

The Bureau of Homeland Security Grant Management Branch conducts grant management activities and coordinates resources before, during, and after a disaster. As the State Administrative Agency for Emergency Management and Homeland Security grants the section applies for grant funding and passes much of the funding to local jurisdictions throughout Idaho. The BHS Logistics Section is responsible for coordinating the purchase of Homeland Security Grant equipment, the Homeland Defense Equipment Reuse (HDER) program and disaster logistics needs.

http://www.bhs.idaho.gov/

Educational Tools and Programs
Scientific research has shown the effectiveness and benefits of implementing wildfire mitigation concepts across individual property boundaries and throughout communities. To save lives and property from wildfire, we the people need to learn to adapt to living with wildfire and encourage our neighbors to work together and take action now to prevent losses in the future. We all have a role to play in protecting ourselves and each other from the risk of wildfire.

The following organizations help to serve as resources for agencies, tribes, organizations, fire departments, communities and residents across the United States who are working toward a common goal: reduce the loss of lives, properties, and resources to wildland fire by building and maintaining communities in a way that is compatible with our natural surroundings.

Firewise Communities Program: Encouraging Solutions

http://www.firewise.org/

The National Fire Protection Association's Firewise Communities Program focuses on what residents can do around their homes to reduce potential loss of life and property to wildfire, and plays an important role in the Fire Adapted Communities approach to wildfire preparedness.

The Firewise program educates homeowners about wildfire risk and advocates principles designed to reduce that risk, including: the creation of defensible space around the home, the utilization and maintenance of fire resistant landscaping, the use of fire resistant building materials, the creation of evacuation plans, and encourages neighbors to work together to help prepare for and reduce the risk of home destruction due to wildfires.

Situational awareness and action – Ready, Set, Go!

http://www.wildlandfirersg.org/

The national Ready, Set, GO! (RSG) Program, managed by the International Association of Fire Chiefs (IAFC), works to develop and improve dialogue about wildland fire awareness and action between local fire departments and the residents they serve.

The program works in complementary and collaborative fashion with the Firewise Communities Program and other existing wildland fire public education efforts. It calls on residents to be Ready with preparedness understanding, to be Set with situational awareness when fire threatens, and to Go, by acting early when a fire starts.

The big picture: Fire Adapted Communities

http://www.fireadapted.org/

Whether it's working around your home and implementing steps provided in the Firewise Communities Program, creating and implementing a Community Wildfire Protection Plan, encouraging your local fire department's participation in the Ready, Set, Go! Program, supporting land management practices in the forest, or other important mitigation activities, the Fire Adapted Communities approach helps connect people to resources to help them reduce their wildfire risk. Fire Adapted Communities is supported by a coalition of national wildfire safety organizations, and information and resources to help communities get started.

USDA Forest Service - State and Private Forestry

http://www.fs.fed.us/spf/

The State and Private Forestry (S&PF) organization of the USDA Forest Service reaches across the boundaries of National Forests to States, Tribes, communities and non-industrial private landowners. S&PF is the federal leader in providing technical and financial assistance to landowners and resource managers to help sustain the Nation's forests and protect communities and the environment from wildland fires.

National Interagency Fire Coordination Center (NICC)

Prevention and Education

http://www.nifc.gov/

Mission of NICC is to serve as a focal point for coordinating the national mobilization of resources for wildland fire and other incidents throughout the United States. NICC has four major elements: equipment and supply dispatching; overhead and crew dispatching; aircraft dispatching; and intelligence and predictive services.

Teton County: Office of Emergency Management

http://tetoncountyidaho.gov/

The primary mission of the Emergency Management Department is planning, training, exercising, coordination, and grant management. Our focus is to work with all agencies and surrounding jurisdictions to plan, exercise, train, and prepare for any possible hazard situation in order to maintain the life safety of all responders and citizens, as well as the stabilization of the incident and protection of property and the environment.

Teton County: Fire & EMS Department

http://tetoncountyfire.com/

It is the mission of Teton County Fire & Rescue to preserve and protect life and property by delivering timely and skilled response to emergency situations. We are committed to providing public service and education that promote health, safety and security to the citizens and visitors of Teton Valley. We are prepared to intervene and utilize our training and resources to limit the pain, suffering and loss of those we serve.

Wildland Urban Interface Wildfire Mitigation

Desk Reference Guide (PMS 051)

www.nwcg.gov/pms/pubs/pms051.pdf

The *Wildland Urban Interface Wildfire Mitigation Desk Reference Guide* is designed to provide basic background information on relevant programs and terminology for those, whether community members or agency personnel, who are seeking to enhance their community's wildfire mitigation efforts.

Insurance Institute for Business and Home Safety

https://www.disastersafety.org/research-center/2011-wildfire-demonstration/

As part of its research effort to study and understand the vulnerabilities of buildings subjected to wildfire exposures, the Insurance Institute for Business & Home Safety (IBHS) developed the capability of simulating ember and radiant heat exposures on building components and assemblies at their Research Center in Richburg, South Carolina. The primary objective of this research is to reduce the likelihood of wildfire-caused building ignitions in communities located in wildfire-prone areas.

Ready - Prepare, Plan, Stay Informed

http://www.ready.gov/

Launched in February 2003, *Ready* is a national public service advertising (PSA) campaign designed to educate and empower Americans to prepare for and respond to emergencies including natural and man-made disasters. The goal of the campaign is to get the public involved and ultimately to increase the level of basic preparedness across the nation.

Idaho Bureau of Homeland Security

http://www.bhs.idaho.gov/

Idaho Bureau of Homeland Security is a Division of the Idaho Military Division. The services we provide are to facilitate emergency management in Idaho, and to assist neighboring states. The men and women of this Division are dedicated to their mission of protecting the lives and property of the people of Idaho, as well as preserving the environmental and the economic health of Idaho.

Idaho Bureau of Homeland Security Mission:

Guide the State of Idaho in effectively preparing for, protecting against, mitigating the effects of, responding to, and recovering from all hazards.

6.0 TREATMENT OF STRUCTURAL IGNITABILITY

Treatment of Structural Ignitability
A CWPP must recommend measures that homeowners and communities can take to reduce the ignitability of structures throughout the area addressed by the Plan.

Recommendations for Reducing Structural Ignitability - Home Ignition Zone
Reducing structural ignitability and preventing the loss of property in the event of a wildland fire is a high priority in Teton County. Efforts to reduce structural ignitability can be separated into building materials and vegetation management (defensible space around structures and large scale fuels reduction projects). In order to identify and understand methods for increasing a structure's ability to survive a wildfire it is important to first understand how structures burn during a wildland fire. Homes ignite and burn by meeting the parameters for ignition and combustion (Cohen 2008).

Structures may be ignited by firebrands, which are embers that are lofted through the air from a moving flame front or by radiant or convection heating. Firebrands can ignite structures by landing on flammable materials either on or surrounding a structure. Firebrands are particularly detrimental to structures with flammable building materials including wood shake roofs. Accumulations of flammable materials in roof valleys, in gutters, or directly adjacent to the structure can significantly increase a structure's vulnerability.

The two main factors affecting a structures ability to survive a wildfire are the exterior building materials and the amount of defensible space surrounding the structure within 100 feet to 200 feet of the structure, known as the Home Ignition Zone (Cohen 2008). The home ignition zone typically is located on private property, which requires property owners to recognize the hazards, take ownership and responsibility of the hazards, and mitigate the hazardous fuels to a level that will increase the survivability of the structure.

Building Materials

- Replace older shake roofs with those of a higher fire resistive rating including asphalt composition, tile or metal roof assembly
- Replace wood siding with a more fire resistive cement product including cement, stucco, cement plank siding, stone or masonry.
- Screen attic, roof, foundation and eave vents openings with 1/8" metal screens.
- Enclose areas under decks completely.
- Windows should be double-paned or tempered glass.
- Follow all regulation found in the Teton County's Fire Code Resolution and any other law/regulations.

For more information, visit http://www.firewise.org

Defensible Space

Educational campaigns are encouraged to be in place to raise awareness and encourage homeowners to implement defensible or survivable space. Defensible space should be encouraged around all structures in Teton County on all ownerships.

Defensible space is the area around a structure where the vegetative fuels have been modified to reduce intensity and behavior of a wildfire towards the structure, and away from the structure if the structure is on fire. The primary purpose of defensible space is to improve the structure's ability to survive a wildfire in the absence of firefighter intervention. Firefighters may use defensible space to work to protect a structure during a wildland fire event. Defensible space is an effort to reduce structural ignitability but is not a guarantee a structure will survive during a wildfire.

Minimum defensible space recommended is 100 feet from a structure on a flat property. A greater distance may be required on steep slopes. Defensible space should increase with increasing topography as fire moves easily uphill preheating vegetative fuels. Defensible space consists of three zones: Zone 1 is closest to the structure and is the most heavily modified zone, usually 0 to 30 feet from the structure. Zone 1 recommendations include but are not limited to:

- Remove all flammable vegetation within 3 to 5 feet of the structure.
- Remove any tree branches hanging over structures that will drop needles or other debris onto roofs, gutters, or decks.
- Do not plant vegetation underneath eaves or roof lines.
- Move firewood piles further than 30 feet from the structure during wildfire season.
- Plant fire resistant vegetation and maintain during fire season

Zone 2 is where the vegetation is modified to reduce the intensity of an oncoming fire, or create speed bumps through the vegetation approaching the structure. Recommendations in this zone include but are not limited to:

- Remove all ladder fuels
- Provide a minimum crown spacing between trees of 10 feet between crowns on a flat property, greater distance on a slope
- Prune trees to a height approximately 8 to 10 feet above the ground
- Provide a minimum shrub spacing of 2 ½ times the height of the shrub between shrubs
- Prune shrubs to remove contact with ground fuels
- Keep grasses mowed
- Remove all dead material

Zone 3 is a transition zone toward a more traditional vegetation management style to meet landowner objectives while working with principles of stewardship. Recommendations include but are not limited to:

- Thinning to remove suppressed and overstocked trees while promoting and maintaining healthy vigorous trees
- Limit vegetation combinations that contain ladder fuels to isolated clumps.

- Reduce shrub densities to promote healthy growth and reduce density and continuity through the zone.
- Snags (dead standing trees) should only remain if they do not pose a safety hazard.

Firewood should be stacked along the contour or above the structure, but not below. Firewood should be stacked a minimum of 30 feet from the structure and should be separated from other flammable vegetation. Flammable vegetation and other materials should not be stored under decks. It is also important to reduce hazardous fuels and create defensible space along driveways to improve firefighter access to homes and to maintain escape routes.

7.0 WILDFIRE PROTECTION PLAN MAINTENANCE

Proposed plan maintenance will be annual, with a total review every five years, and will coincide with the update of the Teton County All Hazard Mitigation Plan. Annual review of the plan and protection recommendations will be necessary as various projects or tasks are accomplished and areas at-risk decline. Review will also be needed as county infrastructure requirements change or are met (Teton County Fire District, Teton County Sheriff's Office, Teton County Emergency Management). Review should at least include land management agencies and private citizens who participated in the development of this plan. The inclusion of Federal and State Land managers will assist in the initiation of planning procedures for identified mitigation projects and to update or modify mitigation actions or recommendations.

A total plan review of every 5 years is recommended as Teton County requirements change, population increases, fuels reduction projects are completed, emergency services communication and computer support needs are met or increase, and as wildfire hazard & WUI areas change.

8.0 CONTINUED PUBLIC INVOLVEMENT

The continued involvement of the public for the TCWPP is needed to accomplish many of the recommendations. Establishment of Emergency Action Plans for developments and communities will require continued involvement. Teton County Fire District needs to provide input to the plan and feedback to Fire Commissioners, County Commissioners, and municipalities. Continued involvement by the Fire District, Sheriff, Commissioners, LEPC, cooperators, land managers, and citizens will occur as mitigation actions are addressed and the plan is reviewed. Copies of the plan will be available online at:

http://www.idl.idaho.gov/fire/counties/index.html

Annual review and mitigation prioritization by Teton County Fire District, Teton County Sheriff's Office, Emergency Management, and federal agencies will provide information to and create opportunities for involvement with numerous residents of Teton County.

Appendix A: Questionnaire

Please see the All Hazard Mitigation Plan for the questionnaire and results.

Appendix B: Public Participation/Planning Process Documentation

Public participation was a key component of the strategic planning process for the TCWPP. The TCWPP integrates a cross-section of citizen and agency input that was gathered throughout the planning process. Coordination and structure was through Teton County Fire District. The Teton County Wildfire Group was comprised of knowledgeable individuals representing the major land managers and regulators in the county including: BLM, Forest Service, Teton County Commissioners, Teton County Planning & Zoning, Idaho Department of Lands, High Country RC & D, and private citizens. Public outreach in 2004 and 2009 included the use of a survey available on the county's website and an open house advertised in the Teton Valley News "Community Calendar" and e-mailing potentially interested groups such as Valley Alliance for Responsible Development, the Teton Valley Alliance, Greater Yellowstone Coalition, and Idaho Conservation League. The 2016 update included public workshops, the use of a questionnaire, and other outreach efforts as described above. The 2016 update coincided with the All Hazard Mitigation Update for the County. The TCWPP will now be updated and maintained within the All Hazard Mitigation Plan.

Appendix C: Economic Analysis

Economic Analysis of Potential Losses due to Wildfires

As there have not been any recent long duration wildfire events in Teton Valley financial impacts on the ski resort community of Sun Valley have been used as a reference. The 2007 human caused Trail Ck fire outside of Sun Valley, ID burned 289 acres and suppression costs totaled $680,000. The Castle Rock Fire that threatened Ketchum, ID in 2007 burned 48,520 acres and cost more than $15,000,000 to suppress, including $2,100,000 due from the city while sharply decreasing tourist revenues affected the community.

Virtually all hillside locations in Teton County are at increased risk from wildfires. Of the 3,000+ homes within the county over 367 of them are located on hillsides with slopes greater than 15%. A sample of 110 Teton County residential homes taken in 2004 yielded an averaged assessed value of $259,771 per residence and property. Property values are included because of post-wildfire declines in property values and high rehabilitation costs in mountainous terrain. Fifteen percent of this average was added for personal property in the homes. This provided the total average value of $298,736 per residence and property. Using an average value of $298,736 the total estimated value of Teton County homes located on slopes greater than 15% is $109,636,112. Add to this the value of county assets including county structures and federal improvements and communication sites; the estimated total value of assets at increased risk from wildfire is over $200,000,000. This total does not include the value of timber resources, watersheds, and scenic vistas nor does it include costs of vegetation restoration or soil erosion control efforts that will be necessary after a wildfire.

More difficult to analyze are the potential economic impacts to the community that would be caused by reduced visitation due to wildfire smoke & activities. Or the potential impacts of closing ID33/WY22 or the Ski Hill Road for extended periods of time due to wildfire activity as a majority of working residents of Teton Valley commute to Jackson & Grand Targhee in Teton Co., Wy.

Total economic impacts are the sum of direct and indirect economic impacts. Decision makers should understand the total economic impacts of natural disasters in order to calculate the benefits of a mitigation activity. Additionally, it must be realized that benefit/cost analysis, when used alone, may divert attention from other important issues. It is important to consider the qualitative factors of a project associated with mitigation that cannot be evaluated economically. There are alternatives. Many communities and developments are considering developing multi-objective projects, including: integration of natural hazard mitigation with projects related to watersheds, wildfire protection, environmental planning, community economic development, and small business development.

Appendix D: List of Acronyms

LIST OF ACRONYMS

AMSL	Above Mean Sea Level
BHS	Bureau of Homeland Security
BLM	Bureau of Land Management
CRP	Conservation Reserve Program
DHS	Department of Homeland Security
FEMA	Federal Emergency Management Agency
ICS	Incident Command System
IDL	Idaho Department of Lands
LEPC	Local Emergency Planning Committee
MOU	Memorandum of Understanding
MSL	Mean Sea Level
NEPA	National Environmental Protection Act
NFPA	National Fire Protection Association
NWCG	National Wildfire Coordinating Group
RFD	Rural Fire District
TCFD	Teton County Fire District
TCAD	Teton County Ambulance District
USFS	United States Forest Service
VFD	Volunteer Fire District
WGA	Western Governors' Association
WUI	Wildland/Urban Interface

Appendix E: Financial/Technical Resources

FINANCIAL RESOURCES:

Financial resources that can provide support for various Wildfire mitigation action items included various State and Federal grants administered through Idaho Department of Lands, the Bureau of Land Management, the Natural Resource Conservation Service, and the Federal Emergency Management Agency.

Hazardous fuels reduction grants for Teton County can be combined from developments in the county and applied for through Idaho Department of Lands. Grant administration costs should be included in grant requests.

Teton County Fire District is eligible for grant programs administered by the BLM, FEMA, IDL. Grant applications based upon countywide priorities should assist Teton County Fire District for grant opportunities.

FEMA assistance to local fire districts:
www.usfa.fema.gov/grants

Other opportunities:

National fire plan contracting opportunities:
https://www.forestsandrangelands.gov/resources/overview/

Link to State & Private Forestry site providing information on grants available for biomass utilization & potential uses for small diameter woody materials:
http://www.fpl.fs.fed.us/research/research_emphasis_areas/introduction.php?rea_id=5

TECHNICAL RESOURCES / WEBSITES:

Numerous technical resources are available for wildfire mitigation. Internet home pages of Idaho Department of Lands, the U.S. Forest Service, the Bureau of Land Management, NFPA, and FEMA can be accessed for additional information.

Idaho Department of Lands, internet address for information about state of Idaho lands is:
www.idl.idaho.gov/

Website accessing firewise information on construction, landscaping, educational programs, photographs and more:
http://www.firewise.org/

Bureau of Land Management
Website: www.blm.gov

Information on Healthy Forests Initiative, National Fire Plan:
http://www.forestsandrangelands.gov/

U.S. Forest Service Fire Sciences Laboratory
Website: www.firelab.org

National Academy of Public Administration, Wildfire Suppression: Utilizing Local Firefighting Forces.
Website: www.napawash.org

Access to seamless wildland fuels & fire hazard GIS data:
http://www.landfire.gov/

Teton Co. GIS – on-line availability of County Maps:
http://www.tetoncountyidaho.gov/department.php?deptID=14&menuID=1

Appendix F: References

Anderson H.D. Aid to determining fuel models for estimating fire behavior. General Technical Report INT-22, NOCG publication

Effects of Fuel Treatments on Wildfire Severity, Final Report, Interagency Joint Fire Sciences Program, Western Forest Fire Research Center, Colorado State University, Phillip N. Omi, Erik J. Martinson.

FEMA region 10, 201.6 Local Mitigation Plans, Local Hazard Mitigation Plan Determination.

Gray, Gerry, May 29, 2001. "A Community-Based Approach to Addressing Wildfire".

Idaho Department of Lands document: Hazardous Fuels Reduction Program.

Idaho Department of Lands document: Multi-Resource Stewardship Program.

Interagency Fire Education Initiative, resource Management Education Unit, 2001 http://fire.nifc. nps.gov/fire/ecology/docs/ecplinit.html.

Jack D. Cohen, U.S. Forest Service, Fire Laboratory research paper: Wildland-Urban Fire-A Different Approach.

National Academy of Public Administration, September 2002: Wildfire Suppression: Strategies For Containing Costs, December 2003: Utilizing Local Firefighting Forces.

The National Map LANDFIRE: LANDFIRE, Landscape File (FBFM13). (2007, September - last update). U.S. Department of Interior, Geological Survey. [Online]. Available: http://gisdata.usgs.net/website/landfire/ [2007,February 8].

National Wildfire Coordinating Group, October 1999. Establishing Fire Prevention Education Cooperative Programs and Partnerships.

Presidential Directive/HSPD-5: Management of Domestic

Incidents State of Idaho Strategy for Implementation of the

National Fire Plan Teton County Comprehensive Plan

Teton County Subdivision Regulations

Teton County Building Regulations

Teton County Rural Address System

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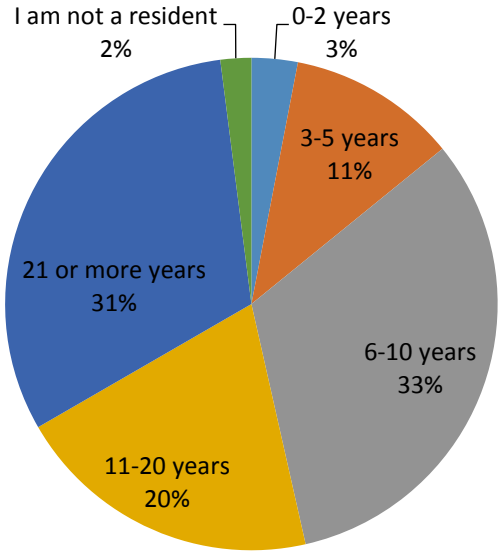
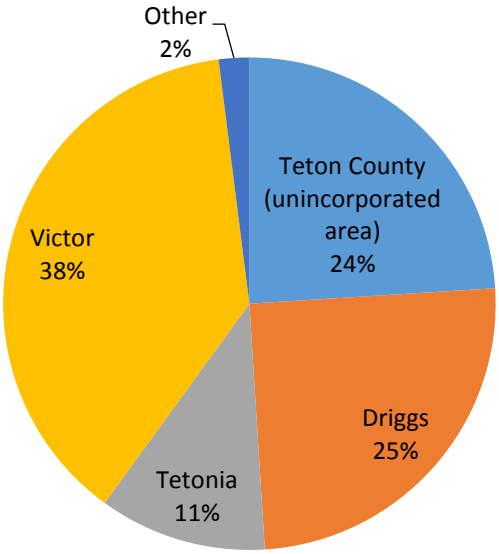
Attachment III: Public Questionnaire

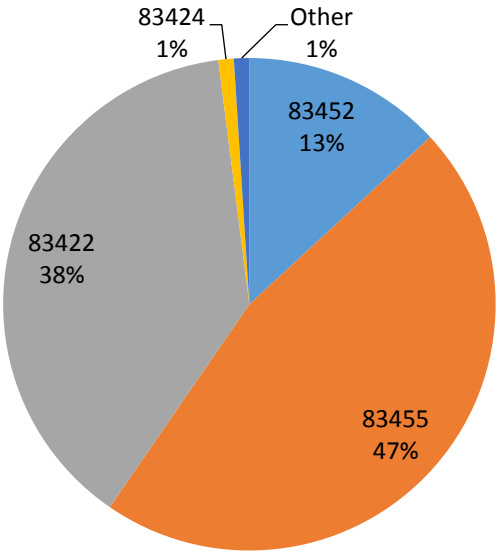
Approximately how many years have you lived in Teton County, Idaho?



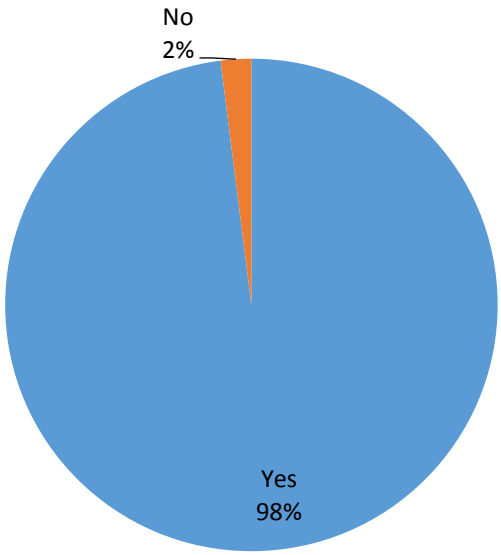
Please indicate the jurisdiction that best represents the location of your home address/place of residence.



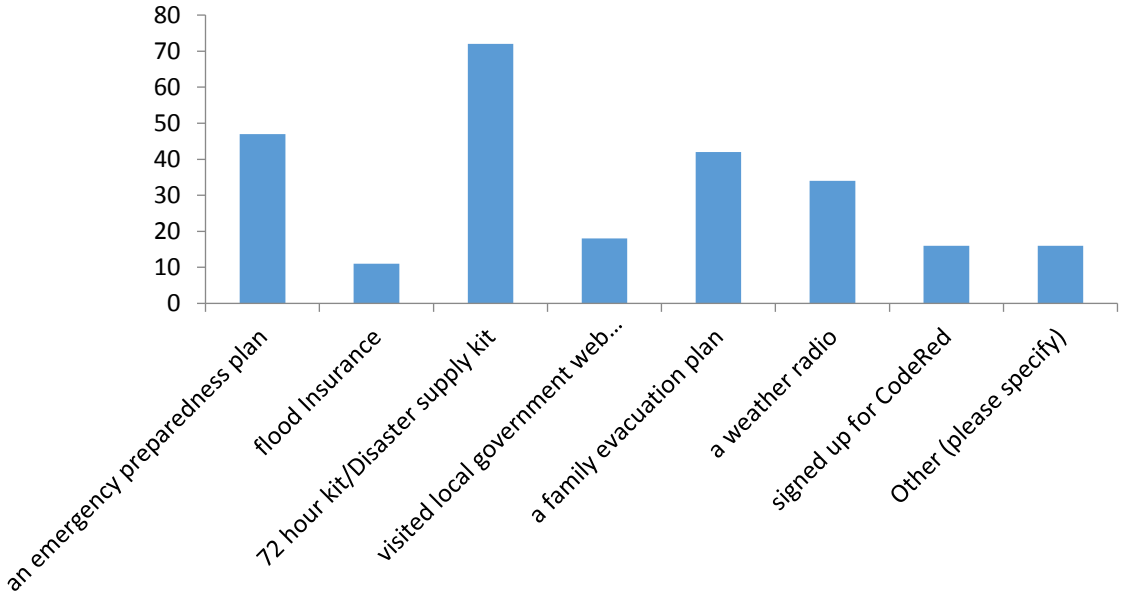
What is your zip code?



Do you have access to the internet?

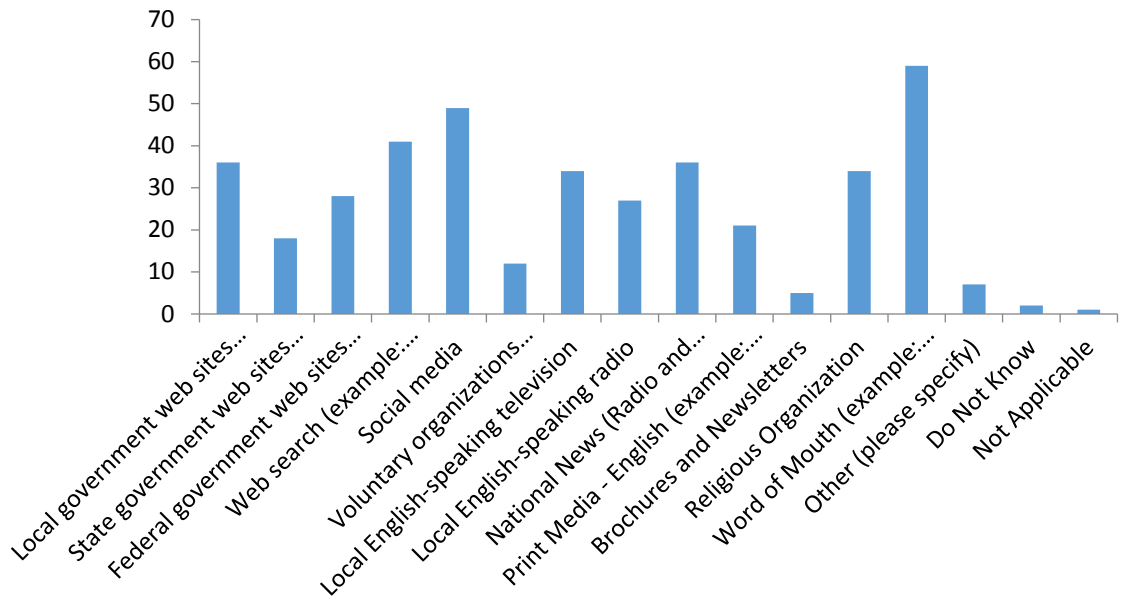

No
2%
Yes
98%

Please indicate those activities your household has done to prepare for emergencies and disasters. Please select ALL that apply. My household has…



Value	Percent
an emergency preparedness plan	47.3%
flood Insurance	10.8%
72 hour kit/Disaster supply kit	71.6%
visited local government web site(s) for emergency preparedness information	17.6%
a family evacuation plan	41.9%
a weather radio	33.8%
signed up for CodeRed	16.2%
Other (please specify)	16.2%
Total	

Please indicate where you go to obtain emergency and disaster related information? Please select ALL that apply.



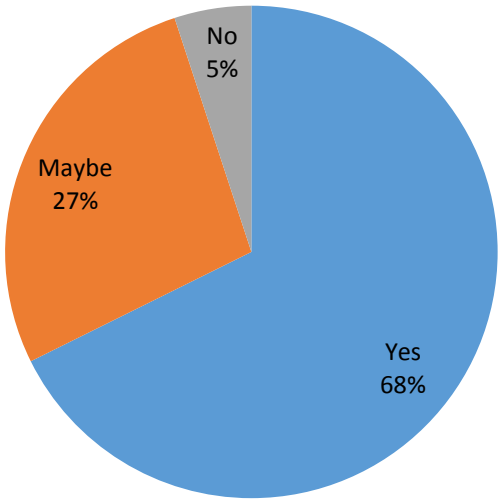
Value	Percent
Local government web sites (example: www.tetoncountyidaho.gov)	35.9%
State government web sites (example: www.idaho.gov)	18.5%
Federal government web sites (example: www.fema.gov)	28.3%
Web search (example: bing.com, google.com)	41.3%
Social media	48.9%
Voluntary organizations (example: American Red Cross, Salvation Army, etc.)	12.0%
Local English-speaking television	33.7%
Local English-speaking radio	27.2%
Local Spanish-speaking radio	0.0%
National News (Radio and Television)	35.9%
Print Media - English (example: newspapers)	20.7%
Brochures and Newsletters	5.4%
Religious Organization	33.7%
Word of Mouth (example: friends, family, co-workers)	58.7%
Other (please specify)	6.5%
Do Not Know	2.2%

Not Applicable	1.1%
Total	

Would you agree or disagree with the following statements?

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree	Do Not Know	Responses
Teton County is providing the services necessary to prepare me for a disaster.	2.2 % 2	18.5 % 17	41.3 % 38	12.0 % 11	3.3 % 3	22.8 % 21	92
I am familiar with Teton County's web site and can easily obtain information about emergencies and disasters.	5.4 % 5	37.6 % 35	22.6 % 21	14.0 % 13	7.5 % 7	12.9 % 12	93
During times of emergency, information is provided in a language or format I can understand.	23.9 % 22	42.4 % 39	18.5 % 17	1.1 % 1	0.0 % 0	14.1 % 13	92
I can easily obtain emergency information in times of crisis.	5.4 % 5	44.1 % 41	18.3 % 17	10.8 % 10	2.2 % 2	19.4 % 18	93

If a disaster (i.e. snow storm) impacted Teton County, knocking out electricity and running water, would you and your household be able to manage on your own for at least three (3) days?


No
5%
Maybe
27%
Yes
68%

Do you believe that your household and/or place of residence might ever be threatened by the following hazards? Please rate what hazards present the greatest risk to your household.

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
Extreme Cold	23.9 % 22	22.8 % 21	53.3 % 49	0.0 % 0
Severe Winter Storm/Heavy Snowfall	25.0 % 23	21.7 % 20	53.3 % 49	0.0 % 0
Hail	32.6 % 30	42.4 % 39	23.9 % 22	1.1 % 1
High Wind Incident (i.e. Tornado, Microbursts)	22.0 % 20	48.4 % 44	29.7 % 27	0.0 % 0
Lightning	26.1 % 24	38.0 % 35	35.9 % 33	0.0 % 0
Heavy Rain	34.8 % 32	43.5 % 40	20.7 % 19	1.1 % 1
Drought	34.8 % 32	33.7 % 31	30.4 % 28	1.1 % 1
River Flooding	59.6 % 53	25.8 % 23	7.9 % 7	6.7 % 6
Flash Flooding	49.4 % 44	39.3 % 35	7.9 % 7	3.4 % 3
Sheet Flooding	51.7 % 45	33.3 % 29	8.0 % 7	6.9 % 6
Cybersecurity	30.3 % 27	40.4 % 36	27.0 % 24	2.2 % 2
Animal Disease Outbreak/Incident (i.e. Hoof and Mouth Disease)	46.1 % 41	33.7 % 30	18.0 % 16	2.2 % 2
Animal-related Accident (i.e. Vehicle-Deer Collision, Vehicle-Livestock Collision)	18.9 % 17	36.7 % 33	44.4 % 40	0.0 % 0

Do you believe that your household and/or place of residence might ever be threatened by the following hazards? Please rate what hazards present the greatest risk to your household.

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
Earthquake	15.2 % 14	45.7 % 42	39.1 % 36	0.0 % 0
Landslide/Mudslide	80.2 % 73	13.2 % 12	1.1 % 1	5.5 % 5
Avalanche	75.0 % 69	8.7 % 8	5.4 % 5	10.9 % 10
Wildfire	35.9 % 33	42.4 % 39	19.6 % 18	2.2 % 2
Volcanic Eruption/Ash	51.1 % 47	26.1 % 24	20.7 % 19	2.2 % 2
Utility Disruption (i.e. Power/Electricity, Water, Sewer, Phone)	11.8 % 11	36.6 % 34	51.6 % 48	0.0 % 0
Hazardous Materials Incident (example: Chemical release)	55.4 % 51	31.5 % 29	10.9 % 10	2.2 % 2
Radiological Incident	65.2 % 60	19.6 % 18	12.0 % 11	3.3 % 3
Terrorism Incident	71.7 % 66	22.8 % 21	4.3 % 4	1.1 % 1
Civil Disorder/Riot	81.5 % 75	13.0 % 12	3.3 % 3	2.2 % 2
Major Transportation Incident	63.7 % 58	25.3 % 23	8.8 % 8	2.2 % 2
Public Health Incident (i.e. Pandemic)	34.8 % 32	52.2 % 48	10.9 % 10	2.2 % 2

Vector-Borne Disease (i.e. West Nile Virus)	30.4 % 28	54.3 % 50	13.0 % 12	2.2 % 2

Please select the answer that best describes your experience.

Value	Percent
I have never experienced property damage or loss from a disaster(s)	44.1%
I have experienced minor property damage and loss from a disaster(s)	45.2%
I have experienced major property damage and loss from a disaster(s)	9.7%
I have experienced catastrophic property damage and loss from a disaster(s)	1.1%

If you have experienced any damage from a disaster, please list the hazard(s) that caused the damages/losses (Example: flooding, wind)

Count	Response
1	Drought
1	Flooding
4	Hail
1	Hail broke a windshield
1	Hail/wind
1	High Winds
1	High winds and hail
1	If high wind is a disaster, I have lost shingles and siding from the house.
1	Lightening

1	Plants and garden material after wind/hail. Frozen/broken pipes due to extreme cold.
1	Subwater
1	Trail Creek flooded (sub) in 1996, 1997, 2010 (high snow years)
2	Wind
1	Wind Damage
1	Wind and hail
1	Wind shear
1	Wind, extreme snowfall/blizzard, extreme cold
1	crop damage-drought-frost-hail
1	electrical, wind, snow, water
2	fire
1	flooding, fire
1	flooding, wind
2	hail
1	hail and wind damage
1	hail storm in 2014
1	hail, lightning
1	lightning
1	lightning killing cattle
1	rain, wind, cold, snow
1	water
1	wildfire destroyed property, propane explosion at neighbors broke windows and cracked walls
5	wind
1	wind & hail
1	wind, water, hail
1	wind, cold
1	wind, flooding

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
Extreme Cold	15.4 % 14	28.6 % 26	28.6 % 26	27.5 % 25
Severe Winter Storm/Heavy Snowfall	9.9 % 9	15.4 % 14	35.2 % 32	39.6 % 36
Hail	34.1 % 31	39.6 % 36	17.6 % 16	8.8 % 8
High Wind Incident (i.e. Tornado, Microbursts)	20.0 % 18	37.8 % 34	27.8 % 25	14.4 % 13
Straight Line Wind	29.1 % 25	45.3 % 39	18.6 % 16	7.0 % 6
Lightning	26.7 % 24	41.1 % 37	21.1 % 19	11.1 % 10
Heavy Rain	22.2 % 20	40.0 % 36	24.4 % 22	13.3 % 12
Drought	16.9 % 15	27.0 % 24	34.8 % 31	21.3 % 19
River Flooding	17.0 % 15	36.4 % 32	33.0 % 29	13.6 % 12
Flash Flooding	17.6 % 15	40.0 % 34	34.1 % 29	8.2 % 7

Sheet Flooding	26.5 % 22	44.6 % 37	25.3 % 21	3.6 % 3
Cybersecurity	18.4 % 16	37.9 % 33	27.6 % 24	16.1 % 14
Animal Disease Outbreak/Incident (i.e. Hoof and Mouth Disease)	14.8 % 13	34.1 % 30	40.9 % 36	10.2 % 9
Animal-related Accident (i.e. Vehicle-Deer Collision, Vehicle-Livestock Collision)	18.0 % 16	33.7 % 30	33.7 % 30	14.6 % 13

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

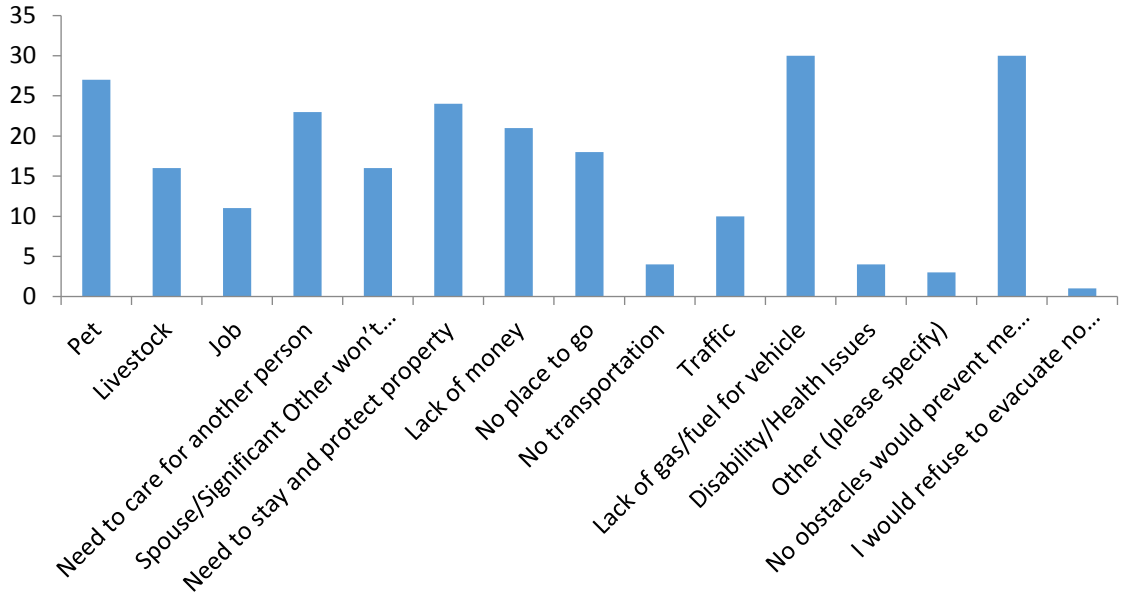
	No Mitigation Needed	Low Priority	Medium Priority	High Priority
Earthquake	10.0 % 9	18.9 % 17	34.4 % 31	36.7 % 33
Landslide/Mudslide	18.2 % 16	45.5 % 40	27.3 % 24	9.1 % 8
Avalanche	19.3 % 17	34.1 % 30	29.5 % 26	17.0 % 15
Wildfire	3.3 % 3	15.6 % 14	34.4 % 31	46.7 % 42
Volcanic Eruption/Ash	31.5 % 28	37.1 % 33	15.7 % 14	15.7 % 14
Utility Disruption (i.e. Power/Electricity, Water, Sewer, Phone)	3.3 % 3	11.1 % 10	33.3 % 30	52.2 % 47
Hazardous Materials Incident (example: Chemical release)	15.7 % 14	37.1 % 33	27.0 % 24	20.2 % 18
Radiological Incident	22.7 % 20	42.0 % 37	20.5 % 18	14.8 % 13
Terrorism Incident	20.0 % 18	44.4 % 40	22.2 % 20	13.3 % 12
Civil Disorder/Riot	28.4 %	43.2 %	13.6 %	14.8 %

	25	38	12	13
Major Transportation Incident	20.2 % 18	38.2 % 34	29.2 % 26	12.4 % 11
Public Health Incident (i.e. Pandemic)	7.8 % 7	26.7 % 24	35.6 % 32	30.0 % 27
Vector-Borne Disease (i.e. West Nile Virus)	11.0 % 10	27.5 % 25	37.4 % 34	24.2 % 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.	39.8 % 37	43.0 % 40	10.8 % 10	3.2 % 3	2.2 % 2	1.1 % 1
I would first consult with family and friends outside my household before making a decision to evacuate.	35.9 % 33	33.7 % 31	15.2 % 14	12.0 % 11	0.0 % 0	3.3 % 3
Wait and see how bad the situation is going to be before deciding to evacuate.	15.2 % 14	31.5 % 29	37.0 % 34	13.0 % 12	1.1 % 1	2.2 % 2
Refuse to evacuate no matter what.	0.0 % 0	3.3 % 3	19.8 % 18	68.1 % 62	4.4 % 4	4.4 % 4

What might prevent you from leaving your place of residence if there was an evacuation order? Please select ALL that apply.

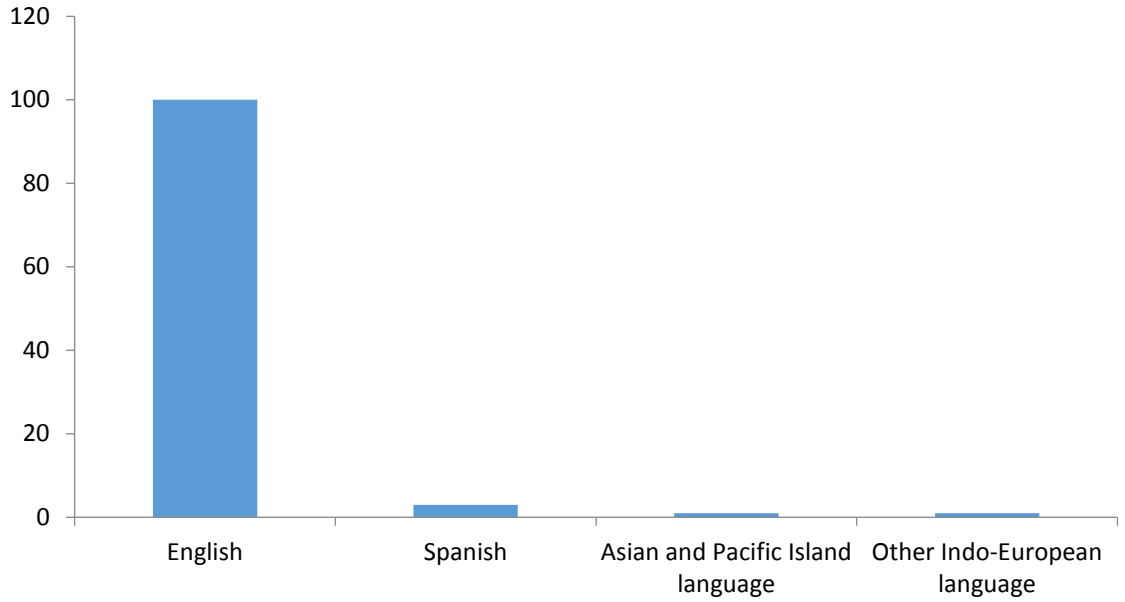


Value	Percent
Pet	27.5%
Livestock	16.5%
Job	11.0%
Need to care for another person	23.1%
Spouse/Significant Other won' t leave	16.5%
Need to stay and protect property	24.2%
Lack of money	20.9%
No place to go	17.6%
No transportation	4.4%
Traffic	9.9%
Lack of gas/fuel for vehicle	29.7%
Disability/Health Issues	4.4%
Other (please specify)	3.3%
No obstacles would prevent me from evacuating	29.7%
I would refuse to evacuate no matter what	1.1%
Total	

What type of structure do you live in?

Value	Percent
Detached single family home	86.0%
Duplex, triplex, quadruple home	5.4%
Multi-family building (apartment)	1.1%
Mobile home	1.1%
Manufactured home	6.5%
Recreational vehicle (RV)	0.0%
Some other type of structure	0.0%
Do Not Know	0.0%
Not Applicable	0.0%
Other (please specify)	0.0%
Total	

Please indicate the language(s) spoken in your household. Please select ALL that apply.



Value	Percent
English	100.0%
Spanish	3.3%
Asian and Pacific Island language	1.1%
Other Indo-European language	1.1%
Other (please specify)	0.0%

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Attachment IV: Public Participation

This appendix describes the methods the County used to involve the public in the mitigation planning process.

Meeting Agendas

Attendance Sheets:

Meeting 1

Teton County 5/14/15 AHMP Kick-Off Meeting

Name	Agency	Email	Phone
Greg Adams	TCEMC	gadams@coteton.id.us	354-2703
Tom Davis	Teton County	tdavis@co.teton.id.us	313-5106
Tony Lisoad	Teton County SO	TLisoad@co.Teton.ID.US	354-2323
Bret Campbell	Teton Fire		
Kristin Rader	Teton County	krader@co.teton.id.us	354-2593 ext 200
Keith Birch	IDL	birchkei@silverstar.com	354-8239
Bill Leake	Teton County	bleake@~~id~~co.teton.id.us	521-4689
Darryl Johnson	Teton County	djohnson@co.teton.id.us	354-0245
John Dobbins	Hospital	jdobbins@tvhcare.org	354-2383
Martell Gibbons	USFS	mdgibbons@Fs.Fed.us	520-5685
Mike Clements	IBHS	MClements@BHS.Idaho.gov	587-0754
Jared D Gunderson	City of Driggs	Jgunderson@driggsidaho.org	208-354-2362
Rob Marin	Teton Co. GIS	RMarin@co.Teton.ID.GIS	208-354-2593 x 205
Wendi Celino	Fall River Elec.	WENDI.CELINO@FALLRIVERELECTRIC.COM	208-652-7110
Lyan Bagley	Soil Conservation	jillbagley@hotmail.com	313-7562

Meeting 2

Teton County 6/25/15 AHMP Projects Meeting

Name	Agency	Email	Phone
Grey Adams	TC EMC	gadams@co.teton.id.us	354-2703
Martell Gibbons	USFS	mdgibbons@fs.fed.us	520-5685
David Ferguson	TVHC	DFerguson@TVHC.org	354-6300
Mike Clements	IBHS	mClements@BHS.Idaho.Gov	589-0754
Mitch Smaellie	City Teton	msmaellie@gmail.com	521-1719
Jason Beal	Teton County	jbeal@co.teton.ID.US	354-2593
Randy Drake	ITD	randy.drake@ITD.IDAHO.GOV	208-745-5609
John Dobbins	TVHC	jdobbins@tvhcare.org	201-6227
ASHLEY KOEHLER	DRIGGS	akoehler@driggsidaho.org	354-2362
JARED D GUNDERSON	DRIGGS	JGunderson@driggs.Idaho.gov	270-0208
Mike Golden	TCSO	mgolden@co.teton.id.us	354-2923
Gloria Hoopes			
Darryl Johnson			
~~John Dobbins~~			
Jud Tolman	Silverstar	jtolman@silverstar.net	399-6710

Meeting 3

Teton County 8/19/15 AHMP Projects Meeting

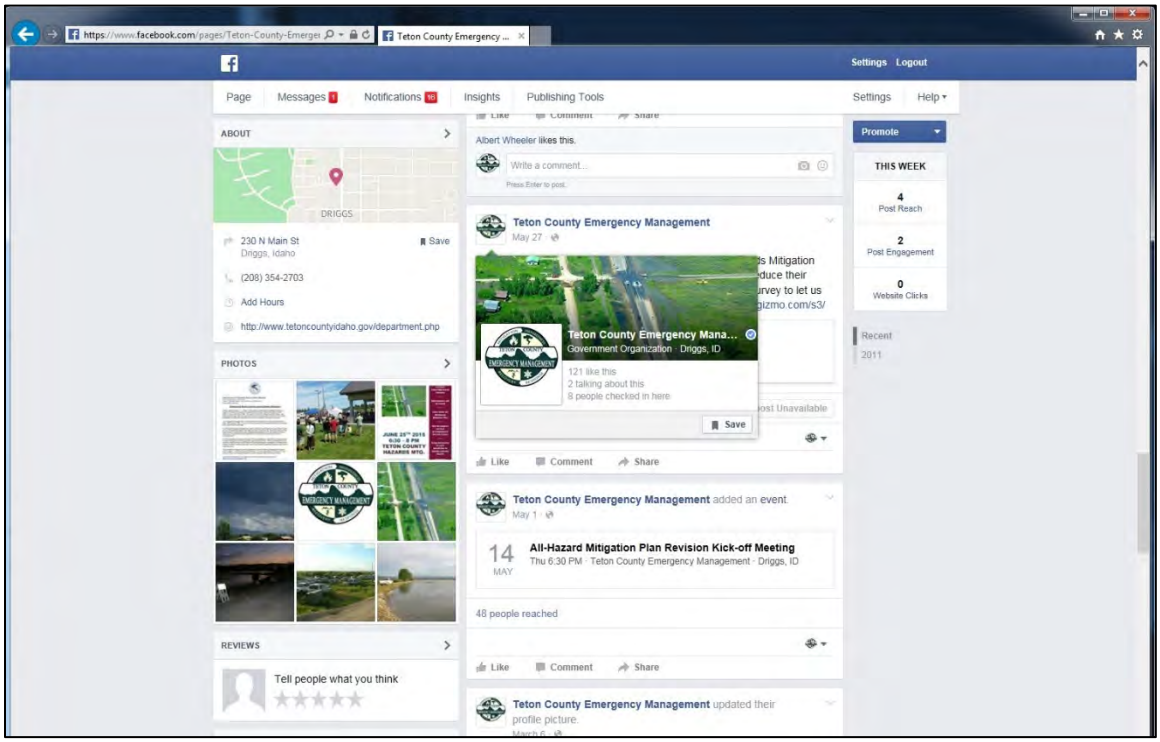
Name	Agency	Email	Phone
Greg Adams	Teton EMC	gadams@co.teton.id.us	354-2703
Kelly Park	Teton Comm		390 0615
John Dobbins	TVHC	jdobbins@tvhcare.org	201-6227
Dave Ferguson	TVHC	"	"
Keith Birch	IDL	birchkei@silverstar.com	313-3446
Jared Dsunderson	City of Driggs	JSunderson@driggsidaho.org	270 0209
Bill Leake	BoCC	bleakee@co.teton.id.us	521-4687
Molly Smoellie	Teton City	msmoellie@gmail.com	521-1719
Bonnie Beard	County	bbeard@co.teton.id.us	354-3507
Mitch Golden	TCSO	mgolden@co.teton.id.us	354 8785

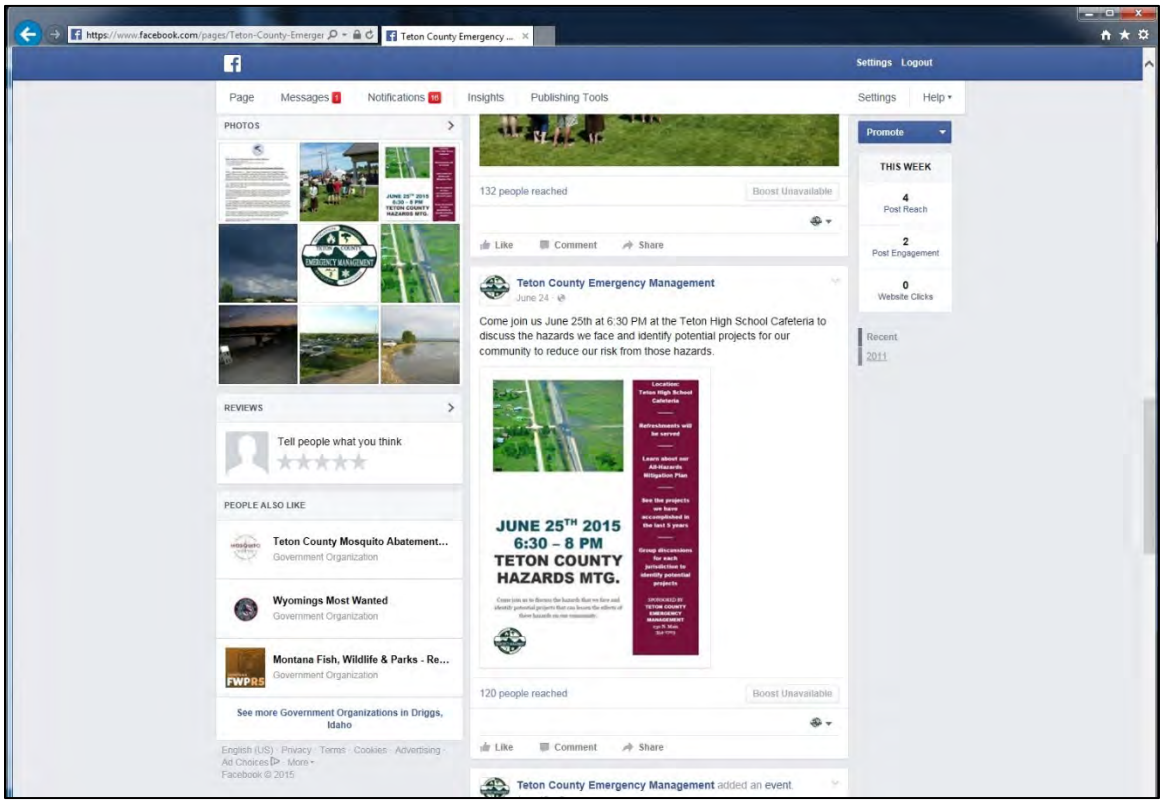
Meeting 4

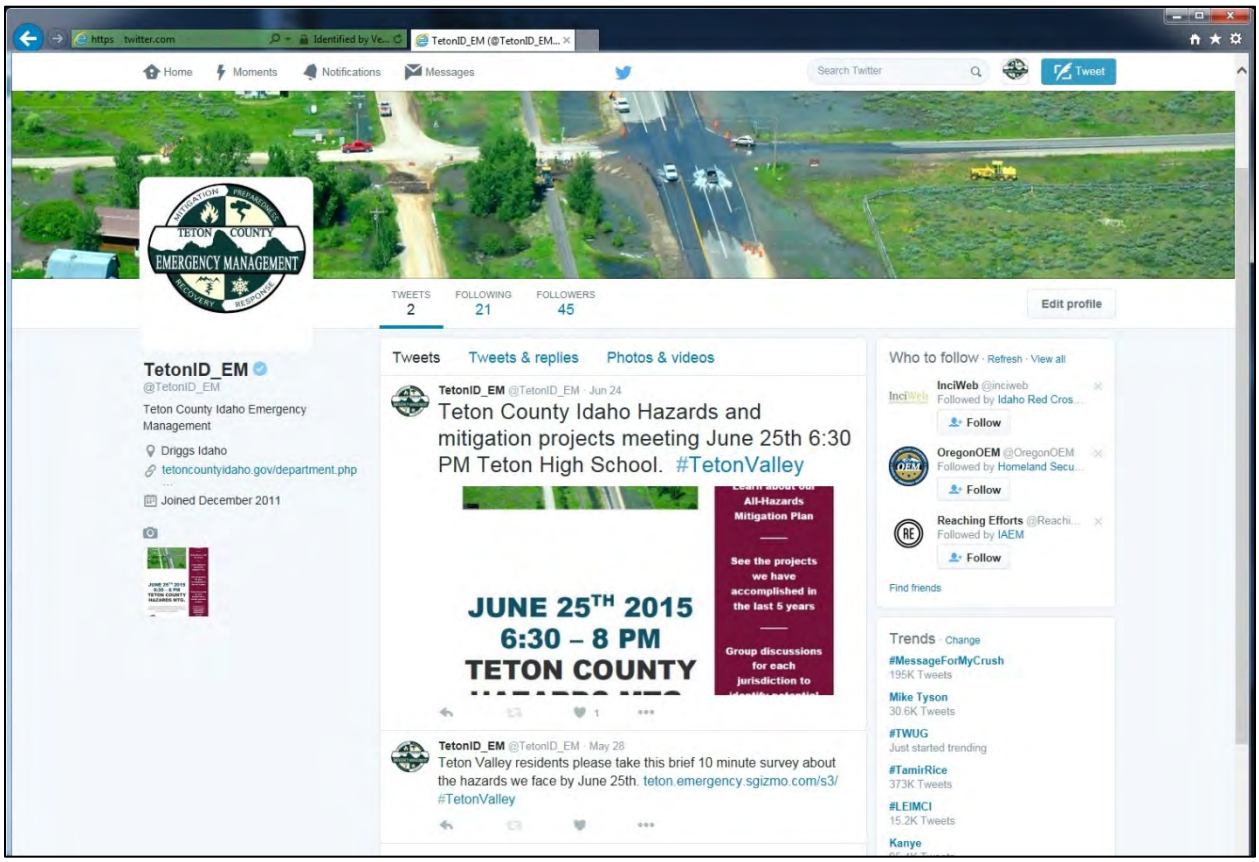
Teton County 2/11/16 AHMP Projects Meeting

Name	Agency	Email	Phone
Daiko Abe	ISC	daiko.abe@i-s-consulting.com	208-390-2021
Greg Adams	TCEMC	gadams@co.teton.id.us	354-2703
Michelle Smith	City of Victor	michelles@victorcityidaho.com	716-8534
Kelly C Park	Comm	@teton County	208390 2615
ROB MARIN	TETON	RMARIN@CO.TETON.ID.US	208-354-2593
Mike Clements	IBHS	mclements@BHS.Idaho.Gov	589-0754
Gloria Stokes	City of Tetonia	gloria5852@silverstar.com	238-7456
Brittany Skelton	City of Victor	Brittanys@victorcityidaho.com	208-787-2940
Mitch Smalley	Tetonia City	tetoniagov@silverstar	208-458-2249
EARLE GILES	TETON COUNTY FIRE	egiles@tetoncountyfire.com	208-354-2760
Bret Campbell	Teton County Fire	bcampbell@tetoncountyfire.com	208-354-2760
Jeff Potter	City of Victor	mayor@victorcityidaho.com	787-2940
Jason Boal	Teton County	jboal@co.teton.id.us	3542593
Jay Millin	Teton County	jmillin@co.teton.id.us	881-4048
Holly Wolgamott	Teton County	hwolgamott@co.teton.id.us	3548775
Eric Tackett	TVHC	Etackett@tvhcare.org	208-200-4368
John Dobbins	TVHC	jdobbins@tvhcare.org	208-201-6227
Jaren Gunderson	City of Driggs	JGunderson@driggsidaho.org	208-270-0209
MONTE WALSTENHOLME	TSD 401-School	MW@tsd401.org	208-228-5923

Sample of Outreach Activities



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Moments
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FOLLOWING 21
FOLLOWERS 45
Edit profile
TetonID_EM
@TetonID_EM
Teton County Idaho Emergency Management
Driggs Idaho
tetoncountyidaho.gov/department.php
Joined December 2011
Tweets
Tweets & replies
Photos & videos
TetonID_EM @TetonID_EM · Jun 24
Teton County Idaho Hazards and mitigation projects meeting June 25th 6:30 PM Teton High School. #TetonValley
JUNE 25TH 2015
6:30 – 8 PM
TETON COUNTY
All-Hazards Mitigation Plan
See the projects we have accomplished in the last 5 years
Group discussions for each jurisdiction to
TetonID_EM @TetonID_EM · May 28
Teton Valley residents please take this brief 10 minute survey about the hazards we face by June 25th. teton.emergency.sgizmo.com/s3/ #TetonValley
Who to follow · Refresh · View all
InciWeb @inciweb
Follow
OregonOEM @OregonOEM
Follow
Reaching Efforts @Reachi...
Follow
Find friends
Trends · Change
#MessageForMyCrush
195K Tweets
Mike Tyson
30.6K Tweets
#TWUG
Just started trending
#TamirRice
373K Tweets
#LEIMCI
15.2K Tweets
Kanye

JUNE 25TH 2015
6:30 – 8 PM
TETON COUNTY HAZARDS MTG.

Come join us to discuss the hazards that we face and identify potential projects that can lessen the effects of these hazards on our community.

Location:
Teton High School Cafeteria

Refreshments will be served

Learn about our All-Hazards Mitigation Plan

See the projects we have accomplished in the last 5 years

Group discussions for each jurisdiction to identify potential projects

SPONSORED BY
TETON COUNTY EMERGENCY MANAGEMENT
230 N. Main
354-2703

August 19th 2015
6:30 – 8 PM

TETON COUNTY MITIGATION PROJECT PRIORITIZATION MTG.

This meeting will be for elected officials and the All-Hazard Mitigation Planning team in order for them to prioritize the mitigation projects that have been selected and review and update our mitigation goals and objectives.

Location:
Teton County Courthouse

Refreshments will be served

Review and update our mitigation goals & objectives

Prioritize the projects we will pursue for the next 5 years

Lead our community to become more disaster resilient

SPONSORED BY
TETON COUNTY EMERGENCY MANAGEMENT
230 N. Main
354-2703

February 11th

2016 6:30 – 8 PM

TETON COUNTY ALL-HAZARD MITIGATION PLAN REVIEW MTG.

This meeting will be for elected officials, the All-Hazard Mitigation Planning team and any interested parties to review the draft All-Hazard Mitigation Plan before it is submitted to the State and FEMA.

Location:
Teton County Courthouse

Refreshments will be served

Review our draft All-Hazard Mitigation Plan

Review the mitigation projects we will pursue for the next 5 years

Lead our community to become more disaster resilient

SPONSORED BY
TETON COUNTY EMERGENCY MANAGEMENT
230 N. Main
354-2703

Teton County All-Hazard Mitigation Plan Revision Kick-off Meeting

May 14th 6:30 PM
Teton County Courthouse BOCC Room

Agenda

Introductions
Overview of Mitigation
Our Mitigation Successes
Mitigation Planning Process
Project Schedule & Dates
Hazard & Risk Assessment Discussion
Community Preparedness Survey

Teton County All-Hazard Mitigation Plan Revision Goals and Project Prioritization

August 19th 6:30 PM
Teton County Courthouse BOCC Room

Agenda

Introductions
Overview of Mitigation
Our Mitigation Successes
Mitigation Planning Process
Project Schedule & Dates
HAZUS Run Results
Jurisdiction Breakouts to select goals and prioritize projects

Teton County All-Hazard Mitigation Plan
Final Draft Review Meeting

February 11th 6:30 PM
Teton County Courthouse BOCC Room

Agenda

The purpose of the plan
Project successes and implementation
Plan structure and next steps
Plan maintenance strategy
Review of the new actions
Questions or comments

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Attachment V: Benefit-Cost Analysis Guidance

Benefit-Cost Analysis is an important mechanism used among local, state, tribal, and federal governments in evaluating hazard mitigation projects. It is a critical part of the hazard mitigation planning process for project development. As part of mitigation project development, strategies in the All Hazard Mitigation Plan should be assessed using a FEMA/DHS approved benefit cost method. This should be done for all projects including ones not intended to be funded by FEMA/DHS grants. This is critical to ensure that all funds, regardless of their source, are appropriately considered. The County does have funds available for mitigation projects, but they are not unlimited, and projects must demonstrate that the benefit is worth the cost.

Benefit-cost analysis compares the benefits and costs of a proposed hazard mitigation project. For example, the benefit of a tornado shelter is the reduction of injury and loss of life. This benefit is monetized using Federal guidelines for injury and loss of life. The costs considered are those necessary to implement and maintain the specific mitigation project under evaluation. The two, benefit and cost, can then be compared.

Costs are generally well determined for specific projects for which engineering design studies have been completed. Benefits, however, must be estimated probabilistically because they depend on the improved performance of the building or facility to future hazard events, the timing and severity of which are random variables. The benefits calculated by the program are expected annual benefits, which are estimated over the useful lifetime of the mitigation project. To account for the time value of money, a net present value calculation must be performed. This calculation is done automatically in the program, using the discount rate and project useful lifetime entered by the user. Results of benefit-cost calculations are presented two ways: first, the benefit-cost ratio (benefits divided by costs) and second, the net benefits (benefits minus costs).

To estimate future damages (and the benefits of avoiding them), the probabilities of future events must be considered. This profoundly affects whether or not a proposed hazard mitigation project is cost effective. Mitigation may not be cost-effective even though a particular facility experienced great damage in a past event due to an event with a low probability of occurrence (i.e., a 500- or 1000-year event). Conversely, mitigation may be cost effective even though the particular facility experienced little or no damage in a past event, due to a higher probability of occurrence.

Technical guidelines developed by FEMA for performing an approved Benefit-Cost Analysis are provided in the June, 2009 FEMA publication “Final BCA Reference Guide”, which can be found online at https://www.fema.gov/media-library/assets/documents/18870. An outline is available below:

FEMA’s Benefit-Cost Analysis (BCA) program

FEMA’s Benefit-Cost Analysis (BCA) program is a key mechanism for evaluating certain hazard mitigation projects to determine eligibility and assist in Federal funding decisions. The FEMA BCA program is comprised of methodologies and software for a range of major natural hazards.
To be eligible for Federal funding assistance, a BCA should show that the project is cost effective and will reduce future damages and losses from natural disasters. Mitigation projects can include: construction projects, education programs, publications or videos, building code enhancements,

and mitigation planning activities. A reduction in losses or prevention of future damages is the benefit of the project.

Cost, as it relates to mitigation, is the price to develop and maintain a mitigation project. The project cost estimate, as used in the FEMA mitigation grant guidance, includes all costs associated with the proposed mitigation project, and represents the best estimated costs for the activity.

Estimates are required for the following cost item categories:

- Anticipated cash and in-kind Federal match
- Equipment
- Labor
- Materials
- Subcontract costs

Other costs are those that do not fall neatly into one of these categories, but must be delineated in the BCA if applicable to the project. The FEMA BCA tool utilizes a six-step cost-estimating methodology:

- Step 1: develop an estimate of pre-construction or non-construction costs
- Step 2: develop an estimate of construction costs
- Step 3: develop an estimate of ancillary costs
- Step 4: develop an estimate of annual maintenance costs
- Step 5: adjust the estimate to account for project timing and whether the data is current
- Step 6: review and confirm the cost estimate

The following descriptions cover each hazard type and potential mitigation projects associated with each.

Damage Frequency Approach (DFA)
This module is applicable to any natural hazard as long as a relationship can be established between how often natural hazard events occur and how much damage and losses occur as a result of the events. The advantage of the DFA module is its flexibility—it can be used for a wide range of hazards including flood, landslides, snow/ice storms, and earthquake mitigation for utility projects. The module requires historical damage data for two or more events and typically provides results that are less accurate than those from the Full Data BCA modules.

Tornado
A tornado is a violent, rotating, funnel-shaped cloud that extends from a thunderstorm to the ground, with winds that can reach 300 miles per hour. A tornado is among the most destructive forces of nature. A tornado is classified by the Enhanced Fujita (EF) Scale, which not only correlates wind speeds with damage, but also takes into account the quality and type of structure

that has been damaged to estimate wind speeds. The EF Scale is from EF0 (weakest) to EF5 (strongest).

The Tornado Safe Room module is used for projects providing safe room mitigation for high-wind events, and is used only to evaluate the life safety benefits of the mitigation project. Safe room projects are for tornadoes only.

Wildfire
The Wildland/Urban Interface (WUI) module takes into account LANDFIRE data, timber costs, fire suppression costs, and project effectiveness. WUI fires are essentially wildfires with additional fuel load from structures.

Possible projects include:

- Defensible Space Activities
    - Clearing out all combustibles
    - Minimizing the volume of vegetation
    - Replacing flammable vegetation with less-flammable species
- Hazardous Fuels Reduction Activities
    - Vegetation thinning or reduction of flammable vegetative materials for the protection of life and property
        - Slash removal
        - Vegetation clearing or thinning
        - Vegetation management
        - Vegetation removal
        - Vertical clearance of tree branches
- Ignition-Resistant Construction Activities
    - Involves the use of non-combustible materials and technologies on new and existing structures

Flood
A flood is a partial or complete inundation of normally dry land areas from:

- Overland flow of a lake, river, stream, creek, slough, ditch, or the ocean
- The unusual and rapid accumulation of rainfall runoff or snowmelt
- Mudflows or the collapse of shoreline land

Floods are the most common and most costly of all natural disasters. In fact, most communities throughout the United States will experience some flooding. The Flood module utilizes Flood Insurance Study (FIS) data to establish risk, while providing the most accurate BCA results. This

module takes into account probabilities of flooding; building type and associated damages; and the costs of contents, displacement, and loss of function.

Possible projects include:

- Acquisition/ Demolition
- Acquisition/ Relocation
- Dry floodproofing
- Elevation
- Minor localized flood reduction projects including culverts, floodgates, minor floodwall systems, and stormwater management activities.
- Mitigation reconstruction

FEMA will only consider a subapplication for an ignition-resistant construction project when the property owner has previously created defensible space and agreed to maintain the space, or the subapplication includes both the defensible space and ignition-resistant construction project as part of the same project subapplication.

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Attachment VI: Federal Funding Sources and Programs

Many local governments are in a quandary to implement measures to secure and protect property with today's economic constraints. Many programs, including FEMA's Pre-Disaster Mitigation Program and the Hazard Mitigation Grant Program, are the victims of budget cuts. DHS' 2006 Emergency Management Performance Grants – Program Guidance and Application Kit states that "emergency managers at all levels should leverage all available funding and resources from multiple sources wherever possible…(and)…should not restrict their activities to only Federal funding to achieve the goals outlined within their strategies. Rather, special attention should be given to leveraging relevant funding sources and resources that support"… mitigation activities.[1] In addition to federal programs, the State homeland security and preparedness programs and resources may be available to meet the objectives outlined in the All-Hazard Mitigation Plan. This section outlines potential funding sources.

FEDERAL PROGRAMS AND FUNDING

DHS: FEMA

Hazard Mitigation Grant Program

The Hazard Mitigation Grant Program (HMGP) administered by the Federal Emergency Management Agency (FEMA) provides grants to State, tribal, and local governments to implement long-term hazard mitigation measures after a major disaster declaration. The purpose of the program is to reduce the loss of life and property due to natural disasters and to enable mitigation measures to be implemented during the immediate recovery from a disaster.

Pre-Disaster Mitigation Program

Funding for the Pre-Disaster Mitigation (PDM) program is provided through the National Pre-Disaster Mitigation Fund to assist State, tribal, territorial and local governments in implementing cost-effective hazard mitigation activities that complement a comprehensive mitigation program. The PDM program was allocated $30,000,000 in FY 2015. Project priorities are:

Mitigation planning and project sub-applications

Flood Mitigation Assistance Grant Program

The Flood Mitigation Assistance (FMA) Grant Program provides funding to assist States and communities in implementing measures to reduce or eliminate the long-term risk of flood damage to buildings, manufactured homes, and other structures insurable under the National Flood Insurance Program (NFIP). According to the FY 2015 Flood Mitigation Assistance (FMA) Grant Program Fact Sheet, $150,000,000 is available to States, Tribal, Territorial, and local governments. FEMA will prioritize eligible planning and project sub-applications as follows:

Mitigation planning sub-applications consistent with 44 CFR Part 201 up to a maximum of $100,000 federal share per applicant.

[1] "The Subcommittee on Economic Development, Public Buildings, & Emergency Management Hearing on The National Preparedness System: What are we preparing for?" ; April 14, 2005. http://www.house.gov/transportation/pbed/04-14-05/04-14-05memo.html

Projects that mitigate at least 50 percent of structures that meet definition part (b)(ii) of a Severe Repetitive Loss (SRL) property: At least 2 separate NFIP claim payments have been made with the cumulative amount of such claims exceeding the market value of the insured structure.

Project sub-applications that mitigate at least 50 percent of structures that meet the definition of a Repetitive Loss (RL) property: Have incurred flood-related damage on 2 occasions, in which the cost of the repair, on the average, equaled or exceeded 25 percent of the market value of the structure at the time of each such flood event.

Projects that mitigate at least 50 percent of structures meet definition part (b)(i) of a SRL property: 4 or more separate NFIP claims payments have been made with the amount of each claim exceeding $5,000, and with the cumulative amount of claims payments exceeding $20,000.
Projects that will reduce the risk profile in communities through mitigation of the largest number of contiguous NFIP-insured properties.

Mitigation Technical Assistance Program
There are three major mitigation technical assistance programs that provide technical support to state/local communities, FEMA Regional and Headquarters Mitigation staff in support of mitigation initiatives. These programs include the Hazard Mitigation Technical Assistance Program, the National Earthquake Technical Assistance Program, and the Wind and Water Technical Assistance Program. They provide the technical support that is necessary to mitigate against potential loss of lives and minimize the amount of damage as a result of a natural disaster.

Staffing for Adequate Fire and Emergency Response Grant Program
The goal of the Staffing for Adequate Fire and Emergency Response (SAFER) Grant Program is to assist local fire departments with staffing and deployment capabilities in order to respond to emergencies, and assure that communities have adequate protection from fire and fire-related hazards. For FY 2015, an estimated $340,000,000 is set aside to assist fire departments in achieving the SAFER goal. There are two program priorities: to hire firefighters, and to recruit and retain volunteer firefighters.

Fire Prevention and Safety Grant Program
The Fire Prevention and Safety (FP&S) Grant Program had $34,000,000 available in FY 2014 in support of two activities: fire prevention and safety (including general education/awareness, code enforcement/awareness, fire & arson investigation, and national/state/regional programs and studies) and research and development (including clinical studies, technology and product development, database system development, dissemination and implementation research, and preliminary studies).

Homeland Security Grant Program
Comprised of three interconnected grant programs, the Homeland Security Grant Program (HSGP) seeks to support the building, sustainment, and delivery of core capabilities essential to achieving the National Preparedness Goal, which is “A secure a resilient nation with the capabilities required across the whole community to prevent, protect against, mitigate, respond to, and recover from the threats and hazards that post the greatest risk.” The HSGP grant programs are the State Homeland

Security Program (SHSP), the Urban Areas Security Initiative (UASI), and Operation Stonegarden (OPSG).

State Homeland Security Program

In FY 2015, $402,000,000 was allocated to the State Homeland Security Program (SHSP). Although only states and territories can apply for SHSP funds, the program is directed at supporting States, Tribes, and local governments to address high-priority preparedness gaps identified in the Threat and Hazard Identification and Risk Assessment (THIRA) with relation to terrorism. Award methodology is based on the minimum amounts as legislatively mandated (0.35% of total funds for states, Washington D.C., and Puerto Rico and 0.08% of total funds for American Samoa, Guam, the Northern Mariana Islands and the U.S. Virgin Islands), DHS' risk methodology, and the anticipated effectiveness of proposed projects.

Operation Stonegarden

Operation Stonegarden (OPSG) is designed to support cooperation and coordination between Customs and Border Protection (CBP), the United States Border Patrol (USBP), and local, Tribal, territorial, State, and Federal law enforcement agencies. In FY 2015, $55,000,000 is allocated to this program. States and territories that border Canada, Mexico, or international waters are eligible. Counties and federally-recognized Tribal governments within those states are eligible to apply for funds through their State Administrative Agency (SAA).

Cooperating Technical Partners Program

The Cooperating Technical Partners (CTP) Program seeks to strengthen and increase the effectiveness of the National Flood Insurance Program (NFIP) through fostering relationships among all levels of government to reduce flood losses and promote community resiliency. The total funding for Region 4 in FY 2015 was $12,973,272. The main focus in FY 2015 for the CTP program is to support the mission and objectives of FEMA's Risk MAP (Mapping, Assessment, and Planning) program.

Emergency Management Performance Grant

In FY 2015, $350,100,000 was allocated to the Emergency Management Performance Grant (EMPG). This program is designed to assist state, local, territorial, and tribal governments to prepare for all hazards. The State Administrative Agency (SAA) or Emergency Management Agency (EMA) can apply for the funding. All 50 states, Washington D.C., and Puerto Rico will receive at least 0.75% of total funding. American Samoa, Guam Northern Mariana Island and the U.S. Virgin Island will each receive at least 0.25% of total funding. The balance will be distributed on a population-share basis.

Homeland Security National Training Program Continuing Training Grants Program

The Homeland Security National Training Program Continuing Training Grants Program (HSNTP/CTG) had $11,521,000 for FY 2015 to be used for training focused on cybersecurity, hazardous materials, countering violent extremism, and rural training. Eligible entities (including state, local, tribal, and territorial entities) must have existing programs or demonstrate expertise relevant to the focus areas.

DEPARTMENT OF HEALTH AND HUMAN SERVICES

Immunization Research, Demonstration, Public Information and Education Grants

The Immunization Research, Demonstration, Public Information and Education Grant program assists States, political subdivisions of States, and other public and private nonprofit entities to conduct research, demonstration projects, and provide public information on vaccine-preventable diseases and conditions. Project funds may be used for the costs associated with organizing and conducting these projects, and in certain circumstances, for purchasing vaccine. Requests for direct assistance (i.e., "in lieu of cash") for personnel, vaccines, and other forms of direct assistance will be considered. Funds may not be used to supplant existing immunization program activities.

Immunization Grants

Immunization Grants assist States and communities in establishing and maintaining preventive health service programs to immunize individuals against vaccine-preventable diseases (including measles, rubella, poliomyelitis, diphtheria, pertussis, tetanus, hepatitis B, hepatitis A, varicella, mumps, haemophilus influenza type b, influenza, and pneumococcal pneumonia). Grant funds may be used for costs associated with planning, organizing, and conducting immunization programs directed toward vaccine-preventable diseases and for the purchase of vaccine; and for the implementation of other program elements, such as assessment of the problem; surveillance and outbreak control; information and education; adequate notification of the risks and benefits of immunization; compliance with compulsory school immunization laws; vaccine storage, supply, and delivery; citizen participation; and use of volunteers. Vaccine will be available "in lieu of cash" if requested by the applicants. Requests for personnel and other items "in lieu of cash" will also be considered. Vaccine purchased with grant funds may be provided to private practitioners who agree not to charge for vaccine. Grant funds may be used to supplement (not substitute for) existing immunization services and operations provided by a State or locality.

DEPARTMENT OF THE INTERIOR

River, Trail, and Conservation Assistance Program

The goal of this program is to work with community groups and local and State governments to conserve rivers, preserve open space, and develop trails and greenways; with the goal of helping communities achieve on-the-ground conservation successes for their projects.

ENVIRONMENTAL PROTECTION AGENCY

Wetland Program Development Grants

The Wetland Program Development Grants are designed to assist state, tribal, and local government agencies in building their wetland management programs. Grant funds can be used to develop new or refine existing wetland protection, management or restoration programs. The types of projects funded through this program are very diverse. In the past, states, tribes and local governments have pursued a wide range of activities from very broad policy or regulatory projects, to development of specific technical approaches/methods for wetland health or restoration.

Nonpoint Source Implementation Grants – 319 Program
Through its 319 program, EPA provides formula grants to the states and tribes to implement nonpoint source projects and programs in accordance with section 319 of the Clean Water Act (CWA). Nonpoint source pollution reduction projects can be used to protect source water areas and the general quality of water resources in a watershed. Examples of previously funded projects include installation of best management practices (BMPs) for animal waste; design and implementation of BMP systems for stream, lake, and estuary watersheds; basinwide landowner education programs; and lake projects previously funded under the CWA section 314 Clean Lakes Program. For FY 2014, tribal base grants were from $30,000 to $50,000, and competitive grant awards could be up to $100,000.

Watershed Organizations
EPA recognizes that strong and committed watershed organizations and local governments are necessary partners to achieve the goals of the Clean Water Act and improve our nation's water quality. To support these local efforts, the EPA is working to: build the capacity of watershed organizations to develop and implement sustainable funding plans to obtain achieve environmental results; and, build the capacity of private and public funders to channel their resources towards good watershed initiatives.

US DEPARTMENT OF AGRICULTURE

Emergency Watershed Protection Program

The USDA Natural Resources Conservation Service's (NRCS) Emergency Watershed Protection (EWP) Program helps protect lives and property threatened by natural disasters such as floods, hurricanes, tornadoes, droughts, and wildfires. There are two parts of the program: EWP - Recovery and EWP - Floodplain Easement (FPE).

EWP – Recovery: The EWP Program is a recovery effort program aimed at relieving imminent hazards to life and property caused by floods, fires, windstorms, and other natural occurrences. Public and private landowners are eligible for assistance, but must be represented by a project sponsor that must be a legal subdivision of the State, such as a city, county, township or conservation district, and Native American Tribes or Tribal governments. NRCS may pay up to 75 percent of the construction cost of emergency measures. The remaining 25 percent must come from local sources and can be in the form of cash or in-kind services.

EWP – Floodplain Easement: Privately-owned lands or lands owned by local and state governments may be eligible for participation in EWP-FPE. To be eligible, lands must meet one of the following criteria:

Lands that have been damaged by flooding at least once within the previous calendar year or have been subject to flood damage at least twice within the previous 10 years.

Other lands within the floodplain are eligible, provided the lands would contribute to the restoration of the flood storage and flow, provide for control of erosion, or that would improve the practical management of the floodplain easement Lands that would be inundated or adversely impacted as a result of a dam breach.

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

Community Development Block Grant Program

The Department of Housing and Urban Development sponsors this program, intended to develop viable communities by providing decent housing and a suitable living environment and by expanding economic opportunities primarily for persons of low and moderate income. Recipients, which include principal cities of Metropolitan Statistical Areas (MSAs), other metropolitan cities with populations of at least 50,000, and qualified urban counties with populations of at least 200,000 (excluding the population of entitled cities), may initiate activities directed toward neighborhood revitalization, economic development, and provision of improved community facilities and services. Specific activities may include public services, acquisition of real property, relocation and demolition, rehabilitation of structures, and provision of public facilities and improvements, such as new or improved water and sewer facilities.

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Attachment VII: Mitigation Crosswalk