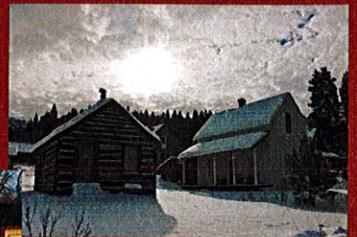


ADAMS COUNTY, IDAHO MULTI-HAZARD MITIGATION PLAN

APRIL 2012

REVISION



Prepared By
Northwest Management, Inc.

Foreword

“Hazard mitigation is any sustained action taken to reduce or eliminate the long-term risk to human life and property from hazards. Mitigation activities may be implemented prior to, during, or after an incident. However, it has been demonstrated that hazard mitigation is most effective when based on an inclusive, comprehensive, long-term plan that is developed before a disaster occurs.”¹

The **Adams County, Idaho Multi - Hazard Mitigation Plan** was updated in 2012 by the Adams County MHMP planning committee in cooperation with Northwest Management, Inc. of Moscow, Idaho.

This Plan satisfies the requirements for a local multi-hazard mitigation plan and flood mitigation plan under 44 CFR Part 201.6 and 79.6.

¹ Federal Emergency Management Agency. “Local Multi-Hazard Mitigation Planning Guidance.” July 1, 2008.

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Chapter 1

Plan Overview

IN THIS SECTION:

- Planning Participants
- Phase I Hazard Assessment
- Goals and Guiding Principles
- Integration with Other Planning Mechanisms

Chapter 1
Plan Overview

Chapter 1 – Plan Overview

Overview of this Plan and its Development

This regional Multi - Hazard Mitigation Plan is the result of analyses, professional cooperation and collaboration, assessments of hazard risks and other factors considered with the intent to reduce the potential for hazards to threaten people, structures, infrastructure, and unique ecosystems in Adams County, Idaho. The Adams County Multi-Hazard Mitigation Plan was originally approved by Idaho Bureau of Homeland Security and the Federal Emergency Management Agency in October 2005. This document serves as the required 5-year update of the Multi-Hazard Mitigation Plan under the Pre-Disaster Mitigation program and will be in effect until 2017. This document assists with the identification and assessment of various potential hazards and helps maintain the County's eligibility for grants and other funding.

The planning team responsible for implementing this project was led by Adams County Emergency Management. Agencies and organizations that participated in the planning process included:

In the winter of 2012, Adams County Emergency Management contracted services to update the Adams County Multi-Hazard Mitigation Plan in conjunction with the Community Wildfire Protection Plan to Northwest Management, Inc. of Moscow, Idaho.

Phase I Hazard Assessment

The Multi - Hazard Mitigation Plan is developed in accordance with the requirements of the Federal Emergency Management Agency (FEMA) and Idaho Bureau of Homeland Security for a county level pre-disaster mitigation plan. The State of Idaho Hazard Mitigation Plan identifies nine natural hazards affecting the State. In an effort to be consistent, the planning committee developed annexes for the same natural hazards. The hazards addressed in this Plan are:

- ✦ Flood
- ✦ Earthquake
- ✦ Landslide
- ✦ Severe Weather
- ✦ Wildland Fire
- ✦ Crop Failure
- ✦ Extended Power Outage
- ✦ Terrorism and Civil Unrest

Additional hazard annexes may be added to this Plan as funding allows. The highest priority hazards to be considered for future evaluation are:

- ✦ Hazardous Material Transport and Storage
- ✦ Dam Failure
- ✦ Pandemic

A Phase I Assessment was facilitated with the county planning committee to determine the relative frequency of a hazard's occurrence and the potential impact a hazard event will have on people, property, infrastructure, and the economy based on local knowledge of past occurrences. A matrix system with hazard magnitude on the x axis and frequency on the y axis was used to score each hazard.

Magnitude of Hazards						
Value	Reconstruction Assistance From	Geography (Area) Affected	Expected Bodily Harm	Loss Estimate Range	Population Sheltering Required	Warning Lead Times
1	Family	Parcel	Little to No Injury / No Death	\$1000s	No Sheltering	Months
2	City	Block or Group of Parcels	Multiple Injuries with Little to No Medical Care / No Death	\$10,000s	Little Sheltering	Weeks
2	County	Section or Numerous Parcels	Major Medical Care Required / Minimal Death	\$100,000s	Sheltering Required Neighboring Counties Help	Days
4	State	Multiple Sections	Major Injuries / Requires Help from Outside County / A Few Deaths	\$1,000,000s	Long Term Sheltering Effort	Hours
8	Federal	Countywide	Massive Casualties / Catastrophic	\$10,000,000s	Relocation Required	Minutes

A scoring system (shown above) was used to categorize the relative magnitude each hazard may have on the community. Frequency was rated as “High” for hazards occurring multiple times per year during a 5 year period, “Medium” for hazards occurring every 5 to 25 years, or “Low” for hazards occurring more than 25 years apart.²

The following table summarizes the results of the Phase I Hazard Assessments for Adams County. With the exception of earthquakes, the 2012 planning committee rated hazards as having a higher frequency of occurrence as well as a higher potential impact to communities than they did in 2005.

² Custer County, Idaho. Scoring system partially adapted from the Custer County Multi-Jurisdiction All Hazard Mitigation Plan. 2008. Pp 165-168.

		Magnitude		
		Low	Medium	High
Frequency	Low	Earthquake		Terrorism/Civil Unrest
	Medium		Landslide Flood	
	High		Extended Power	Crop Failure Wildland Fire Severe Weather

The inclusion of additional hazards was considered; however, due to funding limitations, participating jurisdictions chose not to assess technological or other hazards until additional funding becomes available. At such a time, the Multi - Hazard Mitigation Plan will be revised to include hazards such as hazardous materials, dam failure, and pandemic.

Goals and Guiding Principles

Federal Emergency Management Agency Philosophy

Effective November 1, 2004, a Multi - Hazard Mitigation Plan approved by the Federal Emergency Management Agency (FEMA) is required for Hazard Mitigation Grant Program (HMGP) and Pre-Disaster Mitigation Program (PDM) eligibility. The HMGP and PDM programs provide funding, through state emergency management agencies, to support local mitigation planning and projects to reduce potential disaster damages.

The new local Multi - Hazard Mitigation Plan requirements for HMGP and PDM eligibility is based on the Disaster Mitigation Act of 2000, which amended the Stafford Disaster Relief Act to promote an integrated, cost effective approach to mitigation. Local Multi - Hazard Mitigation Plans must meet the minimum requirements of the Stafford Act-Section 322, as outlined in the criteria contained in 44 CFR Part 201. The plan criteria cover the planning process, risk assessment, mitigation strategy, plan maintenance, and adoption requirements.

In order to be eligible for project funds under the Flood Mitigation Assistance (FMA) program, communities are required under 44 CFR Part 79.6(d)(1) to have a mitigation plan that addresses flood hazards. On October 31st, 2007, FEMA published amendments to the 44 CFR Part 201 at 72 Federal Reg. 61720 to incorporate mitigation planning requirements for the FMA program (44 CFR Part 201.6). The revised Local Mitigation Plan Review Crosswalk (July 2008) used by FEMA to evaluate local hazard mitigation plans is consistent with the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as amended by Section 322 of the Disaster Mitigation Act of 2000, the National Flood Insurance Act of 1968, as amended by the National Flood Insurance Reform Act of 2004 and 44 Code of Federal Regulations (CFR) Part 201 –

Mitigation Planning, inclusive of all amendments through October 31, 2007, was used as the official guide for development of a FEMA-compatible Adams County, Idaho Multi-Hazard Mitigation Plan.³

FEMA will only review a local Multi - Hazard Mitigation Plan submitted through the appropriate State Hazard Mitigation Officer (SHMO). Draft versions of local Multi - Hazard Mitigation Plans will not be reviewed by FEMA. FEMA will review the final version of a plan prior to local adoption to determine if the plan meets the criteria, but FEMA will be unable to approve it prior to adoption.

In Idaho the SHMO is:

Idaho Bureau of Homeland Security
4040 Guard Street, Bldg 600
Boise, ID 83705

A FEMA designed plan will be evaluated on its adherence to a variety of criteria, including:

- Adoption by the Local Governing Body
- Multi-jurisdictional Plan Adoption
- Multi-jurisdictional Planning Participation
- Documentation of Planning Process
- Identifying Hazards
- Profiling Hazard Events
- Assessing Vulnerability: Identifying Assets
- Assessing Vulnerability: Estimating Potential Losses
- Assessing Vulnerability: Analyzing Development Trends
- Multi-jurisdictional Risk Assessment
- Local Hazard Mitigation Goals
- Identification and Analysis of Mitigation Measures
- Implementation of Mitigation Measures
- Multi-jurisdictional Mitigation Strategy
- Monitoring, Evaluating, and Updating the Plan
- Implementation Through Existing Programs
- Continued Public Involvement

Planning Philosophy and Goals

Adams County Planning Philosophy

This effort will utilize the best and most appropriate science from all partners and will integrate local and regional knowledge about natural hazards while meeting the needs of local citizens and the regional economy.

³ Federal Emergency Management Agency. "Local Multi-Hazard Mitigation Planning Guidance." July 1, 2008.

Mission Statement

To make Adams County residents, communities, state agencies, local governments, and businesses less vulnerable to the negative effects of natural and man-caused hazards through the effective administration of pre-disaster mitigation grant programs, hazard risk assessments, wise and efficient mitigation efforts, and a coordinated approach to mitigation policy through federal, state, regional, and local planning efforts. Our combined prioritization will be the protection of people, structures, infrastructure, the economy, and unique ecosystems that contribute to our way of life and the sustainability of the local and regional economy.

Vision Statement

Institutionalize and promote a countywide hazard mitigation ethic through leadership, professionalism, and excellence, leading the way to a safe, sustainable Adams County.

Jurisdictional Planning and Mitigation Goals

As part of the 2012 revision process, each participating jurisdiction in Adams County was asked to develop its own set of planning and mitigation goals to help reflect and keep track of individual priorities and changes in hazard vulnerability over time. During the first planning committee meeting, the group discussed several overall short-term and long-term goals as well as goals for the planning process itself. Members of the committee were given a list of example goals statements and a blank goals worksheet to fill out and return. The following section outlines the goals submitted by each jurisdiction.

Adams County:

- To reduce the area of land damaged and losses experienced because of hazards where these risks threaten communities in the county
- Prioritize the protection of people, structures, infrastructure, economic base, and unique ecosystems that contribute to the way of life and the sustainability of the local and regional economy
- Educate communities about the unique challenges of pre-disaster hazard mitigation and post-disaster response
- Establish mitigation priorities and develop mitigation strategies
- Strategically locate, plan, and implement hazard reduction projects
- Provide recommendations for alternative treatment methods that can impact the exposure to multiple hazards at one time
- Meet or exceed the requirements of FEMA for a County level All Hazards Mitigation Plan

City of Council

It is the mission of the government of the City of Council to maximize the protection of its citizens, their property, public assets and infrastructure through identification of potential hazards, both natural and man-made, and mitigation of their harmful effects through prior planning and preparation.

- Prioritize areas of risk in order to most efficiently utilize available relief resources.
- Educate the public concerning potential hazards and appropriate response.
- Increase cooperation with Adams County and neighboring communities in hazard planning and response.
- Develop land use and property maintenance policies to minimize potential hazard risks.
- Promote and support local emergency services (EMS, fire, etc.).
- Coordinate planning with the United States Forest Service, Council Ranger District, to minimize risk to life and property by wildland fire.
- Develop shelter and relief plans for hazard events with local churches, senior center, school district, and health center.
- Identify hazardous traffic along the U.S. highway 95 corridor and take steps to divert it away from vulnerable population areas.
- Train City personnel in appropriate disaster response and maintain City equipment and supplies in a state of readiness.
- Promote training in emergency preparedness for the local businesses and individuals.
- Protect vital City infrastructure (water, sewer, power, communication).
- Maintain a strong working relationship with federal, state, and regional agencies in order to most effectively utilize their assistance and resources.

City of New Meadows

Integration with Other Local Planning Mechanisms

During the development of this Multi - Hazard Mitigation Plan several planning and management documents were reviewed in order to avoid conflicting goals and objectives. Existing programs and policies were reviewed in order to identify those that may weaken or enhance the hazard mitigation objectives outlined in this document. The following narratives help identify and briefly describe some of the existing planning documents and ordinances considered during the development of this plan. This list does not necessarily reflect every plan, ordinance, or other guidance document within each jurisdiction; however, this is a summary of the guidance documents known to and recommended for review by members of the planning committee.

Adams County Comprehensive Plan

The Adams County Comprehensive Plan (2006) sets forth the policy framework of Adams County for its future growth. This plan is to be used as a guide in carrying out the responsibilities of Adams County according to state law and ordinances. In order to make the Plan part of the tools necessary for orderly and responsible growth and development, the support of the entire community is needed.

Planning is an ongoing process. Conditions and priorities change; consequently the plan will be reviewed regularly and revised when necessary. The 14 planning components included in the Adams County Comprehensive Growth and Development Plan include:

1. Property Rights
2. Population
3. Housing
4. Economic Development
5. School Facilities and Transportation
6. Natural Resources
7. Special Areas or Sites
8. Hazardous Areas
9. Recreation Space
10. Land Use
11. Public Services, Facilities and Utilities
12. Transportation
13. Community Design Element
14. Implementation

Within each chapter of the comprehensive plan are goals and objectives, which help establish development guidelines and public policy. Goals are defined as statements, which indicate a general aim or purpose to be achieved. Goals reflect countywide values. Objectives are defined as guidelines, which establish a definite course to guide present and future decisions. The Adams County Comprehensive Plan is directed toward all land within the County including federal, state, public, and private lands.

This CWPP will “dove-tail” with the County’s Comprehensive Plan during its development and implementation to ensure that the goals and objectives of each are integrated. This planning effort fully adopts the goals and objectives of the County’s Comprehensive Plan.

Adams County Zoning and Development Ordinance

The Adams County Zoning Ordinance was enacted for the purpose of guiding the use and development of land within Adams County while promoting public health, safety, and general welfare. This ordinance has a specific provision for the prevention of wildfire and mitigation of the negative effects of wildland fires and flooding.

Chapter 2

Planning Process

IN THIS SECTION:

- Description of the Planning Process
- Planning Committee Meetings
- Public Involvement
- Documented Review Process
- Plan Monitoring and Maintenance

Chapter 2
Planning Process

Chapter 2 – Planning Process

Documenting the Planning Process

Documentation of the planning process, including public involvement, is required to meet FEMA’s DMA 2000 (44CFR§201.6(b) and §201.6(c)(1)) for an updated local mitigation plan. This section includes a description of the planning process used to update this plan, including how it was prepared, who was involved in the process, and how all of the involved agencies participated.

The Planning Team

Adams County Emergency Management Coordinator, Don Horton, led the planning committee efforts. The Northwest Management, Inc. Project Manager was Tera R. King. These individuals led a team of resource professionals that included county and city elected officials and staff, fire protection districts, law enforcement, hospital and school district representatives, public health districts, irrigation districts, and local interest groups.

The planning committee met with many residents of the County during the community risk assessments and at public meetings. Additionally, the press releases encouraged interested citizens to contact their county Emergency Management coordinator or attend planning committee meetings to ensure that all issues, potential solutions, and ongoing efforts were thoroughly discussed and considered by the committee. When the public meetings were held, many of the committee members were in attendance and shared their support and experiences with the planning process and their interpretations of the results.

The planning philosophy employed in this project included open and free sharing of information with interested parties. Information from federal and state agencies was integrated into the database of knowledge used in this project. Meetings with the committee were held throughout the planning process to facilitate a sharing of information between cooperators.

Description of the Planning Process

The Adams County Multi - Hazard Mitigation Plan was developed through a collaborative process involving all of the organizations and agencies detailed in Chapter 1 of this document. The planning effort began by organizing and convening a countywide planning committee.

Northwest Management, Inc. began organizing the planning committee in March of 2012 by sending out a project invitation letter to a wide variety of local officials, experts, specialists, and citizen groups. Many of these individuals attended the first planning committee meeting personally or sent a representative from their office or organization.

The planning process included seven distinct phases which were in some cases sequential (step 1 then step 2) and in some cases intermixed (step 5 completed throughout the process):

1. **Organization of Resources** – Adams County and NMI worked together to develop a comprehensive list of potential participants as well as a project timeline and work plan. The 2005 planning committee served as the basis for identifying stakeholders; however, that list was expanded in order to provide a comprehensive review and update of the risk assessments and mitigation strategies during the update process.
2. **Collection of Data** – NMI coordinated with the planning team to gather any new data and information about the extent and periodicity of hazards in Adams County to ensure a robust dataset for making inferences about hazards.
3. **Field Observations and Estimations** – NMI and the planning team developed risk models and identified problem areas in order to better understand risks, juxtaposition of structures and infrastructure to risk areas, access, and potential mitigation projects. Many of the analyses used in the 2005 plan were reviewed and updated to incorporate new hazard vulnerabilities or changes in development. Additionally, several new risk models and analyses were included in the 2012 update process to better represent actual conditions in Adams County.
4. **Mapping** – NMI developed a comprehensive database and map files relevant to pre-disaster mitigation control and mitigation, structures, resource values, infrastructure, risk assessments, and other related data. All of the maps and databases were updated as part of the 2012 plan update.
5. **Public Involvement** – NMI and Adams County developed a plan to involve the public from the formation of the planning committee to news releases, public meetings, public review of draft documents, and acknowledgement of the final updated plan by the signatory representatives.
6. **Strategies and Prioritization** – NMI and the planning team representatives worked together to review the risk analyses and develop realistic mitigation strategies. As part of the 2012 plan update, a record of completed action items as well as a “2012 status” report of projects was included in the revised mitigation strategies for each jurisdiction.
7. **Drafting of the Report** – NMI drafted a final update report and worked with members of the planning team to review each section, incorporate public comments, proceed with the state and federal review processes, and adopt the final document.

Multi Jurisdictional Participation

CFR requirement §201.6(a)(4) calls for multi-jurisdictional planning in the development of Hazard Mitigation Plans that impact multiple jurisdictions. To be included as an adopting jurisdiction in the Adams County Multi-Hazard Mitigation Plan jurisdictions were required to participate in at least one planning committee meeting or meet with planning team leadership individually, provide a goals statement, submit at least one mitigation strategy, and adopt the final Plan by resolution.

The following is a list of jurisdictions that have met the requirements for an adopting jurisdiction and are thereby included in the Multi - Hazard Mitigation Plan:

- Adams County

- City of Council
- City of New Meadows

All 3 jurisdictions also participated in the 2005 Adams County Multi-Hazard Mitigation Plan. These jurisdictions were represented on the planning committee and at public meetings and participated in the development of hazard profiles, risk assessments, and mitigation measures.

The monthly planning committee meetings were the primary venue for authenticating the planning record. However, additional input was gathered from each jurisdiction in a combination of the following ways:

- Planning committee leadership attended local government meetings where planning updates were provided and information was exchanged. Additionally, representatives on the planning committee periodically attended city council meetings to provide municipality leadership with updates on the project and to request reviews of draft material. All of the adopting jurisdictions maintained active participation in the monthly planning committee meetings.
- One-on-one correspondence and discussions between the planning committee leadership and the representatives of the municipalities and special districts was facilitated as needed to ensure understanding of the process, collect data and other information, and develop specific mitigation strategies. NMI representatives emailed and/or called each jurisdiction individually at least once during the planning process to answer questions and request additional information.
- Public meetings were hosted by the communities of Council and New Meadows. Each meeting was attended by involved elected officials, county and municipality representatives, local volunteers, and local citizenry.
- Written correspondence was provided at least monthly between the planning committee leadership and each participating jurisdictions updating the cooperators on the document's progress, making requests for information, and facilitating feedback. NMI representatives used an email distribution list of all the stakeholders to announce meetings, distribute meeting minutes, provide draft sections for review, and request information. All of the participating jurisdictions provided comments to the draft document during the data gathering phase as well as during the various committee and public review processes.
- At the request of planning committee leadership, several participating jurisdictions hosted copies of the draft Adams County Multi-Hazard Mitigation Plan and provided staff to be on hand to answer any questions during the public comment phase of the planning process.

Planning Committee Meetings

Adams County Emergency Management sent a formal invitation to prospective committee members inviting them to the initial project kickoff meeting. Additionally, an announcement regarding the kickoff meeting was made at the local LEPC meeting as well as other venues. Additional members were invited individually as they were identified by the committee.

The following list of people participated in at least one of the planning committee meetings and volunteered time or responded to elements of the Multi - Hazard Mitigation Plan's preparation. A few participants served on the committee as dual representatives of more than one jurisdiction. Many of the participants were also part of the original 2005 planning committee; however, the update process captured a wider variety of stakeholders than the original version of plan including the highway and irrigation district representatives. A record of sign-in sheets is included in the Chapter 7 Appendices.

Adams County Participants:

*Indicates Adopting Jurisdiction

Tera King, Northwest Management, Inc.
Brad Tucker, Northwest Management, Inc.
Dennis McCollum, SRRFD
Ruby McCollum, SRRFD
Bruce Gardner, City of Council
Tami Testa, City of Council
Denise Groves, Adams Co. Health Center
Dan Hufer, Council Valley Ambulance
Jeff Luff, MVFD
Stephen Phillips, ASCO
Julie Spelman, New Meadows Mayor

Don Horton, Adams Co. Emergency Manager
Pamela Murphy, Emergency Manager Secretary
Tim Toomey, IDRFD
David Vining, USFS/New Meadows
Christian Ramirez, USFS/Weiser-Council
Carrie Bilbao, BLM/Boise
Mike Paradis, Adams County
David Wilson, City of Council
Ryan Zollman, ACSO
Jacob Qualls, MV Ambulance & city of NM

Committee Meeting Minutes

Planning committee meetings were held from April 2012 through October. The minutes and attendance records for each planning committee meeting are included in the Chapter 7 Appendices.

Public Involvement

Public involvement in this plan was made a priority from the inception of the project. There were a number of ways that public involvement was sought and facilitated. In some cases, this led to members of the public providing information and seeking an active role in protecting their own homes and businesses, while in other cases it led to the public becoming more aware of the process without becoming directly involved in the planning.

News Releases

Under the auspices of the Adams County Commissioners, periodic press releases were submitted to ???. The first press release informed the public that the Multi-Hazard Mitigation Plan process was taking place, who was involved, why it was important to Adams County, and who to contact for more information. The second press release was in the form of a flyer announcing the public meeting dates and venues, which was distributed to local businesses by committee members. The third press release provided information regarding the public comment period including where hardcopies of the draft could be viewed, the availability of the draft on the Adams County website, and instructions on how to submit comments. A

record of published articles regarding the Multi-Hazard Mitigation Plan is included in the Chapter 7 Appendices.

Figure 2.1. Press Release #1 – Planning Process Announcement.

Adams County

Media Release

From: Don Horton, Adams County Disaster Services

Date: May 2, 2012

RE: Adams County Multi-Hazard Mitigation Plan Update

Adams County Set to Update Hazard Risk Plans

Council, Id. Adams County has launched a project to update the Adams County Multi-Hazard Mitigation Plan. Local agencies and organizations in Adams County have created a committee to complete the required 5-year updates of these documents as part of the FEMA Pre-Disaster Mitigation program and National Fire Plan and Healthy Forests Restoration Act. The project is being funded through a grant from FEMA.

The planning update will include risk analyses, vulnerability assessments, and mitigation recommendations for the hazards of flood, landslide, earthquake, severe weather, wildland fire, terrorism/civil unrest, massive crop failure, and extended power outage.

Northwest Management, Inc. has been retained by Adams County to provide risk assessments, hazard mapping, field inspections, interviews, and to collaborate with the planning committee to update the Plans. The committee includes representatives from local communities, rural and wildland fire districts, Idaho Department of Lands, U.S Forest Service, Bureau of Land Management, highway districts, private landowners, area businesses, various Adams County departments, and others.

One of the goals of the planning process will be to increase the participating jurisdictions' eligibility for additional grants that will help minimize the risk and potential impact of disaster events. The planning team will be conducting public meetings to discuss preliminary findings and to seek public input on the Plans' recommendations. A notice of the dates and locations of these meetings will be posted in local newspapers. Once completed, the updated draft Plans will also be available for public review and comment. For more information on the Adams County Multi - Hazard Mitigation Plan update, contact Don Horton, Adams County Disaster Services, at 208-253-6125 or building@co.adams.id.us.

Public Meetings

Public meetings were scheduled in a variety of communities during the hazard assessment phase of the planning process. Venues for meetings were chosen by the planning team and located in each geographical area in order to provide an adequate opportunity for members of every community to attend without considerable travel. Public meetings focused on sharing information regarding the planning process, presenting details of the hazard assessments, and discussing potential mitigation treatments. Attendees at the public meetings were asked to give their impressions of the accuracy of the information generated and provide their opinions of potential treatments.

Public meetings were held in July. These meetings were attended by a number of individuals on the committee but none from the general public. A record of attendance at public meetings is included in the Chapter 7 Appendices. The slideshow presentation used during the public meetings is also included in the Appendices.

The public meeting announcement was distributed throughout each community by committee members in the form of a flyer. A sample of the flyer is included below in Figure 2.2.

Figure 2.2. Press Release #2 - Public Meeting Flyer.



Adams County

Multi—Hazard Mitigation Plan

Public Meetings!

July 18th - County EMS building, Council 6:00pm

July 19th - New Meadows City Hall 6:00pm

These meetings will address the Multi—Hazard Mitigation Plan being updated for Adams County. The Plans' revision is required every 5 years and is being funded through a grant from FEMA. These meetings are open to the public and will include a slideshow presentation from Northwest Management, Inc. and the planning team on the identified hazards and potential improvement and risk reduction projects in Adams County. Public input is being sought in order to better frame the region's efforts for hazard reduction projects, wildland fire protection, resource enhancements, and emergency preparedness.

Each Meeting will last approximately 1 hour.



08/31/2007

Learn about the assessments for floods, landslides, severe weather, wildland fire, extended power outages, crop damages, terrorism/civil unrest in Adams County. Discuss **YOUR** priorities for how local communities can best reduce the impacts of these events.



For more information on the Adams County Multi—Hazard Mitigation Plan , please contact Adams County Disaster Services Coordinator, Don Horton, at (208)-253-6125.

Public Comment Period

A public comment period was conducted from September 10th to September 28th, 2012 to allow members of the general public an opportunity to view the full draft plan and submit comments and any other input to the committee for consideration. A press release was submitted to the local media outlets announcing the comment period, the location of Plan for review, and instructions on how to submit comments.

Hardcopy drafts were printed and made available at the city halls in Council and New Meadows. Each hardcopy was accompanied by a letter of instruction for submitting comments to the planning committee.

The draft plan was also posted for public review on the Adams County website homepage. A record of published articles regarding the public comment period is included in the Chapter 7 Appendices.

Figure 2.3. Press Release #3 – Public Comment Period.

Adams County

Media Release

From: Don Horton, Adams County Emergency Management

Date: September 10, 2012

RE: Adams County Multi-Hazard Mitigation Plan Update

Adams County Hazard Plans Available for Public Review

The Adams County Multi-Hazard Mitigation Plan update, has been completed in draft form and is available to the public for review and comment at the locations listed below. Electronic copies may be viewed in pdf format at <http://www.consulting-foresters.com/?id=clients>. The public review phase of the planning process will be open from September 10th, 2012 thru September 28th, 2012.

The purpose of the Adams County Multi-Hazard Mitigation Plan (MHMP) is to reduce the impact of hazards such as floods, landslides, severe weather, wildfire, extended power outage, crop loss, and terrorism/civil unrest on Adams County residents, landowners, businesses, communities, local governments, and state and federal agencies while maintaining appropriate emergency response capabilities and sustainable natural resource management policies. The MHMP identifies high risk areas as well as structures and infrastructure that may have an increased potential for loss due to a hazard event. The documents also recommend specific projects that may help prevent disasters from occurring altogether or, at the least, lessen their impact on residents and property. The MHMP is being developed by a committee of city and county elected officials and departments, local and state emergency response representatives, land managers, highway district representatives, and others.

The Adams County MHMP includes risk analysis at the community level with predictive models for where disasters are likely to occur. These Plans will enable Adams County and its communities to be eligible for grant dollars to implement the projects and mitigation actions identified by the committee. Although not regulatory, the MHMP will provide valuable information as we plan for the future.

Comments on the MHMP must be submitted to the attention of Don Horton, Adams County Emergency Manager, at building@co.adams.id.us or mailed to Adams County Emergency Management, PO Box 48, Council, ID 83612 by close of business on September 28th, 2012. For more information on the Adams County MHMP update process, contact Don Horton at 208-253-6125.

Continued Public Involvement

Adams County is dedicated to involving the public directly in review and updates of this Multi - Hazard Mitigation Plan. The County Emergency Management Coordinator, through the planning committee, is responsible for the annual review and update of the Plan as recommended in the "Plan Monitoring and Maintenance" section below.

The public will have the opportunity to provide feedback about the Plan annually on the anniversary of the adoption at a meeting of the County Board of Commissioners. Copies of the Plan will be kept at the County Courthouse. The Plan also includes contact information for the Emergency Management Coordinator, who is responsible for keeping track of public comments.

A public meeting will also be held as part of each annual evaluation or when deemed necessary by the planning committee. The meetings will provide the public a forum for which they can express concerns, opinions, or ideas about the Plan. The County Commissioner's Office will be responsible for using County resources to publicize the annual meetings and maintain public involvement through the County's webpage and local newspapers.

Documented Review Process

Review and comment on this Plan has been provided through a number of avenues for the committee members as well as for members of the general public. A record of the document's review process has been established through email correspondence, press releases, published articles, meeting minutes, and meeting sign-in sheets. Proof of these activities is recorded in the Chapter 7 Appendices.

During regularly scheduled committee meetings in 2012, the committee members met to discuss findings, review mapping and analysis, and provide written comments on draft sections of the document. During the public meetings attendees observed map analyses, photographic collections, discussed general findings from the community assessments, and made recommendations on potential project areas.

Sections of the draft Plan were delivered to the planning committee members during the regularly scheduled committee meetings and emailed to the committee the following day. The completed first draft of the document was presented to the committee during the August planning committee meeting for full committee review. The committee spent several weeks proofreading and editing sections of the draft. Many jurisdictions met individually to review and revise their specific risk assessment and mitigation strategy including the prioritization of action items. Once the committee's review was completed, the draft document was released for public review and comment. The public review period remained open from September 10th thru September 28th, 2012.

Plan Monitoring and Maintenance

As part of the policy of Adams County in relation to this planning document, this entire Multi - Hazard Mitigation Plan should be reviewed annually (from date of adoption) at a special meeting of a joint planning committee, open to the public and involving all jurisdictions, where action items, priorities, budgets, and modifications can be made or confirmed. Adams County Emergency Management (or an official designee

of the joint committee) is responsible for the scheduling, publicizing, and leadership of the annual review meeting. During this meeting, participating jurisdictions will report on their respective projects and identify needed changes and updates to the existing Plan. Maintenance to the Plan should be detailed at this meeting, documented, and attached to the formal plan as an amendment to the Multi - Hazard Mitigation Plan. Re-evaluation of this plan should be made on the 5th anniversary of its acceptance, and every 5-year period following.

Annual Review Agenda

The focus of the joint planning committee at the annual review meeting should include at least the following topics:

- Update historical events record based on any events in the past year.
- Review county profile and individual community assessments for each hazard and note any major changes or mitigation projects that have altered the vulnerability of each entity.
- Add a section to note accomplishments or current mitigation projects.
- All action items in Chapter 6 will need updated as projects are completed and as new needs or issues are identified.
- Address Emergency Operations Plans – how can we dovetail the two plans to make them work for each other? Specifically, how do we incorporate the County’s EOP into the action items for the regional MHMP?
- Address Updated County Comprehensive Land Use Plans – how can we dovetail the two plans to make them work for each other?
- Incorporate additional hazard chapters as funding allows.

All meeting minutes, press releases, and other documentation of revisions should be kept on record by Adams County Emergency Management.

Five Year Re-evaluation Agenda

The focus of the planning committee at the five year re-evaluation should include all of the topics suggested for the annual review in addition to the following items:

- Update County demographic and socioeconomic data.
- Address any new planning documents, ordinances, codes, etc. that have been developed by the County or cities.
- Review listed communication sites.
- Review municipal water sources, particularly those in the floodplain or landslide impact areas.
- Redo all risk analysis models incorporating new information such as an updated County parcel master database, new construction projects, development trends, population vulnerabilities, changing risk potential, etc.

- Update county risk profiles and individual community assessments based on new information reflected in the updated models.

All meeting minutes, press releases, and other documentation of revisions should be kept on record by Adams County Emergency Management.

Chapter 3

Community Profile

IN THIS SECTION:

- Description of the Region
- Geography and Climate
- Population and Demographics
- Natural Resources
- Hazard Management Capabilities
- Regional Hazard Profile

Chapter 3 – Community Profile

Adams County Characteristics

The following section has been summarized from information available at Adams County's website.⁴

Adams County was established March 3, 1911, with its county seat at Council, where it remains to this day. Adams County was named for John Adams, the second President of the United States. The Council valley was a meeting place for the Nez Perce and Shoshone Indian Tribes.

Before non-native settlement began here, the area was inhabited by small bands of Shoshoni Indians. Pioneers who frequented the Council Valley in those early days told of huge groups of Indians who gathered here from all over the Northwest. Perry Clark, a member of the Idaho Territorial Legislature and later an Indian Valley school teacher, said that from on top of the little hill just north of present-day downtown Council, he could see ". . . many hundreds of Indians and thousands of head of Indian horses at one site, literally covering the valley as a blanket." Clark never actually lived here, but he named the place "Council Valley" because of these gatherings that he interpreted as being Indian "Council" meetings.

In the earliest days of Idaho settlement, a trail up the Weiser River through what is now Adams County became the principal avenue of travel for pack trains carrying supplies from Boise to the gold camps at Warren and Florence. This route was easier to travel than the more direct but torturous terrain along the Payette River. The Weiser River trail was also clear of snow earlier in the spring.

George and Elizabeth Moser and their children became the first white family to settle in the Council Valley in 1876. Their homestead later became the location of the town of Council. On November 19, 1878 the first post office was established at what now became officially known as "Council Valley". Robert White was the postmaster. The office was nothing more than a small box that he kept under his bed in his home just north of the present town.

The arrival of the railroad in 1882 at the town of Weiser, near the mouth of the Weiser River, spurred rapid growth of the Upper Country. In 1891 the core of the present town of Council began to form around a town square. The first business was a hotel / saloon built east of the square. Another hotel, several stores and many homes soon followed. In 1896 the name "Council Valley" for the town was shortened to "Council".

Construction of the railroad up the Weiser River brought a boom to the town beginning in 1898. For a couple of years Council was a "wide open" town, with about six saloons. The arrival of the tracks in March of 1901 shortened the trip to Weiser from a bone-jarring two- day trip each way in a wagon to a matter of two or three hours in the comfort of a passenger car. Copper ore from the Seven Devils mines that had previously been hauled over 100 miles to Weiser was now loaded onto rail cars at Council.

⁴ Adams County, Idaho. Available at <http://www.co.adams.id.us/>.

When the Thunder Mountain mining boom came in 1902, Council was the nearest rail town to the gold strike and became the "jumping off point" for that gold rush. Writer, Earl Wayland Bowman arrived in Council that summer, and described it as a bustling, dirty little town with money flowing like water.

Council soon became more civilized, and the town was officially incorporated January 20, 1903. By about 1905 the town had a population of about 1,000.

The area continued to boom throughout the first decade of the twentieth century. Cattle, sheep, farming and mining formed the core of the economy. About 1907 the fruit industry began in the Council area on a large scale. The most famous of the orchards in the area were those of the Mesa Orchards Company, eight miles south of Council. At its peak the company had 1,200 acres growing various fruit trees (mostly apples) and was one of the biggest orchards in the world.

In 1911 the railroad reached the Meadows Valley, and a new town called "New Meadows" was established where the tracks ended. Until 1911 what is now Adams County was part of Washington County. That year the upper part of Washington County became Adams County with Council as the temporary county seat. In the November election of 1912, Council was voted the permanent county seat.

In 1915 the town suffered its worst fire, and lost many of the buildings of its downtown core. An ordinance was passed requiring new buildings to be made of brick. Most of the present brick structures in downtown Council were built right after the 1915 fire. The new buildings were wired for electricity which reached the town that year.

The 1920s brought hard times to the Council area. The mining boom had gone bust, and the area was hit hard by the national agricultural depression that followed World War I. By 1929 Council had a population of about 500.

The economy of the area started to improve in 1939 when the Boise-Payette lumber company had built a sawmill in Council and started logging operations in the surrounding mountains. The town experienced a boom and a housing shortage. A new high school was finished in 1941, just about the time the U.S. jumped into World War II.

For several decades after the War, life and the economy in the Council area were stable, with logging and ranching as its core industries. In the 1980s timber-related jobs began to decline, and the Council sawmill closed March 31, 1995. It looks like the economic future here will have to be more diverse than its past.

Description of the Region

Adams County is located in the West Central Highlands of Idaho with the Weiser River cutting through its heartland. Elevations range from 1,469 feet above sea level to 8,940 feet in the northern end of the County. Ownership is mixed between Federal (mainly Bureau of Land Management and US Forest Service), state and private owners.

Geography and Climate

The topography of Adams County is extremely varied, from low elevation of the Snake River canyons to high, steep mountainous terrain of the Seven Devils Wilderness.

High-glaciated mountains in the northern and western portion of Adams County are dotted with dozens of glacial lakes. The terrain is very steep, rocky, and rugged, and much is granite rock covered with alpine vegetation. The south central area is relatively gentle and rolling with the Weiser River and its tributaries ultimately flowing south out of the county.

The Weiser River and its tributaries all provide water for irrigation (ie. Hornet Creek, Little Weiser River, and the West Fork Weiser River). Subsequently, most of the communities and agriculture are situated within close proximity to one of these water sources. The Snake River comprises the western boundary of Adams County and provides electricity and recreation to numerous people throughout the region. The Ben Ross and Lost Valley Reservoirs both serve as important water sources for Adams County as well.

There is a wide range of climate in Adams County due to the variances in altitude – from less than 1,500 feet to the west along the Snake River to over 8,500 feet in the northwest. The average high temperatures in Council during July and August are around 90 degrees (F), while in December and January the highs are around 34 degrees (F), with the average annual high at 62 degrees (F). The average low temperatures in Council, during summer months is about 54 degrees (F) and approximately 18 degrees (F) during winter months with the average annual low of 35 degrees (F). Annual precipitation for Council is over 24 inches with most of the rainfall/snowfall occurring in the winter months; however there is a steady rain amount for even the summer months. The temperatures in New Meadows are just a bit cooler than what Council experiences with an average annual high of 57 degrees (F) and an average annual low of 26 degrees (F). New Meadows annual precipitation is the same as in Council at 24 inches.

Demographics and Socioeconomics

The 2010 Census established the Adams County population at 3,976, which is up from 3,476 in 2000. The population of Council in 2010 was 816 and the population of New Meadows was. Table 3.1 shows historical changes in population among the various communities within Adams County.

	1970	1980	1990	2000	2010
Council	899	917	831	816	839
New Meadows	605	576	534	533	496

The 2010 Census reported that ethnicity in Adams County is comprised of 96% white, 2.4% Hispanic or Latino, 1% American Indian, 0.4% Asian, and 0.1% African American. Approximately 51.3% of residents are male. There are 2,636 occupied housing units (80.4% of available housing units) in Adams County.⁵

⁵ US Census Bureau. American FactFinder. Available online at <http://factfinder2.census.gov>. Accessed March, 2011.

Land Ownership

There is one U.S. National Forest system in the county, the Payette National Forest, which includes a portion of the Seven Devils Wilderness Area.

Entity	Acres	Percent of Total Area
US Forest Service	503,803	58%
Private	273,073	31%
Bureau of Land Management	54,033	6%
State of Idaho	40,972	5%
Bureau of Reclamation	3,042	<1%
Idaho Fish and Game	30	<1%
Total	874,968	100

Development Trends

Adams County, once a dominantly agriculture and forestry based economy is now less so. Recent trends of development and growth in this area have seen many high-value homes in sub-divisions that are purchased by out-of-county buyers that use these homes for weekend and vacation use, or in conjunction with recreational objectives. In addition, some new home buyers work in nearby McCall (Valley County). A significant number of new home buyers in the county do not reside full-time in Adams County.

Natural Resources

Adams County is a diverse ecosystem with a complex array of vegetation, wildlife, and fisheries that have developed with, and adapted to fire as a natural disturbance process. Nearly a century of wildland fire suppression coupled with past land-use practices (primarily timber harvesting, agriculture, and mining) has altered plant community succession and has resulted in dramatic shifts in the fire regimes and species composition. As a result, some forests in Adams County have become more susceptible to large-scale, high-intensity fires posing a threat to life, property, and natural resources including wildlife and plant populations. High-intensity, stand-replacing fires have the potential to seriously damage soils, native vegetation, and fish and wildlife populations. In addition, an increase in the number of large, high-intensity fires throughout the nation's forest and rangelands has resulted in significant safety risks to firefighters and higher costs for fire suppression.

Biota

Fish and Wildlife – Adams County is home to a diverse array of fish and wildlife species. Adams County streams provide habitat for native trout and char, including populations that are listed as threatened under the federal Endangered Species Act. Forestlands and interface areas are important habitat for many species of birds and mammals.

Vegetation - Vegetation in Adams County is a mix of forestland and rangeland ecosystems. An evaluation of satellite imagery of the region provides some insight to the composition of the forest vegetation of the area. The full extent of the county was evaluated for cover type as determined from Landsat 7 ETM+ imagery in tabular format, Table 3.3.

The most represented vegetated cover type is conifer dominated forests at approximately 49% of the total area. The next most common vegetation cover type represented is the shrubland at 23%. Perennial grass slopes are the third most common plant cover type at 10% along with exotics (9%). None of the remaining ground cover types total in excess of 5% in any one category (Table 3.3).

Land Cover	Acres	Percent of Total Area
Conifer	431,852	49%
Shrubland	204,498	23%
Grassland	90,856	10%
Exotic Herbaceous	75,060	9%
Riparian	35,656	4%
Agricultural	16,441	<2%
Non-vegetated	13,717	<2%
Sparsely Vegetated	4,223	<1%
Developed	3,283	<1%
Hardwood	869	<1%
Conifer-Hardwood	38	<1%
Total	876,493	100%

Vegetative communities within the county follow the strong moisture and temperature gradient related to the major river drainages. Limited precipitation and steep slopes result in a relatively arid environment in the southern portion of the county, limiting vegetation to drought-tolerant plant communities of grass and shrub lands, with scattered clumps of ponderosa pine and Douglas-fir at the higher elevations in the north end of the county. As moisture availability increases, so does the abundance of conifer species, with subalpine forest communities present in the highest elevations where precipitation and elevation provide more available moisture during the growing season.

Hydrology

The Idaho Water Resource Board is charged with the development of the Idaho Comprehensive State Water Plan. Included in the State Water Plan are the statewide water policy plan, and component basin and water body plans which cover specific geographic areas of the state (IDEQ 2003). The Idaho Department of Water Resources has prepared General Lithologies of the Major Ground Water Flow Systems in Idaho. The majority of Adams County has not been designated by the IWRB as a ground water system. However, the area beginning at the Adams County boundary and extending southward through the community of New Meadows (approximately 2.4 miles wide) has been designated as producing quaternary undifferentiated sediments (Qs). A smaller area adjacent to this Qs designation has received the categorization of Tertiary Columbia River Basalts (Tcr) by the IWRB (Grahm and Campbell 1995). The state may assign or designate beneficial uses for particular Idaho water bodies to support. These beneficial uses are identified in sections 3.35 and 100.01 - .05 of the Idaho water quality standards (WQS). These uses include:

- **Aquatic Life Support:** cold water biota, seasonal cold water biota, and warm water biota;
- **Contact Recreation:** primary (swimming) and secondary (boating);
- **Water Supply:** domestic, agricultural, and industrial; and
- **Wildlife Habitat and Aesthetics**

While there may be competing beneficial uses in streams, federal law requires DEQ to protect the most sensitive of these beneficial uses (IDEQ 2003).

The geology and soils of this region lead to rapid to moderate moisture infiltration. Slopes are moderate to steep, however, headwater characteristics of this watershed lead to a high degree of infiltration as opposed to a propensity for overland flow. Thus sediment delivery efficiency of first and third order streams is fairly low. The bedrock is typically well fractured and moderately soft. This fracturing allows excessive soil moisture to rapidly infiltrate into the rock and thus surface runoff is rare. Natural mass stability hazards associated with slides are low. Natural sediment yields are low for these watersheds. However, disrupted vegetation patterns from logging (soil compaction) and wildland fire (especially hot fires that increase soil hydrophobic characteristics), can lead to increased surface runoff and debris flow to stream channels. A significant component of Adams County's infrastructure is the water sources that are maintained for use by communities. While the Idaho Water Resources Board does not monitor all drinking water supplies in the State, they are charged with maintaining standards on municipal drinking water supplies. These include community water sources, water used in a business, and similar drinking water supplies in the County. There are approximately 22 collection points in Adams County that are monitored for these purposes (IDEQ 2003). Three categories of municipal water are recognized: Groundwater, spring-groundwater, and surface water. The former two are generally considered resistant to surface disturbances such as fire, flood, landslide, and severe weather events. The latter is considered much more influenced by many hazards. Earthquakes can impact all collection types, while landslides that directly contact any of them will have an impact.

Air Quality

The primary means by which the protection and enhancement of air quality is accomplished is through implementation of National Ambient Air Quality Standards (NAAQS). These standards address six pollutants known to harm human health including ozone, carbon monoxide, particulate matter, sulfur dioxide, lead, and nitrogen oxides.⁶

The Clean Air Act, passed in 1963 and amended in 1977, is the primary legal authority governing air resource management. The Clean Air Act provides the principal framework for national, state, and local efforts to protect air quality. Under the Clean Air Act, the Organization for Air Quality Protection Standards (OAQPS) is responsible for setting the NAAQS standards for pollutants which are considered harmful to people and the environment. OAQPS is also responsible for ensuring these air quality standards are met, or attained (in cooperation with state, Tribal, and local governments) through national standards and strategies to control pollutant emissions from automobiles, factories, and other sources.⁷

Smoke emissions from fires potentially affect an area and the airsheds that surround it. Climatic conditions affecting air quality in Idaho are governed by a combination of factors. Large-scale influences include

⁶ USDA-Forest Service (United States Department of Agriculture, Forest Service). 2000. Incorporating Air Quality Effects of Wildland Fire Management into Forest Plan Revisions – A Desk Guide. April 2000. – Draft.

⁷ Louks, B. 2001. Air Quality PM 10 Air Quality Monitoring Point Source Emissions; Point site locations of DEQ/EPA Air monitoring locations with Monitoring type and Pollutant. Idaho Department of Environmental Quality. Feb. 2001. As GIS Data set. Boise, Idaho.

latitude, altitude, prevailing hemispheric wind patterns, and mountain barriers. At a smaller scale, topography and vegetation cover also affect air movement patterns. Locally adverse conditions can result from occasional wildland fires in the summer and fall, and prescribed fire and agricultural burning in the spring and fall.

Due principally to local wind patterns, air quality in Adams County is generally good to excellent, rarely falling below IDEQ pollution standards. However, locally adverse conditions can result from occasional wildland fires in the summer and fall, and prescribed fire and agricultural burning in the spring and fall. All major river drainages are subject to temperature inversions, which trap smoke and affect dispersion, causing local air quality problems. This occurs most often during the summer and fall months and would potentially affect all communities in Adams County.

Smoke management in Adams County is facilitated by the Idaho/Montana Airshed Group. This group advises when conditions are appropriate for prescribed burning based on information participating members (burners) supply to them. The western half of the county is in Airshed Unit 14, and about half is in Airshed Unit 15 (the eastern portion). The McCall impact zone is just to the east of New Meadows. Class I areas in/near Adams County include Hells Canyon, Eagle Cap, and Selway/Bitterroot areas. An airshed is a geographical area which is characterized by similar topography and weather patterns (or in which atmospheric characteristics are similar, e.g., mixing height and transport winds). The USDA Forest Service, Bureau of Land Management, and the Idaho Department of Lands are all members of the Montana/Idaho State Airshed Group, which is responsible for coordinating burning activities to minimize or prevent impacts from smoke emissions. Prescribed burning must be coordinated through the Missoula Monitoring Unit, which coordinates burn information, provides smoke forecasting, and establishes air quality restrictions for the Montana/Idaho Airshed Group. The Monitoring Unit issues daily decisions that may restrict burning when atmospheric conditions are not conducive to good smoke dispersion. Burning restrictions are issued for airsheds, impact zones, and specific projects. The monitoring unit is active March through November. Each Airshed Group member is also responsible for smoke management all year.⁸

Hazard Management Capabilities

Adams County Emergency Management is responsible for the administration and overall coordination of the emergency management program for Adams County and the cities within the county. The Incident Command System (ICS) is the basis for all direction, control and coordination of emergency response and recovery efforts. Emergency response and supporting agencies and organizations have agreed to carry out their objectives in support of the incident command structure to the fullest extent possible.

The Adams County Government Office houses a staff of emergency management personnel trained and dedicated to mitigating the negative impacts of natural and man-made disasters in the County. City offices throughout the county are equally dedicated to reducing catastrophic losses from disasters although their budgets are extremely limited.

⁸ Montana/Idaho Airshed Management Group. 2010. Montana/Idaho Airshed Management System. Available online at <http://www.smokemu.org/>.

Many states, counties and communities in the nation believe they are prepared for natural and man-made disasters, however, not all of them have faced the necessity of testing this belief. Too often, resources are tested beyond the ability of counties and communities to effectively respond, especially when the unexpected occurs. The Idaho Bureau of Homeland Security (IBHS) and FEMA work closely with the counties and communities of Idaho in the form of desktop exercises and preparedness drills in order to increase preparations and abilities of the state's first responders.

Adams County and the cities of Adams County participate in preparedness drills, public education efforts, the implementation and enforcement of planning and zoning policies.

The U.S. Forest Service has agreements with STPA and the Snake Valley Chiefs, but not Meadows Valley.

Regional Hazard Profile

SHELDUS is a county-level hazard data set for the U.S. for 18 different natural hazard event types such as thunderstorms, hurricanes, floods, wildfires, and tornados. For each event, the database includes the beginning date, location (county and state), property losses, crop losses, injuries, and fatalities that affected Adams County.

The data were derived from several existing national data sources such as National Climatic Data Center's monthly Storm Data publications and NGDC's Tsunami Event Database. With the release of SHELDUS 7.0, the database includes loss causing and/or deadly event between 1960 through 1975 and from 1995 onward. Between 1976 and 1995, SHELDUS reflects only events that caused at least one fatality or more than \$50,000 in property or crop damages.

Prior to 2001, property and crop losses occurring on the same day within the same geography (i.e. county) are aggregated by hazard type. For events that covered multiple counties, the dollar losses, deaths, and injuries were equally divided among the counties (e.g. if 4 counties were affected, then each was given 1/4 of the dollar loss, injuries and deaths). Where dollar loss estimates were provided in ranges (e.g. \$50,000 - 100,000) - such as in NCDC Storm data until 1995 - the lowest value in the range of the category was used. This results in the most conservative estimate of losses during the time period of 1960-1995. Since 1995 all events that were reported by the National Climatic Data Center (NCDC) with a specific dollar amount are included in the database.⁹

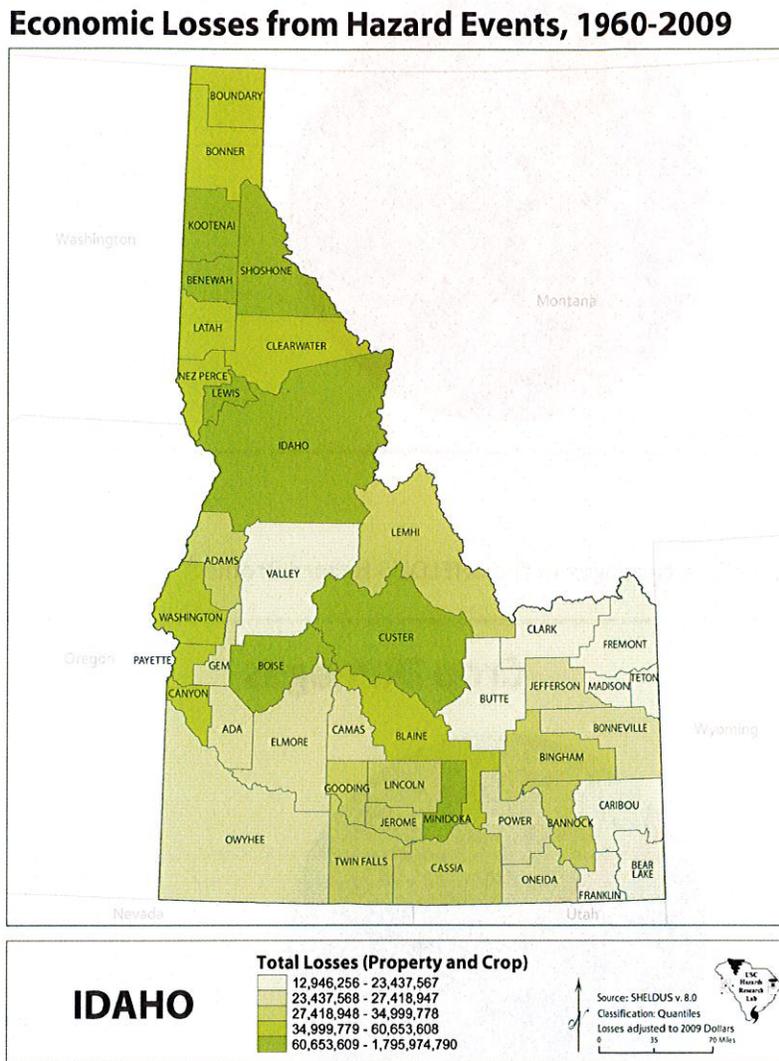
It is important to keep in mind that the SHELDUS database does not include every hazard event that occurred within an area. Only those events that met a specific reporting criterion as explained above are listed. This means that many local events are not included in this database. Some of the missing events are considered to be major local hazard events such as 1996-97 and 2010 flooding events that had caused major short and long-term damages within the county.

Since 1960, there have been 5 hazard related injuries primarily due to severe weather events. During this time period there have been 0 fatalities. These incidents are also primarily due to severe weather events.

⁹ HVRI. Natural Hazards Losses 1960-2008 (SHELDUS). Hazards & Vulnerability Research Institute. University of South Carolina. Columbia, South Carolina. Available online at <http://webra.cas.sc.edu/hvri/>. February 2010.

Traffic accidents are likely the most common cause of injuries and fatalities from hazard-related events. The following figure shows the economic losses from hazard events occurring from 1960 - 2009.¹⁰

Figure 3.1 Economic Losses from Hazard Events



¹⁰ Hazards & Vulnerability Research Institute (2011). The Spatial Hazard Events and Losses Database for the United States, Version 9.0 [Online Database]. Columbia, SC: University of South Carolina. Available from <http://www.sheldus.org>

Figure 3.2 Summary of Property Damages in the SHELDUS Hazard Profile.¹⁰

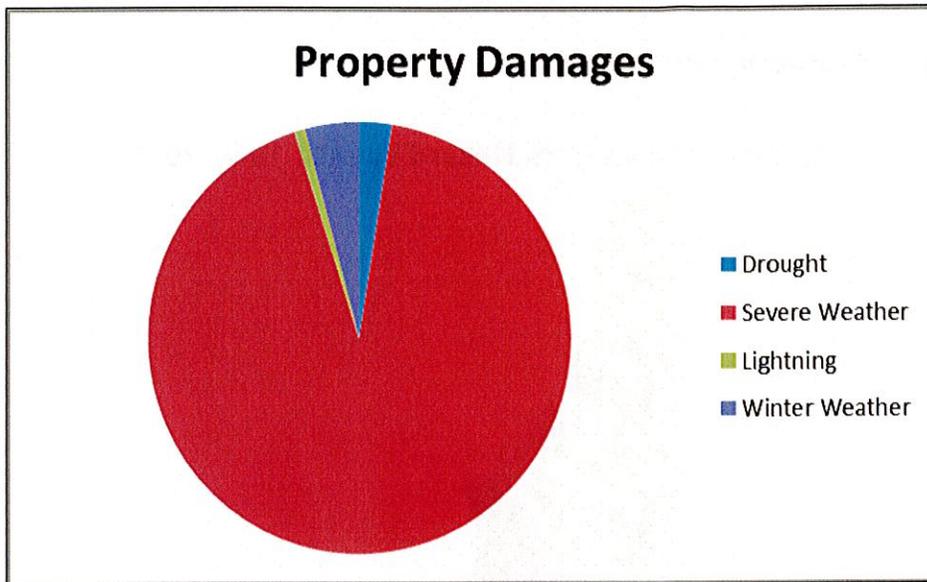
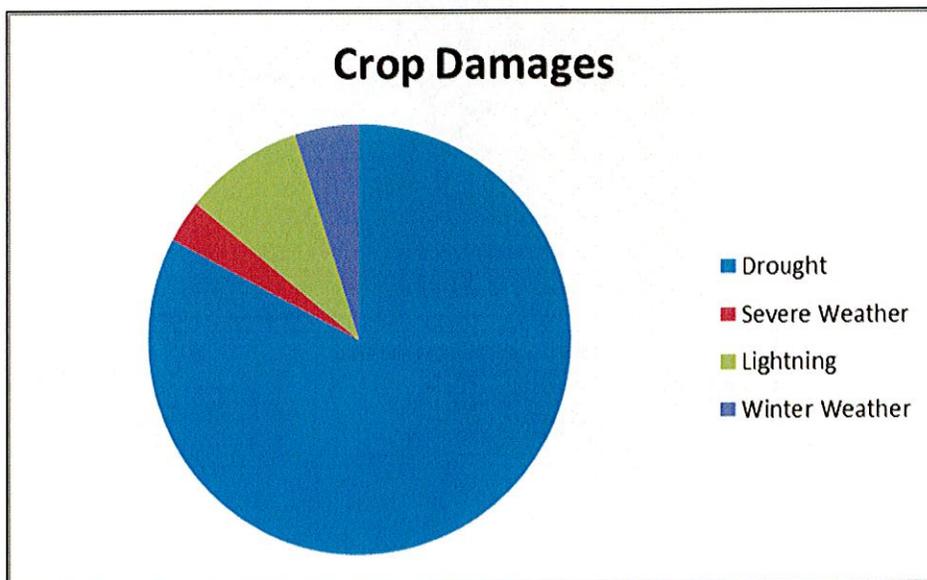


Figure 3.3 Summary of Crop Damages in the SHELDUS Hazard Profile.¹⁰



Chapter 4

Hazard Profiles

IN THIS SECTION:

- Flood Annex
- Earthquake Annex
- Landslide Annex
- Severe Weather Annex
- Wildland Fire Annex
- Crop Failure Annex
- Extended Power Outage Annex

Chapter 4 – Hazard Profiles

Regional and Local Hazard Profiles

Flood

Floods have been a serious and costly natural hazard affecting Adams County and are the primary natural disaster in the State of Idaho. Floods damage roads, farmlands, and structures, often disrupting lives and businesses. Simply put, flooding occurs when water leaves the river channels, lakes, ponds, and other confinements where we expect it to stay. Flood-related disasters occur when human property and lives are impacted by flood waters. An understanding of the role of weather, runoff, landscape, and human development in the floodplain is therefore the key to understanding and controlling flood-related disasters. Major disaster declarations related to flooding were made for Idaho in 1956, 1957, 1961, 1962, 1963, 1964, 1972, 1974, 1984, 1996, 1997, 2005, 2006, 2008, 2010, and 2011.

Floods can be divided into two major categories in southern Idaho: riverine and flash flood. Riverine flooding is associated with a river's watershed, which is the natural drainage basin that conveys water runoff from rain and snowmelt. Riverine flooding occurs when the flow of runoff is greater than the carrying capacities of the natural drainage systems. Rain water and snowmelt runoff that is not absorbed by soil or vegetation seeks surface drainage lines following natural topography lines. These lines merge to form a hierarchical system of rills, creeks, streams, and rivers. Generally, floods can be slow or fast rising depending on the size of the river or stream.

Flash floods are much more dangerous and flow much faster than riverine floods. Flash floods are caused by the introduction of a large amount of water into a limited area (e.g. extreme precipitation events in watersheds less than 50 square miles). They also tend to crest quickly (e.g. eight hours or less) and more commonly occur in hilly or otherwise confined terrain. Flash floods occur in both urban and rural settings, principally along smaller rivers and drainage ways that do not typically carry large amounts of water. This type of flood poses more significant safety risks than riverine floods because of the rapid onset, the high water velocity, the potential for channel scour, and the debris load.¹¹

There are three types of flash flooding:

- Extreme precipitation and runoff events
- Inadequate urban drainage systems overwhelmed by small intense rainstorms
- Dam failures

¹¹ Statewide Regional Evacuation Study Program. Central Florida Region Technical Data Report. Volume 1-7, Chapter II – Regional Hazards Analysis. Available online at <http://www.cfrpc.org/EVACUATION%20MASTER%20DVD%20-%20PDF%20VERSION/VOLUME%201/Chapter%202/CFRPC%20Chapter%20II%20-%20Hazards%20Analysis.pdf>.

Events that may lead to flash flooding include significant rainfall and/or snowmelt on frozen ground in the winter and early spring months, high intensity thunderstorms (usually during the summer months), and rainfall onto burned areas where high heat has caused the soil to become hydrophobic or water repellent which dramatically increases runoff and flash flood potential.

Flash floods from thunderstorms do not occur as frequently as those from general rain and snowmelt conditions, but are far more severe. The onset of these flash floods varies from slow to very quick and is dependent on the intensity and duration of the precipitation and the soil types, vegetation, topography, and slope of the basin. When intensive rainfall occurs immediately above developed areas, the flooding may occur in a matter of minutes. Sandy soils and sparse vegetation, especially recently burned areas, are conducive to flash flooding. Mountainous areas are especially susceptible to the damaging effects of flash floods, as steep topography may stall thunderstorms in a limited area and may also funnel runoff into narrow canyons, intensifying flow. A flash flood can, however, occur on any terrain when extreme amounts of precipitation accumulate more rapidly than the terrain can allow runoff. Flash floods are most common in Idaho during the spring and summer months due to thunderstorm activity.

Occasionally, floating ice or debris can accumulate at a natural or man-made obstruction and restrict the flow of water. Ice and debris jams can result in two types of flooding:

- Water held back by the ice jam or debris dam can cause flooding upstream, inundating a large area and often depositing ice or other debris which remains after the waters have receded. This inundation may occur well outside of the normal floodplain.
- High velocity flooding can occur downstream when the jam breaks. These flood waters can have additional destructive potential due to the ice and debris load that they may carry.¹²

Flooding from ice or debris jams is a relatively common phenomenon in southern Idaho and has been a significant contributor to flood-related damages in Adams County specifically. Small jams frequently occur in many of the streams throughout Adams County, particularly at bridge abutments and culverts.

Winter weather conditions are the main driving force in determining where and when base floods will occur. The type of precipitation that a winter storm produces is dependent on the vertical temperature profile of the atmosphere over a given area.¹³ Unusually heavy snow packs or unusual spring temperature regimes (e.g. prolonged warmth) may result in the generation of runoff volumes significantly greater than can be conveyed by the confines of the stream and river channels. Such floods are often the ones that lead to widespread damage and disasters. Floods caused by spring snow melt tend to last for a period of several days to several weeks, longer than the floods caused by other meteorological sources.

Floods that result from rainfall on frozen ground in the winter, or rainfall associated with a warm, regional frontal system that rapidly melts snow at low and intermediate altitudes (rain-on-snow) can be the most severe. Both of these situations quickly introduce large quantities of water into the stream channel system, easily overloading its capacity.

¹² Barnhill, Dave, et al. "Flash Floods – How do they occur?". Waterlines. Division of Water, Indiana Department of Natural Resources. Spring-Summer 1999. Indianapolis, Indiana.

¹³ "Snowstorms". Ramapo College. Resource Section for Meteorology. Available online at http://mset.rst2.edu/portfolios/k/khanna_n/meteorology/snowstorms.htm. October 2006.

On small drainages, the most severe floods are usually a result of rainfall on frozen ground; however, moderate quantities of warm rainfall on a snow pack, especially for one or more days, can also result in rapid runoff and flooding in streams and small rivers. Although meteorological conditions favorable for short-duration warm rainfall are common, conditions for long-duration warm rainfall are relatively rare. Occasionally, however, the polar front becomes situated along a line from Hawaii through Oregon, and warm, moist, unstable air moves into the region.

The major source of flood waters in Adams County is normal spring snow melt. As spring melt is a “natural” condition; the stream channel is defined by the features established during the average spring high flow (bank-full width). Small flow peaks exceeding this level and the stream’s occupation of the floodplain are common events. The magnitude of most floods in Adams County depend on the particular combinations of intensity and duration of rainfall, pre-existing soil conditions, area of a basin, elevation of the rain or snow level, and the amount of snow pack. Man-made changes to a basin also can affect the size of floods. Although floods can happen at any time during the year, there are typical seasonal patterns for flooding in southern Idaho, based on the variety of natural processes that cause floods:

- Heavy rainfall on wet or frozen ground, before a snow pack has accumulated, typically cause fall and early winter floods
- Rainfall combined with melting of the low elevation snow pack typically cause winter and early spring floods
- Late spring floods in Adams County result primarily from melting of the snow pack

The most commonly reported flood magnitude measure is the “base flood.” This is the magnitude of a flood having a one-percent chance of being equaled or exceeded in any given year. Although unlikely, “base floods” can occur in any year, even successive ones. This magnitude is also referred to as the “100-year Flood” or “Regulatory Flood”. Floods are usually described in terms of their statistical frequency. A “100-year flood” or “100-year floodplain” describes an event or an area subject to a 1% probability of a certain size flood occurring in any given year. This concept does not mean such a flood will occur only once in one hundred years. Whether or not it occurs in a given year has no bearing on the fact that there is still a 1% chance of a similar occurrence in the following year. Since floodplains can be mapped, the boundary of the 100-year flood is commonly used in floodplain mitigation programs to identify areas where the risk of flooding is significant. Any other statistical frequency of a flood event may be chosen depending on the degree of risk that is selected for evaluation, e.g., 5-year, 20-year, 50-year, 500-year floodplain.

The areas adjacent to the channel that normally carry water are referred to as the floodplain. In practical terms, the floodplain is the area that is inundated by flood waters. In regulatory terms, the floodplain is the area that is under the control of floodplain regulations and programs (such as the National Flood Insurance Program which publishes the FIRM maps). The floodplain is often defined as:

“That land that has been or may be covered by floodwaters, or is surrounded by floodwater and inaccessible, during the occurrence of the regulatory flood.”¹⁴

¹⁴ FEMA. Federal Emergency Management Agency. National Flood Insurance Program. Washington D.C. Available online at www.fema.gov.

The nature and extent of a flood event is the result of the hydrologic response of the landscape. Factors that affect this hydrologic response include soil texture and permeability, land cover and vegetation, land use and land management practices. Precipitation and snow melt, known collectively as runoff, follow one of three paths, or a combination of these paths, from the point of origin to a stream or depression: overland flow, shallow subsurface flow, or deep subsurface (“ground water”) flow. Each of these paths delivers water in differing quantities and rates. The character of the landscape will influence the relative allocation of the runoff and will, accordingly, affect the hydrologic response.

Unlike precipitation and ice formation, steps can be taken to mitigate flooding through manipulation or maintenance of the floodplain. Insufficient natural water storage capacity and changes to the landscape can be offset through water storage and conveyance systems that run the gamut from highly engineered structures to constructed wetlands. Careful planning of land use can build on the natural strengths of the hydrologic response. Re-vegetation of burned slopes diverts overland flow (fast and flood producing) to subsurface flow (slower and flood moderating).

The failure to recognize or acknowledge the extent of the natural hydrologic forces in an area has led to development and occupation of areas that can clearly be expected to flood on a regular basis. Despite this, communities are often surprised when the stream leaves its channel to occupy its floodplain. A past reliance on structural means to control floodwaters and “reclaim” portions of the floodplain has also contributed to inappropriate development and continued flood-related damages.

Development in or near floodplains increases the likelihood of flood damage. New developments near a floodplain add structures and people in flood areas thereby increasing, not the extent of the flood itself, but the impacts or damages that may be caused. New construction can also alter surface water flows by diverting water to new courses or increasing the amount of water that runs off impervious pavement and roof surfaces. This second effect diverts waters to places previously unaffected by flood issues. Unlike the weather and the landscape, this flood-contributing factor can be controlled. Development and occupation of the floodplain places individuals and property at risk. Such use can also increase the probability and severity of flood events (and consequent damage) downstream by reducing the water storage capacity of the floodplain, or by pushing the water further from the channel or in larger quantities downstream.¹⁵

Second Order Hazard Events

With the exception of dam failure, flood events are typically caused by severe weather events such as thunder storms or rapid spring runoff. Adams County has a high risk of major flood damages; however, flood events can trigger other types of hazard events that may be more damaging than the flood itself. The following chart outlines the interconnection between flood and other types of hazard events.

¹⁵ Planning and Flood Risk. Planning Policy Statement 15. The Planning Service, Department of Environment. June 2006. Available online at http://www.planningni.gov.uk/index/policy/policy_publications/planning_statements/pps15-flood-risk.pdf.

Table 4.1. Second-Order Hazards Related to Flood Events.

Related Causal Events	Related Effects
Severe Weather	Landslide
Dam Failure	Dam Failure
	Transportation Systems
	Infectious
	Disease/Epidemic/Pandemic
	Crop Loss
	Hazardous Materials

Earthquake

An earthquake is trembling of the ground resulting from the sudden shifting of continental plates beneath the earth's crust. Earthquakes may cause landslides and rupture dams. Severe earthquakes destroy power and telephone lines and gas, sewer, or water mains, which, in turn, may set off fires and/or hinder firefighting or rescue efforts. Earthquakes also may cause buildings, bridges, and other infrastructure to collapse.

Idaho experiences numerous minor earthquakes annually. Hebgen Lake and Borah Peak were two of the largest earthquakes in the continental United States (7.3 and 6.9 magnitude, respectively). They may affect large areas, cause great damage to structures, cause injury or loss of life, and alter the socioeconomic functioning of the communities involved. The hazard risk of earthquakes varies from place to place depending upon the regional and local geology.

Earthquakes occur along faults, which are fractures or fracture zones in the earth across which there may be relative motion. If the rocks across a fault are forced to slide past one another, they do so in a *stick-slip* fashion; that is, they accumulate strain energy for centuries or millennia, then release it almost instantaneously. The energy released radiates outward from the source, or focus, as a series of waves - an earthquake. The primary hazards of earthquakes are ground breaking, as the rocks slide past one another, and ground shaking, by seismic waves. Secondary earthquake hazards result from distortion of surface materials such as water, soil, or structures.

Ground shaking may affect areas 65 miles or more from the epicenter (the point on the ground surface above the focus). As such, it is the greatest primary earthquake hazard. Ground shaking may cause seiche, the rhythmic sloshing of water in lakes or bays. It may also trigger the failure of snow (avalanche) or earth materials (landslide). Ground shaking can change the mechanical properties of some fine grained, saturated soils, whereupon they liquefy and act as a fluid (liquefaction). The dramatic reduction in bearing strength of such soils can cause buried utilities to rupture and otherwise undamaged buildings to collapse.

Ground shaking from earthquakes can collapse buildings and bridges; disrupt gas, electric, and phone service; and sometimes trigger landslides, avalanches, flash floods, fires, and destructive ocean waves (tsunamis). Buildings with foundations resting on unconsolidated landfill and other unstable soil, or trailers and homes not tied to their foundations are at risk because they can be shaken off their mountings during an earthquake. When an earthquake occurs in a populated area, it may cause deaths and injuries and extensive property damage.

The earth's crust breaks along uneven lines called faults. Geologists locate these faults and determine which are active and inactive. This helps identify where the greatest earthquake potential exists. Many faults mapped by geologists are inactive and have little earthquake potential; others are active and have a higher earthquake potential.

Aftershocks are smaller earthquakes that follow the main incident and can cause further damage to weakened buildings. Aftershocks can occur in the first hours, days, weeks, or even months after the quake. Some earthquakes are actually foreshocks with a larger earthquake eminent.

Ground movement during an earthquake is seldom the direct cause of death or injury. Most earthquake-related injuries result from collapsing walls, flying glass, and falling objects as a result of the ground shaking, or people trying to move more than a few feet during the shaking.¹⁶

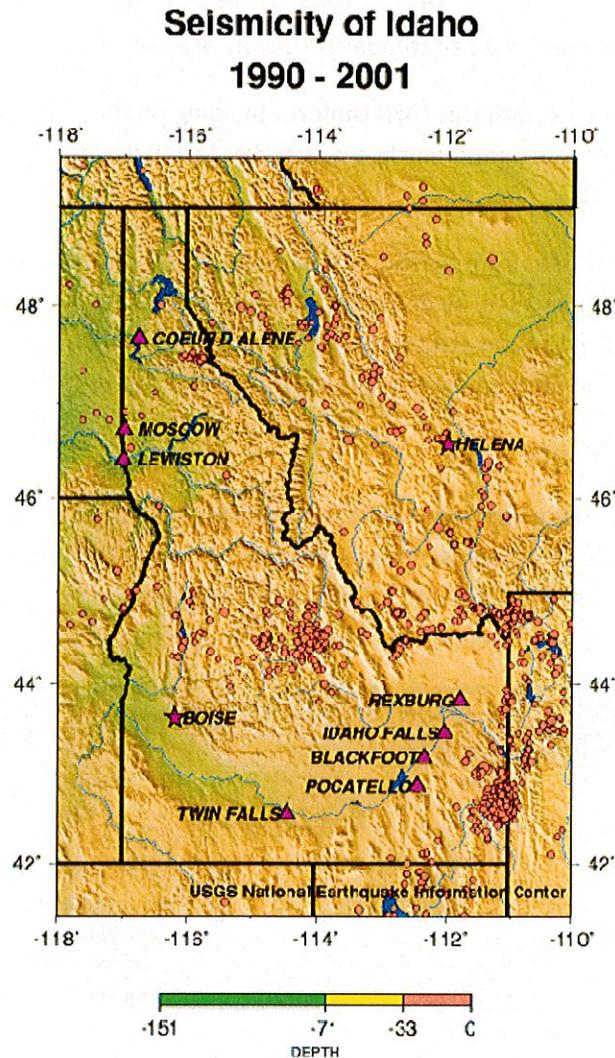
Earth scientists believe that most earthquakes are caused by slow movements inside the Earth that push against the Earth's brittle, relatively thin outer layer, causing the rocks to break suddenly. This outer layer is fragmented into a number of pieces, called plates. Most earthquakes occur at the boundaries of these plates. Idaho is part of an earthquake province called the Basin and Range Province. The Basin and Range Province is characterized by a series of northeast-southwest trending mountain ranges, which have been uplifted along normal faults and associated fault zones.¹⁷ The Intermountain Seismic Belt connects the Basin and Range Province with the more stable parts of North America (Idaho). The majority of Idaho's earthquakes occur along the Intermountain Seismic Belt, which runs from northwestern Montana, along the border of Idaho and Wyoming, and into Utah and Nevada. A significant branch of the Intermountain Seismic Belt extends west from the Yellowstone Hotspot, called the Yellowstone Tectonic Parabola, which is a result of the Basin and Range Province and the Yellowstone Hotspot uniquely interacting together. There are at least 8 major active faults in the Yellowstone Tectonic Parabola that account for numerous earthquake swarms and the location of Hebgen Lake and Borah Peak earthquakes.¹⁸

¹⁶ FEMA. Federal Emergency Management Agency. Available online at www.fema.gov. September 2007.

¹⁷ Digital Geology of Idaho. April 2011. Digital Atlas of Idaho. Available online at http://geology.isu.edu/Digital_Geology_Idaho/.

¹⁸ Idaho Bureau of Homeland Security. April 2011. Available online at www.bhs.idaho.gov.

Figure 4.1. Idaho Seismicity Map from 1990 – 2001.¹⁹



According to the handbook “Putting Down Roots in Earthquake Country”, published by the Idaho Geological Survey²⁰, the mountainous regions of eastern and central Idaho, both north and south of the Snake River, are at the most risk for large damaging earthquakes. However, moderate earthquakes can occur anywhere in Idaho and could cause significant damage to un-reinforced infrastructure and even fatalities. Currently, many of Idaho’s counties have building codes in place for new construction that help structures mitigate the effects of shaking. Older public buildings, especially unreinforced masonry, within Adams County could be at risk to shaking hazards and may need to be retrofitted seismic stability.

¹⁹ USGS. 2007. United States Geological Survey. Earthquake Hazard Program. Available online at <http://earthquake.usgs.gov/>.

²⁰ IGS. April 2011. Idaho Geologic Survey. “Putting Down Roots in Earthquake Country – Your Handbook for Earthquakes in Idaho.” Available online at http://www.idahogeology.org/uploads/Putting_Down_Roots_3_19_11.pdf.

The International Building Code (IBC), a nationwide industry standard, sets construction standards for different seismic zones in the nation. IBC seismic zone rankings for Idaho are among the highest in the nation. When structures are built to these standards they have a better chance to withstand earthquakes.

Structures that are in compliance with the 1970 Uniform Building Codes (UBC), which are now replaced by the International Building Code, are generally less vulnerable to seismic damages due to the inclusion of seismic construction standards.

Future injuries and property losses from earthquake hazards can be reduced by considering these hazards when making decisions about land use, by designing structures that can undergo ground shaking without collapse, by securely attaching the non-structural elements of a building, and by educating the public about what to do before, during, and after an earthquake to protect life and property.²¹

Second-Order Hazard Events

Earthquake events can result in other types of hazard incidents. In a disaster event, the first hazard event may not be the primary cause of damages or losses within the community. Historical earthquake events have often resulted in structural fires due to broken gas lines, candles, electrical malfunctions, etc. The following chart outlines the interconnection between earthquake hazards and other types of hazard events.

Table 4.2. Second-Order Hazards Related to Earthquake Events.	
Related Causal Events	Related Effects
None	Dam Failure
	Structural/Urban Fire
	Wildland Fire
	Transportation System
	Hazardous Materials
	Landslide
	Seiche
	Volcano

²¹ Noson, Linda Lawrance, et al. Washington State Earthquake Hazards. Washington Division of Geology and Earth Resources Information Circular 85. Olympia, Washington. 1988.

Landslide

Landslide is a general term for a wide variety of down slope movements of earth materials that result in the perceptible downward and outward movement of soil, rock, and vegetation under the influence of gravity. The materials may move by falling, toppling, sliding, spreading, or flowing. Some landslides are rapid, occurring in seconds, whereas others may take hours, weeks, or even longer to develop. Although landslides usually occur on steep slopes, they also can occur in areas of low relief.²²

Landslides can occur naturally or be triggered by human-related activities. Naturally-occurring landslides can occur on any terrain, given the right condition of soil, moisture content, and the slope's angle. They are caused from an inherent weakness or instability in the rock or soil combined with one or more triggering events, such as heavy rain, rapid snow melt, flooding, earthquakes, vibrations, and other natural causes. Other natural triggers include the removal of lateral support through the erosive power of streams, glaciers, waves, and longshore and tidal currents; through weathering, wetting, drying, and freeze-thaw cycles in surficial materials; or through land subsidence or faulting that creates new slopes. Long-term climate change can influence landslide occurrences through increased precipitation, ground saturation, and a rise in groundwater level, which reduces the strength and increases the weight of the soil.

Landslides can also be induced, accelerated or retarded by human actions. Human-related causes of landslides can include grading, slope cutting and filling, quarrying, removal of retaining walls, lowering of reservoirs, vibrations from explosions, machinery, road and air traffic, and excessive development. Normally stable slopes can fail if disturbed by development activities. Often, a slope can also become unstable by earthmoving, landscaping, or vegetation clearing activities. Changing drainage patterns, groundwater level, or slope and surface water through agricultural or landscape irrigation, roof downspouts, septic-tank effluent, or broken water or sewer lines can also generate landslides. Due to the geophysical or human factors that can induce a landslide event, they can occur in developed areas, undeveloped areas, or any areas where the terrain was altered for roads, houses, utilities, buildings, and even for lawns.²³

There are hundreds of landslides that occur in Idaho annually. The frequency of landslides, particularly cut and fill slopes along roads, is due to the geology, vegetation, climate, soils, and other human factors. There are, on occasion, severe landslide events that occur in Idaho. There have been two federally declared disasters and four state disasters since 1990.²⁴ Since 1976, major events have had a significant impact on transportation, communities, and natural resources in 1982, 1986 (x2), 1991, 1996-97, 1997, 1998 (x2), and 2000.

Landslides range from shallow debris flows to deep-seated slumps. They destroy homes, businesses and public buildings, undermine bridges, derail railroad cars, interrupt transportation infrastructure, damage utilities, and take lives. Sinkholes affect roads and utilities. Losses often go unrecorded because insurance claims are not filed, no report is made to emergency management, there is no media coverage, or the transportation damages are recorded as regular maintenance.

²² "Landslides". SAARC Disaster Management Center. New Delhi. Available online at <http://saarc-sdmc.nic.in/pdf/landslide.pdf>. Accessed March 2011.

²³ Tetra Tech. DMA 2000 Hazard Mitigation Plan. Onondaga County, New York. April 2010.

²⁴ Idaho Bureau of Homeland Security. April 2011. Available online at www.bhs.idaho.gov.

Figure 4.2. Landslide Disaster Declarations in 1976-2000.

Year	Month	Federal	Counties Affected
1982	July		Boise
1986	February		Boise
1986	March		Boise, Elmore, Lewis, Nez Perce, Owyhee
1991	April		Bonner
1996-1997	November - January	X	Adams, Benewah, Boise, Bonner, Boundary, Clearwater, Elmore, Gem, Idaho, Kootenai, Latah, Nez Perce, Owyhee, Payette, Shoshone, Valley, Washington
1997	March - June	X	Benewah, Bonner, Boundary, Kootenai, Shoshone*
1998	May		Lenhi, Nez Perce, Washington
	October		Boundary
2000	June**		Kootenai

Land stability cannot be absolutely predicted with current technology. The best design and construction measures are still vulnerable to slope failure. The amount of protection, usually correlated to cost, is proportional to the level of risk reduction. Debris and vegetation management is integral to prevent landslide damages. Corrective measures help, but can often leave the property vulnerable to some level of risk.

The following is a list of characteristics that may be indicative of a landslide hazard area:

- Bluff retreat caused by sloughing of bluff sediments, resulting in a vertical bluff face with little vegetation.
- Pre-existing landslide area.
- Tension or ground cracks along or near the edge of the top of a bluff.
- Structural damage caused by settling and cracking of building foundations and separation of steps from the main structure.
- Toppling bowed or jack sawed trees.
- Gullying and surface erosion.
- Mid-slope ground water seepage from a bluff face.

By studying the effects of landslides in slide prone areas, we can plan for the future. More needs to be done to educate the public and to prevent development in vulnerable areas. Some landslide hazards can be mitigated by engineering, design, or construction so that risks are acceptable. When technology cannot reduce the risk to acceptable levels, building in hazardous areas should be avoided.²⁵

Stream and riverbank erosion, road building, or other excavation can remove the toe or lateral slope and exacerbate landslides. Seismic or volcanic activity often triggers landslides as well. Urban and rural living

²⁵ Canning, Douglas J. "Geologically Hazardous Areas". Shorelands and Environmental Assistance Program. Washington Department of Ecology. Olympia, Washington.

with excavations, roads, drainage ways, landscape watering, logging, and agricultural irrigation may also disturb the solidity of landforms. In general, any land use changes that affect drainage patterns or that increase erosion or change ground-water levels can augment the potential for landslide activity.

Landslides are a recurrent menace to waterways and highways and a threat to homes, schools, businesses, and other facilities. The unimpeded movement over roads—whether for commerce, public utilities, school, emergencies, police, recreation, or tourism—is essential to the normal functioning of Adams County. The disruption and dislocation of these or any other routes caused by landslides can quickly jeopardize travel and vital services. Although small slumps on cut and fill slopes along roads and highways is relatively common, nearly all of the more significant landslide risk in Adams County is associated with the steeper, mountainous slopes in the northwestern portion of the county.

Second-Order Hazard Events

Landslide events are often caused by other types of hazard events, but the costs of cleaning up after a landslide including road and other infrastructure repairs can often dwarf the damages of the initial hazard. The following chart outlines the interconnection between landslides and other types of hazard events.

Table 4.3. Second-Order Hazards Related to Landslide Events.	
Related Causal Events	Related Effects
Flood	Transportation System
Earthquakes	
Wildland Fire	

Severe Weather

Severe storms are a serious hazard that can and do affect Idaho on a regular basis. Severe storms affect the entire state with varying degrees, due to the complex landscape and the influence from the Pacific Ocean. Although Idaho's climate sees relatively few damaging storms in comparison with the rest of the nation, it still poses a significant hazard to the state and local communities. Storm-related Presidential Disaster declarations were made for Idaho in 1964, 1972, 1974, 1996, 1997, 2005, 2006, and 2010. Most of these storms resulted in flood damages.

In the Idaho Panhandle, the main barrier is the rugged chain of Bitterroot Mountains forming much of the boundary between Idaho and Montana. The extreme range of elevation in the State is from 738 feet above sea level at the confluence of the Clearwater and Snake Rivers to 12,655 feet at Mt. Borah in Custer County. Comprised of rugged mountain ranges, canyons, high grassy valleys, arid plains, and fertile lowlands, the State reflects in its topography and vegetation a wide range of climates. Located some 300 miles from the Pacific Ocean, Idaho is influenced by maritime air borne eastward on the prevailing westerly winds. Particularly in winter, the maritime influences are noticeable in the greater average cloudiness, greater frequency of precipitation, and mean temperatures, which are above those at the same latitude and altitude in mid-continent regions. This maritime influence is most marked in the northern part of the State, where the air arrives via the Columbia River Gorge with a greater burden of moisture than at lower latitudes.

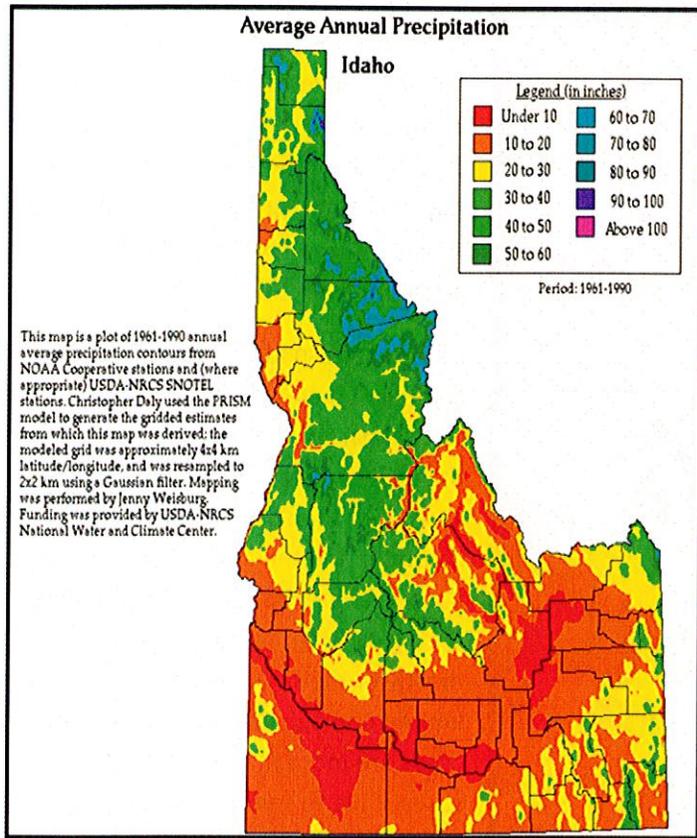
The pattern of average annual temperatures for the State indicates the effect both of latitude and altitude. The highest annual averages are found in the lower elevations of the Clearwater and Little Salmon River Basins, and in the stretch of the Snake River Valley from the vicinity of Bliss downstream to Lewiston, including the open valleys of the Boise, Payette, and Weiser Rivers. The range between the mean temperature of the coldest and warmest months of the year varies from less than 40°F at a number of northern stations, to well over 50° F at stations in the higher elevation of the central and eastern parts of the State. In general, it can be said that monthly means are 32° F or lower at stations above 5,000 feet from November through March; 4,000 and 5,000 feet from November through February; 3,000 to 4,000 feet from December through February; and 2,000 to 3,000 feet only one or two months of the year. In summer, periods of extreme heat extending beyond a week are quite rare and the same can be said of periods of extremely low temperatures in winter. In both cases the normal progress of weather systems across the State usually results in a change at rather frequent intervals. In the realm of extremely low temperatures, two winters stand out in the records for the State: 1937-38 and 1948-49. The lowest monthly mean temperatures on record occurred throughout the State in January 1949 and many stations registered the absolute lowest temperature on record during that month.

To a large extent the source of moisture for precipitation in Idaho is the Pacific Ocean. In summer there are some exceptions to this when moisture-laden air is brought in from the south at high levels to produce thunderstorm activity, particularly in the eastern part of Idaho. The source of this moisture from the south is the Gulf of Mexico and Caribbean region. The average precipitation map for Idaho is as complex as the physiographic representation of the State. Partly because of the greater moisture supply in the west winds over the northern part of the State (less formidable barriers to the west) and partly because of the greater

frequency of cyclonic activity in the north, the average valley precipitation is considerably greater in north Idaho than in the southern regions of the State.

Thunderstorms do occur within Idaho affecting almost all counties, including Adams County, but usually are localized events. Their impacts are fairly limited and do not significantly affect the communities enough to declare a disaster. Thunderstorms are emphasized within the flood chapter of this Multi-Hazard Mitigation Plan.

Figure 4.3. Average Annual Precipitation in Idaho from 1961 to 1990.²⁶

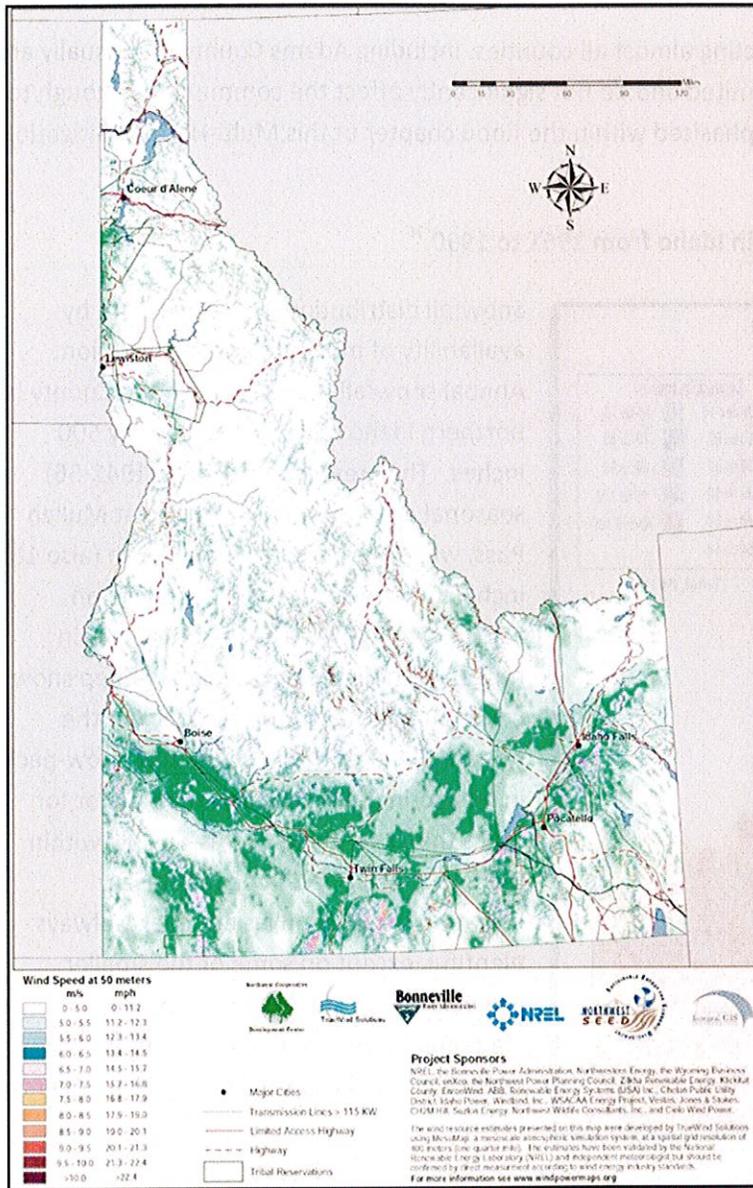


Snowfall distribution is affected both by availability of moisture and by elevation. Annual snowfall totals in Shoshone County in northern Idaho have reached nearly 500 inches. The greatest long-term (1942-56) seasonal average was 182 inches at Mullan Pass, while the greatest snow depth (also 182 inches) was recorded at that station on February 20, 1954. The major mountain ranges of the State accumulate a deep snow cover during the winter months and the release of water from the melting snow-pack in late spring furnishes irrigation water for more than two million acres, mainly within the Snake River Basin above Weiser. Irrigation water supplies are nearly always plentiful, except on some of the smaller projects where storage facilities are inadequate. Hydro-electric power is generated by the waters of the many rivers in Idaho.

Winter storms are a part of life in Idaho. They vary in degree and intensity and can occur at any time but are especially probable between September and May. These storms could be localized or could affect the entire state. They can last a matter of minutes or many days. Typically, winter storms are measured by the amount of snow accumulated during any given storm. Additionally, these storms could be measured by the accompanying wind or associated temperatures.

²⁶ Western Regional Climate Center. Historical Climate Information. Precipitation Maps: 1961-1990. Available online at <http://www.wrcc.dri.edu/pcpn/id.gif>.

Figure 4.4. Idaho Average Wind Speed Map.²⁷



Windstorms are not uncommon in Idaho, but the State has no destructive storms such as hurricanes, and an extremely small incidence of tornadoes. Windstorms associated with cyclonic systems, and their cold fronts, do some damage to trees each year, often causing temporary disruption of power and communication facilities, but only minor damage to structures in most instances. Storms of this type may occur at any time from October into July, while during the summer months strong winds almost invariably accompany thunderstorms.

Hail damage in Idaho is very small in comparison with damage in areas of the central part of the United States. Often the hail that occurs does not grow to a size larger than one-half inch in diameter and the areas affected are usually small. Quite often hail comes during early spring storms, when it is mostly of the small, soft variety with a limited damaging effect. Later when crops are more mature and more susceptible to serious damage, hail occurs in widely scattered areas in connection with summer

thunderstorms. The incidence of summer thunderstorms is greatest in mountainous areas with lightning often causing forest and range fires.

Past weather patterns show that severe weather conditions are likely to happen in any part of Adams County in any given year. The topographical features of the county contribute greatly to the various weather patterns that occur. The following table lists the average climate within Adams County.

²⁷ True Wind Solutions. 2002. Map of approximate wind speeds in Idaho. Available online at www.windpowermaps.org.

Table 4.4. Weather and Climate for Adams County, Idaho.

Temperature		Degrees (F)	Month
	Lowest Average Daily Minimum Temperature	24.3 (Council) 19.4 (New Meadows)	January
	Highest Average Daily Maximum Temperature	72.9 (Council) 62.8 (New Meadows)	July
	Hottest Month		July
	Coldest Month		January
Precipitation	Average Annual Total Precipitation	23.98" (Council) 23.28" (New Meadows)	
	Average Annual Snowfall	43.7" (Council) 86.2" (New Meadows)	
Humidity	Average July Afternoon Humidity		
	Average January Afternoon Humidity		
Elevation	2,927 Feet (Council) 3,868 Feet (New Meadows)		

Storms are naturally occurring atmospheric disturbances manifested in strong winds accompanied by rain, snow, or other precipitation and often by thunder or lightning. All areas within this region are vulnerable to severe local storms. The effects are generally transportation problems and loss of utilities. When transportation accidents occur, motorists are stranded and schools and businesses close. The effects vary with the intensity of the storm, the level of preparation by local jurisdictions and residents, and the equipment and staff available to perform tasks to lessen the effects of severe local storms. There is no way to prevent severe storms. The weather forces and topography of Adams County will always dictate when and where severe storms will occur.

Drought is an expected phase in the climactic cycle of almost any geographical region. Objective, quantitative definitions for drought exist but most authorities agree that, because of the many factors contributing to it and because its onset and relief are slow and indistinct, none are entirely satisfactory. According to the National Drought Mitigation Center, 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.²⁸

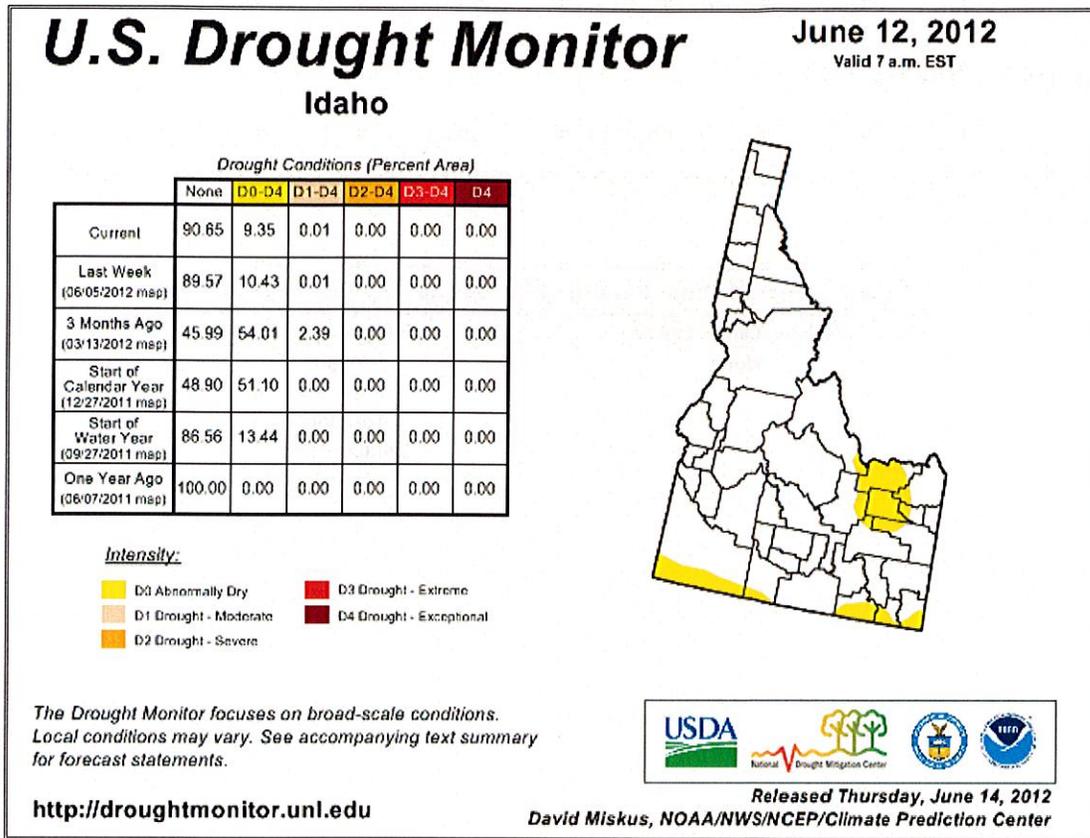
It should be noted that water supply is not only controlled by precipitation (amount, frequency, and intensity), but also by other factors including evaporation (which is increased by higher than normal heat and winds), transpiration, and human use. Drought in Idaho is generally associated with a sustained period of low winter snowfall. This results from a temporary, yet significant, change in the large-scale weather patterns in the western U.S. The limited snow packs result in reduced stream flows and ground water recharge. Idaho’s system of reservoirs and natural storage can buffer the effects of minor events over a few years, but a series of dry winters (or an especially pronounced single low snowfall event) will result in a shortage of available water. Extended periods of above-average temperatures during the spring and summer can increase the impacts of low snow packs.

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 1987-92.²⁹

²⁸ National Oceanic & Atmospheric Administration. 2010. U.S. Drought Monitor. Drought Information Center. U.S. Department of Agriculture. Available online at <http://www.drought.noaa.gov/index.html>.

²⁹ Idaho Department of Water Resources. 2010. Idaho Drought Emergency Declarations. Available online at <http://www.idwr.idaho.gov/News/drought/drought.htm>.

Figure 4.5. U.S. Drought Monitor Map of Idaho for June 2012.³⁰



Hazard management of drought involves the long-term reduction of the probable gap between water supply and demand. Supply can be addressed through the development of storage and delivery capacity (construction of reservoirs and associated facilities), improved operation of existing facilities, and weather modification. Demand can be addressed through various forms of conservation.³¹

There is a wide range of climate in Adams County due to the variances in altitude—1,500 feet to the west along the Snake River to over 8,500 feet to the northwest in the Seven Devils Wilderness. Precipitation in Council during July, August, and September averages 0.43”, 0.59”, and 1.0” respectively. Temperatures climb to over 90° F in the summer and triple digit temperatures have been recorded as early as June.

Storms are naturally occurring atmospheric disturbances manifested in strong winds accompanied by rain, snow, or other precipitation, and often by thunder or lightning. All areas within this region are vulnerable to severe local storms. The effects are generally transportation problems and loss of utilities. When transportation accidents occur, motorists are stranded and schools and businesses close. The effects vary

³⁰ U.S. Drought Monitor. June 2012. Available online at http://www.drought.gov/portal/server.pt/community/drought.gov/202/area_drought_information?mode=2&state=ID.

³¹ Idaho Bureau of Homeland Security. 2007. State of Idaho Hazard Mitigation Plan. Hazard Mitigation Program. November 2007. Available online at <http://www.bhs.idaho.gov/Resources/PDF/SHMPFinalw-signatures.pdf>.

with the intensity of the storm, the level of preparation by local jurisdictions and residents, and the equipment and staff available to perform tasks to lessen the effects of severe local storms.

Second-Order Hazard Events

Severe weather is often the causal factor in damages from other types of hazard incidents such as flood or wildland fire. The following chart outlines the interconnection between severe weather and other types of hazard events.

Related Causal Events	Related Effects
None	Drought
	Crop Loss
	Tornado
	Wildland Fire
	Flood

Wildland Fire

The original Adams County Fire Mitigation Plan was completed and adopted in 2005. As part of this planning process, a complete update is also being conducted for the Wildland Urban Interface Wildfire Mitigation Plan. This chapter is an adaptation of a more comprehensive updated Adams County Wildfire Protection Plan.

An informed discussion of fire mitigation is not complete until basic concepts that govern fire behavior are understood. In the broadest sense, wildland fire behavior describes how fires burn; the manner in which fuels ignite, how flames develop and how fire spreads across the landscape. The three major physical components that determine fire behavior are the fuels supporting the fire, the topography in which the fire is burning, and the weather and atmospheric conditions during a fire event. At the landscape level, both topography and weather are beyond our control. We are powerless to control winds, temperature, relative humidity, atmospheric instability, slope, aspect, elevation, and landforms. It is beyond our control to alter these conditions, and thus impossible to alter fire behavior through their manipulation. When we attempt to alter how fires burn, we are left with manipulating the third component of the fire environment; fuels which support the fire. By altering fuel loading and fuel continuity across the landscape, we have the best opportunity to control or affect how fires burn.

A brief description of each of the fire environment elements follows in order to illustrate their effect on fire behavior.

Weather

Weather conditions contribute significantly to determining fire behavior. Wind, moisture, temperature, and relative humidity ultimately determine the rates at which fuels dry and vegetation cures, and whether fuel conditions become dry enough to sustain an ignition. Once conditions are capable of sustaining a fire, atmospheric stability and wind speed and direction can have a significant effect on fire behavior. Winds fan fires with oxygen, increasing the rate at which fire spreads across the landscape. Weather is the most unpredictable component governing fire behavior, constantly changing in time and across the landscape.

Topography

Fires burning in similar fuel types, will burn differently under varying topographic conditions. Topography alters heat transfer and localized weather conditions, which in turn influences vegetative growth and resulting fuels. Changes in slope and aspect can have significant influences on how fires burn. Generally speaking, north slopes tend to be cooler, wetter, more productive sites. This can lead to heavy fuel accumulations, with high fuel moistures, later curing of fuels, and lower rates of spread. In contrast, south and west slopes tend to receive more direct sun, and thus have the highest temperatures, lowest soil and fuel moistures, and lightest fuels. The combination of light fuels and dry sites leads to fires that typically display the highest rates of spread. These slopes also tend to be on the windward side of mountains. Thus these slopes tend to be "available to burn" a greater portion of the year.

Slope also plays a significant role in fire spread, by allowing preheating of fuels upslope of the burning fire. As slope increases, rate of spread and flame lengths tend to increase. Therefore, we can expect the fastest rates of spread on steep, warm south and west slopes with fuels that are exposed to the wind.

Fuels

Fuel is any material that can ignite and burn. Fuels describe any organic material, dead or alive, found in the fire environment. Grasses, brush, branches, logs, logging slash, forest floor litter, conifer needles, and buildings are all examples. The physical properties and characteristics of fuels govern how fires burn. Fuel loading, size and shape, moisture content, and continuity and arrangement all have an effect on fire behavior. Generally speaking, the smaller and finer the fuels, the faster the potential rate of fire spread. Small fuels such as grass, needle litter and other fuels less than a quarter inch in diameter are most responsible for fire spread. In fact, "fine" fuels, with high surface to volume ratios, are considered the primary carriers of surface fire. This is apparent to anyone who has ever witnessed the speed at which grass fires burn. As fuel size increases, the rate of spread tends to decrease due to a decrease in the surface to volume ratio. Fires in large fuels generally burn at a slower rate, but release much more energy and burn with much greater intensity. This increased energy release, or intensity, makes these fires more difficult to control. Thus, it is much easier to control a fire burning in grass than to control a fire burning in timber.

When burning under a forest canopy, the increased intensities can lead to torching (single trees becoming completely involved) and potential development of crown fires. That is, they release much more energy. Fuels are found in combinations of types, amounts, sizes, shapes, and arrangements. It is the unique combination of these factors, along with the topography and weather, which determines how fires will burn.

The study of fire behavior recognizes the dramatic and often-unexpected effect small changes in any single component have on how fires burn. It is impossible to speak in specific terms when predicting how a fire will burn under any given set of conditions. However, through countless observations and repeated research, some of the principles that govern fire behavior have been identified and are recognized.

Wildfire Hazard Assessment

Adams County was analyzed using a variety of models, managed on a Geographic Information System (GIS) system. Physical features of the region including roads, streams, soils, elevation, and remotely sensed images were represented by data layers. Field visits were conducted by specialists from Northwest Management, Inc. and others. Discussions with area residents and local fire suppression professionals augmented field visits and provided insights into forest health issues and treatment options. This information was analyzed and combined to develop an objective assessment of wildland fire risk in the region.

Historic Fire Regime

Historical variability in fire regime is a conservative indicator of ecosystem sustainability, and thus, understanding the natural role of fire in ecosystems is necessary for proper fire management. Fire is one of the dominant processes in terrestrial systems that constrain vegetation patterns, habitats, and ultimately,

species composition. Land managers need to understand historical fire regimes, the fire return interval (frequency) and fire severity prior to settlement by Euro-Americans, to be able to define ecologically appropriate goals and objectives for an area. Moreover, managers need spatially explicit knowledge of how historical fire regimes vary across the landscape.

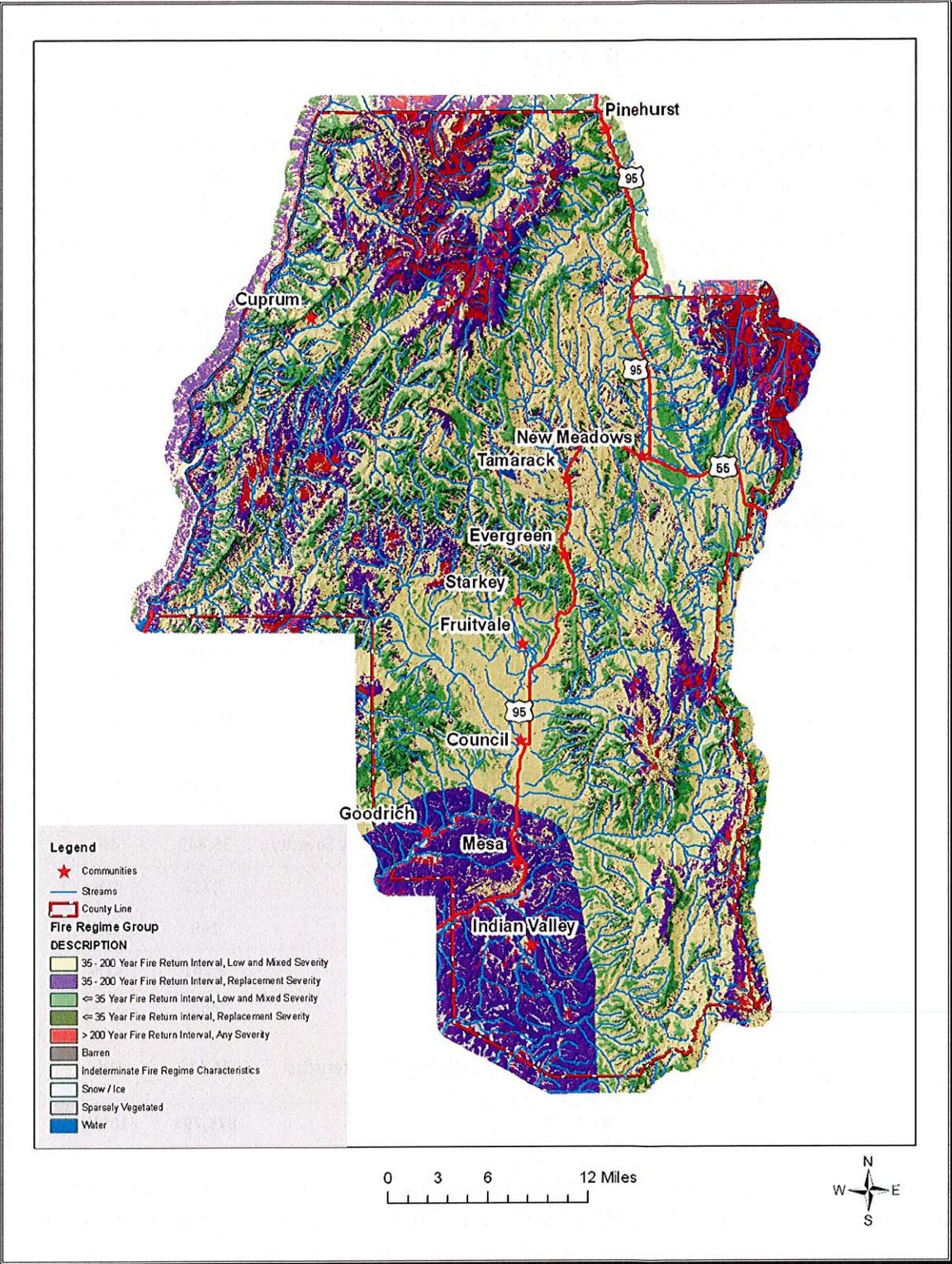
Many ecological assessments are enhanced by the characterization of the historical range of variability which helps managers understand: (1) how the driving ecosystem processes vary from site to site; (2) how these processes affected ecosystems in the past; and (3) how these processes might affect the ecosystems of today and the future. Historical fire regimes are a critical component for characterizing the historical range of variability in fire-adapted ecosystems. Furthermore, understanding ecosystem departures provides the necessary context for managing sustainable ecosystems. Land managers need to understand how ecosystem processes and functions have changed prior to developing strategies to maintain or restore sustainable systems. In addition, the concept of departure is a key factor for assessing risks to ecosystem components. For example, the departure from historical fire regimes may serve as a useful proxy for the potential of severe fire effects from an ecological perspective.

Table 4.6. Historic Fire Regimes in Adams County.

Historic Fire Regime	Description	Acres	Percent of Total
Fire Regime Group I	<= 35 Year Fire Return Interval, Low and Mixed Severity	130,884	15%
Fire Regime Group II	<= 35 Year Fire Return Interval, Replacement Severity	33,795	4%
Fire Regime Group III	35 - 200 Year Fire Return Interval, Low and Mixed Severity	443,401	51%
Fire Regime Group IV	35 - 200 Year Fire Return Interval, Replacement Severity	196,111	22%
Fire Regime Group V	> 200 Year Fire Return Interval, Any Severity	35,445	4%
Water	Water	3,759	<1%
Snow / Ice	Snow / Ice	146	<1%
Barren	Barren	8,241	<1%
Sparsely Vegetated	Sparsely Vegetated	892	<1%
Indeterminate Fire Regime Characteristics	Indeterminate Fire Regime Characteristics	24,118	3%
Total		876,793	100%

Over half of the County falls within the Fire Regime Groups III and IV. This means that a majority of the fuel types in the County burn every 35 – 200 years with low and mixed severity to replacement severity. The long return interval is typical of the sagebrush steppe communities. The ratio of grass to shrubs can determine how often it burns and how severe the burn is. More grass increases the frequency but reduces the intensity, while more shrubs decrease the frequency but increases the intensity.

Figure 4.6. Historic Fire Regime for Adams County.



Fire Regime Condition Class

A natural fire regime is a general classification of the role fire would play across a landscape in the absence of modern human mechanical intervention, but including the influence of aboriginal burning.^{32, 33} Coarse scale definitions for historic fire regimes have been developed by Hardy et al³⁴ and Schmidt et al³⁵ and interpreted for fire and fuels management by Hann and Bunnell.

A fire regime condition class (FRCC) is a classification of the amount of departure from the historic regime.³⁶ The three classes are based on low (FRCC 1), moderate (FRCC 2), and high (FRCC 3) departure from the central tendency of the natural (historical) regime.^{37,38} The central tendency is a composite estimate of vegetation characteristics (species composition, structural stages, stand age, canopy closure, and mosaic pattern); fuel composition; fire frequency, severity, and pattern; and other associated natural disturbances. Low departure is considered to be within the natural (historical) range of variability, while moderate and high departures are outside.

Over 71% of Adams County is moderately departed from the natural regime. This is likely attributed to invasive species moving in after a disturbance. Examples of disturbances would be; fire, grazing, roads, and recreation. In most scenarios, the more departed an area is from its natural fire regime, the higher the wildfire potential; however, this is not true 100% of the time.

³² Agee, J. K. *Fire Ecology of the Pacific Northwest forests*. Oregon: Island Press. 1993.

³³ Brown, J. K. "Fire regimes and their relevance to ecosystem management." *Proceedings of Society of American Foresters National Convention*. Society of American Foresters. Washington, D.C. 1995. Pp 171-178.

³⁴ Hardy, C. C., et al. "*Spatial data for national fire planning and fuel management.*" *International Journal of Wildland Fire*. 2001. Pp 353-372.

³⁵ Schmidt, K. M., et al. "*Development of coarse scale spatial data for wildland fire and fuel management.*" General Technical Report, RMRS-GTR-87. U.S. Department of Agriculture, Forest Service. Rocky Mountain Research Station. Fort Collins, Colorado. 2002.

³⁶ Hann, W. J. and D. L. Bunnell. "Fire and land management planning and implementation across multiple scales." *International Journal of Wildland Fire*. 2001. Pp 389-403.

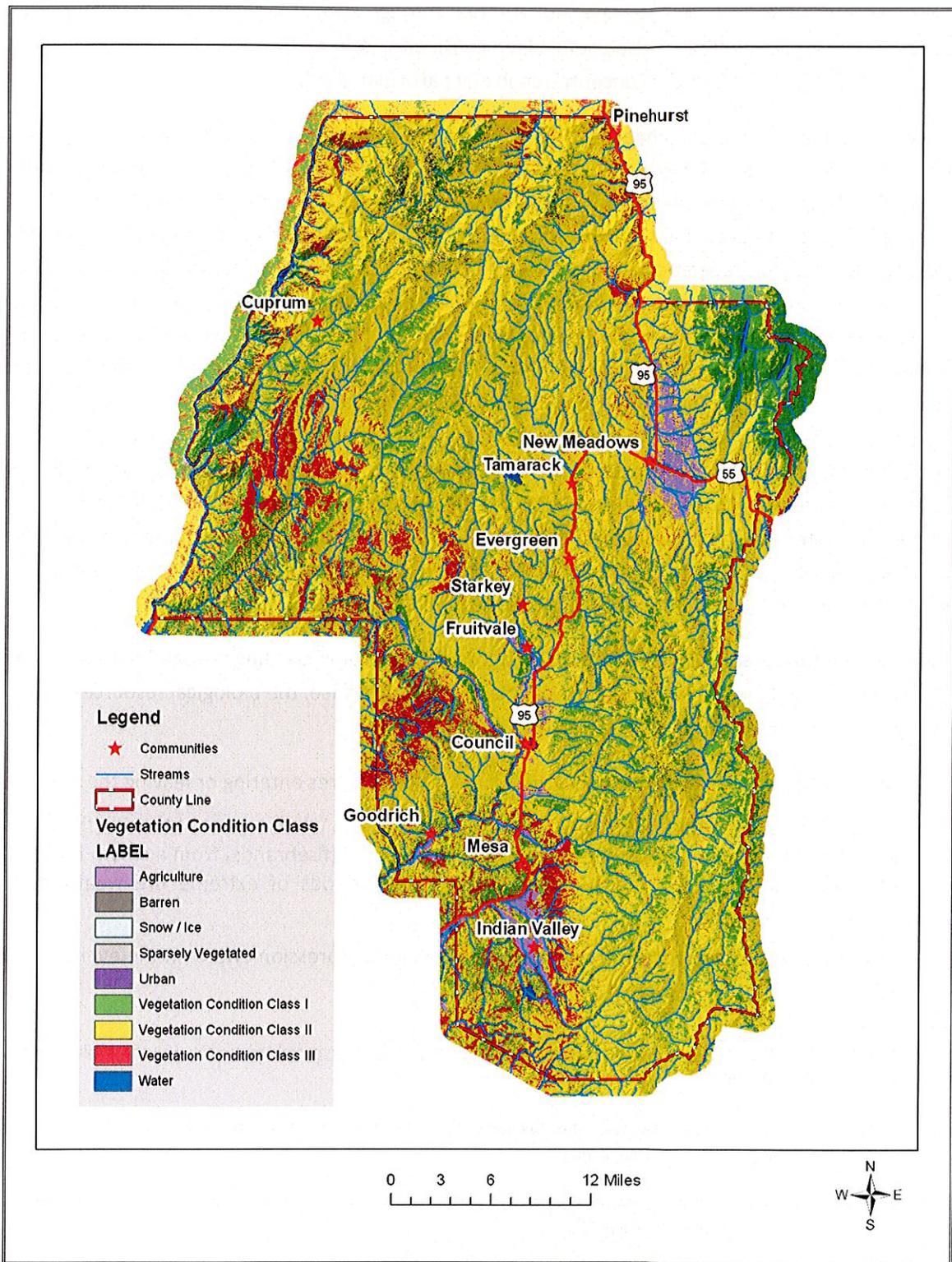
³⁷ Hardy, C. C., et al. "*Spatial data for national fire planning and fuel management.*" *International Journal of Wildland Fire*. 2001. Pp 353-372.

³⁸ Schmidt, K. M., et al. "*Development of coarse scale spatial data for wildland fire and fuel management.*" General Technical Report, RMRS-GTR-87. U.S. Department of Agriculture, Forest Service. Rocky Mountain Research Station. Fort Collins, Colorado. 2002.

Fire Regime Condition Class	Description	Acres	Percent of Total
Fire Regime Condition Class I	Low Vegetation Departure	142,508	16%
Fire Regime Condition Class II	Moderate Vegetation Departure	625,201	71%
Fire Regime Condition Class III	High Vegetation Departure	74,979	9%
Water	Water	3,759	<1%
Snow / Ice	Snow / Ice	146	<1%
Urban	Urban	3,145	<1%
Barren	Barren	8,241	<1%
Sparsely Vegetated	Sparsely Vegetated	892	<1%
Agriculture	Agriculture	17,922	2%
	Total	876,793	100%

Several factors have contributed to the changing fire regime in Adams County including the introduction of invasive plant species and a reduction in widespread grazing as well as more sophisticated, and ultimately more successful, fire suppression. Introduced species such as medusahead and cheatgrass have replaced the native bunchgrasses throughout much of the area. These species create a more continuous vegetative fuel bed, which tends to result in higher rates of fire spread than the native vegetation could sustain. Additionally, livestock grazing has been reduced throughout southern Idaho, which traditionally lessened the wildfire risk through the consumption of fine fuels. These factors have resulted in a departure from the historic fire regimes' range of variability. Rangeland fires are occurring more frequently than prior to European settlement of the area. Furthermore, medusahead and cheatgrass are better adapted to disturbed soils; thus, they often outcompete native grass and sagebrush communities once a fire has burned through an area, which further increases their dominance and thus, fire risk.

Figure 4.7. Fire Regime Condition Class Map for Adams County.



Wildland-Urban Interface

The wildland-urban interface (WUI) has gained attention through efforts targeted at wildfire mitigation; however, this analysis technique is also useful when considering other hazards because the concept looks at where people and structures are concentrated in any particular region.

A key component in meeting the underlying need for protection of people and structures is the protection and treatment of hazards in the wildland-urban interface. The wildland-urban interface refers to areas where wildland vegetation meets urban developments or where forest fuels meet urban fuels such as houses. The WUI encompasses not only the interface (areas immediately adjacent to urban development), but also the surrounding vegetation and topography. Reducing the hazard in the wildland-urban interface requires the efforts of federal, state, and local agencies and private individuals.³⁹ "The role of [most] federal agencies in the wildland-urban interface includes wildland firefighting, hazard fuels reduction, cooperative prevention and education, and technical experience. Structural fire protection [during a wildfire] in the wildland-urban interface is [largely] the responsibility of Tribal, state, and local governments".⁴⁰ The role of the federal agencies in Adams County is and will be much more limited. Property owners share a responsibility to protect their residences and businesses and minimize danger by creating defensible areas around them and taking other measures to minimize the risks to their structures.⁴¹ With treatment, a wildland-urban interface can provide firefighters a defensible area from which to suppress wildland fires or defend communities against other hazard risks. In addition, a wildland-urban interface that is properly treated will be less likely to sustain a crown fire that enters or originates within it.⁴²

By reducing hazardous fuel loads, ladder fuels, and tree densities, and creating new and reinforcing existing defensible space, landowners can protect the wildland-urban interface, the biological resources of the management area, and adjacent property owners by:

- minimizing the potential of high-severity ground or crown fires entering or leaving the area;
- reducing the potential for firebrands (embers carried by the wind in front of the wildfire) impacting the WUI. Research indicates that flying sparks and embers (firebrands) from a crown fire can ignite additional wildfires as far as 1¼ miles away during periods of extreme fire weather and fire behavior;⁴³
- improving defensible space in the immediate areas for suppression efforts in the event of wildland fire.

³⁹ Norton, P. Bear Valley National Wildlife Refuge Fire Hazard Reduction Project: Final Environmental Assessment. Fish and Wildlife Services, Bear Valley Wildlife Refuge. June 20, 2002.

⁴⁰ USFS. 2001. United States Department of Agriculture, Forest Service. Wildland Urban Interface. Web page. Date accessed: 25 September 2001. Accessed at: <http://www.fs.fed.us/r3/sfe/fire/urbanint.html>

⁴¹ USFS. 2001. United States Department of Agriculture, Forest Service. Wildland Urban Interface. Web page. Date accessed: 25 September 2001. Accessed at: <http://www.fs.fed.us/r3/sfe/fire/urbanint.html>

⁴² Norton, P. Bear Valley National Wildlife Refuge Fire Hazard Reduction Project: Final Environmental Assessment. Fish and Wildlife Services, Bear Valley Wildlife Refuge. June 20, 2002.

⁴³ McCoy, L. K., et al. Cerro Grand Fire Behavior Narrative. 2001.

Three wildland-urban interface conditions have been identified (Federal Register 66(3), January 4, 2001) for use in wildfire control efforts. These include the Interface Condition, Intermix Condition, and Occluded Condition. Descriptions of each are as follows:

- **Interface Condition** – a situation where structures abut wildland fuels. There is a clear line of demarcation between the structures and the wildland fuels along roads or back fences. The development density for an interface condition is usually 3+ structures per acre;
- **Intermix Condition** – a situation where structures are scattered throughout a wildland area. There is no clear line of demarcation; the wildland fuels are continuous outside of and within the developed area. The development density in the intermix ranges from structures very close together to one structure per 40 acres; and
- **Occluded Condition** – a situation, normally within a city, where structures abut an island of wildland fuels (park or open space). There is a clear line of demarcation between the structures and the wildland fuels along roads and fences. The development density for an occluded condition is usually similar to that found in the interface condition and the occluded area is usually less than 1,000 acres in size.

In addition to these classifications detailed in the Federal Register, Adams County has included four additional classifications to augment these categories:

- **Rural Condition** – a situation where the scattered small clusters of structures (ranches, farms, resorts, or summer cabins) are exposed to wildland fuels. There may be miles between these clusters.
- **High Density Urban Areas** – those areas generally identified by the population density consistent with the location of incorporated cities, however, the boundary is not necessarily set by the location of city boundaries or urban growth boundaries; it is set by very high population densities (more than 7-10 structures per acre).
- **Infrastructure Area WUI** – those locations where critical and identified infrastructure is located outside of populated regions and may include high tension power line corridors, critical escape or primary access corridors, municipal watersheds, and areas immediately adjacent to facilities in the wildland such as radio repeater towers.
- **Non-WUI Condition** – a situation where the above definitions do not apply because of a lack of structures in an area or the absence of critical infrastructure. This classification is not considered part of the wildland urban interface.

In summary, the designation of areas by the Adams County planning committee includes:

- Interface Condition: WUI
- Intermix Condition: WUI
- Occluded Condition: WUI
- Rural Condition: WUI
- High Density Urban Areas: WUI
- Infrastructure Areas: WUI
- Non-WUI Condition: Not WUI, but present in Adams County

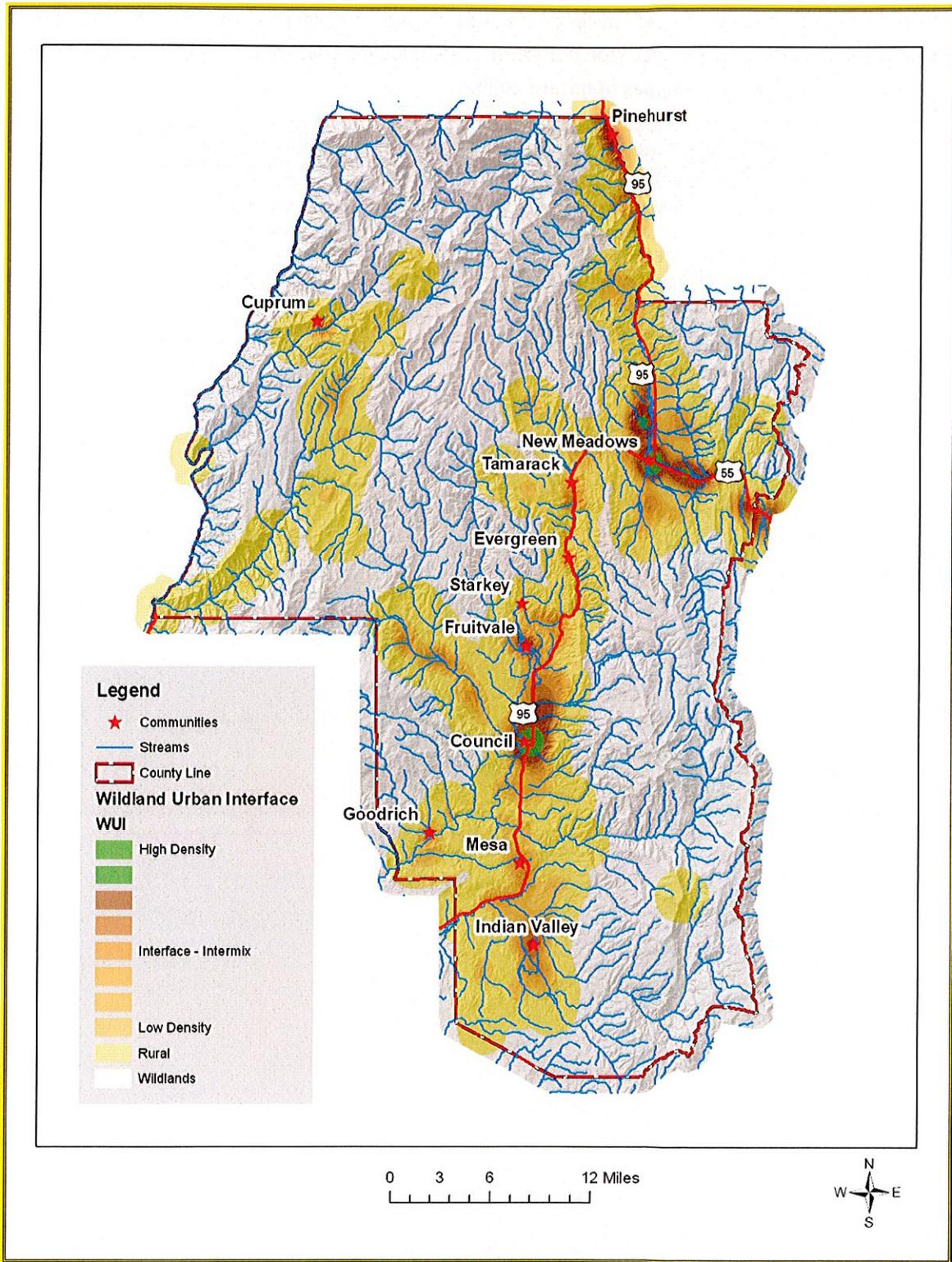
Adams County's wildland urban interface (WUI) is mostly based on population density. Relative population density across the county was estimated using a GIS based kernel density population model that uses object locations to produce, through statistical analysis, concentric rings or areas of consistent density. To graphically identify relative population density across the county, structure locations are used as an estimate of population density. Aerial photography was used to identify structure locations in 2005. This existing structure layer was updated in 2011 using 2009 NAIP imagery and Adams County's cadastral data. The resulting output identified the extent and level of population density throughout the county.

By evaluating structure density in this way, WUI areas can be identified on maps by using mathematical formulae and population density indexes. The resulting population density indexes create concentric circles showing high density areas, interface, and intermix condition WUI, as well as rural condition WUI (as defined above). This portion of the analysis allows us to "see" where the highest concentrations of structures are located in reference to relatively high risk landscapes, limiting infrastructure, and other points of concern.

The WUI, as defined here, is unbiased and consistent, allows for edge matching with other counties, and most importantly – it addresses all of the county, not just federally identified communities at risk. It is a planning tool showing where homes and businesses are located and the density of those structures leading to identified WUI categories. It can be determined again in the future, using the same criteria, to show how the WUI has changed in response to increasing population densities. It uses a repeatable and reliable analysis process that is unbiased.

The Healthy Forests Restoration Act makes a clear designation that the location of the WUI is at the determination of the county or reservation when a formal and adopted Community Wildfire Protection Plan is in place. It further states that the federal agencies are obligated to use this WUI designation for all Healthy Forests Restoration Act purposes. The Adams County Multi-Hazard Mitigation Plan planning committee evaluated a variety of different approaches to determining the WUI for the county and selected this approach and has adopted it for these purposes. In addition to a formal WUI map for use with the federal agencies, it is hoped that it will serve as a planning tool for the county, state and federal agencies, and local fire districts.

Figure 4.8. Wildland Urban Interface in Adams County, Idaho.



Second-Order Hazard Events

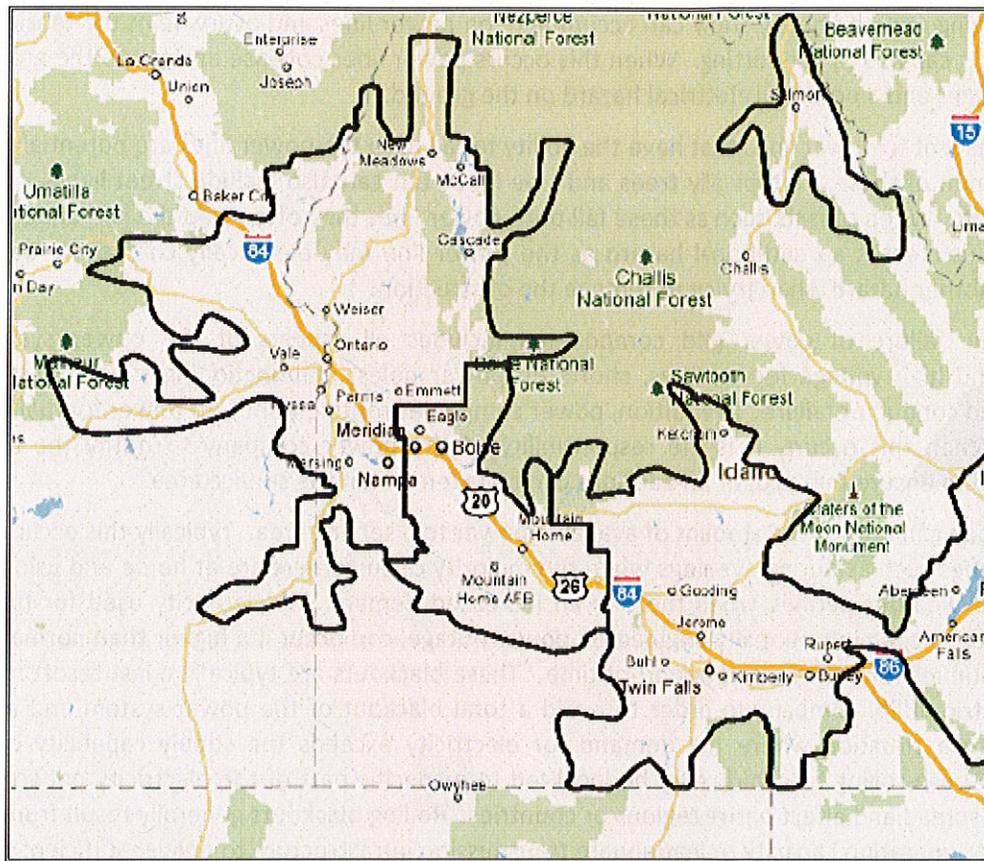
Wildland fires can be caused naturally by lightning or by various technological sources. Wildland fire can also be a secondary effect of another type of hazard. The following chart outlines the interconnection between wildland fire and other types of hazard events.

Table 4.8. Second-Order Hazards Related to Wildland Fire Events.	
Related Causal Events	Related Effects
Severe Weather	Structural/Urban Fire
Drought	Civil Unrest
Earthquake	Landslide
Transportation Systems	Transportation Systems
Hazardous Materials	
Structural/Urban Fire	

Extended Power Outages

Power is supplied to the residents and businesses within Washington County by Idaho Power Company. This company has had a strong presence in southern Idaho and eastern Oregon since 1916. Idaho Power has developed an extensive power grid network that traverses throughout the most rugged and remote landscapes in the region. In Adams County, Idaho Power maintains the Hells Canyon Dam Complex which includes; Brownlee Dam, Oxbow, and Hells Canyon Dams. Idaho Power provides electricity to more than 495,570 customers.⁴⁴

Figure 4.9. Idaho Power Service Area.



Power outages can be a serious and costly occurrence. Extended power outages can result in a collapse of community infrastructure and services. Traffic lights go off, water and gas pumps stop operating, and businesses and schools close. Essential community functions such as hospitals, police and fire departments, airports, and critical care facilities should all be equipped with backup power generators to maintain their necessary functions. The length of time these essential services can stay operational is dependant upon how extensively they prepared for a disaster such as a power outage.

⁴⁴ Idaho Power. Available online at www.idahopower.com.

An understanding of the primary causes of power failure is essential when preparing for power outages. In many instances, a basic understanding regarding the reason power outages occur can help focus planning efforts to minimize the effects power outages can have on a region.

Power outages can occur for a variety of reasons, but weather events, objects falling on power lines, catastrophic failure of power grid components, and grid overload (too much demand at one time) are the most common. Most power outages in Adams County typically result from weather related damage and/or from foreign objects falling onto power lines and power poles.

Strong winds, freezing rain, and heavy snow are typical of significant weather events that commonly result in a loss of power. Strong winds can topple power lines and poles and blow limbs off of trees onto power lines. Freezing rain and heavy snow can accumulate on power lines and overwhelm the tension strength a power line is capable of supporting. When this occurs power lines collapse and fall to the ground creating power outages and a potential electrical hazard on the ground.

Objects adjacent to power lines that have the ability to fall onto the power lines are potential hazards. The most common of these are typically trees and tree limbs but can also include street lights, signs, and low flying aircraft. When objects such as these fall onto power lines they often trap the line under them on the ground. This creates an additional hazard as the power line may electrically charge the downed object creating another hazard when trying to remove the obstruction.

Catastrophic failure of power grid components includes all aspects of the power system such as underground high voltage feeder lines, shorts on power poles, malfunctioning substations, transformer failures, and conductor failure. In addition, power companies routinely shut off power for maintenance and repairs. When this occurs, it is the responsibility of the power company to notify the affected area beforehand to ensure that proper precautions can be taken within the service area.

Grid overload can reduce the amount of available power to a service area. Typically this occurs during peak demand times such as during evenings when the majority of customers are at home and using power, and during cold weather periods when there is an increased demand for electricity used for home heating. Rolling blackouts, an intentionally-engineered power outage, can occur if a higher than normal demand for power continues for a prolonged period of time. These blackouts are typically a last resort measure used by an electric utility company in order to avoid a total blackout of the power system and are usually in response to a situation where the demand for electricity exceeds the supply capability of the power network. These rolling blackouts may be localized to a specific part of the electricity network or may be more widespread and affect entire regions or countries. Rolling blackouts generally result from two causes: insufficient generation capacity or inadequate transmission infrastructure to deliver sufficient power where it is needed.

There is no way to prevent all power outages from occurring. The power infrastructure of Adams County will always be prone to some level of power outages brought on by unforeseeable events. There are; however, mitigation actions that can be accomplished to help prevent outages in the first place as well as reduce the impacts when they do occur. For example, the juxtaposition between trees and power lines should be monitored with standards closely adhered to as identified by the power company. In areas where trees or tree branches have encroached upon a power lines' right-of-way, a certified arborist or related professional should be used to reduce encroachment and eliminate the potential of it falling on the line. Routine inspections conducted by the power companies on its infrastructure should report any potential problems or hazards found to the County. This will allow the County to communicate with the residents should further action be necessary. Finally, a map of the power infrastructure within Adams County should be readily accessible to the public and other pertinent members of the community.

Critical community institutions and offices such as hospitals, care facilities, police and fire departments, airports, and community utility services should all be capable of maintaining a “ready state” during times of power outages.

At the county level, a focus towards public education regarding power outages should be made a priority. When extended periods of times pass between major power outages, both emergency response units and the public tend to forget to review plans and take necessary precautions.

Requiring building permits and compliance with building codes is a good foundation for avoiding damage to a community’s electrical infrastructure. Builders, future homeowners, and power companies should coordinate with one another so that all parties can be made aware of the potential risk of building near electrical infrastructure. Periodic publication of the highlights of these building codes can help to keep up public awareness.

Second-Order Hazard Events

Power outages are typically caused by other types of hazard events, but can trigger considerable hardship and damages on the local population, economy, and infrastructural components. The costs of emergency repairs to power lines are often limited to the provider; however, these costs are eventually passed on to consumers. The following chart outlines the interconnection between power outages and other types of hazard events.

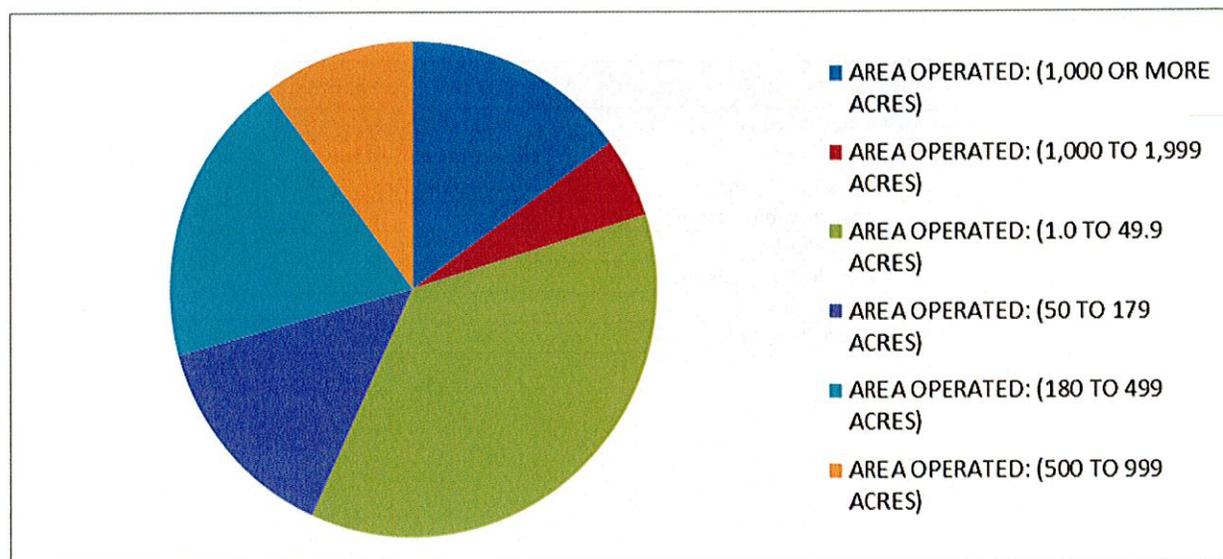
Table 4.9. Second-Order Hazards Related to Landslide Events.	
Related Causal Events	Related Effects
Flood	Transportation Systems
Severe Weather	Wildland Fire
Transportation System	
Landslides	
Terrorism/Civil Unrest	
Earthquakes	
Wildland Fire	

Crop Damage

According to the 2011 Idaho Agricultural Statistics, highlights of 2007 there are 148,996 acres of farm land Adams County producing agricultural commodities. Of these farms, 64% are irrigated and 36% are dry land farming. There are 27,759 acres of cropland, while 10,357 acres was harvested, and 6,651 acres were irrigated cropland. 148 agriculture related operations that are irrigated in Adams County. There are a total of 436 agriculture operators. \$984,000 was figured of sales of crops in 2007. The largest crop in Adams County is Alfalfa hay production.⁴⁵

The 2010 Agricultural Crops Data Layer is a raster data set developed by the US Department of Agriculture, National Agricultural Statistics Service (NASS) Research and Development Division. This program provides NASS with internal proprietary county and state level acreage indications of major crop commodities and secondarily provides the public with statewide raster data categorized land cover data. The data is created from a collection of Landsat5, Landsat7, or RESOURCESAT-1 satellite scenes that are categorized based on ground truthed information collected by USDA personnel.

In 2010 there were 8,000 acres harvested, with an average of 2.55/ton yield per acre and production of 20,400 tons. In 2008 52% of Alfalfa was irrigated. In 2011, 6200 acres were harvested, with 2.4/ton yield and 15,000 tons of Alfalfa production.⁴⁴



Animal totals, including sales and products figured into \$8,144,000. \$12,000 worth of hogs sold and \$50,000 worth of sheep and goats, having 17 operations selling such products like 2,842 pounds of wool. The last time dairy was reported was 1997, totaling \$154,000 in sales.⁴⁴

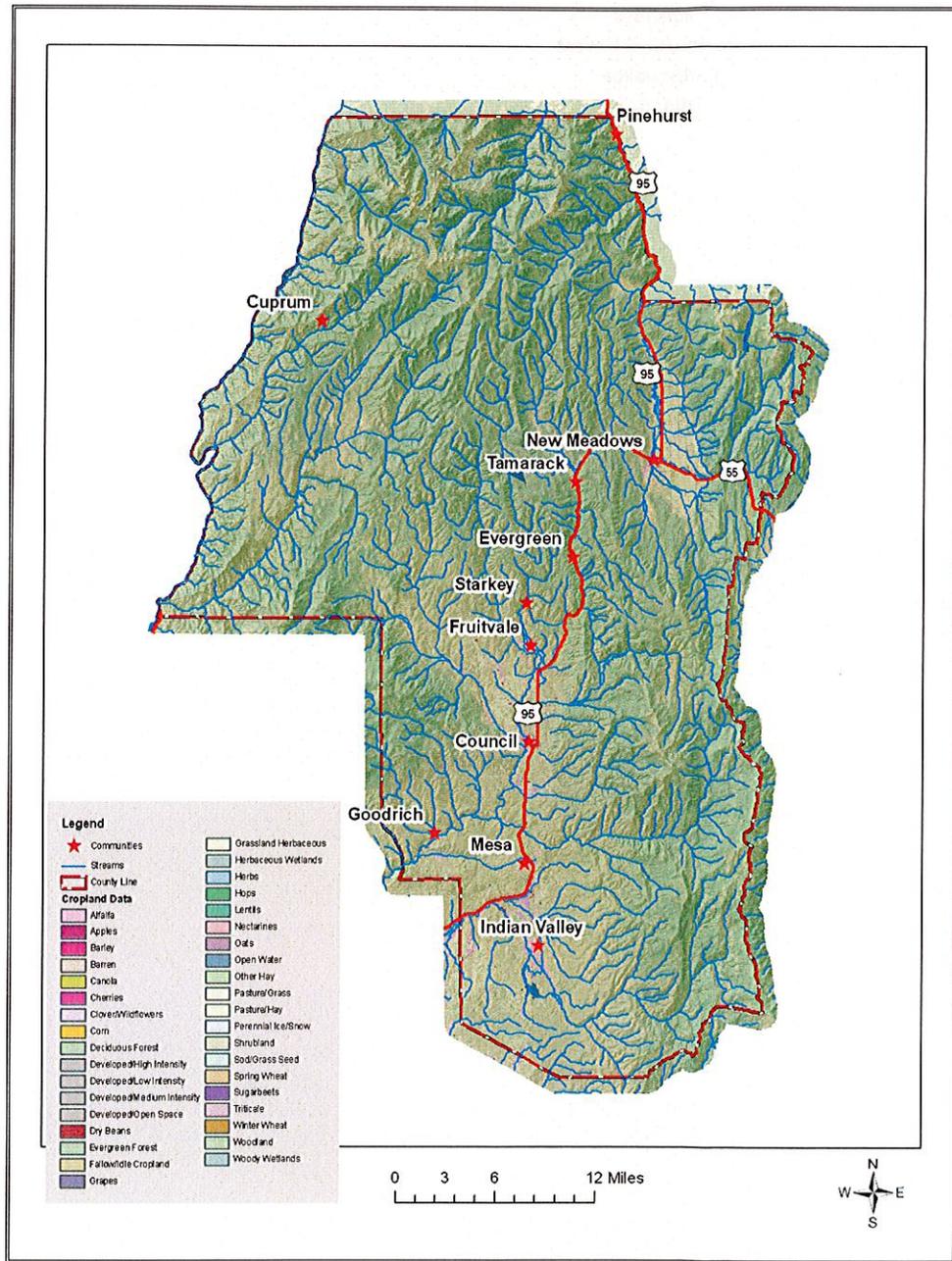
Beef cattle represent a significant share of the county's agricultural economy. 2010 and 2011 were similar in numbers of all cattle and calves, 12,500 and 5,800 of the beef cows calved in 2011. From the 2007

⁴⁵ University of Idaho Extension. Adams County Cooperative Service. Council, Idaho.

highlights 41 Cattle operations sold cattle, including calves measuring \$8,021,000 in sales and 11,007 cattle, including calves sold, and averaging \$729 a head. The numbers have increased from 2007 to 2011 by almost 1500 head; the projection for 2012 is 12,600 beef cows with 6,100 calving.⁴⁴

In the 2007 fiscal year, the timber harvest in Adams County was \$159,000.⁴⁴

Figure 4.10. Agricultural Crops Map.



Second-Order Hazard Events

Severe crop damages are always caused by other types of hazard events. Once a crop has been damaged, it is unlikely to regain its value; thus, the costs of these events can be devastating. Due to the high risk, most

agricultural producers insure the year's harvest. The following chart outlines the interconnection between crop damages and other types of hazard events.

Table 4.10. Second-Order Hazards Related to Landslide Events.	
Related Causal Events	Related Effects
Flood	
Severe Weather	
Transportation System	
Landslides	
Terrorism/Civil Unrest	
Earthquakes	
Wildland Fire	

Chapter 5

Jurisdictional Vulnerability Assessment

IN THIS SECTION:

- Adams County Annex
- City of Council Annex
- City of New Meadows Annex

Chapter 5
Vulnerability
Assessment

Chapter 5 – Hazard Assessments

Jurisdictional Risk and Vulnerability Assessments

The Adams County MHMP planning committee reviewed many of the natural and man-made hazards that have affected or pose a potential risk to people or property throughout the County. The committee agreed that the natural hazards of flood, earthquake, landslide, severe weather, and wildland fire as well as the hazards of massive crop failure and extended power outage should be included in the risk assessment for each jurisdiction. The planning committee recognizes that there are additional hazards, particularly man-made hazards, which may also affect Adams County. These types of additional hazards will be reviewed for inclusion during the subsequent annual and 5-year evaluations of the MHMP.

As part of the risk and vulnerability assessment, each member of the planning committee was asked to fill out a critical infrastructure worksheet identifying and locating all structures, infrastructure, and culturally significant sites that loss or damage of which would have a significant impact on the community. This exercise also included all communication, hazardous materials storage, transportation, and emergency response infrastructure. The list from each member was compiled and added to a GIS database. The critical infrastructure database was used to develop maps and address each type of hazard risk in each jurisdiction.

Furthermore, Adams County's existing parcel master listing has been converted to an accessible GIS database. This database allowed the planning committee to map every parcel within the County and City jurisdictions. This data was combined with the hazard vulnerability models to develop the risk assessments and loss estimations for each jurisdiction.

In order to be eligible for project funds under the Flood Mitigation Assistance (FMA) Program authorized by the National Flood Insurance Act of 1968, as amended, communities are required under 44 CFR 79.6(d)(1) to have a mitigation plan that addresses flood hazards. On October 31, 2007, FEMA published amendments to the 44 CFR Part 201 at 72 Federal Register 61720 to incorporate mitigation planning requirements for the FMA program, which combined the Local Mitigation Plan requirement for all hazard mitigation assistance programs under 44 CFR 201.6 to include the FMA as well as the HMGP, PDM, and SRL programs thus eliminating duplicative mitigation planning regulations. The purpose of the flood sections in the following annexes is to fulfill the requirements for both the FMA program and the Local Hazard Mitigation Plan.

Adams County Annex

Flood Profile

All three types of flood events occur in Adams County. Riverine flooding occurs along all tributaries to the Snake Weiser and Little Salmon Rivers. The mountainous terrain of the northern end of the County creates a flood-prone environment. Rain-on-snow events can and do occur at almost all elevations across the County. These events often contain enough moisture to cause flooding on the Weiser River drainage and most of its major tributaries in the County. To a lesser extent the Snake River is also affected by rain on snow events. Due to its large drainage area and dams, the impacts of flood events on the main stem of the Snake River are muted; however, tributaries to the Snake River can be greatly influenced by rain on snow events. In general, these flood events can be predicted 24 to 72 hours in advance of the rising waters.

In Adams County, summer thunderstorms can result in flash flooding of specific smaller drainages. Often there is little time to react to the quickly rising waters. Due to the nature of the terrain within the County, localized flooding from thunderstorms tends to be more of a storm drainage problem for many communities. Short-term blockage of roads is usually the biggest issue as drainage structures are overwhelmed by the rapid influx of water.

Ice/debris flows occur as part of riverine and flash flooding, usually exacerbating the effects of those types of flood events. In the event of a fire or heavy logging activity, flash flooding and mudslides can result due to the loss of vegetation that usually holds the soil in place and intercepts some of the water's velocity.

Figure 5.1. Adams County FEMA Floodplain Map.

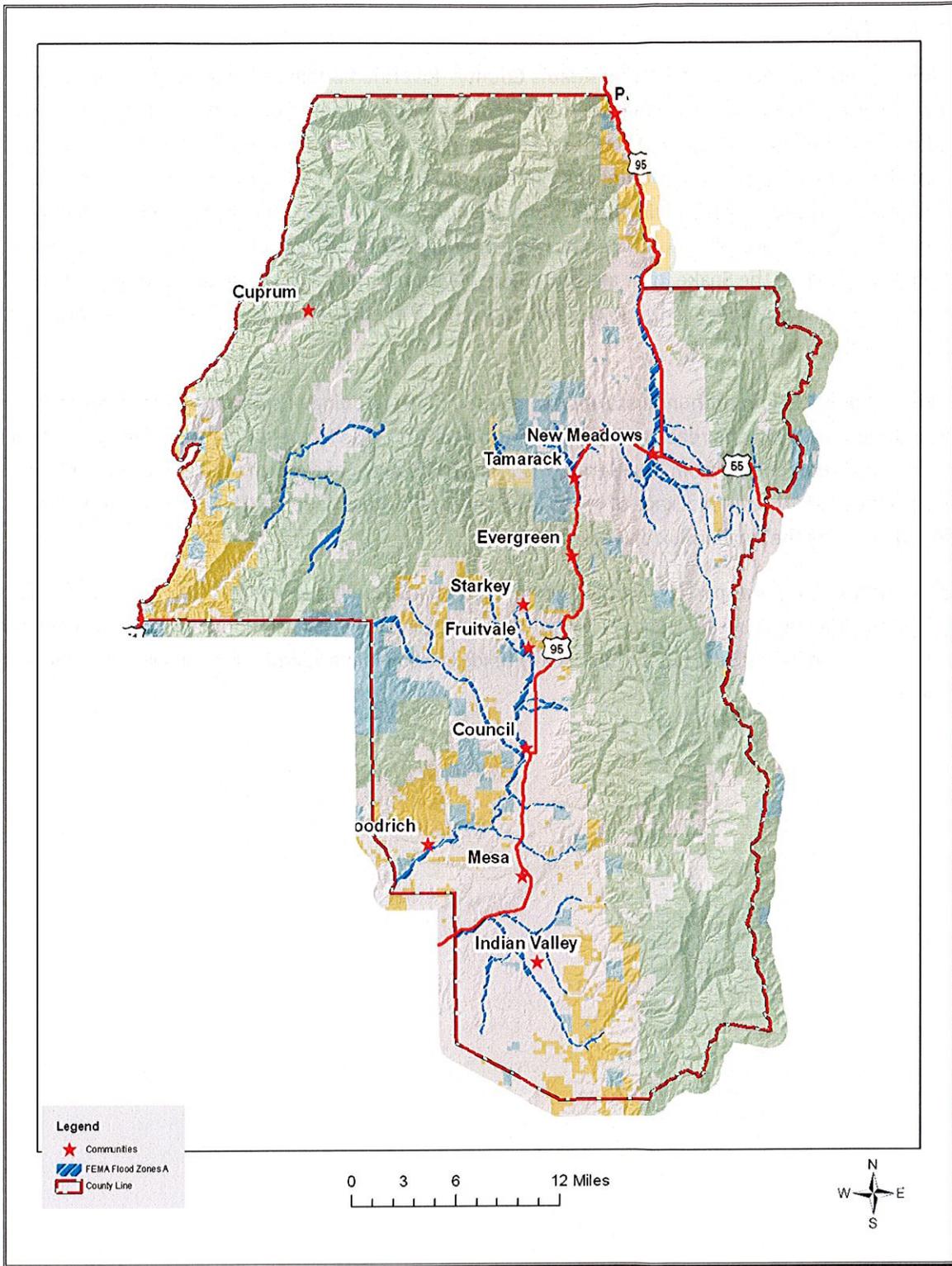
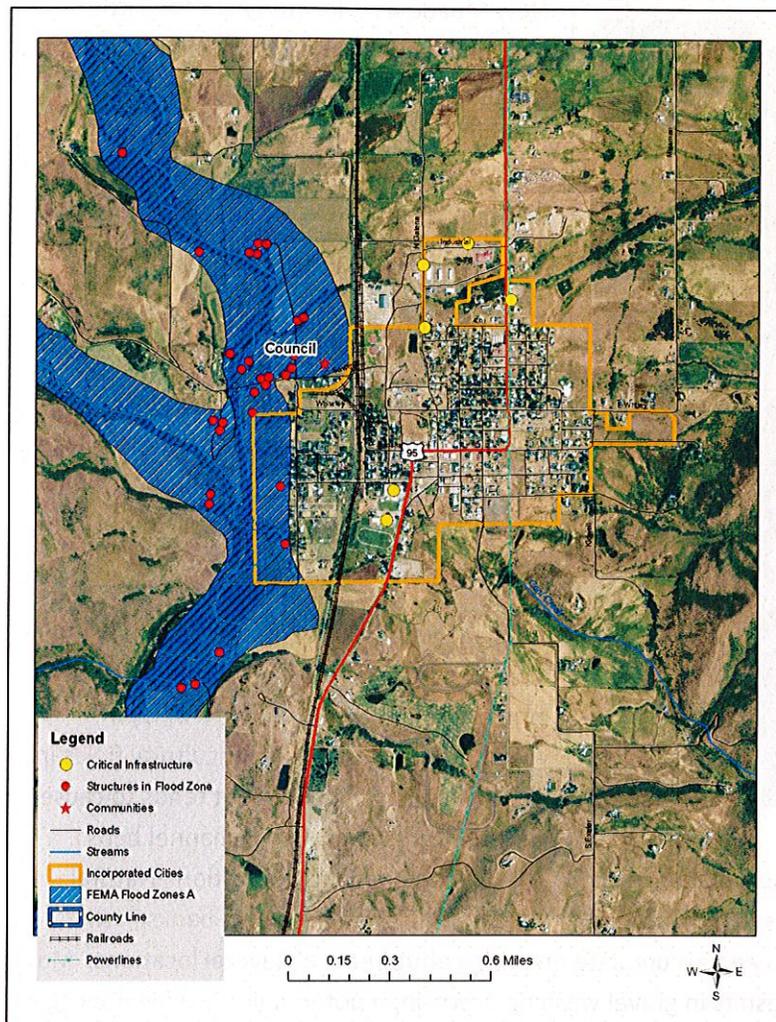


Figure 5.2. FEMA Flood Insurance Rate Map for Council.



The Weiser River drainage is a collector watershed for the Seven Devils Mountain Range and the mountains in the eastern part of the County. Numerous smaller tributaries drain into the Weiser including the East and West Forks of the Weiser River, Beaver Creek, and Hornet Creek. Most of these drainages have large, high elevation drainage areas; thus, are heavily influenced by rain-on-snow events. Flash floods have also been recorded, but are not as common.

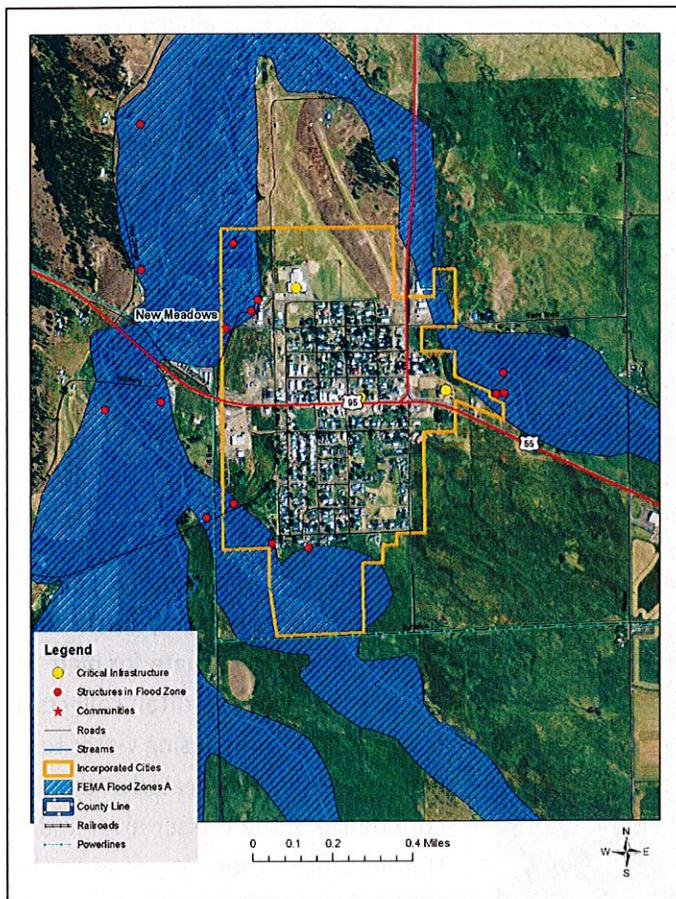
Many bridge crossings have been identified by the Highway District as outdated and inadequate for high water events. Debris often collects on bridge abutments causing water to back up. Council is located at the confluence of the Weiser River and Hornet Creek. There are an estimated thirty structures in the flood zone of this confluence. Roads are the most affected infrastructure in Council during flood events. Historically, there

has been significant damage to the road systems in the area as a result of flood waters and debris flows.

Floods in the Weiser River watershed are the result of spring runoff, rain-on-snow events, and to a lesser extent localized thunderstorms. Rain-on-snow events that affect Council occur when significant snow pack exists within the hydrologic watershed surrounding this community. The boundary of the watershed is defined by steep forestlands. Warm rains falling on the snow pack result in a significantly increased rate of snowmelt. Often this melting occurs while the ground is frozen and the water cannot be absorbed into the soil, resulting in increased overland flows. Floodwaters recede slowly as rain-on-snow weather events tend to last for several days.

Thunderstorms are typically localized summer events that have not historically caused serious flooding in Council. However, residents along the Weiser River and other drainages should be aware of the risks and impacts of these intense localized events. This type of flooding can occur rapidly, overwhelming the water carrying capacity of channels in a short time.

Figure 5.3. FEMA Flood Insurance Rate Map for New Meadows.



New Meadows is located near the Little Salmon River in the east central portion of the County. The main access route to the northern part of the state, Highway 95, crosses the Little Salmon River both east of town and north of town, and is prone to closures from riverine flooding and associated landslides.

New Meadows is extremely prone to rain on snow events that can last for several days. These types of events can inundate culverts, storm sewers, and bridges with unusually high amounts of water. This can cause water levels to rise in places that traditionally don't experience flooding.

A high level of sediment is prevalent in Adams County drainages during periods of runoff primarily from the abundance of high elevation washouts and agricultural fields in the lowlands. This sediment tends to cause a deteriorating condition in channel beds through erosion and deposition. Natural

obstructions to flood waters include trees, brush, and other vegetation along the stream banks in the floodplain areas. Debris can plug culverts and accumulate on bridge abutments at several locations. Many secondary routes are not paved, which results in gravel washing downslope potentially clogging drainage systems or directing water to places that were not intended. Sedimentation and accumulated debris and vegetation are significantly increasing the flood risk throughout Adams County. Debris jams during high water events have caused considerable flood damage to adjacent properties.

Participation in the National Flood Insurance Program (NFIP) and subsequent adoption of the Uniform Building Codes, or more stringent local building codes, provide basic guidelines to communities on how to regulate development. When a county participates in the NFIP it enables property owners in the county to insure against flood losses. By employing wise floodplain management, a participating county can protect its citizens against much of the devastating financial loss resulting from flood disasters. Careful local management of development in the floodplains results in construction practices that can reduce flood losses and the high costs associated with flood disasters to all levels of government.

An important part of being an NFIP community is the availability of low cost flood insurance for those homes and businesses within designated flood plains, or in areas that are subject to flooding, but that are not designated as Special Flood Hazard Areas.

Table 5.1. NFIP Policy Statistics as of 4/30/2012 in Adams County.

Community Name	Policies In-Force	Insurance In-Force	Written Premium In-Force	FIRM Effective Date	Floodplain Ordinance/Manager	CRS Ranking
Adams County	15	3,184,700	8,328	11/20/2000		
City of Council	N/A	N/A	N/A	N/A	N/A	N/A
City of New Meadows	2	630,000	708	6/5/1985		

Local Event History

Adams County has experienced a long history of high magnitude floods, typically by “50 and 100-year” levels. The diverse landscape and weather patterns within Adams County are the triggers for those high magnitude floods. Rain-on-snow events and above normal high spring temperatures are very typical throughout the county in the spring and late winter. The combination of the above two events are devastating and can cause extraordinary flooding events.

New Year's Day Storm: January 1-5, 1997 - New Year's Day floods in the Weiser drainage of southwestern Idaho that caused record flooding and numerous mudslides. Warm temperatures combined with a rainfall 4-6 times the normal amount; the resulting snowmelt triggered devastating floods, mudslides and avalanches, extensively damaging communities and infrastructure throughout Idaho. The community of South Banks was condemned because of extensive slide damage. Over 400 miles of roads and several railroad lines were blocked or destroyed, stranding over 10,000 holiday travelers in western Idaho. Rivers were "running like chocolate," carrying huge trees, mud and boulders; the Snake River at Hells Canyon Dam crested at 101,728 cfs January 1, nearly 30,000 cfs over its previous record level on 2/23/82. Governor Batt declared 13 counties a disaster: Gem, Adams, Washington, Idaho, Clearwater, Valley, Payette, Elmore, Latah, Boundary, Bonner, Shoshone and Boise. A Federal disaster was declared on January 4, 1997 with a total of \$65,000,000.00 damages reported.

Probability of Future Occurrence

The probability of flood events occurring in Adams County is high. Low magnitude flood events can be expected several times each year. However, due to various flood control measures and drainage infrastructure, the impacts of these events in unincorporated areas are slight and usually amount to minor and temporary traffic issues throughout the County. Larger magnitude and high impact flood events have occurred, but are not likely in any given year. These types of flood events have the highest probability of occurrence in the winter or early spring and often have a greater impact on the cities of Council and New Meadows. Minor flash flood events are expected annually most likely as a result of summer thunderstorms or rain-on-snow events.

There are currently no repetitive loss properties or special flood hazard areas in unincorporated Adams County.

Impacts of Flood Events

Due to several swift bodies of water in Adams County, the probability of a flood-related fatality is moderate. Flash flood events in particular, or accidents could result in a death or injury. First responders or other persons could be pinned under debris and drowned or receive trauma from debris being carried along the waterway. Once flood waters recede, mold can grow in wet material causing a public health

hazard. Flood waters may contain sewage and hazardous chemicals that could be left on people's property following a flood event. Furthermore, water and food may be contaminated and heat and electricity may be inoperable for a period of time. Although the probability of these types of impacts occurring at a moderate to large scale is very low, all of these factors could contribute to a decline in current and long term health of Adams County residents.

The continuity of operations for Adams County and most other jurisdictions within the county will not be compromised due to a flood event. The delivery of some services may be hindered by localized flooding in certain areas; however, due to the availability of alternative routes, this is not a significant concern. Damage to facilities, equipment, or files could impact certain organizations or public services depending on the extent of damage and duration of the event.

Flood events in Adams County are most likely to affect private property by damaging homes, businesses, barns, equipment, livestock, and vehicles. Both water and contaminants can damage or permanently ruin equipment. Flood waters can also erode land. This is particularly an issue when lands supporting roads, power lines, pipelines, sewage control facilities, levees, bridges, and other infrastructure are damaged by erosion.

In Adams County, it is unlikely that flood events would cause any long-term environmental impacts. Some environmental impacts that may be realized by localized flooding could include erosion of stream banks, loss of riparian plant life, or contamination by chemicals or sewage. Flooding in some areas may have some environmental benefits such as establishing meanders that slow the stream flow, replenishing wetland areas and replenishing the soil with nutrients from sediment.

Flooding in Adams County is not likely to have a significant or long-term effect on the local economy. Depending on the magnitude of the event, individual residents and businesses may be adversely impacted, but the economic viability of the community will not be affected. Severe damage to transportation infrastructure may have a short-term impact on certain communities due to the presence of state and U.S. highway routes, but alternative routes are available.

Value of Resources at Risk

There are approximately 1,183 parcels and 519 structures within the FEMA-identified floodplains (100- and 500-year) in unincorporated Adams County, yielding a total structure value of over \$50.9 million. The structural value is based on the County's assessed value of property improvements and does not reflect the replacement cost of a structure. According to Adams County Emergency Management, there are currently no repetitive loss properties within Adams County. The average damage to structures was estimated based on the parcel's location as either completely within or out of the flood zone. The estimated value of contents is ½ the value of the improvements equating to an additional \$27.3 million in potential losses. In reality, the damages will most likely not be equally distributed between buildings based on building materials, building location, and flood location. However, these estimates provide a basic approximation.

Critical infrastructure located within the identified floodplain for unincorporated Adams County includes

Earthquake Profile

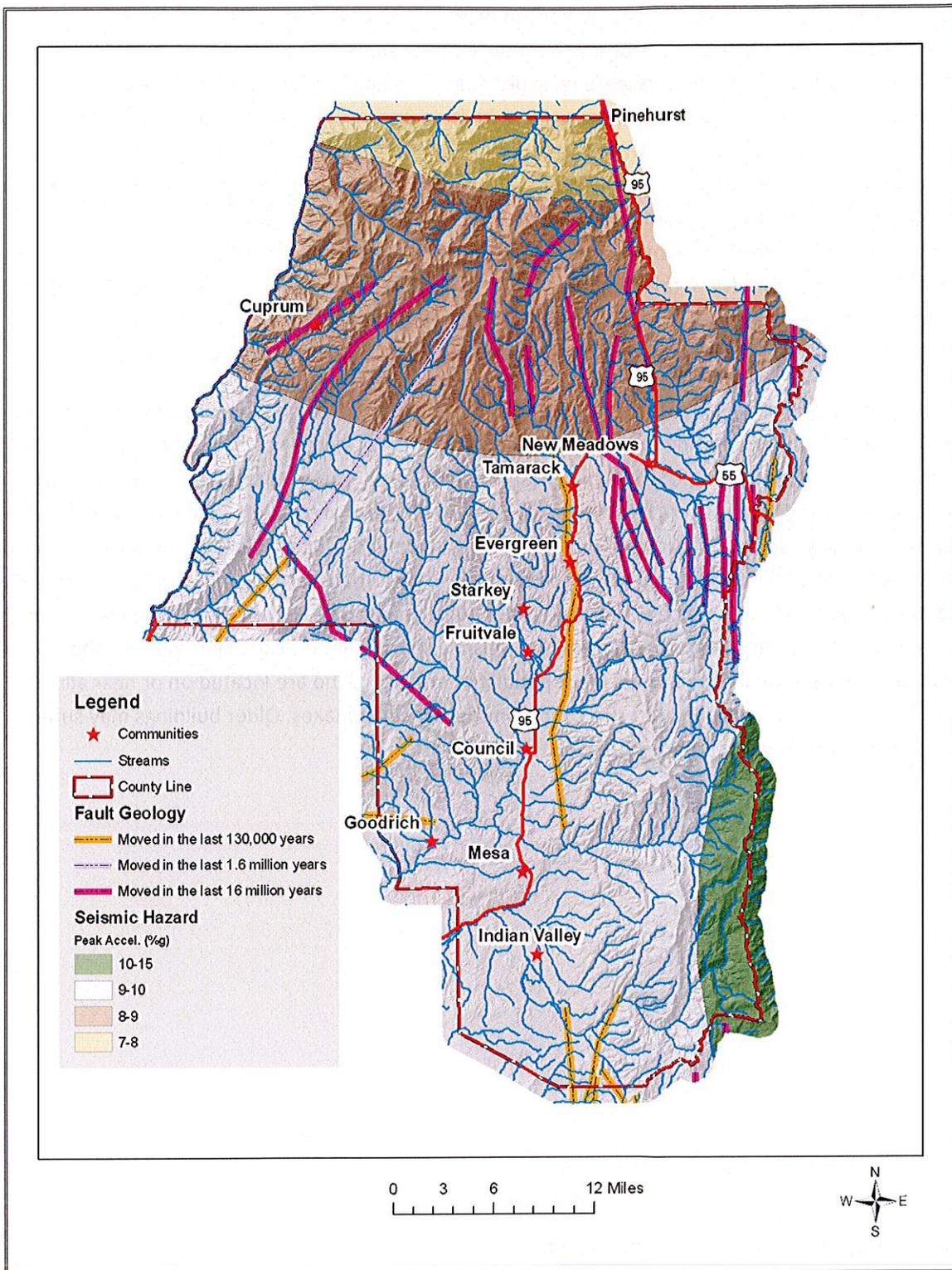
Based on historical records, Adams County has not experienced any seriously damaging earthquakes in recorded history. Several distant earthquakes produced intensities strong enough to be felt in southern Idaho, but no earthquake epicenters were recorded for the region.⁴⁶ Many of Idaho's cities are at risk to earthquakes, even small ones, because many were built on unconsolidated sediments that move easily in response to seismic waves. Seismic waves are the form of energy that ripples through Earth when an earthquake occurs. When seismic waves propagate through unconsolidated sediments the sediments re-organize and move chaotically (analogy to shaking like a bowl of gelatin). The danger is really two fold because those cities, which were built near rivers below the foothills and mountains, eventually expanded upward into the foothills. Mountain foothills contain erosion remnants called alluvial fans. The alluvial fans may either slide down into the valley or simply shake about creating new topography due to internal settling. For this reason, Idaho ranks fifth in the lower 48 states as to its earthquake hazard.

The U.S. Geological Survey has gathered data and produced maps of the nation, depicting earthquake-shaking hazards. This information is essential for creating and updating seismic design provisions of building codes in the United States. The USGS Shaking Hazard maps for the United States are based on current information about the rate at which earthquakes occur in different areas and on how far strong shaking extends from quake sources. Studies of ground shaking in Idaho during previous earthquakes have led to better interpretations of the seismic threat to buildings. In areas of severe seismic shaking hazard, older buildings are especially vulnerable to damage. Older buildings are at risk even if their foundations are on solid bedrock. Areas shown on the map with high seismic shaking hazard can experience earthquakes with high intensity where weaker soils exist. Most populated areas in Idaho are located on or near alluvial deposits that provide poorer building site conditions during earthquakes. Older buildings may suffer damage even in areas of moderate ground shaking hazards.⁴⁷

⁴⁶ Idaho Geological Society. 2004. Available online at <http://www.idahogeology.com/Services/GeologicHazards/Earthquakes/>.

⁴⁷ Idaho Geological Society. 2004. Available online at <http://www.idahogeology.com/Services/GeologicHazards/Earthquakes/>.

Figure 5.4. Seismic Shaking Hazard for Adams County



Local Event History

No history of earthquake events has been specifically recorded for Adams County.

Probability of Future Occurrence

There are several known geologic faults in the northern part of Adams County most with a north to south orientation. Peak ground acceleration (pga) in percent g is a measure of the ground motion, which decreases, the further you are from the earthquake. The USGS Shaking Hazard maps for the United States are based on current information about the rate at which earthquakes occur in different areas and on how far strong shaking extends from quake sources. Colors on the map show the levels of horizontal shaking that have a 1 in 10 chance of being exceeded in a 50-year period. Shaking is expressed as a percentage of "g" (g is the acceleration of a falling object due to gravity). This map is based on seismic activity and fault-slip rates and takes into account the frequency of occurrence of earthquakes of various magnitudes. Locally, this hazard may be greater than that shown, because site geology may amplify ground motions. As seen in Figure 5.5, the earthquake probability in the northern portion of the county has a 10% chance of exceeding a 7-9% pga while there is a 10% chance of exceeding a 10-15% pga in the southeastern border of the County over the next 50 years.⁴⁸ No specific jurisdictions or special districts were identified as having differing issues or levels of risk associated with this hazard. Although as a general statement, communities in northern Adams County such as Pinehurst, Cuprum, and New Meadows have a greater risk of experiencing seismic shaking than communities in the Weiser River Plain.

Table 5.2. Earthquake Probability in Adams County.⁴⁹

Magnitude	Probability in 50 years	
	<i>New Meadows</i>	<i>Council</i>
5	28.31%	32.18%
5.1	24.30%	27.81%
5.2	20.80%	23.96%
5.3	17.77%	20.60%
5.4	15.15%	17.70%
5.5	12.92%	15.20%

Impacts of Earthquake Events

Past events suggest that an earthquake in the Adams County area would cause little to no damage. Nonetheless, severity can increase in areas that have softer soils, such as unconsolidated sediments.

Although unlikely in Adams County, buildings that collapse can trap and bury people, putting lives at risk and creating clean-up costs. Upgrading existing buildings to resist earthquake forces is more expensive than meeting code requirements for new construction; thus, a high number of structures in Adams County, particularly those built prior to seismic code requirements, remain at risk. Many critical facilities are housed in older buildings that are not up to current seismic codes.

⁴⁸ USGS. 2008 United States National Seismic Hazard Maps. U.S. Geological Survey. U.S. Department of Interior. Available online at <http://earthquake.usgs.gov/hazards/products/conterminous/2008/>. October 2009.

⁴⁹ <http://www.homefacts.com/earthquakes/Idaho.html>. Accessed August, 2012.

Communities in Adams County can expect some structural failure of older multistory unreinforced masonry buildings as a result of even lower intensity earthquakes. Cornices, frieze, and other heavy decorative portions of these types of structures may fail. The potential impacts of a substantial earthquake event are highly variable. Many of the structures and infrastructure throughout the county may not incur any damages at all; however, damage to roads, bridges, unreinforced masonry, chimneys, foundations, water lines, sewer lines, natural gas pipelines, and many other components are at risk. Fires can also be a secondary hazard to structures sustaining earthquake damage. The economic losses to business in the area may be very high if owners are forced to stop production or close their doors for even just a day.

Because structural damage by earthquakes is typically not complete destruction, but rather tends to be subtle cracking or settling that undermines the stability of the structure. These types of repairs can be very costly. Additionally, changes to the water table or even the topography can significantly impact local municipal and private wells and could result in the loss of traditional land uses.

Value of Resources at Risk

HAZUS®-MH MR5⁵⁰ is a regional earthquake loss estimation model that was developed by FEMA and the National Institute of Building Sciences. The primary purpose of HAZUS is to provide a methodology and software application to develop earthquake loss estimations at a regional scale. In order to estimate potential earthquake losses in Adams County, HAZUS was used to model a scenario based on the parameters of the nearest historic epicenter. The modeled earthquake recreated the effects of the Borah Peak Earthquake near Challis in 1983, i.e. the most likely type of earthquake event to occur in Adams County. The HAZUS model estimated direct earthquake damages, induced earthquake damage, social impacts, and economic losses. It should be noted that the figures have a high degree of uncertainty and should only be used for general planning purposes.

For the modeled earthquake scenario, the HAZUS software reported no expected damage to essential facilities including hospitals, schools, emergency operations centers, police stations, and fire stations.

There are an estimated 2,713 buildings in Adams County with a total building replacement value (excluding contents) of \$255,676,467. The software also reported that 8 residential structures would be moderately damaged and 34 would be slightly damaged. Only 1 commercial building is expected to incur slight damages. The majority of residential structures expected to be damaged are manufactured and wood construction homes.

The replacement value of the transportation and utility lifeline systems is estimated to be \$2.7 billion and \$692 million, respectively. HAZUS estimated that no damages to the transportation system, potable water and electric power system, or the utility system facilities would be expected. The HAZUS model also does not project any casualties or sheltering as a result of the earthquake scenario.

⁵⁰ FEMA. Hazuz®-MH MR5. Department of Homeland Security. Federal Emergency Management Agency, Mitigation Division. Washington, D.C. November 2010.

Table 5.3. Summary of Utility System Pipeline Damage from HAZUS.

System	Total Pipelines Length (kms)	Number of Leaks	Number of Breaks
Potable Water	6,789	11	3
Waste Water	4,073	6	1
Natural Gas	2,715	2	0
Oil	0	0	0

HAZUS estimated the long-term economic impacts for 15 years after the earthquake. The model quantifies this information in terms of income and employment changes within Adams County. HAZUS estimated that there would be approximately \$30,000 in economic losses attributed to bridge repairs. Minor economic losses are also expected due to repair of potable water distribution lines (\$50,000), wastewater facilities and distribution lines (\$180,000), natural gas distribution lines (\$10,000), and electrical power facilities (\$60,000).

HAZUS estimated that there are 186 unreinforced masonry structures in all of Adams County. There are no known publically accessible unreinforced masonry structures in unincorporated Adams County.

Unreinforced masonry (URM) structures and unreinforced chimneys of homes will likely be damaged in the event of an earthquake. Damaged or collapsed chimneys could result in the secondary hazard of fire. Nonstructural damage caused by falling and swinging objects may be considerable after any magnitude earthquake. Damage to some older, more fragile bridges and land failure causing minor slides along roadways may isolate some residents.

Landslide Profile

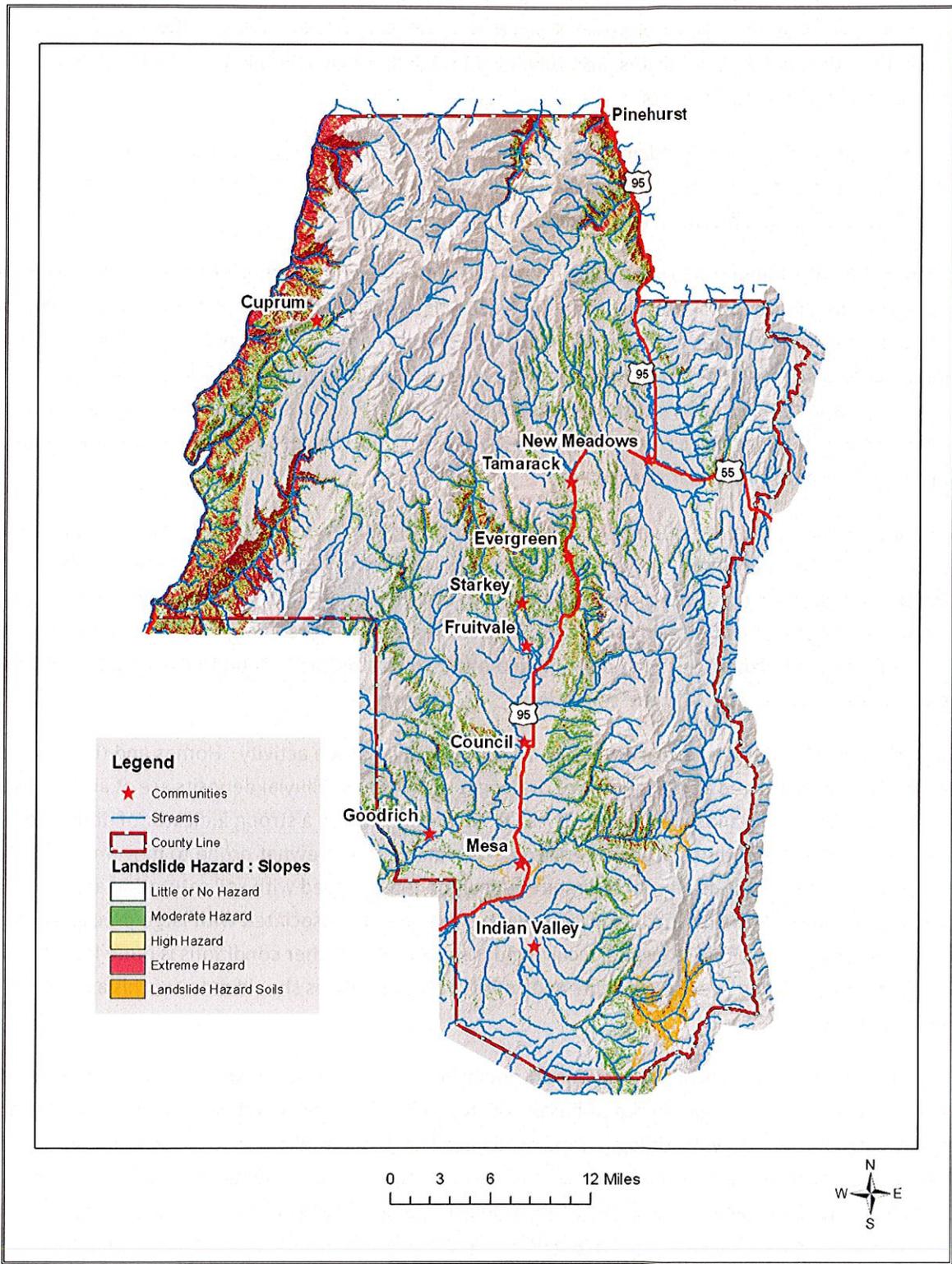
Adams County covers a large variety of terrain from the Snake River on the west to Council Mountain to the east. Adams County contains irrigated Weiser River Plain farmland, vast areas of sagebrush steppe, and much of the southern Seven Devil’s Mountains.

Soil factors that increase the potential for landslide are soils developed from parent materials high in schist and granite, and soils that are less permeable containing a resistive or hardpan layer. These soils tend to exhibit higher landslide potential under saturated conditions than do well-drained soils. To identify the high-risk soils in Adams County, the NRCS State Soils Geographic Database (STATSGO) layer was used to identify the location and characteristics of all soils in the County. The specific characteristics of each major soil type within the County were reviewed. Soils information that suggested characteristics pertaining to very low permeability and/or developed a hardpan layer and soils developed from schist and granite parent material were selected as soils with potential high landslide risk. High-risk soils magnify the effect slope has on landslide potential. Soils identified as having high potential landslide risk are further identified only in areas with slopes between 14° and 30° (25-60%). It is these areas that traditionally exhibit the highest landslide risk due to soil characteristics within a given landscape.

To portray areas of probable landslide risk due to slope related factors, slope models were used to identify areas of low, moderate and high risk. This analysis identified the low risk areas as slopes in the range of 20°-25° (36-46%), moderate as 26°-30° (48-60%) and high risk as slopes in the range of 31°-60° (60-173%). Slopes that exceeded 60° (173%) were considered low risk due to the fact that sliding most likely had already occurred relieving the area of the potential energy needed for a landslide. From the coverage created by these two methods, it is possible to depict areas of assumed risk and their proximity to development and human activity. With additional field reconnaissance the areas of high risk can be further defined by overlaying additional data points identifying actual slide locations, thus improving the resolution by specifically identifying the highest risk areas. This method of analysis is similar to a method developed by the Clearwater National Forest in north central Idaho.⁵¹

⁵¹ McClelland, D.E., et al. 1977. Assessment of the 1995 and 1996 floods and landslides on the Clearwater National Forest Part 1: Landslide Assessment. Northern Region U.S. Forest Service. December 1977.

Figure 5.5. Landslide Prone Landscapes Map of Adams County.



Landslides occur primarily in the western part of Adams County. Historically this area has supported low populations in the communities of Cuprum, and Bear. As these remote communities in the mountains grow

in population, landslides will likely occur more frequently, particularly near roadways and new home construction sites. In the past, the main consequence of landslides has been to restrict travel on the few roads that exist in the area. There are several stretches of Highway 71 in the Snake River area that have significant risk to slumps, bank failures, and culvert or bridge blockages during flood events due to the steep topography and unstable soils.

The major population centers in Adams County, Council and New Meadows, have very little risk of experiencing major property damage or loss of life due to landslides. Other unincorporated communities such as Pinehurst, and Cuprum are at a moderate to high risk.

The community of Pinehurst is located along the Little Salmon River in northern Adams County. This area is characterized by the steep slopes rising from the Little Salmon River and its many tributaries. Mixed conifer forests and open grassy slopes surround this relatively isolated community for many miles. Much of the Pinehurst area is at a high risk of landslides, which could damage numerous structures as well as cut off highway 95, Idaho's main north / south transportation corridor. Pinehurst has been an area of active landslide activity in the geologic past as well as in the present. Factors leading to slope instability have been present in the area since ancient times.

Fires in the Pinehurst area can cause a domino effect of multiple hazards. Higher intensity fires not only remove most of the vegetation, but they also cause soils to become hydrophobic or water repellent for a period of time after the fire. This combination leads to unusually high runoff after rain showers or during the spring runoff season. As streams and rivers begin to reach and exceed flood stage, bank failures and channel migration are common. Road building and other soil disturbances tend to exacerbate this effect leading to even more severe land and soil slides.

Individual homes in Pinehurst are at moderate to high risk to landslide activity. Homes and travel routes that have been constructed at the mouths of drainages and through alluvial deposits are at an increased risk of being affected by landslide activity. These historic deposits are a strong indicator of debris flows in the future. Furthermore, these deposits tend to be unstable and somewhat prone to movement. Debris flow activity and the resulting alluvial sediment deposition is associated with soil saturation and precipitation events. As mentioned, landslide events are generally associated with large precipitation events. The probability of these events occurring during normal weather conditions is quite low. However during large precipitation events, residents and county representatives should monitor this area for landslide activity.

The location of landslide deposits in canyons is controlled by the presence of sedimentary interbeds, the hydrologic regime, and the occurrence of basalt overlying clay-rich weathered basement rocks. The largest landslides occur where canyon cutting has exposed landslide-prone sediments to steep topography. Today, initiation and reactivation of landslides is closely tied to unusual climatic events and land-use changes. Even small landslide activity on the upper parts of the slopes can transform into high-energy debris flows that endanger roads, buildings, and people below. Landslide debris is highly unstable when modified

through natural variations in precipitation, artificial cuts, fills, and changes to surface drainage and ground water.⁵²

Most of the communities in Adams County have a low chance of being directly affected by landslides. Transportation corridors however, may be severely impacted and often are at the most risk of landslides. Landslides that occur on primary transportation routes can indirectly affect the communities of Adams County and the State of Idaho.

Local Event History

Landslides occur primarily in the steeper parts of Adams County. The steep mountainous terrain around the County lends themselves to landslides and avalanches. The majority of damages from landslides are associated with small slides and slumps along roadways. The Adams County Highway District mapped the locales of several chronic slide areas along roads. Highway 71 along the Snake River, Highway 95 along the Little Salmon River, and Highway 55 towards McCall are some of the annual slide prone areas within Adams County.

Probability of Future Occurrence

The majority of the landslide potential in Adams County occurs in the steep canyons along the Snake River, Little Salmon River, and Highway 55. These canyons have a high propensity for slides based on the steeper slopes, unstable soils, and history of occurrence. Wildfires and/or severe storms that saturate the soils could lead to major slide events in these areas. The probability of occurrence of major, high velocity landslide events in this area, including those caused by severe local storms, is moderate. The probability of other areas in Adams County experiencing a landslide event is very low.

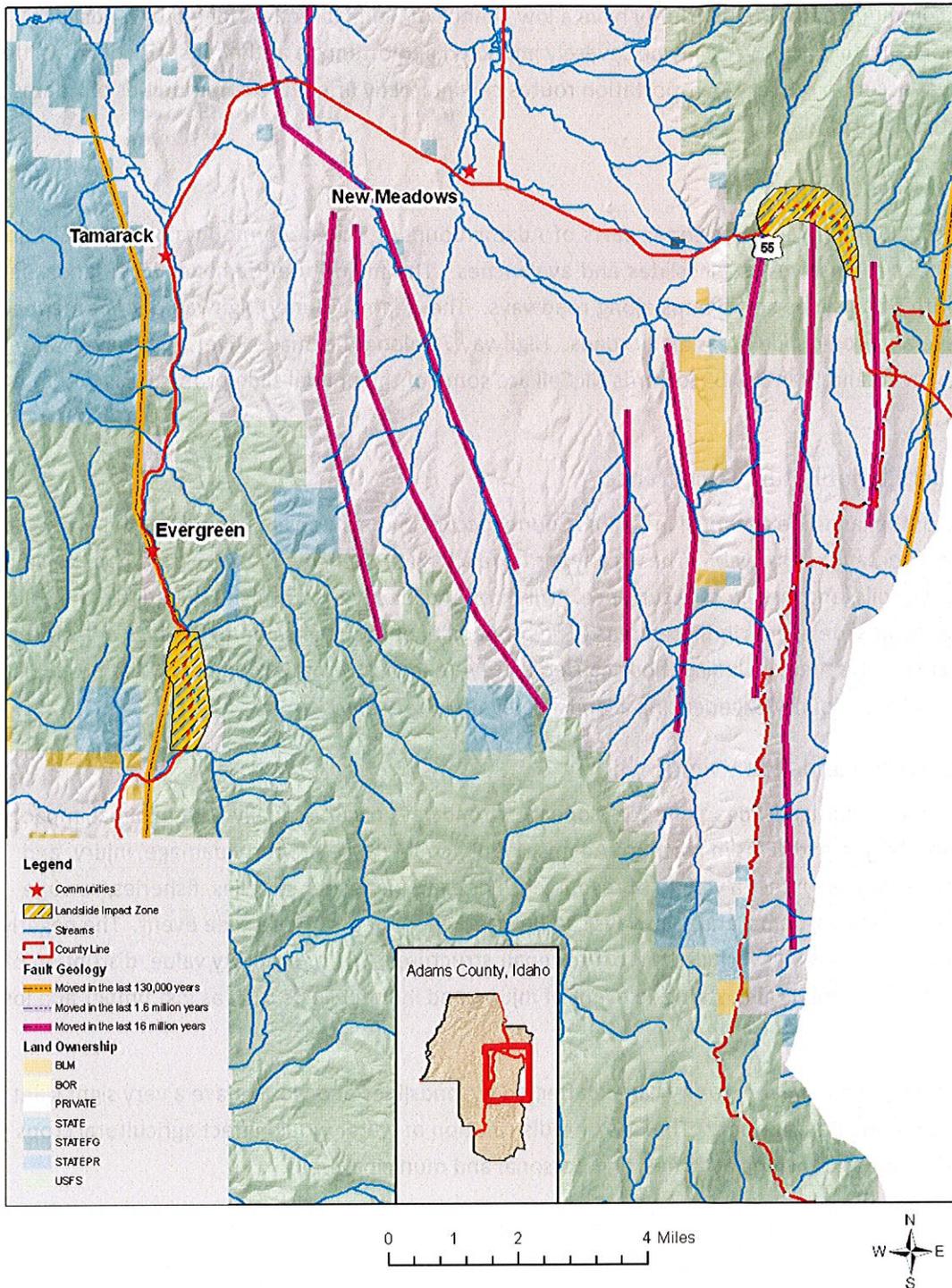
Impacts of Landslide Events

In Adams County, minor landslides along toe-slopes and roadways occur annually with minimal impact to local residents. Major landslides in northern Adams County could cause property damage, injury, and death and may adversely affect a variety of resources. For example, water supplies, fisheries, sewage disposal systems, forests, dams, and roadways can be affected for years after a slide event. The negative economic effects of landslides include the cost to repair structures, loss of property value, disruption of transportation routes, medical costs in the event of injury, and indirect costs such as lost timber and lost fish stocks.

Water availability, quantity, and quality can be affected by landslides and would have a very significant economic impact on Adams County. The loss or redistribution of water would affect agricultural crops grown in certain areas, ranching activities, and personal and municipal wells.

⁵² Weisz, D.W., K.L. Othberg, and R. M. Breckenridge. 2003. Surficial Geological Map of the Payette Quadrangle, Idaho and Lewis Counties, Idaho. Idaho Geological Survey Map, scale 1:24,000.

Figure 5.6. Landslide Impact Zones of Adams County



Value of Resources at Risk

The cost of cleanup and repairs of roadways is difficult to estimate due to the variable circumstances with each incident including size of the slide, proximity to a State or County shop, and whether the slide

occurred on the cut slope or the fill slope. Other factors that could affect the cost of the damage may include culverts, streams, and removal of debris. This type of information is impossible to anticipate; thus, no repair costs for damaged roadways have been estimated.

Table 5.4. Landslide Impact Zones in Adams County.

Landslide Impact Zone	Number of Structures	Value of Structures at Risk
Pinehurst	?	?
Highway 55	0	\$0
Highway 95 Evergreen	13	\$47,991

Slides in the identified Impact Zones are more likely to be larger and more damaging as weaknesses in the underlying rock formations give way. Although infrequent, this type of slide has the potential to not only block, but destroy road corridors, dam waterways, and demolish structures. The highest risk areas in these impact zones are typically at the higher elevations where slopes exceed 25% grade. There are just a handful of homes in one of these impact zones. Single slide events will not likely impact the entire population, but rather individual structures. Many of the main access and secondary roads could also be at risk from slides initiating in these impact zones.

Severe Weather

Severe weather in Adams County ranges from the commonly occurring thunderstorms to hail, high winds, tornadoes, drought, dense fog, lightning, and snow storms.

All of Adams County is at risk to severe winter weather events and there is a high probability of their continued occurrence in this area. Commonly, higher elevations in the Mountains will receive significant snowfall, while areas along the Snake River may not. Periodically though, individual storms can generate enough force to impact the entire County at one time. From high winds to ice storms to freezing temperatures, there are all types of winter storms that take place during the course of any given year. Winter conditions can change very rapidly. It is not uncommon to have a snowstorm at night with sunshine the next day.

In Adams County, ice storms occur when a layer of warm air is between two layers of cold air. Frozen precipitation melts while falling into the warm air layer, and then proceeds to refreeze in the cold layer above the ground. If the precipitate is partially melted, it will land on the ground as sleet. However, if the warm layer completely melts the precipitate, becoming rain, the liquid droplets will continue to fall, and pass through a thin layer of cold air just above the surface. This thin layer of air then cools the rain to a temperature below freezing (32°F). However, the drops themselves do not freeze, a phenomenon called supercooling. When the supercooled drops strike the ground or anything else below 32°F, they instantly freeze, forming a thin film of ice that can build up on trees, utilities, roads, and other structures, infrastructure, and personal property.⁵³

Due to their relative frequency and minimal severity, severe thunderstorms are not well documented in Adams County. Their impacts are fairly limited and do not significantly affect the communities enough to declare a disaster. The secondary impacts of thunderstorms, floods, are emphasized within the flood sections of this document. Areas most vulnerable to this type of storm are those subject to a strong southwesterly flow of moist, unstable air that generates strong, sometimes violent thunderstorms with one or more of the following characteristics: strong damaging winds, large hail, waterspouts, or tornados.

Hail can occur in any strong thunderstorm, which means hail is a threat everywhere. Hail is precipitation that is formed when updrafts in thunderstorms carry raindrops upward into extremely cold areas of the atmosphere. Large hail stones can fall at speeds faster than 100 miles per hour. Hail damage in Idaho is very small in comparison with damage in areas of the central part of the United States. Often the hail that occurs does not grow to a size larger than one-half inch in diameter, and the areas affected are usually small. Quite often hail comes during early spring storms, when it is mostly of the small, soft variety with a limited damaging effect. Later, when crops are more mature and more susceptible to serious damage, hail occurs in widely scattered spots in connection with summer thunderstorms.

⁵³ Wikipedia. "Ice Storm". Wikimedia Foundation, Inc. March 2011. Available online at http://en.wikipedia.org/wiki/Ice_storm.

Windstorms are frequent in Adams County and they have been known to cause substantial damage. Under most conditions, the County's highest winds come from the northwest. However, during the summer months lightning and thunderstorms often come from the south to southwest. Due to the abundance of agricultural development in Adams County, crop damage due to high winds can have disastrous effects on the local economy. In the case of extremely high winds, some buildings may be damaged or destroyed. Wind damages will generally be categorized into four groups: 1) structure damage to roofs, 2) structure damage from falling trees, 3) damage from wind blown dust on sensitive receptors, or 4) wind driven wildfires. Structural injury from damaged roofs is not uncommon in Adams County. Airborne particulate matter increases during high wind events. When this occurs, sensitive receptors including the elderly and those with asthma are at increased risk to complications. The National Weather Service defines high winds as sustained winds of 40 mph or gusts of 58 mph or greater, not caused by thunderstorms, expected to last for an hour or more. Areas most vulnerable to high winds are those affected by a strong pressure difference from deep storms originating over the Pacific Ocean; an outbreak of very cold, Arctic air originating over Canada; or air pressure differences between the Coast Range and southern Idaho.

Adams County and the entire region are at increased risk to wildfires during high wind events. Ignitions can occur from a variety of sources including downed power lines, lightning, or arson. Once ignited, only wildfire mitigation efforts around the community and scattered homes will assist firefighters in controlling a blaze. Details about wildfire mitigation are discussed in the wildland fire annexes of this Multi - Hazard Mitigation Plan.

A tornado is formed by the turbulent mixing of layers of air with contrasting temperature, moisture, density, and wind flow. This mixing accounts for most of the tornadoes occurring in April and May, when cold, dry air from the north or northwest meets warm, moister air moving up from the south. If this scenario was to occur and a major tornado was to strike a populated area in Adams County, damage could be widespread. Businesses could be forced to close for an extended period, and routine services such as telephone or power could be disrupted. The National Weather Service defines a tornado as a violently rotating column of air that contacts the ground; tornados usually develop from severe thunderstorms. Areas most vulnerable to tornado are those subject to severe thunderstorms or those with a recurrence rate of 5 percent or greater, meaning the County experiences one damaging severe thunderstorm event at least once every 20 years.

According to the Tornado Project⁵⁴ and the National Climatic Data Center⁵⁵, there were 2 reports of tornadoes in Adams County between 1880 and 2000. They occurred in August 1983 (F0) and July 1992 (F1). No injuries or deaths were reported as a result of these events. There was an F3 tornado that touched down in the community of Bear that happened after the 'Tornado Project'.

Drought is a condition of climatic dryness that is severe enough to reduce soil moisture and water below the minimum necessary for sustaining plant, animal, and human life systems. Nearly all areas of the State

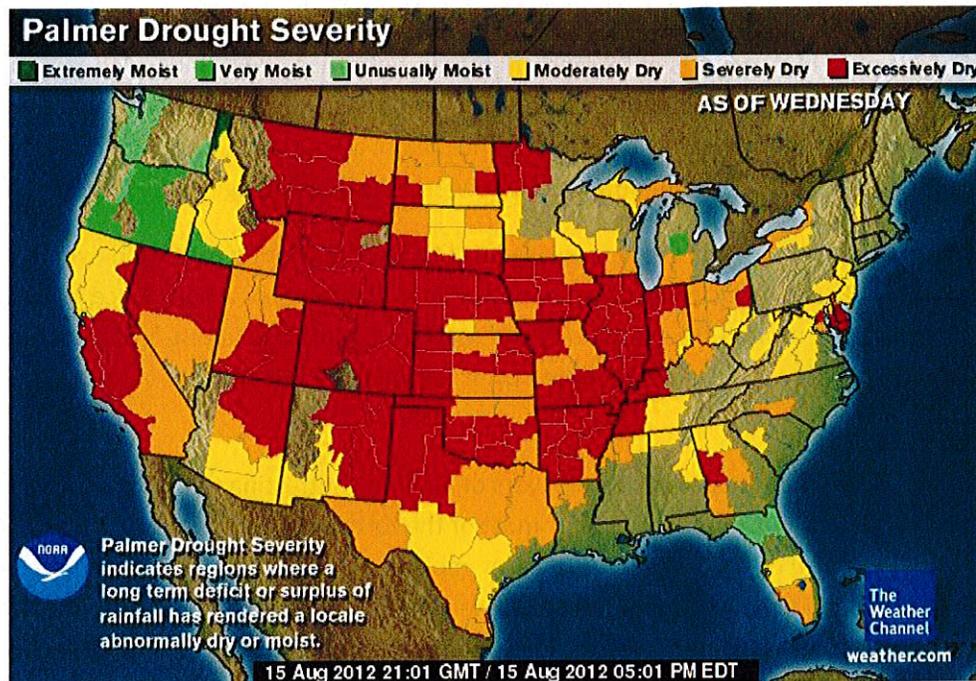
⁵⁴ Tornado Project. 1999. St. Johnsbury, Vermont. Available online at <http://www.tornadoproject.com/>.

⁵⁵ National Climatic Data Center. 2010. *Storm Events Database*. NOAA Satellite and Information Service. U.S. Department of Commerce. Available online at <http://www4.ncdc.noaa.gov/cgi-win/wwwcgi.dll?wwevent~storms>.

are vulnerable to drought. In every drought, agriculture is adversely impacted, especially in non-irrigated areas such as the dry land farms and rangelands in Adams County. Droughts impact individuals (farm owners, tenants, and farm laborers), the agricultural industry, and other agriculture-related sectors.

The severity of drought is measured by the Palmer Index in a range of 4 (extremely wet) to -4 (extremely dry). The Palmer Index incorporates temperature, precipitation, evaporation and transpiration, runoff and soil moisture when designating the degree of drought.⁵⁶

Figure 5.7. Palmer Drought Severity Index for August 2012.



Drought affects water levels for use by industry, agriculture, and individual consumers. Water shortages affect firefighting capabilities through reduced flows and pressures. Drought also affects power production. Much of Idaho's power is produced by hydro-electric dams. When water levels drop, electric companies cannot produce enough power to meet demand and are forced to buy electricity from other sources. Oftentimes, drought is accompanied by extreme heat. When temperatures reach 90 degrees and above, people are vulnerable to sunstroke, heat cramps, and heat exhaustion. Pets and livestock are also vulnerable to heat-related injuries. Crops can be vulnerable as well. In the past Idaho State droughts yields were significantly lessened. Drought increases the danger of wildland fires. In Adams County, fires in rangeland areas are particularly dangerous due to typically high rates of spread and the scattered nature of structures and infrastructure that could potentially be affected.

⁵⁶ "Drought Monitoring". National Weather Service Climate Prediction Center. NOAA. February 2011. Available online at http://www.cpc.ncep.noaa.gov/products/monitoring_and_data/drought.shtml.

Local Event History

Many of the event summaries for other types of hazards were caused by severe weather events; however, there is no additional documentation of severe weather events available.

Probability of Future Occurrence

The probability of Adams County experiencing a severe weather event on an annual basis is very high.

Extreme cold, snow accumulation, and wind events are common occurrences between November and March. Major winter storms are expected at least twice each year during the winter season; however, these weather patterns rarely last more than a few days. The mountainous areas of Adams County receive several feet of snowfall each year. Severe ice storms also occur in Adams County during the winter months. The probability of this type of event is moderate to high annually.

Wind events are also common in Adams County and can occur throughout the year. Wind is often associated with winter storms during the winter and thunderstorms during the warmer months, but can also occur without additional storm influences. Significant wind events are expected 3-5 times annually.

Several major thunderstorms are expected in Adams County each year between April and September; however, these types of events rarely cause serious damage.

Adams County has a moderate probability of experiencing a damaging hail storm in any given year. These types of events most frequently occur in the spring, but can occur throughout the summer as well.

Tornadoes are relatively rare, but the conditions for a funnel cloud to form are reported in Adams County several times each year. Nevertheless, based on the historical record of tornadoes in this area, the probability for a small tornado to occur in Adams County is low. The probability of a higher magnitude tornado occurring in this area is extremely low.

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 1987-92.⁵⁷ The probability of Adams County experiencing a major long term drought in any given year is low to moderate. While Adams County does experience droughts, on the whole, they are mild and do not cause long term damage. The impacts of drought on the agricultural sector are mitigated by the availability of irrigation water.

Impacts of Severe Weather Events

Winter storms with heavy snow, high winds, and/or extreme cold can have a considerable impact on Adams County, particularly in the mountainous areas to the north. However, most residents are well accustomed to the severe winter conditions in this part of Idaho. Structures in Idaho communities are generally built to handle the snowload for the area; thus, severe damages from winter storms are rarely reported.

⁵⁷ Idaho Department of Water Resources. 2010. Idaho Drought Emergency Declarations. Available online at <http://www.idwr.idaho.gov/News/drought/drought.htm>.

Power outages and unplowed roads are a frequent occurrence throughout many parts of the County, but most residents are prepared to handle the temporary inconvenience. Blowing and drifting snow can often be difficult for crews to keep roads open. Snow loads on roofs, ice-slides off of roofs onto vehicles or other buildings, and damaged frozen pipes are also potential hazards associated with winter weather. These events represent a significant hazard to public health and safety, a substantial disruption of economic activity, and a constant threat to structures during the winter months.

Adams County has experienced several “ice storms” in recent memory. The freezing rain from an ice storm covers everything with a heavy layer of ice that can cause hazardous road conditions resulting in numerous accidents. Trees have been heavily damaged as branches break from the weight of the ice. The weight of the ice can also snap power lines and bring down utility poles. The loss of power during the winter months can last from a few hours to a few days and is particularly dangerous for those relying on electrical heat. The loss of a heat source can cause hypothermia, frost bite, or even death and can also lead to damages caused by frozen pipes.

Many types of severe weather events tend to impact transportation routes and related infrastructure, especially snow and thunderstorms. Numerous traffic accidents occur along Highway 95 and other primary routes each year, but are particularly common during the winter months due to ice and snowpack as well as poor visibility.

Wind usually accompanies snow storms in Adams County; thus, large accumulations are not common as much of the snow is blown away. Commonly, heavy drifting is the cause of disruptions to normal commuting activities (delays and inability to plow roads and driveways). High wind events during the spring and summer months could lead to crop damages as well.

The potential impacts of a severe hail storm in Adams County include crop damage, downed power lines, downed or damaged trees, broken windows, roof damage, and vehicle damage. Hail storms can, in extreme cases, cause death by exposure. The most common direct impact from ice storms to people is traffic accidents. The highest potential damage from hail storms in Adams County is the economic loss from crop damage. Even small hail can cause significant damage to young and tender plants and fruit. Trees can also be severely damaged by hail.

So far, tornadoes have not had any serious impacts on Adams County residents. Minor damages may occur as a result of the high winds associated with a tornado.

The impacts of drought are diverse and often ripple through the economy. Thus, impacts are often referred to as either direct or indirect. A loss of yield resulting from drought is a direct or first-order impact of drought. However, the consequences of that impact (for example, loss of income, farm foreclosures, and government relief programs) are secondary or even tertiary impacts. The impacts of drought in Adams County can be classified into one of three principal types: economic, environmental, and social. Economic impacts range from; direct losses in the broad agricultural and agriculturally related sectors (including forestry and fishing), to losses in recreation, transportation, banking, and energy sectors. Other economic impacts would include added unemployment and loss of revenue to local, state, and federal government. Environmental losses include damages to plant and animal species, wildlife habitat, and air and water quality; forest and range fires; degradation of landscape quality; and soil erosion. These losses are difficult

to quantify, but growing public awareness and concern for environmental quality has forced public officials to focus greater attention on them. Social impacts mainly involve public safety, health, conflicts between water users, and inequities in the distribution of impacts and disaster relief programs. As with all natural hazards, the economic impacts of drought are highly variable within and between economic sectors and geographic regions, producing a complex assortment of winners and losers with the occurrence of each disaster.

Value of Resources at Risk

It is difficult to estimate the cost of potential winter storm damages to structures and the economy in Adams County. Damage to roofs by heavy snow accumulations depends on the moisture content of the snow and the structural characteristics of the buildings. In general, snow in this region tends to have low moisture content because of the low temperatures and arid environment. Additionally, due to the lack of significant topographic features, the wind tends to blow much of the snow accumulation away. Snow plowing in Adams County occurs from a variety of departments and agencies. The state highways are maintained by the State of Idaho. Plowing of county roads is done by the local highway districts and the road departments of the individual cities. Adams County has developed a pre-determined list of critical routes in order to prioritize the plowing of arterials and other main access routes. Private landowners are responsible for maintaining their own driveways or other private roads.

Utility supplies are impacted during severe winter storms as power is lost on a regional basis. This has a two-fold impact on Adams County residents as not only is power cut to homes and businesses, but primary heating is lost for many residents. Gas furnaces and wood stoves supplement electrical heating, but with wood heating the senior population is at a disadvantage. Frozen water pipes are the most common damage to residential and business structures. Older homes tend to be at a higher risk to frozen water pipes than newer ones. More rural parts of the County are sometimes better prepared to deal with power outages for a few days due to the frequent occurrence of such events; however, prolonged failure, especially during cold winter temperatures can have disastrous effects. All communities should be prepared to deal with power failures. Community shelters equipped with alternative power sources will help local residents stay warm and prepare food. A community-based system for monitoring and assisting elderly or disabled residents should also be developed. All households should maintain survival kits that include warm blankets, flashlights, extra batteries, nonperishable food items, and clean drinking water.

Emergency response to severe winter storms includes site visits by police or fire department personnel, opening of shelters, or assistance with shopping, medical attention, and communications. The economic losses caused by severe winter storms may frequently be greater than structural damages. Employees may not be able to travel to work for several days and businesses may not open. Damages are seen in the form of structural repair and loss of economic activity. Adams County schools are occasionally closed during and right after a severe winter storm because of cold temperatures and snow covered roads.

Thunderstorms do occur within Idaho affecting all counties, but usually are localized events. Their impacts are fairly limited and do not significantly affect the communities enough to declare a disaster. The loss potential from flooding caused by severe thunderstorms can be significant in Adams County.

Although the financial impacts of hail can be substantial and extended, accurately quantifying these impacts is problematic. Hail typically causes direct losses to structures and other personal property as well as to the extensive agricultural development in Adams County. Potential losses to agriculture can be disastrous. They can also be very localized; thus, individual farmers can have significant losses, but the event may not drastically affect the economy of the County. Furthermore, crop damage from hail will also be different depending on the time of year and the type of crop. Most farmers carry insurance on their crops to help mitigate the potential financial loss resulting from a localized hail storm. Federal and state aid is available for County's with declared hail disasters resulting in significant loss to local farmers as well as the regional economy. Homeowners in Adams County rarely incur severe damage to structures (roofs); however, hail damage to vehicles is not uncommon. The damage to vehicles is difficult to estimate because the number of vehicles impacted by a specific ice storm is unknown. Additionally, most hail damage records are kept by various insurance agencies.

It is difficult to estimate potential losses in Adams County due to windstorms and tornadoes. Construction throughout the County has been implemented in the presence of high wind events, and therefore, the community has a higher level of preparedness to high wind events than many other areas experiencing lower average wind speeds.

We have estimated losses based on wind and tornado damage as follows:

- 3% of the buildings damaged causing 50% of value loss (loss could be from downed or damaged trees, damaged outbuildings, damaged fences/poles, damage to siding, damaged landscaping etc.)
- 5% of the buildings received damage to roof (requiring replacement of roof equaling \$3,000)

Damages associated with sensitive receptor irritation have not been estimated. We have also not estimated the potential for a large scale wildfire event associated with high winds. Based on the data provided by the County, there are 2,713 parcels with improvements in unincorporated Adams County with a total value of approximately \$255,676,467. Using the criteria outlined above an estimate of the impact of high winds on the County has been made. The potential wind and tornado damage to all buildings is estimated at approximately \$3,769,640. The estimated damage to roofs is approximately \$406,950.

Recent drought periods in Adams County have caused only minor damages and crop losses. There were no threats to any critical facilities. Thus, a minor to moderate drought has a low probability of affecting the County's economy directly due to the availability of irrigation waters. An extreme and prolonged drought could result in limited availability of irrigation water; thus causing severe crop losses countywide. In the event of an extended drought cycle, water shortages may lead to crop failures, or at the least, the necessity to plant lower value crops that are less water-dependent. The majority of the population is employed either directly by the agriculture industry or to a service industry dependent on agriculture. Crop losses resulting from extended droughts would likely be considered a disaster for Adams County. Domestic and municipal water shortages are also likely to occur during an extended drought. Efforts to conserve water resources, including public education on conservation techniques, are encouraged by Adams County during the summer months.

Wildland Fire Profile

The Adams County Community Wildland-Urban Interface Wildfire Mitigation Plan⁵⁸ provides a comprehensive analysis of the wildland fire risks and recommended protection and mitigation measures for all jurisdictions in Adams County. The information in the “Wildland Fire” sections of this Adams County Annex is excerpted from that more detailed document.

The majority of homes and structures within and surrounding Adams County communities are along a spectrum from low to moderate to high risk of loss to wildland fire. Individual characteristics of each community and structure dictate the risk factors. The prevalence of tree and shrub fuels pose a moderate to high threat to homes surrounded by these fuels as fire typically spreads quickly through the grasses and burns at relatively high intensities in the brush and forest fuels, especially where declining forest health is a factor. Many homes are at low risk as a result of the management of fuels in the area immediately surrounding the structures and access routes. There are a number of individual homes that have a much higher risk to wildland fire loss largely due to the use of highly ignitable materials in home construction or the lack of defensible space surrounding the home. Home defensibility practices can dramatically increase the probability of home survivability. The amount of fuel modification necessary will depend on the specific attributes of the site. Considering the high spread rates possible in these fuel types, homes need to be protected prior to fire ignitions as there is little time to defend a home in advance of an active fire.

Rangeland Communities

The communities of Council, Indian Valley, Mesa, and Goodrich lie in the vegetative ecosystem known as the “sagebrush steppe” communities. The Sagebrush Steppe Ecosystem is widespread over much of southern Idaho, eastern Oregon and Washington, and portions of northern Nevada, California and Utah. The southern Idaho portion of this ecosystem occurs over a variety of landforms and vegetation types. Native vegetative communities range from vast expanses of grasslands to old-growth sagebrush communities.

The steppe is characterized by a persistently warm and arid environment that limits non-cultivated vegetative communities to grass and brush rangelands. Xeric vegetation and hot, dry and windy conditions has resulted in a rich fire history, with relatively frequent fires. The last decade has seen the proliferation of Cheatgrass (*Bromus tectorum L.*), an exotic grass species that is able to out-compete native bunchgrasses. Cheatgrass responds well to soil disturbance and is found in abundance along roadsides, driveways, new construction areas, and in recently burned areas. Over time, vegetative species composition in unmanaged or non-irrigated land has shifted toward fire prone species, particularly in high use areas where disturbance is common.

Agricultural and irrigation practices surrounding some communities within the Weiser River Valley have created a patchwork of green, lush vegetation and cured rangeland. This patchwork helps to break the

⁵⁸ Schlosser, W.E. and T.R. Brown. *Lead Authors*. 2004. Adams County, Idaho, Wildland Urban Interface Wildfire Mitigation Plan. Northwest Management, Inc., Moscow, Idaho. January 26, 2004. Pp. 124.

continuity of fuels that are available to burn. This pattern is particularly apparent around Council, and Indian Valley. However, dry fuels become continuous above the irrigated zone providing a consistent fuel bed for fire spread. There is little break in the continuity of fuels surrounding the community of Goodrich. The majority of land outside of towns and communities is dominated by xeric vegetation with few breaks in continuity. Under dry and windy conditions, fires in these vegetative types can burn thousands of acres in a single burning period.

Fuels throughout the entire steppe community in Adams County are quite consistent, dominated by grasslands and sage. Fires in these fuel types tend to be spread rapidly, but burn at relatively low intensity. Where grasses become less consistent, wind is needed to push fires through the bunchgrass. Typically, fires in sage-dominated fuel types require a moderate wind to push fire through the fuels. Without wind, the fire will drop to the ground and in the absence of fine fuels, fire spread will stop.

Fire behavior and fire regimes have been altered due to the proliferation of cheatgrass. The fine fuel structure and its ability to completely dominate disturbed sites provide a dry, consistent fuel bed for fire. Where this invasive has encroached in sagebrush stands, it now provides a consistent bed of fine fuels that actively carry fire without the influence of wind. Because of these characteristics, cheatgrass will support fire during months of the year and under conditions that native vegetation would not have sustained.

Cheatgrass can reduce the fire recurrence interval in sagebrush grasslands dramatically; 20 to 100 years for a natural cycle and to 3 to 5 years on cheatgrass-dominated sites. Continued natural and human-caused disturbances will favor cheatgrass; shifting species composition away from native species toward this highly flammable exotic. Consequently, the landscape will become increasingly fire prone over time. Fuels in more populated areas will continue to become increasingly receptive to ignition sources; thus, increasing the frequency of wildland fires.

Forestland Communities

Vegetative structure and composition within the northern half of Adams County is closely related to elevation, aspect, and precipitation. Warm and dry environments characterize the undulating topography of the region which transitions from the sagebrush steppe plant communities of the south to the forested ecosystems of the north. New Meadows, Tamarack, Pinehurst, Cuprum, and Bear are some of the communities that fall into this type.

At higher elevations and in the mountainous river canyons, moisture becomes less limiting due to a combination of higher precipitation and reduced solar radiation. Vegetative patterns begin to show a shift toward forested communities dominated by ponderosa pine and Douglas-fir at the lower elevations, transitioning to lodgepole pine and subalpine species at the highest elevations. The forested conditions possess a greater quantity of both live and dead and down fuels. Rates of fire spread tend to be lower than those in the grass and shrub lands; however, intensities can escalate dramatically, especially under the influence of slope and wind. These conditions, as well as reduced access and difficult terrain features, can lead to control problems and potentially threaten lives, structures, and other valued resources.

Between the shrub and grass communities and the forested lands is a transitional area that has components of both types of vegetative communities. These warm and dry forests are typically open

stands of pine with grass and often sagebrush in the understory. These attributes allow for rapid fire spread through the surface fuels. This type of forest is highly valued for its scenic qualities as well as for its proximity to travel corridors in Adams County. This has led to increased recreational and residential home construction in these areas. The juxtaposition of highly flammable forest types and residential areas will affect the management and response to wildland fires.

Local Event History

Detailed records of wildfire ignitions and extents from the US Forest Service (USFS) and Bureau of Land Management (BLM) have been analyzed. In interpreting these data, it is important to keep in mind that the information represents only the lands protected by the agency specified and may not include all fires in areas covered only by local fire departments or other agencies.

The US Forest Service and BLM database of wildfire ignitions used in this analysis includes ignition and extent data from 1980 through 2010 within their jurisdictions. During this period, the agencies recorded an average of 35 wildfire ignitions per year resulting in an average total burn area of nearly 3,600 acres per year. According to this dataset, the vast majority of fires occurring in Adams County are human caused and result in the majority of acres burned.

The highest number of ignitions was witnessed in 1989 with 113 separate ignitions. However, the greatest number of acres burned in a single year occurred in 2007 when nearly 29,000 were scorched.

Table 5.5. Recent Major Fires in Adams County

Name	Acres	Year
Goodrich	10,000	1986
Eagle Bar	10,000	1988
Curren Mountain	8,000	1989
Windy Ridge	17,000	1992
Goodrich	3,000	2000
Northstar Butte	2,500	2005

When analyzed by decade from 1980-2009, this shows that the total number of ignitions has not changed significantly (~35 ignitions per decade); however, there is fluctuations in the total number of acres burned each decade from 4,438 acres burned in the 1980s to 2,400 in the 1990s and 4,020 acres burned in the 2000s. Nevertheless, it should be noted that the Forest Service data prior to 1986 is likely underreported.

Table 5.6. Summary of USFS and BLM databases 1980-2010.

General Cause	Number of Ignitions	Percent of Total Ignitions	Acres Burned	Percent of Total Acres
Human-Caused	959	93%	81,558	78%
Natural Ignition	60	6%	22,691	22%
Total	1,028	99%	104,250	100%

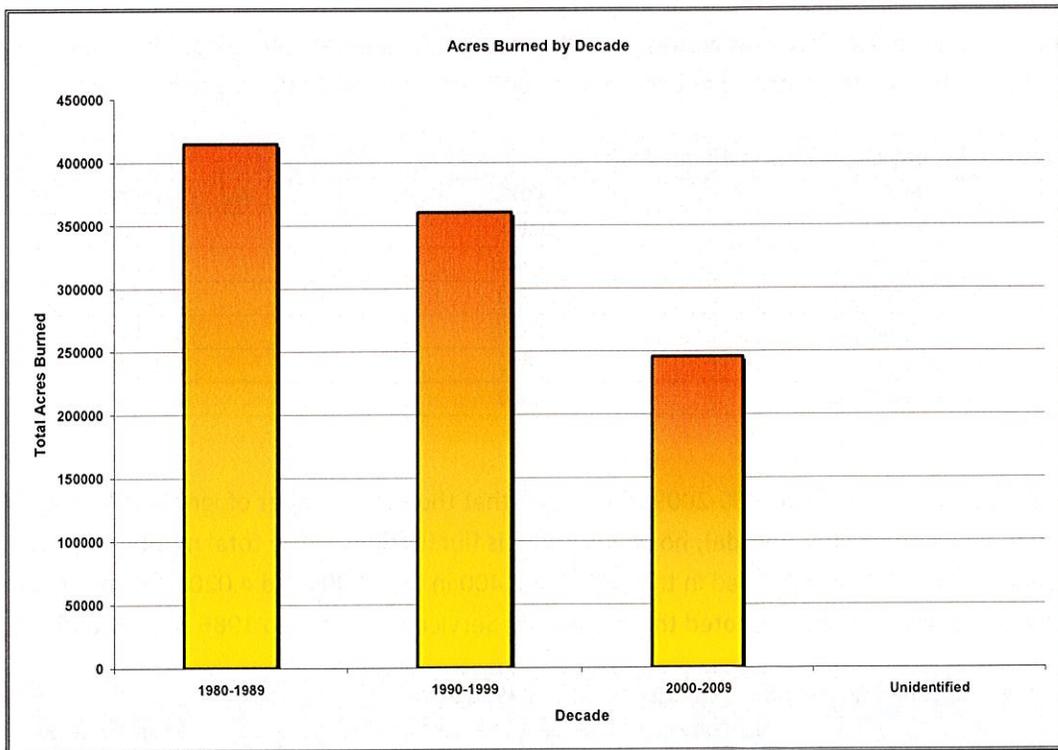
The data reviewed above provides a general picture regarding the level of wildland-urban interface fire risk within Adams County. The 1% that is unaccounted for in the number of ignitions could be a result of unknown ignition sources. There are several reasons why the fire risk may be even higher than suggested above, especially in developing wildland-urban interface areas.

1) Large fires may occur infrequently, but statistically they will occur. One large fire could significantly change the statistics. In other words, 30 years of historical data may be too short to capture large, infrequent wildland fire events.

2) The level of fire hazard depends profoundly on weather patterns. A several year drought period would substantially increase the probability of large wildland fires in Adams County. For smaller vegetation areas, with grass, brush and small trees, a much shorter drought period of a few months or less would substantially increase the fire hazard.

3) The level of fire hazard in wildland-urban interface areas is likely significantly higher than for wildland areas as a whole due to the greater risk to life and property. The probability of fires starting in interface areas is much higher than in wildland areas because of the higher population density and increased activities. Many fires in the wildland urban interface are not recorded in agency datasets because the local fire department responded and successfully suppressed the ignition without mutual aid assistance from the federal agencies.

Figure 5.8. Summary of Acres Burned by Decade 1980-2009.



Probability of Future Occurrence

Fire was once an integral function within the majority of ecosystems in Idaho. The seasonal cycling of fire across the landscape was as regular as the July, August and September lightning storms plying across the Weiser River Plain and in the mountains in northern Adams County. Depending on the plant community composition, structural configuration, and buildup of plant biomass, fire resulted from ignitions with varying intensities and extent across the landscape. Shorter return intervals between fire events often

resulted in less dramatic changes in plant composition.⁵⁹ The fires burned from 1 to 47 years apart, with most at 5- to 20-year intervals.⁶⁰ With infrequent return intervals, plant communities tended to burn more severely and be replaced by vegetation different in composition, structure, and age.⁶¹ Native plant communities in this region developed under the influence of fire, and adaptations to fire are evident at the species, community, and ecosystem levels. Fire history data (from fire scars and charcoal deposits) suggest fire has played an important role in shaping the vegetation throughout Adams County.

Ideally, historical fire data would be used to estimate the annual probability for fires in Adams County. However, current data are not adequate to make credible calculations because the data for local, state, and federal responsibility areas are not reported by the same criteria. Nevertheless, the data reviewed above provide a general picture of the level of wildland-urban interface fire risk for Adams County overall. Based on the historical information available, Adams County has a very high probability of wildland fires occurring on an annual basis. Based on the historical data provided by the U.S. Forest Service and BLM, a fire over 5,000 acres to 10,000 acres should be expected every five years.

Ignition potential is also high throughout the County. Recreational areas, major roadways, debris burning, and agricultural equipment are typically the most likely human ignition sources. Lightning is also a common source of wildfires in Adams County.

Impacts of Wildland Fire Events

Wildland fires, big and small, are dangerous to both Adams County residents and emergency response personnel. Wildland fire suppression activities have a very high frequency of injuries, such as heat exhaustion and smoke inhalation, and have caused numerous deaths nationwide. Fire events in Adams County typically result in a multi-department and agency response effort; thus, coordinating activities and ensuring everyone's safety is paramount.

Local residents with property in the path of wildland fire will likely suffer the greatest impacts through loss of structures and/or the value of any timber or agricultural crops on their land. Many fires require an evacuation of nearby residences in order to ensure the safety of citizens. Evacuation procedures require the coordination of law enforcement and fire service organizations and may involve temporary sheltering in extreme cases.

Adams County, like most areas, has sensitive populations, such as elderly residents and children, who may be affected by air quality during a wildland fire. Smoke and particulates can severely degrade air quality,

⁵⁹ Johnson, C.G. 1998. *Vegetation Response after Wildfires in National Forests of Northeastern Oregon*. 128 pp.

⁶⁰ Barrett, J.W. 1979. *Silviculture of ponderosa pine in the Pacific Northwest: the state of our knowledge*. USDA Forest Service, General Technical Report PNW-97. Pacific Northwest Forest and Range Experiment Station, Portland, OR. 106 p.

⁶¹ Johnson, C.G.; Clausnitzer, R.R.; Mehringer, P.J.; Oliver, C.D. 1994. *Biotic and Abiotic Processes of Eastside Ecosystems: the Effects of Management on Plant and Community Ecology, and on Stand and Landscape Vegetation Dynamics*. Gen. Tech. Report PNW-GTR-322. USDA-Forest Service. PNW Research Station. Portland, Oregon. 722pp.

triggering health problems. In areas heavily impacted by smoke, people with breathing problems might need additional services from doctors or emergency rooms.

Commerce in Adams County and the rest of the region may also be interrupted by wildland fires. Transportation corridors will likely be temporarily closed or slowed due to a fire burning in the area. Heavy smoke from a wildfire several miles away could be dense enough to make travel unsafe on roadways.

The environmental impacts from a fire are dependent on the vegetation present and the intensity of the fire. Most of the rangeland and forest ecosystems present in Adams County are adapted to periodic fire events and are actually benefitted by occasional, low intensity burns. On the other hand, overcrowded forest conditions or over mature stands of sage brush will likely burn much more intensely than occurred historically. These types of fires tend to result in a high rate of mortality in the vegetation and often adversely impact soil conditions. High intensity fires are also much more dangerous and difficult to suppress.

Adams County is actively pursuing funds to help with wildland fire mitigation projects and public education programs. While mitigation efforts will significantly improve the probability of a structure's survivability, no amount of mitigation will guarantee survival.

Value of Resources at Risk

It is difficult to estimate potential losses in Adams County due to wildland fire due to the unpredictability of wildfire behavior and the nature of ignition sources. It is impossible to forecast the path a wildfire will take and what type of assets and resources, manmade and ecological, will be at risk. Thus, no value estimates were made for this hazard.

Typically, structures located in forested areas without an adequate defensible space or fire resistant landscaping have the highest risk of loss. Nevertheless, homes and other structures and infrastructure located in the grasslands or agricultural regions are not without wildfire risk. Grass fires are often the most dangerous due to high rates of spread. Fires in this fuel type are considered somewhat easier to suppress given the appropriate resources, but they can also be the most destructive

Extended Power Outage Profile

Electrical power has become an indispensable part of modern day life. Adams County's leisure, healthcare, government, economy, and livelihood depend on a constant supply of electrical power. Even a temporary stoppage of power can lead to relative chaos, monetary setbacks, and possible loss of life. The residents within Adams County require electricity to live on, and without a steady supply from the power grid, pandemonium could break loose.

Severe weather events, particularly high winds and ice, are the most common cause of power outages. These types of outages are generally short-term (2-12 hours) and do not have a significant impact on residents. However, depending on the time of day, even short term outages can result in considerable lost revenues for local businesses. A long term outage during the colder months in one or all of the unincorporated communities of the county could cause severe damages. The full time residents in these areas are typically self-sufficient, but a long term outage would likely cause pipes to freeze, may inhibit

their ability to heat homes and cook, and may affect water pumping abilities. These communities have very limited sheltering capacity and access to larger generators. In the summer months, an extended outage can cause food spoilage on an individual level (refrigerators and freezers) as well as in grocery and other stores.

Outages also impact the power supplier, Idaho Power, due to lost revenues from use as well as response and repair costs. Short term outages can also affect emergency response as communication capabilities are slowed and hospitals are running on backup power supplies. A long term outage in Adams County would have drastic economic impacts.

Adams County has experienced a long history of power outages. The diverse landscape, rural settings, and weather patterns within Adams County are the triggers for much of the power outages that occur. Rain-on-snow events, periods of extreme wind, and ice accumulations are very typical throughout the county in the spring and late winter. The combination of these types of events can cause significant power outages.

Wildland fires also have the potential to cause extended power outages. During a fire, power companies typically de-energize sections of the power grid in order to prevent arcing from the smoke as well as to protect firefighters. The length of the outage and the damage caused to the power line would be dependent on the location and intensity of the fire. This type of outage could significantly impact communities and rural residents. Without access to a generator, well pumps become inoperable thereby reducing the water availability and severely limiting firefighting capabilities.

Probability of Future Occurrence

The probability of short term power outages will continue to occur relatively frequently in Adams County, particularly in the remote communities. The probability of long term outages of three days or more is very low. Idaho Power's response to incidents causing outages is typically immediate; thus, only a severe, widespread event would likely cause this type of hazard.

Impacts of Extended Power Outage Events

Power outages can be especially disastrous when it comes to life-support systems in places like hospitals and nursing homes. Traffic issues could also become a concern due to the loss of stoplights and other electrically powered traffic control indicators.

Power failures are particularly critical at sites where the environment and public safety are at risk. Institutions such as hospitals, sewage treatment plants, schools, etc., should have backup power sources, such as standby generators, which will automatically start up when electrical power is lost. Other critical systems, such as telecommunications and emergency response should also have access to emergency power. Federal and State grants are in some instances made available to communities in need of support dollars for enhancing their backup power systems. An exploration of these grants should be made a priority by Adams County to ensure their functionality in the event of a long-term power failure.

Extended power outages also affect the County's and most communities' ability to provide government and other services such as trash pickup, street lights, municipal water, law enforcement, and fire and medical services.

Most communities in Adams County can provide potable water for 1-3 days without electricity to run pumps. However, a backup power source would eventually be required to replenish storage tanks. Many communities do not have a standby generator to power sewer treatment facilities, which could lead to effluent being backed up and potential contamination of the water supply.

Despite advances in computer technology, power outages are a major cause of personal computer and server downtime. An extended outage (defined as an outage lasting longer than the computers uninterruptible power supply) can prevent unprotected computers from initiating their required shutdown procedure. Computer and server operating systems are not designed to support abrupt losses of power known as "hard" shutdowns, but rather rely on a set of processes that prepare a computer for a shut down such as saving memory, stopping applications, etc. Hard shutdowns can result in lost or corrupted data and a lengthier time-to-recovery after power returns. Computer and data systems such as medical records, assessor's data, and client information may be damaged or lost during an extended outage. Corruption of data and files could have a long term effect on many local organizations and businesses.

Life safety would also be at risk, particularly if the outage occurred during the winter months when many residents are relying on electricity for heating and cooking. Special needs populations would have the greatest risk during extended power outages due to reduced abilities to adapt to the situation; their dependence on life support systems, medication, or oxygen; and difficulties with transportation. Generally, power companies maintain a list of customers who may be more negatively affected or would require immediate assistance in the event of an outage. This type of information should also be shared with Adams County Emergency Management and local emergency responders in order to ensure these populations receive adequate support.

Sections of power line could be lost during a wildland fire in Adams County. This would cost the power companies millions to replace depending on the scale of the loss as well as have a dire impact on communities. This type of power outage would likely take weeks of repair and replacement work to become fully functional again.

Value of Resources at Risk

There is no reliable estimates regarding the total costs and losses that power outages create within Adams County, but these events are costly. Power outages disrupt emergency functions and commerce, as well as personal lives. Some of these impacts can be quantitatively measured (e.g., lost business) while others, such as disruption of families, is impossible to quantify.

Crop Damage Profile

One of the banes of farming and ranching is the frequent risk of crop losses due to adverse weather conditions or pests. In Adams County, severe weather events such as hail, high winds, heavy rain, and drought; pests; and disease are all significant sources of crop failures.

Wheat, barley, cereal grains, hay, and bean crops are often treated with chemical pesticides to help control insect damage. However, these types of crops are highly susceptible to weather-related damages at certain times of the year. Heavy rain, hail, and the high winds common in Adams County can result in at least

partial damages. Drought is a major concern for all crop producers; however, in the Weiser River valley, the risk of damages due to drought is limited by extensive irrigation systems.

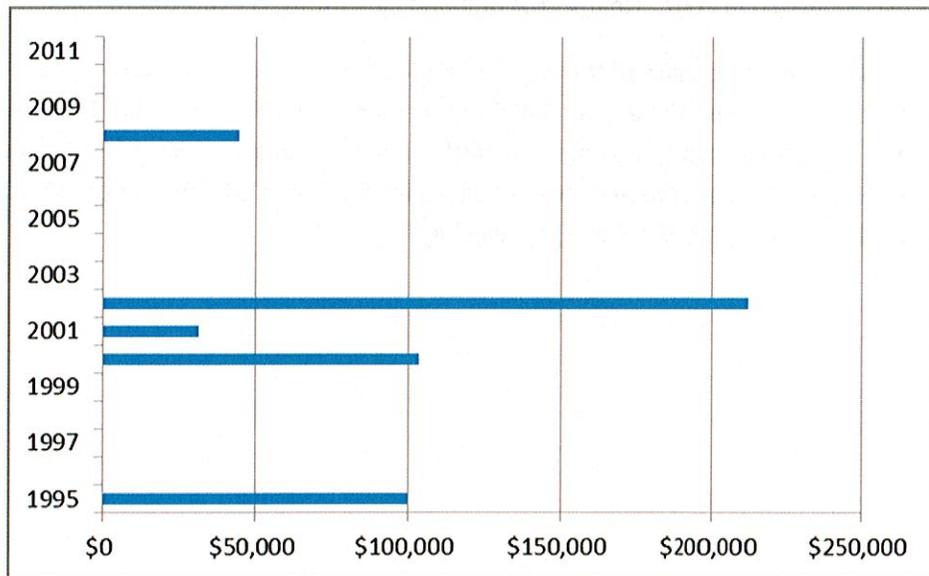
The most significant risk of massive livestock losses is from disease. This risk is elevated in feed lots or corrals where animals are confined in close proximity. Most diseases are species-specific, but can be devastating to a herd or geographic area.

Timber is harvested in Adams County, it is a significant element of the County's economic profile. The most significant risks to forest lands in Adams County are wildland fire and pests such as bark beetles, moths, and budworm. These risks can be mitigated by maintaining healthy and productive forests that are resilient to these types of hazards.

Local Event History

The 2012 Farm Subsidy Database reported nearly \$500,000 in disaster payments in Adams County from 1995-2011. Adams County ranks 40th in the state for total disaster money received during this time period.⁶²

Figure 5.9. Disaster Payments in Adams County from 1995-2010.



Adams County received \$3.06 million in subsidies from 1995 to 2011. This included \$449,000 in commodity subsidies, \$316.00 in crop insurance subsidies, \$2.11 million in conservation subsidies, and \$499,000 million in disaster subsidies.

Probability of Future Occurrence

The probability of Adams County experiencing some mass crop failure on an annual basis is low due to the availability of irrigation and the use of pest control products. However, the magnitude this type of event would have on the local economy is extremely high.

⁶² Environmental Working Group. 2012 Farm Subsidy Database. Available online at <http://farm.ewg.org/>.

The probability of individual crop failures or failure of individual fields due to pests, hail, or other types of hazard events is high. These types of events are not likely to affect the entire county or all types of crops; thus, they are not likely to have a significant impact on the local or regional economy.

Impacts of Crop Damage

The primary impact of crop damages or failure due to any cause is economic hardship. This can be limited to an individual producer, a community, or a large geographic area. Most crops are insured; thus, the impact to individuals or small communities is at least partially mitigated by subsidies and disaster assistance programs. The long term effect of repeated crop failures may be a shift in crops grown in a region, which might result in a need for changes to the local supporting services and infrastructure.

A side effect of crop failures is an increase in the cost of the end products to consumers. This impact is not restricted to local crop failures. For example, failed citrus crops in Florida can increase the price of oranges in the entire United States.

Value of Resources at Risk

Based on agricultural data collected by the State of Idaho, the market value of farm products sold by Adams County farmers was \$984,000 in 2007. Nearly 20% of Idaho agriculture is exported to foreign markets.

Beef cattle represent a significant share of the county's agricultural economy. 2010 and 2011 were similar in numbers of all cattle and calves, 12,500 and 5,800 of the beef cows calved in 2011. From the 2007 highlights, 41 Cattle operations sold 11,007 head of cattle, including calves, totaling \$8,021,000 in sales which averages \$729 a head. The numbers have increased from 2007 to 2011 by almost 1500 head; the projection for 2012 is 12,600 beef cows with 6,100 calving.⁶³

⁶³ University of Idaho Extension. Adams County Cooperative Service. Council, Idaho

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City of Council Annex

Flood Profile

The Weiser River lies just west of the City of Council, running north to south. This river drains approximately 390 square miles of various watersheds. Council is located on a western aspect gradually sloping downhill toward the Weiser River. The vegetation is a mix of forestland and rangeland ecosystems, along with irrigated agricultural fields.

Floods in the area are the result of rain-on-snow events. Rain-on-snow events that affect Council occur when significant snow pack exists within the hydrologic watershed surrounding Council. The boundaries of the watersheds are fairly large, draining the nearby agricultural fields and forested watersheds. Warm rains falling on the snow pack result in a significantly increased rate of snowmelt. Often this melting occurs while the ground is frozen and the water cannot be absorbed into the soil, resulting in increased overland flows. Flood waters recede slowly as rain-on-snow weather events tend to last for several days.

Thunderstorms are localized summer events that can also have an impact on the flooding potential of Council. Although thunderstorms don't pose a significant impact of the community of Council, awareness of the potential risks of thunderstorms is very valuable. Flooding can occur rapidly, overwhelming the water carry capacity of channels in a short time. The duration of subsequent flooding tends to be a matter of hours.

The major impacts from all types of flooding in Council are the restricted use of roadways and bridges. The main bridge that crosses the Weiser River could restrict water flow, consequently backing the flow of water onto the adjacent area. A small levee has been built near this bridge by a private landowner, trying to reduce the risk of flooding the nearby agricultural field and western corner of town.

Several streets and road shoulders could erode under flood conditions within Council. Some streets are not paved, which results in gravel washing down-slope potentially clogging sewer and storm drains. Sewer and storm drains could quickly fill, consequently back-up these lines which restrict the flow of water.

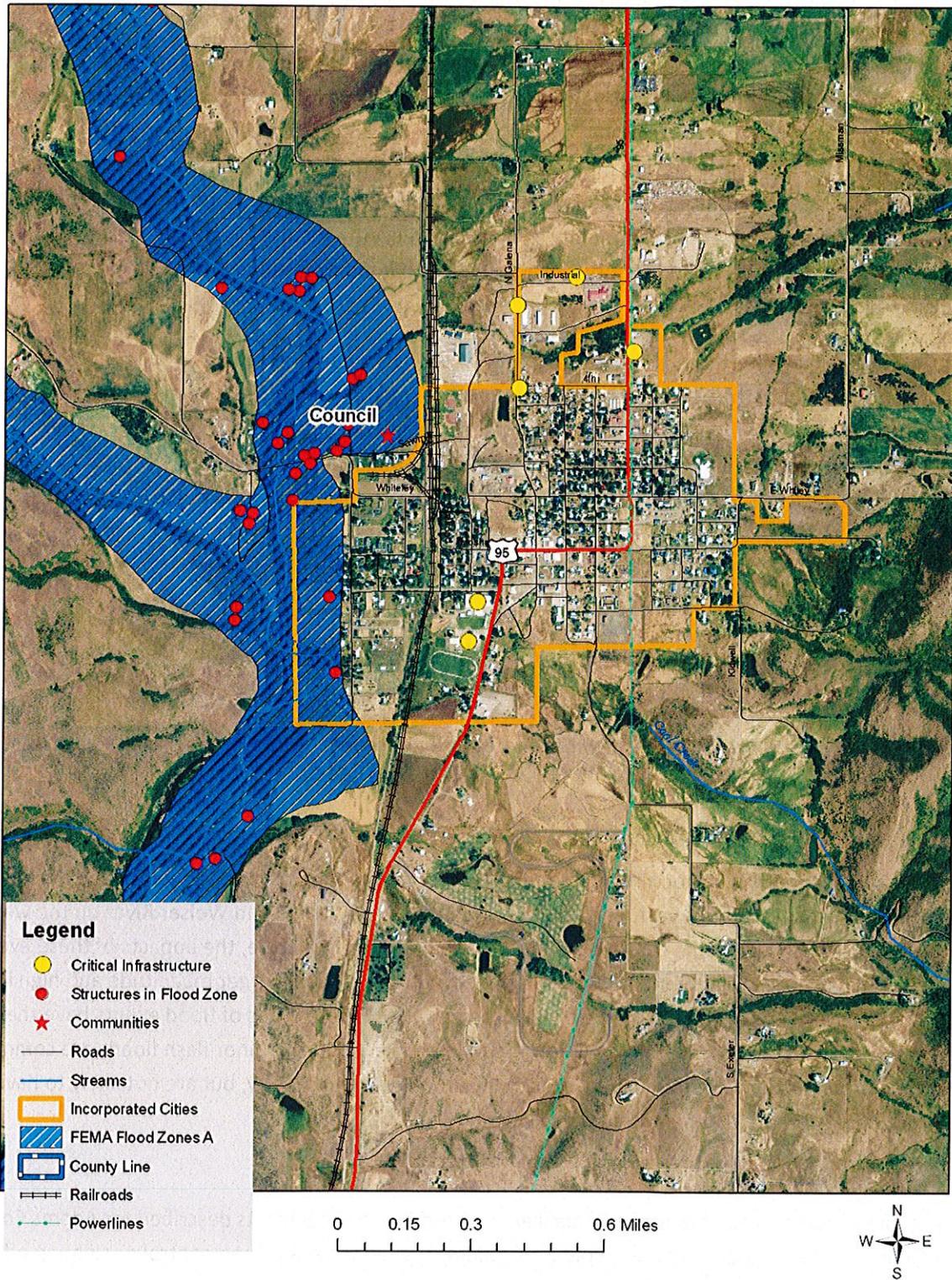
Several structures and businesses still operate near the flood plain, but have not been significantly influenced. The homes located on the west side of Hornet Creek Road lie on the edge of the flood plain and were very close to be influenced by the floods in 1997. Some minor damage occurred to out-buildings and some private personal items.

The Weiser River and its tributaries drain several hundred square miles. Floods in these watersheds are the result of rapid spring runoff or rain-on-snow events. Warm rains falling on the snow pack result in a significantly increased rate of snowmelt. Often, the melting occurs when the ground is frozen and the water cannot be absorbed fast enough, resulting in increased overland flows. Flood waters recede slowly as these weather events tend to last for several days.

Thunderstorms can also affect the community. These events are usually localized, but still can have a significant impact. Storms resulting in intense rain fall often occur rapidly and overwhelm the carrying capacity of the nearby streams. The duration of these storms usually lasts only a matter of hours, but the affects can be spread throughout the impact areas of the town site.

List areas within the city that are of critical concern.

Figure 5.12. FEMA Flood Insurance Rate Map for Council.



The primary access routes into Council are State Highway 95. Highway 95 is the main route connecting north and south Idaho. This highway is well traveled by not only area commuters, but also intra and inter-state travelers. Most of Highway 95 through Adams County is adjacent to moderate to steep sloped forestland and rangeland, and agricultural fields. This highway also dips in and out of several steeper draws that cross major creeks within the county.

There are several other good access routes that extend from the community in all directions. Some are two-lane paved roads, while others are typically one lane gravel roads; however, they are wide and stable enough to support some large truck travel. All of these potential access routes dip in and out of small drainages and cross small streams that may prove impassable in major flood events. There is enough elevational relief around Council to provide place for people to go until flood waters recede. There would be no need to evacuate the entire community during a flood event. Historically, there has been little damage to roadways in the immediate Council vicinity due to flooding (although road closures due to flooding are not uncommon).

During major flood events, there is also a high risk of water backing up the sewer system. Inflow exceeding the pumping capacity of the headworks could lead to a backup that would cause flooding into basements and adjacent properties as well as standing water near transmission lines. The overall impact and damages caused by a sewer backup may be greater than the initial flood event.

Local Event History

Heavy rains and spring runoff have caused several flood events in Council. The most recent major flood events were recorded in 1997, and 2010.

January 1, 1997 Flooding - Heavy rain and snow over four days caused 100 year flooding in southwest Idaho. Streets and basements in Council were flooded with water.

Breached Dams – Heavy rain and/or snow have caused several dams (Rock Flat and Fish Lake) to breach due to excessive amounts of water.

Probability of Future Occurrence

The probability of flood events occurring in Council is moderate to high. Low magnitude flood events can be expected several times each year, particularly within the Hornet Creek and Weiser River on the west end of the city. However, due to the flat topography and drainage infrastructure, the impacts of these events are slight and will usually amount to minor and temporary traffic issues. Larger magnitude and high impact flood events have occurred, but are not likely in any given year. These types of flood events have the highest probability of occurrence in the winter or early spring in Council. Minor flash floods are common on the numerous small tributaries feeding Weiser River near the community, but are not likely to have a significant impact on the channel within the city center.

Impacts of Flood Events

The potential impacts from flooding in Council are very similar to the impacts described for Adams County as a whole. First responders and other volunteers aiding with emergency flood control or cleanup efforts are potentially at risk of injury due to accidents or possibly exposure to contaminated water. Although

unlikely, the city's water supply could be affected by contaminated flood waters entering the groundwater supply.

The major impacts from flooding in Council are the restricted use of several streets, commercial, railroad spurs, and residential areas due to overburden of existing drainage facilities. There are numerous bridge and culvert crossings over Weiser River and its tributaries throughout its extent within the City and the surrounding area.

The availability of food and other supplies is not likely to be impacted or interrupted by a flood event. Furthermore, the delivery of community services such as postal services, health care, law enforcement, and emergency response is also not likely to be impacted by flood events in Council. While individual homes and businesses may incur damages as a result of a flood, the economy of the community will not be impacted by this type of hazard.

Environmental damages resulting from a flood event are also unlikely. Weiser River occupies a relatively wide floodplain through the community. Scouring and erosion along the banks of the stream is possible, but due to grass and other vegetation, these impacts will most likely be minimal and localized. Contamination of the riparian area by floodwaters containing chemicals or other pollutants is a possibility, but is more likely to be realized in the surrounding areas than within the community due to the hydrologic profile of the floodplain.

The impacts of a sewer backup caused by flooding would be more widespread than the property and infrastructure damages caused by this type of event. The combined flow of stormwater and sanitary sewer would create a significant public health concern. Not only could potable water sources be contaminated, but standing water often attracts insects. Additionally, there could be environmental concerns including wildlife habitat damage and long term soil impacts in flooded areas due to contaminants in the floodwaters.

Value of Resources at Risk

There are 2 homes within the city limits of Council that are in the flood zone. Approximately 27 homes are in the flood zone just outside of the city limits. Using the average improvement value (in the flood zone) for Council of \$34,840, makes the potential loss for Council around \$69,680. The average improvement value (in the flood zone) for unincorporated areas of Adams County is \$100,454, making the potential loss for the 27 homes outside of Council city limits roughly \$2,712,258.

There are no Critical infrastructures located within the identified floodplain for.

Earthquake Profile

There are no recorded occurrences of earthquakes significantly impacting the city of Council; however, some minimal shaking has been felt as a result of larger earthquakes elsewhere. Council does not have any differing issues or levels of risk associated with this hazard than Adams County as a whole.

Probability of Future Occurrence

The City has 10% chance of exceeding a 7-10% pga in the next 50 years.⁶⁴

Impacts of Earthquake Events

Unreinforced masonry (URM) structures and unreinforced chimneys of homes will likely be damaged in the event of an earthquake. There are several publicly accessible unreinforced masonry structures in Council in addition to the numerous homes and other buildings throughout the City with unreinforced chimneys. Damaged or collapsed chimneys could result in the secondary hazard of fire. Nonstructural damage caused by falling and swinging objects may be considerable after any magnitude earthquake. Damage to some older, more fragile bridges and land failure causing minor slides along roadways may isolate some residents.

Value of Resources at Risk

In Council, there are approximately 12 un-reinforced masonry buildings within the city limits of Council. These structures were built prior to the inclusion of articles for seismic stability in the Uniform Building Codes in 1972. The number and value of unreinforced masonry homes or homes with masonry chimneys in Council is unknown, but estimated to include at least 300 buildings.

Intensely used un-reinforced masonry buildings may have to undergo seismic retrofitting to help decrease their risk of experiencing costly structural damage as well as their potential to cause injury or death to occupants or nearby pedestrians. Seismic retrofit of historic buildings is achieved through the reinforcement of structural elements. Such reinforcement may have included anchored ties, reinforced mortar joints, braced frames, bond beams, movement-resisting frames, shear walls, and horizontal diaphragms. Although retrofitting at risk buildings decreases the potential hazard they pose during an earthquake, it is not an easy fix, and damage or injury could still occur.

Landslide Profile

The city of Council has very little risk to landslides due to the flat topography of the surrounding area and the built environment. Small slumps make occur along some roadways or irrigation canals, but these are not likely to cause significant damage to the community.

Probability of Future Occurrence

The city of Council has a very low probability of experiencing damaging landslides. The few slopes in and around the community are generally less than 10%. While small, low angle slumps may occur on eyebrows of the surrounding rolling hills, these will be infrequent and likely the result of water saturation or a major disturbance such as an earthquake or road construction.

⁶⁴ USGS. 2008 United States National Seismic Hazard Maps. U.S. Geological Survey. U.S. Department of Interior. Available online at <http://earthquake.usgs.gov/hazards/products/conterminous/2008/>. October 2009.

Impacts of Landslide Events

Council may be indirectly affected by landslides that adversely affect a variety of resources such as water supplies, fisheries, sewage disposal systems, forests, dams, and roadways upstream of the community. Water availability, quantity, and quality can be affected by landslides and could have a very significant economic impact on Council. The loss or redistribution of water would affect agricultural crops grown in certain areas, ranching activities, and personal and municipal wells.

Value of Resources at Risk

There are no structures or infrastructure directly at risk from landslides within the city of Council. The cost of cleanup and repairs of roadways is difficult to estimate due to the variable circumstances with each incident including size of the slide, proximity to a State or County shop, and whether the slide occurred on the cut slope or the fill slope. Other factors that could affect the cost of the damage may include culverts, streams, and removal of debris. This type of information is impossible to anticipate; thus, no repair costs for damaged roadways have been estimated.

Severe Weather

The city of Council does not have any differing levels of risk associated with this hazard than Adams County as a whole.

Probability of Future Occurrence

The probability of a severe weather event occurring in Council on an annual basis is very high.

Impacts of Severe Weather Events

The impacts of severe weather events to the community are usually minimal and are the same as those described for Adams County as a whole.

Value of Resources at Risk

It is difficult to estimate the cost of potential winter storm damages to structures and the economy in Council. Damage to roofs by heavy snow accumulations depends on the moisture content of the snow and the structural characteristics of the buildings. In general, snow in this region tends to have low moisture content because of the low temperatures and arid environment. Additionally, snow rarely accumulates for long periods of time due to regular wind events. Frozen water pipes are the most common damage to residential and business structures. Older homes tend to be at a higher risk to frozen water pipes than newer ones. Snow plowing in within the city limits is accomplished by the city's public works department. Private landowners are responsible for maintaining their own driveways or other private roads. Utility supplies are impacted during severe winter storms as power is lost on a regional basis. This has a two-fold impact on residents as not only is power cut to homes and businesses, but primary heating is lost for many residents. Gas furnaces and wood stoves supplement electrical heating, but with wood heating the senior population is at a disadvantage. Emergency response to severe winter storms includes site visits by police or fire department personnel, opening of shelters, or assistance with shopping, medical attention, and communications. The economic losses caused by severe winter storms may frequently be greater than structural damages. Employees may not be able to travel to work for several days and businesses may not

open. Damages are seen in the form of structural repair and loss of economic activity. Adams County schools are occasionally closed during and right after a severe winter storm because of cold temperatures and snow covered roads.

Thunderstorms are not likely to be severe enough in Council to cause significant damages. However, the loss potential from flooding that result from severe thunderstorms could be significant.

Although the financial impacts of hail can be substantial and extended, accurately quantifying these impacts is problematic. Hail typically causes direct losses to structures and other personal property within Council. The most significant losses are most clearly seen in the agriculture sectors of the economy. Potential losses to agriculture can be disastrous. Crop damage from hail will also be different depending on the time of year and the type of crop. Most farmers carry insurance on their crops to help mitigate the potential financial loss resulting from a localized hail storm. Homeowners in Council rarely incur severe damage to structures (roofs); however, hail damage to vehicles is not uncommon. The damage to vehicles is difficult to estimate because the number of vehicles impacted by a specific ice storm is unknown. Additionally, most hail damage records are kept by various insurance agencies.

It is difficult to estimate potential losses in Council due to windstorms and tornadoes. Construction throughout the County has been implemented in the presence of high wind events, and therefore, the community is at a higher level of preparedness to high wind events than many other areas experiencing lower average wind speeds.

We have estimated losses based on wind and tornado damage as follows:

- 3% of the buildings damaged causing 50% of value loss (loss could be from downed or damaged trees, damaged outbuildings, damaged fences/poles, damage to siding, damaged landscaping etc.)
- 5% of the buildings received damage to roof (requiring replacement of roof equaling \$3,000)

Damages associated with sensitive receptor irritation have not been estimated. We have also not estimated the potential for a large scale wildfire event associated with high winds. Based on the data provided by the County, there are 405 parcels with improvements in Council with a total value of approximately \$17,643,627. Using the criteria outlined above an estimate of the impact of high winds in Council has been made. The potential wind and tornado damage to all buildings is estimated at approximately \$261,390. The estimated damage to roofs is approximately \$60,750.

Power failure often accompanies severe storms. Prolonged failure, especially during cold winter temperatures can have disastrous effects. All communities should be prepared to deal with power failures. Community shelters equipped with alternative power sources will help local residents stay warm and prepare food. A community-based system for monitoring and assisting elderly or disabled residents should also be developed. All households should maintain survival kits that include warm blankets, flashlights, extra batteries, nonperishable food items, and clean drinking water.

Wildland Fire Profile

Council is the largest community in Adams County with over 800 residents. The primary access is via Highway 95 from the south or north.

Fuels Assessment

Many of the residents in the area of Council are concentrated near the city; however, larger landowners are scattered across the Weiser River valley, particularly to the north and south along U.S. Highway 95. Much of the area has been developed for agricultural purposes; primarily hay, and pastureland. The Weiser River, flowing west of town, continues its path towards Cambridge to the south. A smaller drainage, Hornet Creek, enters the valley from the west, but only fields adjacent to these waterways have established irrigation. This type of land use significantly reduces the risk of wildfire by controlling the herbaceous vegetation.

The community of Council is located in the Weiser River valley along U.S. Highway 95. The regions north and south of town are fairly flat. There are several hay fields, but much of the area is vegetated by pasture, low-growing grasses, and patches of sagebrush. A steep, west-facing slope rises from town to the east. The lower slopes are dominated by grasses, sagebrush, and various other shrub species, but as the elevation increases, clumps of timber become more frequent in the draws. Several homes have been established on the lower slope of this range and more are currently being built. Two ranges shape the topography west and southwest of town. The smaller ridge runs north and south along the Weiser River tapering down as it nears the community. It is a dry, east aspect dominated by heavy sagebrush and grasses. The mountains on the western boundary are part of the Cuddy Mountain Range on the Payette National Forest. This area is vegetated by ponderosa pine and Douglas-fir with intermixed grasses, sagebrush, and other shrubs. Portions of this region have been managed for the timber resource or developed for recreational purposes. There are several homes along the Hornet Creek Road, which travels over the range to the communities of Cuprum and Bear. The fire risk in the Cuddy Mountain Range is primarily moderate to high increasing further west as the amount of timber and other fuels accumulate. Fuel model 2 is most common within 3 miles of the community, but fuel model 1 also occurs. These fuel types tend to support lower intensity surface fires. The greatest risk for rapid rate of fire spread is associated with the hot, dry slopes, especially in the mountains to the west.

Escape

The primary access into the area is from U.S. Highway 95, a paved two-lane highway that extends to the north and south (the primary state-wide link between north and south Idaho). The Hornet Creek Road could also serve as an escape route; however, it is more likely that a wildfire would occur along this corridor than to the east of the community. There are several additional escape routes using roads leading away from the community to the north and south. Most of these roads are located in areas with little risk due to the agricultural land use. Some signing of these roads as alternate escape routes would help visitors in the area.

Infrastructure

Infrastructure is at no greater risk in Council than seen elsewhere in Adams County.

Community Risk Assessment

The overall risk of casualty loss to Council is relatively low. However, the number and value of resources at risk may continue to increase as more and more homes are built in the wildland urban interface.

Larger towns such as Council often see the most significant threats from wildfire along the perimeter of the community. The majority of homes along the periphery of Council have adequate defensible space with some exceptions. The majority of homes have also been built using fire-resistant materials, which further reduces the threat of home loss.

The Council City Fire Department and Rural Fire District provide fire protection for the community. **How many stations does the department maintain?**

As is typical in the dry uplands throughout Adams County, water availability is limited in areas outside of Council. **Water source issues?**

The greatest ignition potential in the vicinity of Council is associated with the roads and travel corridors. Also adding to the potential are other human ignition sources such as fireworks, debris burning, target shooting, and welding.

Potential Mitigation Activities

In addition to the mitigation activities previously presented, officials should consider establishment of additional dry hydrants or expanding the existing hydrant system. Water storage in this area is comparatively limited during the peak of the wildfire season and would be greatly improved by storage tanks located strategically around the outskirts of the community. In this way, water could be supplied to the lines as needed during fire emergencies without full time maintenance of all the water lines.

Additionally, building codes should be expanded to include fire-resistant building materials and water supplies in the high risk areas.

Probability of Future Occurrence

The probability of a wildland fire threatening Council on an annual basis is moderate. Homes and other structures located in the grasslands or agricultural fields within or surrounding the community have a high wildfire risk. Rangeland or grass fires are often the most dangerous due to high rates of spread. Fires in this fuel type are considered somewhat easier to suppress given the appropriate resources, but they can also be the most destructive. Homes along the perimeter of the community would have the highest risk due to their adjacency to flashy fuels.

Impacts of Wildland Fire Events

The potential impacts from a wildfire in Council are very similar to the impacts described for Adams County as a whole. All fires pose a significant safety risk to residents and emergency service personnel. Individual structures, property, and livelihoods could be severely damaged or lost as a result of a fire; however, the community is not likely to suffer severe or long-term economic losses.

A fire in the grasslands surrounding the community may benefit the ecological environment as nutrients are recycled into the soil. Generally, grass and forbs are rejuvenated by a low intensity fire and grow back quickly; however, heavy rains immediately after a fire could cause erosion.

Smoke from a nearby wildland fire may impact sensitive populations within the community due to degraded air quality conditions. Smoke and/or flames will also impact transportation corridors connecting Council to other communities; thus, travel and commerce may be interrupted.

Value of Resources at Risk

It is difficult to estimate potential losses in Council from wildland fire due to the unpredictability of wildfire behavior and the nature of ignition sources. It is unlikely that more than a few structures or other properties within the city limits of Council would be lost or damaged by a wildland fire; however, residents in the immediate vicinity may be directly impacted. It is impossible to forecast the path a wildfire will take and what type of assets and resources, manmade and ecological, will be at risk. Thus, no value estimates were made for this hazard.

Extended Power Outage Profile

The city of Council does not have any differing levels of risk associated with this hazard than Adams County as a whole.

Extended power outages will affect Council's ability to provide government and other services such as trash pickup, street lights, municipal water, law enforcement, and fire and medical services. Council can provide potable water for 1-3 days without electricity to run pumps. The city has access to a portable generator to replenish storage tanks, power sewer treatment facilities, and provide other basic and emergency services.

Probability of Future Occurrence

The probability of short term power outages continuing to occur relatively frequently in Council is very high. The probability of long term outages of three days or more is very low. Idaho Power's response to incidents causing outages is typically immediate; thus, only a severe, widespread event would likely cause this type of hazard.

Impacts of Extended Power Outage Events

Power outages can be especially disastrous when it comes to life-support systems in places like hospitals and nursing homes. Traffic issues could also become a concern due to the loss of stoplights and other electrically powered traffic control indicators.

Power failures are particularly critical at sites where the environment and public safety are at risk. Institutions such as hospitals, sewage treatment plants, schools, etc., should have backup power sources, such as standby generators, which will automatically start up when electrical power is lost. Other critical systems, such as telecommunications and emergency response should also have access to emergency power. Federal and State grants are in some instances made available to communities in need of support dollars for enhancing their backup power systems. An exploration of these grants should be made a priority by Adams County to ensure their functionality in the event of a long-term power failure.

Despite advances in computer technology, power outages are a major cause of personal computer and server downtime. An extended outage (defined as an outage lasting longer than the computers uninterruptible power supply) can prevent unprotected computers from initiating their required shutdown procedure. Computer and server operating systems are not designed to support abrupt losses of power known as “hard” shutdowns, but rather rely on a set of processes that prepare a computer for a shut down such as saving memory, stopping applications, etc. Hard shutdowns can result in lost or corrupted data and a lengthier time-to-recovery after power returns. Computer and data systems such as medical records and client information may be damaged or lost during an extended outage. Corruption of data and files could have a long term effect on many local organizations and businesses.

Life safety would also be at risk, particularly if the outage occurred during the winter months when many residents are relying on electricity for heating and cooking. Special needs populations would have the greatest risk during extended power outages due to reduced abilities to adapt to the situation; their dependence on life support systems, medication, or oxygen; and difficulties with transportation. Generally, power companies maintain a list of customers who may be more negatively affected or would require immediate assistance in the event of an outage. This type of information should also be shared with Adams County Emergency Management and local emergency responders in order to ensure these populations receive adequate support.

Value of Resources at Risk

There are no reliable estimates regarding the total costs and losses that power outages create within Council, but these events are costly. Power outages disrupt emergency functions and commerce, as well as personal lives. Some of these impacts can be quantitatively measured (e.g., lost business) while others, such as disruption of families, is impossible to quantify.

Crop Damage Profile

The city of Council does not have any differing levels of risk associated with this hazard than Adams County as a whole.

Probability of Future Occurrence

The probability of Council being impacted by crop damages or failures is moderate.

Impacts of Crop Failure Events

Many of the local agricultural producers either live, work, or spend money in Council; thus, a poor crop in any given year may have some effect on the economic stability of the community.

Value of Resources at Risk

There are very few crops grown or livestock within the city limits of Council; thus, there is little value of resources at risk.

City of New Meadows Annex

Flood Profile

New Meadows is located at the intersections of Highway 95 and 55. Little Salmon River and several tributaries are the main source of flooding in New Meadows. This river runs along the western portion of New Meadows and drain agricultural fields as well as several forested watersheds surrounding New Meadows. There are several homes and a few businesses located within the flood plain in town. State Highway 95 and 55 are the main method of transportations through town. Other secondary roads do exist that bi-pass the town in case a flood does occur.

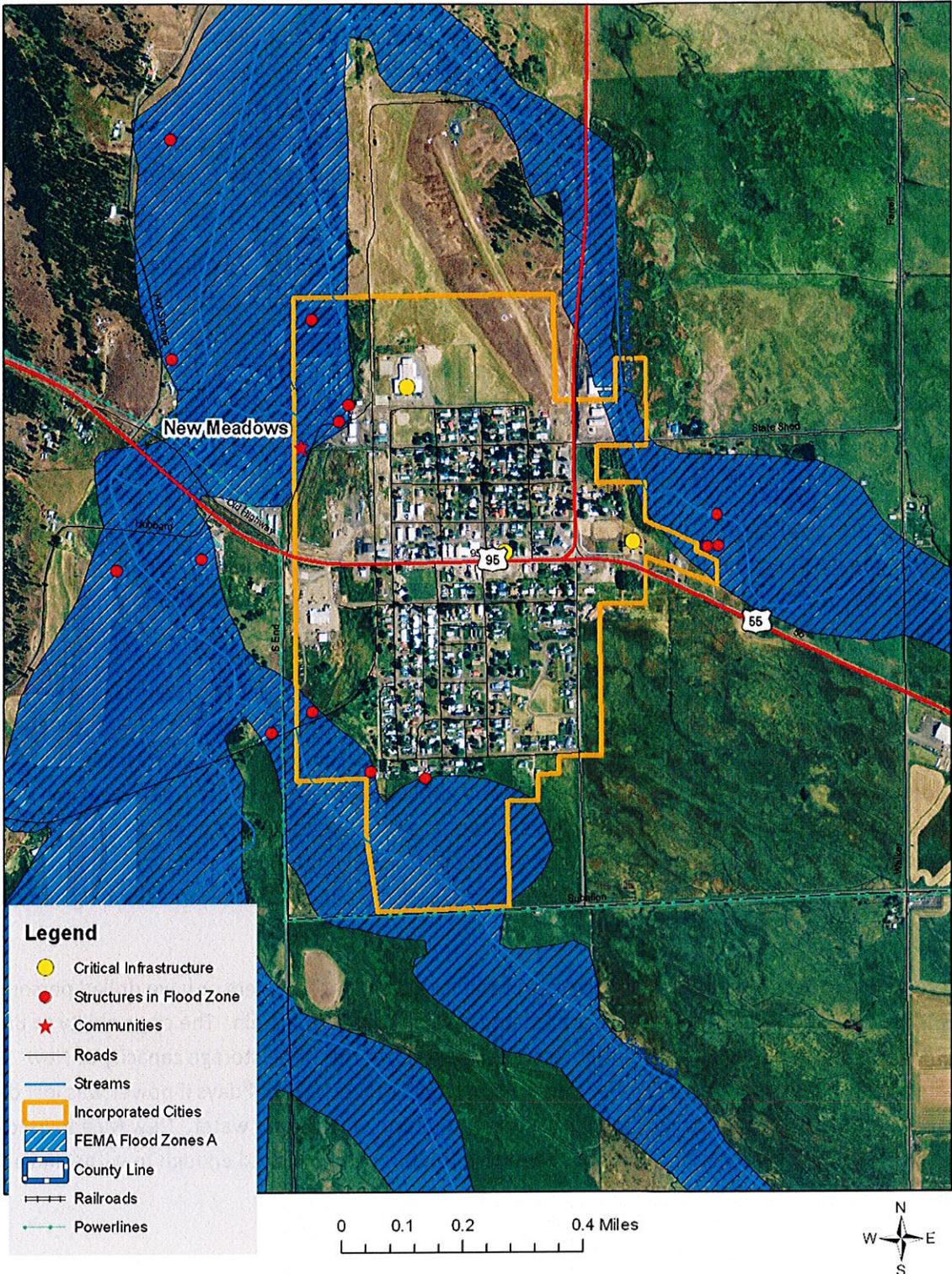
Floods in the area are the result of spring runoff, rain-on-snow events, and to a lesser extent localized thunderstorms. Rain-on-snow events that affect New Meadows occur when significant snow pack exists within the hydrologic watershed surrounding New Meadows. The boundaries of the watersheds are fairly large, draining the nearby agricultural fields, and forested watersheds. Warm rains falling on the snow pack result in a significantly increased rate of snowmelt. Often this melting occurs while the ground is frozen and the water cannot be absorbed into the soil resulting in increased overland flows. Floodwaters recede slowly as rain-on-snow weather events tend to last for several days.

Thunderstorms can also affect the community. These events are usually localized, but still can have a significant impact. Storms resulting in intense rain fall often occur rapidly and overwhelm the carrying capacity of the nearby streams. The duration of these storms usually lasts only a matter of hours, but the affects can be spread throughout the impact areas of the town site.

The primary access into New Meadows is U.S. Highway 95 and 55. This roadway is well-traveled not only by area commuters, but also by log trucks, chip trucks, and recreation. Most of U.S. 95 and 55 through Adams County is adjacent moderate to steep forested watersheds. Hwy 95 has been compromised in New Meadows by past by flood events, closing the highway until flood waters subside. There are many higher elevation areas within the city of New Meadows to escape a flood, so the entire community would not have to be evacuated in case of a flood. The most severe risk associated with New Meadows is the travel in and out of town. Several roads exist, but all roads could be greatly influenced by the same flooding body of water.

Most residents in New Meadows are connected to the municipal water system or have drilled personal wells. City wells and water storage tanks are located outside of the floodplain. The city's ability to provide clean drinking water during flood events should not be compromised. The storage capacity of New Meadows' water tanks are 250,000 gallons, so this could last the town 3 to 4 days if power was lost due to a flood. Alternative power to feed the town's wells is in the form of irrigation water. New Meadows' city sewer treatment plant is located within the floodplain, but has been elevated enough to withstand a flood event.

Figure 5.13. FEMA Flood Insurance Rate Map for New Meadows.



Local Event History

January 1, 1997 Flooding - Heavy rain and snow over four days caused flooding in southwest Idaho. Streets and basements in Council were flooded with water.

June, 2010 Flooding – Flash flooding.

March, 2012 Flooding – Heavy rain on snow event. Roads and businesses were flooded.

Probability of Future Occurrence

The probability of flood events in New Meadows is high. Flood impacts are mainly limited to disruption of road travel and limited localized flooding of structures, equipment, and businesses. Low magnitude flood events can be expected several times each year. However, due to the flat topography and drainage infrastructure, the impacts of these events are slight and will usually amount to minor and temporary traffic issues. Larger magnitude and high impact flood events have occurred, but are not likely in any given year. These types of flood events have the highest probability of occurrence in the winter or early spring in New Meadows as a result of rain-on-snow events or rapid runoff.

Impacts of Flood Events

The potential impacts from flooding in New Meadows are very similar to the impacts described for Adams County as a whole. First responders and other volunteers aiding with emergency flood control or cleanup efforts are potentially at risk of injury due to accidents or possibly exposure to contaminated water.

The major impacts from flooding in New Meadows are the restricted use of several streets, commercial, and residential areas. There are numerous bridge and culvert crossings within the City and the surrounding area.

The availability of food and other supplies is not likely to be impacted or interrupted by a flood event. Furthermore, the delivery of community services such as postal services, health care, law enforcement, and emergency response is also not likely to be impacted by flood events in New Meadows except under extreme (100 year plus floods) circumstances. While individual homes and businesses may incur damages as a result of a flood, the economy of the community will not be impacted by this type of hazard.

Environmental damages resulting from a flood event are also unlikely. Scouring and erosion along the banks of creeks in the New Meadows area is possible, but due to grass and other vegetation on the stream banks, these impacts will most likely be minimal and localized. Contamination of the riparian area by floodwaters containing chemicals or other pollutants is also a possibility.

Value of Resources at Risk

The water treatment facility could become compromised if the dike were to be breached. There is a logging business located at the west end of town that has numerous types of fuel and chemicals that could be released into nearby water sources if the property were to become flooded.

Earthquake Profile

There are no recorded occurrences of earthquakes significantly impacting the city of New Meadows; however, some minimal shaking has been felt as a result of larger earthquakes elsewhere. New Meadows does not have any differing issues or levels of risk associated with this hazard than Adams County as a whole.

Probability of Future Occurrence

The City has a 10% chance of exceeding a 7-10% pga in the next 50 years.⁶⁵

Impacts of Earthquake Events

Unreinforced masonry (URM) structures and unreinforced chimneys of homes will likely be damaged in the event of an earthquake. There are several publicly accessible unreinforced masonry structures in New Meadows in addition to the numerous homes and other buildings throughout the City with unreinforced chimneys. Damaged or collapsed chimneys could result in the secondary hazard of fire. Nonstructural damage caused by falling and swinging objects may be considerable after any magnitude earthquake. Damage to some older, more fragile bridges and land failure causing minor slides along roadways may isolate some residents.

Value of Resources at Risk

In New Meadows, there are approximately 4 un-reinforced masonry buildings within the city limits of New Meadows. These structures were built prior to the inclusion of articles for seismic stability in the Uniform Building Codes in 1972. The number and value of unreinforced masonry homes or homes with masonry chimneys in New Meadows is unknown, but estimated to include at least 50 buildings.

Several schools and other intensely used un-reinforced masonry buildings have undergone seismic retrofitting to help decrease their risk of experiencing costly structural damage as well as their potential to cause injury or death to occupants or nearby pedestrians. Seismic retrofit of historic buildings is achieved through the reinforcement of structural elements. Such reinforcement may have included anchored ties, reinforced mortar joints, braced frames, bond beams, moment-resisting frames, shear walls, and horizontal diaphragms. Although retrofitting at risk buildings decreases the potential hazard they pose during an earthquake, it is not an easy fix, and damage or injury could still occur.

Landslide Profile

The city of New Meadows has very little risk to landslides due to the flat topography of the surrounding area and the built environment. Small slumps make occur along some roadways, but these are not likely to cause significant damage to the community.

⁶⁵ USGS. 2008 United States National Seismic Hazard Maps. U.S. Geological Survey. U.S. Department of Interior. Available online at <http://earthquake.usgs.gov/hazards/products/conterminous/2008/>. October 2009.

Probability of Future Occurrence

The city of New Meadows has a very low probability of experiencing damaging landslides. The few slopes in and around the community are generally less than 10%. While small, low angle slumps may occur on eyebrows of the surrounding rolling hills, these will be infrequent and likely the result of water saturation or a major disturbance such as an earthquake or road construction.

Impacts of Landslide Events

New Meadows may be indirectly affected by landslides that adversely affect a variety of resources such as water supplies, fisheries, sewage disposal systems, forests, dams, and roadways upstream of the community. Water availability, quantity, and quality can be affected by landslides and could have a very significant economic impact on New Meadows. The loss or redistribution of water would affect agricultural crops grown in certain areas, ranching activities, and personal and municipal wells.

Value of Resources at Risk

There are no structures or infrastructure directly at risk from landslides within the city of New Meadows. The cost of cleanup and repairs of roadways is difficult to estimate due to the variable circumstances with each incident including size of the slide, proximity to a State or County shop, and whether the slide occurred on the cut slope or the fill slope. Other factors that could affect the cost of the damage may include culverts, streams, and removal of debris. This type of information is impossible to anticipate; thus, no repair costs for damaged roadways have been estimated.

Severe Weather

The city of New Meadows does not have any differing levels of risk associated with this hazard than Adams County as a whole.

Probability of Future Occurrence

The probability of a severe weather event occurring in New Meadows on an annual basis is very high.

Impacts of Severe Weather Events

The impacts of severe weather events to the community are usually minimal and are the same as those described for Adams County as a whole.

Value of Resources at Risk

It is difficult to estimate the cost of potential winter storm damages to structures and the economy in New Meadows. Damage to roofs by heavy snow accumulations depends on the moisture content of the snow and the structural characteristics of the buildings. In general, snow in this region tends to have low moisture content because of the low temperatures and arid environment. Frozen water pipes are the most common damage to residential and business structures. Older homes tend to be at a higher risk to frozen water pipes than newer ones. Snow plowing in within the city limits is accomplished by the city's public works department. Private landowners are responsible for maintaining their own driveways or other private roads. Utility supplies are impacted during severe winter storms as power is lost on a regional basis. This has a two-fold impact on residents as not only is power cut to homes and businesses, but primary

heating is lost for many residents. Gas furnaces and wood stoves supplement electrical heating, but with wood heating the senior population is at a disadvantage. Emergency response to severe winter storms includes site visits by police or fire department personnel, opening of shelters, or assistance with shopping, medical attention, and communications. The economic losses caused by severe winter storms may frequently be greater than structural damages. Employees may not be able to travel to work for several days and businesses may not open. Damages are seen in the form of structural repair and loss of economic activity. Adams County schools are occasionally closed during and right after a severe winter storm because of cold temperatures and snow covered roads.

Thunderstorms are not likely to be severe enough in New Meadows to cause significant damages. However, the loss potential from flooding that results from severe thunderstorms could be significant.

Although the financial impacts of hail can be substantial and extended, accurately quantifying these impacts is problematic. Hail typically causes direct losses to structures and other personal property within New Meadows. The most significant losses are most clearly seen in the agriculture sectors of the economy. Potential losses to agriculture can be disastrous. Crop damage from hail will also be different depending on the time of year and the type of crop. Most farmers carry insurance on their crops to help mitigate the potential financial loss resulting from a localized hail storm. Homeowners in New Meadows rarely incur severe damage to structures (roofs); however, hail damage to vehicles is not uncommon. The damage to vehicles is difficult to estimate because the number of vehicles impacted by a specific ice storm is unknown. Additionally, most hail damage records are kept by various insurance agencies.

It is difficult to estimate potential losses in New Meadows due to windstorms and tornadoes. Construction throughout the County has been implemented in the presence of high wind events, and therefore, the community is at a higher level of preparedness to high wind events than many other areas experiencing lower average wind speeds.

We have estimated losses based on wind and tornado damage as follows:

- 3% of the buildings damaged causing 50% of value loss (loss could be from downed or damaged trees, damaged outbuildings, damaged fences/poles, damage to siding, damaged landscaping etc.)
- 5% of the buildings received damage to roof (requiring replacement of roof equaling \$3,000)

Damages associated with sensitive receptor irritation have not been estimated. We have also not estimated the potential for a large scale wildfire event associated with high winds. Based on the data provided by the County, there are 244 parcels with improvements in New Meadows with a total value of approximately \$13,640,627. Using the criteria outlined above an estimate of the impact of high winds in New Meadows has been made. The potential wind and tornado damage to all buildings is estimated at approximately \$223,616. The estimated damage to roofs is approximately \$36,000.

Power failure often accompanies severe storms. Prolonged failure, especially during cold winter temperatures can have disastrous effects. All communities should be prepared to deal with power failures. Community shelters equipped with alternative power sources will help local residents stay warm and prepare food. A community-based system for monitoring and assisting elderly or disabled residents should

also be developed. All households should maintain survival kits that include warm blankets, flashlights, extra batteries, nonperishable food items, and clean drinking water.

Wildland Fire Profile

Moisture is more available in this area, supporting a warm mesic forest type in which ponderosa pine and Douglas-fir are the major tree species. Farm fields and grazing land are common, especially at the bottom of the valley. Many homes are located in the forests, near these fields. Stand structure and canopy closure is highly dependent on fire frequency and severity. Historically, forest vegetation was relatively open with widely spaced trees and a few young trees in the understory. Fire exclusion has resulted in denser stand conditions.⁶⁶ These forest types are highly valued for their scenic and recreation values. Because of their valley bottom location and ease of access, these forests have been a favored area for urban development.⁶⁷

Fuels Assessment

Forest fuel models 1, 2 and 9 characterize these forested areas. Understory vegetation includes dry grasses, mountain maple, spirea, ninebark, pinegrass, and scattered clumps of sage. Historically, wildland fire events would burn through the dead and cured herbaceous layer or surface needle litter. Concentrations of dead stemwood and other clumps of fuel may generate higher intensities that may lead to the production of fire brands and lead to individual and group tree torching, and in some severe weather instances, crown fires.⁶⁸ In much of this forest type, fire exclusion and other disruptions of the natural fire cycle have led to the development of dense understories of Douglas-fir or grand fir and the accumulation of dead and downed woody material. These changes increase the probability for the development of crown fires by increasing the intensity by which these fires typically burn, and by providing a fuel ladder to the canopy.

Infrastructure

There are no major infrastructure in New Meadows that are at a greater risk than what is present in Adams County.

Escape

Highway 95 travels north and south through New Meadows. Highway 55 travels east towards McCall. Highway 95 to the north is surrounded by hay fields and pasture that should remain safe for travel in the event of a wildfire. Highway 95 to the south and highway 55 to the east both travel through moderate terrain surrounded by forests. These access routes have significant risk of being cut-off by wildfire.

⁶⁶USDA. 1999. Salmon River Canyon Project Draft Environmental Statement. USDA Forest Service. Nez Perce National Forest.

⁶⁷ Scott, H.S. 1998. Fuel reduction in residential and scenic forests: a comparison of three treatments in western Montana ponderosa pine stand. Res. Pap. RMRS-RP-5. Ogden, UT. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 19 p.

⁶⁸ Anderson, H. 1982. Aids to Determining Fuel Models for Estimating Fire Behavior. USDA Forest Service, Intermountain Forest and Range Experiment Station. INT-GTR-122. 22 pp.

Community Assessment

New Meadows is located in a large flat meadow tucked up against the forest in places. The city has a volunteer Fire Department. There are no major issues in New Meadows apart from what Adams County faces in general for wildfire.

Potential Mitigation Activities

Vegetation in this area should be managed to increase the effectiveness of fire suppression equipment in the event of a wildland fire. Plantings near homes should use low flammability vegetation and be well spaced. Green grass, trimmed periodically should be maintained. Other possible management actions include:

- Remove weak, dying, and sick trees, thin standing trees to create crown openings spaced to approximately 20% of live tree height (e.g., a 60 foot tree would be spaced to 12 feet between crowns, a 100 foot tree to 20 feet between crowns).
- Prune trees to a minimum of 17 feet of all branches (or up to 50% of live crown whichever is less).
- Prune smaller trees to at least 6 feet above the ground or half the crown height.
- Remove ladder fuels that may carry fire into the crowns of larger, overstory trees.
- Dispose of all excess vegetative material by chipping or hand-piling and burning when conditions are favorable.

Access roads in these areas require additional treatments to insure a viable escape route for residents while simultaneously providing for access by emergency vehicles. The majority of the homes in the wildland-urban interface (situated within the range and forest lands) have multiple entrances and exits from their homes and businesses. The vegetation surrounding these access points however, should be trimmed and disposed of in such a way to allow easy access to and from homes. Site specific treatments should be developed for each home.

In addition, some of the housing developments in this area have access roads that cannot support water trucks used by fire fighters (rural and wildland). Some roads have steep adverse grades, while others have turning radiuses that would be difficult for large trucks to navigate. Some roads have both limitations. The vast majority of the bridges observed in the area would support water laden trucks. We recommend signing roads in developments to allow emergency vehicles to plot a route over navigable roads while responding to an emergency. Improved address markers at driveways would improve accurate emergency vehicle response during emergencies.

Probability of Future Occurrence

The probability of a wildland fire threatening New Meadows on an annual basis is moderate. Homes and other structures located in the scablands or agricultural fields within or surrounding the community have a high wildfire risk. Rangeland or grass fires are often the most dangerous due to high rates of spread. Fires in this fuel type are considered somewhat easier to suppress given the appropriate resources, but they can

also be the most destructive. Homes along the perimeter of the community would have the highest risk due to their adjacency to flashy fuels.

Impacts of Wildland Fire Events

The potential impacts from a wildfire in New Meadows are similar to the impacts described for Adams County as a whole. All fires pose a significant safety risk to residents and emergency service personnel. Individual structures, property, and livelihoods could be severely damaged or lost as a result of a fire; however, the community is not likely to suffer severe or long-term economic losses.

A fire in the grasslands surrounding the community may benefit the ecological environment as nutrients are recycled into the soil. Generally, grass and forbs are rejuvenated by a low intensity fire and grow back quickly; however, heavy rains immediately after a fire could cause erosion.

Smoke from a nearby wildland fire may impact sensitive populations within the community due to degraded air quality conditions. Smoke and/or flames will also impact transportation corridors connecting New Meadows to other communities; thus, travel and commerce may be interrupted.

Value of Resources at Risk

It is difficult to estimate potential losses in New Meadows from wildland fire due to the unpredictability of wildfire behavior and the nature of ignition sources. It is unlikely that more than a few structures or other properties within the city limits of New Meadows would be lost or damaged by a wildland fire; however, residents in the immediate vicinity may be directly impacted. It is impossible to forecast the path a wildfire will take and what type of assets and resources, manmade and ecological, will be at risk. Thus, no value estimates were made for this hazard.

Extended Power Outage Profile

The city of New Meadows does not have any differing levels of risk associated with this hazard than Adams County as a whole.

Extended power outages will affect New Meadow's ability to provide government and other services such as trash pickup, street lights, municipal water, law enforcement, and fire and medical services. New Meadows can provide potable water for 1 day during the summer or 2 days during the winter without electricity to run pumps. The city's wastewater treatment plant is wired to accept a backup power feed; however, the city does not maintain a generator on standby. New Meadows does have access to a portable generator to replenish storage tanks, power sewer treatment facilities, and provide other basic and emergency services from Adams County Emergency Management.

Probability of Future Occurrence

The probability of short term power outages continuing to occur relatively frequently in New Meadows is very high. The probability of long term outages of three days or more is very low. Idaho Power's response to incidents causing outages is typically immediate; thus, only a severe, widespread event would likely cause this type of hazard.

Impacts of Extended Power Outage Events

Power outages can be especially disastrous when it comes to life-support systems in places like hospitals and nursing homes. Traffic issues could also become a concern due to the loss of stoplights and other electrically powered traffic control indicators.

Power failures are particularly critical at sites where the environment and public safety are at risk. Institutions such as hospitals, sewage treatment plants, schools, etc., should have backup power sources, such as standby generators, which will automatically start up when electrical power is lost. Other critical systems, such as telecommunications and emergency response should also have access to emergency power. Federal and State grants are in some instances made available to communities in need of support dollars for enhancing their backup power systems. An exploration of these grants should be made a priority by Adams County to ensure their functionality in the event of a long-term power failure.

Despite advances in computer technology, power outages are a major cause of personal computer and server downtime. An extended outage (defined as an outage lasting longer than the computers uninterruptible power supply) can prevent unprotected computers from initiating their required shutdown procedure. Computer and server operating systems are not designed to support abrupt losses of power known as "hard" shutdowns, but rather rely on a set of processes that prepare a computer for a shut down such as saving memory, stopping applications, etc. Hard shutdowns can result in lost or corrupted data and a lengthier time-to-recovery after power returns. Computer and data systems such as medical records and client information may be damaged or lost during an extended outage. Corruption of data and files could have a long term effect on many local organizations and businesses.

Life safety would also be at risk, particularly if the outage occurred during the winter months when many residents are relying on electricity for heating and cooking. Special needs populations would have the greatest risk during extended power outages due to reduced abilities to adapt to the situation; their dependence on life support systems, medication, or oxygen; and difficulties with transportation. Generally, power companies maintain a list of customers who may be more negatively affected or would require immediate assistance in the event of an outage. This type of information should also be shared with Adams County Emergency Management and local emergency responders in order to ensure these populations receive adequate support.

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Crop Damage Profile

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Probability of Future Occurrence

The probability of New Meadows being impacted by crop damages or failures is moderate.

Impacts of Crop Failure Events

Many of the local agricultural producers either live, work, or spend money in New Meadows; thus, a poor crop in any given year may have some effect on the economic stability of the community.

Value of Resources at Risk

There are very few crops grown or livestock within the city limits of New Meadows; thus, there is little value of resources at risk.

Chapter 6

Mitigation Strategy

IN THIS SECTION:

- Prioritization of Action Items
- Adams County Annex
- City of Council
- City of New Meadows

Chapter 6
Mitigation Strategy

Chapter 6 – Mitigation Strategy

Administration and Implementation of Action Items

Critical to the implementation of this Multi - Hazard Mitigation Plan will be the identification and implementation of an integrated schedule of action items. These action items are targeted at achieving an elimination of lives lost, a reduction in structures destroyed or compromised, and the preservation of unique ecosystems that serve to sustain the way of life and economy stability in Adams County, Idaho. Since there are many management agencies and thousands of private landowners in this area, it is reasonable to expect that differing schedules of adoption will be made and varying degrees of compliance will be observed across all ownerships.

All risk assessments were made based on the conditions existing during 2012, thus, the recommendations in this section have been made in light of those conditions. However, the components of risk and the preparedness of the Counties' resources are not static. It will be necessary to fine-tune this Plan's recommendations annually to adjust for changes in the components of risk, population density changes, infrastructure modifications, and other factors.

Mechanisms to Incorporate Mitigation Strategies

Adams County and the incorporated cities encourage the philosophy of instilling disaster resistance in normal day-to-day operations. By implementing plan activities through existing programs and resources, the cost of mitigation is often a small portion of the overall cost of a project's design or program. Through their resolution of adoption as well as their participation on the planning committee, each jurisdiction is aware of and committed to incorporating the risk assessments and mitigation strategies contained herein. It is anticipated that the research, local knowledge, and documentation of hazard conditions coalesced in this document will serve as a tool for decision-makers as new policies, plans, and projects are evaluated.

There are several planning processes and mechanisms in Adams County that will either use the risk assessment information presented in this document to inform decisions or will integrate the mitigation strategy directly into capital improvement, infrastructure enhancement, and training projects; prevention campaigns; and land use and development plans. Although not inclusive, the following is a list of mechanisms available to each jurisdiction for incorporating the mitigation requirements:

Adams County Mechanisms

1. Comprehensive Plan
2. Subdivision Ordinances
3. Zoning Ordinances
4. Departmental Budgets
5. Site Master Plans (wastewater treatment, landfill, etc.)
6. Personnel Training Programs

Incorporated City Mechanisms

1. Transportation Plans
2. City Budgets
3. Building Codes and Ordinances
4. Site Master Plans (airport, business incubators, etc.)

Hospital District Mechanisms

1. Emergency Operations Plan
2. Annual Budget
3. Board of Directors Bylaws (Operational Protocols)

Agencies and other Organization Mechanisms

1. Annual Budget
2. Prevention Programs
3. Training Programs
4. Long Term Land Use Plans (Forest Plans, Wildlife Management Area Plans, etc.)

The Adams County Emergency Manager is responsible for educating the Board of Commissioners and other County departments as well as city planners on the contents and incorporation requirements of the Multi-Hazard Mitigation Plan. The Emergency Manager and other planning committee partners should be aware of the risk assessments and mitigation strategies respective to their jurisdictions in order to include them in the planning processes and discussions for other types of projects as they come up. The Adams County Emergency Manager is responsible for ensuring that each participating jurisdiction as well as other partners has a copy of the Multi-Hazard Mitigation Plan readily available for reference purposes. Furthermore, as previously mentioned, the Adams County Emergency Manager is responsible for annual and 5-year evaluations of the Multi-Hazard Mitigation Plan. The annual meetings will serve a dual purpose of updating the document and refreshing each jurisdiction's memory of the contents and mitigation requirements of Multi-Hazard Mitigation Plan. Members of the planning committee are also responsible of educating decision-makers in their own jurisdictions on the use and incorporation of mitigation requirements of this document into other planning mechanisms such as those listed above.

Prioritization of Action Items

The prioritization process includes a special emphasis on benefit-cost analysis review. The process reflects that a key component in funding decision is a determination that the project will provide an equivalent or more in benefits over the life of the project when compared with the costs. Projects will be administered by local jurisdictions with overall coordination provided by the Adams County Emergency Manager.

County Commissioners and the elected officials of all jurisdictions have evaluated opportunities and established their own unique priorities to accomplish mitigation activities where existing funds and resources are available and there is community interest in implementing mitigation measures. If no federal funding is used in these situations, the prioritization process may be less formal. Often the types of projects a county can afford to do on their own are in relation to improved codes and standards, department planning and preparedness, and education. These types of projects may not meet the traditional project model, selection criteria, and benefit-cost model. Adams County will use this Multi-

Hazard Mitigation Plan as guidance when considering pre-disaster mitigation proposals brought before the Board of Commissioners by department heads, city officials, fire districts, and local civic groups.

When federal or state funding is available for hazard mitigation, there are usually requirements that establish a rigorous benefit-cost analysis as a guiding criterion in establishing project priorities. Adams County understands the basic federal grant program criteria which will drive the identification, selection, and funding of the most competitive and worthy mitigation projects. FEMA's three grant programs (the Hazard Mitigation Grant Program, the Flood Mitigation Assistance Program, and Pre-Disaster Mitigation Program) that offer federal mitigation funding to state and local governments all include the benefit-cost and repetitive loss selection criteria.

The prioritization of new projects and deletion of completed projects will occur annually and be facilitated by the Adams County Emergency Manager and the joint planning committee. All mitigation activities, recommendations, and action items mentioned in this document are dependent on available funding and staffing.

Prioritization Scheme

All of the action items and project recommendations made in this Plan were prioritized by each respective jurisdiction in coordination with their governing body. Each jurisdiction's representative on the planning committee met with their governing bodies and prioritized their own list of projects and mitigation measures through a group discussion and voting process. Although completed individually, each jurisdiction's mitigation strategy was discussed and analyzed on the merits described in the STAPLEE process including the social, technical, administrative, political, legal, economical, and environmental factors associated with each recommended action item. Projects were ranked on a "High", "Moderate", or "Low" scale with emphasis on project feasibility and the benefit/cost correlation. Once completed, the individual jurisdiction's rankings were discussed and approved at the committee level.

Jurisdictional Mitigation Strategies

The following tables outline all of the participating jurisdictions' mitigation strategies for at least the next five year period. All of the action items from the 2005 Plan were carried into the updated mitigation strategies; however, the committee thoroughly reviewed and discussed each proposed project, and in some cases, chose to revise the action item or delete it altogether. The "2012 Status" column in each table highlights the current state of each action item.

Adams County Annex

Table 6.1. Adams County Mitigation Strategies.

Hazard	Action Item	Goals Addressed	Responsible Departments or Organizations	2012 Status	Potential Resources	Projected Completion Year
General	Public education programs	Goal #3	County Emergency Manager	Ongoing	County Commissioners, Fire Districts, Sheriff's Department, State and Federal Agencies.	Ongoing
		Priority Ranking: High				
Flood, Earthquake, Landslide	Standardize codes for excavation, construction, and grading.	Road Ordinance in place.		Completed	County Roads Department, Fire Districts, County Building Department, Planning & Zoning.	2006
Earthquake, Landslide	Assess seismic hazard.	The committee decided that this plan was sufficient in determining seismic hazard for the county		Deleted		

Table 6.1. Adams County Mitigation Strategies.

Hazard	Action Item	Goals Addressed	Responsible Departments or Organizations	2012 Status	Potential Resources	Projected Completion Year
Landslide, Flood, Earthquake	Develop a landslide hazard identification program.	Frequent landslide zones have been identified.		Completed		2005
General	Develop collaborative partnerships to build prepared and resilient communities.	Each Fire District are members of the Chiefs' Association and a CWPP Advisory Committee. The USFS, County, and private entities are part of a management cooperative.		Completed		2006
Flood	Continued participation in National Flood Insurance Program.	Goal #1,2,4,5,7 Priority Ranking: High	County Commissioners	Ongoing		Ongoing
Flood	Establish a flood hazard advisory committee.	Goal #1,2,4,5,6 Priority Ranking: High	County Commissioners	Ongoing	County Emergency Manager, Fire Districts, EMS, Sheriff's Department.	Ongoing
General	Establish MOU's with local fuel suppliers to provide support during emergency response.	This action item has been accomplished but needs updated		Completed		Ongoing

Table 6.1. Adams County Mitigation Strategies.

Hazard	Action Item	Goals Addressed	Responsible Departments or Organizations	2012 Status	Potential Resources	Projected Completion Year
General	Assess and hardwire emergency facilities for use with a portable generator.	Most of the facilities identified from the previous MHMP have been hardwired, however the County Exhibit Hall, Indian Valley Fire Station, and Indian Valley Community Hall are next to be hardwired.		Partially Completed		2017
Earthquake	Inspect buildings, particularly unreinforced masonry, for earthquake stability.	The committee decided that this item was not critical as the county knows which buildings are of concern.		Deleted		
Flood, Severe Weather	Control surface and ground water.	This action item is completed but continues to be ongoing.		Completed		Ongoing
General	Provide/encourage rural residents to use address signs for EMS, fire departments, and law enforcement agencies to locate homes more effectively.	Goal #1,3 Priority Ranking: High	County Building Department	Partially Completed Some signs need replaced	County Commissioners, County Emergency Manager, City of Council, and City of New Meadows.	Ongoing
Severe Weather	Inspect schools and other public buildings for snow-load resistance and retrofit as necessary	Most of the County buildings of concern have been completed		Partially Completed		Ongoing

Table 6.1. Adams County Mitigation Strategies.

Hazard	Action Item	Goals Addressed	Responsible Departments or Organizations	2012 Status	Potential Resources	Projected Completion Year
General	Public education for the various hazards that citizens may face and promote "72-hour" packs for self-reliance during a crisis.	Goal #1,3 Priority Ranking: High	County Emergency Management Coordinator	Ongoing	Red Cross, Citizen corps, and EMS	Ongoing
General	Collect GPS locations for addresses throughout the county for Emergency Response crews to find specific locations when needed.	Goal #1 Priority Ranking: High	911 System Coordinator	New Item	County Commissioners, EMS, Sheriff's department, Fire departments	2017
General	Collaborate with Valley and Gem Counties to establish an east-west emergency transportation route	Goal #1,2,4,5,6 Priority Ranking: Moderate	Adams, Gem, and Valley County Commissioners	In complete	Adams, Gem, and Valley County Road Departments, Idaho Transportation Department	Ongoing
General	Surfacing of secondary access routes for all weather use. Indian Valley to Emmet (Dobson road) would be a priority.	Goal #2,4,5,6 Priority Ranking: High	County Road Department	Revised Action Item	County Building Department, Planning and Zoning	2017
General	Obtain portable generators for Indian Valley for use during power outages and other emergency situations.	The county has purchased a number of generators that are placed throughout the county. There are more that need purchased however.		Partially Completed		2015

Table 6.1. Adams County Mitigation Strategies.

Hazard	Action Item	Goals Addressed	Responsible Departments or Organizations	2012 Status	Potential Resources	Projected Completion Year
General	Develop a program to maintain and keep track of portable generators throughout the county	Goal #4,5 Priority Ranking: High	Emergency Management Coordinator	New Project	Sheriff's office, EMS, Fire Departments, City of Council, City of New Meadows.	Initial setup by 2014 then ongoing
Severe Weather	Maintain snow removal equipment and schedule for communities and primary transportation routes.	County has a schedule for snow removal of priority routes. Maintenance of equipment is ongoing.		Partially complete		Ongoing
General	Develop emergency equipment caches, located at each Fire Department and Sheriff's office, with batteries, pumps, generators, lights, sandbags, etc. for use around the county.	Goal #4,5 Priority Ranking: Moderate	County Emergency Manager, Fire Departments, EMS, Sheriff's office	Revised Project	County Commissioners, EMS, Sheriff's office, Fire Departments	2017
General	Purchase Emergency Response Vehicles for rural F.D. and maintain current vehicles.	Goal #1,2,4,5 Priority Ranking: High	County Emergency Manager	Revised project	County Commissioners, Fire Departments, EMS, US Forest Service	Ongoing

Table 6.1. Adams County Mitigation Strategies.

Hazard	Action Item	Goals Addressed	Responsible Departments or Organizations	2012 Status	Potential Resources	Projected Completion Year
General	Request the State and Federal agencies keep hazardous fuels from accumulating on public lands near primary, secondary, and emergency evacuation routes to allow safe egress during wildfires.	Goal #1,4,5	Forest Service, Idaho Department of Lands	Revised project	Adams County Commissioners, Adams County Emergency Manager	Ongoing
		Priority Ranking: Low				
General	Maintain current communication towers. New repeater on Lyons Saddle.	Goal #1,2,4	County Commissioners, Sheriff's office	New Project	County Emergency Manager, EMS, Sheriff's office, Fire Departments, USFS	2017
		Priority Ranking: High				
General	Designate and maintain helipads with coordinates for evacuations.	Goal #1,2,4,5	Sheriff's office, Fire departments, EMS	Revised Action Item	US Forest Service, Sheriff's office, Adams County Emergency Manager	Ongoing
		Priority Ranking: High				
Wildfire	Purchase Redzone software and begin data collection.	Goal #1,2,4,5,6	Adams County Emergency Manager	New Item	US Forest Service, County Commissioners, Fire Departments, Sheriff's office, EMS	2017
		Priority Ranking: Moderate				

City of New Meadows Annex

Table 6.2. City of New Meadows Mitigation Strategies.

Hazard	Action Item	Goals Addressed	Responsible Departments or Organizations	2011 Status	Potential Resources	Projected Completion Year
Flood	Establish a flood hazard advisory commission.	Goal # Priority Ranking: High	City of New Meadows	New Item that was split from a county item in the previous plan	County Emergency Manager	2013
Earthquake	Inspect unreinforced masonry buildings for earthquake stability.	Goal # Priority Ranking:	New Meadows Building Department	New Item that was split from a county item in the previous plan	County Emergency Manager, County Commissioners, County Building Department	2017
Flood	Control surface and ground water drainage (Insert Specific projects)	Goal # Priority Ranking:	New Meadows Building Department, Planning and Zoning	New Item that was split from a county item in the previous plan	County Emergency Manager, County Commissioners, County Building Department	2017

Table 6.2. City of New Meadows Mitigation Strategies.

Hazard	Action Item	Goals Addressed	Responsible Departments or Organizations	2011 Status	Potential Resources	Projected Completion Year
General	Provide/encourage rural residents to use address signs for EMS to locate homes more effectively.	Goal #	New Meadows Fire Department	New Item that was split from a county item in the previous plan	County Emergency Manager, New Meadows City Council, EMS, Planning and Zoning, Building Department	Ongoing
		Priority Ranking:				
General	Update school evacuation plans	Goal #	Local school district	New Item	EMS, Fire Department, Law Enforcement, City Council, County Emergency Manager	2013
		Priority Ranking:				
General	Purchase of a new road grader	Goal #	New Meadows Roads Department	New Item	City of New Meadows, County Commissioners, County Road and Bridge Department	2014
		Priority Ranking:				
General	Begin preparing airports for alternative access use. Perform maintenance and upgrades as necessary.	Goal #	City of New Meadows	New Item	New Meadows Building Department	2017
		Priority Ranking:				
Earthquake	Inspect buildings, particularly unreinforced masonry, for earthquake stability.	Goal #	City of New Meadows	New Item	New Meadows Building Department	2017
		Priority Ranking: Low				

Table 6.2. City of New Meadows Mitigation Strategies.

Hazard	Action Item	Goals Addressed	Responsible Departments or Organizations	2011 Status	Potential Resources	Projected Completion Year
General	Provide/encourage rural residents to use address signs for EMS, Fire, and Law enforcement to locate homes more effectively.	Goal # Priority Ranking: High	Fire Department, EMS, Law Enforcement	New Item	City of New Meadows, County Commissioners, County Emergency Manager	Ongoing
		Goal # Priority Ranking: High	Fire Department, EMS	New Item	City of New Meadows County Commissioners, County Emergency Manager	2017

City of Council Annex

Table 6.3. City of Council Mitigation Strategies.

Hazard	Action Item	Goals Addressed	Responsible Departments or Organizations	2011 Status	Potential Resources	Projected Completion Year
Earthquake	Inspect unreinforced masonry buildings for earthquake stability.	Goal #1,4,11 Priority Ranking: Moderate	Council Building Department	New Item that was split from a county item in the previous plan	County Emergency Manager, County Commissioners, County Building Department	2017
General	Provide/encourage rural residents to use address signs for EMS to locate homes more effectively.	Goal #2,3,4,5 Priority Ranking: High	Council Fire Department	New Item that was split from a county item in the previous plan	County Emergency Manager, Council City Council, EMS, Planning and Zoning, Building Department	Ongoing
General	Update school evacuation plans	Goal #4,5,7,9,10,11 Priority Ranking: High	Local school district	New Item	EMS, Fire Department, Law Enforcement, City Council, County Emergency Manager	2013
General	Begin preparing airports for alternative access use. Perform maintenance and upgrades as necessary.	Goal #4,5,7,9,10,11 Priority Ranking: Moderate	City of Council	New Project	Council Building Department	2017

Table 6.3. City of Council Mitigation Strategies.

Hazard	Action Item	Goals Addressed	Responsible Departments or Organizations	2011 Status	Potential Resources	Projected Completion Year
General	Provide/encourage rural residents to use address signs for EMS, Fire departments, and Law enforcement to locate homes more effectively.	Goal #1,2,3,4,5 Priority Ranking: High	Fire Department, EMS, Law Enforcement	New Item	City of Council, County Commissioners, County Emergency Manager	Ongoing
Severe Weather	Inspect Council city shop building for snow-load resistance and retrofit as needed.	Goal #4,11 Priority Ranking: Moderate	City Building Department	New Item	City of Council, County Building Department, County Emergency Manager	2017

Chapter 7

Appendices

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Record of Local Adoption

Each participating jurisdiction formally adopted the Adams County Multi-Hazard Mitigation Plan by resolution in an open public hearing. The following is a record of the resolutions passed by the governing body in each represented jurisdiction.

Adams County Resolution of Adoption

City of Council Resolution of Adoption

City of New Meadows Resolution of Adoption

Planning Committee Minutes

April 19th, 2012 – Adams County Courthouse

ADAMS COUNTY, IDAHO
Multi-Hazard Mitigation Plan Update
Adams County Courthouse
April 19th, 2012

Agenda Item #1 – Project Purpose and Scope:

Don Horton briefly introduced the purpose of this plan update. Each person in attendance introduced themselves. Brad Tucker gave a brief presentation on the purpose and scope of this plan update. Brad also informed the committee of two new hazards that will be included into the updated plan. The eight hazards (including the two new hazards) are: Flood, Earthquake, Severe Weather, Landslides, Wildfire, Terrorism/Civil Unrest, Crop Failure, and Extended Power Outages.

Agenda Item #2 – Update Approach:

Brad explained to the committee how/when the meetings will be conducted and asked if the current location and time is suitable for everyone. It was decided that the location would be changed from the jury room in the courthouse to the EMS building across the parking lot. Feedback and communications between committee members will primarily occur via email.

Brad informed the committee that they will be asked to review the County's Mission and Goals Statements from the previous plan. He also explained that any additional adopting jurisdictions will need to have their own Goals Statements. That discussion rolled into the benefits of being an adopting jurisdiction and the committee was asked to think about any additional adopting jurisdictions for the next meeting.

Brad asked the committee for narratives and/or pictures of recent hazard events that may have occurred recently. The committee was informed that they will be identifying Critical Infrastructure within the County at the next meeting.

Agenda Item #3 – Public Involvement:

A draft press release was passed out and committee members were asked to make edits within the next two weeks. The committee discussed options for proper media outlets once final version was drafted. NMI may request assistance with distribution of press releases.

The committee also discussed the public meeting process. Possible locations could include; Council and New Meadows.

Agenda Item #4 – Phase I Hazard Assessment Exercise:

NMI led the committee through an exercise to help determine their perspective on the potential severity of each hazard within the county. Each hazard was scored for its frequency and potential impact and placed in a matrix to show how each hazard ranked relative to each other. The results of the assessment are given below.

		Magnitude		
		Low	Medium	High
Frequency	Low	Earthquake		Terrorism/Civil Unrest
	Medium		Landslide Flood	
	High		Extended Power Outage	Crop Failure Wildland Fire Severe Weather

Agenda Item #5 – Timeline:

The next meeting will be on May 17th at 10:00am. The committee will meet once a month through August. The projected completion date of this plan is December 31st 2012.

The committee requested that an invitation to participate be extended to ITD, SITPA (Mark Wood), and ISP.

Adjournment:

The Adams County MHMP update planning committee meeting was adjourned at 12:00 pm. The next meeting will be held on **May 17th, 2012 at 10 am in the EMS building across from the Adams County Courthouse.**

May 17th, 2012 – Adams County EMS Building

ADAMS COUNTY, IDAHO
Multi-Hazard Mitigation Plan Update
 Adams EMS Building
 May 17th, 2012

Agenda Item #1 – Old Business:

After brief introductions, the committee members discussed the addition of any adopting jurisdictions. It was decided that the County, city of New Meadows, and city of Council would be the only adopting jurisdictions. The mayors from New Meadows and Council were asked to develop a list of goals for their respective cities.

Agenda Item #2 – Draft Review:

NMI went over the first three chapters of the MHMP and asked the committee to read on their own and send edits to NMI. SHELDUS data was passed out to the committee and were asked to review for any missing information. On that note, the committee was asked to send NMI any photos or narratives describing past hazardous events. The committee went over the action items that were in the previous version of the plan. Edits were made to determine whether the item was accomplished, is on-going, or is not needed any longer. This list will be revised and discussed further at the next meeting.

Agenda Item #3 – Critical Infrastructure:

NMI passed out a critical infrastructure form to Don Horton from Adams County, Julie Spelman Mayor of New Meadows, and Bruce Gardner Mayor of Council. They were asked to develop a list of critical infrastructure for their jurisdictions that would be incorporated into the updated version of the MHMP.

Agenda Item #4 – Public Involvement:

The committee discussed where and when to have the public meetings. The public meetings are tentatively scheduled for; Council on July 18th at 6pm and will be held in the EMS building, New Meadows on July 19th at 6pm at City Hall.

Agenda Item #5 – Map Review:

NMI brought two wall maps (1) aerial photo with flood zones and (2) ownership. The committee was asked to review them and make necessary changes.

Agenda Item #6 – Timeline:

The next committee meeting will be a week later than usual because of the 'Fiddle Festival'. Thursday June, 28th at 10am in the County EMS building. Note: This date changed since we adjourned.

June 28th, 2012 – Adams County EMS Building

**ADAMS COUNTY, IDAHO
Multi-Hazard Mitigation Plan Update
Adams EMS Building
June 28th, 2012**

Agenda Item #1 – Old Business:

The city of Council gave NMI their goals statements and New Meadows was reminded to work on their goals statements. Brad asked if there are any changes to chapters 1-3, there were none. Brad reminded the committee that any hazard photos/narratives are needed for the document. Brad reminded the committee that a list of critical infrastructure and physical locations are needed by July 13th.

Agenda Item #2 – Draft Review:

NMI went over chapters 4 and 6 of the MHMP and asked the committee to read on their own and send edits to NMI. The committee spent the bulk of the meeting going over the revised action items for the county. Brad will send the Mayors of New Meadows and Council their action items for each to go through and send Brad changes by July 13th.

Agenda Item #3 – Public Involvement:

The public meetings will be held at:

- Council EMS building on July 18th at 6pm.
- New Meadows City Hall on July 19th at 6pm

Agenda Item #4 – Map Review:

Brad had several maps that NMI produced and asked that committee members look at them for accuracy.

Agenda Item #5 – Next Meeting:

The next committee meeting will be held prior to the New Meadows public meeting. It will occur at New Meadows City Hall from 2-4 on the 19th of July.

NMI still needs

- Parcel data from the County
- Critical Infrastructure from the County and each City
- Goals statements from New Meadows

July 19th, 2012 – Adams County New Meadows City Hall

**ADAMS COUNTY, IDAHO
Multi-Hazard Mitigation Plan Update
New Meadows City Hall
July 19th, 2012**

Agenda Item #1 – Old Business:

The city of Council and New Meadows were reminded that NMI needs their Action Items. New Meadows was reminded to work on their goals statements. Brad asked if there are any changes to chapters 4 & 6, there were none.

Agenda Item #2 – Draft Review:

NMI went over chapters 5 of the MHMP and asked the committee to read on their own and send edits to NMI.

Agenda Item #3 – Public Involvement:

The public meetings:

- Council EMS building on July 18th at 6pm. Zero public attended.
- New Meadows City Hall on July 19th at 6pm. Zero public attended.

Agenda Item #4 – Draft:

Brad informed the committee that he hopes to have a full draft of the document for them to review at the next meeting. Public comment will be held following the August committee meeting.

Agenda Item #5 – Next Meeting:

The next committee meeting will be held in Council at the EMS building from 10-12 on the 23rd of August.

NMI still needs

- Goals statements from New Meadows
- Reviewed Action Items from New Meadows and Council

Record of Meeting Attendance

The following is a record of the attendance taken at each of the committee and public meetings held during the Multi-Hazard Mitigation Planning process.

Figure 7.1. Committee Meeting Sign-In Sheet for April 19th, 2012.

Adams County MTHMP April 19, 2012
SIGN IN SHEET

<u>ph. #</u>	<u>Name</u>	<u>E-mail</u>	<u>Agency</u>
253-6125	Don Horton	building@co.adams.id.us	Emergency Manager
253-6125	Pamela Murphy	pmurphy@co.adams.id.us	Secretary/Assistant
628-2772	Dennis McCollem	DMCOL@Frontier.net.net.	SRRFD
"	Ruby McCollem	Mouser@Frontier.net.net.	SRRFD
253-4201	Bruce D. Gardner DM	hah@ctcweb.net	City of Council
256-4316	Tim Todmez	timbez@GMAIL.COM.	IDRFD
883-4488	Tera King	King@nwi2.com	NW Mgmt
883-4488	Brad Tucker	Tucker@nwi2.com	Northwest Managem
208-347-0310	David Vining	dvining@fs.fed.us	USFS/New Meadows
208-634-9449	Christian Ramirez	cramirez@fs.fed.us	USFS/Weiser-Council
208-384-3409	Carnie Bilbao	cbilbao@blm.gov	Boise BLM
208-253-4201	Tami Testa	cityclerk@ctcweb.net	City of Council
208-253-4242	DENISE GROVES	ADAMS COUNTY HEALTH CENTER	DENISEG@CTCWEB.NET
253-4561	MIKE PARADIS	mjpara@ctcweb.net	Adams Co.
253-4778	DAN AUFER	CVAEMSECT@ctcweb.net	Council Valley Trib.
741-085	David Wilson	coolh20@ctcweb.net	City of Council
347-2315	JEFF LUFF	JDLUFF@FRONTIER.NET.NET	MVFD
253-4228	Ryan Zollman	acso2302@gmail.com	ACSO
566-2310	Stephen Phillips	sphillips@co.adams.id.us	ACSO
469-0005	MACQUALLS	MACQUALLS@GMAIL.COM NEW-MEADOWS@FRONTIER.NET.NET	MUGMS City of New-Meadows
347-2688	Julie Spelman	MayorSpelman@gmail.com	Mayor NewHudson

Figure 7.2. Committee Meeting Sign-In Sheet for May 17th, 2012.

Adams County MHMP Update Meeting

May 17th, 2012

Name	Jurisdiction/Agency	Phone	Email
Brad Tucker	NM1	208-883-4488	tucker@nm1z.com
Teva King	NM1	" "	king@nm1z.com
Rich Stiles	WSES - Council RD	208-253-0111	rstiles@rs.fs.fed.us
Dawn Vanderk	WSES - New Meadows	208-347-0310	dvdv@fs.fed.us
Julie Spelman	Mayor New Meadows	208-347-2171	majorspelman@gmail.com
Bruce Gardner	Mayor - Council	208-253-4201	hah@ctweb.net
Mike PARADIS	Adams Co.	208-741-9214	miparas@ctweb.net
Stephen Phillips	Adams Co. SO	208-566-2310	sphilips@co.adams.id.us
Ryan Zollman	Adams C.P. SO	208-566-2302	ACSO2002@gmail.com
MARK WOODS	SOUTHERN DAIRY TIMBER PROTECTOR ASSOCIATION	208-434-2968	mwoods@stpa.idaho.gov
Don Horton	Adams Co. Emergency Manager	208-253-6125	building@co.adams.id.us
Patrick Murphy	Adams Co. Emrg. Mng. Assisnt	208-253-6125	pmurphy@co.adams.id.us
Susan Cleverley	Idaho Bureau of Homeland Security	208-482-6474	scleverley@hbs.idaho.gov
Robin Freeman	Idaho Transportation Dept	208-253-6988	Robin.Freeman@ITD.idaho.gov
Dan Hester	Council Valley Humb	208-253-4778	CVAEMSECTCweb.net
Gene Showe	Adams Co. Health Center	208-253-4242	genes@ctweb.net
Lisa Toomey	FUR.FIL	208-253-4242	timber@20@gmail.com
Don Bryant	ITD Dist 3	208-334-8348	dan.bryant@itd.idaho.gov

Figure 7.3. Committee Meeting Sign-In Sheet for June 28th, 2012.

Adams County MHMP Update Meeting

June 28th, 2012

Name	Jurisdiction/Agency	Phone	Email
Brad Tucker	NMI	883-4488 ext 123	tucker@nmi2.com
Paul Hunter	Council Valley Park	253-4778	cvahems@creweb.net
Tim Tagherly	IUPUI	256-4316	timtagherly@gmail.com
Julie Spellman	N Meadow Mayor	347-2688	Mayor Spellman@gmail.com
Don Horton	Council Mayor	253-4201	hake@creweb.net
Christian Ramirez	Payette N.F. - Council RD	253-4410	C.Ramirez@ss.fed.us
Mike Phillips	ADAMS Co. Sheriff's Office	566-2310	SPhillips@Co.Admns.ID.US
Van Zoltman	Adams Co. S.O.	566-2302	ASO2302@gmail.com
Don Horton	Adams Co. Emerg. Mgmt	253-6125	building@co.adams.id.us
Patricia Murphy	Adams County	253-6125	pmurphy@co.adams.id.us
Robin Freeman	ITD	253-6432	Robin.Freeman@itd.idaho.gov
Kevin Shoup	Adams County Health Dept	253-4242	kegenes@creweb.net

Figure 7.4. Public Meeting Record for July 19th, 2012.

David Vining, USFS	Doug Buys, New Meadows City
Brad Tucker, Northwest Management, Inc.	Jacob MacQualls, New Meadows City/EMS
Julie Spellman, New Meadows Mayor	Bruce Gardner, City of Council
Don Horton, Adams Co. Emergency Manager	

Record of Published Articles

The following is a subset of Multi-Hazard Mitigation-related articles published in local newspapers during the planning process. A total of three specific press releases were sent at critical stages of the process; one to introduce the project and invite interested parties, one to announce the public meetings, and one to announce the availability of the document for public comment. Additionally, during the local adoption phase of the process, Adams County and city jurisdictions advertised the formal adoption of the Plan by resolution at a public hearing. The agendas for these meetings are published by the jurisdiction in the most appropriate local media outlet.

Figure 7.13. Upper Country News – April, 2012.

Adams County

Media Release

From: Don Horton, Adams County Disaster Services

Date: May 2, 2012

RE: Adams County Multi-Hazard Mitigation Plan Update

Adams County Set to Update Hazard Risk Plans

Council, Id. Adams County has launched a project to update the Adams County Multi-Hazard Mitigation Plan. Local agencies and organizations in Adams County have created a committee to complete the required 5-year updates of these documents as part of the FEMA Pre-Disaster Mitigation program and National Fire Plan and Healthy Forests Restoration Act. The project is being funded through a grant from FEMA.

The planning update will include risk analyses, vulnerability assessments, and mitigation recommendations for the hazards of flood, landslide, earthquake, severe weather, wildland fire, terrorism/civil unrest, massive crop failure, and extended power outage.

Northwest Management, Inc. has been retained by Adams County to provide risk assessments, hazard mapping, field inspections, interviews, and to collaborate with the planning committee to update the Plans. The committee includes representatives from local communities, rural and wildland fire districts, Idaho Department of Lands, U.S Forest Service, Bureau of Land Management, highway districts, private landowners, area businesses, various Adams County departments, and others.

One of the goals of the planning process will be to increase the participating jurisdictions' eligibility for additional grants that will help minimize the risk and potential impact of disaster events. The planning team will be conducting public meetings to discuss preliminary findings and to seek public input on the Plans' recommendations. A notice of the dates and locations of these meetings will be posted in local newspapers. Once completed, the updated draft Plans will also be available for public review and comment. For more information on the Adams County Multi - Hazard Mitigation Plan update, contact Don Horton, Adams County Disaster Services, at 208-253-6125 or building@co.adams.id.us.

Figure 7.14. Public Presentation Flyer – Jul, 2012.



The seal of Adams County, Missouri, is circular with a yellow border. It features a central figure holding a scale and a sword, surrounded by the text 'THE GREAT SEAL OF ADAMS COUNTY'. To the left of the seal is a white outline of the state of Missouri with Adams County highlighted in red.

Adams County

Multi—Hazard Mitigation Plan

Public Meetings!

Council EMS building, July 18th at 6:00 pm

New Meadows City Hall, July 19th at 6:00 pm

These meetings will address the Multi—Hazard Mitigation Plan being updated for Adams County. The Plans' revision is required every 5 years and is being funded through a grant from FEMA. These meetings are open to the public and will include a slideshow presentation from Northwest Management, Inc. and the planning team on the identified hazards and potential improvement and risk reduction projects in Adams County. Public input is being sought in order to better frame the region's efforts for hazard reduction projects, wildland fire protection, resource enhancements, and emergency preparedness.

Each Meeting will last approximately 1 hour.



A photograph of a large, dark, stormy cloud formation over a field. The date '08/31/2007' is visible in the bottom right corner of the image.

Learn about the assessments for floods, landslides, severe weather, wildland fire, extended power outages, crop damages, terrorism/civil unrest in Adams County. Discuss **YOUR** priorities for how local communities can best reduce the impacts of these events.



A photograph of a waterfall cascading over a wooden fence in a wooded area.

For more information on the Adams County Multi—Hazard Mitigation Plan , please contact Adams County Disaster Services Coordinator, Don Horton, at (208)-253-6125.

Public Meeting Slideshow

The following slideshow was presented during the June public meetings. This presentation made up the formal portion of the meeting presentation; however, members of the committee and representatives from NMI were available at each meeting to informally answer questions, explain the models and other mapping products, and take notes on public input and ideas for consideration by the committee.

Slide 1

Adams County, Idaho
Multi-Hazards Mitigation Plan Update

Northwest Management, Inc.
Brad Tucker, B.S.

233 East Palouse River Drive
Moscow, Idaho 83843
208-883-4488 Telephone

Slide 2

Northwest Management, Inc.

- Serving the Western U.S. since 1984
- Main Office in Moscow, Idaho
 - Deer Park, Washington
 - Helena, Montana
- Natural Resource Consultants

**NORTHWEST
MANAGEMENT, INC.**

Providing a balanced approach to natural resource management

Slide 3

Purpose of the MHMP

- Recognize and Identify Risk Factors
- Reduce the Risk of Loss for Life, Property, Infrastructure, Natural Resources, and Economy
- Map and Prioritize Mitigation Projects
- Provide for Public Awareness
- Improve County's Eligibility for Funding Assistance

All of this must happen BEFORE a disaster!!

Slide 4

FEMA Multi-Hazard Mitigation Plan

- Flooding
- Landslides
- Wildland Fire
- Severe Weather
- Extended Power Outage
- Earthquake
- Massive Crop Failure
- Terrorism/Civil Unrest

MHMPs are required for all counties.
As of November 1, 2004 by FEMA

Slide 5

FEMA Requirements

- Adoption by Local Government Body
- Multi-Jurisdictional Planning
- Identification of Hazards & Risk Assessment
 - Profiling Hazard Events
 - Mapping Juxtaposition of Hazards, Structures, Infrastructure
 - Potential Dollar Losses to Vulnerable Structures (B/C Analysis)
- Documented Planning Process
- Assessing Vulnerability
- Mitigation Goals
- Analysis of Mitigation Measures
- Monitoring, Evaluating & Updating the Plan (5 year cycles)
- Implementation Through Existing Programs
- Public Involvement

Slide 6

Who is on the committee?

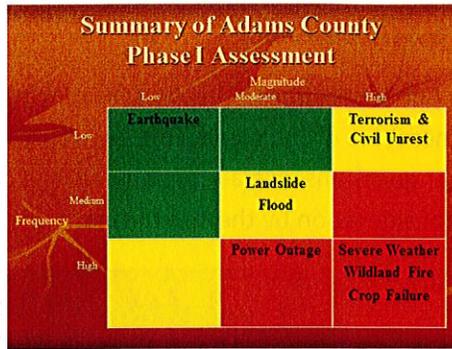
Adopting Jurisdictions:

- Adams County
- Incorporated Cities
 - Council
 - New Meadows

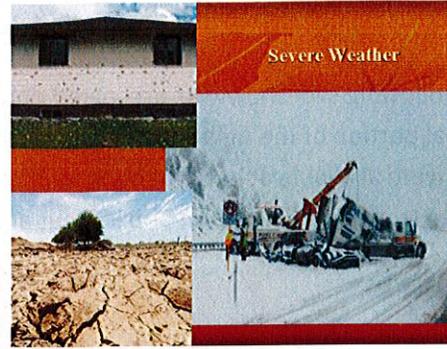
Other Committee Members:

- Highway Districts & ITD
- Fire Districts/Departments
- Adams Medical
- US Forest Service
- Sheriff's Department
- Southern Idaho Timber Protection Association

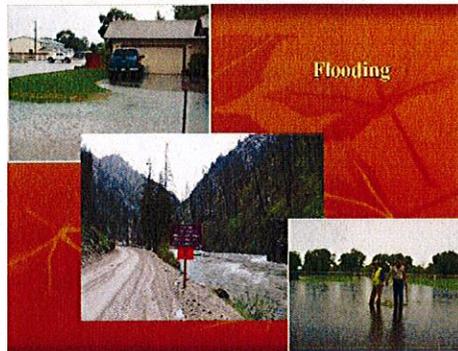
Slide 7



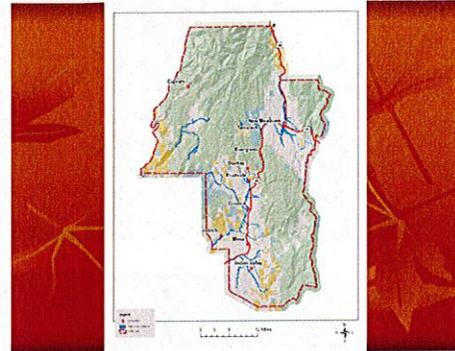
Slide 8



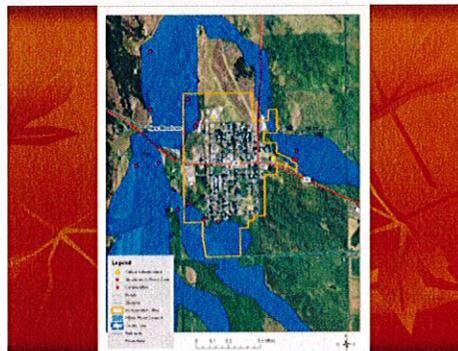
Slide 9



Slide 10



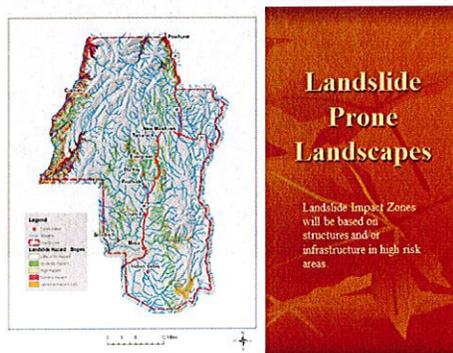
Slide 11



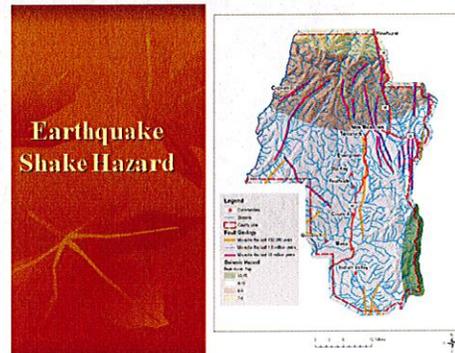
Slide 12



Slide 13



Slide 14



Slide
23

Public Involvement

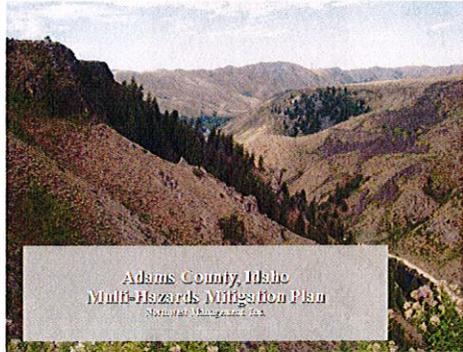
- Press Releases about planning efforts
- Public Meetings X2
- Public Review of the DRAFT Plan will be facilitated once all sections have been completed and reviewed by the committee
- Open public adoption hearings

Slide
24

Your Input

- Maps on the walls – Mark them up!
- Talk to one of the planning committee members.
- Let us know your ideas and concerns.
- Make this YOUR Plan!
- Thank you for attending and participating!
Please visit with us.

Slide
25



Slide
26

This plan was developed by Northwest Management, Inc. under contract with Adams County Emergency Management.

Copies of this Plan can be obtained by contacting:

Adams County Emergency Management Director, Don Horton
Adams County Emergency Management Office
Adams County Courthouse
201 Industrial Ave.
PO Box 48
Council, Idaho 83612

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