

Oneida County, Idaho



2022 ONEIDA COUNTY MULTI-JURISDICTIONAL ALL HAZARD MITIGATION PLAN



Oneida County Emergency Services
92 S 100 W
Malad City, Idaho 83252



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EXECUTIVE SUMMARY

This revision of the Oneida County Multi-Jurisdictional All Hazard Mitigation Plan began in the summer of 2021 and was completed the following summer. The purpose of the revision was to update each hazard section with the most current research and data. As with all updates of this level, the entire plan was reviewed and updated as information was available.

The mitigation projects were reviewed to define current status. New projects were added to the mitigation projects list.

The revision was under the direction of the Oneida County Local Emergency Planning Committee.

The Oneida County Mitigation Team was led by Dan Williams, under the direction of the Oneida County Board of Commissioners.

While the focus of this plan is on county-wide mitigation activities, it was developed through an integrated effort by representatives from many county, state, and federal jurisdictions. The City of Malad also participated in the development of this plan.

PART I: PLANNING PROCESS

CHAPTER 1 PLANNING PROCESS

1.1 INTRODUCTION

Oneida County, Idaho and Malad City, Idaho are vulnerable to natural, technological, and manmade hazards that have the possibility of causing serious threats to the health, welfare, and security of its residents. The cost of response to and recovery from the potential disasters, in terms of potential loss of life or property, can be lessened when attention is turned to mitigating their impacts and effects before they occur or re-occur.

The Oneida County Multi-Jurisdictional All Hazard Mitigation Plan seeks to identify the county's and city's hazards and understand their impact on vulnerable populations and infrastructure. With that understanding, the plan sets forth solutions that, if implemented, have the potential to significantly reduce threat to life and property. The plan is based on the premise that hazard mitigation works. With increased attention to managing natural hazards, communities can reduce the threats to citizens and, through proper land use and emergency planning, avoid creating new problems in the future. Many solutions can be implemented at minimal cost and social impact.

This is not an emergency response or management plan. Certainly, the plan can be used to identify weaknesses and refocus emergency response planning. Enhanced emergency response planning is an important mitigation strategy. However, the focus of this plan is to support better decision making directed toward avoidance of future risk and the implementation of activities or projects that will eliminate or reduce the risk for those that may already have exposure to a natural hazard threat.

1.2 PLAN ORGANIZATION

Part I of the plan provides a general overview of the planning process and identifies who was involved in revisions of the plan and the process used to develop this particular revision.

Part II provides a brief definition for each natural and manmade hazard. All hazards identified as affecting the county are analyzed at the county and incorporated city levels and then summarized in a hazard profile.

Part III outlines the Mitigation Strategy and identifies the goals, objectives, and mitigation projects.

The Appendix contains acronyms and definitions found within the plan, related news articles, worksheets, plan adoption and endorsement forms, and references.

1.3 HAZARD MITIGATION

Hazard mitigation is defined as any cost-effective action(s) that has the effect of reducing, limiting, or preventing vulnerability of people, culture, property, and the environment to potentially damaging, harmful, or costly hazards. Hazard mitigation measures, which can be used to eliminate or minimize the risk to life, culture, and property, fall into three categories:

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

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

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

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

The Federal Emergency Management Agency (FEMA) has identified specific natural hazards to be analyzed by each jurisdiction, through completion of an All Hazard Mitigation Plan. The hazards analyzed in this plan include those required and additional others as selected by the local hazard mitigation planning team.

1.4 PARTICIPATING JURISDICTIONS

This plan covers all of the areas in Oneida County and the incorporated city of Malad.

1.4.1 Oneida County Local Hazard Mitigation Planning Team

The Oneida County local hazard mitigation planning team is comprised of representatives from the Oneida County Local Emergency Planning Committee (LEPC), Oneida County department heads, and the city of Malad.

Table 1-1. LEPC & Local Hazard Mitigation Planning Team

| LEPC & LOCAL HAZARD MITIGATION PLANNING TEAM | | |
|---|-----------------------|-----------------------------|
| Agency | Representative | Position/Title |
| Oneida County Prosecutor's Office | Cody Brower | County Prosecuting Attorney |
| Road & Bridge | Lisa Baker | Office Coordinator |
| IT Specialists | TJ Burbank | Tech Specialist |
| Oneida County | Bill Lewis | Commissioner |
| Oneida County | Bob Christophersen | Commissioner |
| Oneida County | Ken Eliason | Commissioner |
| Oneida County | Lon Colton | County Clerk |
| Idaho Office of Emergency Management | Lorrie Pahl | Mitigation Planner |
| Idaho Transportation Department | Dan Daniels | Foreman |

| LEPC & LOCAL HAZARD MITIGATION PLANNING TEAM | | |
|---|-----------------------|--------------------------------|
| Agency | Representative | Position/Title |
| Oneida County Fire District | Ray Davis | District Fire Commissioner |
| Malad City | Joan Hawkins | Mayor |
| Oneida School District | Robert Hannah | Principal |
| Oneida County Ambulance | Shane Howard | EMT-A |
| Southeastern Idaho Public Health | Paige Ellis | Program Manager |
| Public/LDS Church | Cory Ihler | Public Affairs |
| Oneida County Sheriff's Office | Arne Jones | Sheriff |
| NOAA | Kevin Smith | Meteorologist |
| Idaho Office of Emergency Management | Darin Letzring | Area Field Officer |
| Southeastern Idaho Public Health | Taia Murray | Nurse |
| Oneida County | Rhonda Neal | P&Z, Event Center |
| Nell J. Redfield Memorial Hospital | Jean Thomas | Grant Writer |
| Nell J. Redfield Memorial Hospital | John Williams | CEO/NHA |
| ATC Communications | Julie Williams | Customer Service Rep |
| Emergency Services | Dan Williams | Emergency Services Coordinator |

1.5 LOCAL HAZARD MITIGATION PLANNING MEETINGS

Initial Planning Meeting—April 27, 2021

The plan revision began in April 2021 with a virtual kickoff meeting with the state of Idaho to initiate the project.

Stakeholder Kickoff Meeting—July 20, 2021

The first meeting to begin planning and discussing the five-year update was held on July 20, 2021 at the Oneida County Fire Station in Malad City, Idaho. The purpose of the meeting was to familiarize attendees with the topic of disaster mitigation, introduce the mitigation plan and update process, and identify hazards of concern in the county.

Oneida County's local newspaper, *The Idaho Enterprise*, covered and published an article about the meeting. A scan of the full article as it appeared in the newspaper can be found in Appendix C.

Local Jurisdiction Workshop—December 1, 2021

A workshop to review hazards and review existing and new mitigation projects for the five-year update of the Oneida County Multi-Jurisdictional All Hazard Mitigation Plan was held on December 1, 2021 at the Oneida County Fire Station in Malad City, Idaho. Dan Williams, Oneida County Emergency Services Coordinator, conducted the meeting. The purpose of the meeting was to review the mitigation plan update process, discuss new federal mitigation programs, and update and identify existing and new mitigation projects for the county.

Oneida County's local newspaper, *The Idaho Enterprise*, covered and published an article about the meeting. A scan of the full article as it appeared in the newspaper can be found in Appendix C.

Public Planning Meeting—May 26, 2022

A planning meeting was held on May 26th specifically to ensure the public had an opportunity to participate in the planning process. The meeting gave the public an opportunity to review new and ongoing mitigation strategies. The public was invited to inform the planning process, validate the final risk assessment findings, and suggest any additional mitigation strategies.

1.6 PUBLIC AND STAKEHOLDER INVOLVEMENT

Broad public participation in the planning process helps ensure that diverse points of view about the planning area’s needs are considered and addressed. The public must have opportunities to comment on disaster mitigation plans during the drafting stages and prior to plan approval (44 CFR, Section 201.6(b)(1)). The following section details the public outreach strategy, including a combination of in-person and virtual methods. For the purposes of this plan, public, as defined by the County, includes residents, businesses, and organizations associated with Oneida County. The public outreach strategy included the following:

- Attempt to reach as many planning area citizens as possible using multiple strategies, including LEPC meetings open to the public and utilizing the local newspaper.
- Identify and involve planning area stakeholders.
- Make the plan available for public review and comment.

Oneida County is dedicated to involving the public directly in review and updates of the Plan. The public will have many opportunities to provide feedback about the Plan. Hard copies of the plan will be kept at the office of the Emergency Services Coordinator.

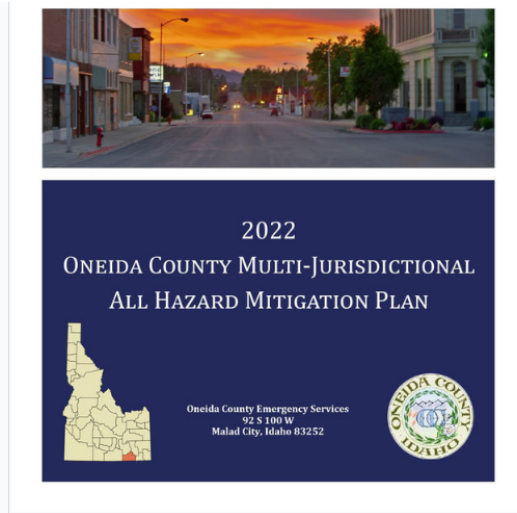
1.6.1 Public Meetings

The meetings that took place on July 20, 2021, December 1, 2021, and May 26, 2022 were open to the public. A dedicated public meeting took place on May 26, 2022. Businesses, key stakeholders, and the general public were invited to attend. The public was invited to review the plan at <http://prepare.community/oneida>, which was made available online prior to submission.

How Public Input was Incorporated into the Plan

This information helped to validate and confirm the risk assessment findings. Feedback from the public offered during the public meeting on May 26, 2022 provided greater insight to the public’s concerns regarding hazards. During that meeting, the highest risk hazards were presented and discussed. Public input suggested that cybersecurity was a greater concern and should be ranked higher.

These, and related findings, helped the planning team determine meaningful mitigation projects.



Hazard Mitigation Plan

PUBLIC NOTICE: ONEIDA COUNTY ALL-HAZARD MITIGATION PLAN

Oneida County is inviting all community members to review the draft of the County's Hazard Mitigation Plan. Oneida County is in the process of updating our Multi-Hazard Mitigation Plan. This plan is a document that defines the significant hazards, both manmade and natural, that could impact the county. A DRAFT copy of the Mitigation Plan has been completed.

Please click the link below to view the DRAFT 2022 Hazard Mitigation Plan.

LINK: [2022 Hazard Mitigation Plan](#)

For more information about this plan, please contact Dan Williams at dwilliams@atcnet.net.

Please fill in the fields below to submit a comment.

** Indicates required field*

Name *

| | |
|-------|------|
| First | Last |
|-------|------|

First Last

Email *

Phone Number *

Comment

Figure 1-1. Public Review Web site

1.6.2 Stakeholder Participation

The following stakeholders participated in the 2022 update of the Oneida County Multi-Jurisdictional All Hazard Mitigation Plan:

- City and County Departments
- Idaho Office of Emergency Management
- Idaho Transportation Department
- Idaho State Police
- Idaho Department of Lands

- U.S. Bureau of Land Management
- US Forest Service
- Southeastern Idaho Public Health District
- LDS Church Malad Idaho Stake
- Oneida School District
- NOAA
- Nell J. Redfield Memorial Hospital
- American Red Cross

1.6.3 Neighboring Jurisdiction Participation

Stakeholders from other Idaho and Utah counties included emergency managers from Bingham County, Bannock County, Franklin County, and Cache County, Cassia County, and Box Elder County. A draft of the plan was sent to each of the respective emergency managers and were invited to provide feedback.

1.7 PARTICIPATING PUBLIC SAFETY AGENCIES

1.7.1 Fire Protection

Fire protection for Oneida County is provided by the Oneida County Volunteer Fire District with fire stations in Malad City and Holbrook. The district is divided by east and west, with the Malad station covering the east side of the county and the Holbrook station providing services to the west side of the county. The Holbrook station houses one heavy structure truck and three small brush trucks and shares the building with the ambulance department. Dispatch for both stations is provided by the Oneida County Sheriff's Office and the 911 center. The Fire District consists of volunteer fire fighters.

1.7.2 Healthcare

The Nell J. Redfield Memorial Hospital is located in Malad City. The hospital is a full-service facility with an attached long term care facility. The hospital is owned by the people of Oneida County. Emergency services are provided twenty-four hours a day. The hospital provides both long term and short term care, including respite and day care, as well as home care services. Ambulance service is available.

Southeastern Idaho District Health provides education, immunizations, and health service support, such as WIC, Planned Parenthood, and other health related services.

1.7.3 Emergency Services

Oneida County Emergency Services is located at 92 S 100 W in Malad City and is under the direction of the Emergency Services Coordinator. Ambulance services for the east side of the county are provided by the Oneida County EMTs. The Oneida County Volunteer Fire District in Holbrook shares a building with the EMTs to provide emergency services to the west side of the county.

1.7.4 Law Enforcement

The Oneida County Sheriff's Office is the principal law enforcement agency in the county with station located in Malad. The Malad station provides service to the east side of the county, while the Holbrook station provides services to the west side of the county. The Oneida County Sheriff's Office provides dispatch services for all county emergency services.

PART II: RISK ASSESSMENT

CHAPTER 2 IDENTIFIED HAZARDS OF CONCERN AND RISK ASSESSMENT METHODOLOGY

Risk assessment is the process of measuring the potential loss of life, personal injury, economic injury, and property damage resulting from natural hazards. It allows emergency management personnel to establish early response priorities by identifying potential hazards and vulnerable assets. The process focuses on the following elements:

- Hazard identification—Use all available information to determine what types of disasters may affect a jurisdiction, how often they can occur, and their potential severity.
- Vulnerability identification—Determine the impact of natural hazard events on the people, property, environment, economy, and lands of the region.
- Cost evaluation—Estimate the cost of potential damage or cost that can be avoided by mitigation.

The risk assessment for this hazard mitigation plan update evaluates the risk of natural hazards prevalent in the planning area and meets requirements of the DMA (44 CFR, Section 201.6(c)(2)).

2.1 IDENTIFIED HAZARDS

There are countless hazards that pose a threat to human life, health, and well-being, and no attempt is made here to compile an exhaustive list. Those that are addressed in disaster planning are generally categorized as “natural” or “technological” (sometimes “manmade”). The FEMA website contains a thorough discussion of hazards in the section entitled “Threat and Hazard Identification and Risk Assessment (THIRA)” (FEMA, 2021). Some hazards are a threat to all geographic areas while others (e.g., flooding) are more limited in their extent. Studies were conducted to determine which hazards are of concern in Oneida County.

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

- Hazard planning documents developed by state, federal, and private agencies
- National Weather Service weather data from the past 50 years
- 100-year historical analysis of hazardous event occurrences published by federal, state, and local government agencies

Hazards that have been identified as significant in this county and that will be considered in this plan are listed below.

Natural Hazards

- Drought
- Severe Summer Weather
 - Extreme Heat
 - Lightning
 - Hail
 - Tornado

- Straight Line Wind
- Severe Winter Weather
 - Extreme Cold
 - Winter Storm
- Flood
 - Flash Flood
 - River Flood
 - Dam Failure
- Wildfire

Geological Hazards

- Earthquake
- Landslide/Mudslide
- Snow Avalanche

Biological Hazards

- Communicable Disease
 - Pandemic Influenza
 - West Nile Virus
 - Hoof and Mouth Disease
 - Mad Cow Disease
 - COVID-19 Pandemic

Technological (Manmade) Hazards

- Structure Fire
- Hazardous Material Event
- Riot/Demonstration/Civil Disorder
- Terrorism
- Cybersecurity Incident
- Utility Disruption

Per FEMA’s mandate to address all natural hazards, the following natural hazards were not included because these hazards do not directly impact Oneida County due to geographic location:

- Hurricane
- Sea Level Rise
- Storm Surge
- Tsunami

- Volcanic Eruption

2.2 HAZARD PROFILE

The risk assessments in the following chapters describe the risks associated with each identified hazard of concern. The following sections were used to describe each hazard and communicate each respective level of risk:

- **Description**—Each hazard profile contains a description of the general definition and causes of the hazard. It may also include background information for understanding the context of the hazard within Oneida County.
- **Historical Frequencies**—This section identifies past hazard events of note that have occurred in Oneida County. It also includes the reoccurrence interval for each hazard if available.
- **Impacts**—The potential impacts of each hazard on the county are discussed.
- **Loss Estimates**—This section outlines the potential economic/monetary loss from a hazard event, in addition to loss of property, structures, facilities, systems, livestock, and life.
- **Related Hazards**—The hazard profiles that fall under a greater hazard category can be found within this section.

2.3 RISK ASSESSMENT METHODOLOGY

2.3.1 Probability of Occurrence

The probability of occurrence of a hazard is indicated by a probability factor based on the likelihood of annual occurrence:

- **High**—Significant hazard event is likely to occur annually (Probability Factor = 3)
- **Medium**—Significant hazard event is likely to occur within 25 years (Probability Factor = 2)
- **Low**—Significant hazard event is likely to occur within 100 years (Probability Factor = 1)
- **Unlikely**—There is little to no probability of significant occurrence, or the recurrence interval is greater than every 100 years (Probability Factor = 0)

The assessment of hazard frequency is generally based on past hazard events in the area. The table below summarizes the probability assessment for each hazard of concern for this plan.

2.3.2 Impact

Hazard impacts were assessed in five categories: population exposure, catastrophic potential of the hazard, property damages, property exposure, and economic potential of the hazard. Numerical impact factors were assigned as follows:

- **Population Exposed**—Values were assigned based on the percentage of the total population exposed to the hazard event. The degree of actual impact on individuals from any hazard event can vary widely, so the calculation assumes for simplicity and consistency that all people exposed to a hazard because they live in a hazard zone will be equally impacted when a hazard event occurs.
 - *High*—30% or more of the population is exposed to a hazard (Impact Factor = 3)

- *Medium*—15% to 29% of the population is exposed to a hazard (Impact Factor = 2)
- *Low*—14% or less of the population is exposed to the hazard (Impact Factor = 1)
- *No impact*—None of the population is exposed to a hazard (Impact Factor = 0)
- **Property Exposed**—Values were assigned based on the percentage of the total property value exposed to the hazard event:
 - *High*—25% or more of the total assessed property value is exposed to a hazard (Impact Factor = 3)
 - *Medium*—10% to 24% of the total assessed property value is exposed to a hazard (Impact Factor = 2)
 - *Low*—9% or less of the total assessed property value is exposed to a hazard (Impact Factor = 1)
 - *No impact*—None of the total assessed property value is exposed to a hazard (Impact Factor = 0)
- **Property Damages**—Values were assigned based on the expected total property damages incurred from the hazard event. It is important to note that values represent estimates of the loss from a major event of each hazard based on historical data for each event or probabilistic models/studies.
 - *High*—More than \$5,000,000 in property damages is expected from a single major hazard event, or damages are expected to occur to 15% or more of the property value within the jurisdiction (Impact Factor = 3)
 - *Medium*—More than \$500,000 but less than \$5,000,000 in property damages is expected from a single major hazard event, or expected damages are expected to occur to more than 5% but less than 15% of the property value within the jurisdiction (Impact Factor = 2)
 - *Low*—Less than \$500,000 in property damages is expected from a single major hazard event or less than 5% of the property value within the jurisdiction (Impact Factor = 1)
 - *No impact*—Little to no property damage is expected from a single major hazard event (Impact Factor = 0)
- **Economic Factor**—An estimation of the impact, expressed in terms of dollars, on the local economy is based on a loss of business revenue, worker wages, and local tax revenues or on the impact on the local Gross Domestic Product (GDP).
 - *High*—Total economic impact is likely to be greater than \$10 million (Impact Factor = 3)
 - *Medium*—Total economic impact is likely to be greater than \$100,000 but less than or equal to \$10 million (Impact Factor = 2)
 - *Low*—Total economic impact is not likely to be greater than \$100,000 (Impact Factor = 1)
 - *No impact*—Virtually no significant economic impact (Impact Factor = 0)
- **Catastrophic Factor**—The potential that an occurrence of this hazard could be catastrophic.
 - *High*—High potential that this hazard event could be catastrophic (Impact Factor = 3)
 - *Medium*—Medium potential that this hazard event could be catastrophic (Impact Factor = 2)

- *Low*—Low potential that this hazard event could be catastrophic (Impact Factor = 1)
- *Unlikely*—Virtually no potential that this hazard event could be catastrophic (Impact Factor = 0)
- **Future Development Factor**—The potential that future development will have on increasing the risk of this hazard.
 - *High*—Future development trends will significantly increase the risk of this hazard (Impact Factor = 3)
 - *Medium*—Future development trends will increase the risk of this hazard, but not significantly (Impact Factor = 2)
 - *Low*—Future development trends will minimally increase the risk of this hazard (Impact Factor = 1)
 - *Unlikely*—Future development trends will not increase the risk of this hazard (Impact Factor = 0)

Each category was assigned a weighting factor to reflect its significance, consistent with those typically used for measuring the benefits of hazard mitigation actions: a weighting factor of 3 for both populations exposed to the hazard and its potential for catastrophe; a weighting factor of 2 for property damages probable due to a major hazard event; and a weighting factor of 1 for both property exposed to the hazard and its impact on the economy.

2.4 OVERALL RISK SCORES

The following tables represent the new overall risk scores for Oneida County based on the described methodology. Following a data-driven quantitative assessment, the planning team utilized subject matter knowledge and expertise and further refined the scores.

2.4.1 Oneida County

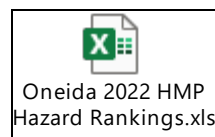
Table 2-1. 2022 Hazard Risk Scores for Oneida County

| 2022 HAZARD RISK SCORES FOR ONEIDA COUNTY | | | |
|---|--------------------|--------------------------------|------------------------------|
| Hazard Event | Probability Factor | Sum of Weighted Impact Factors | Total (Probability x Impact) |
| Wildfire | 3 (H) | 25 (H) | 75 (H) |
| Severe Winter Storm | 3 (H) | 22 (M) | 66 (H) |
| Droughts | 3 (H) | 22 (M) | 66 (H) |
| Earthquake | 2 (M) | 32 (H) | 64 (H) |
| Extreme Cold | 3 (H) | 16 (M) | 48 (M) |
| Utility Disruption | 2 (M) | 22 (M) | 44 (M) |
| Public Health | 2 (M) | 21 (M) | 42 (M) |
| Flash Flood | 2 (M) | 21 (M) | 42 (M) |
| Cybersecurity | 3 (H) | 14 (L) | 42 (M) |
| Structural Fire | 3 (H) | 13 (L) | 39 (M) |
| High Wind Event | 2 (M) | 19 (M) | 38 (M) |

| | | | |
|---------------------------------------|-------|--------|--------|
| Hazardous Materials | 2 (M) | 17 (M) | 34 (M) |
| Hail | 2 (M) | 15 (L) | 30 (M) |
| Dam Failure | 1 (L) | 25 (H) | 25 (L) |
| Terrorism | 1 (L) | 17 (M) | 17 (L) |
| River or Stream Flooding | 1 (L) | 16 (M) | 16 (L) |
| Extreme Heat | 1 (L) | 13 (L) | 13 (L) |
| West Nile | 1 (L) | 13 (L) | 13 (L) |
| Riot / Demonstration / Civil Disorder | 1 (L) | 12 (L) | 12 (L) |
| Landslide / Mudslide | 1 (L) | 12 (L) | 12 (L) |
| Tornado | 1 (L) | 11 (L) | 11 (L) |
| Avalanche | 1 (L) | 11 (L) | 11 (L) |
| Hoof and Mouth Disease | 1 (L) | 5 (L) | 5 (L) |
| Mad Cow | 1 (L) | 5 (L) | 5 (L) |

| LEGEND | | | | | |
|--------------------|------------|--------------------------------|------------|------------------|------------|
| Probability Factor | | Sum of Weighted Impact Factors | | Total Risk Score | |
| 1 | Low (L) | 0–15 | Low (L) | 0–25 | Low (L) |
| 2 | Medium (M) | 16–24 | Medium (M) | 26–60 | Medium (M) |
| 3 | High (H) | 25–30 | High (H) | 61–100 | High (H) |

**The legend—specifically the assignment of low, medium, and high—provides an additional means to qualitatively assess the probability factor, sum of weighted impact factors, and the total risk scores for each hazard.*



2.4.2 Malad

| 2022 HAZARD RISK SCORES FOR CITY OF MALAD | | | |
|---|--------------------|--------------------------------|------------------------------|
| Hazard Event | Probability Factor | Sum of Weighted Impact Factors | Total (Probability x Impact) |
| Severe Winter Storm | 3 (H) | 22 (M) | 66 (H) |
| Droughts | 3 (H) | 22 (M) | 66 (H) |
| Earthquake | 2 (M) | 32 (H) | 64 (H) |
| Flash Flood | 3 (H) | 19 (M) | 57 (M) |
| Extreme Cold | 3 (H) | 16 (M) | 48 (M) |
| Public Health | 2 (M) | 21 (M) | 42 (M) |
| Utility Disruption | 2 (M) | 21 (M) | 42 (M) |
| Cybersecurity | 3 (H) | 14 (L) | 42 (M) |
| Structural Fire | 3 (H) | 13 (L) | 39 (M) |
| Wildfire | 2 (M) | 19 (M) | 38 (M) |

| | | | |
|---------------------------------------|-------|--------|--------|
| High Wind Event | 2 (M) | 19 (M) | 38 (M) |
| Hazardous Materials | 2 (M) | 17 (M) | 34 (M) |
| River or Stream Flooding | 2 (M) | 16 (M) | 32 (M) |
| Hail | 2 (M) | 15 (L) | 30 (M) |
| Dam Failure | 1 (L) | 25 (H) | 25 (L) |
| Terrorism | 1 (L) | 17 (M) | 17 (L) |
| Extreme Heat | 1 (L) | 13 (L) | 13 (L) |
| West Nile | 1 (L) | 13 (L) | 13 (L) |
| Riot / Demonstration / Civil Disorder | 1 (L) | 12 (L) | 12 (L) |
| Landslide / Mudslide | 1 (L) | 12 (L) | 12 (L) |
| Tornado | 1 (L) | 11 (L) | 11 (L) |
| Avalanche | 1 (L) | 11 (L) | 11 (L) |
| Hoof and Mouth Disease | 1 (L) | 5 (L) | 5 (L) |
| Mad Cow | 1 | 5 | 5 |

| LEGEND | | | | | |
|--------------------|------------|--------------------------------|------------|------------------|------------|
| Probability Factor | | Sum of Weighted Impact Factors | | Total Risk Score | |
| 1 | Low (L) | 0–15 | Low (L) | 0–25 | Low (L) |
| 2 | Medium (M) | 16–24 | Medium (M) | 26–60 | Medium (M) |
| 3 | High (H) | 25–30 | High (H) | 61–100 | High (H) |

**The legend—specifically the assignment of low, medium, and high—provides an additional means to qualitatively assess the probability factor, sum of weighted impact factors, and the total risk scores for each hazard.*



CHAPTER 3 ONEIDA COUNTY PROFILE

3.1 COMMUNITY DESCRIPTION

Oneida County has a total land area of 1,202 square miles. The county seat is in Malad City where most of the county's population lives. The county is named for Oneida Lake in New York—an area from which most of the early settlers had emigrated. Oneida County was organized on January 22, 1864 as part of the Idaho territory. The original county seat was at Soda Springs in present day Caribou County, but the county seat was moved to Malad City in 1866 because of its population growth and location on the freight road and stagecoach line.

3.2 LOCATION

Oneida County is located in southeast Idaho. It is bordered on the north by Power County and Bannock County, on the east by Franklin County, on the west by Cassia County, and on the south by Cache County, Utah and Box Elder County, Utah.

3.3 TOPOGRAPHY AND VEGETATION

Oneida County has a varied topography that includes the Elkhorn Mountains (north), the Oxford Range (east), Samaria Mountains (south), Curlew and Juniper Valleys (west), and the Pleasantview Hills (central). Elevation ranges from 4,444 feet in the Malad Valley and along the Malad River to 9,092 feet at the summit of Elkhorn Peak located in the Elkhorn Mountains (WUI, 2004).

An estimated 70,000 acres of the private land have been developed under the Conservation Reserve Program (CRP). This is a voluntary program for agricultural landowners who receive annual rental payments and cost-share assistance in exchange for agreeing to remove environmentally sensitive land from agricultural use to conserve resources long term (FSA, 2021). The public lands are primarily used for grazing and are undeveloped.

The Curlew National Grassland (CNG) is located in the Greater Curlew Valley west of Malad City and encompasses approximately 47,000 acres of National Forest System lands. These lands, managed by the Caribou-Targhee National Forest, include private land purchased by the government in the 1920s to 1940s. Of the 47,000 acres, only 12,000 acres remain in native vegetation. The dominant vegetation on the remaining acreage is a mix of introduced grass species, crested wheatgrass, and bulbous bluegrass, with an overstory of big sagebrush subspecies. All of the vegetative communities on the CNG are associated with high elevation desert shrubs. The Caribou-Targhee National Forest Land Resource Management Plan requires suppression of all natural fires occurring on the CNG. Additionally, the plan calls for the following: (1) within 10 years of the Record of Decision (ROD), treat 2,500 acres of bulbous bluegrass and reseed with native and non-native grass, forb, and shrub seed mixtures; and (2) within 10 years of the ROD, treat 9,600 acres of sagebrush with herbicides or other appropriate methods to reduce canopy cover to less than 25% and to achieve other resource objectives.

Outside of the CNG and throughout the county, some of the more common plant species include Basin big sagebrush (*Artemisia tridentata* spp. *Tridentata*), mountain big sagebrush (*Artemisia tridentata* spp. *vaseyana*), low sagebrush (*Artemisia arbuscula*), black sagebrush (*Artemisia tridentata* *nova*), threetip sagebrush (*Artemisia* *29ripartite*), green rabbitbrush (*Chrysothamnus viscidiflorus*), rubber rabbitbrush (*Chrysothamnus nauseosus*), brome (*Bromus* spp.), festuca (*Festuca* spp.), poa (*Poa* spp.), stipa (*Stipa* spp.), wheatgrass (*Agropyron* spp.), Rocky mountain juniper (*Juniperus scopulorum*), Utah juniper

(*Juniperus osteosperma*), rocky mountain maple (*Acer glabrum*), subalpine fir (*Abies lasiocarpa*), curleaf mountain mahogany (*Cercocarpus ledifolius*), lodgepole pine (*Pinus contorta*), Douglas fir (*Pseudotsuga menziesii*), quaking aspen (*Populus tremuloides*), and numerous forbs. For a complete plant species list contact the Malad City BLM office (WUI, 2004).

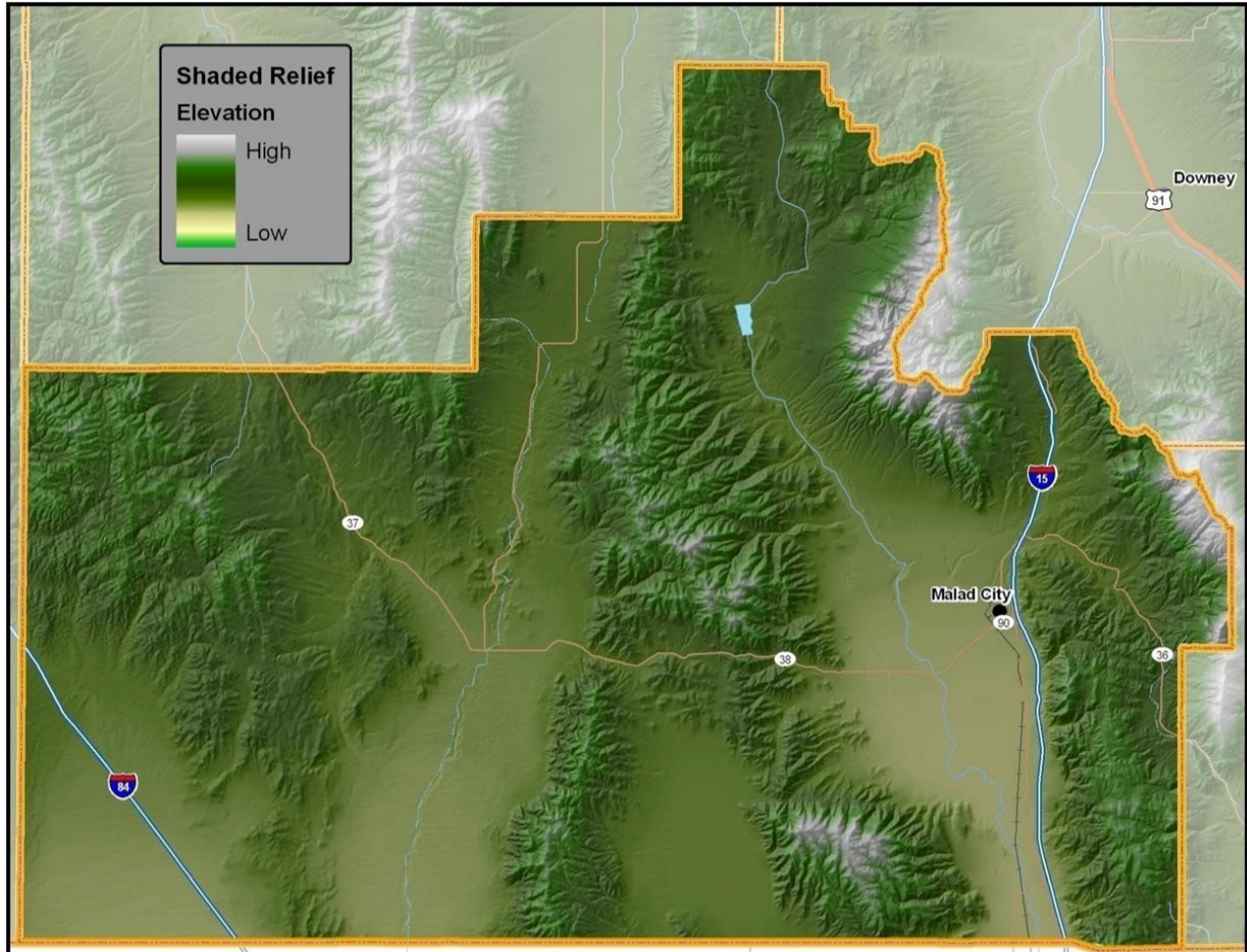


Figure 3-1. Oneida County Shaded Relief Elevation

3.4 GEOLOGY

The county is within the Basin and Range province with north-trending normal faults bounding the east sides of the ranges. The active Wasatch fault extends north of Malad Valley and then bends to the west of Elkhorn Peak.

The Bannock Range contains Neoproterozoic through Ordovician strata, which are cut by slow-angle normal faults associated with the Bannock Detachment fault, which formed around 10 million years ago. The ranges west of Malad Valley contain mainly upper Paleozoic rocks. The Manning Canyon thrust fault is exposed in a small canyon west of Malad in the Blue Spring Hills.

Lake Bonneville reached into Malad, Curlew, Pocatello, and Juniper Valleys, along the Idaho-Utah border (Digital Atlas of Idaho, 2021).

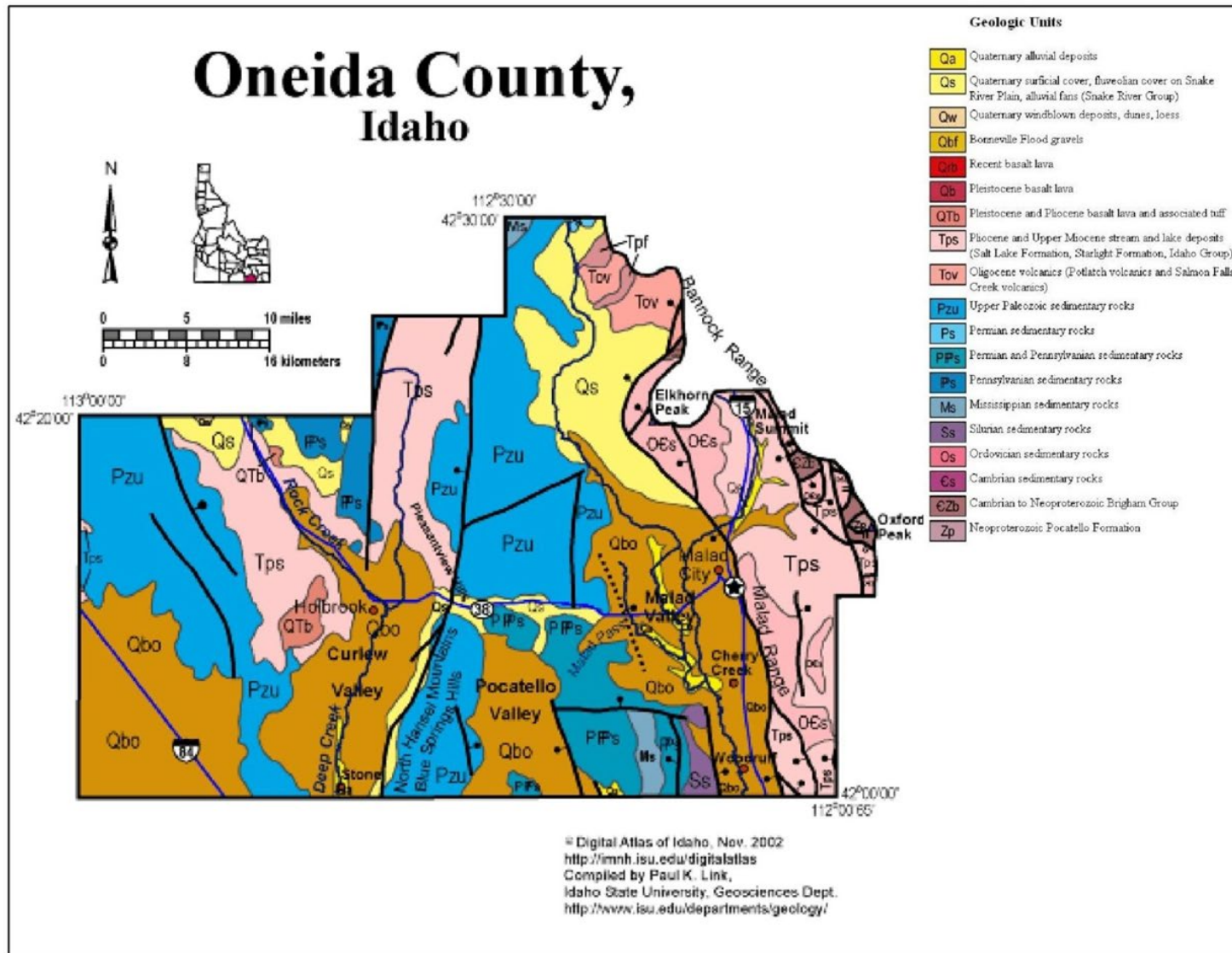


Figure 3-2. Oneida County Geology

3.5 CLIMATE

Climate in Oneida County is generally consistent with other counties located in Southeastern Idaho. In the winter the average temperature is 40°F, and the average daily minimum is 21°F. In summer the average daily maximum temperature is 86°F, and the average minimum temperature is 50°F. In general, the summer days are warm, and the nights are fairly cool. Precipitation during the summer months is limited to isolated showers and thunderstorms that produce localized precipitation. The months of July through October represent the lowest average total precipitation. Winter normally arrives in mid-November. Snowfall is the primary source of precipitation for the county. Snow levels in the county vary due to elevation, with an average snow depth in inches of nine inches in January.

Table 3-1. Malad City Monthly Climate Summary

| MALAD CITY MONTHLY CLIMATE SUMMARY (1973–2016) | | | | | | | | | | | | |
|---|------|-------|-------|------|------|------|------|------|------|------|------|--------|
| Average Maximum Temperature | | | | | | | | | | | | |
| Jan | Feb | March | April | May | June | July | Aug | Sept | Oct | Nov | Dec | Annual |
| 32.6 | 38.5 | 48.9 | 59.6 | 69.8 | 79.6 | 89.8 | 88.4 | 78.3 | 64.6 | 46.6 | 34.6 | 60.9 |
| Average Minimum Temperature | | | | | | | | | | | | |
| Jan | Feb | March | April | May | June | July | Aug | Sept | Oct | Nov | Dec | Annual |
| 11.2 | 15.1 | 23.5 | 30.2 | 37.6 | 43.7 | 49.5 | 48.3 | 39.3 | 30.0 | 22.0 | 13.6 | 30.3 |
| Average Total Precipitation | | | | | | | | | | | | |
| Jan | Feb | March | April | May | June | July | Aug | Sept | Oct | Nov | Dec | Annual |
| 1.22 | 1.05 | 0.99 | 1.18 | 1.78 | 1.22 | 0.88 | 0.86 | 0.90 | 1.08 | 1.02 | 1.08 | 13.26 |
| Average Total Snowfall | | | | | | | | | | | | |
| Jan | Feb | March | April | May | June | July | Aug | Sept | Oct | Nov | Dec | Annual |
| 10.7 | 6.8 | 3.8 | 1.4 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 3.7 | 9.4 | 36.4 |
| <i>Source: Western Regional Climate Center, 2021</i> | | | | | | | | | | | | |

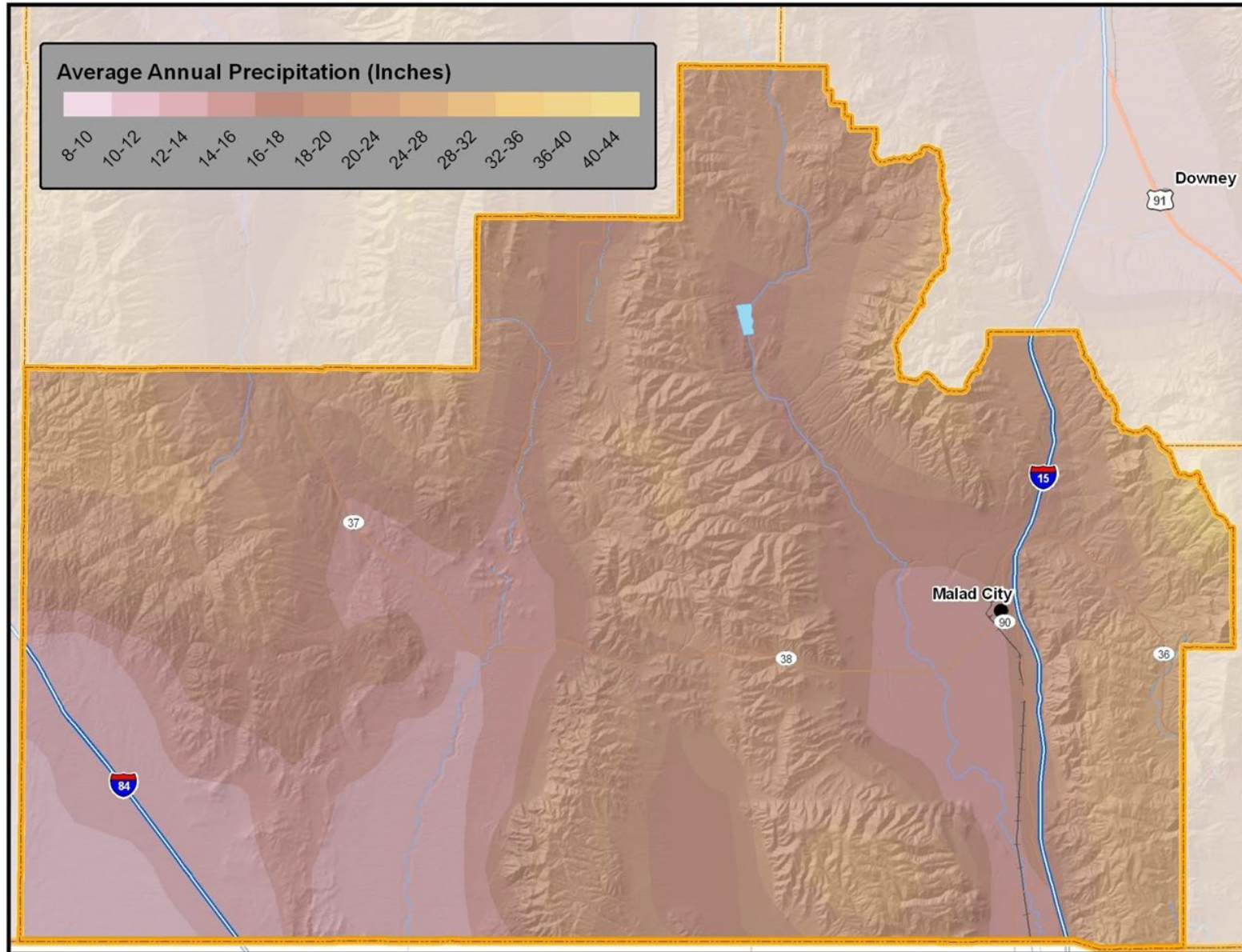


Figure 3-3. Oneida County Precipitation

3.6 LAND OWNERSHIP

Oneida County consists of 1,202 square miles of which 1,200 square miles is land and 1.3 square miles is water. Oneida County contains 409,305 acres of federal land (53% of the county); 193,197 of those acres are forested lands, while the remaining acres are BLM. State Endowment Lands consist of 13,007 acres in the county. The states of Utah and Idaho and the U.S. Fish and Wildlife Service manage small areas. Below is a breakdown of land ownership in Oneida County.

Table 3-2. Land Ownership in Oneida County

| LAND OWNERSHIP IN ONEIDA COUNTY | |
|--|----------------|
| Land Ownership | Acres |
| Federal Land | 409,305 |
| BLM | 270,108 |
| National Forests | 193,197 |
| Other | 0 |
| State Land | 13,007 |
| Endowment Land | 0 |
| Fish and Game | 0 |
| Parks and Recreation | 0 |
| University of Idaho Land | 0 |
| Private Land | 345,903 |
| County Land | 31 |
| Municipal Land | 10 |
| Total | 768,256 |
| <i>Source: Idaho Department of Labor</i> | |

3.7 LAND USE AND NATURAL RESOURCES

Agriculture and mining are the most significant basic industries in the county. The average farm in the county is 848 acres. A little less than half of the land in the Lower Bear-Malad watershed is used as rangeland and one-third is agricultural lands.

Table 3-3. Land Use Types

| LAND USE TYPES | | |
|--|---------|------------------|
| Land Use Type | Acres | Percent of Total |
| Urban Land | 800 | 0.1% |
| Agricultural | 241,300 | 31.7% |
| Rangeland | 486,800 | 63.9% |
| Forest | 32,300 | 4.2% |
| Water | 1,000 | 0.1% |
| <i>Source: Idaho Department of Labor</i> | | |

The Malad River is a major tributary to the Bear River, entering about 20 miles above the Bear River Migratory Bird Refuge. The Malad River originates as the Little Malad River in the Caribou National Forest in Idaho, and as it travels, it picks up water from Deep Creek and Devil Creek near Malad City. There are eight reservoirs in the county providing fishing and other water recreation in the county.

The Curlew National Grassland is operated by the federal government and provides a diversity of activities different from forested lands. The grasslands are multiple use lands with emphasis on grazing livestock, watershed management, wildlife, and recreation use.

The Caribou National Forest offers fishing, hiking, backpacking, hunting, horseback riding, camping, picnicking, off-road vehicle access, and winter sports.

3.8 DEMOGRAPHICS

The population of Oneida County was approximately 4,531 as of the 2019 American Community Survey 5-Year Estimates. This was an increase of 245 people from the 2010 U.S. Census data. This growth rate shows an increase in growth rate from the 2000s. The county has an average of 19.2% of the population over the age of 65, while 29.7% of the population is under the age of 18.

There were an estimated 1,999 housing units in 2019, with a homeownership rate of 79.9% (American Community Survey, 2019). There were 1,615 households in Oneida County, with a median income per household of \$53,841. This puts Oneida County slightly lower in median income than the state average. Persons below the poverty level in Oneida County accounted for 11.4%. Of the 1,615 households, 62.7% were married couples living together, 17.6% were female householders with no spouse present, and 17.6% were male householders with no spouse present.

Table 3-4. Population Trends for Oneida County

| POPULATION TRENDS FOR ONEIDA COUNTY | | | | | | | |
|-------------------------------------|-------|-------|-------|-------------|--------------------------|--------------------------|---------------------------------|
| Area of County | 1990 | 2000 | 2010 | 2019 (est.) | Percent Change 1990–2000 | Percent Change 2000–2010 | Percent Change 2010–2019 (est.) |
| Entire County | 3,492 | 4,125 | 4,286 | 4,531 | 15.3% | 3.9% | 5.4% |
| Malad City | 1,946 | 2,158 | 2,095 | 2,081 | 9.8% | -2.9% | -0.67% |

Source: American Community Survey, 2019

61.9% of structures/homes in Oneida County were built before 1980 (American Community Survey, 2019). Of the total population in the county 35.2% of the residents were born in Idaho, while 61.7% of the residents were born in another state. Only 3% of the residents were foreign born. The population is mainly homogenous with 93.4% of the residents listed as white-non-Hispanic.

Table 3-5. Oneida County Racial and Ethnic Distribution

| ONEIDA COUNTY RACIAL AND ETHNIC DISTRIBUTION | |
|--|---------|
| Race | Percent |
| White | 97.9% |

| ONEIDA COUNTY RACIAL AND ETHNIC DISTRIBUTION | |
|--|---------|
| Race | Percent |
| Black or African American | 0.1% |
| American Indian and Alaska Native | 0.2% |
| Asian | 0.0% |
| Hispanic or Latino | 4.5% |

Source: American Community Survey, 2019

3.9 PUBLIC SERVICES AND FACILITIES

Oneida County operates a public library in downtown Malad City. Thanks to generous donations, the library includes a new children’s addition and a collection of over 26,000 items, including books, magazines, reference materials, videos, DVDs, music, CDs, and audio books. The library system is automated and offers free internet access on computers, as well. The library also offers interlibrary loan services to assist patrons in getting books that are not available at the library.

3.10 SEWER AND WATER

The Malad City Water Department provides water and sewer to residents through a municipal system. Other unincorporated areas in Oneida County are on private wells and septic tank systems.

3.11 WASTE MANAGEMENT

Oneida County Sanitary Landfill is located three miles from Malad, east of I-15. The useful life of the facility was estimated at 15 to 20 years in 1999 without expansion.

The county provides solid waste pickup and disposal to residents under a program of designated pickup days. The county contracts with Malad City for solid waste pickup. In order to alleviate the added pressures upon the main landfill, two construction/demolition landfills were developed. One is located at the main landfill and another south of the Malad City limits. The county and city of Malad also co-operate a recycling center.

3.12 PUBLIC UTILITIES

3.12.1 Power

Rocky Mountain Power provides electric power to Oneida County residents. There are five power providers total in Oneida County (Find Energy, 2021).

21% of the residents use electricity to heat their residence, while 50% of the residents in the county use tank or LP gas to heat their homes.

V-1 Propane, Valley Oil Company, and KC Oil Company provide propane to county residents. A smaller percentage heat their homes by other means—2.9% use wood and 2.3% use coal.

3.12.2 Telecommunications

ATC Communications (Albion Telephone Company) provides telephone and fiber internet service in Oneida County. HughesNet, Viasat, and Rise Broadband offer satellite internet and phone services. Last Mile Wireless is based in Malad City and provides fixed wireless internet to the local area. Dish and DirectTV offer satellite television.

3.13 WATER RESOURCES

3.13.1 Surface Water

Significant surface water resources in Oneida County are Little Malad River and Deep Creek. These two water sources are also important resources in the economy of the area. In western Oneida County, Rock Creek (or Twin Springs Creek) supplies water to the Curlew area of the county from spring runoff, with more water in the creek during early spring and decreasing throughout the summer. Holbrook Springs provides perennial flow of 25–35 cfs. to Deep Creek. Other small springs and ephemeral streams contribute to surface water in the county.

There are 12 dams in Oneida County, with only 10 being active (National Inventory of Dams, 2021). At least eight reservoirs are used for recreation and/or irrigation (TopoZone, 2021).

3.13.2 Irrigation

The natural flow of Deep Creek is used mainly for irrigation in Oneida County. Rock Creek and Holbrook Springs contribute to Deep Creek’s volume.

3.14 TRANSPORTATION

The average commute time to work for Oneida County is 22.7 minutes, with 3.49% of commuters traveling more than 90 minutes one way (American Community Survey, 2019). 76.8% of county residents commuted alone to work while 16% carpooled. 4.34% of the remaining residents worked from home, and 2.8% walked.

3.14.1 Roadways

Interstate 15 traverses the county on the east side. State Highway 38 leaves Interstate 15 south of Malad and travels west through Oneida County to the city of Holbrook where it intersects with State Highway 37. State Highway 37 travels north and south on the western edge of the county, connecting the Utah border and Interstate 86 in Power County.

Table 3-6. Roadways in Oneida County

| ROADWAYS IN ONEIDA COUNTY | |
|---------------------------|-----------------|
| Road Type | Length in Miles |
| Interstate | 39.57 |
| Major Road | 81.97 |
| Local Road | 720.64 |
| Minor Road | 238.32 |

3.15 HIGHWAY BRIDGES

The following bridges are from the National Bridge Inventory. The table below describes each bridge with its associated value, traffic count, year built, and bridge length.

Table 3-7. Bridges in Oneida County

| BRIDGES IN ONEIDA COUNTY | | | | | | | |
|--------------------------|----------------|--------|-------------|------------|---------------|-----------|--------------|
| Bridge Class | Name | Owner | Length (ft) | Year Built | Traffic Count | Condition | Value |
| HWB3 | I 15 NBL | State | 415 | 1975 | 7,900 | 777 | \$8,941,590 |
| HWB3 | I 15 SBL | State | 415 | 1975 | 7,900 | 777 | \$8,941,590 |
| HWB17 | I 15 NBL | State | 344 | 1975 | 7,800 | 777 | \$7,411,824 |
| HWB17 | I 15 SBL | State | 344 | 1975 | 7,800 | 777 | \$7,411,824 |
| HWB3 | I 15 NBL & SBL | State | 61 | 1975 | 7,800 | 777 | \$7,045,866 |
| HWB17 | I 15 NBL | State | 372 | 1975 | 7,000 | 787 | \$8,015,112 |
| HWB17 | I 15 SBL | State | 372 | 1975 | 7,000 | 777 | \$8,015,112 |
| HWB3 | I 15 NBL | State | 399 | 1975 | 7,000 | 667 | \$8,596,854 |
| HWB3 | I 15 SBL | State | 399 | 1975 | 7,000 | 667 | \$8,596,854 |
| HWB17 | I 15 NBL | State | 387 | 1971 | 7,000 | 775 | \$8,338,302 |
| HWB17 | I 15 SBL | State | 387 | 1971 | 7,000 | 565 | \$8,338,302 |
| HWB17 | I 15 NBL | State | 384 | 1971 | 6,900 | 675 | \$8,273,664 |
| HWB17 | I 15 SBL | State | 384 | 1971 | 6,900 | 675 | \$8,273,664 |
| HWB17 | SH 36 | State | 671 | 1964 | 470 | 566 | \$10,870,200 |
| HWB5 | I 84 EBL | State | 366 | 1968 | 5,900 | 666 | \$7,352,208 |
| HWB5 | I 84 WBL | State | 366 | 1968 | 5,900 | 656 | \$7,352,208 |
| HWB3 | I 84 WBL | State | 113 | 1968 | 5,900 | 776 | \$3,533,058 |
| HWB3 | I 84 EBL | State | 113 | 1968 | 5,900 | 777 | \$3,295,080 |
| HWB3 | I 84 WBL | State | 94 | 1968 | 5,900 | 667 | \$2,040,552 |
| HWB3 | I 84 EBL | State | 94 | 1968 | 5,900 | 667 | \$2,040,552 |
| HWB3 | I 84 EBL | State | 91 | 1968 | 5,900 | 776 | \$2,668,302 |
| HWB3 | I 84 WBL | State | 91 | 1968 | 5,900 | 777 | \$2,742,012 |
| HWB15 | US 89 | State | 2195 | 1971 | 3,200 | 666 | \$39,470,490 |
| HWB4 | STC 1702 | County | 79 | 1990 | 120 | 777 | \$972,648 |
| HWB15 | SUMMIT RD. | State | 927 | 1971 | 150 | 677 | \$14,566,878 |

Source: Federal Highway Administration, 2021

3.16 AIRPORTS

There is one airport in Oneida County located in Malad City. The runway is 4,950 feet long by 60 feet wide and made of asphalt or bituminous concrete. The airport does not provide domestic aircraft services. Domestic flight service is provided by Pocatello Regional Airport in Pocatello, 32 miles from Malad, or Salt Lake City International Airport in Salt Lake City, Utah, 108 miles from Malad.

3.17 HOUSING

As of the 2019 American Community Survey 5-Year Estimates, Oneida County contained 1,999 housing units, of which 79.9% were owner-occupied and 20.1% were rental units. The number of housing units in Oneida County increased by 4.6% from 1,906 units in 2010. 61.9% of structure/homes in Oneida County were built before 1980.

The 2019 estimates list the median owner-occupied housing value as \$167,100, while the 2010 census shows a lower value of \$120,400. The median contract rent for Oneida County grew from \$525 in the 2010 census to \$748 in 2019. The average number of household members was 2.23.

3.18 EDUCATIONAL FACILITIES

Oneida County has one school district within its boundaries, which is Oneida County School District. The school district consists of two elementary schools, one middle school, one high school, one alternative high school, and one online learning school. Oneida County School District enrolls 1,484 students in grades Pre-K to 12th (Public School Review, 2021). The student to teacher ratio in Oneida County is 21 students to one teacher.

Malad Elementary School is located in Malad and has an enrollment of 404 students in grades pre-kindergarten to fifth. Stone Elementary School has 12 students from kindergarten to fifth grade and is located in Stone, Idaho in the southwest portion of the county. Malad Middle School, located in the city of Malad, provides services to 209 students in grades sixth to eighth. The district also provides an online learning school called the Idaho Home Learning Academy for grades kindergarten to 12th, including SPED children, and enrolls 560 students. Malad High School is also located in Malad and has an enrollment of 283 students in grades ninth to 12th. Oneida High School is an alternative high school that offers more one-on-one instruction for their 16 students, and it is located near Malad Middle School.

3.19 HIGHER EDUCATION

There are three major universities within a 70-mile radius of Oneida County. The closest is Idaho State University in Pocatello, which is 32 miles from the county seat of Malad. Utah State University in Logan, Utah is 45 miles away, and Weber State University in Ogden, Utah is 72 miles away. Although these universities are a distance away, many residents take advantage of the opportunity to further their education. Idaho State University and Utah State University are both used for higher education by commuters.

3.20 RECREATION AREAS

Recreation in Oneida County abounds with eight reservoirs for fishermen to choose from. The Cherry Creek Visitor's Center just six miles south of Malad has full information on area reservoirs. The reservoirs are all within 45 minutes of Interstate 15, which traverses the eastern edge of the county. Devil's Creek Reservoir is located near the top of Malad Pass and is stocked annually with rainbow and cutthroat trout. Deep Creek Reservoir is fed by runoff and stocked with both trout and Kokanee. Daniels Reservoir is managed as a trophy lake for rainbow and cutthroat trout. Crowthers Reservoir boasts large-mouth bass as well as bluegill and rainbow trout.

Two national forests, including Caribou-Targhee National Forest and Cache National Forest, as well as Deep Creek Reservoir provide tent and RV space for camping.

Curlew National Grassland in western Oneida County is operated by the federal government and covers 47,600 acres. The grassland maintains an abundant wildlife population. Historically, the Curlew Grassland was occupied by the Shoshone and Bannock Indians before the settlement of communities by pioneers. The federal government purchased thousands of acres between 1934 and 1942 to promote and sustain management of forage, fish, and wildlife. The Curlew attracts many activities including fishing, hunting, wildlife observation, and photography.

Evan's Co-op Store was the first department store in Idaho and is now referred to as Co-op Block and J.N. Ireland Bank. The historical commercial block now consists of two markets, a pharmacy, and several craft boutiques. The Oneida Pioneer Museum, Iron Door Playhouse, and Malad City storefront swimming pool add to the variety of entertainment in the area. Malad City also has a parimutuel horse track with races held in early August.

3.21 CULTURAL AND HISTORICAL SITES

The following table lists historic sites in Oneida County on the National Register of Historic Places.

Table 3-8. Historic Sites in Oneida County

| HISTORIC SITES IN ONEIDA COUNTY | | |
|-----------------------------------|---|---------|
| Site | Address | City |
| Co-op Block and J.N. Ireland Bank | Main & Bannock | Malad |
| D.L. Evans, Sr. Bungalow | 203 N. Main | Malad |
| Jedd Jones House | 242 N. Main | Malad |
| Malad Second Ward Tabernacle | 20 S. 100 W. St. | Malad |
| Oneida County Courthouse | Court St. | Malad |
| United Presbyterian Church | S. Main St. | Malad |
| Samaria Historic District | Roughly bounded by Main and 3rd Streets, 1st Ave., N and S end of 2nd St. | Samaria |

Source: National Register of Historic Places, 2021

Oneida County Pioneer Museum was built in 1914 by R.B. Davis and used as a drug store. The original pressed ceiling and the original safe are in good condition and are features of the museum. After passing the years as different stores or establishments, the building has been the home of the Oneida County Pioneer Museum since 1992.

Malad Valley was settled in the 1860s by Welsh pioneers who brought with them their Welsh traditions. One of those traditions was an annual festival patterned after the music and poetry contests held in Wales for over 900 years. The Malad Valley Welsh Foundation is a non-profit organization that raises funds and supports the area's Welsh heritage with an annual Welsh festival. The organization's goals include increasing awareness of and pride in the Welsh culture and building a legacy for future generations that ties them to their past.

3.22 CRITICAL INFRASTRUCTURE

Table 3-9. Oneida County Facilities

| ONEIDA COUNTY FACILITIES | |
|---|------------------------|
| Address | Description |
| 10 miles south of Malad on 10 Mile Road | Antenna Structure |
| 150 N 200 W, Malad | Hospital |
| 1750 N Old Hwy 191 | Landfill Machine Bldg. |
| 1750 N Old Hwy 191 | Landfill Control Bldg. |
| 459 S Main St | Exhibition Bldg. |
| 459 S Main St | Exhibition Bldg. |
| 459 S Main St | Parimutuel Office |
| 459 S Main St | Covered Grandstand |
| 459 S Main St | Concession Stand #1 |
| 459 S Main St | Concession Build #2 |
| 459 S Main St | Livestock Bldg. |
| 459 S Main St | Fair Office |
| 459 S Main St | Restroom |
| 459 S Main St | Restroom |
| 459 S Main St | Bucking Chutes |
| 459 S Main St | Ticket Booth |
| 459 S Main St | Announcer Booth |
| 459 S Main St | Horse Stalls |
| 50th South | Ambulance Bldg. |
| 77 N Main | Swimming Pool |
| Behind Courthouse | Storage Building |
| Holbrook | Quonset Bldg. |
| Holbrook | Fire Station |
| No address provided | Home Extension Office |
| Oneida County Airport | Airport Garage |
| Oneida County Airport | Pilots Lounge |
| 459 S Main St | Horse Stalls |
| 459 S Main St | Horse Stalls |
| 459 S Main St | Horse Stalls |
| 459 S Main St | Open Sale Ring |
| 459 S Main St | 2 Walk-In Coolers |
| 459 S Main St | Livestock Bldg. |
| 459 S Main St | Show Barn |
| 459 S Main St | Bleachers |
| 459 S Main St | Bleachers |
| 459 S Main St | Bleachers |
| S Main St | County Shed #1 |
| S Main St | County Shed #2 |

| ONEIDA COUNTY FACILITIES | |
|---------------------------------|---|
| Address | Description |
| S Main St | Weed Dept. Bldg. |
| Various Reservoirs | Docks (40) |
| S Main St | New County Maintenance Shop |
| Holbrook Divide | 2 Repeaters for Ambulance and Sheriff's Dept. |
| 459 S Main St | Bleachers |
| 92 S 100 W | Oneida County Fire Station |
| 181 Jenkins Ave | Oneida County Convention Center |
| Holbrook | Storage Garage |

Table 3-10. Malad City Facilities

| MALAD CITY FACILITIES | |
|------------------------------|---|
| Address | Description |
| 1 mile south of Malad | Sewer Chlorinator Building |
| 1st W south of Malad | Animal Control |
| 26 N Main Street | Senior Citizen Building |
| 27 Bannock Street | Museum |
| 340 W 300 N | Pump House w/ 75 HP Pump |
| 36 Court Street | Old City Hall/First |
| 445 Bannock Street | Pump House w/ 60 HP Pump |
| 50 N Main | War Memorial Wall & Statue |
| City Park | Restrooms |
| City Park | Pavilion |
| Evans Avenue | Old Shop |
| Industrial Park Drive | Sign |
| Malad Cemetery | Cemetery Restroom & Storage |
| 59 Bannock Street | City Hall/Water Office |
| 59 N Main | Iron Door Playhouse |
| 600 N 70 E | Old Chlorinator Building |
| 600 N 700 E | New Water Storage Tank |
| 725 N 500 W | Booster Pumps/Control w/ 22-25 HP & 1-100 HP Pump, Radio Tele Tec |
| 725 N 500 W | Old Water Storage Tank |
| 650 N 600 W | Culinary Well w/ 75 HP Pump |
| 94 S 100 W | Malad City Shed |

CHAPTER 4 DROUGHT

4.1 DESCRIPTION

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

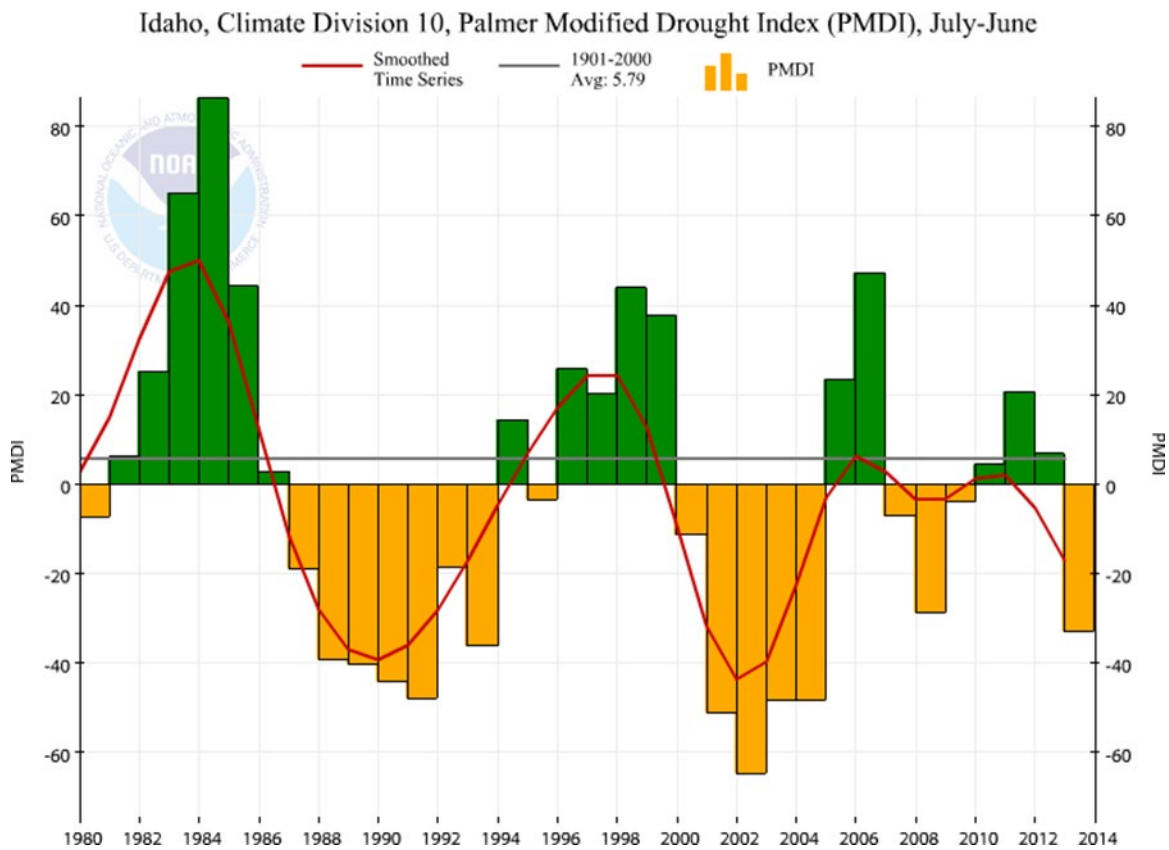


Figure 4-1. Palmer Modified Drought Index

It should be noted that water supply is not only controlled by precipitation (amount, frequency, and intensity) but also by other factors, including evaporation (which is increased by higher-than-normal heat and winds), transpiration, and human use. According to the NOAA National Climactic Data Center, much of the state of Idaho most recently experienced moderate to extreme drought conditions from the years 2000 through 2005. Drought Emergency Declarations were issued for various counties by the Idaho Department of Water Resources in the years 2002 through 2005. Idaho’s only federal Drought Emergency Declaration was issued in 1977.

4.2 LOCATION

Drought can affect the entire county.

4.3 EXTENT

The following table displays the precipitation conditions for Oneida County using the Palmer Drought Severity Index, which is taken from the National Weather Service (NWS). The Palmer Drought Severity Index (PDSI) is a means of quantifying drought in terms of the prolonged and abnormal moisture deficiency or excess. This index indicates general conditions and not local variations caused by isolated rain. The PDSI is an important climatological tool for evaluating the scope, severity, and frequency of prolonged periods of abnormally dry or wet weather. It can be used to help delineate disaster areas and indicate the availability of irrigation water supplies, reservoir levels, range conditions, amount of stock water, and potential intensity of forest fires (NWS, 2021).

The PDSI expresses this comparison of moisture deficiency and moisture excess on a numerical scale that usually ranges from positive five to negative five. Positive values reflect excess moisture supplies, while negative values indicate moisture demands in excess of supplies.

Table 4-1. PDSI Classes for Wet and Dry Periods

| PDSI CLASSES FOR WET AND DRY PERIODS | |
|---|-------------------|
| Category | Range PDMI |
| Extreme Drought | -4.0 or less |
| Severe Drought | -3.0 to -3.9 |
| Moderate Drought | -2.0 to -2.9 |
| Near Normal | -1.9 to +1.9 |
| Unusual Moist Spell | +2.0 to +2.9 |
| Very Moist Spell | +3.0 to +3.9 |
| Extreme Moisture | +4.0 or above |
| <i>Source: National Weather Service</i> | |

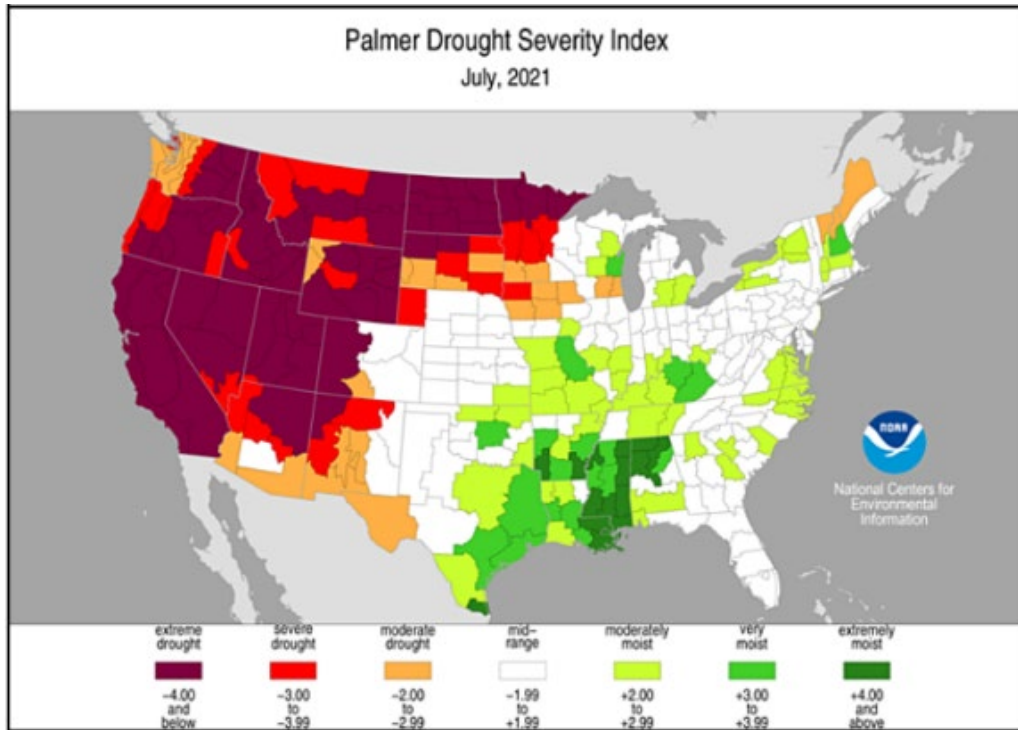


Figure 4-2. Palmer Drought Severity Index

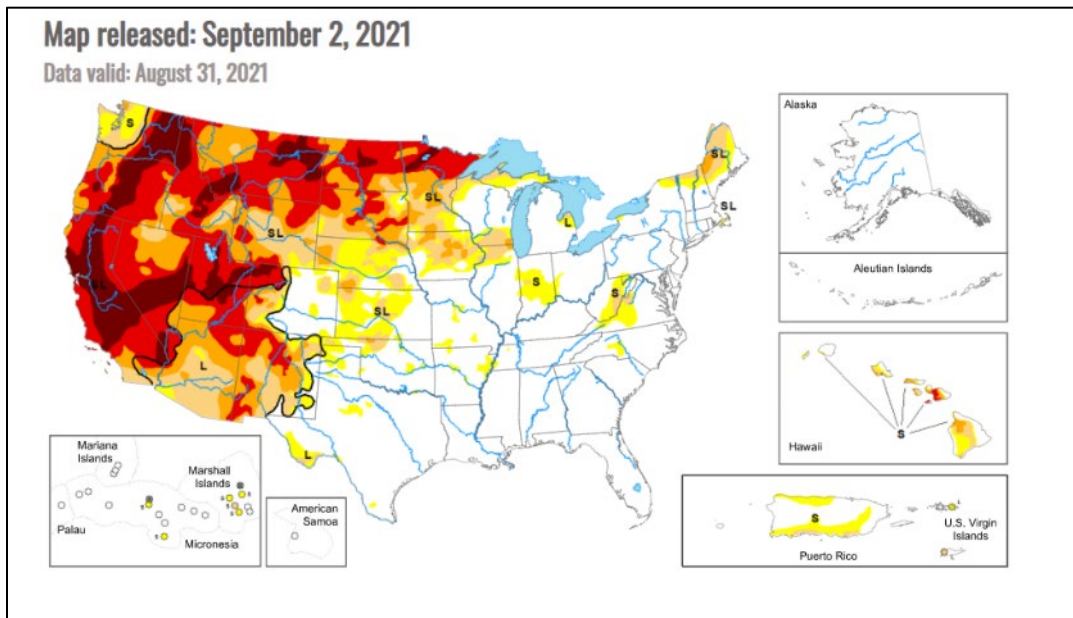


Figure 4-3. Drought Conditions

4.4 HISTORICAL FREQUENCIES & PROBABILITY OF FUTURE OCCURRENCES

The Idaho Department of Water Resources reports that meteorological drought conditions (a period of low precipitation) existed in the state approximately 30% of the time during the period 1931–1982. Principal drought in Idaho, indicated by stream flow records, occurred during 1929–41, 1944–45, 1959–61, 1977, and 1987–92. The most prolonged drought in Idaho was during the 1930s. For most of the state, that drought lasted for 11 years (1929–41) despite greater than average stream flows in 1932 and 1938. In 1977, the worst single year on record, a severe water shortage occurred throughout Idaho and the West. Stream flows were below normal from 1979 to 1981. A federal declaration was issued in 1977 for the state of Idaho and counties neighboring Oneida County (Idaho State Hazard Mitigation Plan, 2018).

According to the Idaho Department of Water Resources (IDWR), the following Drought Emergency Declarations have been issued for Oneida County since 2001:

- June 5, 2001
- June 26, 2002
- May 27, 2003
- May 25, 2004
- July 24, 2007
- July 16, 2012

Oneida County also received 12 secretarial disaster designations from the USDA from 2012 to 2017 (Idaho State Hazard Mitigation Plan, 2018).

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

4.5 IMPACTS

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

Drought produces a complex web of impacts that spans many sectors of the economy and reaches well beyond the area experiencing physical drought. This complexity exists because water is integral to our ability to produce goods and provide services.

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

financial estimates of damages. The impacts of drought can be categorized as economic, environmental, or social.

Oneida County is one of three counties in Idaho that has the highest reported drought impacts, as seen in the figure below from the 2018 Idaho State Hazard Mitigation Plan. Many economic impacts occur in agricultural and related sectors because of the reliance of these sectors on surface and subsurface water supplies. In addition to obvious losses in yields in crop and livestock production, drought is associated with increases in insect infestations, plant disease, and wind erosion. Droughts also bring increased problems with insects and diseases to forests and reduce growth. The incidence of forest and range fires increases substantially during extended droughts, which in turn places both human and wildlife populations at higher levels of risk.

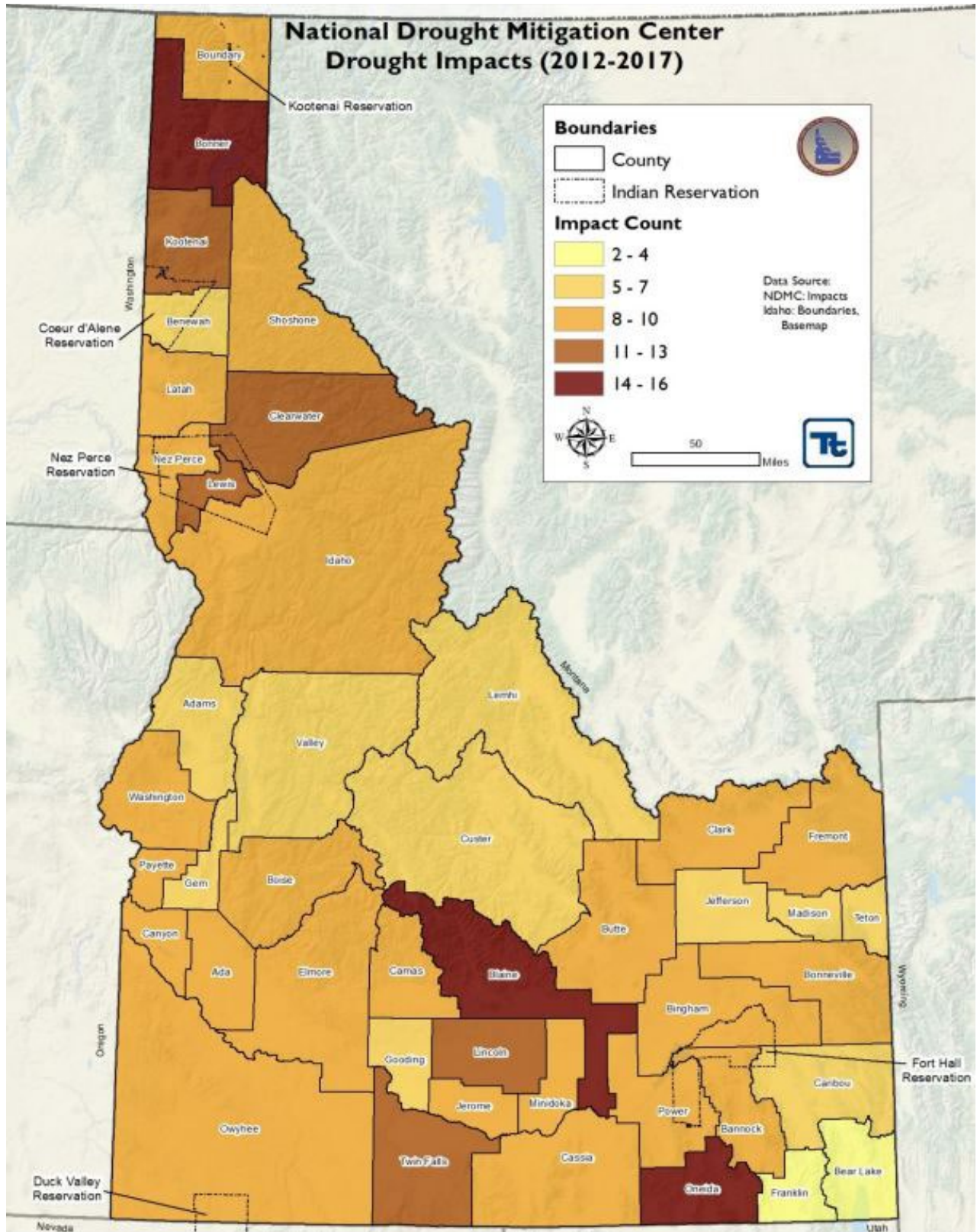


Figure 4-4. Drought Impacts Reported for Idaho (2012–2017)

4.6 LOSS ESTIMATES

Income loss is another indicator used in assessing the impacts of drought because so many sectors are affected. Reduced income for farmers has a ripple effect. Retailers and others who provide goods and services to farmers face reduced business. This leads to unemployment, increased credit risk for financial institutions, capital shortfalls, and loss of tax revenue for local, state, and federal government. Less discretionary income affects the recreation and tourism industries. Prices for food, energy, and other products increase as supplies are reduced. In some cases, local shortages of certain goods result in the need to import these goods from outside the stricken region.

Premium Subsidies by Cause of Loss, 1995-2020

| Cause of Loss | Premium subsidies 1995-2020 | Percent Cause of Loss (Heat, Excess Moisture, Hail, Drought, Flood, Cold Winter, Freeze, Other, etc.) |
|---------------|-----------------------------|---|
| Drought | \$4,725,180 | 24% |

The premium subsidies by cause of loss in the table are lower than total premium subsidies because the USDA Risk Management Agency only reports premium subsidies by cause of loss for policies that paid an indemnity. Non-indemnified policies and their associated premium subsidies are not reported by cause of loss. The driving force behind a decline in crop yield or revenue that triggers an indemnity payment is called the “cause of loss” – an event or circumstance that damages crop yield, such as drought, hail or too much rain, or that damages the price side of farmer revenues, like a decline in crop price.

CHAPTER 5 SEVERE SUMMER WEATHER

5.1 DESCRIPTION

For the purposes of this plan, severe summer weather includes those hazards that are typically found during the spring, summer, and early fall season of the year in Oneida County. Included in this category are extreme heat, lightning, hail, straight line wind, and tornado. Each hazard is examined independently; however, it is recognized that these hazards typically occur together.

5.2 RELATED HAZARDS

5.2.1 Extreme Heat

Description

The term “extreme heat,” sometimes called “heat wave” is, to some extent, a relative one describing a period when weather conditions include temperatures and humidity significantly higher than those usual for a particular geographic area. The National Weather Service (NWS) issues alerts to the public based on its Heat Index (HI), which takes both temperature and humidity into account.

Location

Extreme heat can affect the entire county.

Extent

Extreme heat conditions are not common to Idaho where, in general, humidity is low and weather patterns vary. The NWS will initiate alert procedures when the HI is expected to exceed 105°–110°F (depending on local climate) for at least two consecutive days.

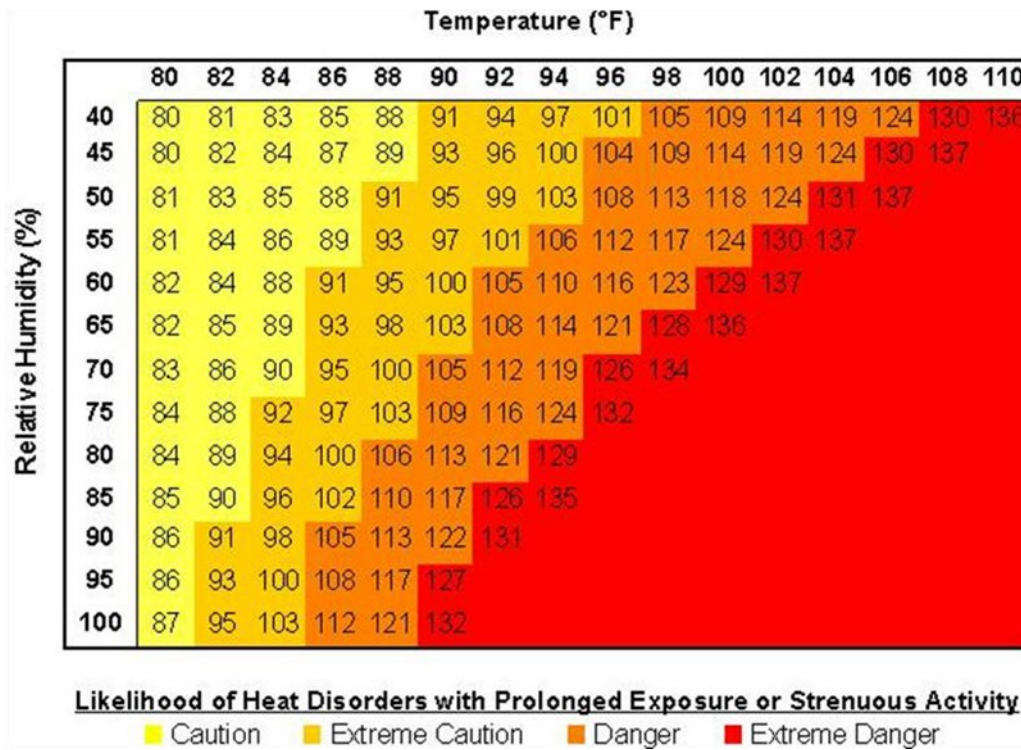


Figure 5-1. NOAA National Weather Service Heat Index (NWS, 2021)

Historical Frequencies and Probability of Future Occurrences

There have been no recorded days in which the temperature reached 105°F in Oneida County.

This figure shows the average and extreme temperatures for Malad, Idaho. Note that during the months of July and August the temperature can reach as high as 102°F.

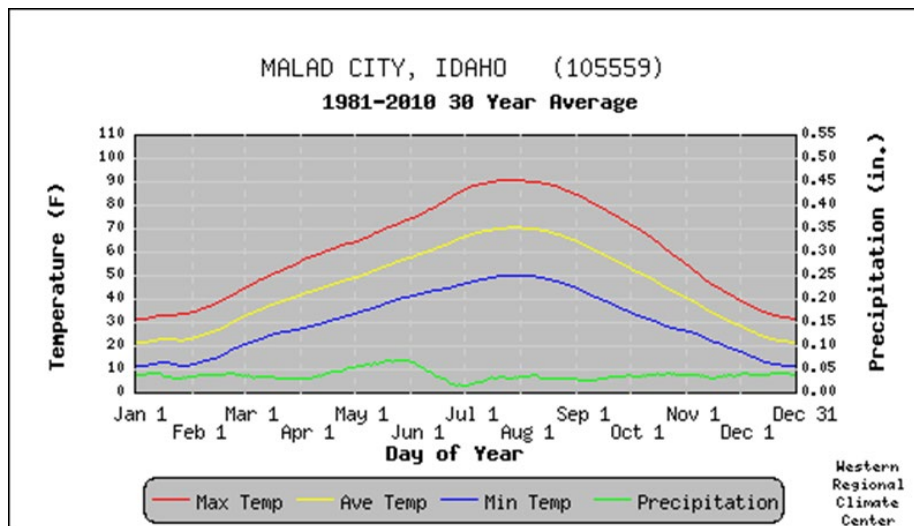


Figure 5-2. Daily Temperature Averages and Extremes for Malad City, Idaho (Western Regional Climate Center)

Impacts

The primary impact of extreme heat is on human health, with disorders such as sunstroke, heat exhaustion, and heat cramps. Particularly susceptible are the elderly, small children, and persons with chronic illnesses. There are also undoubtedly indirect and chronic health effects from extreme heat, the magnitude of which are difficult or impossible to estimate. Environmental effects can include loss of wildlife and vegetation and increased probability of wildfires.

The magnitude of the effects of extreme heat is centered on the individual citizen. Shelters might be opened for the elderly who do not have a means of relief from the heat. Heat related illnesses could cause death if shelter and hydration are not provided. Economic loss would primarily be related to the cost of energy consumption and to agricultural impacts. Extreme heat would exacerbate drought conditions and make response to wildfire more hazardous.

Loss Estimates

Extreme heat places high demands on electrical power supplies that can lead to blackouts or brownouts. Economic impacts result from such factors as increased energy prices and loss of business as people avoid leaving their homes to avoid the heat. Agricultural losses can also occur. The magnitude of these and other, more indirect impacts is, again, difficult to assess.

Premium Subsidies by Cause of Loss, 1995-2020

| Cause of Loss | Premium subsidies 1995-2020 | Percent Cause of Loss (Heat, Excess Moisture, Hail, Drought, Flood, Cold Winter, Freeze, Other, etc.) |
|---------------|-----------------------------|---|
| Heat | \$1,284,887 | 7% |

The premium subsidies by cause of loss in the table are lower than total premium subsidies because the USDA Risk Management Agency only reports premium subsidies by cause of loss for policies that paid an indemnity. Non-indemnified policies and their associated premium subsidies are not reported by cause of loss. The driving force behind a decline in crop yield or revenue that triggers an indemnity payment is called the “cause of loss” – an event or circumstance that damages crop yield, such as drought, hail or too much rain, or that damages the price side of farmer revenues, like a decline in crop price.

5.2.2 Lightning

Description

Lightning is defined by the NWS as “a visible electrical discharge produced by a thunderstorm. The discharge may occur within or between clouds, between the cloud and air, between a cloud and the ground, or between the ground and a cloud.” A lightning discharge may be over five miles in length, generate temperatures upwards of 50,000°F, and carry 50,000 volts of electrical potential. Lightning is most often associated with thunderstorm clouds, but lightning can strike as far as five to 10 miles from a storm. Thunder is caused by the rapid expansion of air heated by a lightning strike. Cloud-to-ground lightning strikes occur with much less frequency in the northwestern U.S. than in other parts of the country.

Location

Lightning can affect the entire county.

Extent

A lightning flash is created by a transfer of significant charge between two charged objects. Lightning discharges can occur inter-cloud, cloud-to-cloud, cloud-to-air and cloud-to-ground. Cloud-to-ground (CG) lightning has the greatest risk to society. A CG stroke can kill, destroy equipment, start fires and disturb power delivery systems.

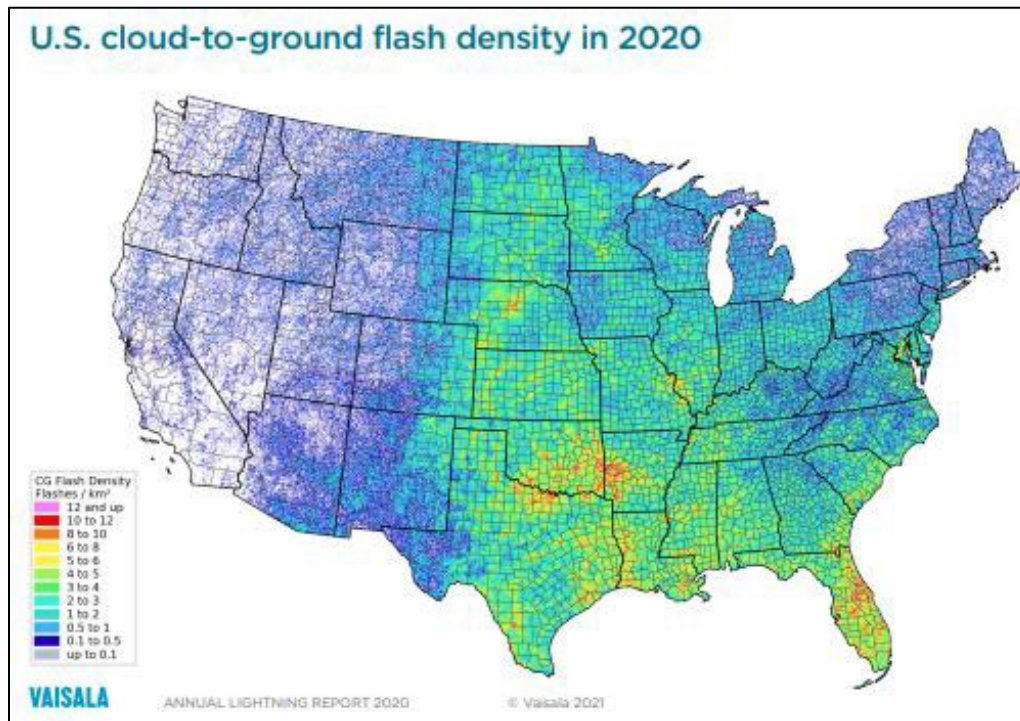


Figure 5-3. Flash Density Map, 2020

Historical Frequencies and Probability of Future Occurrences

Lightning is common in Idaho, with an average of 531,612 lightning strikes a year in the state from 2015 to 2019 (Vaisala, 2020). However, this average is much less compared to other states, such as those in the Midwest and Southeast. For example, Florida received an average of 13,989,300 strikes per year within the same time period.

Impacts

Lightning is the second most deadly weather phenomenon in the U.S., being second only to floods. On average, 20 to 50 deaths per year are attributed to lightning nationally, and in Idaho the average is less than one per year. The last death in Idaho due to lightning was in 2010 (NWS, 2021). Despite the enormous energy carried by lightning, only about 10% of strikes are fatal. Injuries include central nervous system damage, burns, cardiac effects, hearing loss, and trauma. The effects of central nervous system injuries tend to be long-lasting and severe, leading to such disorders as depression, alcoholism, chronic fatigue, and in some cases suicide. Lightning also strikes structures, causing fires and damaging electrical equipment. Wildland fires are often initiated by lightning strikes as are petroleum storage tank fires. About one third of all power outages are lightning-related.

Loss Estimates

The magnitude of economic losses is difficult to estimate. Government figures suggest annual national costs are around \$30 million, but some researchers find evidence that losses may be in the billions of dollars.

5.2.3 Hail

Description

The NWS definition of hail is “showery precipitation in the form of irregular pellets or balls of ice more than 5 mm in diameter, falling from a cumulonimbus cloud. Its size can vary from the defined minimum, a little over a quarter of an inch, up to 4.5 inches or larger.” Severe hail is defined as being 0.75 inches or more in diameter. The largest hailstones are formed in supercell thunderstorms because of their sustained updrafts and long duration. Hail and severe hail are relatively uncommon in Idaho. In the 10-year period from 1986 to 1995, the NWS recorded severe hail in Idaho on 113 occasions, while in the same time period, severe hail was recorded in Colorado nearly 1,400 times (Weather on the Web).

Location

Hail can affect the entire county.

Extent

The Torro Hailstorm Intensity scale was developed by Jonathan Webb to measure and categorize hailstorms. It extends from H0 to H10 with its increments of intensity or damage potential related to hail size (distribution and maximum), texture, numbers, fall speed, speed of storm translation, and strength of the accompanying wind. The scale could be modified depending on factors such as building materials and types; e.g. whether roofing tiles are predominantly slate, shingle or concrete.

| Size code | Maximum diameter (mm) | Description |
|-----------|-----------------------|----------------------------|
| 0 | 5-9 | Pea |
| 1 | 10-15 | Mothball |
| 2 | 16-20 | Marble, grape |
| 3 | 21-30 | Walnut |
| 4 | 31-40 | Pigeon's egg > squash ball |
| 5 | 41-50 | Golf ball > Pullet's egg |
| 6 | 51-60 | Hen's egg |
| 7 | 61-75 | Tennis ball > cricket ball |
| 8 | 76-90 | Large orange > soft ball |
| 9 | 91-100 | Grapefruit |
| 10 | >100 | Melon |

| Scale | Intensity category | Typical hail diameter (mm)* | Probable kinetic energy $J m^{-2}$ | Typical damage impacts |
|-------|----------------------|-----------------------------|------------------------------------|--|
| H0 | Hard hail | 5 | 0-20 | No damage |
| H1 | Potentially damaging | 5-15 | >20 | Slight general damage to plants, crops |
| H2 | Significant | 10-20 | >100 | Significant damage to fruit, crops, vegetation |
| H3 | Severe | 20-30 | >300 | Severe damage to fruit and crops, damage to glass and plastic structures, paint and wood scored |
| H4 | Severe | 25-40 | >500 | Widespread glass damage, vehicle bodywork damage |
| H5 | Destructive | 30-50 | >800 | Wholesale destruction of glass, damage to tiled roofs, significant risk of injuries |
| H6 | Destructive | 40-60 | | Bodywork of grounded aircraft dented, brick walls pitted |
| H7 | Destructive | 50-75 | | Severe roof damage, risk of serious injuries |
| H8 | Destructive | 60-90 | | (Severest recorded in the British Isles) Severe damage to aircraft bodywork |
| H9 | Super Hailstorms | 75-100 | | Extensive structural damage. Risk of severe or even fatal injuries to persons caught in the open |
| H10 | Super Hailstorms | >100 | | Extensive structural damage. Risk of severe or even fatal injuries to persons caught in the open |

Figure 5-4. Hail Intensity Scale

Historical Frequencies and Probability of Future Occurrences

According to the NOAA’s Storm Events Database, there have been eight severe hail events of .75 inches or greater since 1996. These events occurred three times in 1997, once in 1998, twice in 2002, once in 2005, and once in 2007. There have been no reported severe hail events since 2007 in Oneida County.

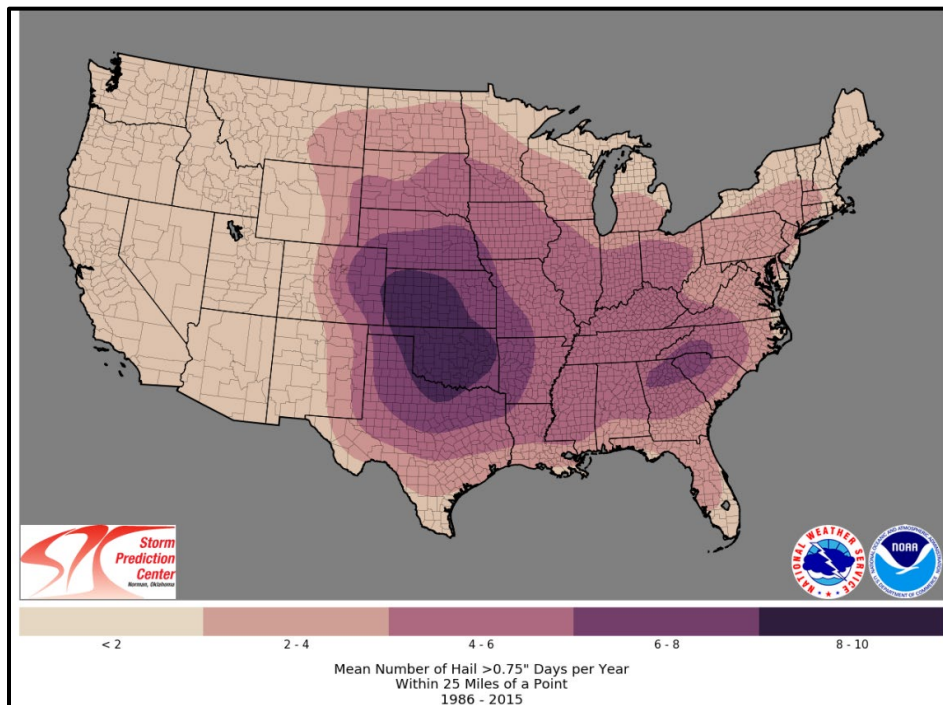


Figure 5-5. Historical Probability of Hail in the US

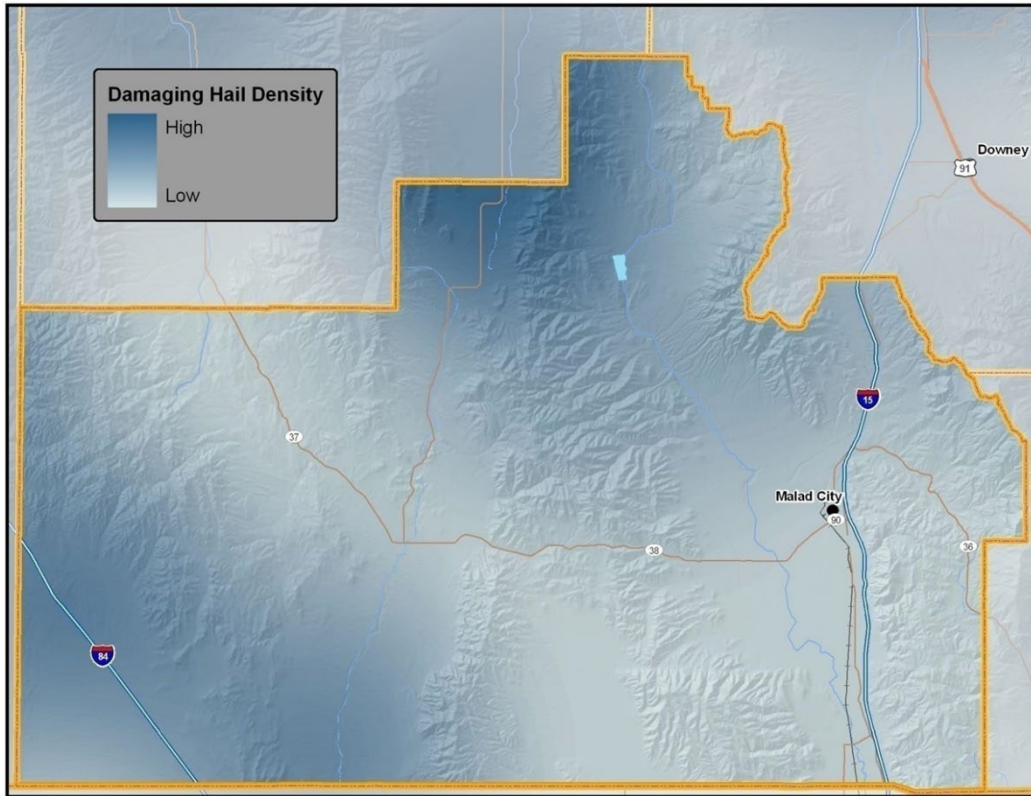


Figure 5-6. Hail Density in Oneida County

Impacts

Deaths and injuries due to hail have occurred but are rare. Most impacts are economic, but hailstorms can also cause utility failure through damage to critical infrastructure. Hailstorms may also lead to car accidents and road closures.

Loss Estimates

Economic loss can be extensive, especially to agriculturally based economies. Hail is very damaging to crops. Severe hail may cause extensive property damage, including damage to vehicle paint and bodywork, glass, shingles and roofs, plastic surfaces, etc. Hail loss nationally is estimated at over \$1 billion annually.

Premium Subsidies by Cause of Loss, 1995-2020

| Cause of Loss | Premium subsidies 1995-2020 | Percent Cause of Loss (Heat, Excess Moisture, Hail, Drought, Flood, Cold Winter, Freeze, Other, etc.) |
|---------------|-----------------------------|---|
| Hail | \$618,567 | 3% |

The premium subsidies by cause of loss in the table are lower than total premium subsidies because the USDA Risk Management Agency only reports premium subsidies by cause of loss for policies that paid an indemnity. Non-indemnified policies and their associated premium subsidies are not reported by cause of loss. The driving force behind a decline in crop yield or revenue that triggers an indemnity payment is called the “cause of loss” – an event or circumstance that damages crop yield, such as drought, hail or too much rain, or that damages the price side of farmer revenues, like a decline in crop price.

5.2.4 Tornado

Description

The NWS describes a tornado as “a violently rotating column of air, usually pendant to a cumulonimbus, with circulation reaching the ground. It nearly always starts as a funnel cloud and may be accompanied by a loud roaring noise. On a local scale, it is the most destructive of all atmospheric phenomena.” Like hail, most tornadoes are spawned by supercell thunderstorms. They usually last only a few minutes, although some have lasted more than an hour and traveled several miles.

Location

A tornado event is possible anywhere within the county.

Extent

Wind speeds within tornadoes are estimated based on the damage caused and expressed using the Enhanced Fujita (EF) Scale.

Table 5-1. Enhanced Fujita Scale for Estimation of Tornado Wind Speeds

| ENHANCED FUJITA (EF) SCALE FOR ESTIMATION OF TORNADO WIND SPEEDS | | | | |
|--|---------|-----------------|------------------|-------------|
| EF Scale | Class | Windspeed (mph) | Windspeed (km/h) | Description |
| F0 | Weak | 65–85 | 105–137 | Gale |
| F1 | Weak | 86–110 | 138–177 | Weak |
| F2 | Strong | 111–135 | 178–217 | Strong |
| F3 | Strong | 136–165 | 218–266 | Severe |
| F4 | Violent | 166–200 | 267–322 | Devastating |
| F5 | Violent | > 200 | > 322 | Incredible |

Source: NOAA Storm Prediction Center

Idaho has relatively few tornadoes, averaging three reported per year between 1950 and 2021 (NWS, 2021). Tornadoes of F2 strength or greater have occurred but are extremely rare in Idaho.

Historical Frequencies and Probability of Future Occurrences

Since 1996 there has been only one reported tornado in Oneida County. The tornado occurred on May 29, 2005.

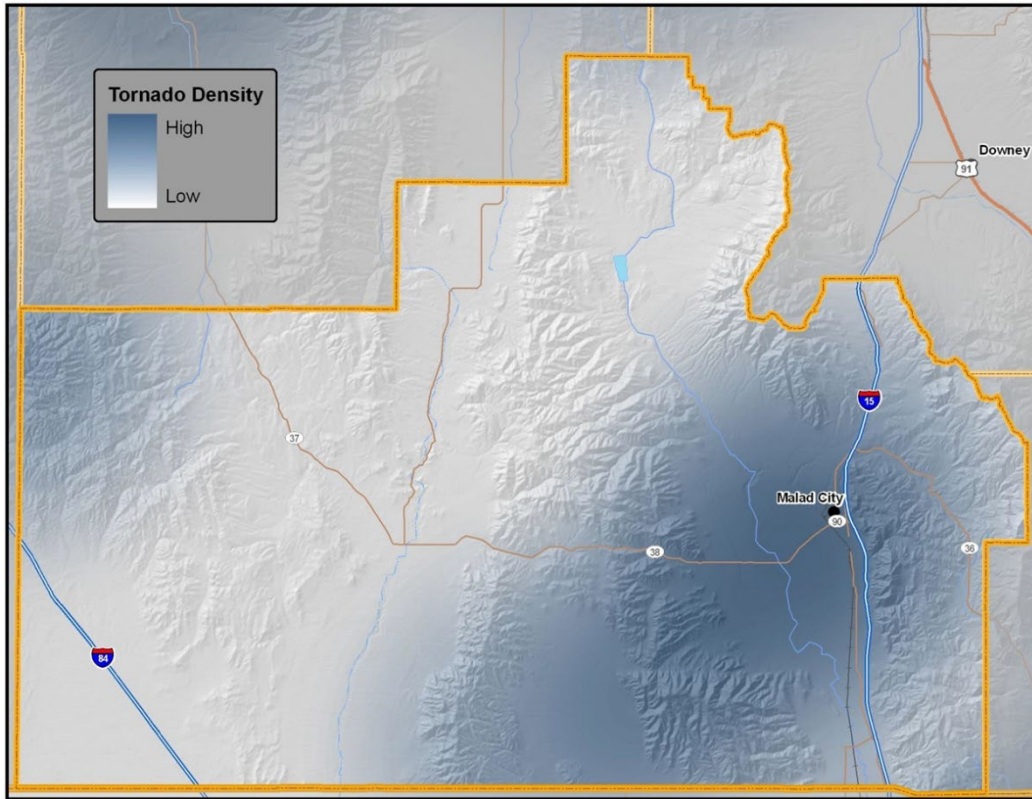


Figure 5-7. Tornado Density in Oneida County

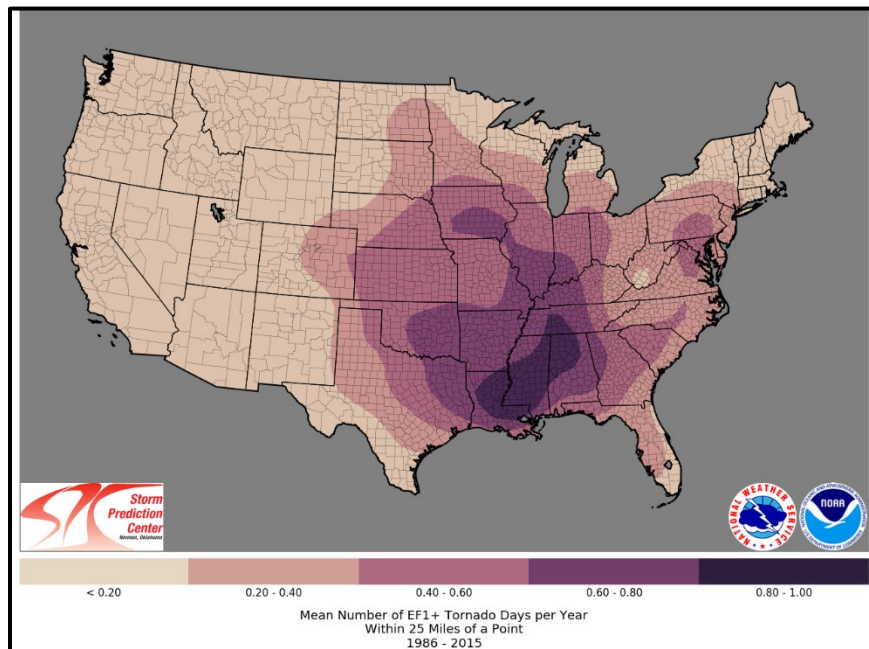


Figure 5-8. Tornado Probability

Impacts

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

Loss Estimates

Recorded losses for tornado history in Oneida County total \$275,000 over the past 58 years, averaging over \$91,000 per event.

5.2.5 Straight-Line Wind

Description

The term “straight-line wind” is used to describe any wind not associated with rotation, particularly tornadoes. Of concern is high wind, defined by the NWS as “sustained wind speeds of 40 mph or greater, lasting for 1 hour or longer, or winds of 58 mph or greater for any duration.” Like tornadoes, strong, straight-line winds are generated by thunderstorms, and they can cause similar damage. Straight-line wind speeds can approach 150 mph, equivalent to those in an F3 tornado.

Location

Straight-line winds can affect the entire county.

Extent

The Beaufort Wind Scale explains different wind speeds based on how they would affect land conditions and sea conditions.

Table 5-2. Beaufort Wind Scale

| Force | Wind (Knots) | WMO Classification | Appearance of Wind Effects On Land |
|-------|--------------|--------------------|--|
| 0 | Less than 1 | Calm | Calm, smoke rises vertically |
| 1 | 1-3 | Light Air | Smoke drift indicates wind direction, still wind vanes |
| 2 | 4-6 | Light Breeze | Wind felt on face, leaves rustle, vanes begin to move |
| 3 | 7-10 | Gentle Breeze | Leaves and small twigs constantly moving, light flags extended |
| 4 | 11-16 | Moderate Breeze | Dust, leaves, and loose paper lifted, small tree branches move |
| 5 | 17-21 | Fresh Breeze | Small trees in leaf begin to sway |
| 6 | 22-27 | Strong Breeze | Larger tree branches moving, whistling in wires |
| 7 | 28-33 | Near Gale | Whole trees moving, resistance felt walking against wind |
| 8 | 34-40 | Gale | Twigs breaking off trees, generally impedes progress |
| 9 | 41-47 | Strong Gale | Slight structural damage occurs, slate blows off roofs |
| 10 | 48-55 | Storm | Seldom experienced on land, trees broken or uprooted, "considerable structural damage" |
| 11 | 56-63 | Violent Storm | |
| 12 | 64+ | Hurricane | |

Historical Frequencies and Probability of Future Occurrences

According to the NWS Storm Events Database, there have been 30 high wind or thunderstorm wind events 40 mph or greater in Oneida County between 2000–2021, as seen in the table below.

Table 5-3. High Wind Events in Oneida County

| HIGH WIND EVENTS IN ONEIDA COUNTY | | |
|--|-------------|--------------------------|
| Location Within County | Date | Wind Speed (kts.) |
| Samaria | 08/22/2003 | 61 kts. |
| South Central Highlands | 10/29/2003 | 52 kts. |
| South Central Highlands | 03/06/2004 | 60 kts. |
| South Central Highlands | 05/10/2004 | 40 kts. |
| South Central Highlands | 11/14/2005 | 63 kts. |
| Holbrook | 03/25/2006 | 52 kts. |
| Malad City | 03/25/2006 | 65 kts. |
| South Central Highlands | 02/14/2008 | 47 kts. |
| South Central Highlands | 05/20/2008 | 41 kts. |
| Malad City | 08/10/2008 | 65 kts. |
| Malad City | 08/06/2010 | 61 kts. |
| South Central Highlands | 11/16/2010 | 61 kts. |
| South Central Highlands | 02/22/2012 | 56 kts. |
| South Central Highlands | 02/25/2012 | 52 kts. |
| South Central Highlands | 03/17/2014 | 69 kts. |
| Black Pine | 06/03/2015 | 52 kts. |
| South Central Highlands | 11/18/2015 | 53 kts. |
| South Central Highlands | 05/12/2017 | 56 kts. |
| South Central Highlands | 10/20/2017 | 67 kts. |
| Juniper | 05/30/2020 | 50 kts. |
| Holbrook | 05/30/2020 | 62 kts. |
| Stone | 06/06/2020 | 52 kts. |
| Holbrook | 06/06/2020 | 52–56 kts. |
| Pleasant View | 06/06/2020 | 52–56 kts. |
| Malad City | 06/06/2020 | 52–74 kts. |
| Franklin-Eastern Oneida County | 09/07/2020 | 45 kts. |
| Raft River Region | 09/07/2020 | 63 kts. |
| Franklin-Eastern Oneida County | 03/28/2021 | 56 kts. |
| Raft River Region | 03/28/2021 | 65 kts. |
| Holbrook | 05/16/2021 | 52 kts. |

Source: NWS Storm Events Database, 2021

The following figure depicts the areas where the most damaging wind occurs in Oneida County.

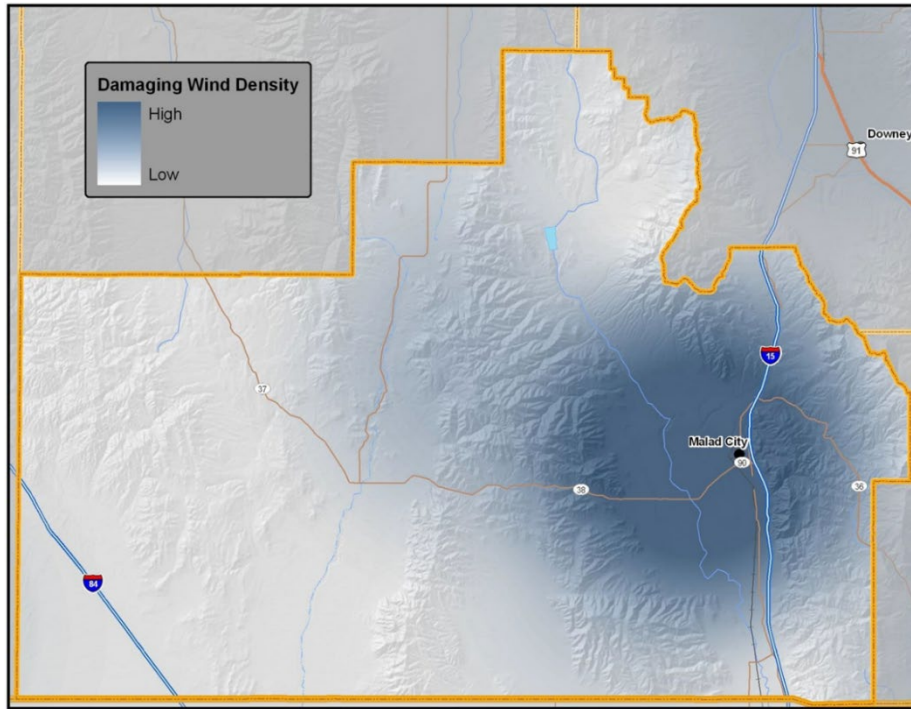


Figure 5-9. Straight-Line Wind Density in Oneida County

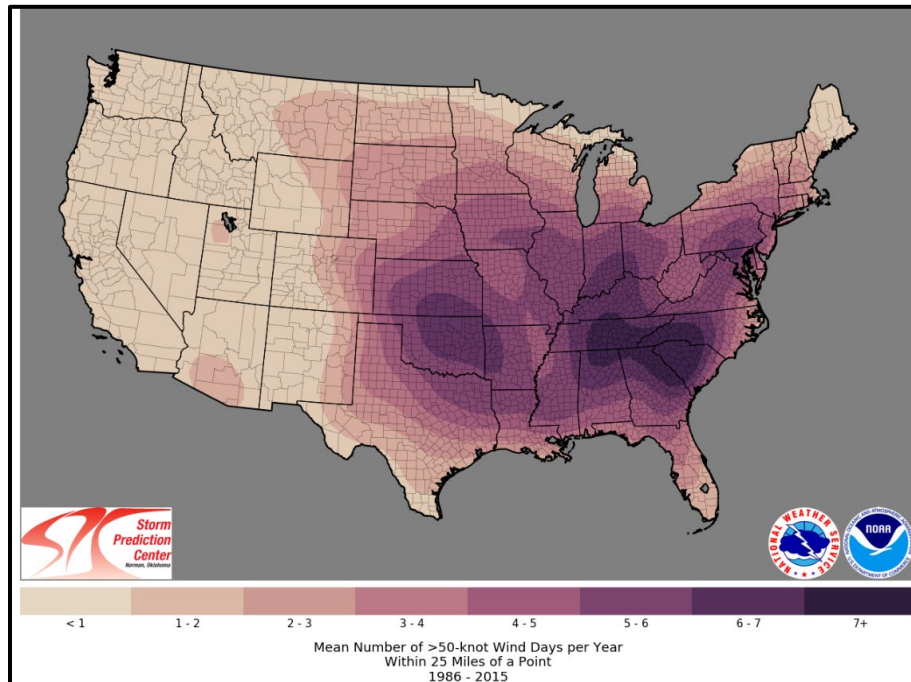


Figure 5-10. Historical Probability of Severe Wind in the US

Impacts

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

Loss Estimates

Since 1958 there has been \$32,000 reported in losses and one injury due to straight-line wind damage in Oneida County.

Premium Subsidies by Cause of Loss, 1995-2020

| Cause of Loss | Premium subsidies 1995-2020 | Percent Cause of Loss (Heat, Excess Moisture, Hail, Drought, Flood, Cold Winter, Freeze, Other, etc.) |
|------------------|-----------------------------|---|
| Wind/Excess Wind | \$49,603.00 | 1% |

The premium subsidies by cause of loss in the table are lower than total premium subsidies because the USDA Risk Management Agency only reports premium subsidies by cause of loss for policies that paid an indemnity. Non-indemnified policies and their associated premium subsidies are not reported by cause of loss. The driving force behind a decline in crop yield or revenue that triggers an indemnity payment is called the “cause of loss” – an event or circumstance that damages crop yield, such as drought, hail or too much rain, or that damages the price side of farmer revenues, like a decline in crop price.

CHAPTER 6 SEVERE WINTER WEATHER

6.1 DESCRIPTION

The Severe Winter Weather category includes extreme cold and winter storms. It should be noted that straight-line wind is also associated with severe winter storms, commonly referred to as blizzard conditions, where snow is driven by wind-causing drifting.

6.2 HAZARD EVALUATION

Severe winter storms occur almost annually in Oneida County, and it is assumed that there are repetitive losses especially caused by straight line wind damage; however, this type of loss is not reported to a single point and thus is hard to track and quantify.

6.3 RELATED HAZARDS

6.3.1 Extreme Cold

Description

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

Location

Temperatures in Idaho and Oneida County can reach the extreme ends of the thermometer. Winter months often experience temperatures below zero degrees Fahrenheit and there can be prolonged periods of extremely cold weather. The entire County is susceptible to extreme cold.

Extent

The NWS Wind Chill Temperature (WCT) index uses advances in science, technology, and computer modeling to provide an accurate, understandable, and useful formula for calculating the dangers from winter winds and freezing temperatures.

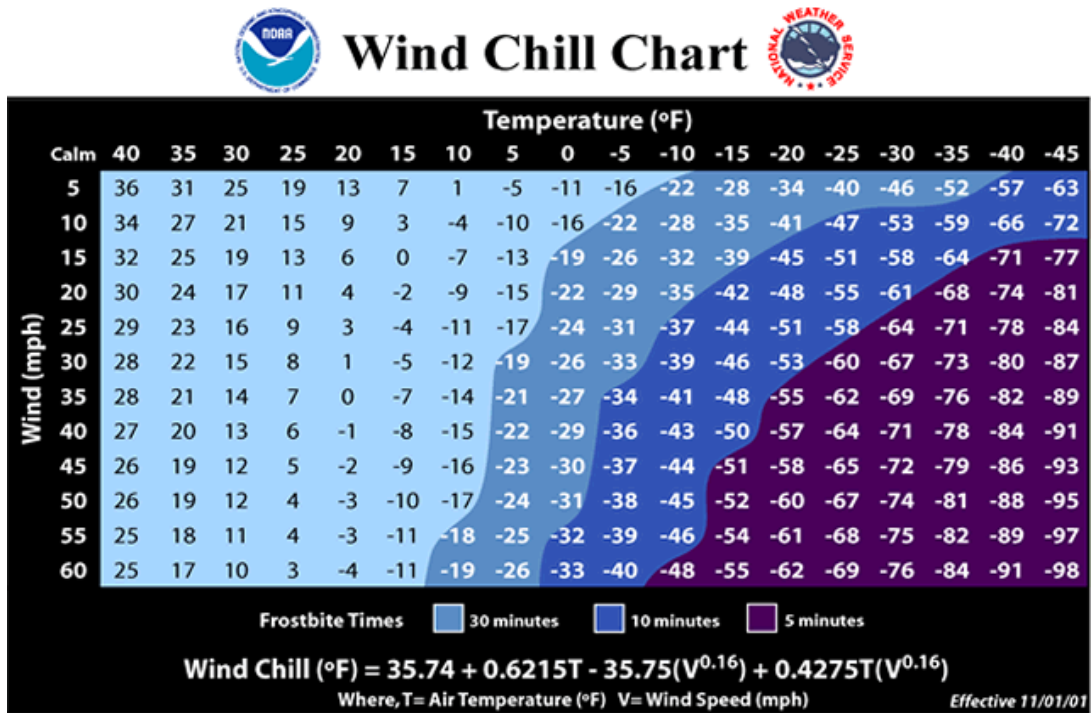


Figure 6-1. National Weather Service Wind Chill Chart

Historical Frequencies and Probability of Future Occurrences

The following shows the average and extreme temperatures recorded at Malad City, Idaho. Note that during the months of December and January, the temperatures can reach as low as -35°F.

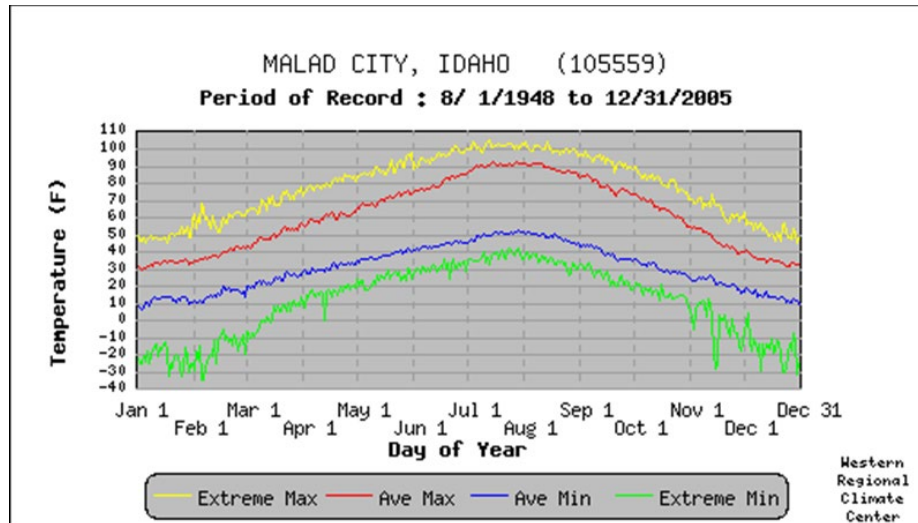


Figure 6-2. Daily Temperature Averages and Extremes for Malad City, Idaho

Impacts

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

Extreme cold affects the individual, families, cities, and the county. Damage typically occurs to individual properties; however, city water systems are usually vulnerable to extreme cold.

Repairs to water line freeze-ups and breaks typically require the roadways to be excavated, necessitating additional maintenance and repairs during the warmer months. As demonstrated in the historical frequency section, areas of the county can expect as much as 20–25°F difference depending on elevation. The record low temperature in Oneida County is -35°F recorded at Malad City on February 5, 1982.

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

During the spring, summer, and fall, temperatures can drop low enough to produce frost. While such temperatures are not low enough to damage infrastructure or require extra heating costs, it can be devastating to crops. Extreme minimum temperatures can fall below freezing much of the spring, summer, and fall.

Warning lead times in Oneida County usually are a day or two based on forecasts made by the National Weather Service in Pocatello.

Loss Estimates

Extreme cold may cause loss of wildlife and vegetation and kill livestock and other domestic animals. Economic loss may result from flooding due to burst pipes, large demands on energy resources, and diminished business activity. River flooding may take place as a result of the formation of ice jams.

Premium Subsidies by Cause of Loss, 1995-2020

| Cause of Loss | Premium subsidies 1995-2020 | Percent Cause of Loss (Heat, Excess Moisture, Hail, Drought, Flood, Cold Winter, Freeze, Other, etc.) |
|------------------|-----------------------------|---|
| Cold Winter | \$5,338,569 | 27% |
| Cold Wet Weather | \$2,220,035 | 11% |
| Frost | \$1,306,177 | 7% |
| Freeze | \$201,891 | 1% |

The premium subsidies by cause of loss in the table are lower than total premium subsidies because the USDA Risk Management Agency only reports premium subsidies by cause of loss for policies that paid an indemnity. Non-indemnified policies and their associated premium subsidies are not reported by cause of loss. The driving force behind a decline in crop yield or revenue that triggers an indemnity payment is called the “cause of loss” – an event or circumstance that damages crop yield, such as drought, hail or too much rain, or that damages the price side of farmer revenues, like a decline in crop price.

6.3.2 Winter Storm

Description

The NWS describes winter storm as weather conditions that produce heavy snow or significant ice accumulations. For the purposes of this analysis, a severe winter storm is defined as any winter condition where the potential exists for a blizzard (winds \geq 35mph and falling/drifted snow frequently reduce visibility $<$ ¼ mile, for two hours or more), heavy snowfall (six inches or more snowfall in 24 hours in the valleys; nine inches or more snowfall in 24 hours in the mountains), ice storm, and/or strong winds.

Location

Winter storms can affect the entire county.

Extent

The magnitude or severity of a severe winter storm depends on several factors including a region’s climatological susceptibility to snowstorms, snowfall amounts, snowfall rates, wind speeds, temperatures, visibility, storm duration, topography, time of occurrence during the day and week (e.g., weekday versus weekend), and time of season.

Historical Frequencies and Probability of Future Occurrences

According to the NWS Storm Events Database, there have been 32 winter storm events in Oneida County between 2000–2021, as seen in the table below.

Table 6-1. Winter Storm Events in Oneida County

| WINTER STORM EVENTS IN ONEIDA COUNTY | | | |
|---|-------------|---------------|--|
| Location Within County | Date | Deaths | Description |
| South Central Highlands | 01/25/2001 | 0 | Heavy snow |
| South Central Highlands | 01/21/2002 | 1 | Heavy snow, high wind |
| South Central Highlands | 02/07/2002 | 2 | Heavy snow, high wind, low visibility |
| South Central Highlands | 11/08/2002 | 0 | Heavy snow |
| South Central Highlands | 12/25/2003 | 0 | Heavy snow, blizzard/whiteout conditions |
| South Central Highlands | 01/24/2004 | 0 | Blizzard conditions, high wind |
| South Central Highlands | 01/07/2005 | 0 | Heavy snow, high wind |
| South Central Highlands | 01/27/2008 | 0 | Heavy snow, high wind, whiteout conditions |
| South Central Highlands | 01/31/2008 | 0 | Heavy snow |
| South Central Highlands | 02/07/2008 | 0 | Heavy snow, whiteout conditions |
| South Central Highlands | 10/11/2008 | 0 | Heavy snow |
| South Central Highlands | 12/27/2008 | 0 | Heavy snow, high wind, whiteout conditions |
| South Central Highlands | 01/10/2013 | 0 | Heavy snow, high wind |
| South Central Highlands | 02/22/2013 | 0 | Heavy snow, high wind, blizzard conditions, low visibility |
| South Central Highlands | 03/22/2013 | 1 | Heavy snow, low visibility |
| South Central Highlands | 03/01/2014 | 0 | Heavy snow, blizzard conditions |
| South Central Highlands | 12/24/2014 | 2 | Heavy snow |
| South Central Highlands | 12/23/2015 | 0 | Snow, high wind |
| South Central Highlands | 01/07/2017 | 0 | Heavy snow, rain, avalanches, flooding |
| South Central Highlands | 01/22/2017 | 0 | Heavy snow, high wind |
| South Central Highlands | 02/22/2017 | 0 | Heavy snow, low visibility |
| South Central Highlands | 03/01/2018 | 0 | Heavy snow |
| Franklin-Eastern Oneida County | 01/05/2019 | 0 | Heavy snow, high wind |
| Raft River Region | 01/05/2019 | 0 | Heavy snow, high wind |
| Raft River Region | 02/06/2019 | 0 | Snow, wind |
| Raft River Region | 02/12/2019 | 0 | Heavy snow |
| Franklin-Eastern Oneida County | 02/12/2019 | 0 | Heavy snow, high wind |

| WINTER STORM EVENTS IN ONEIDA COUNTY | | | |
|--|------------|--------|---------------------------------------|
| Location Within County | Date | Deaths | Description |
| Raft River Region | 01/17/2020 | 0 | Light snow, high wind, low visibility |
| Raft River Region | 02/02/2020 | 0 | Heavy snow, high wind |
| Franklin-Eastern Oneida County | 02/05/2020 | 0 | Heavy snow, freezing rain |
| Franklin-Eastern Oneida County | 02/04/2021 | 0 | Snow, high wind |
| Raft River Region | 02/26/2021 | 0 | Heavy snow, high wind |
| <i>Source: NWS Storm Events Database, 2021</i> | | | |

Impacts

The impacts of the very cold temperatures that may accompany a severe winter storm are discussed above. Other life-threatening impacts are numerous. Motorists may be stranded by road closures or may become trapped in their automobiles in heavy snow and/or low visibility conditions. Bad road conditions cause automobiles to go out of control. People can be trapped in homes or buildings for long periods of time without food, heat, and utilities. Those who are ill may be deprived of medical care by being stranded or through loss of utilities and lack of personnel at care facilities. Use of heaters in automobiles and buildings by those who are stranded may result in fires or carbon monoxide poisoning. Fires during winter storm conditions are a particular hazard because fire service response is hindered or prevented by road conditions and because water supplies may be frozen. Disaster Services may also not be available if telephone service is lost. People who attempt to walk to safety through winter storm conditions often become disoriented and lost. Downed power lines not only deprive the community of electricity for heat and light but pose an electrocution hazard. Death and injury may also occur if heavy snow accumulation causes roofs to collapse. Fatalities in Idaho due to winter storms are somewhat unusual, with 6 being reported during the 16-year period from 2005 through 2021 (NWS, 2021).

Loss Estimates

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

Premium Subsidies by Cause of Loss, 1995-2020

| Cause of Loss | Premium subsidies 1995-2020 | Percent Cause of Loss (Heat, Excess Moisture, Hail, Drought, Flood, Cold Winter, Freeze, Other, etc.) |
|---------------|-----------------------------|---|
| Cold Winter | \$5,338,569 | 27% |

The premium subsidies by cause of loss in the table are lower than total premium subsidies because the USDA Risk Management Agency only reports premium subsidies by cause of loss for policies that paid an indemnity. Non-indemnified policies and their associated premium subsidies are not reported by cause of loss. The driving force behind a decline in crop yield or revenue that triggers an indemnity payment is called the “cause of loss” – an event or circumstance that damages crop yield, such as drought, hail or too much rain, or that damages the price side of farmer revenues, like a decline in crop price.

CHAPTER 7 FLOOD

7.1 DESCRIPTION

Flooding is defined by the National Weather Service (NWS) as “the inundation of normally dry areas as a result of increased water levels in an established water course.” River flooding, the condition where the river rises to overflow its natural banks, may occur due to a number of causes, including prolonged, general rainfall, locally intense thunderstorms, snowmelt, and ice jams. In addition to these natural events, there are a number of factors controlled by human activity that may cause or contribute to flooding. These include dam failure (discussed below), levee failure, and activities that increase the rate and amount of runoff, such as paving, reducing ground cover, and clearing forested areas. Flooding is a periodic event along most rivers, with the frequency depending on local conditions and controls, such as dams and levees. The land along rivers that is identified as being susceptible to flooding is called the floodplain.

The federal standard for floodplain management under the National Flood Insurance Plan (NFIP) is the “100-year floodplain.” This area is chosen using historical data such that in any given year there is a 1% chance of a “base flood” (also known as “100-year flood” or “regulatory flood”). A base flood is one that covers or exceeds the 100-year floodplain. In Idaho, flooding most commonly occurs in the spring and is caused by snowmelt.

Floods occur in Idaho every one to two years and are considered the most serious and costly natural hazard affecting the state. The amount of damage caused by a flood is influenced by the speed and volume of the water flow, the length of time the impacted area is inundated, the amount of sediment and debris carried and deposited, and the amount of erosion that may take place.

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

7.1.1 Flood Terminology

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

- **Flood Insurance Study (FIS)**—A Flood Insurance Study is the official report provided by the Federal Insurance Administration, which provides flood profiles, the flood boundary-floodway map, and the water surface elevation of the estimated 100-year base flood.
- **Flood Insurance Rate Map (FIRM)**—The Flood Insurance Rate Maps (FIRM) are the official maps on which the Federal Insurance Administration has delineated both the areas of special flood hazards and the risk premium zones applicable to the community.
- **100-Year Base Flood**—A base flood is a flood that has a 1% chance of being equaled or exceeded in any given year, which is also referred to as the “100-year flood.”
- **Floodplain**—A floodplain is land adjacent to a lake, river, stream, estuary, or other water body that is subject to flooding. If left undisturbed, the floodplain serves to store and discharge excess floodwater. In riverine systems, the floodplain includes the floodway.
- **Floodway**—Floodway means the channel of a river or other watercourse and the adjacent areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation by more than one foot.

7.1.2 Types of Flooding

Flooding can occur in a number of ways and many instances are not independent of each other and can occur simultaneously during a flood event. The types of flooding considered for this plan include:

- Heavy rainfall
- Urban storm water overflow
- Rapid snowmelt
- Rising groundwater (generally in conjunction with heavy prolonged rainfall and saturated conditions)
- Riverine ice jams
- Flash floods
- Alluvial fan flooding

7.2 RELATED HAZARDS

7.2.1 River or Stream Flood

Description

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

Location

Riverine flooding occurs in the low-lying areas of the county adjacent to streams and rivers.

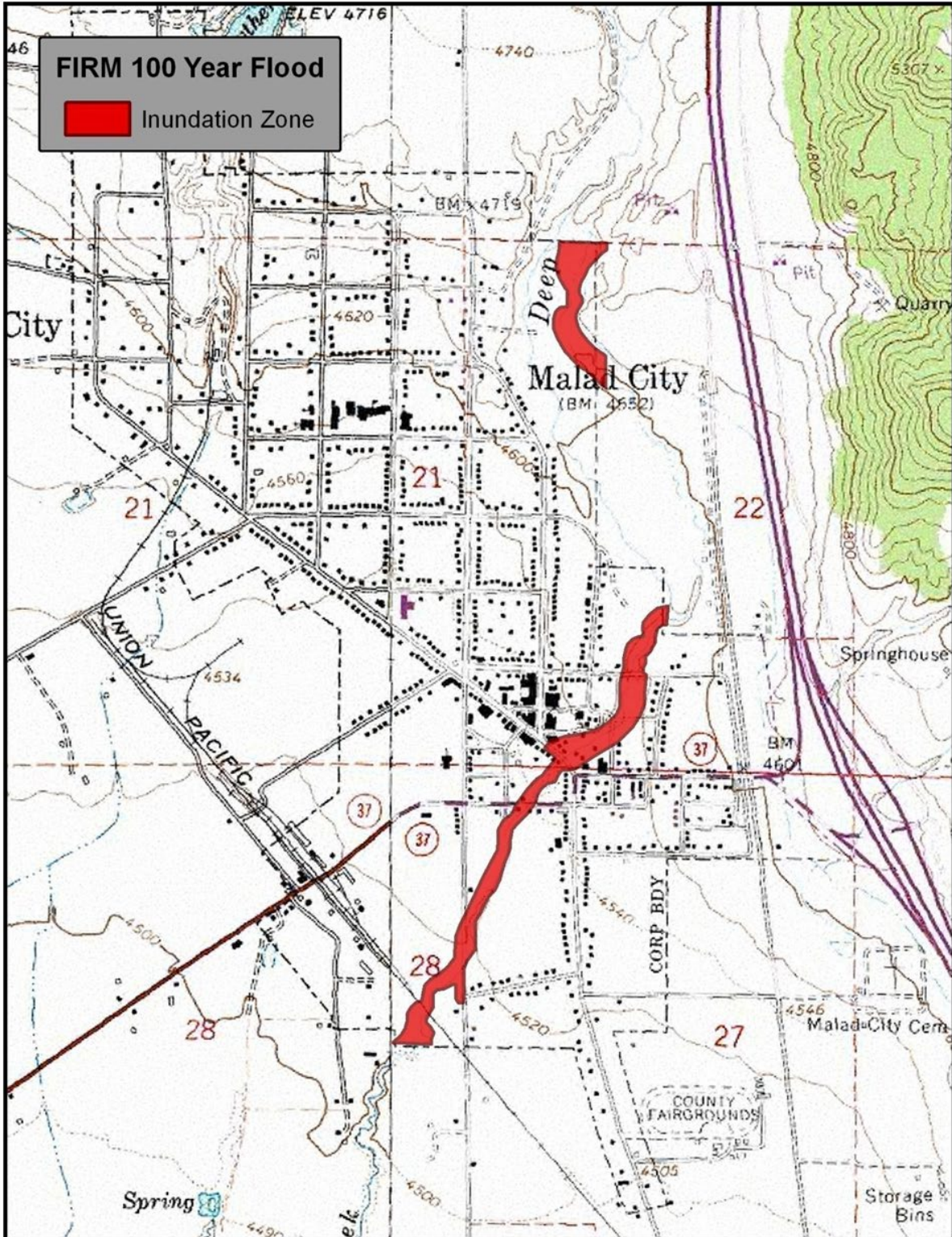


Figure 7-1. 100-Year FIRM Floodplain in Malad City

Extent

Table 7-1. National Weather Service Alerts for Flooding

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

Note | Recent Changes: A Watch means you should prepare for a dangerous weather or water event (e.g. grocery shopping, emergency supply kit) and a Warning means you should take action to prevent or avoid a dangerous event (e.g. take shelter, don't drive). The current "Advisories" and "Special Weather Statements" will be removed and transitioned to plain language headlines for weather or water events that do not rise to the level of a Warning.

Source: National Weather Service

Historical Frequencies and Probability of Future Occurrences

Most of the flooding that has historically occurred in Oneida County can be ascribed to flash flooding in intermittent streams. A review of historic stream flows has shown that the majority of high stream flows happen in the late winter to early summer. The most damaging events happen in January and February when an early thaw runoff is compounded by rain. There is fairly good historic stream gauge data for the flow on streams and rivers in Oneida County, but a flood stage has not been calculated at those gauges. The National Weather Service (NWS) is willing to work with local emergency managers to define the flood stage on those streams so that the historic stream flow data can be utilized in the mitigation planning process. The probability of flooding is 1% per year in floodplains mapped Zone A on the Malad City FIRM. Deep Creek runs through a portion of the city. The area identified near deep creek is in the flood zone can flood once every 100 years. These are marked as Zone A-2. A few blocks are identified as being in an area that can flood once every 500 years. This area is marked as zone B and mainly runs a short distance along Bannock Street and on Bush Avenue. The majority of the City is in Zone C which is a minimal flood hazard zone.

According to the NWS Storm Events Database, there have been four winter flood events in Oneida County between 2000–2021, as seen in the table below.

Table 7-2. Winter Flood Events in Oneida County

| WINTER FLOOD EVENTS IN ONEIDA COUNTY | | | |
|--|-------------|------------------------|---|
| Location Within County | Date | Property Damage | Cause |
| Holbrook | 01/21/2012 | \$8,000 | Rain on snow |
| Malad City Airport | 02/22/2012 | \$10,000 | Snowmelt, warm temperatures, heavy rain |
| Daniels | 02/05/2017 | \$278,000 | Snowmelt, warm temperatures |
| Daniels | 03/01/2017 | \$45,000 | Snowmelt |
| <i>Source: NWS Storm Events Database, 2021</i> | | | |

Impacts

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

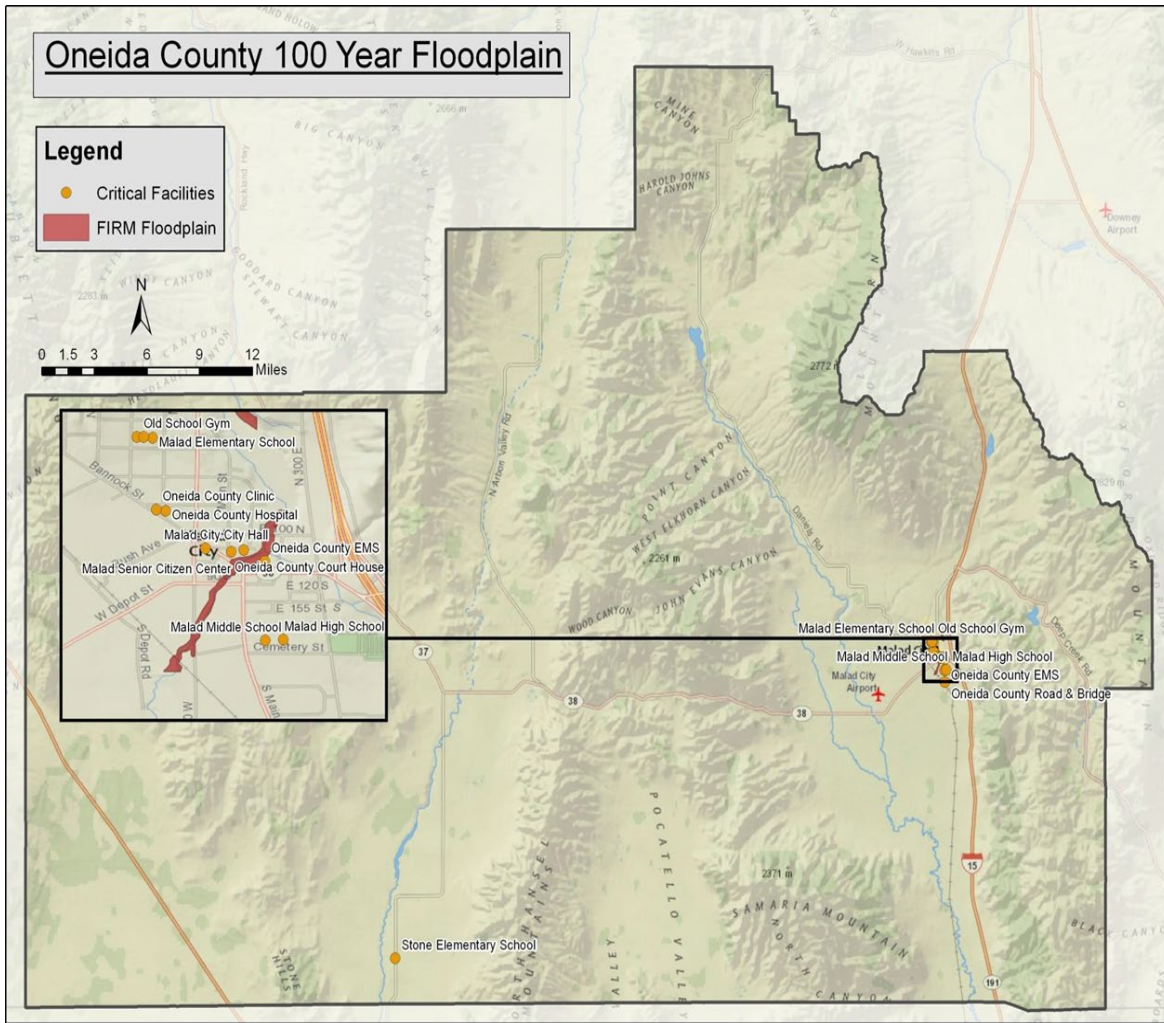


Figure 7-2. Oneida County 100-Year Floodplain

Loss Estimates

A GIS overlay was used to determine the number and value of land parcels that lie within the flood impact area. The following table represents the results of that analysis.

Table 7-3. Oneida County Flood Loss Estimate

| ONEIDA COUNTY FLOOD LOSS ESTIMATE | | |
|-----------------------------------|-------------------------|-------------------------------|
| Hazard | No. of Parcels Affected | Approx. Value of Improvements |
| Flood | 190 | \$1.6 million |

Repetitive Loss

There are no FEMA-defined repetitive or severe repetitive loss properties in the County.

7.2.2 Flash Flood

Description

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

Location

Flash flooding is an issue, specifically for the City of Malad and Holbrook.

Extent

The extent of flash flooding is in isolated locations, usually a result of inadequate stormwater capacity.

Historical Frequencies and Probability of Future Occurrences

According to the NWS Storm Events Database, there have been 10 flash flood events in Oneida County between 2000–2021, as seen in the table below.

Table 7-4. Flash Flood Events in Oneida County

| FLASH FLOOD EVENTS IN ONEIDA COUNTY | | | |
|-------------------------------------|------------|-----------------|---|
| Location Within County | Date | Property Damage | Description |
| East Central Portion | 07/11/2001 | -- | Flash flooding in rural portions of central Oneida county |
| Juniper | 08/03/2003 | -- | Heavy/running water on I-15 |
| Countywide | 07/18/2004 | \$2,500 | 1.5 in. of rain in an hour caused flash flooding |
| Malad City | 07/26/2004 | -- | -- |
| Daniels | 07/26/2004 | \$1,000 | Wash over on county roads |
| Holbrook | 06/01/2009 | -- | Rural roads flooded with 0.57 in. of rain in 15 minutes |
| Holbrook | 06/15/2009 | -- | 1.5 in. of rain in 15 min. caused trees to be uprooted |
| Holbrook | 06/17/2009 | -- | Flooding and funnel clouds reported |
| Holbrook | 08/24/2009 | -- | Rural roads flooded with 14 in. of water |

| FLASH FLOOD EVENTS IN ONEIDA COUNTY | | | |
|--|------------|-----------------|--|
| Location Within County | Date | Property Damage | Description |
| Malad City Airport | 05/28/2018 | \$5,000 | 2 in. of rain in 30 min. caused basements and streets to flood |
| <i>Source: NWS Storm Events Database, 2021</i> | | | |

Impacts

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

Loss Estimates

Historical loss estimates due to Flash Flooding have been from several thousands of dollars to hundreds of dollars.

Premium Subsidies by Cause of Loss, 1995-2020

| Cause of Loss | Premium subsidies 1995-2020 | Percent Cause of Loss (Heat, Excess Moisture, Hail, Drought, Flood, Cold Winter, Freeze, Other, etc.) |
|------------------------------------|-----------------------------|---|
| Excess Moisture/Precipitation/Rain | \$1,215,656 | 6% |

The premium subsidies by cause of loss in the table are lower than total premium subsidies because the USDA Risk Management Agency only reports premium subsidies by cause of loss for policies that paid an indemnity. Non-indemnified policies and their associated premium subsidies are not reported by cause of loss. The driving force behind a decline in crop yield or revenue that triggers an indemnity payment is called the “cause of loss” – an event or circumstance that damages crop yield, such as drought, hail or too much rain, or that damages the price side of farmer revenues, like a decline in crop price.

7.2.3 Dam Failure

Description

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

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

- Inadequate maintenance and upkeep

Failures may be categorized into two types: component failure of a structure that does not result in a significant reservoir release, and uncontrolled breach failure that leads to a significant release. With an uncontrolled breach failure of a manmade dam, there is a sudden release of the impounded water—sometimes with little warning. The ensuing flood wave and flooding have enormous destructive power. The Idaho Department of Water Resources (IDWR) is responsible for dam safety in this state.

Dams 10 feet or higher or which store more than 50-acre feet of water are regulated by the Idaho Department of Water Resources (as are mine tailings impoundment structures). Idaho currently has 546 water storage dams and 21 mine tailings structures that are regulated by IDWR for safety. The Dam Safety Section inspects these dams or tailings structures at least once every five years but may inspect them more frequently depending on the project’s physical condition, method of construction, maintenance record, age, hazard rating, and size and storage capacity, (IDWR, 2021). Copies of all inspection reports for each of the dams and tailings structures are available at the IDWR State Office in Boise. Inspection reports are also available at the four IDWR Regional Offices for dams and tailings structures located in their specific regions.

The following table provides a listing and rating of the dams within Oneida County that are part of the IDWR Dam Safety Program:

Table 7-5. Dams in Oneida County

| DAMS IN ONEIDA COUNTY | | | | | |
|------------------------------|--------------------|-----------------------|---------------------|------------------------------------|-------------------------|
| Name | Source | Year Completed | Height (ft.) | Storage Capacity (acre ft.) | Hazard Potential |
| Saint John | Birch Creek | 1918 | 43.4 | 630 | High |
| Curlew Valley | Deep Creek | 1911 | 40.5 | 3800 | Significant |
| Deep Creek | Deep Creek | 1952 | 90.6 | 5537 | High |
| Devil Creek | Devil Creek | 1969 | 83.6 | 4464 | High |
| Elkhorn (Breached) | Little Malad River | -- | 0 | 0 | Not Rated |
| Daniels | Little Malad River | 1967 | 95.6 | 8700 | High |
| Samaria No. 1 Lower | Malad River | 1934 | 35.1 | 559 | Significant |
| Samaria No. 2 Upper | Malad River | 1947 | 45.9 | 700 | Significant |
| Crowther | Spring Creek | 1948 | 90 | 959 | High |
| Deep Creek Upper | Third Creek | 1906 | 36.3 | 512 | Significant |
| Sweeten Pond | Unnamed Stream | -- | 7 | 24 | Low |
| Weston | Weston Creek | 1929 | 42.2 | 2066 | High |

Source: IDWR GIS Section, 2021

Location

According to the National Inventory of Dams, only 10 dams are active within Oneida County (all but Elkhorn and Sweeten Pond from the list above).

Extent

Each dam inspected by IDWR is given a hazard rating (IDWR, 2021):

- High Hazard**—A high-hazard rating does not imply or otherwise suggest that a dam suffers from an increased risk for failure. It simply means that if failure were to occur, the resulting consequences likely would be a direct loss of human life and extensive property damage. For this reason, all high-hazard dams must be properly designed and at all times responsibly maintained and safely operated because the consequences of failure are so great. IDWR considers the inundation of residential structures with flood water from a dam break to a depth greater than or equal to two (2) feet to be a sufficient reason for assigning to a dam a high-hazard rating. An up-to-date Emergency Action Plan is a requirement for all owners of high hazard dams.
- Significant Hazard**—Significant hazard dams are those structures whose failure would result in significant damage to developed downstream property and infrastructure or that may result in an indirect loss of human life. An example of the latter would be a scenario where a roadway is washed out and people are killed or injured in an automobile crash caused by the damaged pavement.
- Low Hazard**—Low hazard dams typically are located in sparsely populated areas that would be largely unaffected by a breach of the dam. Although the dam and appurtenant works may be totally destroyed, damages to downstream property would be restricted to undeveloped land with minimal impacts to existing infrastructure.

The table above provides a listing and rating of the dams within Oneida County that are part of the IDWR Dam Safety Program.

Historical Frequencies and Probability of Future Occurrences

The only significant dam failure event in Oneida County occurred in 1907 or 1908 when the Deep Creek Dam collapsed. The exact date is unknown. Locals of the time suspected that a badger dug a few holes in the dam, which caused water to seep through and the dam begin to crumble. When the dam completely collapsed, water from Deep Creek Reservoir traveled down to Malad City, washing out several farms along the way. Locals reported that the water flooded every basement on the south side of town.



Looking south, the water flooded streets and filled basements in the lower end of town

Figure 7-3. Flooding in Malad City from Deep Creek Dam Failure (Williams, 1987)

Impacts

There are six high hazard dams in Oneida County. Each of these dams has the potential to affect a rather large percentage of the population in the event of failure. The two largest risk dams are Daniels Dam and Deep Creek Dam. The following figures show the estimated inundation zones in the event of a failure of these two dams.



Figure 7-4. Daniels Dam Failure Map

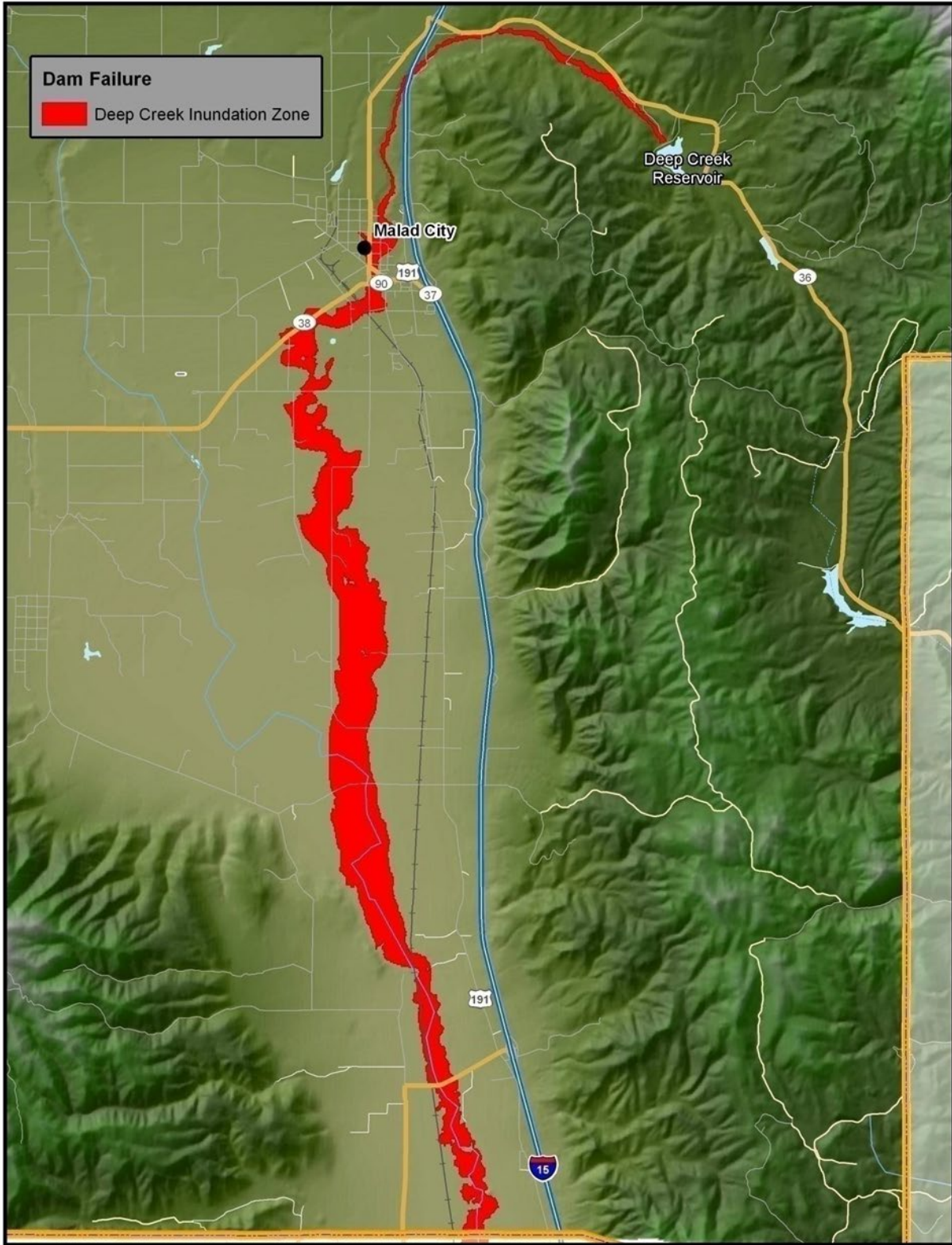


Figure 7-5. Deep Creek Dam Failure Map

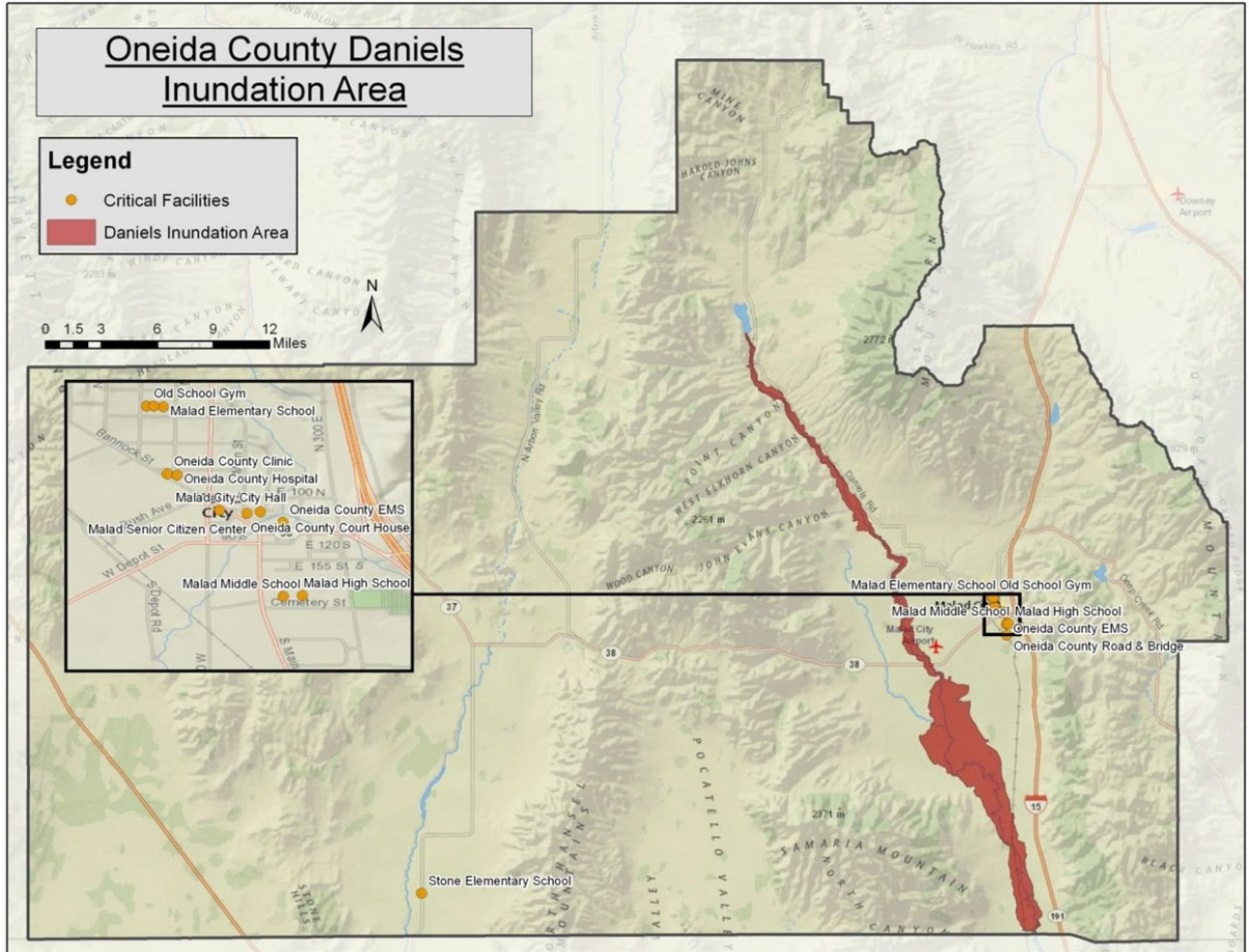


Figure 7-6. Oneida County Daniels Reservoir Inundation Area

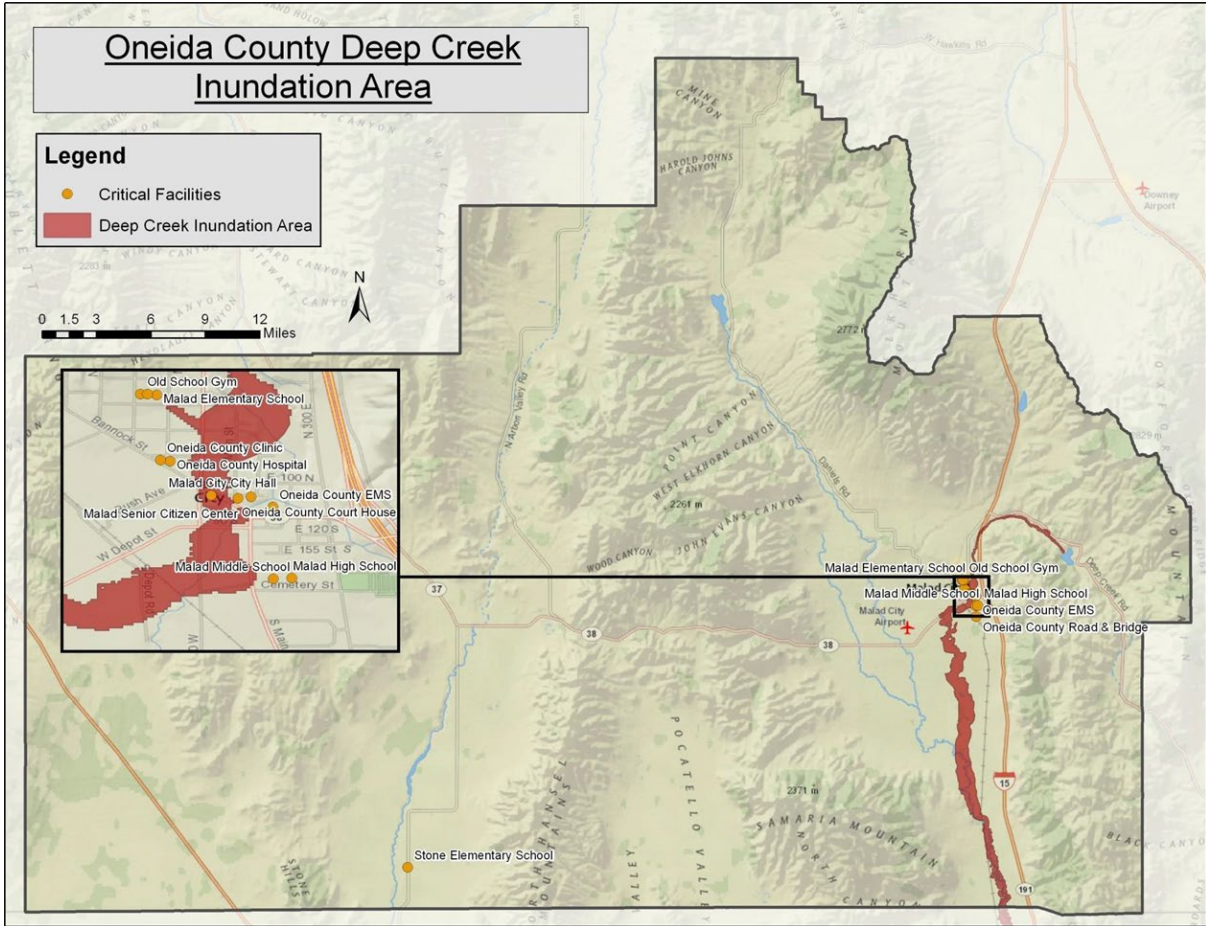


Figure 7-7. Oneida County Deep Creek Reservoir Inundation Area

Loss Estimates

Loss estimates for Deep Creek and Daniels Dam failure scenarios are provided below.

Daniels Dam

According to GIS analysis, about six buildings will be at least moderately damaged.

Deep Creek Dam

According to GIS analysis, over 50 buildings will be at least moderately damaged. It is possible up to 100 households could be displaced due to the flood.

CHAPTER 8 WILDFIRE

The Oneida County Wildfire Protection Plan (CWPP) was integrated into the All Hazard Mitigation Plan during this update process. As such, this section will include additional elements unique and specific to the State of Idaho’s CWPP requirements.

The priorities are:

- **Protection of Life:** Identify and provide mitigation recommendations for areas of high wildfire risks that are in or adjacent to homes and communities, and improve critical county infrastructure facilities.
- **Protection of Property:** Identify and provide mitigation recommendations for properties of moderate and high wildfire risk. Increase public awareness through education, training, and information sharing that addresses wildfire risks and mitigation measures.
- **Protection of Resources:** Identify resources that are at risk from wildfire and implement natural resource planning to protect these resources.
- **Improve Wildfire Emergency Services:** Improve county infrastructure and wildfire emergency service planning, training, communications, and equipment.
- **Increase Public Awareness of Wildfire Prevention:** Increase public awareness of wildfire mitigation practices and wildfire prevention through education, training, and information sharing.
- **Improve Partnerships for Implementation:** Utilize partnerships currently established and develop additional participation with State, Federal, and private organizations.

8.1 DESCRIPTION

Wildfire is defined by the USDA Forest Service as “a fire naturally caused or caused by humans, that is not meeting land management objectives. It is generally thought of as an uncontrolled fire involving vegetative fuels occurring in wildland areas. Such fires are classified for hazard analysis purposes as either “Wildland” or “Wildland Urban Interface” fires. Wildland fires occur in areas that are undeveloped except for the presence of roads, railroads, and power lines, while Wildland Urban Interface fires occur where structures or other human development meets or is intermingled with the wildland or vegetative fuels. Wildland fire is currently considered a natural and necessary component of wildland ecology and, as such, is most often allowed to progress to the extent that it does not threaten inhabited areas or human interests and well-being. At the Wildland Urban Interface (WUI), vigorous attempts are made to control fires, but this becomes an increasingly difficult challenge as more and more development for recreational and living purposes takes place in wildland areas. Some wildland fires are ignited naturally (almost exclusively by lightning), but most ignitions are a result of human activities, either careless or intentional. The rapidity with which a wildland fire spreads and the intensity with which it burns is controlled by a number of factors including:

- Weather—wind speed and direction, temperature, precipitation
- Terrain—fires burn most rapidly upslope

- Type of vegetation
- Condition of vegetation—dryness
- Fuel load—the amount and density of vegetation
- Human attempts to suppress

In Idaho, fire was once an integral function of the majority of ecosystems. The seasonal cycling of fire across the landscape was as regular as the July, August, and September lightning storms plying across the canyons and mountains. 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 (Johnson, 1998). The fires burned from one to 47 years apart, with most at 5- to 20-year intervals (Barrett, 1979). With infrequent return intervals, plant communities tended to burn more severely and were replaced by vegetation different in composition, structure, and age²⁷. Native plant communities in this region developed under the influence of fire, and adaptations to fire are evident at the species, community, and ecosystem levels. Fire history data (from fire scars and charcoal deposits) suggest fire has played an important role in shaping the vegetation in the Columbia Basin for thousands of years (Johnson, 1994).

8.2 LOCATION

The entire county is susceptible to wildfires. There are approximately 1,200 square miles in Oneida County. A majority of the County, about 660 square miles, is in public ownership. About 422 square miles of public lands are administered by the Bureau of Land Management. An additional 217 square miles are in the Curlew National Grassland and in National Forests. Caribou National Forest lands are found in the higher elevations of the Bannock and Malad ranges on the County's Eastern border and part of the Sublett Range on the West. In the County's Northwestern corner is a portion of the Sawtooth National Forest. The Curlew Valley, which contains the Curlew National Grassland, is in the western half of Oneida County. The State of Idaho owns about 20 square miles in widely scattered parcels. In addition, about one square mile is occupied by bodies of water, principally reservoirs, none of which is presently classified as a navigable waterway for purposes of State regulation. The remaining 540 square miles of the County is in private ownership.

8.3 EXTENT

Much of the County is susceptible to wildland fires. The figure below highlights the highest risk areas in the County. The fire hazard assessment for this map considers the physical attributes of slope, aspect, and vegetation.

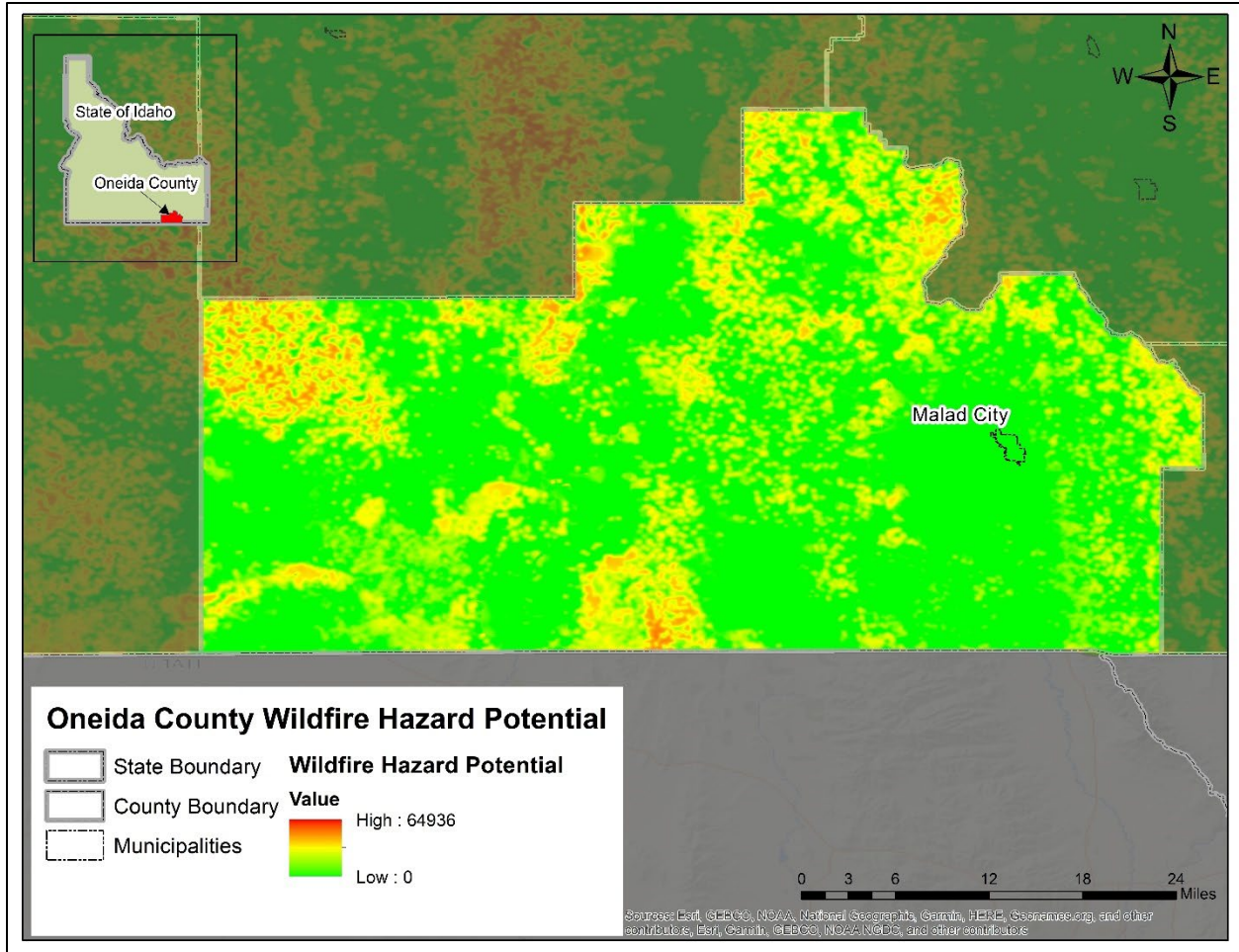


Figure 8-1. Oneida County Wildfire Hazard Potential

8.4 HISTORICAL FREQUENCIES & FUTURE PROBABILITY OF OCCURRENCE

The figure below depicts the location and historical wildfire events in Oneida County between 1939–2021. The fuels, weather and topography in Oneida County combine to make wildfire a periodic hazard with associated risks.

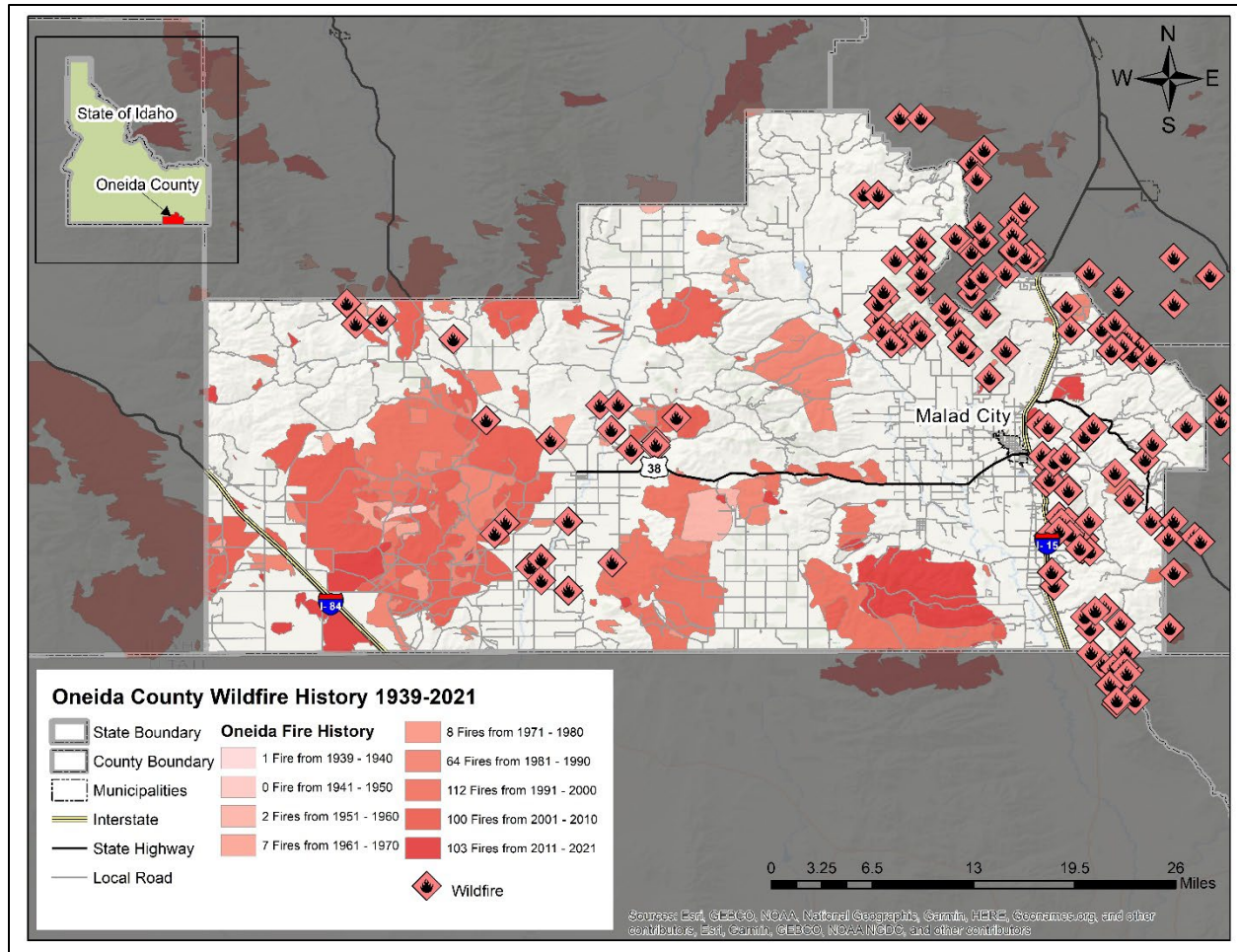


Figure 8-2. Oneida County Historical Wildfire Locations

8.5 IMPACTS

Wildland fires threaten the lives of anyone in their paths, including hikers, campers, and other recreational users and, where suppression efforts are made, firefighters. Enormous volumes of smoke and airborne particulate materials are produced that can affect the health of persons for many miles downwind. Nearer to the fire, smoke reduces visibility, disrupting traffic and increasing the likelihood of highway accidents. As a result of wildland fire, there may be changes in water quality in the area, and erosion rates may increase along with increased rainfall runoff and flash flood threat, and decreased rainfall interception and infiltration. Indirect impacts include losses to tourism, recreational and timber interests, and loss of wildlife habitat. Wildland Urban Interface fires have most or all of the above impacts as well as those of structural fires, including injury and loss of life, and loss of structures and contents. Agricultural losses may also be sustained, including livestock, crops, fencing, and equipment.

There are currently approximately over 2,700 parcels that are vulnerable to wildfire.

Oneida County WUI Map Development

The Wildland Urban Interface delineations were developed in an effort to qualitatively and quantitatively define the Wildland-Urban Interface for the county. Specifically, the WUI identifies the intersection and

overlap of developed areas within the County with undeveloped areas in which adequate fuels exist to increase the wildfire risk.

The WUI is defined as the line, area, or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuel (NWCG and NFPA Glossaries). The intent of a WUI boundary is to “define an area within or adjacent to private and public property where mitigation actions should occur to prevent damage and loss” (NWCG Memorandum # 024-2010; Terminology Updates Resulting from Release of the Guidance for the Implementation of Federal Wildland Fire Management Policy, 2009). Capital improvements, houses, private land, major utility corridors, watersheds and communication sites, are examples of structures and human developments the planning group is collectively concerned about in the event of a wildfire. The existence and vulnerability of these values relative to the surrounding landscape shape the WUI boundary. The vulnerability of identified lands within the WUI boundary is based on fuels, topography, weather patterns, and professional evaluation and input. Defining the WUI boundary in this manner helps identify areas of concern to prioritize fuels reduction projects, community outreach and education efforts, and help managers develop the appropriate response to an emerging fire incident.

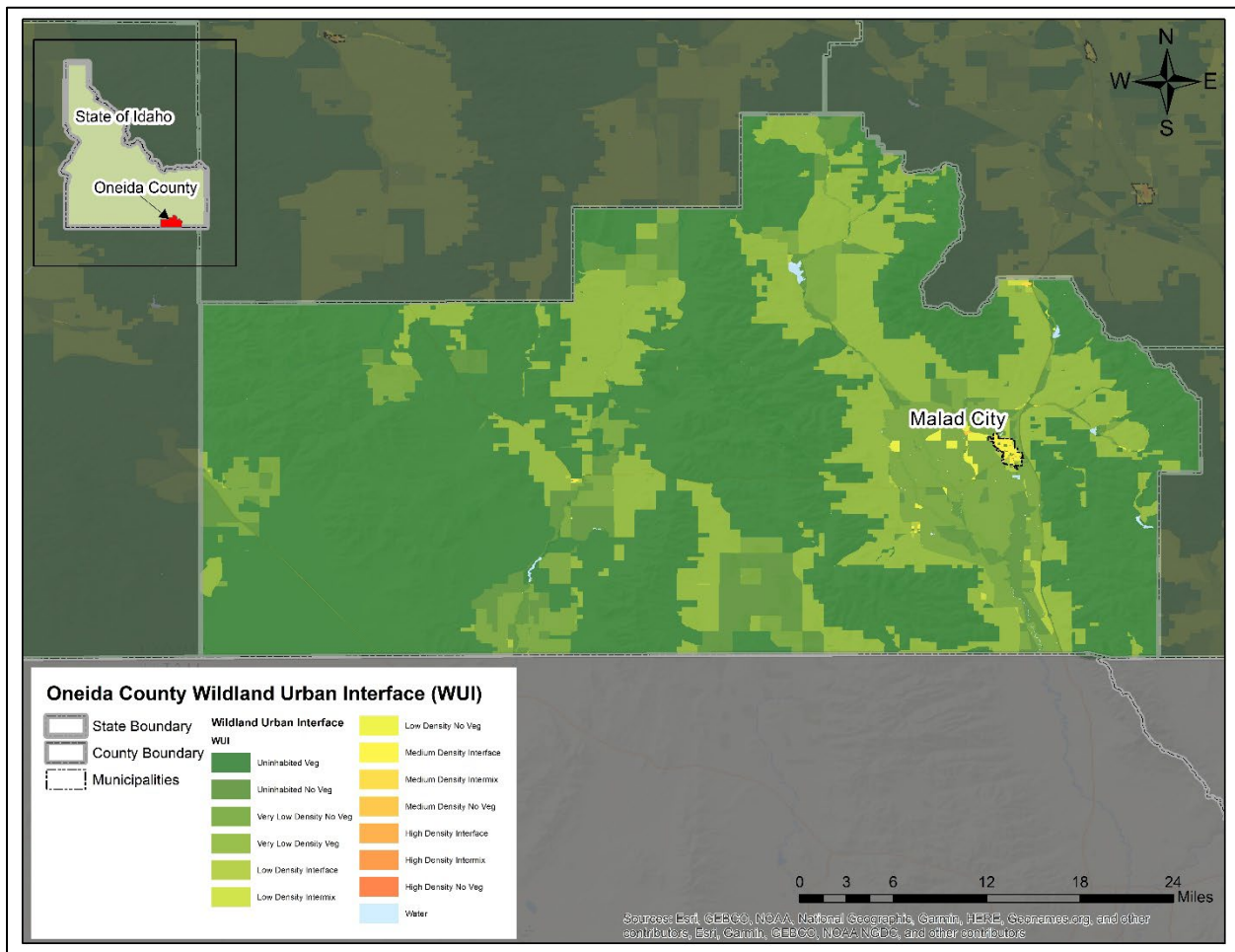


Figure 8-3. Oneida County WUI

Fire Behavior Assessment

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

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

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

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

LANDFIRE 2016 data is national-level, landscape-scale, cross-boundary fuels data that exists for the conterminous United States and contains information representing topography (slope, elevation, aspect) fire behavior fuel model and canopy characteristics (canopy cover, canopy base height, canopy height, canopy bulk density) which serve to simulate crown fire activity. LANDFIRE data was imported into the fire behavior modeling software FlamMap to predict the potential fire behavior under severe fire weather conditions (97th percentile).

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

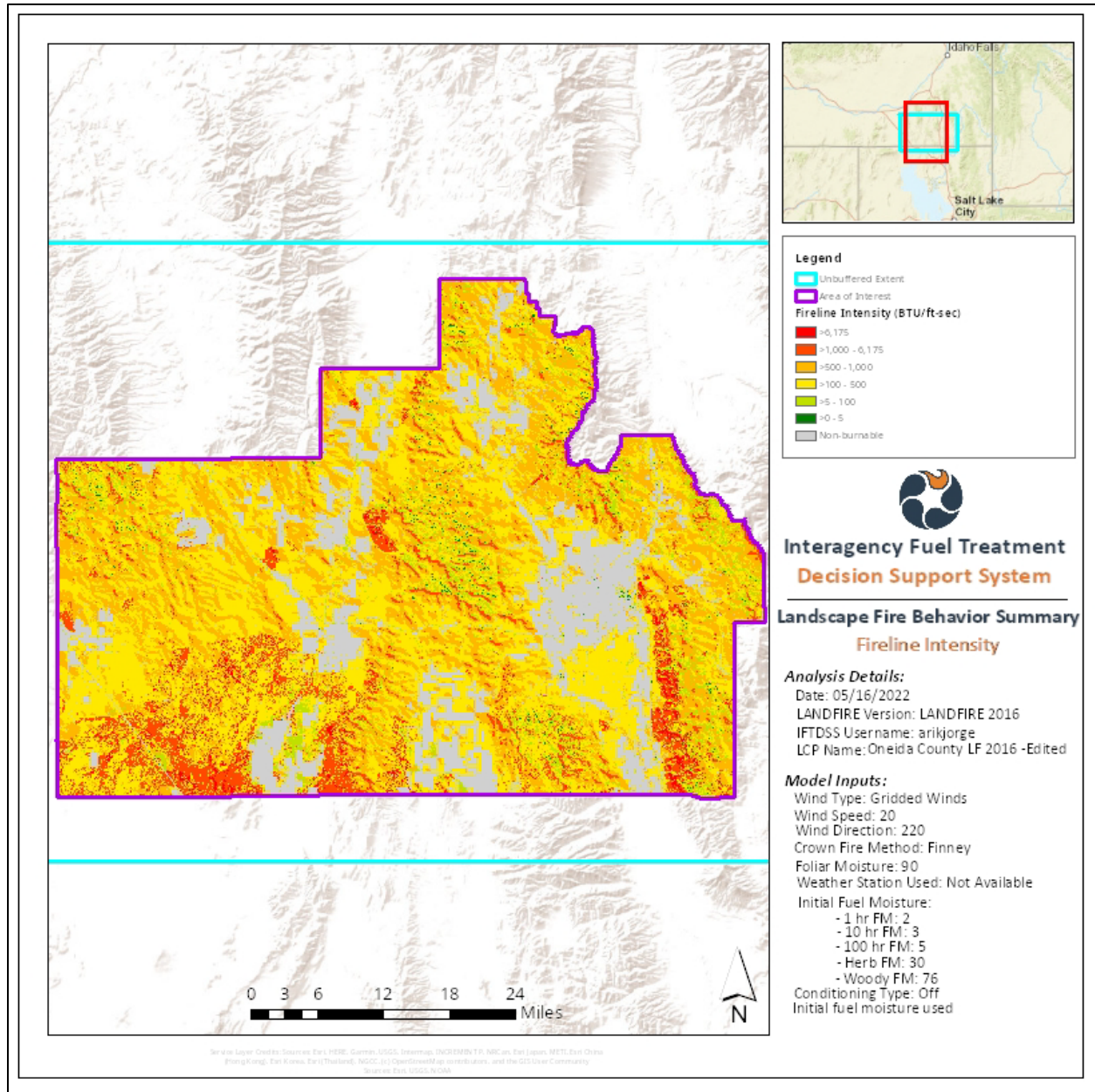


Figure 8-4. Fireline Intensity

Flame Length

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

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

| Flame Length Class | Flame Length | Fireline Intensity | Fire Suppression Interpretations |
|---------------------------|---------------------|---------------------------|--|
| Low | < 4 feet | < 100 Btu/ft/s | Fires can generally be attacked at the head or flanks by persons using hand tools. Handline should hold fire. |
| Medium | 4 to 8 feet | 100-500 Btu/ft/s | Fires are too intense for direct attack on the head by persons using hand tools. Handline cannot be relied on to hold the fire. Bulldozers, engines, and retardant drops can be effective. |
| High | 8 to 11 feet | 500-1000 Btu/ft/s | Fires may present serious control problems: torching, crowning, and spotting. Control efforts at the head will probably be ineffective. |
| Very High | > 11 feet | > 1000 Btu/ft/s | Crowning, spotting, and major fire runs are probable. Control efforts at the head of the fire are ineffective. |

Source: Fireline Handbook, Appendix B: Fire Behavior, pg. B-59

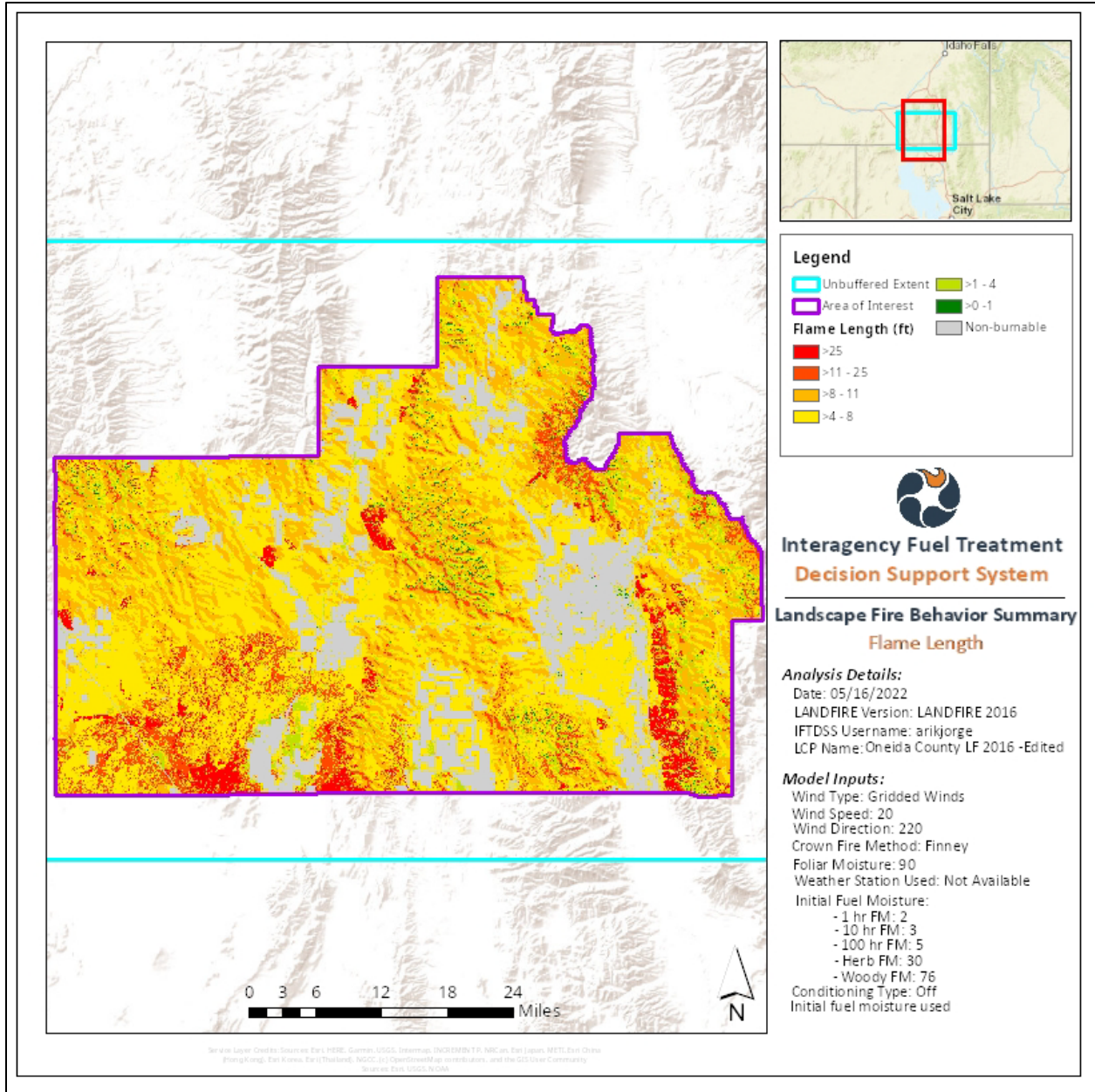


Figure 8-5. Flame Length

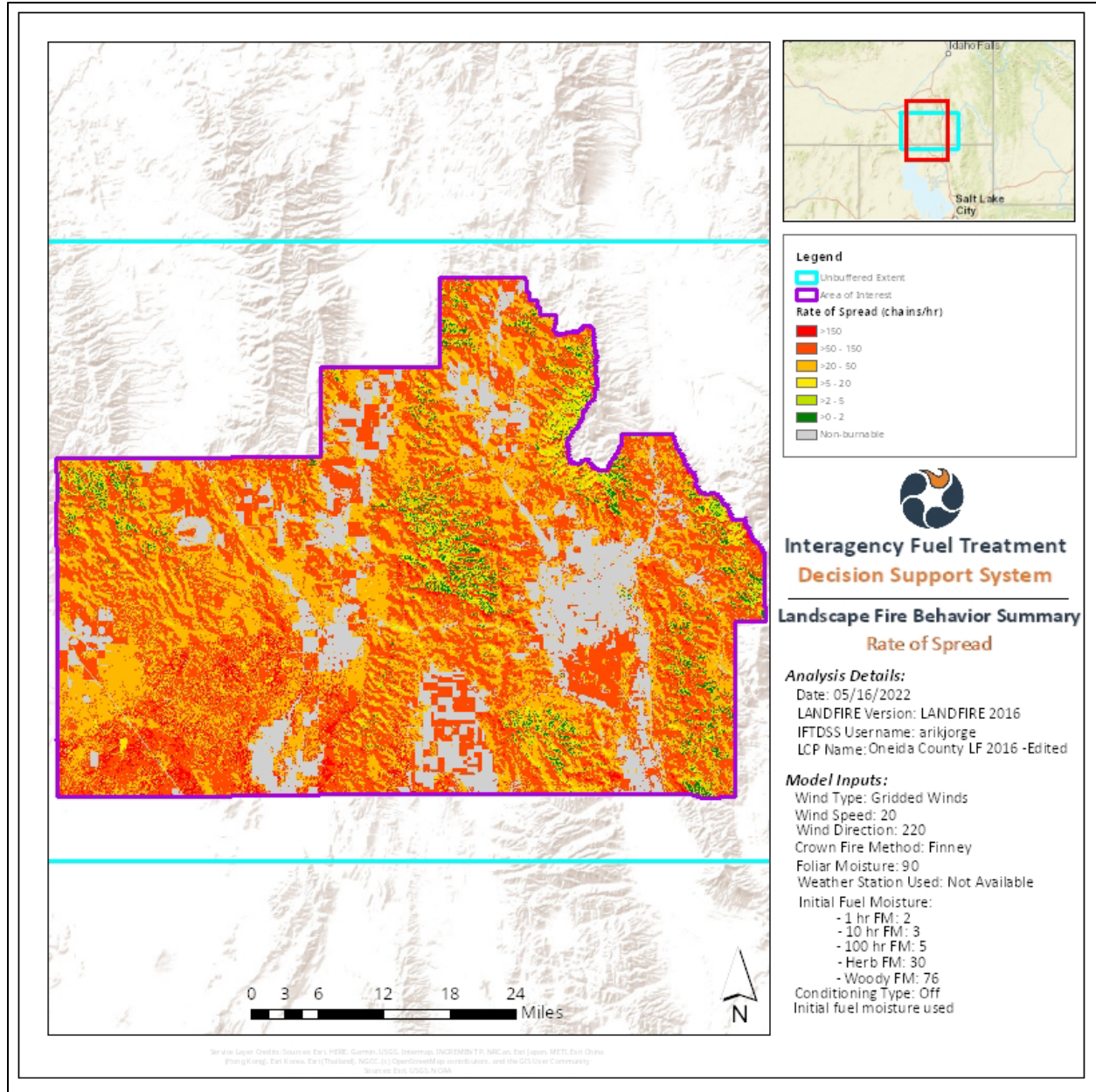


Figure 8-6. Rate of Spread

8.6 WILDFIRE MITIGATION STRATEGIES AND IMPLEMENTATION

The wildfire mitigation action items provide direction on specific activities that organizations and residents in Oneida County can undertake to reduce risk and prevent loss from wildfire events. Each action item is followed by ideas for implementation that can be used by local entities to pursue strategies for implementation.

The following map shows the fuel break projects.

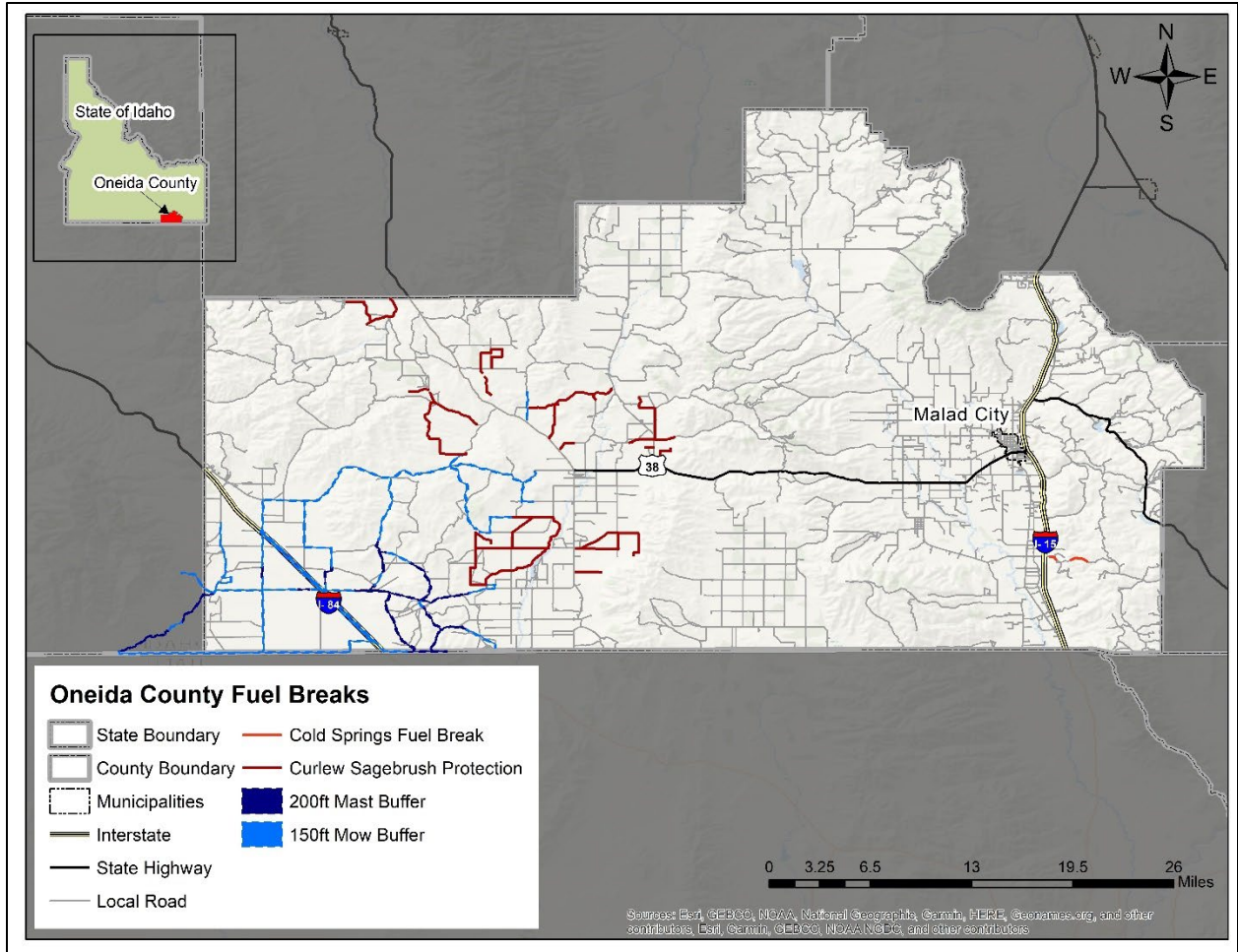


Figure 8-7. Oneida County Fuel Break Projects

The map below shows additional fuel reduction and habitat projects in Oneida County.

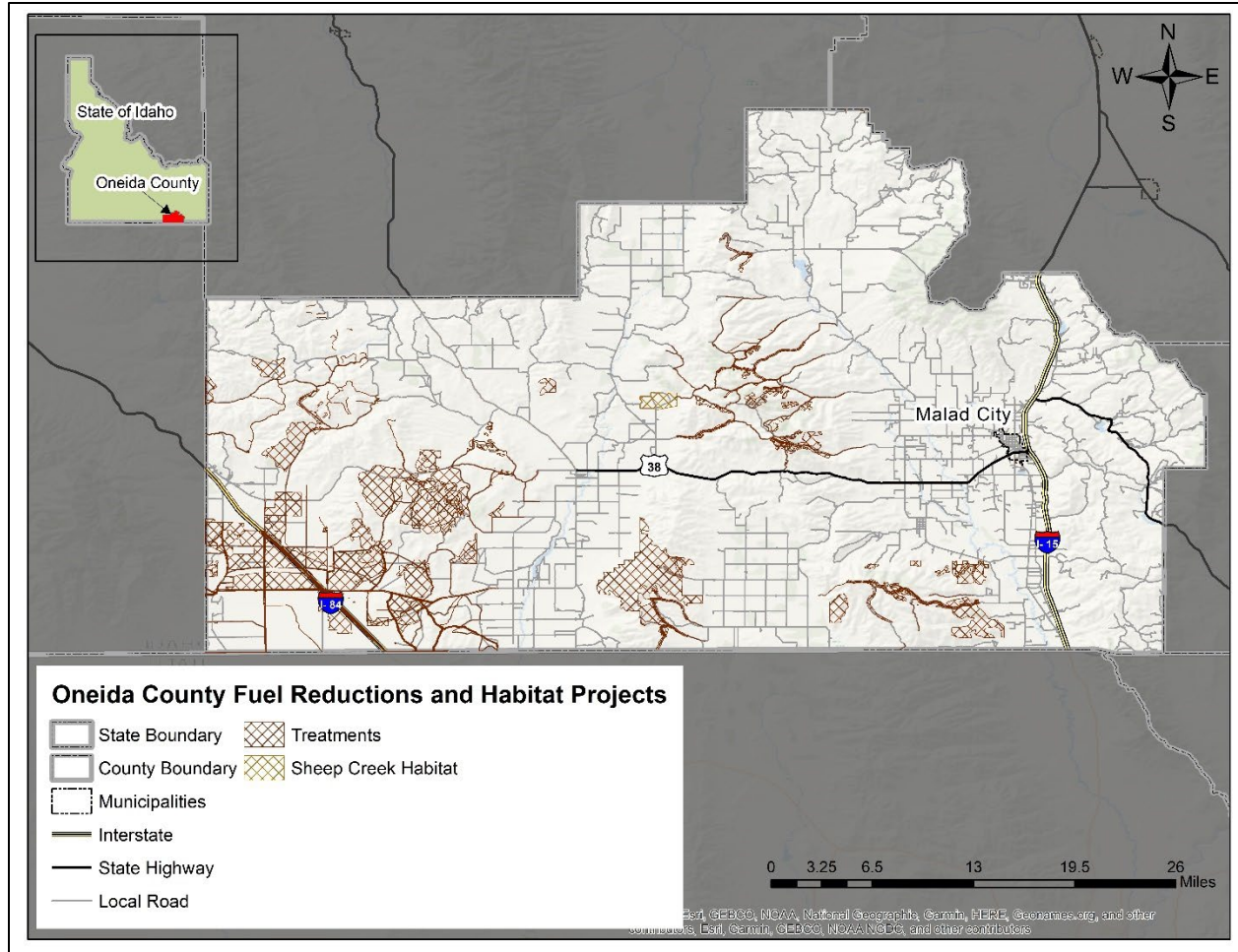


Figure 8-8. Oneida County Fuel Reduction and Habitat Projects

The following table illustrates the major wildfire mitigation initiatives in Oneida County.

| Priority | Action Item | Lead Organization | Timeline | Description |
|----------|---|-------------------|-----------------------------|--|
| High | Curlew Sagebrush Protection Fuel Breaks | USFS | Implementation 2011-Present | The Forest Service has been maintaining fuel breaks across the Curlew National Grassland in order to help facilitate a decrease in wildfire spread observed in this area. Multiple fuels breaks have been created along roads and fence lines to help aid in fire suppression. |
| Moderate | Sheep Creek Project | USFS | Implementation 2017-Present | The Forest Service has been reducing juniper cover in mature sagebrush within this project to aid in wildlife habitat improvement. While the majority of juniper cutting and burning is complete within the project area, fuel breaks are still being maintained for future wildfire occurrence. |

| | | | | |
|----------|---|------|--------------------|---|
| High | Caribou Prescribed Fire Restoration Project | USFS | Planning 2023-2040 | This project is currently being planned to help reduce the acres prone to un-characteristic wildfire in Oneida County by reintroducing fire into the ecosystem that will eventually promote lower intensity wildfire and more resilient vegetation within watersheds across jurisdictional boundaries. This project is currently being planned. |
| Moderate | Cold Springs Fuel Break | USFS | 2017-2018 | This project is a 200 foot fuel break along the Cold Springs Road to facilitate limiting fire spread in this area. |

8.7 WILDFIRE MITIGATION PROGRAMS AND RESOURCES

Existing mitigation activities include current mitigation programs and activities that are being implemented by County, State and Federal agencies within Oneida County. Prioritization of Hazards and Mitigation Goals is in accordance with the stated objectives, specifically protection of Life, Property and Values at risk.

State (IDL) Programs

- Provides education to property owners about fire hazards in wildland-urban interface areas.
- Manages the Hazardous Fuels Reduction Program to assist landowners or counties with grant funds for reduction of hazardous fuels.
- Manages Forest Stewardship program to assist landowners in forest and fire planning.
- Declares fire closures when wildfire danger ratings and conditions require.

Federal Programs

The role of the Federal land management agencies in Oneida County is focused on reducing fuel hazards on the lands they administer. They also provide prevention and education programs, provide technical and financial assistance; develop agreements and partnerships with other agencies and private landowners in an effort to provide for safer communities within the wildlands. Some of the programs provide grants to fire districts.

Fire Suppression Assistance Grants may be provided to a State with an approved wildfire hazard protection plan. These grants are provided to protect life and improve property. The grant may include funds for training, equipment, supplies, and personnel. Provides suppression training as requested.

Toolbox

Fuels Treatment Options and Estimated Costs

Wildland fire can be good for people and the land. There is a need for periodic fire to create disturbances which in turn create healthier more resilient and diverse ecosystems. Removing fire from the landscape will eventually create unhealthy ecosystems: trees are stressed by overcrowding, fire-dependent species disappear, and flammable fuels build up and become hazardous. Land management agencies often utilize prescribed fire to benefit natural resources and protect communities and values at risk. However, in some places and under some conditions it may be too difficult to safely use prescribed fire with acceptable risk. This is where the mechanical treatment of hazardous fuels can be a valuable tool. Hazardous fuels treatments can benefit ecosystems and people by:

- Reducing the probability of catastrophic fires;
- Helping maintain and restore healthy and resilient ecosystems;
- Protecting human communities and values at risk.

Mechanical treatment of hazardous fuels means reducing the amount of vegetation which has built up to dangerous levels, or changing the arrangement of these fuels in the environment. Mechanical treatment can also provide opportunities for woody biomass utilization by providing a renewable source of energy and wood products for local communities.

Examples of mechanical treatment include the thinning of dense stands of trees, or other fuel treatments that make an area better able to withstand fire. Such treatments might be piling brush, pruning lower branches of trees, or creating fuel breaks to reduce fire intensity and severity. Tools that are used to carry out the mechanical treatment of hazardous fuels range from the use of hand tools such as chainsaws, to large machines like masticators and wood chippers.

Mechanical treatment can be used on its own or together with prescribed fire to change how wildfire behaves, so that when a fire does burn through a treated area, it is less destructive, less costly, and easier to control with less risk to public and emergency responders. Often, mechanical fuels treatments are followed by prescribed fire to create effective hazard reduction.

The costs associated with the different types of fuels treatment varies dramatically and is influenced by many factors including: fuel type, fuel density, fuel loading (tons per acre), location of the treatment, and availability of resources to perform the work. The following treatment types and estimated costs have been derived from past projects on private lands.

- Thinning and hand pile – \$400-\$800 per acre
- Limbing and hand pile – \$300-\$600 per acre
- Chipping – \$300-\$600 per acre
- Mastication – \$200-\$800 per acre
- Pile Burning – \$90-\$150 per acre

The project work completed on private lands has a rolling average across the state which usually includes the follow practices as a single cost: Cut/Pile/Chip for \$1200-\$1800 per acre.

For comparison purposes, the average wildfire suppression costs for all land management agencies within the Great Basin Geographical Area (Southern Idaho, Western Wyoming, Nevada and Utah):

- Average wildfire suppression costs - \$27,600 per acre.

Grant Opportunities

Government agencies, non-government organizations, and cooperators have come together to offer various programs to assist property owners and communities in obtaining financial assistance for fuels reduction projects that reduce the likelihood of catastrophic wildfire, by creating a higher degree of defensibility in the Wildland-Urban Interface, and ultimately offering firefighters a higher probability of success.

Idaho Department of Lands offers two (2) grant opportunities in cooperation with the USFS for projects specifically identified in County Wildfire Protection Plans. First, the Western State Fire Managers (WSFM) grant supports hazardous fuels reduction on private and state lands, education of landowners and general public, and planning efforts related to the completion of a CWPP or implementation of

project work. Second, the Hazardous Fuel Reduction (HFR) grant supports the reduction of hazardous fuels on private and state lands that are adjacent to USFS lands that has a project in the planning process or currently implementing a vegetative project.

Contact Information:

Tyre Holfeltz

Office: 208-666-8653

Cell: 208-819-9340

Email: tholfeltz@idl.idaho.gov

Or visit Idaho Department of Lands webpage at: <http://www.idl.idaho.gov/>

BLM Community at Risk Program

Reduce the Risk and Impact of Wildfire on Communities through Protection Planning, Hazardous Fuels Reduction, Maintenance and Monitoring, Mitigation and Education Activities.

<http://www.federalgrants.com/BLM-Idaho-Communities-at-Risk-Assistance-Program-47352.html>

Idaho Office of Emergency Management (IOEM)

The Idaho Office of Emergency Management conducts grant management activities and coordinates resources before, during, and after a disaster. As the State Administrative Agency for Emergency Management and Homeland Security grants the section applies for grant funding and passes much of the funding to local jurisdictions throughout Idaho. The Logistics Section is responsible for coordinating the purchase of Homeland Security Grant equipment, the Homeland Defense Equipment Reuse (HDER) program and disaster logistics needs.

<http://www.ioem.idaho.gov/>

Educational Tools and Programs

Scientific research has shown the effectiveness and benefits of implementing wildfire mitigation concepts across individual property boundaries and throughout communities. To save lives and property from wildfire, we the people need to learn to adapt to living with wildfire and encourage our neighbors to work together and take action now to prevent losses in the future. We all have a role to play in protecting ourselves and each other from the risk of wildfire.

The following organizations help to serve as resources for agencies, tribes, organizations, fire departments, communities and residents across the United States who are working toward a common goal: reduce the loss of lives, properties, and resources to wildland fire by building and maintaining communities in a way that is compatible with our natural surroundings.



Firewise Communities Program: Encouraging Solutions

<http://www.firewise.org/>

The National Fire Protection Association’s Firewise Communities Program focuses on what residents can do around their homes to reduce potential loss of life and property to wildfire, and plays an important role in the Fire Adapted Communities approach to wildfire preparedness.

The Firewise program educates homeowners about wildfire risk and advocates principles designed to reduce that risk, including: the creation of defensible space around the home, the utilization and maintenance of fire resistant landscaping, the use of fire resistant building materials, the creation of evacuation plans, and encourages neighbors to work together to help prepare for and reduce the risk of home destruction due to wildfires.



Situational awareness and action – Ready, Set, Go!

<http://www.wildlandfirersg.org/>

The national Ready, Set, GO! (RSG) Program, managed by the International Association of Fire Chiefs (IAFC), works to develop and improve dialogue about wildland fire awareness and action between local fire departments and the residents they serve.

The program works in complementary and collaborative fashion with the Firewise Communities Program and other existing wildland fire public education efforts. It calls on residents to be Ready with preparedness understanding, to be Set with situational awareness when fire threatens, and to Go, by acting early when a fire starts.



USDA Forest Service - State and Private Forestry

<http://www.fs.fed.us/spf/>

The State and Private Forestry (S&PF) organization of the USDA Forest Service reaches across the boundaries of National Forests to States, Tribes, communities and non-industrial private landowners. S&PF is the federal leader in providing technical and financial assistance to landowners and resource managers to help sustain the Nation’s forests and protect communities and the environment from wildland fires.



National Interagency Fire Coordination Center (NICC)

Prevention and Education

<http://www.nifc.gov/>

Mission of NICC is to serve as a focal point for coordinating the national mobilization of resources for wildland fire and other incidents throughout the United States. NICC has four major elements:

equipment and supply dispatching; overhead and crew dispatching; aircraft dispatching; and intelligence and predictive services.



Wildland Urban Interface Wildfire Mitigation

Desk Reference Guide (PMS 051)

www.nwcg.gov/pms/pubs/pms051.pdf

The *Wildland Urban Interface Wildfire Mitigation Desk Reference Guide* is designed to provide basic background information on relevant programs and terminology for those, whether community members or agency personnel, who are seeking to enhance their community's wildfire mitigation efforts.



Insurance Institute for Business and Home Safety

<https://disastersafety.org/wildfire/>

As part of its research effort to study and understand the vulnerabilities of buildings subjected to wildfire exposures, the Insurance Institute for Business & Home Safety (IBHS) developed the capability of simulating ember and radiant heat exposures on building components and assemblies at their Research Center in Richburg, South Carolina. The primary objective of this research is to reduce the likelihood of wildfire-caused building ignitions in communities located in wildfire-prone areas.



Ready - Prepare, Plan, Stay Informed

<http://www.ready.gov/>

Launched in February 2003, *Ready* is a national public service advertising (PSA) campaign designed to educate and empower Americans to prepare for and respond to emergencies including natural and man-made disasters. The goal of the campaign is to get the public involved and ultimately to increase the level of basic preparedness across the nation.

CHAPTER 9 EARTHQUAKE

9.1 DESCRIPTION

The U.S. Geological Survey (USGS) defines earthquake as “ground shaking caused by the sudden release of accumulated strain by an abrupt shift of rock along a fracture in the Earth or by volcanic or magmatic activity, or other sudden stress changes in the Earth.” The hazards associated with earthquakes are essentially secondary to ground shaking (also called seismic waves), which may cause buildings to collapse; displacement or cracking of the earth’s surface; flooding as a result of damage to dams or levees; and fires from ruptured gas lines, downed power lines, and other sources. Earthquakes cause both vertical and horizontal ground shaking, which varies both in amplitude (the amount of displacement of the seismic waves) and frequency (the number of seismic waves per unit time), usually lasting less than thirty seconds.

9.2 LOCATION

The entire County is at risk of earthquake.

9.3 EXTENT

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

The magnitude of an earthquake is essentially a relative estimate of the total amount of seismic energy released and may be expressed using the familiar “Richter scale” or using the “moment magnitude scale” now favored by most technical authorities. Both the Richter scale and the moment magnitude scale are based on logarithmic formulae, meaning that a difference of one unit on the scales represents about a thirty-fold difference in amount of energy released (and, therefore, potential to do damage). On either scale, significant damage can be expected from earthquakes with a magnitude of about 5.0 or higher. What determines the amount of damage that might occur in any given location, however, is not the magnitude of the earthquake but the intensity at that particular place. Earthquake intensity decreases with distance from the earthquake’s “epicenter” (its focal point) but also depends on local geological features such as depth of sediment and bedrock layers. Intensity is most commonly expressed using the “Modified Mercalli Intensity Scale” (MMI). This measure describes earthquake intensity on an arbitrary, descriptive, 12-degree scale (expressed as Roman numerals from I to XII) with significant damage beginning at around level VII. Mercalli intensity is assigned based on eyewitness accounts. More quantitatively, intensity may be measured in terms of “peak ground acceleration” (PGA) expressed relative to the acceleration of gravity (g) and determined by seismographic instruments.

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

The following table correlates the MMI intensity with the Richter scale and effects of ground shaking.

| Category | Effects | Richter Scale (approximate) |
|----------------------|--|-----------------------------|
| I. Instrumental | Not felt | 1-2 |
| II. Just perceptible | Felt by only a few people, especially on upper floors of tall buildings | 3 |
| III. Slight | Felt by people lying down, seated on a hard surface, or in the upper stories of tall buildings | 3.5 |
| IV. Perceptible | Felt indoors by many, by few outside; dishes and windows rattle | 4 |
| V. Rather strong | Generally felt by everyone; sleeping people may be awakened | 4.5 |
| VI. Strong | Trees sway, chandeliers swing, bells ring, some damage from falling objects | 5 |
| VII. Very strong | General alarm; walls and plaster crack | 5.5 |
| VIII. Destructive | Felt in moving vehicles; chimneys collapse; poorly constructed buildings seriously damaged | 6 |
| IX. Ruinous | Some houses collapse; pipes break | 6.5 |
| X. Disastrous | Obvious ground cracks; railroad tracks bent; some landslides on steep hillsides | 7 |
| XI. Very disastrous | Few buildings survive; bridges damaged or destroyed; all services interrupted (electrical, water, sewage, railroad); severe landslides | 7.5 |
| XII. Catastrophic | Total destruction; objects thrown into the air; river courses and topography altered | 8 |

Figure 9-1. Modified Mercalli Scale vs. Richter Scale

9.4 HISTORICAL FREQUENCIES & FUTURE PROBABILITY OF OCCURRENCE

The following accounts from historic earthquakes are taken from newspaper and USGS summaries of each event. Below each account is an explanation of how the earthquake was felt in Oneida County. Earthquakes with epicenters as far away as Montana have been felt in the county. The following figure shows the weighted earthquake density for epicenters near Oneida County.

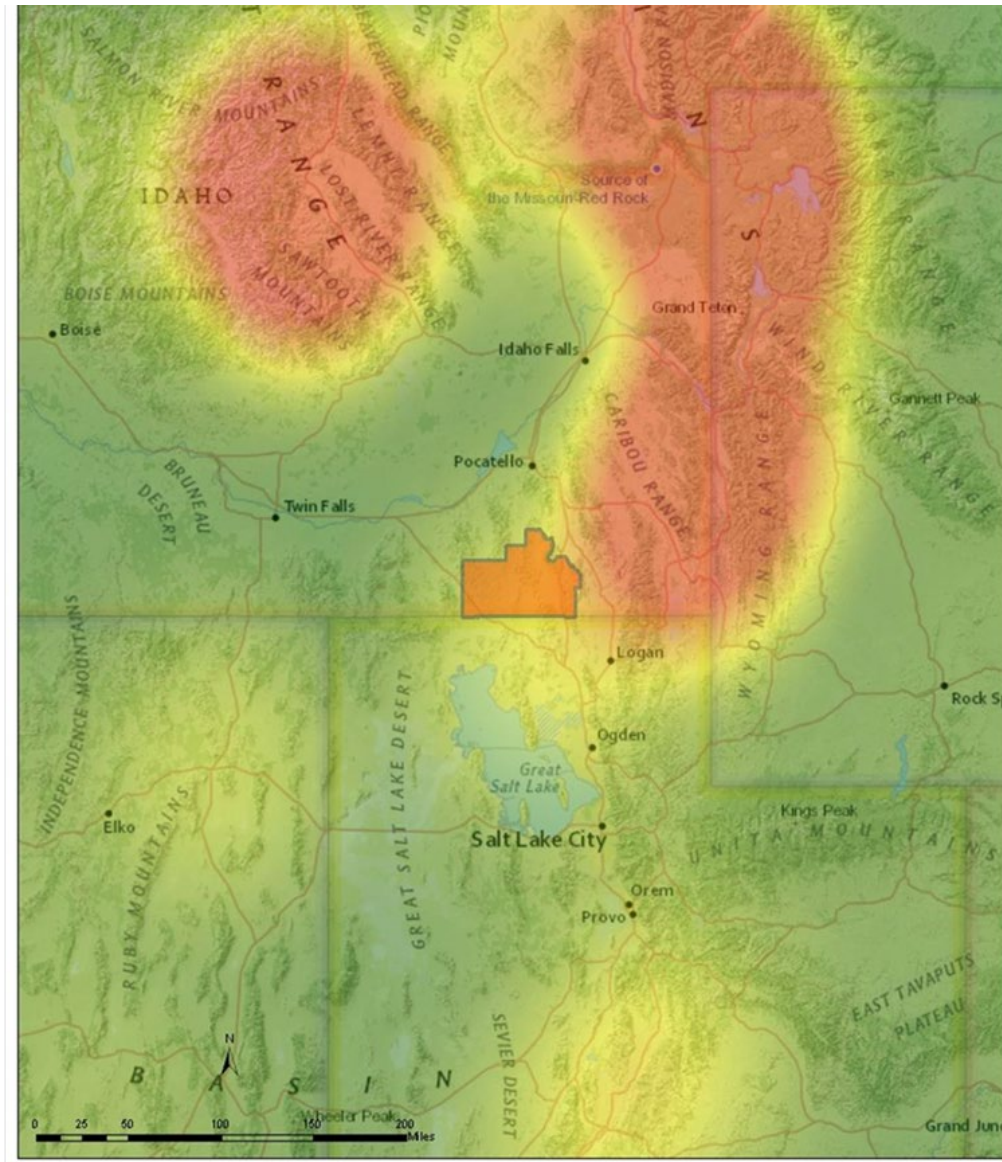


Figure 9-2. Weighted Earthquake Epicenter Density Map

March 12, 1934

The following excerpt was taken from the University of Utah Seismograph Stations website:

“The earthquake whose epicenter was in Hansel Valley, Utah with a magnitude of 6 was one that shook almost the entire state. Tremors could be felt from Snowville, Utah to Salt Lake City, Utah.

The tremors were felt early, jolting sleepers from their bed in the Salt Lake City area where minimal damage such as windows breaking, chandeliers swayed and pictures fell from the wall, was done; however, many schools were vacated in the Salt Lake City, Ogden, and Logan, Utah areas. The damage was much more severe in the Logan and Ogden cities. In Logan, the Home Economics building at the Utah State Agricultural College and the Preston High School building were so severely damaged that they were abandoned. The President of the college reported that the quake had split the three-story brick

building from top to bottom and the high school had its west wall forced six inches from the side walls. In Ogden, one woman's death was attributed to the shock of the earthquake and a city waterworks employee was seriously injured when a six-foot trench in which he was working caved in.

However, in Locomotive Springs there have been reports of running black and red water as well as many fissures and holes were made in the earth with water now gushing from many of them.

In the Snowville area, damage was done to many buildings. Very few chimneys were standing after the shocks. A school building was damaged greatly as well as a church building.

Merchandise was thrown from the shelves of the Snowville store and the town's water main was broken for about 10 hours. It was reported that the quake hit harder in Snowville than in any other section.

Many other schools throughout the northern part of the state were deemed unsafe and abandoned and in need of removal."

According to USGS reports, this event was felt in the city of Malad at an MMI of 5 and Holbrook at an MMI of 3.

October 10, 1935

The following excerpt was taken from the United States Geological Survey (USGS) website:

"This is the main earthquake of the 1935 series of shocks at Helena with a magnitude of 6.3. Two people were killed by falling bricks, several were injured, and property damage was estimated at about \$3 million. The earthquake damaged about 300 buildings, of which more than 200 lost their chimneys. Damage was most severe in 2 and 2 1/2-story brick houses on alluvial soil in northeast Helena, but severe damage also occurred in the southern business section of Helena.

Downed chimneys and cracked plaster were common throughout the city, and in sections, almost all chimneys were destroyed. Gables commonly were damaged, regardless of the structural material used or the location of the building.

The most severely damaged structure in the area was the Helena High School, constructed a few months earlier, in August 1935. Many large buildings were damaged heavily, including the City Hall, Kessler Brewery, and St. Joseph's Orphanage, but damage was slight to structures on solid bedrock (e.g., the State Capitol, Federal Building, and St. Helena Cathedral). In general, wood buildings covered with wood siding and structures having a framework of reinforced concrete or steel sustained little damage. Tombstones in all the cemeteries in the area were twisted or overturned.

The ground cracks observed were shallow, narrow, surface cracks in alluvial material caused by shaking of the ground, and none represent slip along the fault plane. East of town, water flowed from the cracks that formed in the ground. The largest crack, a maximum of 13 centimeters wide and 91 meters long, was observed on the gravel road leading into the Stanchfield Gun Club.

Changes in the volume of flow of many wells and springs occurred. The most noted change was an increase in flow of springs or the formation of new springs. Seven Mile Creek, which was almost dry before the earthquake, was about 1.5 meters wide and 30 to 45 centimeters deep when it was observed on Oct. 31. The quake was also felt in parts of Idaho, Washington, Wyoming, and in adjacent areas of Canada."

According to USGS reports, this event was felt in the city of Malad and Ridgedale at an undetermined scale.

November 23, 1947

The following excerpt was taken from the University of Utah Seismograph Stations website:

“Icicles rattling off roofs alarmed sleeping residents as the shock of the Virginia City, Montana earthquake traveled across the state, and lights flashed on as householders checked for damage. There were no reports of injury or property damage with exception of some plaster cracks reported by homeowners.

The tremor was Helena’s 2,877th since 1935. According to observers, the earth motion was east to west and classified the tremors as ‘weak’ and ‘moderate.’ The earthquake shook most of Montana and reports came from Billings, Missoula, Lewiston, Livingston, Harlowton, Malta, Havre, Glasgow, Kalispell, and Bozeman.

At a magnitude of 6.3, the seismograph showed the heaviest tremor had a four-second buildup, a four-second maximum and a 60-second tapering off period. The weather station at Helena said the motion was ‘long and easy.’”

According to USGS reports, this event was felt in the city of Malad and Stone at an undetermined scale.

December 16, 1954

The following excerpt was taken from the United States Geological Survey (USGS) website:

“The population was sparse in the epicentral region of this earthquake, and few man-made structures existed. Damage to structures, therefore, was minor despite the geologic and seismographic evidence of a major earthquake.

The earthquake was accompanied by offsets along many faults in the four main zones of a north-trending belt 96 kilometers long by 32 kilometers wide. Minor geologic effects included changes in the flow of springs and wells, formation of craters and water fountains, landslips and landslides, mudflows, and rockfalls.

The fault displacements mainly were along normal faults in the following areas: (1) west of Dixie Valley, (2) southeast of Dixie Valley, (3) east of Fairview Peak, and (4) east of Stingaree Valley. The maximum strike-slip component was 3.6 meters of right-lateral movement at Fairview Peak, and the maximum vertical-slip component was 3.6 meters at Bell Flat. The Dixie Valley, Nevada earthquake was determined to be a magnitude of 7.1.

Heavy furniture was displaced at Frenchman Station, about 11 kilometers west of major surface faulting, but damage to buildings was negligible. Differential settlement of about 10 centimeters that occurred under a wood-frame store resulted in minor cracking of the building. Damage at Fallon, about 48 kilometers west of the nearest major surface break, was limited to a few toppled chimneys. Hundreds of aftershocks occurred. The main earthquake also was felt in Arizona, California, Idaho, Oregon, and Utah.”

According to USGS reports, this event was felt in the city of Malad at an undetermined scale.

August 18, 1959

The following excerpt was taken from the United States Geological Survey (USGS) website:

“This earthquake caused 28 fatalities and about \$11 million in damage to highways and timber. It is characterized by extensive fault scarps, subsidence and uplift, a massive landslide, and a seiche in

Hebgen Lake. The magnitude recorded for this earthquake was a 7.3. Area of perceptibility, maximum intensity, and Richter magnitude all were larger for this earthquake than for any earlier earthquake on record in Montana (from May 1869).

The most spectacular and disastrous effect of the earthquake was the huge avalanche of rock, soil, and trees that cascaded from the steep south wall of the Madison River Canyon. This slide formed a barrier that blocked the gorge and stopped the flow of the Madison River and, within a few weeks, created a lake almost 53 meters deep. The volume of material that blocked the Madison River below Hebgen Dam has been estimated at 28–33 million cubic meters.

Most of the 28 deaths were caused by rockslides that covered the Rock Creek public campground on the Madison River, about 9.5 kilometers below Hebgen Dam.

New fault scarps as high as 6 meters formed near Hebgen Lake. The major fault scarps formed along pre-existing normal faults northeast of Hebgen Lake. Subsidence occurred over much of an area that was about 24 kilometers north–south and about twice as long east–west. As a result of the faulting near Hebgen Lake, the bedrock beneath the lake was permanently warped, causing the lake floor to drop and generate a seiche. Maximum subsidence was 6.7 meters in Hebgen Lake Basin. About 130 square kilometers subsided more than 3 meters, and about 500 square kilometers subsided more than 0.3 meters. The earth-fill dam sustained significant cracks in its concrete core and spillway, but it continued to be an effective structure.

Many summer houses in the Hebgen Lake area were damaged: houses and cabins shifted off their foundations, chimneys fell, and pipelines broke. Most small-unit masonry structures and wooden buildings along the major fault scarps survived with little damage when subjected only to vibratory forces. Roadways were cracked and shifted extensively, and much timber was destroyed. Highway damage near Hebgen Lake was due to landslides slumping vertically and flowing laterally beneath pavements and bridges, which caused severe cracks and destruction. Three of the five reinforced bridges in the epicentral area also sustained significant damage.

High intensities were observed in the northwest section of Yellowstone National Park. Here, new geysers erupted, and massive slumping caused large cracks in the ground from which steam emitted. Many hot springs became muddy.

Minor damage occurred throughout southern Montana, northeast Idaho, and northwest Wyoming. Felt as far as Seattle, Washington, to the west; Banff, Canada, to the north; Dickinson, North Dakota, to the east; and Provo, Utah, to the south. This area includes nine Western states and three Canadian provinces. Aftershocks continued for several months.”

According to USGS reports, this event was felt in the city of Malad at an MMI of 5.

August 30, 1962

The following excerpt was taken from the University of Utah Seismograph Stations website:

“A sharp, rolling earthquake rocked a three-state area and caused thousands of dollars in damage to the Cache Valley. The epicenter was located at eight to ten miles northwest of Logan, Utah with a magnitude reading at 5.7. It was reported that the only person receiving injuries from the tremble was a Cache County girl who cut her foot on a bottle broken by the shock.

Logan, Richmond, and Lewiston, Utah were hit the hardest causing masonry form building walls flying to the sidewalks, shattered plate glass, show windows, and loosened plaster plummeted from ceilings. The shock wave rolled across northern Utah, southern Idaho, and southwestern Wyoming at 6:35:55 am.

More significant effects of the tremor were structural damage to the Logan Temple of the Church of Jesus Christ of Latter-Day Saints, a chapel, two school buildings, downtown businesses in Logan, collapse of a drug store wall, building damage to several homes, temporary power failure and damage to water lines in the Logan area, and a rockslide in the Logan Canyon that submerged half of U.S. Highway 89 beneath tons of displaced earth.”

According to USGS reports during the 2013 update, this event was felt in the city of Samaria at an MMI of 5, the city of Malad at an MMI of 6, and the city of Stone at an MMI of 4.

March 17, 1966

The following excerpt was taken from the University of Utah Seismograph Stations website:

“Coordinates lead to Cache National Forest in Utah just east of Brigham City. The magnitude was recorded at 4.4.”

According to USGS reports, this event was felt in the city of Malad at an undetermined scale.

March 27 & 28, 1975

The following excerpt was taken from the University of Utah Seismograph Stations website:

“Two earthquakes rattled a four-state area, but the only extensive damage was in Malad City, Idaho, about 40 miles from the epicenter. In Malad, just north of the Utah border, almost every home and building bore some evidence of the temblor, from shattered brick walls to littered grocery stores and smashed bottles of liquor in the state liquor store.

The earth tremors radiated outward for 200 miles or more in every direction from the source in Pocatello Valley, Idaho. The quakes started the night of the 27th and continued to tremble throughout the day of the 28th. The strongest quake was a magnitude of 6.1.

Had it been centered in a populated area, say geologists, it could have caused great destruction and considerable loss of life. As it was, damage was light, although extensive in Malad City, and there was only one reported injury.

Scientists warned that aftershocks can be expected in the next few days or weeks. One spectator at a rehearsal for the “Miss Malad” beauty pageant received minor cuts and bruises when a wall panel fell on her.

Thousands of people were alarmed and frightened in an area from Idaho Falls on the north to Delta, Utah on the south and extending east to Rock Springs, Wyoming and west to Jackpot, Nevada.

Two crews from the University of Utah seismograph center were searching for the source of the quake that day in an area between Malad and Snowville. Steve Bellon, senior technician-analyst for the center, said between 30 and 40 aftershocks had been measured by the station but said only three or four could have been felt by people.

The crews were checking for fissures in the earth which, judging by the intensity of the quake, could be fairly large, from six inches to a foot wide. Also, all dams and reservoirs in the quake area were being

examined for possible damage, according to Al Britton, director of Salt Lake County Emergency Services. Damage reports were widespread in Malad.”

According to USGS reports, this event was felt in the city of Stone at an MMI of 7, the cities of Holbrook, Samaria, Gwenford, and Pleasant View at an MMI of 6, the city of Ridgedale at an MMI of 8, and the city of Malad at an MMI of 7.

March 29, 1975

The tremors felt on this day were reported as aftershocks from the two earthquakes that hit the four states the two days prior.

According to USGS reports, this event was felt in the city of Malad at an MMI of 3.

May 14, 1976

The magnitude reported for this earthquake was a 3.6. There was no other information regarding this earthquake.

According to USGS reports, this event was felt in the city of Malad at an MMI of 4.

November 5, 1976

The magnitude reported for this earthquake was a 4.1. There was no other information regarding this earthquake.

According to USGS reports, this event was felt in the cities of Stone and Holbrook at an MMI of 4.

September 28, 1978

The magnitude reported for this earthquake was a 2.7. There was no other information regarding this earthquake.

According to USGS reports, this event was felt in the city of Malad at an MMI of 4.

November 30, 1978

The magnitude reported for this earthquake was a 4.7. There was no other information regarding this earthquake.

According to USGS reports, this event was felt in the City of Holbrook, Stone, and Malad at an MMI of 4.

April 11, 1981

The magnitude reported for this earthquake was a 3.1. There was no other information regarding this earthquake.

According to USGS reports, this event was felt in the city of Stone at an MMI of 2.

December 24, 1982

The magnitude reported for this earthquake was a 3.3. There was no other information regarding this earthquake.

According to USGS reports, this event was felt in the City of Holbrook, Stone, and Malad at an MMI of 3.

October 28, 1983

The following excerpt was taken from the United States Geological Survey (USGS) website:

“The Borah Peak earthquake is the largest ever recorded in Idaho—both in terms of magnitude and in amount of property damage. It caused two deaths in Challis, about 200 kilometers northeast of Boise, and an estimated \$12.5 million in damage in the Challis-Mackay area. The magnitude of the earthquake was measured at 7.3.

Spectacular surface faulting was associated with this earthquake—a 34-kilometer-long northwest-trending zone of fresh scarps and ground breakage on the southwest slope of the Lost River Range. The most extensive breakage occurred along the 8-kilometer zone between West Spring and Cedar Creek. Here, the ground surface was shattered into randomly tilted blocks several meters in width. The ground breakage was as wide as 100 meters and commonly had four to eight echelon scarps as high as one to two meters. The throw on the faulting ranged from less than 50 centimeters on the southern-most section to 2.7 meters south of Rock Creek at the western base of Borah Peak.

Other geologic effects included rock falls and landslides on the steep slopes of the Lost River Range, water fountains and sand boils near the geologic feature of Chilly Buttes and the Mackay Reservoir, increase or decrease in flow of water in springs, and fluctuations in well water levels. A temporary lake was formed by the rising water table south of Dickey.

The most severe property damage occurred in the towns of Challis and Mackay where 11 commercial buildings and 39 private houses sustained major damage and 200 houses sustained minor to moderate damage.

At Mackay, about 80 kilometers southeast of Challis, most of the commercial structures on Main Street were damaged to some extent; building inspectors condemned eight of them. Damaged buildings were mainly of masonry construction, including brick, concrete block, or stone. Visible damage consisted of severe cracking or partial collapse of exterior walls, cracking of interior walls, and separation of ceilings and walls at connecting corners. About 90% of the residential chimneys were cracked, twisted, or collapsed.

At Challis, less damage to buildings and chimneys was sustained, but two structures were damaged extensively: the Challis High School and a vacant concrete-block building (100 years old) on Main Street. Many aftershocks occurred through 1983. Also felt in parts in Montana, Nevada, Oregon, Utah, Washington, Wyoming, and in the Provinces of Alberta, British Columbia, and Saskatchewan, Canada.”

According to USGS reports, this event was felt in the city of Malad at an MMI of 5.

November 19, 1983

The magnitude reported for this earthquake was a 3.8. There was no other information regarding this earthquake.

According to USGS reports, this event was felt in the city of Stone at an MMI of 4, and the city of Malad at an MMI of 3.

August 7, 1985

The magnitude reported for this earthquake was a 2.8. There was no other information regarding this earthquake.

According to USGS reports, this event was felt in the city of Samaria at an MMI of 3, and the city of Malad at an MMI of 2.

February 3, 1994

The following excerpt was taken from the United States Geological Survey (USGS) website:

“Some damage (VII) in the Afton-Auburn, Wyoming area and slight damage (VI) at Fairview, Wyoming. Felt (V) at Alpine, Bedford, Etna, Grover, Kemmerer and Smoot; (IV) at Big Piney, La Barge and Thayne, Wyoming. Also felt at Dubois, Evanston, Green River, Jackson and Rock Springs, Wyoming. Felt (V) at Bancroft, Bern, Dingle, Franklin, Geneva, Georgetown, Montpelier, Paris and Wayan; (IV) at Bloomington, Downey, Grace, Lava Hot Springs and Soda Springs; (III) at Idaho Falls and Pocatello, Idaho. Felt at Moab, Price, Sandy, Salt Lake City and Vernal, Utah. Also felt at Grand Junction and Hotchkiss, Colorado. Depth from broadband displacement seismograms.”

According to USGS reports, this event was felt in the city of Malad at an MMI of 3.5.

April 21, 2001

The following excerpt was taken from the United States Geological Survey (USGS) website:

“Felt (V) at Fort Hall; (IV) at Grace, Inkom, Soda Springs, Swan Valley and Victor; (III) at Idaho Falls and Pocatello. Felt (V) at Etna, (IV) at Thayne and (III) at Afton, Jackson and Wilson, Wyoming. Also felt at Logan, Ogden and Salt Lake City, Utah.”

According to USGS reports, this event was felt in the city of Malad at an MMI of 3.

June 30, 2006

The magnitude reported for this earthquake was a 4.3. There was no other information regarding this earthquake.

According to USGS reports, this event was felt in the city of Malad at an MMI of 2.

September 1, 2007

The following excerpt was taken from the University of Utah Seismograph Stations website:

“The University of Utah Seismograph Stations reports that a small earthquake of magnitude 3.9 occurred in northern Utah at 12:32 PM. The epicenter of the shock was located north of the Great Salt Lake at the southern end of the Blue Spring Hills, 9 miles SW of Tremonton, UT and 18 miles NW of Brigham City, UT. The shock occurred in a seismically active area.

The earthquake was reported to be felt by dozens of people in Tremonton, Garland, and other surrounding towns and as far away as Pocatello, Idaho, 78 miles to the north.”

According to USGS reports, this event was felt in the city of Malad at an MMI of 2.

February 1, 2008

The following excerpt was taken from the University of Utah Seismograph Stations website:

“The University of Utah Seismograph Stations reports that a small earthquake of magnitude 3.5 occurred at 11:52 PM (MST). The epicenter of the shock was located on the western edge of the Sevier Plateau, 1 mile SE of Kingston and 5 miles NE of Circleville, UT. The event was reported to be felt in Circleville.”

According to USGS reports, this event was felt in the city of Malad at an MMI of 3.8.

February 21, 2008

The following excerpt was taken from the United States Geological Survey (USGS) website:

“An earthquake occurred 15 km (10 miles) ESE of Wells, Nevada 15 km (10 miles) ESE of Wells, Nevada at 7:16 AM MST (6:16 AM PST in Nevada). The magnitude was recorded at a 6.

Three people were injured, more than 20 buildings heavily damaged, almost 700 buildings slightly damaged, and a water main broken at Wells. The earthquake was felt in most of Idaho and Nevada, in southeastern Oregon and northwestern Utah, in parts of California and Wyoming, and at Spokane, Washington. Isolated felt reports were received from as far away as Phoenix and Tucson, Arizona; Oakland and Pasadena, California; Brighton, Colorado; Absarokee and Livingston, Montana; Corvallis and Portland, Oregon; and Albuquerque, New Mexico.

Seismological data from this earthquake show that it occurred on a normal fault that trends roughly north-south and has a dip of 30–60 degrees. The revised location of the main shock puts the earthquake in the area northeast of Wells, Nevada, where geologically young faulting is poorly expressed. The USGS Quaternary Faults and Folds Database describes a network of widely distributed faults west of Wells Peak. Based on the revised location, the distribution of several aftershocks, and the depth of the main shock, it is difficult to associate the earthquake with a specific fault.

A significant fault in the region that shows evidence of geologically young movement is the 64-km-long Independence Valley fault zone, which bounds the western side of the Pequop Mountains, but it is located more than 20 km southeast of the revised epicentral location and was probably not the source of the earthquake.

The geologic expression of normal faults north of Wells indicate relatively low long-term rates of activity, but this event demonstrates that these faults remain active and have the potential to generate sizeable earthquakes. It is noteworthy that the geologic expression of normal faults northeast of Wells is similar to hundreds of other faults throughout the Basin and Range Province of the western United States.”

According to USGS reports, this event was felt in the city of Malad at an MMI of 3.7.

June 3, 2009

The following excerpt was taken from the University of Utah Seismograph Stations website:

“The University of Utah Seismograph Stations reports that a light earthquake occurred in northern Utah at 03:47 PM (MDT). The epicenter of the magnitude 4.0 shock was located 4 miles W of Riverside, UT and 9 miles NW of Tremonton, UT. The shock was reported felt in many communities in northern Utah and southeastern Idaho within about 40 miles of the epicenter.”

According to USGS reports, this event was felt in the city of Malad at an MMI of 2.

April 15, 2010

The following excerpt was taken from the University of Utah Seismograph Stations website:

“The University of Utah Seismograph Stations reports that a light earthquake of magnitude 4.9 occurred at 05:59 PM (MDT). The epicenter of the shock was located 5 miles NE of Randolph, UT.

The event has been reported by more than 280 residents, from cities such as Logan, Morgan, Ogden, and Salt Lake City, UT.”

According to USGS reports, this event was felt in the city of Malad at an MMI of 2.2.

May 6, 2013

The following excerpt was taken from the United States Geological Survey (USGS) website:

“Felt (IV) at Lava Hot Springs; (III) at Arimo, Bancroft, Downey, Grace, McCammon and Soda Springs; (II) at Malad City and Preston. Also felt at Dayton and Pocatello. Felt at Clarkston, Logan and Richmond, Utah. Also felt at Afton, Auburn, Etna and Thayne, Wyoming.”

According to USGS reports, this event was felt in the city of Malad at an MMI of 2.

January 3, 2015

The following excerpt was taken from the United States Geological Survey (USGS) website:

“Walls cracked in several homes, power outages occurred and items knocked off shelves at Challis. Rockslides occurred near Challis. Felt (IV) at Challis, Ellis, Fairfield and Salmon; (III) at Boise, Carmen, Cascade, Elk City, Garden Valley, Hailey, Horseshoe Bend, Idaho City, Ketchum, Lownam, North Fork, Riggins and Sweet. Felt (III) at Butte, Corvallis, Darby, Hamilton and Stevensville; (II) at Clinton, Dillon, Hamilton, Helena and Missoula, Montana. Felt (II) at Adrian and Ontario, Oregon. Felt at Pullman, Washington. Felt widely in central Idaho and along the Idaho-Montana border.”

According to USGS reports, this event was not felt in the city of Malad.

September 2, 2017

The following excerpt was taken from the United States Geological Survey (USGS) website:

“The September 2, 2017, M 5.3 earthquake east of Soda Springs, Idaho, caused moderate shaking over a broad area of southeastern Idaho, northern Utah, and western Wyoming. This M 5.3 earthquake initiated an active aftershock sequence, with six earthquakes of M 4.5-4.9 over the following eight days. While these earthquakes are occurring in a relatively sparsely populated area, they have been broadly felt. Nearly 2,000 people used the USGS Did You Feel It? questionnaire to report weak-to-light shaking after the M 5.3 event, over an area stretching from Rexburg, ID in the north to Provo, UT in the south.

The earthquake occurred as the result of normal faulting within the shallow crust, on a fault dipping at an intermediate angle either to the west, or to the east. This faulting style is typical of earthquakes located in the Intermountain seismic belt (ISB), a prominent north-south-trending zone of seismicity in the Intermountain West, and a region of moderate-to-high seismic hazard. The ISB in southern Idaho coincides with a transition from east-west-directed extension in the Basin and Range to the west and the more stable crust of the Middle Rocky Mountains to the east. The ISB is characterized by movement along north-trending, east- and west-dipping range-bounding normal faults that accommodate gradual horizontal extension of the Earth’s crust. The location of this earthquake is approximately 10-15 km north of the northernmost extent of the mapped East and West Bear Lake faults, a fault pair which bound Bear Lake in northern Utah and southern Idaho. Earthquakes occur frequently in the ISB, and it is unlikely that this sequence is related to oil and gas operations, or to the Yellowstone volcanic region over 200 km to the northeast.

This earthquake initiated a prolific sequence of aftershocks. The sequence actually began with a M 4.3 shock on September 2, 2017, at 23:55:30 UTC (17:55:30 local time), just under one and a half minutes before the M 5.3 event. Since that time (a period of ~11 days), about 320 earthquakes of M 2.5+ have been located by the USGS. 22 of these have had magnitudes between M 4 and M 5, including a M 4.9 event on September 10, 2017.”

According to USGS reports, this event was felt in the city of Malad at an MMI of 3.

January 26, 2018

The following excerpt was taken from the University of Utah Seismograph Stations website:

“The University of Utah Seismograph Stations reports that a light earthquake of magnitude 4.3 (U.S. Geological Survey magnitude) occurred at 08:32 PM on January 25, 2018 (MST). The epicenter of the shock was located beneath the Bear River Valley in southeastern Idaho, 8 mi NW of the town of Georgetown, ID, and 9 miles SE of the town of Soda Springs, ID. This earthquake is an aftershock of a magnitude 5.3 earthquake that occurred on September 2, 2017, 9 miles east of Soda Springs. The magnitude 5.3 earthquake was followed by a very energetic aftershock sequence. Like the M 5.3 mainshock, today’s aftershock was widely felt in southeastern Idaho, western Wyoming, and northern Utah at least as far south as the Salt Lake Valley.”

According to USGS reports, this event was felt in the city of Malad at an MMI of 3.

November 15, 2018

The following excerpt was taken from *The Spokesman-Review* website:

“Authorities in southeastern Idaho say there are no reports of damage following a 3.8-magnitude earthquake.

The U.S. Geological Survey says the temblor struck at about 2:30 a.m. Thursday about 7 miles east of Soda Springs.

The Soda Springs Police Department says no one reported any damage.

U.S. Geological Survey geophysicist Julie Dutton says small earthquakes occur in the area, but a 3.8-magnitude quake is larger than usual.”

According to USGS reports, this event was felt in the city of Malad at an MMI of 2.

September 24, 2019

The following excerpt was taken from the *Cache Valley Daily* website:

“A 3.9 magnitude earthquake has been detected approximately 14 miles west-northwest of Tremonton Tuesday morning. According to the University of Utah seismographic station, the quake was recorded to have occurred at 10:15 a.m. near Howell in Blue Creek Valley.

An interactive map from the U.S. Geologic Survey, in coordination with the University of Utah, shows the quake could have been felt in Tremonton, Brigham City and portions of western Cache Valley.

According to Box Elder County spokesman Mitch Zundel, there have been no immediate reports of any damage as a result of the quake.”

According to USGS reports, this event was felt in the city of Malad at an MMI of 2.

March 18, 2020

The following excerpt was taken from the University of Utah Seismograph Stations website:

“On Wednesday, March 18, 2020, Utah was jolted by a magnitude 5.7 earthquake that occurred 3.1 miles north of Magna, Utah. The shaking from the earthquake was widely felt throughout the Wasatch Front area of north-central Utah.

Interest from the public was high. In addition to the COVID-19 pandemic and the start of quarantine, this was the first moderate-sized earthquake many Utah residents experienced. Social media and other digital coverage made it a widely-covered event.

There were no serious injuries or deaths that were recorded. Several buildings sustained damages as a result of the earthquake. Magna’s main street and a nearby trailer park were the hardest hit areas. Most of the damage occurred on buildings with unreinforced masonry. Total damage estimates were around \$48.5 million a month after the mainshock.

The M5.7 was the largest earthquake to occur in Utah since a magnitude 5.9 earthquake in 1992 in southwestern Utah near St. George. The earthquake occurred in a seismically active part of the Salt Lake Valley. Before March 18, the area experienced six magnitude 3.0 or larger earthquakes since 1962, the largest being the magnitude 5.2 on September 5, 1962.

The M5.7 was designated the mainshock of the Magna Earthquake Sequence. There were no foreshocks. Over the course of 2–3 months, the aftershocks grew to number over 2,000. This count included 6 earthquakes in the M4 range and 34 earthquakes in the M3 range.”

According to USGS reports, this event was felt in the city of Malad at an MMI of 2.5.

March 31, 2020

The following excerpt was taken from the United States Geological Survey (USGS) website:

“The March 31, 2020, M 6.5 earthquake west of Challis, Idaho (about 120 km northeast of Boise), occurred as the result of complex strike slip faulting within the shallow crust of the North America plate. Preliminary focal mechanism solutions for the event, which describe the style of faulting in an earthquake, indicate slip likely occurred on a steeply dipping fault striking either east-west (right-lateral) or north-south (left-lateral). This earthquake occurred within the Intermountain Seismic Belt, a prominent zone of recorded seismicity in the Intermountain West and is within the western part of the Centennial Tectonic Belt, an area of southwest-northeast extension north of the Snake River Plain. The quake is about 16 km north-northeast of the Sawtooth fault, a 60-km-long normal fault that extends along the eastern base of the Sawtooth Range.

Historic seismicity in the immediate vicinity of the March 31 earthquake is sparse; no earthquakes of M5+ have occurred within 50 km of this event over the past 50 years, and the most notable historic seismicity in the region occurred about 100 km to the east on the Lost River fault zone. This was the site of the 1983 M6.9 Borah Peak earthquake (October 28, 1983), which was followed by five other M 5+ events over the following year, and most recently a M5.0 earthquake in January 2015, about 60 km to the east of today’s event. The March 31, 2020 event is the largest in Idaho since the Borah Peak earthquake. That event killed 2 in Challis and resulted in over \$12M in damage in the Challis-Mackay area. As of 1 hour after this earthquake, two aftershocks (M 4.6, M 3.6) have been located by the USGS, both to the south of the M 6.5 event.”

According to USGS reports, this event was felt in the city of Malad at an MMI of 3.2.

January 3, 2021

The following excerpt was taken from the *Local News 8* website from southeast Idaho:

“A late-night earthquake strikes southeast Idaho Saturday.

The 4.2 magnitude quake was centered nearly seven miles northwest of Georgetown at 10:35 p.m. according to the U.S. Geological Survey. A strong aftershock was recorded nine minutes later by the University of Utah Seismic Activity Network.

Local people reported feeling the quake. It was strong enough to rattle walls, sway chandeliers, and cause some items to fall from shelves.”

According to USGS reports, this event was felt in the city of Malad at an MMI of 2.

9.4.1 Quaternary Faults

The following table summarizes the USGS reports on quaternary faults in Oneida County. The Wasatch, North Canyon, and Curlew Valley faults are the most active in the area.

Table 9-1. Quaternary Faults in Oneida County

| QUATERNARY FAULTS IN ONEIDA COUNTY | | | |
|------------------------------------|--|---|---|
| | Wasatch | North Canyon | Curlew Valley |
| Synopsis | The Wasatch Fault zone is one of the longest and most tectonically active normal faults in North America. The fault has 10 sections; the two northern sections are located in Idaho, while the southern eight sections are located in Utah. | A fault that separates the east side of Pocatello Valley with the west margin of the Samaria Mountains. The 1975 Pocatello Valley earthquake caused some basin subsidence in the area, but no surface rupturing was reported. | Northeast-trending group of en echelon faults from the range-bounding structure along the southwest margin of the North Promontory Range. These faults are inferred to have very low slip rates and long recurrence intervals. |
| County & State | Oneida County, ID | Oneida County, ID | Oneida County, ID |
| AMS Sheet | Pocatello, ID | Pocatello, ID | Pocatello, ID |
| Physiographic Province | Basin and Range | Basin and Range | Basin and Range |
| Reliability of Location | Poor, 1:100,000 scale | Good, 1:100,000 scale | Good, 1:100,000 |
| Geologic Setting | Generally north-trending range-bounding normal fault along the western side of the Malad Range, Wellsville Mountains, Wasatch Range, and San Pitch Mountains. The Range is several kilometers higher than valleys to the west and is the result of repeated fault movement. | A north-northwest trending, high-angle, down-to-southwest, normal fault. The range front of Samaria Mountain Rises about 700 m above Pocatello Valley. Gravity data collected indicates that the valley fill is much thinner in Pocatello Valley than nearby Curlew and Malad Valleys, concluding that the Pocatello Valley is a relatively young | The Curlew Valley contained a northern arm of Lake Bonneville, which occupied northern Utah and parts of northeastern Nevada and southern Idaho during the Pleistocene. Its most recent deep-water phase is the Bonneville cycle, which deposited a thick mantle of lake-bottom sediment. |

| QUATERNARY FAULTS IN ONEIDA COUNTY | | | |
|--|---|---|---|
| | Wasatch | North Canyon | Curlew Valley |
| | | basin developing in what has been a major mountain mass. | |
| Length (km) | This section is 40 km of a total fault length of 357 km. | 7 km | 20 km |
| Average Strike | N14°W | N15°W | N31°E |
| Sense of Movement | Normal | Normal | Normal |
| Dip Direction | W | W | NW |
| Paleoseismology Studies | -- | Excavation of three trenches across scarps to confirm fault origins and a 3rd trench in valley bottom sediment to investigate evidence for soft sediment deformation. | -- |
| Geomorphic Expressions | The Malad Range rises 300–900 m above the valley floor along a steep relatively continuous escarpment; however, fault scarps on alluvium discontinuous and generally buried by lake deposits. | Steep topography from the Pocatello Valley to Samaria Mountains, truncated spurs between canyons, and lake bottom sediment tilted east close to the fault. | Fault traces are characterized by scarps as much as 24 m high along the four main strands. Scarps of such large size are certainly the product of multiple faulting events. |
| Age of Faulted Surficial Deposits | Late Pleistocene | Holocene and late Pleistocene beds (warped, not faulted). Permian/Pennsylvanian rocks of the Oquirrh formation. | Middle to late Pleistocene |
| Most Recent Prehistoric Deformation | Late Quaternary | Latest Quaternary | Latest Quaternary |
| Recurrence Interval | -- | Greater than 15–95 k.y. | -- |
| Slip-Rate Category | Less than 0.2 mm/yr | Less than 0.2 mm/yr | Less than 0.2 mm/yr |
| <i>Source: USGS, 2021</i> | | | |

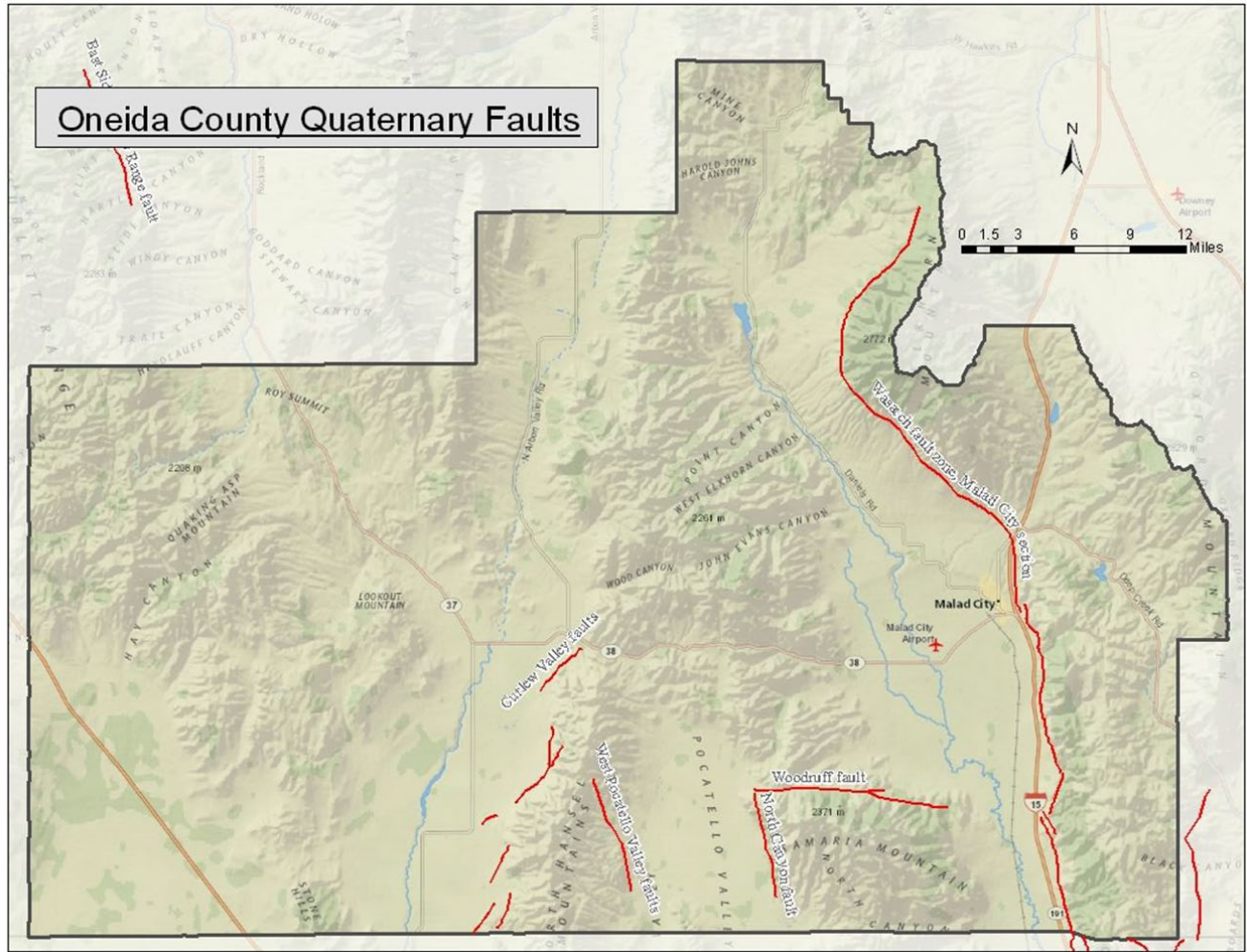


Figure 9-3. Oneida County Quaternary Fault Map

9.4.2 Return Intervals

Earthquakes are felt frequently in Oneida County at varying intensities. Based on the historic earthquake analysis conducted, the frequency and recurrence interval of earthquakes by felt intensity are as follows:

Table 9-2. Earthquake Return Intervals

| EARTHQUAKE RETURN INTERVALS | | |
|-----------------------------|-----------|-----------------|
| MMI Felt Intensity | Frequency | Return Interval |
| 2 | 8% | 12.3 |
| 3 | 4% | 24.7 |
| 4 | 9.5% | 10.6 |
| 5 | 4% | 24.7 |
| 6 | 1.4% | 74 |
| 7 | 2.7% | 37 |

Residents of Oneida County can expect to feel an earthquake every 3.36 years.

9.5 IMPACTS

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

In Oneida County the impacts of earthquakes are far reaching. Minor injuries are likely, and fatalities are probable. Loss of business and damage to structures would have the largest economic impact. There is also a possibility of disruption in essential services and transportation systems.

9.6 LOSS ESTIMATES

Damage associated with earthquakes can be analyzed using four variables:

- The nature of the seismic activity—The depth and localization of an earthquake event have a major influence on the impacts of the earthquake. For example, an earthquake that is at a shallow depth will be felt more heavily at the epicenter but will tend to be felt across a smaller region, and a deep earthquake will be felt across a much larger region. Also, an earthquake from a localized point is likely to cause much less damage than a quake that is along a major fault.
- The composition of the geology and soils of the area—The geology of an area and soil types influence the propagation of seismic waves and how the energy released by the earthquake is felt. Areas with solid bedrock are generally more stable during an earthquake event. The siting of cities, towns, and individual structures plays a strong role in the nature of shaking that will be experienced.
- The level and quality of human development in the area being affected—Small earthquakes that affect large urban areas will cause far more damage than a large earthquake in a rural area. Exposure plays a huge role in the damage caused by earthquakes.
- The time of day—The physical location of individuals when an earthquake occurs is directly related to their safety. The time of day dictates where the population is centered. During the night the majority of the population is in their homes (but may be sleeping and unaware of danger), while during the daytime, schools, commercial facilities, and transportation routes are filled (Idaho State Hazard Mitigation Plan, 2018).

To assess losses associated with earthquake events in Oneida County, two scenarios have been developed. The scenarios are based on probabilistic and historic events. Each scenario was analyzed using the Hazus Modeling tool provided by the Federal Emergency Management Agency (FEMA).

Hazus is a regional earthquake loss estimation model that was developed by the Federal Emergency Management Agency (FEMA) and the National Institute of Building Sciences. The primary purpose of Hazus is to provide a methodology and software application to develop earthquake losses at a regional

scale. These loss estimates would be used primarily by local, state, and regional officials to plan and stimulate efforts to reduce risks from earthquakes and to prepare for emergency response and recovery.

9.6.1 Probabilistic Magnitude 5.2 Scenario (#1)

Casualties

Hazus estimated that there would be minimal casualties.

Building Damage

Hazus estimates that about 10 buildings will be at least moderately damaged. The total building-related losses were 0.68 (millions of dollars); 18% of the estimated losses were related to the business interruption of the region. By far, the largest loss was sustained by the residential occupancies which made up over 69 % of the total loss.

Economic Loss

The total economic loss estimated for the earthquake is 1.02 (millions of dollars), which includes building and lifeline related losses based on the region's available inventory.

Debris

The model estimates that a total of 3,000 tons of debris will be generated. If the debris tonnage is converted to an estimated number of truckloads, it will require 120 truckloads (@25 tons/truck) to remove the debris generated by the earthquake.

9.6.2 Historic Earthquake: Pocatello Valley, March 28, 1975— Magnitude 6.1 (#2)

Casualties

Hazus estimated that there would be minimal casualties.

Building Damage

Hazus estimated that about 179 buildings will be at least moderately damaged. This is over 9% of the buildings in the region. There are an estimated three buildings that will be damaged beyond repair.

Debris Generation

The model estimates that a total of 3,000 tons of debris will be generated. If the debris tonnage is converted to an estimated number of truckloads, it will require 120 truckloads (@25 tons/truck) to remove the debris generated by the earthquake.

Economic Loss

The total economic loss estimated for the earthquake is 17.26 (millions of dollars), which includes building and lifeline related losses based on the region's available inventory.

CHAPTER 10 LANDSLIDE/MUDSLIDE

10.1 DESCRIPTION

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

10.2 LOCATION

According to the USGS, a majority of Idaho has low landslide potential. This hazard occurs primarily in the back country of Oneida County. Malad has a low overall risk to this hazard.

10.3 EXTENT

Factors that influence landslides are soil type and steepness of slope. Soil type is a key indicator for landslide potential and is used by geologist and geotechnical engineers to determine soil stability for construction standards. Past movements are also a good indicator of where movements might possibly exist.

10.4 HISTORICAL FREQUENCIES & FUTURE PROBABILITY OF OCCURRENCE

There are limited records of landslides in Oneida County; however minor slides have occurred, such as on July 31, 2021, when a minor rockslide occurred on Deep Creek Road following heavy rain.

10.5 IMPACTS

Some of the many direct and indirect impacts of landslides are:

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

- Damming or alteration of the course of streams and resulting flooding
- Reduced water quality

10.6 LOSS ESTIMATES

Oneida County has 213 miles of roadway that could be potentially impacted or damaged in some manner by landslides. Most of these roads are in the back country. The county estimates that back country replacement value is \$750,000 per mile. The total vulnerability based on that estimate would be \$160 million; however, landslides are usually considered a local event and thus it is difficult to predict the actual repair or replacement costs for a single event.

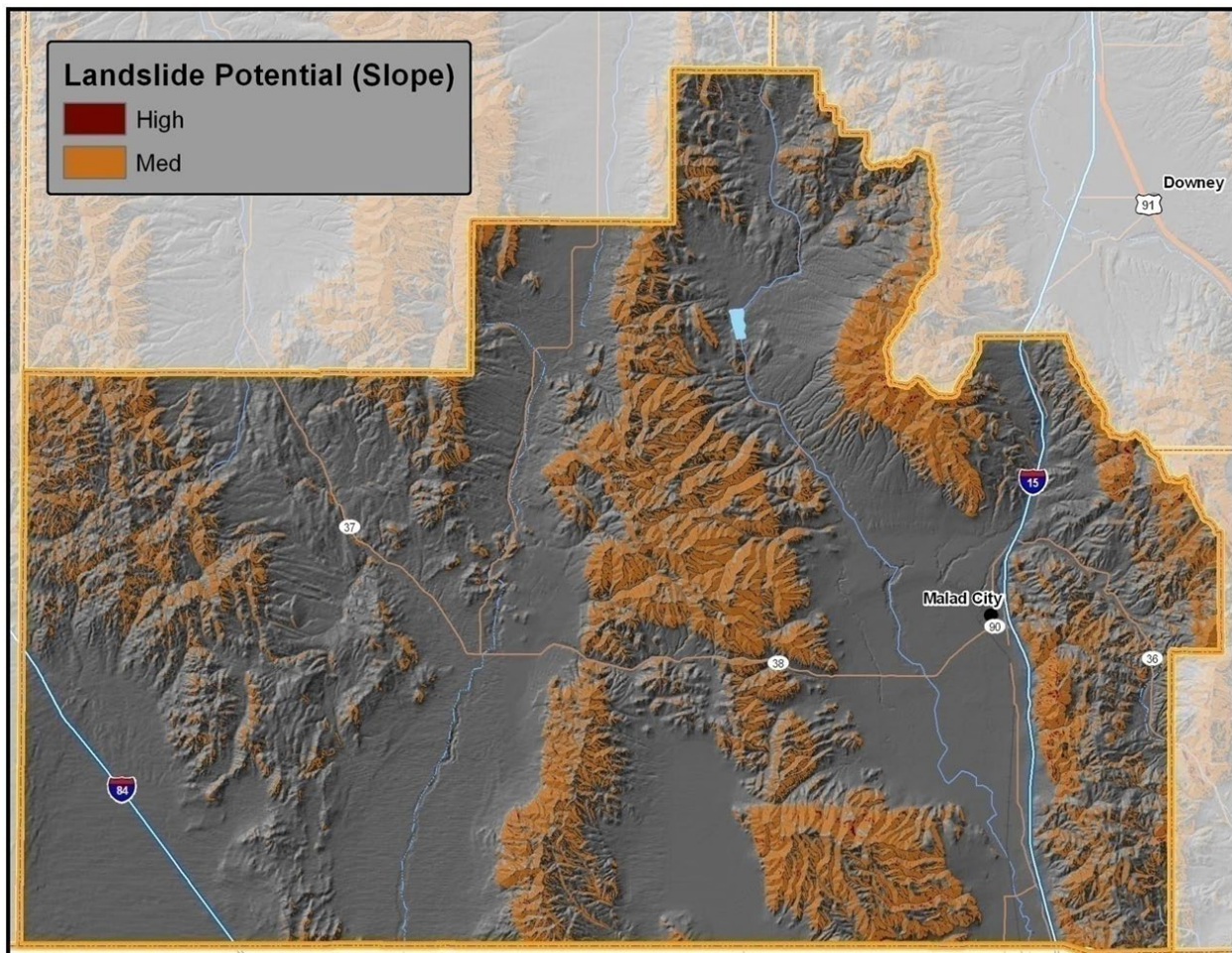


Figure 10-1. Landslide Potential in Oneida County

CHAPTER 11 SNOW AVALANCHE

11.1 DESCRIPTION







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

11.2 LOCATION

Snow avalanches can occur countywide but primarily happen in the back country of Oneida County and primarily on Federal lands.

11.3 EXTENT

The North American Avalanche Danger Scale is a tool used by avalanche forecasters to communicate the potential for avalanches to cause harm or injury to backcountry travelers.

| North American Public Avalanche Danger Scale Avalanche danger is determined by the likelihood, size and distribution of avalanches. | | |
|--|---|---|
| Danger Level | | Travel Advice |
| 5 Extreme |  | Avoid all avalanche terrain. |
| 4 High |  | Very dangerous avalanche conditions. Travel in avalanche terrain not recommended. |
| 3 Considerable |  | Dangerous avalanche conditions. Careful snowpack evaluation, cautious route-finding and conservative decision-making essential. |
| 2 Moderate |  | Heightened avalanche conditions on specific terrain features. Evaluate snow and terrain carefully; identify features of concern. |
| 1 Low |  | Generally safe avalanche conditions. Watch for unstable snow on isolated terrain features. |
| No Rating |  | Watch for signs of unstable snow such as recent avalanches, cracking in the snow, and audible collapsing. Avoid traveling on or under similar slopes. |

*Safe backcountry travel requires training and experience.
You control your own risk by choosing where, when and how you travel.*

Figure 11-1. Avalanche Danger Scale

11.4 HISTORICAL FREQUENCIES & FUTURE PROBABILITY OF OCCURRENCE

Though avalanches occur in Oneida County, a search of historical records shows no damage caused by avalanches. Snowmobile-related accidents do occur as a result of this hazard.

11.5 IMPACTS

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

11.6 LOSS ESTIMATES

Oneida County has 213 miles of roadway that could be potentially impacted or damaged in some manner by an avalanche. Most, if not all, avalanches have occurred in the back country, and most occur primarily on federal lands. The cost of repair or replacement for back country roads has been estimated at \$750,000 per mile. Most of the cost associated with avalanches is the clearing of the snow and debris. Damage could also potentially occur on the road.

CHAPTER 12 COMMUNICABLE DISEASE

12.1 DESCRIPTION

An epidemic/pandemic is defined as a disease that appears as new cases in the human population at a rate, during a given time period and location, that substantially exceeds the number expected.

It is, thus, a relative term, and there is no quantitative criterion for designating a health crisis as an epidemic. In addition to its application to infectious diseases, the term is sometimes used to describe outbreaks of other adverse health effects, including those stemming from chemical exposure, sociological problems, and psychological disorders. A “pandemic” is a worldwide epidemic, while the term “outbreak” may be applied to a more geographically limited medical problem as, for instance, in a single community rather than statewide or nationwide. The term “cluster” is often used with reference to non-communicable diseases.

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

12.2 RELATED HAZARDS

12.2.1 Pandemic Influenza

Description

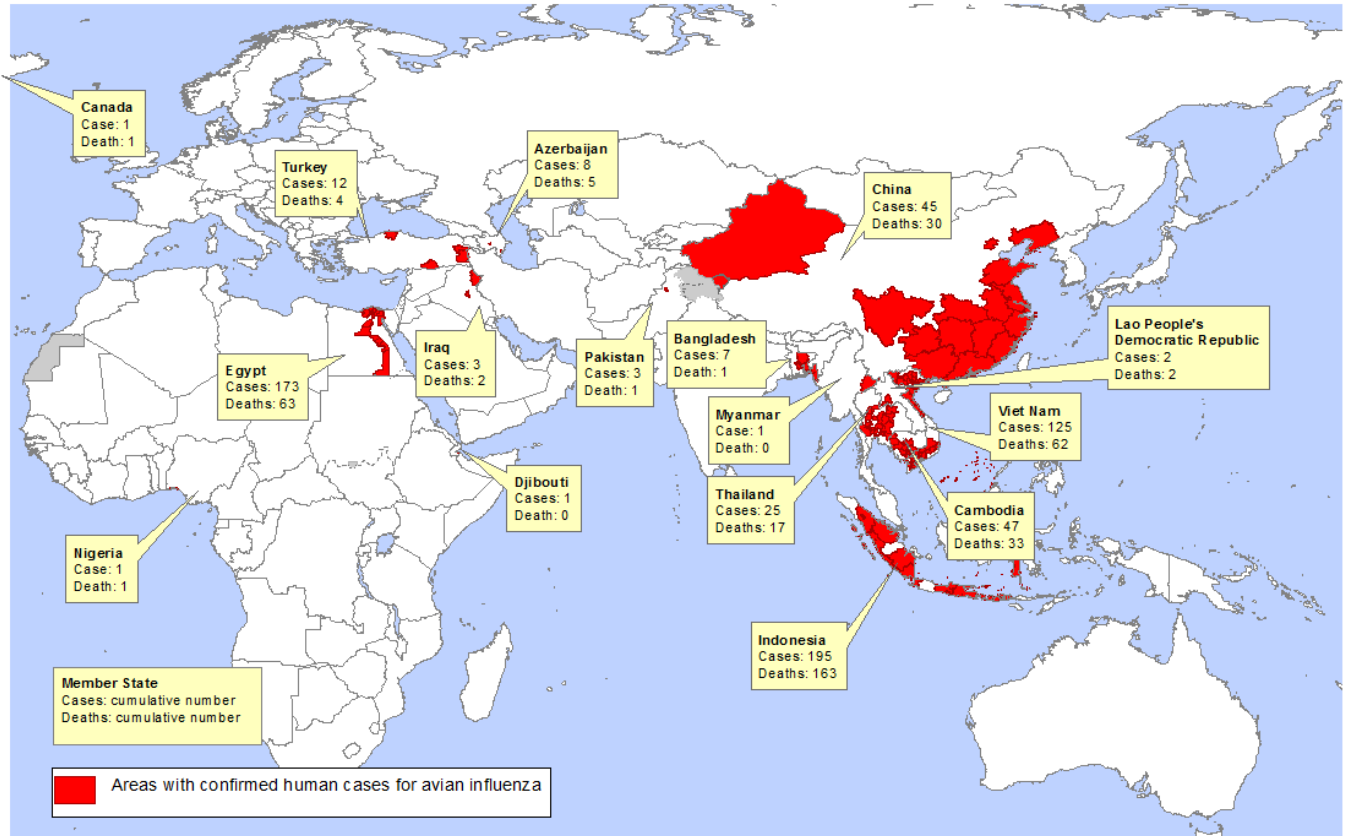
A flu pandemic has little or nothing in common with the annual flu season. A pandemic flu would be a new strain and a much more serious and contagious flu virus. Humans would have no natural resistance to a new strain of influenza. Also, there is a vaccine for seasonal flu, but there is no vaccine available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

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

Southeast District Health is currently working on a plan to limit the spread of a pandemic influenza and to maintain essential health care and community services if an outbreak should occur. In fact, governments all around the world are preparing for the possibility of a pandemic outbreak.

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

Areas with confirmed human cases for avian influenza A(H5N1) reported to WHO, 2003-2013*



*All dates refer to onset of illness
Data as of 24 January 2014
Source: WHO/GIP

The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.
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Figure 12-1. Reported H5N1 Cases Worldwide (WHO, 2014)

While the H5N1 virus has so far affected few humans (see map above), there is the danger that the bird flu virus may mutate into a new form of human flu that would be easily spread from person to person. Some migratory waterfowl carry the H5N1 virus with no apparent harm but transmit the virus to susceptible domestic poultry.

People who have close contact with infected birds or with surfaces that have been contaminated with droppings from infected birds are at risk of becoming infected. In infected countries, poultry consumption has not been shown to be a risk factor if food is thoroughly cooked, nor are travelers in these countries at increased risk of infection provided the person does not visit live poultry markets, farms, or other environments where exposure to diseased birds may occur. More than 200 million birds in affected countries have either died from the disease or were killed in order to try to control the outbreak.

Many Asian countries are currently dealing with bird flu outbreaks. Bird flu continues to spread geographically from its original focus in Asia. Further spread of the virus along migratory routes of wild waterfowl is anticipated. So far, there has been no sustained person-to-person spread of the disease but a

few isolated cases of apparent human-to-human spread between family members are currently under investigation.

The reported symptoms of bird flu in humans range from typical influenza-like symptoms (e.g., fever, cough, sore throat, and muscle aches) to eye infections (conjunctivitis), pneumonia, acute respiratory distress, viral pneumonia, and other severe and life-threatening complications.

Diarrhea, vomiting, abdominal pain, chest pain, and bleeding from the nose and gums have also been reported as early symptoms in some cases. In many cases, health deteriorates rapidly leading to a high percentage of death in those infected.

Location

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

Extent

Idaho attracts about 20 million tourists annually. There are many attractions that attract large crowds of people. These tourists can introduce new germs and diseases to the community which can be easily spread and multiply rapidly. Densely populated areas have greater potential for person-to-person transmission than less densely populated areas.

Historical Frequencies and Future Probability of Occurrence

1918–1920 Spanish Flu

The first cases of Spanish Flu were reported in Canyon County (northwest of Boise) on September 30, 1918. Within three weeks, the disease was raging all across the state. The numbers of deaths in the state and in Oneida County are unknown, but it is estimated that 675,000 Americans died during the epidemic and that 20 to 40 million died worldwide.

Asian Flu 1957–1958

First identified in China, this virus caused roughly 70,000 deaths in the United States during the 1957–58 seasons. Because this strain has not circulated in humans since 1968, no one under 30 years old has immunity to this strain.

Hong Kong Flu 1968–1969

The Hong Kong Flu was first detected in Hong Kong in early 1968 and spread to the United States later that year. The Hong Kong Flu killed about 34,000 people in the United States and one million people worldwide.

Swine Flu 2009–2010

Novel influenza A (H1N1) was a new flu virus of swine origin that was first detected in April 2009. The virus infected people and spread from person to person, sparking a growing outbreak of illness in the United States and worldwide. Estimates place the number of suspected cases throughout the world between 700 million and 1.4 billion. At least 12,469 deaths occurred in the United States, with 23 deaths in Idaho.

It's thought that novel influenza A (H1N1) flu spreads in the same way that regular seasonal influenza viruses spread—mainly through the coughs and sneezes of people who are sick with the virus.

By November 2009, about three billion doses of the swine flu vaccine were produced and administered in over 16 countries. The vaccine’s overall effectiveness was estimated at 56%.

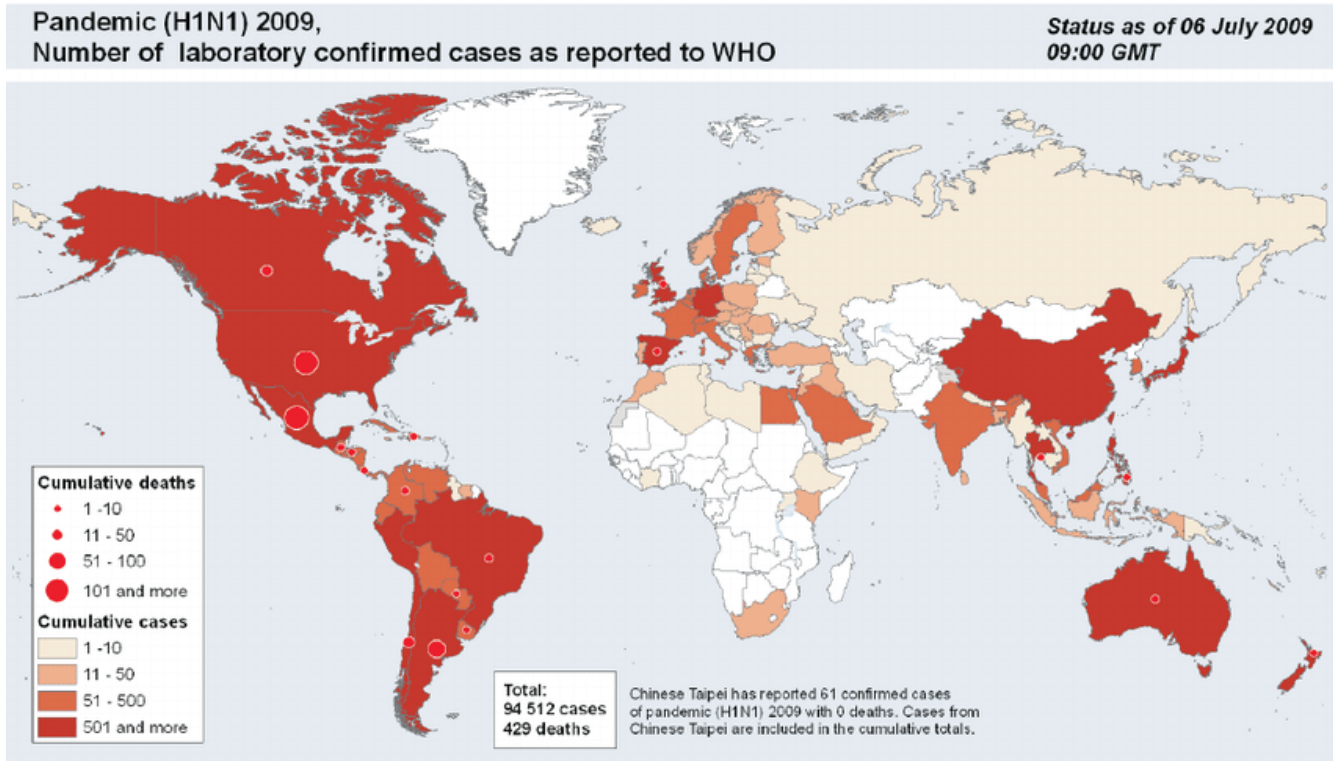


Figure 12-2. Confirmed H1N1 Cases Worldwide (WHO, 2009)

Impacts

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

1. Rapid worldwide spread
2. Overloaded health care systems
3. Inadequate medical supplies
4. Economic and social disruption

Loss Estimates

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

12.2.2 West Nile Virus

Description

West Nile Virus (WNV) is transmitted to people, birds, and other animals by the bite of an infected mosquito. This virus can cause serious illness in people of any age but especially in people over the age of

50 or those with other underlying medical conditions (Idaho Dept. Health & Welfare, 2021). The best form of protection is by avoiding mosquito bites.

West Nile Virus infections occur in the summer and fall in Idaho when mosquitoes are active. WNV does not occur in northern states when it is too cool for mosquitoes to survive. In southern states with warmer climates and mosquitoes present year-round, the risk of infection may still be present in the winter months.

Historical Frequencies and Future Probability of Occurrence

Locally acquired mosquito-borne human infections were first recorded in Idaho in 2004. In 2006, Idaho led the nation in reports of human illness associated with WNV with 996 cases being reported to the State Health Department. In addition to people, WNV was also detected in 338 horses, 127 birds, and numerous mosquitoes. However, as of October 2021, only 10 symptomatic cases of WNV have been reported in humans for the year. WNV is even less frequent in Oneida County with one human case in 2007 and one human case in 2009 (Idaho Dept. Health & Welfare, 2021).

Impacts

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

Loss Estimates

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

12.2.3 Hoof and Mouth Disease

Description

Hoof-and-mouth or foot-and-mouth disease (FMD) is a severe, highly communicable viral disease of cattle and swine. It also affects sheep, goats, deer, and other cloven-hoofed ruminants.

Symptoms of FMD include blisters around the mouth or on the feet, excessive drooling, reduced appetite, and lameness. Animals may attempt to walk on their knees. The disease itself is characterized by fever and blister-like lesions followed by erosions on the tongue and lips, in the mouth, on the teats, and between the hooves. Many animals recover, but the disease leaves them debilitated. It causes severe losses in production of meat and milk. Because it spreads widely and rapidly and because it has grave economic and clinical consequences, FMD is one of the animal diseases that livestock owners dread most (USDA, 2021).

Historical Frequencies and Future Probability of Occurrence

The U.S. has been free of FMD since 1929. The map to the right illustrates outbreaks of the disease in locations throughout the world.

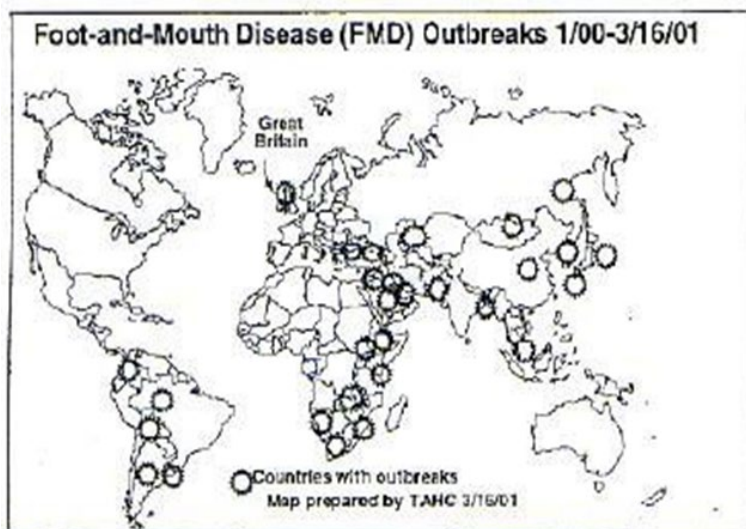


Figure 12-3. Foot-and-Mouth Disease Breakouts Worldwide

Impacts

FMD is one of the most difficult animal infections to control. Because the disease occurs in many parts of the world, there is always a chance of its accidental introduction into the U.S. That chance has been heightened recently by a major outbreak in the United Kingdom that has already spread to continental Europe. The European Union is a major U.S. trading partner.

If an outbreak occurred in the U.S., this disease could spread rapidly to all sections of the country by routine livestock movements unless it was detected early and eradicated immediately.

The disease is caused by a virus that can persist in contaminated fodder and the environment for up to one month, depending on the temperature and pH conditions. There are at least seven separate types and many subtypes of the FMD virus. Immunity to one type does not protect an animal against other types.

Loss Estimates

There is an indemnity program to compensate producers for infected animals, products (cheese, milk, etc.), and property (feed, seed, wooden fences, or buildings, etc.). Federal statutes for FMD eradication mandate that all animals and properties be appraised before the government destroys them. The appraisal of animals is based on their fair market value or replacement value within limits to be established during each outbreak. A team of appraisers, including federal and state government representatives and the producer will be responsible for the appraisal and signed paperwork for each item.

12.2.4 Mad Cow Disease

Description

BSE (bovine spongiform encephalopathy), also known as mad cow disease, is a fatal disease that causes progressive neurological degeneration in cattle. Similar to BSE, Creutzfeldt-Jakob disease (CJD) is a rare disease that occurs in humans. In 1996, following outbreaks of BSE among British cattle, scientists found

a possible link between BSE and a new variant of CJD (vCJD). While it is not certain how BSE may be spread to humans, evidence indicates that humans may acquire vCJD after consuming BSE-contaminated cattle products.

BSE was first reported among cattle in the United Kingdom (U.K.) in November 1986. The source of the BSE outbreak is uncertain, but it is thought to have been amplified by feeding cattle with meat-and-bone meal from BSE-infected cattle. To contain the disease, the British government took a number of steps, including the institution of a feed ban prohibiting the use of meat-and-bone meal and slaughtering all cattle believed to be infected.

Historical Frequencies and Future Probability of Occurrence

There have been six cases of BSE among cattle in the U.S.

Some cases of BSE have been identified among cattle in other European countries. Between 1989 and 2000, at least 1,642 cases of BSE have been identified among cattle in Belgium, Denmark, France, Germany, Ireland, Italy, Liechtenstein, the Netherlands, Portugal, Spain, and Switzerland.

Among humans, the total worldwide number of known vCJD cases is 229, including 177 in the U.K., 27 in France, and 25 distributed in 10 other countries (Maheshwari, 2015). There have been four reported cases in the U.S. Two of the individuals are thought to have been exposed in the United Kingdom, while the third was most likely exposed while living in Saudi Arabia. The fourth patient had previously lived in Kuwait, Russia, and Lebanon before moving to the United States, so it was determined that he may have contracted vCJD in one of those countries. No cases have originated from North America (CDC, 2021).

A United States Department of Agriculture (USDA) BSE investigation was initiated on December 23, 2003 when a cow in Washington State that was imported from Canada was thought to have contracted BSE. By the time the investigation was completed in February 2004, the USDA had examined the identification tags and other devices on 75,000 cattle in three states—Washington, Oregon, and Idaho—and had humanely slaughtered 255 adult cattle and tested them for BSE (CDC, 2021).

Previously in May 2003, Canadian authorities had reported finding the first native BSE cow in North America. Records indicated that this cow and the one found in Washington were more than six years old and born prior to the feed ban in the United States and Canada (CIDRAP, 2003).

Since the first case of BSE was reported in 2003, the number of cattle tested for the disease has increased substantially. Still, only about 650,000 of the total U.S. herd (some 35 million slaughtered annually) have been tested—a rate far lower than the percentage tested in Europe or Japan.

Of those tested, six have turned up positive for BSE. That is “evidence that the prevalence of this disease in the United States is extremely low,” says Terry Stokes, chief executive officer of the National Cattlemen’s Beef Association (Christian Science Monitor, 2006).

In addition to the BSE cow in Washington in 2003, there has been positive cases of BSE in Texas (2005), Alabama (2006 & 2017), California (2012), and Florida (2018). All have been isolated events in older cows (CDC, 2018).

Impacts

BSE among cattle was first described in the U.K. in November 1986. Epidemiological evidence established that the outbreak of BSE was related to the production and use, over many years, of contaminated meat-and-bone meal. The source of the BSE outbreak is uncertain. There is strong evidence

and general agreement that the outbreak was amplified by feeding rendered bovine meat-and-bone meal to young calves (CDC, 2018).

Loss Estimates

In 2003, the U.S. ban on Canadian beef and cattle, coupled with already tight U.S. supplies and strong demand, had driven up U.S. beef and cattle prices substantially. After the December 2003 BSE case was announced, cattle prices fell. However, they had stabilized by early January 2004. Industry analysts reported that U.S. domestic demand (both retail and restaurant, including fast food hamburger sales) appeared to be holding steady. That, combined with lower U.S. cattle inventories due in part to widespread drought in cattle country, kept cattle and beef prices high during 2004, helping to offset the effects of the BSE-related foreign bans.

USDA has reported that average U.S. fed steer (i.e., slaughter-ready cattle) prices were nearly \$85 per cwt. for all of 2004, compared with an earlier 2004 prediction of \$72–\$77; this is near the lower end of a USDA forecast, made just before the BSE case, of \$84–\$91 per cwt. The 2005 price forecast (as of early 2005) was \$80–\$85. Average fed steer prices were \$85 in 2003 and \$67 in 2002. The most recent data in 2020 lists the average fed steer price at \$108 per cwt. for the year (Iowa State University, 2021).

Nonetheless, foreign import bans meant the domestic market had to absorb some 23 million more pounds of beef weekly or 1.2 billion pounds for the year due to lost exports, according to Cattle-Fax. Exports of by-products like collagen, sausage casings, brains, other organs, tongue, tails, and tendons (all adding value to each animal) were also affected by the bans on U.S. beef products. USDA estimated that U.S. beef and veal exports globally reached only 434 million pounds in 2004, or 17% of the 2003 level of 2.523 billion pounds, even with the partial reopening of Canada and Mexico. USDA predicted that unless more markets reopen, exports would reach only 640 million pounds in 2005. Actual yield for 2005 was roughly 697 million pounds (USDA, 2021).

12.2.5 COVID-19 Pandemic

Description

COVID-19 is a new severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) that causes respiratory illness in humans and can be spread from person to person through respiratory droplets. These droplets are released when someone infected with the disease sneezes, coughs, or talks. Infectious droplets can land in the mouths or noses of people who are nearby or possibly be inhaled into the lungs. COVID-19 was declared a public health emergency nationwide on January 21, 2020. The pandemic began in Wuhan, China in December 2019 and quickly spread around China and the world. As of October 20, 2021, the pandemic was still widely prevalent and serious.

Symptoms may appear 2–14 days after exposure, or there may be no symptoms at all (asymptomatic). Symptoms vary from mild to severe and can include headache, loss of smell and taste, nasal congestion, runny nose, cough, sore throat, muscle pain, fever, fatigue, diarrhea, and breathing difficulties. Complications from more severe symptoms can lead to further life-threatening illnesses, such as pneumonia or hypoxia.

There are now a number of variants of the virus throughout the world and the state of Idaho. The most common variant in 2021 is the Delta variant. Other variants include Alpha, Beta, Delta, Epsilon, Gamma, Iota, and Mu (Idaho DPH, 2021).

There is no current cure or specific antiviral treatment for COVID-19. However, the first vaccine for COVID-19 was released on December 21, 2020. Since then, more than 4.6 billion doses of the vaccine have been administered in over 190 countries. Most COVID-19 vaccines require at least two doses to reach maximum efficacy, except the Johnson & Johnson vaccine, which only requires one.

Historical Frequencies and Future Probability of Occurrence

The first instance of the coronavirus outbreak began in December 2019. As of October 19, 2021, more than 241 million cases and 4.9 million deaths have been confirmed worldwide. North America has had the highest number of cases with over 92 million (WHO, 2021). These statistics make the COVID-19 pandemic one of the deadliest pandemics in history.

As of October 22, 2021, Oneida County has had 527 positive cases of COVID-19 and eight COVID-related deaths (Idaho DPH, 2021). Of the 44 counties in Idaho, only five counties have lower COVID-19 numbers than Oneida County. The county saw a large spike in cases in early December 2020 and again in October 2021. There have been over 282,000 cases throughout the state of Idaho with approximately 3,377 deaths. The age group with the highest number of cases in Idaho is ages 18–29, but the median age is 39.6 years old. Of those with COVID-19 in the state, over 12,340 have been hospitalized. The age group with the most hospitalizations is ages 70–79.

In Oneida County, residents have taken steps to prevent and slow the spread of COVID-19, including wearing facemasks, staying home when possible, social distancing, quarantining when sick, remote work, calling ahead and scheduling appointments before visiting the doctor, and washing hands. On May 11, 2021, Idaho moved into Stage 4 of its reopening plan, which allowed businesses and governmental agencies to remain open in physical locations, encouraged vaccinations, and permitted larger gatherings if they adhered to physical distancing guidelines (Idaho Rebounds, 2021).

More than 4.6 billion doses of the COVID-19 vaccine have been administered in over 190 countries since the vaccine's release. In Oneida County, approximately 1,803 people or 41.68% of the population residing in the county have received at least one dose of the vaccine (as of October 19, 2021). Only 36.59% are fully vaccinated (Vaccine Tracker, 2021). This is below the state vaccination rate of 56.5% and the national rate of 68.5% for people 18 years or older (Idaho DPH, 2021). Ages 55–64 make up the most vaccinated population in the state of Idaho.

Impacts

The COVID-19 outbreak has severely affected almost all aspects of everyday life all over the world and will continue to do so for years to come. In terms of the economy, the global stock markets first fell dramatically on February 24, 2020 as cases began to rise. Many experts have predicted that the pandemic will become the costliest disaster to ever occur in human history. Tourism was especially impacted worldwide because all non-essential businesses and travel shut down for several months to slow the spread of the virus. In some countries, tourism has not fully reopened almost two years later. According to a report by Yelp, about 60% of businesses that closed since the beginning of the pandemic will remain closed permanently. There have also been numerous supply shortages during the pandemic, including on essentials such as toilet paper, food, bottled water, lumber, and microchips.

In many countries with a history of food poverty and undernourishment, finding and gaining access to food has become increasingly difficult. Access to food has dwindled as food production has decreased, incomes have fallen, and travel restrictions have prevailed. Even those in first world countries have seen a persistent shortage of food on shelves in grocery stores.

Additionally, schools have been greatly impacted, with most educational institutions switching to online education and shutting down all extracurricular activities. Even some higher learning institutions, such as universities, have stopped use of dormitory facilities for students in attendance. Many are requiring negative COVID tests, social distancing, masking, and vaccinations to attend.

Mask-wearing, social distancing, decreased social interaction, increased online learning and remote work, anxiety about illness, and many other impacts will likely remain prevalent in our society for years to come. Countless other industries and factors have been permanently changed, too, such as the medical community, politics, culture, and supply chains.

Loss Estimates

According to a report by the United Nations Conference on Trade and Development (2021), international tourism lost an estimated \$2.4 trillion in 2020 as a result of the pandemic. Another \$1.7 trillion to \$2.4 trillion is expected as a loss in 2021, as well.

During April, May, and June of 2020, the International Labour Organization estimated that approximately 400 million full-time jobs were lost worldwide. Income also decreased by 10% within the first nine months of 2020. A report by Washington University in St. Louis predicted a loss of over \$300 billion in the global supply chain (2020). In the U.S., jobs plummeted from 152,523 total jobs in February 2020 to 130,161 in April 2020 (UNH, 2021). The overall trend of total jobs from 2007 to 2021 can be seen below.

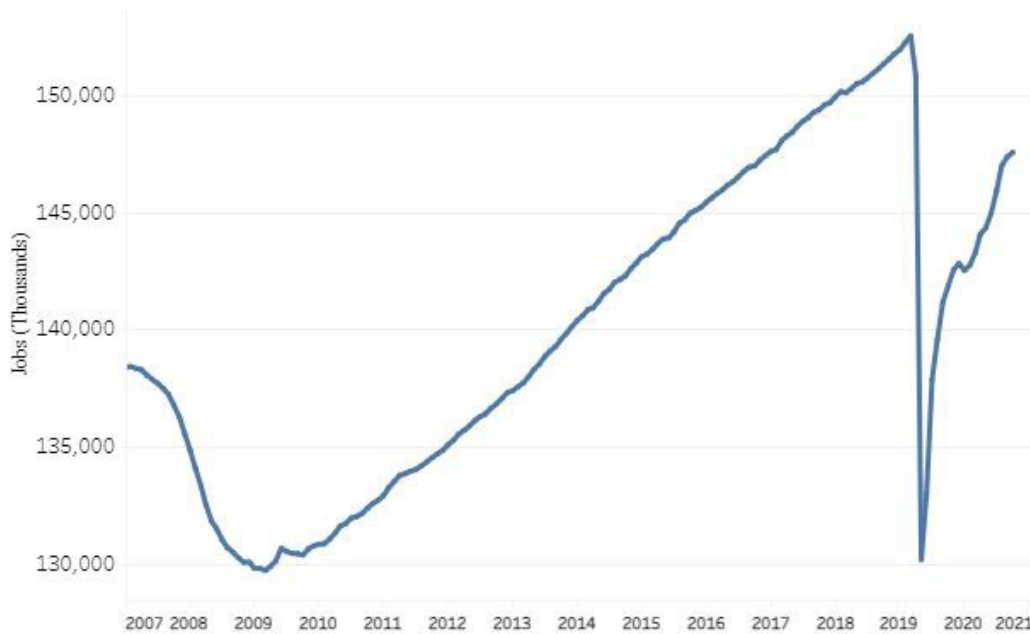


Figure 12-4. Total Jobs, December 2007 to September 2021 (UNH, 2021)

In retail, thousands of stores experienced closures and reductions in store hours. Visits to North American retailers saw a 50-60% drop (Aislelabs, 2020).

Idaho has fared well in recovering from the pandemic, especially regarding jobs and the unemployment rate. Along with Utah, Idaho is one of the only states to recover more than 100% of jobs lost in 2020 with a 115% rate of recovery, as seen in the figure below. This is a 1.5% positive change in the employment rate since February 2020 (UNH, 2021). However, the unemployment rate has not yet fully recovered (2.7% in February 2020 vs. 2.9% in September 2021). The majority of recovered jobs are in the accommodation and food services, retail, and healthcare and social assistance industries.

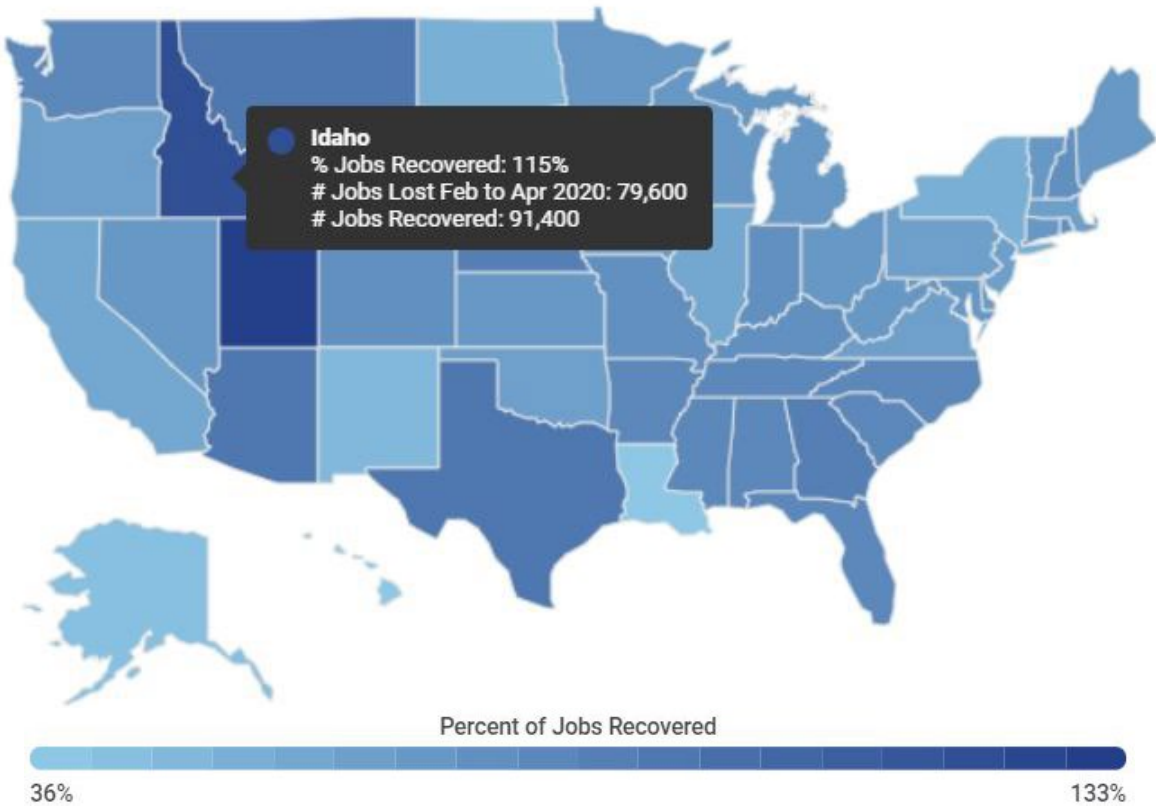


Figure 12-5. Percent of Jobs Recovered (UNH, 2021)

Although non-natural hazards are not required by FEMA for inclusion in a hazard mitigation plan, Oneida County wishes to rank and mitigate against a comprehensive list of hazard events that could impact the County. Due to both the nature of non-natural hazards and the discretionary status regarding their inclusion, the following hazards of interest have been briefly, qualitatively assessed for the sake of public education and informing their inclusion within the hazard ranking and mitigation process.

CHAPTER 13 STRUCTURE FIRE

13.1 DESCRIPTION

Structure fires produce high heat, toxic gases, and particulate materials such as smoke and soot. The heat produced or burning debris can, in turn, cause additional fires. Toxic gases and smoke are extreme hazards in the interior of burning structures and may also be a threat downwind of the structure. Where the building contents include toxic materials, the downwind threat can extend a mile or more. Burning structures may collapse, injuring persons inside or nearby, and floors or roofs may give way beneath those walking on them. Burning structures present electrical, explosion, and flashover hazards, and partially burned structures may, themselves, be physical hazards even after the fire is extinguished.

13.2 LOCATION

This hazard affects every community and structure in Oneida County.

13.3 EXTENT

Structural fires can impact large amounts of people and property depending on how fast it spreads, but usually it is limited to a few households.

13.4 HISTORICAL FREQUENCIES & FUTURE PROBABILITY OF OCCURRENCE

Structure fires are extremely common in Oneida County as they are across the nation. Oneida County did not start keeping historical fire data and reporting to the State Fire Marshal until 2012. From 2016 to 2021 the Malad Fire Department recorded 50 structure fires in Oneida County. There were no estimates of property lost.

13.5 IMPACTS

Indirect dollar losses, as is often the case, may be much larger than direct losses. Costs also include those for development and enforcement of fire codes and maintaining fire response capabilities. Firefighters are, additionally, at risk from hazards, such as physical exhaustion and cardiac stresses, heat exhaustion or heat stroke, acute and chronic health effects from toxic exposures, hearing damage, and injuries from many sources.

13.6 LOSS ESTIMATES

It is estimated that total annual losses due to structure fires in Oneida County are in the hundreds of thousands of dollars.

CHAPTER 14 HAZARDOUS MATERIAL EVENT

14.1 DESCRIPTION

Substances that, because of their chemical or physical characteristics, are hazardous to humans and living organisms, property, and the environment are regulated by the U.S. Environmental Protection Agency (EPA) and, when transported in commerce, by the U.S. Department of Transportation (DOT). EPA regulations address “hazardous substances” and “extremely hazardous substances.”

EPA chooses to specifically list hazardous substances and extremely hazardous substances rather than providing objective definitions. Hazardous substances, as listed, are generally materials that, if released into the environment, tend to persist for long periods and pose long-term health hazards for living organisms. They are primarily chronic rather than acute health hazards.

Regulations require that spills of these materials into the environment in amounts at or above their individual “reportable quantities” must be reported to the EPA. Extremely hazardous substances, on the other hand, while also generally toxic materials, are acute health hazards that, when released, are immediately dangerous to the life of humans and animals and can cause serious damage to the environment. There are currently 355 specifically listed extremely hazardous substances listed along with their individual threshold planning quantities (TPQ).

When facilities have these materials in quantities at or above the TPQ, they must submit “Tier II” information to appropriate state and/or local agencies to facilitate emergency planning.

DOT regulations provide the following definition for the term “hazardous material”:

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

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

In addition to EPA and DOT regulations, the National Fire Protection Association (NFPA) develops codes and standards for the safe storage and use of hazardous materials. These codes and standards are generally adopted locally and include the use of the NFPA 704 standard for communication of chemical hazards in terms of health, fire, instability (previously called “reactivity”), and other special hazards (such as water reactivity and oxidizer characteristics).

Diamond-shaped NFPA 704 signs ranking the health, fire, and instability hazards on a numerical scale from zero (least) to four (greatest) along with any special hazards are usually required to be posted on chemical storage buildings, tanks, and other facilities. Similar NFPA 704 labels may also be required on individual containers stored and/or used inside facilities.

While somewhat differently defined by the above organizations, the term “hazardous material” may be generally understood to encompass substances that have the capability to harm humans and other living

organisms, property, and/or the environment. There is also no universally accepted, objective definition of the term “hazardous material event.” A useful working definition, however, might be framed as “any actual or threatened uncontrolled release of a hazardous material, its hazardous reaction products, or the energy released by its reactions that poses a significant risk to human life and health, property, and/or the environment.”

14.2 LOCATION

Hazardous materials are widely used, stored and transported; a hazardous material release incident could take place almost anywhere. Moreover, many hazardous materials are used, stored and transported in very large quantities, so the impacts of a release incident may be widespread and powerful. Hazardous material incidents usually occur on major highways.

14.3 EXTENT

The magnitude of a hazardous material incident depends on the type of chemical, the environment it is in, and how it interacts with that environment.

14.4 HISTORICAL FREQUENCIES & FUTURE PROBABILITY OF OCCURRENCE

There have been several Level I releases of hazardous materials in Oneida County. The definitions for each classification level in Idaho are as follows:

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

A complete report of annual releases is available from the Idaho Bureau of Homeland Security’s Hazardous Materials Department.

There are no industrial facilities listed in the Toxics Release Inventory that release chemicals into the air, water, or land. However, there are six Tier II sites in the county that hold large quantities of hazardous materials in storage and use (as of March 2017). Since the year 2000, there have only been two hazardous material incidents in Oneida County, as seen in the table below.

Table 14-1. Hazardous Material Incidents

| HAZARDOUS MATERIAL INCIDENTS | | | | | |
|------------------------------|----------------|------------------------|-------------------------|-----------------|--|
| Date | Location | Mode of Transportation | Hazardous Material | Amount Released | Description |
| 8/23/2006 | Holbrook, ID | Trailer on highway | Paint | 25 gal. | Driver noticed paint leaking from trailer and called hazmat crew to site who found paint leaking from 5 5-gallon buckets of paint. Spilled paint was cleaned up. |
| 8/12/2011 | Malad City, ID | Bulk tank on highway | Liquefied petroleum gas | 5 gal. | Bobtail truck with 2,333 gallons of propane blew a tire on I-15, hit another vehicle, and overturned and rolled. The truck barrel lost no propane, but a hose failed and lost 5 gallons of propane. Truck and propane removed from site. |

Source: PHMSA, 2021

14.5 IMPACTS

Because hazardous materials are so widely used, stored, and transported, a hazardous material event could take place almost anywhere. Further, many hazardous materials are used, stored, and transported in very large quantities, so the impacts of an event may be widespread and powerful. Regulations and safety practices make such large-scale events unlikely, but smaller scale incidents may have severe impacts, including:

- Human deaths, injuries, and permanent disabilities
- Livestock/animal deaths
- Destruction of vegetation and crops
- Property damage and destruction
- Pollution of groundwater, drinking water supplies, and the environment
- Contamination of foodstuffs, property, land, and structures
- Temporary or long-term closure of transportation routes and/or facilities
- Loss of business and industrial productivity
- Utility outages
- Clean-up and restoration costs
- Losses and inconvenience due to evacuation
- Loss of valuable chemical product

A map and list of all Tier II facilities in Oneida County with their respective PADs are below.

Table 14-2. Tier II Facilities in Oneida County with Respective PADs

| TIER II FACILITIES IN ONEIDA COUNTY WITH RESPECTIVE PADs | |
|--|------------|
| Facility | PAD (feet) |
| Idaho Transportation Department | 2,640 |
| V-1 Propane—Malad | 5,280 |
| Level 3 Communications—HLBK1D1T-1O | 150 |



Figure 14-1. Oneida County Tier II PADs

14.6 LOSS ESTIMATES

Hazardous material losses occur primarily due to the displacement of populations and the interruption of business. Oneida County has facilities that use hazardous materials. These facilities are located in close proximity to major population centers in the county. A release of hazardous materials in this area could potentially require the evacuation of the neighborhoods located in the vicinity of these facilities. The following table shows the population within the county that could be affected by a chemical release.

Table 14-3. Tier II Loss Estimates

| TIER II LOSS ESTIMATES | | | | |
|------------------------|--------|--------------------------|-------------------------|-------------------------------|
| Hazard | County | 2019 Population Estimate | 2019 Household Estimate | Average Persons per Household |
| Tier II Facilities | Oneida | 4,531 | 1,615 | 2.8 |

Source: American Community Survey, 2019

The map below outlines the evacuation corridors within Oneida County in case of a hazardous material emergency.

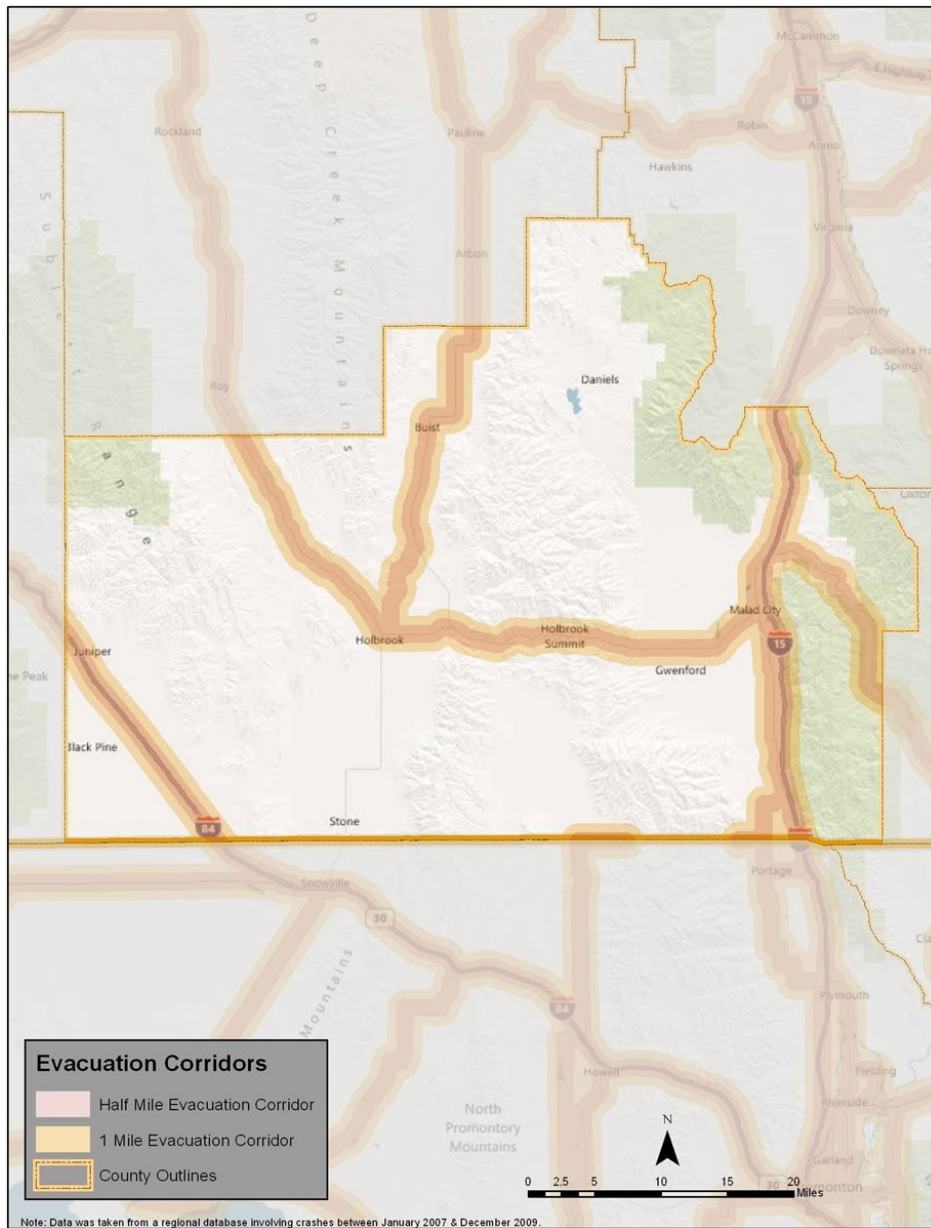


Figure 14-2. Hazardous Materials Evacuation Corridors

CHAPTER 15 RIOT/DEMONSTRATION/CIVIL DISORDER

15.1 DESCRIPTION

State of Idaho statutes define “riot” as follows (Idaho Statute 18-6401—RIOT DEFINED):

Any action, use of force or violence, or threat thereof, disturbing the public peace, or any threat to use such force or violence, if accompanied by immediate power of execution, by two (2) or more persons acting together, and without authority of law, which results in:

- (a) physical injury to any person; or
 - (b) damage or destruction to public or private property; or
 - (c) a disturbance of the public peace;
- is a riot.

Also defined in the statutes (Idaho Statute 18-8102—DEFINITIONS) is “civil disorder”:

“Civil disorder” means any public disturbance involving acts of violence by an assemblage of two (2) or more persons, which acts cause an immediate danger of or result in damage or injury to the property or person of any other individual.

The term “demonstration” is not defined in this context in the Idaho statutes, but the following is given for “unlawful assembly” (Idaho Statute 18-6404—UNLAWFUL ASSEMBLY DEFINED):

Whenever two or more persons assemble together to do an unlawful act and separate without doing or advancing toward it or do a lawful act in a violent, boisterous, or tumultuous manner, such assembly is an unlawful assembly.

Riots are generally thought of as being spontaneous, violent events, whereas demonstrations are usually planned events and are usually intended to be non-violent. Riots seem often to be motivated by frustration and anger, usually over some real or perceived unfair treatment of some group. There are instances, however, where riots have begun during celebrations and other events where the only initiating factor seems to have been the gathering of a crowd of people.

The potential for rioting, then, exists any time people gather, but a number of factors are associated with the increased probability one will occur, including:

- Drug and alcohol use
- Youth of crowd members
- Low socio-economic status of members
- High level of emotions
- A history of rioting on the same or similar previous occasions
- Initiating event, person, or persons

Once violent or illegal activity is initiated, it escalates, possibly at least partly because of the perception that, because all are acting together, there is little probability that any given individual will be arrested or otherwise suffer consequences. Riots may range in scope from very few people in a small area to thousands over an entire city. Once initiated, large riots are very difficult to suppress, particularly in the

United States where law enforcement is constrained by constitutional guarantees as well as personnel limits. Early and decisive action by law enforcement may be effective in suppressing a riot, but police actions may also lead to further escalation.

15.2 LOCATION

The hazard is often spontaneous and it's difficult to identify specifics but having information of who the demonstrators are and why they are demonstrating can be helpful.

15.3 EXTENT

The severity of a civil disturbance situation coincides with the level of public outrage. They can take the form of small gatherings or large groups blocking access to buildings, or disrupting normal activities. Civil disturbance situations can also be peaceful sit-ins or a full-scale riot.

15.4 HISTORICAL FREQUENCIES & FUTURE PROBABILITY OF OCCURRENCE

There are no recorded riot events in Oneida County.

15.5 IMPACTS

Riots may result in loss of life, injury, and permanent disability (participants, bystanders, and law enforcement personnel), as well as looting, vandalism, setting of fires, and other property destruction. Law enforcement, emergency medical services, and medical facilities and personnel, firefighting, and other community resources may be overwhelmed and unavailable to the community at large. Transportation routes may be closed, infrastructure and utilities damaged or destroyed, and public buildings attacked, damaged, or destroyed. Social and psychological effects may also cause great impacts. Lingering fear and resentment can be long-lasting and can greatly impair the ability of a community to function politically, socially, and economically.

15.6 LOSS ESTIMATES

Civil disobedience within Oneida County is unlikely but not ruled out as a possibility. Civil disobedience within Oneida County is a possibility due to the growing number of gangs that have organized in the area as the population diversifies. Loosely organized gangs usually are involved in local acts of violence and drug activity.

CHAPTER 16 TERRORISM

16.1 DESCRIPTION

Terrorism is an unlawful act under both federal and state of Idaho statutes. Definitions are as follows:

Title 18 U.S. Code Section 2331—Definitions

- (5) the term “domestic terrorism” means activities that—
- (A) involve acts dangerous to human life that are a violation of the criminal laws of the United States or of any State;
 - (B) appear to be intended—
 - (i) to intimidate or coerce a civilian population;
 - (ii) to influence the policy of a government by intimidation or coercion; or
 - (iii) to affect the conduct of a government by mass destruction, assassination, or kidnapping; and
 - (C) occur primarily within the territorial jurisdiction of the United States.

Idaho Statute 18-8102—DEFINITIONS

- (5) “Terrorism” means activities that:
- (a) Are a violation of Idaho criminal law; and
 - (b) Involve acts dangerous to human life that are intended to:
 - (i) Intimidate or coerce a civilian population;
 - (ii) Influence the policy of a government by intimidation or coercion; or
 - (iii) Affect the conduct of a government by the use of weapons of mass destruction, as defined in section 18-3322, Idaho Code.

The Federal Emergency Management Agency (FEMA) gives the following as general information on terrorism (FEMA, 2021):

“Terrorism” is the use of force or violence against persons or property in violation of the criminal laws of the United States for purposes of intimidation, coercion, or ransom. Terrorists often use threats to:

- Create fear among the public.
- Try to convince citizens that their government is powerless to prevent terrorism.
- Get immediate publicity for their causes.

Acts of terrorism include threats of terrorism; assassinations; kidnappings; hijackings; bomb scares and bombings; cyber-attacks (computer-based); and the use of chemical, biological, nuclear, and radiological weapons.

High-risk targets for acts of terrorism include military and civilian government facilities, international airports, large cities, and high-profile landmarks. Terrorists might also target large public gatherings, water and food supplies, utilities, and corporate centers. Further, terrorists are capable of spreading fear by sending explosives or chemical and biological agents through the mail.

Acts of terrorism, then, are essentially the intentional initiation of the sorts of hazard events that have been discussed in previous sections.

16.2 LOCATION

Terrorism typically targets a specific location – in many active shooter situations, the setting is often a commercial, governmental, educational, or religious institution. Other terrorist events may target major infrastructure, in accordance with the perpetrator's specific end goal. Residential areas are less likely to be directly targeted.

16.3 EXTENT

Terrorist events typically, but not always, aim to impact large numbers of people. Depending on a number of factors including terrorist intent, setting, victim response, and response time from law enforcement, the amount of damage incurred, or casualties actually inflicted can vary widely. Additionally, those who are not directly impacted by the event may still be psychologically impacted through fear, concern for safety, and reduced activity.

16.4 HISTORICAL FREQUENCIES & FUTURE PROBABILITY OF OCCURRENCE

There are no recorded terrorism events in Oneida County.

16.5 IMPACTS

Since the events of September 11, 2001, no citizen of the United States is unaware of the enormous potential impacts of terrorist acts. The emotional impacts, such as fear, dread, anger, outrage, etc., serve to compound the enormous physical, economic, and social damage. The continuing terrorist threat itself has a profound impact on many aspects of everyday life in this country and on the U.S. economy.

16.6 LOSS ESTIMATES

Projected loss estimates are not provided due to security controls.

CHAPTER 17 CYBERSECURITY INCIDENT

17.1 DESCRIPTION

According to the National Cyber Incident Response Plan, a cyber incident is “an event occurring on or conducted through a computer network that actually or imminently jeopardizes the confidentiality, integrity, or availability of computers, information or communications systems or networks, physical or virtual infrastructure controlled by computers or information systems, or information resident thereon” (2016).

A cyber incident or cyberattack might range from a denial-of-service operation that temporarily prevents access to a website to an attack on a power turbine that causes physical damage and an outage lasting for days. Cyber espionage refers to intrusions into networks by unauthorized users to access sensitive or classified diplomatic, military, or economic information, often for economic or political gain (CrowdStrike, 2021). Cyberattacks on infrastructure can originate from governments, criminal organizations, or lone individuals. FEMA characterizes an event profile for a cyberattack or cyber espionage with the following criteria:

- **Application Mode**—Unlawful attacks and threats of attack against computers, networks, and information stored therein
- **Duration/Threat Impact**—Minutes to days
- **Severity**—Generally no direct effects on built environment; secondary impact from system attacked (e.g., computerized control system regulating water release)
- **Mitigating and Exacerbating Conditions**—Inadequate security can facilitate access to critical computer systems, allowing them to be used to conduct attacks or gather information to support other terrorist-related activities.

Cyber criminals threaten U.S. economic interests. The Office of the Comptroller of the Currency, which regulates national banks, has issued warnings to banks and businesses of their potential risk. 43% of cyberattacks target small businesses, and data breaches are most common among businesses between 500 and 1,000 employees (PurpleSec, 2019).

Cyber criminals sell tools via a growing black market that enable access to critical infrastructure systems. Some commercial companies sell computer intrusion kits on the open market that can give governments and cyber criminals the ability to steal, manipulate, or delete information on targeted systems. Other companies sell professional-quality technologies to support cyber-operations—often branding these tools as lawful-intercept or defensive security research products. Many individuals, groups, and foreign governments already use some of these tools to target national and local systems.

In 2020, the state of Idaho ranked 38th in the United States for the number of cybercrime victims reported to the Internet Crime Complaint Center with 2,209 victims. Idaho ranked 42nd for total victim losses in the country with a loss of \$11,670,650. The total number of complaints received in the U.S. in 2020 skyrocketed by 69% compared to the previous year due to COVID-19. 791,790 victims reported losses exceeding \$4.1 billion.

There is no history of successful cyberattacks in Oneida County, but every organization is still vulnerable. Cyberattacks are increasing in magnitude and cost each year, with the energy, banking, and finance sectors becoming the most at risk. On a smaller scale, people over 60 years of age are most vulnerable to cybercrimes, especially those that involve extortion, tech support, identity theft, phishing, and confidence

fraud. This means about 20% of Oneida County’s population is especially vulnerable to cybercrimes since the county has an estimated 19.2% of residents who are 65 years or older (American Community Survey, 2019).

17.2 LOCATION

Cyber disruptions are not central to one geographic area; they can occur anywhere across Idaho where technological systems exist or are utilized. A breach can originate at one computer and affect any other computer in the world. Targets include individual computers, networks, organizations, business sectors, or governments.

17.3 EXTENT

The extent of a cybersecurity breach is dependent on various factors. These factors include the system that is attacked, protective measures put in place, training of the people involved, warning time, and the firewalls that exist to protect different levels of the system.

17.4 HISTORICAL FREQUENCIES & FUTURE PROBABILITY OF OCCURRENCE

Although there are no recorded cyber incidents in Oneida County, local businesses and organizations are constantly being probed and attacked, and are thereby vulnerable.

One recent ransomware attack in Bingham County, Idaho demonstrates a potential threat that could happen at any time to Oneida County. In February 2017, an unknown source delivered malware to county servers in Blackfoot, Idaho. The malware encrypted the data on the servers and made the computer systems inaccessible to county employees. The hackers then demanded a ransom of \$25,000 to \$30,000 to receive a password to decrypt the data. The county did not pay the ransom but instead switched to their backup servers as they worked to clean up the system (East Idaho News, 2017).

Bingham County was able to repair the county systems and put several more firewalls in place to prevent a future attack. However, the damaged infrastructure caused the county website to go offline and disrupted the county dispatch center. Thousands of emergency 911 calls, radio transmissions, and police reports were not recorded in the system during the hack and had to be manually logged when the system was repaired (East Idaho News, 2017).

Similar attacks have occurred in other counties in Idaho and across the U.S., putting Oneida County at risk for one, as well. Powerful and diverse firewalls and adequate training for county employees is essential for preventing a future attack in the county.

17.5 IMPACTS

Cyber incidents may cause disruptions to critical facilities, systems, and infrastructure, which could have catastrophic effects to humans in many unknown ways. The 2018 State of Idaho Hazard Mitigation Plan describes that “power grid systems are susceptible to cyberattacks and when impacted, could lead to long-term power outages. It has been noted that malicious software could harm critical infrastructure operations, including power systems.” Various natural hazards could also occur if related systems stopped working. For example, “any computerized systems that manage flood control systems could potentially be impacted by a cyber-event, thereby possibly causing a flood event.”

Additionally, natural hazards have the potential to cause or lead to cyber incidents. If an earthquake or severe weather damages hardware, computer systems, networks, servers, or the like, this could cause a disruption in utilities, systems, or other facilities. A disruption like this could also open the door for a malicious attack on an already vulnerable system. A large solar flare is another natural event that would threaten the internet, communications, power transformers, satellites, airplanes, and other GPS devices throughout the world.

Cyberattacks on information and computer systems could expose security, identity, and financial information of Idaho residents. This may result in thousands to millions of dollars in assets lost. Similar cyberattacks could also reveal private and personal information about residents or uncover security details of government or private organizations. The full implications of this are unknown but would potentially be widespread.

17.6 LOSS ESTIMATES

Cyber theft is the fastest-growing crime in the United States and has the potential to cause over \$6 trillion in damage in 2021 (Cybersecurity Ventures, 2020). All information systems housed in any state-owned or leased buildings in Idaho are at risk. According to the 2018 State of Idaho Hazard Mitigation Plan, “the average amount of money it takes to recover one record of data is \$120, and the average medium size business recovery costs about \$50,000.” As noted in the 2020 Internet Crime Report, the state of Idaho lost \$11,670,650 in 2020 to internet crimes. The crimes reported to the Internet Crime Complaint Center primarily consist of smaller-scale internet crimes affecting individuals of the American public. The total losses from all sectors and organizations nationwide, including all government entities, vastly exceed those on the local level.

CHAPTER 18 UTILITY DISRUPTION

18.1 DESCRIPTION

A utility disruption or malfunction often refers to a temporary lapse in or failure of critical utility services. Utility disruptions are generally unplanned. Common utilities that may experience disruptions are water, sewer, electricity, HVAC, natural gas, and petroleum services. Services that do not function according to their designed purpose could result in a potentially unsafe situation for residents (Law Insider, 2021).

Utility failures can be caused by a wide variety of events, including hazards previously discussed in this plan, such as severe weather, wildfire, earthquake, flood, etc. For example, the leading cause of electric outages in the state of Idaho between 2008 and 2017 was weather or falling trees (Department of Energy, 2021). However, utility disruptions can be triggered by isolated malfunctioning equipment or human-caused activity, as well. According to the 2021 State of Idaho Energy Sector Risk Profile, faulty equipment and/or human error caused 25% of all electric outages during 2008–2017 (see figure below). Spontaneous interruption in services—unrelated to weather or other hazards—is fairly common and can pose just as large a risk as interruptions caused by known hazards.

Electric Utility-Reported Outages by Cause, 2008–2017

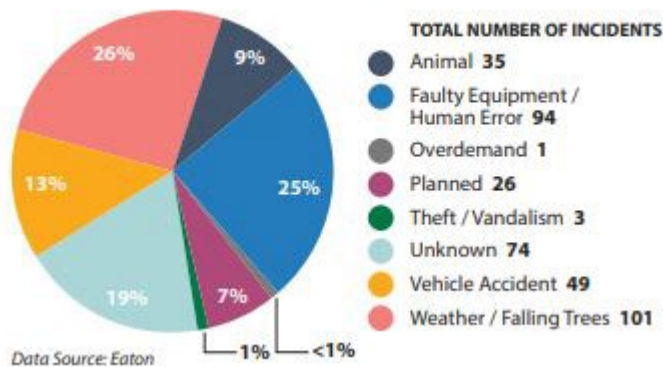


Figure 18-1. Electric Utility-Reported Outages by Cause, 2008–2017 (Department of Energy, 2021)

Electric outages in Idaho last 309.6 minutes per interruption on average, with approximately 1.59 outages per year (Find Energy, 2021).

18.2 LOCATION

This hazard affects every community in Oneida County.

18.3 EXTENT

Utility failure in Oneida County is typically isolated and limited to a short amount of time (less than six hours).

18.4 HISTORICAL FREQUENCIES & FUTURE PROBABILITY OF OCCURRENCE

In the state of Idaho, the greatest number of electric outages typically occur in July—often due to inclement weather, such as thunderstorms and lightning. As of 2017, electric outages affected 117,219 customers on average each year. From 2008–2017 an estimated 383 electric outages were reported (Department of Energy, 2021). Eight energy companies in Idaho reported energy loss (Find Energy, 2021).

Oneida County does not currently have access to natural gas, but many residents do rely on petroleum products to heat their homes. The most common cause of economic loss and utility disruption of petroleum from 1986–2019 in Idaho was derailments, collisions, and rollovers (Department of Energy, 2021).

While this information is not well documented, it is commonly known that utility failures occur often. Oneida County has experienced a number of utility disruptions, both planned and unplanned.

18.5 IMPACTS

Unplanned and prolonged suspension of services has the potential to result in injury, death, damage to or spoilage of household goods, temporary closure of businesses, and thousands of dollars in losses. Individuals or businesses that rely on life-saving, electric-powered medical equipment are especially vulnerable when electric services are disrupted.

For rural communities like those in Oneida County, an outage could have severe consequences if residents are unable to seek alternative shelter or care due to lack of resources, inventory, or functioning facilities. In the winter when extreme cold days are frequent, residents would have a difficult time heating their homes during an extended power outage.

Downed communications could also pose a problem, especially for those needing medical attention. This could leave county leaders unable to broadcast important messages regarding safety and response in the event of a service disruption.

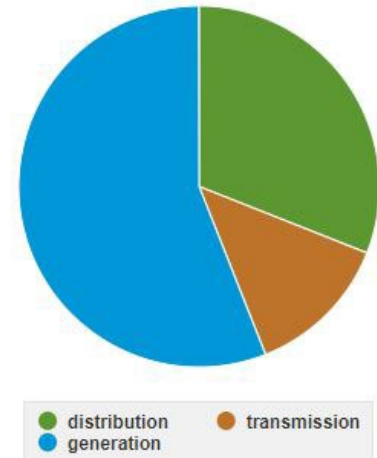
Disruptions in other states may affect supply of oil and gas products, as well.

18.6 LOSS ESTIMATES

During the 1986–2019 time period, loss of petroleum during transport caused over \$573,000 in damages each year (Department of Energy, 2021). Utility disruptions due to the loss of petroleum can be extensive, as well. Although Oneida County does not use natural gas, the state of Idaho suffers approximately \$587,000 in losses in natural gas each year.

A malfunction in electric utilities could prove disastrous if the event occurred during a time of extreme heat or cold, which would result in greater monetary losses. The electricity transmission and distribution systems that connect power plants with consumers have construction, operation, and maintenance costs (EIA, 2021). Faulty equipment or human-caused damage to equipment could be extremely expensive to repair or replace. These repairs may also result in an increase in the average price of electricity per household for residents in Oneida County, as depicted in the figure to the right. The current residential average electric bill in Oneida County is \$111.72 per month (Find Energy, 2021).

Major components of the U.S. average price of electricity, 2020



Source: U.S. Energy Information Administration, Annual Energy Outlook 2021, Reference case, Table 8, February 2021

Figure 18-2. Components of U.S. Price of Electricity (EIA, 2021)

CHAPTER 19 RISK AND VULNERABILITY ASSESSMENT SUMMARY

19.1 ONEIDA COUNTY RISK ASSESSMENT SUMMARY

As indicated in the hazard analysis, Oneida County is vulnerable to seismic events. The majority of the vulnerability is due to the transportation systems, especially bridges. Damage to the transportation system would create casualties if the event occurred during the evening commute.

Other risks posed to vulnerable areas of the county include the potential for a hazardous materials event along Interstate 15 which bisects the county on the eastern side. I-15 travels north from Utah and over the Malad Pass into Bannock County. Hazardous material releases on this route could impact vulnerable populations in and around the city of Malad and, depending on the chemical, could cause evacuations of essential county facilities, including the courthouse.

There is a very small, mapped floodplain in Oneida County, which flows through the city of Malad. The majority of the essential facilities would not be impacted by a flooding event in Oneida County. Two reservoirs, the Daniels and the Deep Creek, pose a risk to populations in the county. The Deep Creek Reservoir Inundation Zone (see the Malad City assessment below) would impact the Malad City Hall, but all other essential facilities are outside of the zone.

The mean fire return interval analysis, along with historical wildfire data indicates that Oneida County has a high potential for wildfires in any given year. The majority of these wildfires occur on public lands and are not a threat to county-owned facilities but do pose a threat to agricultural uses bordering public lands and grazing allotments on public lands.

As most of the farming conducted in Oneida County is non-irrigated or dry farming, drought is of special concern to the residents of Oneida County. Economic loss due to drought is the single largest risk to Oneida County. Drought also exacerbates the wildfire risk.

19.2 MALAD CITY RISK ASSESSMENT SUMMARY

Malad City is vulnerable to seismic events as described above. There are some privately owned, non-reinforced masonry structures in the city, which could be damaged during a worst-case scenario. The city may see some damage to local bridges, as well.

There is a small floodplain that was mapped for Malad City. The flooding threat is primarily to privately owned structures, but Malad's City Hall is also located in the floodplain.

The city has historically been protected from the impacts of wildfire due to the agricultural fields that surround the city. The tillage of the fields makes a suitable fire break and protects the city from major wildfires; however, small brush fires do occur on unmaintained parcels of land located in the city.

PART III: MITIGATION STRATEGY

CHAPTER 20 CAPABILITY ASSESSMENTS & PLAN INTEGRATION

Table 20-1. Capability Assessment

| CAPABILITY ASSESSMENT | | | | | |
|--------------------------------------|--|---------------------------|------------|--------|------------------------|
| Agency Name (Mission/Function) | Programs, Plans, Policies, Regulations, Funding, or Practices | Effect of Loss Reduction* | | | Comments |
| | | Support | Facilitate | Hinder | |
| Oneida County Emergency Services | Oneida County EOP | X | X | | |
| | Oneida County Multi- Jurisdictional All Hazard Mitigation Plan | X | X | | |
| Oneida County Planning and Zoning | Oneida County Comprehensive Plan | X | X | | Includes Malad City |
| | Oneida County Land Use Ordinances | X | X | | |

20.1 LAND USE PLANNING & PLAN INTEGRATION

This section of the Oneida County Multi-Jurisdictional All Hazard Mitigation Plan examines the relationship between the County Comprehensive Plan, Land Use or Zoning Ordinances, and the mitigation plan. Incorporating hazard mitigation practices into land use planning is extremely important as future developments are planned and constructed. Through proper planning within the individual jurisdictions, risk to property owners can be reduced and future disaster related economic losses avoided. Land Use and Mitigation Planning Integration are seen as critical components of the mitigation program in Oneida County. Because of the economic conditions in Oneida County and the region, there has been very little new development in the county. There has not been growth in the areas that could be defined hazardous in the Comprehensive Plan or the mitigation plan.

20.1.1 Oneida County

The Oneida County Comprehensive Plan was last updated in 2017. The Oneida County Development Code states that the goal in this plan is “to cooperate in planning with the city of Malad and assist the city of Malad in the adoption and administration of the County Plan and Development Code.” The plan discusses land use with goals for future development while maintaining a rural atmosphere. Land use ordinances focus on protecting agricultural and natural resource areas. The development plan suggests that lot splits and agricultural land purchases be regulated and residents be made aware of ordinances in those areas.

The County Comprehensive Plan recognizes flooding as a hazard or risk to the county. The city of Malad participates in the National Floodplain Insurance Program.

The goal of the Hazardous Areas section of the Comprehensive Plan is to take reasonable measures to prevent loss of life or property resulting from known natural or manmade hazards. Oneida County should address additional hazards in the Comprehensive Plan that include those presented in the mitigation plan.

Suggested updates to the Comprehensive Plan include:

1. Update hazards to reflect the ranking of hazards from the mitigation plan.
2. Add each hazard listed in the mitigation plan, including drought, severe summer weather, extreme heat, lightning, hail, tornado, straight-line wind, severe winter weather, extreme cold, winter storm, flood, flash flood, dam failure, wildfire, earthquake, landslide/mudslide, snow avalanche, communicable disease, structure fire, hazardous material event, riot/demonstration/civil disorder, terrorism, cybersecurity incident, and utility disruption.

20.2 NFIP CONTINUITY STRATEGY

20.2.1 Floodplain Management

Both Oneida County and Malad City participate in the National Flood Insurance Program (NFIP). Malad City has participated in the regular phase of the National Flood Insurance Program since September 1985. There is one National Flood Insurance Policy in Malad City as seen below.

Table 20-2. Communities Participating in NFIP (Idaho)

| COMMUNITIES PARTICIPATING IN NFIP (IDAHO) | | | | | |
|---|----------------------|----------------------|-------------------|---------------|--------|
| Community | Init FHBM Identified | Init FIRM Identified | Curr Eff Map Date | Reg-Emer Date | Tribal |
| Oneida County | -- | -- | -- | 10/10/03(E) | No |
| Malad City | 05/24/74 | 09/27/85 | 09/27/85 | 09/27/85 | No |

Source: FEMA Community Status Book Report, 2021

(E) Indicates entry in emergency program

Oneida County has no communities within the 100-year floodplain hazard areas that are not participating in the NFIP; Oneida County has no communities under suspension or revocation of participation in the NFIP. The Planning and Zoning Commission addresses floodplain issues but not as part of a recognized floodplain ordinance and has no enforcement authority. The County Commission has agreed to take the action to resolve this issue for the county.

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

CHAPTER 21 MITIGATION GOALS

These goals describe the broad direction that Oneida County will take to select mitigation projects, which are designed specifically to address risks posed by natural and manmade hazards. The goals are stepping stones between the mission statement and the specific objectives developed for the individual mitigation projects. The mitigation projects refer to these goals by their number given below.

1. Reduce the potential of loss of life and injury.
 - a. Identify natural and manmade hazards that threaten life in Oneida County.
2. To preserve and enhance the quality of life throughout Oneida County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage and economic losses.
 - a. Implement programs and projects that assist in protecting lives by making homes, businesses, essential facilities, critical infrastructure, and other property more resistant to losses from all hazards.
 - b. Improve hazard assessment information to make recommendations for discouraging new development and encouraging preventive measures for existing development in areas vulnerable to natural hazards.
 - c. Protect life and property by implementing state-of-the-art standards, codes, and construction procedures.
3. Improved collaboration and cooperation throughout Oneida County and the city of Malad.
 - a. Continue developing and strengthening inter-jurisdictional coordination in the area of emergency services.
 - b. Continue providing county and city emergency services with training and equipment to address all identified hazards.
4. Incorporate and integrate hazard mitigation strategies into all appropriate plans and policies.
5. Enhanced communication, public information, and education of risks and threats in Oneida County to empower personal preparedness and responsibility.
 - a. Increase public awareness of existing threats and the means to reduce these threats by conducting educational and outreach programs to all the various community groups in the county.
 - b. Provide informational items, partnership opportunities, and funding resource information to assist in implementing mitigation activities.
6. Continuity of government services and business operations.

CHAPTER 22 MITIGATION STRATEGIES

22.1 MITIGATION ACTION PLAN

The action plan helps to prioritize mitigation initiatives according to a benefit/cost analysis of the proposed projects and their associated costs (44 CFR, Section 201.6(c)(3)(iii)). The action plan also provides the framework for how the proposed projects and initiatives will be implemented and administered over the next five years.

22.1.1 Mitigation Strategy/Action Timeline Parameters

While the preference is to provide definitive project completion dates, this is not possible for every mitigation strategy/action. Therefore, the parameters for the timeline (Projected Completion Date) are as follows:

- **Short-term**—To be completed in 1 to 5 years
- **Long-term**—To be completed in greater than 5 years
- **Ongoing**—Currently being implemented under existing programs but without a definite completion date

22.1.2 Mitigation Strategy/Action Benefit Parameters

Benefit ratings are defined as follows:

- **High**—Project will provide an immediate reduction of risk exposure for life and property.
- **Medium**—Project will have a long-term impact on the reduction of risk exposure for life and property, or project will provide an immediate reduction in the risk exposure for property.
- **Low**—Long-term benefits of the project are difficult to quantify in the short term.

22.1.3 Mitigation Strategy/Action Estimated Cost Parameters

While the preference is to provide definitive costs (dollar figures) for each mitigation strategy/action, this is not possible for every mitigation strategy/action. Therefore, the estimated costs for the mitigation initiatives identified in this plan are identified as high, medium, or low, using the following ranges:

- **High**—Existing funding will not cover the cost of the project; implementation would require new revenue through an alternative source (e.g., bonds, grants, and fee increases).
- **Medium**—The project could be implemented with existing funding but would require a re-apportionment of the budget or a budget amendment, or the cost of the project would have to be spread over multiple years.
- **Low**—The project could be funded under the existing budget. The project is part of or can be part of an ongoing existing program.

22.1.4 Mitigation Strategy/Action Prioritization Process

The action plan must be prioritized according to a benefit/cost analysis of the proposed projects and their associated costs (44 CFR, Section 201.6(c)(3)(iii)). The benefits of proposed projects were weighed against estimated costs as part of the project prioritization process. The benefit/cost analysis was not of

the detailed variety required by FEMA for project grant eligibility under the Hazard Mitigation Grant Program (HMGP) and Building Resilient Infrastructure and Communities (BRIC) grant program. A less formal approach was used because some projects may not be implemented for up to 10 years, and associated costs and benefits could change dramatically in that time. Therefore, a review of the apparent benefits versus the apparent cost of each project was performed. Parameters were established for assigning subjective ratings (high, medium, and low) to the costs and benefits of these projects.

The priorities are defined as follows:

- **High**—A project that addressed numerous goals or hazards, has benefits that exceed cost, has funding secured or is an ongoing project, and meets eligibility requirements for the HMGP or BRIC grant program. High priority projects can be completed in the short term (1 to 5 years).
- **Medium**—A project that addressed multiple goals and hazards, that has benefits that exceed costs, and for which funding has not been secured but that is grant eligible under HMGP, BRIC, or other grant programs. The project can be completed in the short term once funding is secured. Medium priority projects will become high priority projects once funding is secured.
- **Low**—A project that will address few or no goals, mitigate the risk of one or few hazards, has benefits that do not exceed the costs or are difficult to quantify, for which funding has not been secured, that is not eligible for HMGP or BRIC grant funding, and for which the timeline for completion is long term (1 to 10 years). Low priority projects may be eligible for other sources of grant funding from other programs.

For many of the strategies identified in this action plan, the partners may seek financial assistance under the HMGP or HMA programs, both of which require detailed benefit/cost analyses. These analyses will be performed on projects at the time of application using the FEMA benefit-cost model. For projects not seeking financial assistance from grant programs that require detailed analysis, the partners reserve the right to define “benefits” according to parameters that meet the goals and objectives of this plan.

22.2 MITIGATION PROJECTS

Listed below are the goals and objectives developed by the mitigation plan and the priority projects that were developed to address the risks posed. Included in the list are a rough estimate of cost and an anticipated period for further investigation, project development, and implementation.

22.2.1 New Mitigation Projects

Oneida County

Table 22-1. New Mitigation Project 1

| Mitigation Project: Work with U.S. Forest Service to reduce fire danger from controlled burns in new residential areas. | | | | | | | |
|---|-------------------------|---|--|--|---|-----------------------------|-----------------------------------|
| Year Initiated | Applicable Jurisdiction | Lead Agency/ Organization | Supporting Agencies/ Organizations | Priority and Level of Importance (Low, Medium, High) | Projected Completion Date (Short-term, Long-term, or Ongoing) | Estimated Cost | Cost Analysis (Low, Medium, High) |
| 2022 | Oneida County | Oneida County Commissioner/ Fire District | N/A | High | Ongoing | TBD | Medium |
| Applicable Goal(s) | | Hazard(s) Mitigated | Benefits (Loss Avoided) | Benefit Analysis (Low, Medium, High) | | Potential Funding Source(s) | |
| 1, 2, 3 | | Wildfire/Structure Fire | Protect residential property lines from potential wildfires. | High | | Grants, USFS | |
| Action/Implementation Plan and Project Description: | | | | | | | |
| | | | | | | | |

Table 22-2. New Mitigation Project 2

| Mitigation Project: Hold meeting with Summit homeowners to get property owners involved in reducing wildfires in and around their properties. | | | | | | | |
|---|-------------------------|---------------------------|------------------------------------|--|---|----------------|-----------------------------------|
| Year Initiated | Applicable Jurisdiction | Lead Agency/ Organization | Supporting Agencies/ Organizations | Priority and Level of Importance (Low, Medium, High) | Projected Completion Date (Short-term, Long-term, or Ongoing) | Estimated Cost | Cost Analysis (Low, Medium, High) |
| | | | | | | | |

| Mitigation Project: Hold meeting with Summit homeowners to get property owners involved in reducing wildfires in and around their properties. | | | | | | | |
|---|---------------|--|---|--------------------------------------|---------|-----------------------------|-----|
| 2022 | Oneida County | Oneida County Commissioner/ Fire District | N/A | High | Ongoing | N/A | Low |
| Applicable Goal(s) | | Hazard(s) Mitigated | Benefits (Loss Avoided) | Benefit Analysis (Low, Medium, High) | | Potential Funding Source(s) | |
| 2, 5 | | Wildfire/Structure Fire | Improve education about fire safety and water storage to prevent loss of homes due to fire. | High | | Local Funds; Staff Time | |
| Action/Implementation Plan and Project Description: | | | | | | | |
| | | | | | | | |

Table 22-3. New Mitigation Project 3

| Mitigation Project: Install weather system technology in Oneida County Airport to allow fixed wing aircraft to land at airport. | | | | | | | |
|---|-------------------------|---------------------------|--|--|---|-----------------------------|-----------------------------------|
| Year Initiated | Applicable Jurisdiction | Lead Agency/ Organization | Supporting Agencies/ Organizations | Priority and Level of Importance (Low, Medium, High) | Projected Completion Date (Short-term, Long-term, or Ongoing) | Estimated Cost | Cost Analysis (Low, Medium, High) |
| 2022 | Oneida County | Airport | N/A | High | Ongoing | \$200,000 | High |
| Applicable Goal(s) | | Hazard(s) Mitigated | Benefits (Loss Avoided) | Benefit Analysis (Low, Medium, High) | | Potential Funding Source(s) | |
| 1, 6 | | All Hazards | Allow fixed wing aircraft to land and provide benefit to life flight services. | High | | Grants; SHSP | |
| Action/Implementation Plan and Project Description: | | | | | | | |
| | | | | | | | |

Table 22-4. New Mitigation Project 4

| Mitigation Project: Install natural gas line in Oneida County. | | | | | | | |
|--|-------------------------|---------------------------|---|--|---|-----------------------------|-----------------------------------|
| Year Initiated | Applicable Jurisdiction | Lead Agency/ Organization | Supporting Agencies/ Organizations | Priority and Level of Importance (Low, Medium, High) | Projected Completion Date (Short-term, Long-term, or Ongoing) | Estimated Cost | Cost Analysis (Low, Medium, High) |
| 2022 | Oneida County | Oneida County | N/A | Low | Ongoing | TBD | High |
| Applicable Goal(s) | | Hazard(s) Mitigated | Benefits (Loss Avoided) | Benefit Analysis (Low, Medium, High) | | Potential Funding Source(s) | |
| 1, 2 | | Utility Disruption | Bring natural gas to Oneida County and improve heating options during winter. | Medium | | Grants | |
| Action/Implementation Plan and Project Description: | | | | | | | |
| | | | | | | | |

Table 22-5. New Mitigation Project 5

| Mitigation Project: Enhance communication networks and infrastructure to support entire county. | | | | | | | |
|---|-------------------------|---------------------------|--|--|---|-----------------------------|-----------------------------------|
| Year Initiated | Applicable Jurisdiction | Lead Agency/ Organization | Supporting Agencies/ Organizations | Priority and Level of Importance (Low, Medium, High) | Projected Completion Date (Short-term, Long-term, or Ongoing) | Estimated Cost | Cost Analysis (Low, Medium, High) |
| 2022 | Oneida County | Sheriff's Office | EMT/Oneida County Fire Department | High | Ongoing | TBD | Medium |
| Applicable Goal(s) | | Hazard(s) Mitigated | Benefits (Loss Avoided) | Benefit Analysis (Low, Medium, High) | | Potential Funding Source(s) | |
| 1, 2 | | Utility Disruption | Prevent county-wide communications core failure. | High | | SHSP | |

| |
|--|
| Mitigation Project: Enhance communication networks and infrastructure to support entire county. |
| Action/Implementation Plan and Project Description: |
| |

Malad City

Table 22-6. New Mitigation Project 6

| Mitigation Project: Reconstruct storm drainage and discharge areas. | | | | | | | |
|--|--------------------------------|----------------------------------|---|---|--|------------------------------------|--|
| Year Initiated | Applicable Jurisdiction | Lead Agency/ Organization | Supporting Agencies/ Organizations | Priority and Level of Importance (Low, Medium, High) | Projected Completion Date (Short-term, Long-term, or Ongoing) | Estimated Cost | Cost Analysis (Low, Medium, High) |
| 2022 | Malad City | Public Works | N/A | High | Ongoing | \$1,519,102.00 | High |
| Applicable Goal(s) | | Hazard(s) Mitigated | Benefits (Loss Avoided) | | Benefit Analysis (Low, Medium, High) | Potential Funding Source(s) | |
| 2 | | Flood | Prevent additional flooding due to poor drain construction. | | High | FEMA BRIC; HMGP; FMA | |
| Action/Implementation Plan and Project Description: | | | | | | | |
| Currently, the City of Malad is under contract with Local Highway Technical Assistance Council for an STP-Rural grant to reconstruct Bannock Street from 100 West to 300 West. During the design phase two issues were found: that the current storm drain system is extremely undersized and the discharge location is clay soil, so the water does not percolate. Consequently, this backs up the rest of the stormwater system. The FEMA HMGP grant will allow the City to create an area to discharge the stormwater (city owned property north of Bush Avenue) and upsize their current system from the Union Pacific Railroad tracks to 100 West along Bannock Street. | | | | | | | |

22.2.2 Ongoing Mitigation Projects

Oneida County

Table 22-7. Ongoing Mitigation Project 1

| Mitigation Project: Construct recreational parking areas. | | | | | | | |
|---|-------------------------|---------------------------|---|--|---|-----------------------------|-----------------------------------|
| Year Initiated | Applicable Jurisdiction | Lead Agency/ Organization | Supporting Agencies/ Organizations | Priority and Level of Importance (Low, Medium, High) | Projected Completion Date (Short-term, Long-term, or Ongoing) | Estimated Cost | Cost Analysis (Low, Medium, High) |
| 2014 | Oneida County | Road and Bridge | N/A | High | Ongoing | \$25,000 | Medium |
| Applicable Goal(s) | | Hazard(s) Mitigated | Benefits (Loss Avoided) | Benefit Analysis (Low, Medium, High) | | Potential Funding Source(s) | |
| 1, 2 | | Severe Weather | Improve the safety of county roads and bridges. | High | | State Funds | |
| Action/Implementation Plan and Project Description: | | | | | | | |
| 2022 Update: Ongoing | | | | | | | |

Table 22-8. Ongoing Mitigation Project 2

| Mitigation Project: Place seasonal road signage. | | | | | | | |
|--|-------------------------|---------------------------|------------------------------------|--|---|-----------------------------|-----------------------------------|
| Year Initiated | Applicable Jurisdiction | Lead Agency/ Organization | Supporting Agencies/ Organizations | Priority and Level of Importance (Low, Medium, High) | Projected Completion Date (Short-term, Long-term, or Ongoing) | Estimated Cost | Cost Analysis (Low, Medium, High) |
| 2014 | Oneida County | Road and Bridge | N/A | Medium | Ongoing | \$10,000 | Medium |
| Applicable Goal(s) | | Hazard(s) Mitigated | Benefits (Loss Avoided) | Benefit Analysis (Low, Medium, High) | | Potential Funding Source(s) | |

| Mitigation Project: Place seasonal road signage. | | | | |
|--|----------------|---|--------|-------------------|
| 1, 2 | Severe Weather | Improve the safety of county roads and bridges. | Medium | Local/State Funds |
| Action/Implementation Plan and Project Description: | | | | |
| 2022 Update: Sign added to I-15 Summit; Ongoing | | | | |

Table 22-9. Ongoing Mitigation Project 3

| Mitigation Project: Plant living windbreaks/snow fences. | | | | | | | |
|--|-------------------------|----------------------------|--|--|---|------------------------------------|-----------------------------------|
| Year Initiated | Applicable Jurisdiction | Lead Agency/ Organization | Supporting Agencies/ Organizations | Priority and Level of Importance (Low, Medium, High) | Projected Completion Date (Short-term, Long-term, or Ongoing) | Estimated Cost | Cost Analysis (Low, Medium, High) |
| 2014 | Oneida County | Private property owners | N/A | High | Ongoing | \$8/ft | Medium |
| Applicable Goal(s) | | Hazard(s) Mitigated | Benefits (Loss Avoided) | | Benefit Analysis (Low, Medium, High) | Potential Funding Source(s) | |
| 2 | | Severe Weather | Develop methods to reduce straight line wind damage. | | High | FEMA HMA | |
| Action/Implementation Plan and Project Description: | | | | | | | |
| 2022 Update: Ongoing | | | | | | | |

Table 22-10. Ongoing Mitigation Project 4

| Mitigation Project: Develop a comprehensive Mass Shelter and Care Plan for the entire county. | | | | | | | |
|---|-------------------------|---------------------------|------------------------------------|----------------------------------|---------------------------|----------------|---------------|
| Year Initiated | Applicable Jurisdiction | Lead Agency/ Organization | Supporting Agencies/ Organizations | Priority and Level of Importance | Projected Completion Date | Estimated Cost | Cost Analysis |

| Mitigation Project: Develop a comprehensive Mass Shelter and Care Plan for the entire county. | | | | | | | |
|---|-------------------------|-----------------------------------|--|--|---|-----------------------------|-----------------------------------|
| Year Initiated | Applicable Jurisdiction | Lead Agency/ Organization | Supporting Agencies/ Organizations | Priority and Level of Importance (Low, Medium, High) | Projected Completion Date (Short-term, Long-term, or Ongoing) | Estimated Cost | Cost Analysis (Low, Medium, High) |
| 2014 | Oneida County | Emergency Services | N/A | Low | Ongoing | \$15,000 | Medium |
| Applicable Goal(s) | | Hazard(s) Mitigated | Benefits (Loss Avoided) | Benefit Analysis (Low, Medium, High) | | Potential Funding Source(s) | |
| 1, 6 | | Severe Winter Weather/All Hazards | Protect isolated individuals from severe winter storms and extreme cold. | Low | | Idaho SHSP Grants | |
| Action/Implementation Plan and Project Description: | | | | | | | |
| 2022 Update: Ongoing communication with EOC and local groups; Ongoing | | | | | | | |

Table 22-11. Ongoing Mitigation Project 5

| Mitigation Project: Develop a drought emergency plan. | | | | | | | |
|---|-------------------------|---------------------------|------------------------------------|--|---|--------------------------------|-----------------------------------|
| Year Initiated | Applicable Jurisdiction | Lead Agency/ Organization | Supporting Agencies/ Organizations | Priority and Level of Importance (Low, Medium, High) | Projected Completion Date (Short-term, Long-term, or Ongoing) | Estimated Cost | Cost Analysis (Low, Medium, High) |
| 2014 | Oneida County | Emergency Management | N/A | High | Ongoing | \$5,000 | Medium |
| Applicable Goal(s) | | Hazard(s) Mitigated | Benefits (Loss Avoided) | Benefit Analysis (Low, Medium, High) | | Potential Funding Source(s) | |
| 6 | | Drought | Prepare for drought events. | High | | Idaho SHSP Grants; Local Funds | |
| Action/Implementation Plan and Project Description: | | | | | | | |
| 2022 Update: Ongoing | | | | | | | |

Table 22-12. Ongoing Mitigation Project 6

| Mitigation Project: Request FIRM maps. | | | | | | | |
|---|-------------------------|---------------------------|---|--|---|-----------------------------|-----------------------------------|
| Year Initiated | Applicable Jurisdiction | Lead Agency/ Organization | Supporting Agencies/ Organizations | Priority and Level of Importance (Low, Medium, High) | Projected Completion Date (Short-term, Long-term, or Ongoing) | Estimated Cost | Cost Analysis (Low, Medium, High) |
| 2014 | Oneida County | Floodplain Administrator | N/A | Medium | Ongoing | \$150,000 | High |
| Applicable Goal(s) | | Hazard(s) Mitigated | Benefits (Loss Avoided) | Benefit Analysis (Low, Medium, High) | | Potential Funding Source(s) | |
| 6 | | Flood | Examine the floodplain for accuracy with NFIP requirements. | Medium | | DHS: FEMA | |
| Action/Implementation Plan and Project Description: | | | | | | | |
| 2022 Update: Ongoing | | | | | | | |

Table 22-13. Ongoing Mitigation Project 7

| Mitigation Project: Develop a culvert maintenance program. | | | | | | | |
|--|-------------------------|---------------------------|------------------------------------|--|---|--|-----------------------------------|
| Year Initiated | Applicable Jurisdiction | Lead Agency/ Organization | Supporting Agencies/ Organizations | Priority and Level of Importance (Low, Medium, High) | Projected Completion Date (Short-term, Long-term, or Ongoing) | Estimated Cost | Cost Analysis (Low, Medium, High) |
| 2014 | Oneida County | Road and Bridge | N/A | Medium | Ongoing | \$150,000 (plus annual maintenance cost) | High |
| Applicable Goal(s) | | Hazard(s) Mitigated | Benefits (Loss Avoided) | Benefit Analysis (Low, Medium, High) | | Potential Funding Source(s) | |
| 2 | | Flood | Improve drainage systems. | Medium | | Local Funds | |

| Mitigation Project: Develop a culvert maintenance program. | | | | | | | |
|--|--|--|--|--|--|--|--|
| Action/Implementation Plan and Project Description: | | | | | | | |
| 2022 Update: Bannock Street project planned; Ongoing | | | | | | | |

Table 22-14. Ongoing Mitigation Project 8

| Mitigation Project: Require stormwater collection systems in new subdivisions. | | | | | | | |
|--|-------------------------|---------------------------|------------------------------------|--|---|-----------------------------|-----------------------------------|
| Year Initiated | Applicable Jurisdiction | Lead Agency/ Organization | Supporting Agencies/ Organizations | Priority and Level of Importance (Low, Medium, High) | Projected Completion Date (Short-term, Long-term, or Ongoing) | Estimated Cost | Cost Analysis (Low, Medium, High) |
| 2014 | Oneida County | P & Z Administrator | N/A | High | Ongoing | \$5,000 | Low |
| Applicable Goal(s) | | Hazard(s) Mitigated | Benefits (Loss Avoided) | Benefit Analysis (Low, Medium, High) | | Potential Funding Source(s) | |
| 2 | | Flood | Improve drainage systems. | High | | Local Funds | |
| Action/Implementation Plan and Project Description: | | | | | | | |
| 2022 Update: Ongoing | | | | | | | |

Table 22-15. Ongoing Mitigation Project 9

| Mitigation Project: Identify roads that need to be elevated and replace culverts that need to be replaced or improved. | | | | | | | |
|--|-------------------------|---------------------------|------------------------------------|--|---|----------------|-----------------------------------|
| Year Initiated | Applicable Jurisdiction | Lead Agency/ Organization | Supporting Agencies/ Organizations | Priority and Level of Importance (Low, Medium, High) | Projected Completion Date (Short-term, Long-term, or Ongoing) | Estimated Cost | Cost Analysis (Low, Medium, High) |
| 2014 | Oneida County | Road and Bridge | N/A | High | Ongoing | \$150,000 | High |

| Mitigation Project: Identify roads that need to be elevated and replace culverts that need to be replaced or improved. | | | | |
|---|----------------------------|--------------------------------|---|------------------------------------|
| Applicable Goal(s) | Hazard(s) Mitigated | Benefits (Loss Avoided) | Benefit Analysis (Low, Medium, High) | Potential Funding Source(s) |
| 2 | Flood | Protect county roads. | High | Grants |
| Action/Implementation Plan and Project Description: | | | | |
| 2022 Update: Develop an LHTAC grant to evaluate all roadways in flood prone areas in the county; determine priority elevation; elevate roadways or install culverts | | | | |

Table 22-16. Ongoing Mitigation Project 10

| Mitigation Project: Improve drainage on West Daniels Road. | | | | | | | |
|---|--------------------------------|----------------------------------|---|---|--|------------------------------------|--|
| Year Initiated | Applicable Jurisdiction | Lead Agency/ Organization | Supporting Agencies/ Organizations | Priority and Level of Importance (Low, Medium, High) | Projected Completion Date (Short-term, Long-term, or Ongoing) | Estimated Cost | Cost Analysis (Low, Medium, High) |
| 2014 | Oneida County | Road and Bridge | N/A | Low | Ongoing | \$3,000,000 | High |
| Applicable Goal(s) | Hazard(s) Mitigated | Benefits (Loss Avoided) | | Benefit Analysis (Low, Medium, High) | | Potential Funding Source(s) | |
| 2 | Flood | Protect county roads. | | Low | | FEMA BRIC; HMGP | |
| Action/Implementation Plan and Project Description: | | | | | | | |
| 2022 Update: Ongoing; Apply for HMA funding | | | | | | | |

Table 22-17. Ongoing Mitigation Project 11

| Mitigation Project: Increase earthquake protection or harden county facilities. | | | | | | | |
|--|-------------------------|---------------------------|-------------------------------------|--|---|-----------------------------|-----------------------------------|
| Year Initiated | Applicable Jurisdiction | Lead Agency/ Organization | Supporting Agencies/ Organizations | Priority and Level of Importance (Low, Medium, High) | Projected Completion Date (Short-term, Long-term, or Ongoing) | Estimated Cost | Cost Analysis (Low, Medium, High) |
| 2014 | Oneida County | Emergency Services | N/A | Low | Ongoing | \$250,000 | High |
| Applicable Goal(s) | | Hazard(s) Mitigated | Benefits (Loss Avoided) | Benefit Analysis (Low, Medium, High) | | Potential Funding Source(s) | |
| 1, 2 | | Earthquake | Life safety and property protection | Low | | FEMA BRIC; HMGP | |
| Action/Implementation Plan and Project Description: | | | | | | | |
| 2022 Update: Ongoing; Seek funding to conduct conceptual hardening designs; Conduct designs and benefit cost analysis; apply for HMA funding; Protect buildings as designed and funded | | | | | | | |

Table 22-18. Ongoing Mitigation Project 12

| Mitigation Project: Retrofit Oneida County Courthouse. | | | | | | | |
|--|-------------------------|---------------------------|-------------------------------------|--|---|-----------------------------|-----------------------------------|
| Year Initiated | Applicable Jurisdiction | Lead Agency/ Organization | Supporting Agencies/ Organizations | Priority and Level of Importance (Low, Medium, High) | Projected Completion Date (Short-term, Long-term, or Ongoing) | Estimated Cost | Cost Analysis (Low, Medium, High) |
| 2014 | Oneida County | County Commission | N/A | Low | Ongoing | \$3,000,000 | High |
| Applicable Goal(s) | | Hazard(s) Mitigated | Benefits (Loss Avoided) | Benefit Analysis (Low, Medium, High) | | Potential Funding Source(s) | |
| 1, 2 | | Earthquake | Life safety and property protection | Low | | FEMA BRIC; HMGP | |
| Action/Implementation Plan and Project Description: | | | | | | | |

| |
|---|
| Mitigation Project: Retrofit Oneida County Courthouse. |
| 2022 Update: Ongoing; Design retrofit; Apply for HMA funding |

Table 22-19. Ongoing Mitigation Project 13

| Mitigation Project: Retrofit hospital. | | | | | | | |
|--|--------------------------------|----------------------------------|---|--|---|------------------------------------|---|
| Year Initiated | Applicable Jurisdiction | Lead Agency/ Organization | Supporting Agencies/ Organizations | Priority and Level of Importance (Low, Medium, High) | Projected Completion Date (Short-term, Long-term, or Ongoing) | Estimated Cost | Cost Analysis (Low, Medium, High) |
| 2014 | Oneida County | Hospital Administrator | N/A | Low | Ongoing | \$2,000,000 | High |
| Applicable Goal(s) | | Hazard(s) Mitigated | Benefits (Loss Avoided) | | Benefit Analysis (Low, Medium, High) | Potential Funding Source(s) | |
| 1, 2 | | Earthquake | Life safety and property protection | | Low | FEMA BRIC; HMGP | |
| Action/Implementation Plan and Project Description: | | | | | | | |
| 2022 Update: Ongoing; Design retrofit; Apply for HMA funding | | | | | | | |

Table 22-20. Ongoing Mitigation Project 14

| Mitigation Project: Publish a special section in newspapers with emergency information on earthquakes. | | | | | | | |
|---|--------------------------------|----------------------------------|---|--|---|-----------------------|---|
| Year Initiated | Applicable Jurisdiction | Lead Agency/ Organization | Supporting Agencies/ Organizations | Priority and Level of Importance (Low, Medium, High) | Projected Completion Date (Short-term, Long-term, or Ongoing) | Estimated Cost | Cost Analysis (Low, Medium, High) |

| Mitigation Project: Publish a special section in newspapers with emergency information on earthquakes. | | | | | | | |
|--|---------------|---------------------|--|--------------------------------------|---------|-----------------------------|-----|
| 2014 | Oneida County | Emergency Services | N/A | Medium | Ongoing | \$0 | Low |
| Applicable Goal(s) | | Hazard(s) Mitigated | Benefits (Loss Avoided) | Benefit Analysis (Low, Medium, High) | | Potential Funding Source(s) | |
| 1, 5 | | Earthquake | The media can raise awareness about earthquakes by providing important information to the community. | Medium | | Local Funds | |
| Action/Implementation Plan and Project Description: | | | | | | | |
| 2022 Update: Ongoing | | | | | | | |

Table 22-21. Ongoing Mitigation Project 15

| Mitigation Project: Tie down the 911 dispatch center equipment. | | | | | | | |
|---|-------------------------|-------------------------------------|------------------------------------|--|---|-----------------------------|-----------------------------------|
| Year Initiated | Applicable Jurisdiction | Lead Agency/ Organization | Supporting Agencies/ Organizations | Priority and Level of Importance (Low, Medium, High) | Projected Completion Date (Short-term, Long-term, or Ongoing) | Estimated Cost | Cost Analysis (Low, Medium, High) |
| 2014 | Oneida County | Sheriff's Office/Emergency Services | N/A | Low | Ongoing | \$10,000 | Medium |
| Applicable Goal(s) | | Hazard(s) Mitigated | Benefits (Loss Avoided) | Benefit Analysis (Low, Medium, High) | | Potential Funding Source(s) | |
| 1, 2 | | Earthquake | Protect critical IT centers. | Low | | Local Funds | |
| Action/Implementation Plan and Project Description: | | | | | | | |
| 2022 Update: Ongoing; Apply for 911 grant through the state | | | | | | | |

Table 22-22. Ongoing Mitigation Project 16

| Mitigation Project: Tie down IT infrastructure in courthouse. | | | | | | | |
|---|-------------------------|---------------------------|------------------------------------|--|---|-----------------------------|-----------------------------------|
| Year Initiated | Applicable Jurisdiction | Lead Agency/ Organization | Supporting Agencies/ Organizations | Priority and Level of Importance (Low, Medium, High) | Projected Completion Date (Short-term, Long-term, or Ongoing) | Estimated Cost | Cost Analysis (Low, Medium, High) |
| 2014 | Oneida County | Commissioners/IT | N/A | Medium | Ongoing | \$50,000 | High |
| Applicable Goal(s) | | Hazard(s) Mitigated | Benefits (Loss Avoided) | Benefit Analysis (Low, Medium, High) | | Potential Funding Source(s) | |
| 1, 2 | | Earthquake | Protect critical IT centers. | Medium | | FEMA BRIC; HMGP | |
| Action/Implementation Plan and Project Description: | | | | | | | |
| 2022 Update: Ongoing; Apply for grants | | | | | | | |

Table 22-23. Ongoing Mitigation Project 17

| Mitigation Project: Tie down the propane tanks outside of the courthouse. | | | | | | | |
|---|-------------------------|-----------------------------------|------------------------------------|--|---|-----------------------------|-----------------------------------|
| Year Initiated | Applicable Jurisdiction | Lead Agency/ Organization | Supporting Agencies/ Organizations | Priority and Level of Importance (Low, Medium, High) | Projected Completion Date (Short-term, Long-term, or Ongoing) | Estimated Cost | Cost Analysis (Low, Medium, High) |
| 2014 | Oneida County | Commissioners/ Emergency Services | N/A | Medium | Ongoing | \$15,000 | Medium |
| Applicable Goal(s) | | Hazard(s) Mitigated | Benefits (Loss Avoided) | Benefit Analysis (Low, Medium, High) | | Potential Funding Source(s) | |
| 1, 2 | | Earthquake | Protect the public from injury. | Medium | | Local Funds | |
| Action/Implementation Plan and Project Description: | | | | | | | |

| | | | | | | | |
|--|--|--|--|--|--|--|--|
| Mitigation Project: Tie down the propane tanks outside of the courthouse. | | | | | | | |
| 2022 Update: Ongoing | | | | | | | |

Table 22-24. Ongoing Mitigation Project 18

| Mitigation Project: Tie down bookshelves in the library. | | | | | | | |
|---|-------------------------|---------------------------|------------------------------------|--|---|-----------------------------|-----------------------------------|
| Year Initiated | Applicable Jurisdiction | Lead Agency/ Organization | Supporting Agencies/ Organizations | Priority and Level of Importance (Low, Medium, High) | Projected Completion Date (Short-term, Long-term, or Ongoing) | Estimated Cost | Cost Analysis (Low, Medium, High) |
| 2014 | Oneida County | Library District | N/A | Medium | Ongoing | \$100,000 | High |
| Applicable Goal(s) | | Hazard(s) Mitigated | Benefits (Loss Avoided) | Benefit Analysis (Low, Medium, High) | | Potential Funding Source(s) | |
| 1, 2 | | Earthquake | Protect the public from injury. | Medium | | Grants | |
| Action/Implementation Plan and Project Description: | | | | | | | |
| 2022 Update: Ongoing | | | | | | | |

Table 22-25. Ongoing Mitigation Project 19

| Mitigation Project: Enforce building codes. | | | | | | | |
|--|-------------------------|---------------------------|------------------------------------|--|---|----------------|-----------------------------------|
| Year Initiated | Applicable Jurisdiction | Lead Agency/ Organization | Supporting Agencies/ Organizations | Priority and Level of Importance (Low, Medium, High) | Projected Completion Date (Short-term, Long-term, or Ongoing) | Estimated Cost | Cost Analysis (Low, Medium, High) |
| 2014 | Oneida County | Building Inspector | N/A | Low | Ongoing | N/A | Low |

| Mitigation Project: Enforce building codes. | | | | |
|--|---------------------|---------------------------------|--------------------------------------|-----------------------------|
| Applicable Goal(s) | Hazard(s) Mitigated | Benefits (Loss Avoided) | Benefit Analysis (Low, Medium, High) | Potential Funding Source(s) |
| 1, 4 | Earthquake | Protect the public from injury. | Low | Local Funds; Staff Time |
| Action/Implementation Plan and Project Description: | | | | |
| 2022 Update: Ongoing; New code inspector hired | | | | |

Table 22-26. Ongoing Mitigation Project 20

| Mitigation Project: Start a school education campaign and earthquake drills. | | | | | | | |
|--|-------------------------|--------------------------------|--|--|---|-----------------------------|-----------------------------------|
| Year Initiated | Applicable Jurisdiction | Lead Agency/ Organization | Supporting Agencies/ Organizations | Priority and Level of Importance (Low, Medium, High) | Projected Completion Date (Short-term, Long-term, or Ongoing) | Estimated Cost | Cost Analysis (Low, Medium, High) |
| 2014 | Oneida County | School District/ Commissioners | N/A | Medium | Ongoing | \$5,000 | Medium |
| Applicable Goal(s) | | Hazard(s) Mitigated | Benefits (Loss Avoided) | Benefit Analysis (Low, Medium, High) | | Potential Funding Source(s) | |
| 1, 5 | | Earthquake | Educate the general public and private sectors about earthquake risk and mitigation. | Medium | | Local Funds; Staff Time | |
| Action/Implementation Plan and Project Description: | | | | | | | |
| 2022 Update: Ongoing; Schools have conducted multiple trainings | | | | | | | |

Table 22-27. Ongoing Mitigation Project 21

| Mitigation Project: Start an earthquake mitigation working group as a part of the LPEC to work with the private sector on seismic mitigation. | | | | | | | |
|---|-------------------------|-----------------------------------|--|--|---|-----------------------------|-----------------------------------|
| Year Initiated | Applicable Jurisdiction | Lead Agency/ Organization | Supporting Agencies/ Organizations | Priority and Level of Importance (Low, Medium, High) | Projected Completion Date (Short-term, Long-term, or Ongoing) | Estimated Cost | Cost Analysis (Low, Medium, High) |
| 2014 | Oneida County | Commissioners/ Emergency Services | N/A | Medium | Ongoing | \$0 | Low |
| Applicable Goal(s) | | Hazard(s) Mitigated | Benefits (Loss Avoided) | Benefit Analysis (Low, Medium, High) | | Potential Funding Source(s) | |
| 1, 3 | | Earthquake | Educate the general public and private sectors about earthquake risk and mitigation. | Medium | | Staff Time | |
| Action/Implementation Plan and Project Description: | | | | | | | |
| 2022 Update: Ongoing | | | | | | | |

Table 22-28. Ongoing Mitigation Project 22

| Mitigation Project: Revise subdivision ordinance to discourage building in landslide prone areas. | | | | | | | |
|---|-------------------------|---------------------------|------------------------------------|--|---|-----------------------------|-----------------------------------|
| Year Initiated | Applicable Jurisdiction | Lead Agency/ Organization | Supporting Agencies/ Organizations | Priority and Level of Importance (Low, Medium, High) | Projected Completion Date (Short-term, Long-term, or Ongoing) | Estimated Cost | Cost Analysis (Low, Medium, High) |
| 2014 | Oneida County | P & Z Administrator | N/A | Medium | Ongoing | \$15,000 | Medium |
| Applicable Goal(s) | | Hazard(s) Mitigated | Benefits (Loss Avoided) | Benefit Analysis (Low, Medium, High) | | Potential Funding Source(s) | |
| 1, 2, 4 | | Earthquake | Protect property. | Medium | | Local Funds | |

| | | | | | | | |
|--|--|--|--|--|--|--|--|
| Mitigation Project: Revise subdivision ordinance to discourage building in landslide prone areas. | | | | | | | |
| Action/Implementation Plan and Project Description: | | | | | | | |
| 2022 Update: Ongoing; Seek funding from county to develop ordinance; adopt ordinance | | | | | | | |

Table 22-29. Ongoing Mitigation Project 23

| Mitigation Project: Revise land use planning ordinances to include IBC. | | | | | | | |
|--|-------------------------|----------------------------|------------------------------------|--|---|------------------------------------|-----------------------------------|
| Year Initiated | Applicable Jurisdiction | Lead Agency/ Organization | Supporting Agencies/ Organizations | Priority and Level of Importance (Low, Medium, High) | Projected Completion Date (Short-term, Long-term, or Ongoing) | Estimated Cost | Cost Analysis (Low, Medium, High) |
| 2009 | Oneida County | Planning and Zoning | N/A | Medium | Ongoing | \$5,000 | Medium |
| Applicable Goal(s) | | Hazard(s) Mitigated | Benefits (Loss Avoided) | | Benefit Analysis (Low, Medium, High) | Potential Funding Source(s) | |
| 4 | | Earthquake/All Hazards | Update ordinances. | | Medium | Local Funds | |
| Action/Implementation Plan and Project Description: | | | | | | | |
| 2022 Update: Ongoing; Update ordinances | | | | | | | |

Table 22-30. Ongoing Mitigation Project 24

| Mitigation Project: Develop a Wildland Fire Ordinance, which establishes the road widths, access, water supply, and building regulations suitable to ensure new structures can be protected. | | | | | | | |
|---|-------------------------|---------------------------|------------------------------------|--|---|----------------|-----------------------------------|
| Year Initiated | Applicable Jurisdiction | Lead Agency/ Organization | Supporting Agencies/ Organizations | Priority and Level of Importance (Low, Medium, High) | Projected Completion Date (Short-term, Long-term, or Ongoing) | Estimated Cost | Cost Analysis (Low, Medium, High) |

| Mitigation Project: Develop a Wildland Fire Ordinance, which establishes the road widths, access, water supply, and building regulations suitable to ensure new structures can be protected. | | | | | | | |
|--|---------------|-----------------------------------|--|--------------------------------------|---------|-----------------------------|--------|
| 2014 | Oneida County | P & Z Administrator/Fire District | N/A | High | Ongoing | \$10,000 | Medium |
| Applicable Goal(s) | | Hazard(s) Mitigated | Benefits (Loss Avoided) | Benefit Analysis (Low, Medium, High) | | Potential Funding Source(s) | |
| 2, 4 | | Wildfire | Improve protection through the proper use of ordinances and codes. | High | | Local Funds | |
| Action/Implementation Plan and Project Description: | | | | | | | |
| 2022 Update: Ongoing; Seek funding from county to develop ordinance; develop ordinance and adopt | | | | | | | |

Table 22-31. Ongoing Mitigation Project 25

| Mitigation Project: Designate the WUI areas as a special land use category in the County Comprehensive Plan. | | | | | | | |
|--|-------------------------|---------------------------|--|--|---|-----------------------------|-----------------------------------|
| Year Initiated | Applicable Jurisdiction | Lead Agency/ Organization | Supporting Agencies/ Organizations | Priority and Level of Importance (Low, Medium, High) | Projected Completion Date (Short-term, Long-term, or Ongoing) | Estimated Cost | Cost Analysis (Low, Medium, High) |
| 2014 | Oneida County | P & Z Administrator | N/A | High | Ongoing | \$2,000 | Low |
| Applicable Goal(s) | | Hazard(s) Mitigated | Benefits (Loss Avoided) | Benefit Analysis (Low, Medium, High) | | Potential Funding Source(s) | |
| 2, 4 | | Wildfire | Improve protection through the proper use of ordinances and codes. | High | | Local Funds; Staff Time | |
| Action/Implementation Plan and Project Description: | | | | | | | |
| 2022 Update: Ongoing; Incorporate in next plan revision | | | | | | | |

Table 22-32. Ongoing Mitigation Project 26

| Mitigation Project: Develop a listing of roads, bridges, cattle guards, culverts, and other limiting conditions and incorporate improvements into the County Transportation Plan. | | | | | | | |
|---|-------------------------|-------------------------------|---|--|---|--|-----------------------------------|
| Year Initiated | Applicable Jurisdiction | Lead Agency/ Organization | Supporting Agencies/ Organizations | Priority and Level of Importance (Low, Medium, High) | Projected Completion Date (Short-term, Long-term, or Ongoing) | Estimated Cost | Cost Analysis (Low, Medium, High) |
| 2014 | Oneida County | Fire District/Road and Bridge | N/A | Medium | Ongoing | \$150,000 (plus annual maintenance cost) | High |
| Applicable Goal(s) | | Hazard(s) Mitigated | Benefits (Loss Avoided) | Benefit Analysis (Low, Medium, High) | | Potential Funding Source(s) | |
| 2, 4 | | Wildfire | Improve access to areas prone to wildland fire. | Medium | | Grants | |
| Action/Implementation Plan and Project Description: | | | | | | | |
| 2022 Update: Ongoing; Develop an LHTAC grant to evaluate all roadways in the county; determine priority actions; repair or replace damaged culverts, bridges, etc. | | | | | | | |

Table 22-33. Ongoing Mitigation Project 27

| Mitigation Project: Construct a second access roadway in the Summit area. | | | | | | | |
|---|-------------------------|---------------------------|------------------------------------|--|---|-----------------------------|-----------------------------------|
| Year Initiated | Applicable Jurisdiction | Lead Agency/ Organization | Supporting Agencies/ Organizations | Priority and Level of Importance (Low, Medium, High) | Projected Completion Date (Short-term, Long-term, or Ongoing) | Estimated Cost | Cost Analysis (Low, Medium, High) |
| 2014 | Oneida County | Road and Bridge | N/A | Medium | Ongoing | \$3,000,000 | High |
| Applicable Goal(s) | | Hazard(s) Mitigated | Benefits (Loss Avoided) | Benefit Analysis (Low, Medium, High) | | Potential Funding Source(s) | |

| Mitigation Project: Construct a second access roadway in the Summit area. | | | | |
|---|----------|---|--------|--------|
| 2 | Wildfire | Improve access to areas prone to wildland fire. | Medium | Grants |
| Action/Implementation Plan and Project Description: | | | | |
| 2022 Update: Ongoing; Submit LHTAC grant | | | | |

Table 22-34. Ongoing Mitigation Project 28

| Mitigation Project: Use GIS technology to develop a Red Zone database and link to landowner parcel maps. | | | | | | | |
|--|-------------------------|----------------------------|--------------------------------------|--|---|------------------------------------|-----------------------------------|
| Year Initiated | Applicable Jurisdiction | Lead Agency/ Organization | Supporting Agencies/ Organizations | Priority and Level of Importance (Low, Medium, High) | Projected Completion Date (Short-term, Long-term, or Ongoing) | Estimated Cost | Cost Analysis (Low, Medium, High) |
| 2014 | Oneida County | Fire District | N/A | Medium | Ongoing | \$5,000 | Medium |
| Applicable Goal(s) | | Hazard(s) Mitigated | Benefits (Loss Avoided) | | Benefit Analysis (Low, Medium, High) | Potential Funding Source(s) | |
| 1, 3, 5 | | Wildfire | Improve hazard communications tools. | | Medium | Local Funds; Staff Time | |
| Action/Implementation Plan and Project Description: | | | | | | | |
| 2022 Update: Ongoing; Seek funding from BLM to develop Red Zone database; Integrate data | | | | | | | |

Table 22-35. Ongoing Mitigation Project 29

| Mitigation Project: Accelerate local conversion to narrowband to match federal schedule. | | | | | | | |
|--|-------------------------|---------------------------|------------------------------------|--|---------------------------|----------------|-----------------------------------|
| Year Initiated | Applicable Jurisdiction | Lead Agency/ Organization | Supporting Agencies/ Organizations | Priority and Level of Importance (Low, Medium, High) | Projected Completion Date | Estimated Cost | Cost Analysis (Low, Medium, High) |

| Mitigation Project: Accelerate local conversion to narrowband to match federal schedule. | | | | | | | |
|--|-------------------------|---------------------------|--------------------------------------|--|---|-----------------------------|-----------------------------------|
| Year Initiated | Applicable Jurisdiction | Lead Agency/ Organization | Supporting Agencies/ Organizations | Priority and Level of Importance (Low, Medium, High) | Projected Completion Date (Short-term, Long-term, or Ongoing) | Estimated Cost | Cost Analysis (Low, Medium, High) |
| 2014 | Oneida County | Emergency Services | N/A | Medium | Ongoing | N/A | Low |
| Applicable Goal(s) | | Hazard(s) Mitigated | Benefits (Loss Avoided) | Benefit Analysis (Low, Medium, High) | | Potential Funding Source(s) | |
| 1, 3, 5 | | Wildfire/All Hazards | Improve hazard communications tools. | Medium | | SHSP | |
| Action/Implementation Plan and Project Description: | | | | | | | |
| 2022 Update: Ongoing | | | | | | | |

Table 22-36. Ongoing Mitigation Project 30

| Mitigation Project: Develop a standard practice for roadside vegetation management. | | | | | | | |
|---|-------------------------|---------------------------|--|--|---|-----------------------------|-----------------------------------|
| Year Initiated | Applicable Jurisdiction | Lead Agency/ Organization | Supporting Agencies/ Organizations | Priority and Level of Importance (Low, Medium, High) | Projected Completion Date (Short-term, Long-term, or Ongoing) | Estimated Cost | Cost Analysis (Low, Medium, High) |
| 2014 | Oneida County | Fire District | N/A | High | Ongoing | \$0 | Low |
| Applicable Goal(s) | | Hazard(s) Mitigated | Benefits (Loss Avoided) | Benefit Analysis (Low, Medium, High) | | Potential Funding Source(s) | |
| 2 | | Wildfire | Conduct roadside vegetation treatments to reduce flammable fuels immediately adjacent to roads in high-risk areas. | High | | Local Funds; Staff Time | |
| Action/Implementation Plan and Project Description: | | | | | | | |
| 2022 Update: Ongoing; Develop standard as part of WUI planning ongoing effort | | | | | | | |

Table 22-37. Ongoing Mitigation Project 31

| Mitigation Project: Begin fuel reduction in Samaria, Deep Creek Mountains, and Pleasantville Hills. | | | | | | | |
|---|-------------------------|---------------------------|------------------------------------|--|---|-----------------------------|-----------------------------------|
| Year Initiated | Applicable Jurisdiction | Lead Agency/ Organization | Supporting Agencies/ Organizations | Priority and Level of Importance (Low, Medium, High) | Projected Completion Date (Short-term, Long-term, or Ongoing) | Estimated Cost | Cost Analysis (Low, Medium, High) |
| 2014 | Oneida County | Fire District/BLM | N/A | Medium | Ongoing | \$300,000 | High |
| Applicable Goal(s) | | Hazard(s) Mitigated | Benefits (Loss Avoided) | Benefit Analysis (Low, Medium, High) | | Potential Funding Source(s) | |
| 2 | | Wildfire | Conduct fuel reduction projects. | Medium | | Grants; BLM | |
| Action/Implementation Plan and Project Description: | | | | | | | |
| 2022 Update: Ongoing; Develop project scope with BLM; Apply for funding; Conduct projects | | | | | | | |

Table 22-38. Ongoing Mitigation Project 32

| Mitigation Project: Begin fuel reduction in Summit Campground and Spring Canyon area. | | | | | | | |
|---|-------------------------|---------------------------|------------------------------------|--|---|-----------------------------|-----------------------------------|
| Year Initiated | Applicable Jurisdiction | Lead Agency/ Organization | Supporting Agencies/ Organizations | Priority and Level of Importance (Low, Medium, High) | Projected Completion Date (Short-term, Long-term, or Ongoing) | Estimated Cost | Cost Analysis (Low, Medium, High) |
| 2014 | Oneida County | Fire District/USFS | N/A | Medium | Ongoing | \$400,000 | High |
| Applicable Goal(s) | | Hazard(s) Mitigated | Benefits (Loss Avoided) | Benefit Analysis (Low, Medium, High) | | Potential Funding Source(s) | |
| 2 | | Wildfire | Conduct fuel reduction projects. | Medium | | USFS; Grants | |
| Action/Implementation Plan and Project Description: | | | | | | | |

| |
|--|
| Mitigation Project: Begin fuel reduction in Summit Campground and Spring Canyon area. |
| 2022 Update: Ongoing; Develop project scope; Apply for funding; Conduct projects |

Table 22-39. Ongoing Mitigation Project 33

| Mitigation Project: Organize a group to jointly apply for grants and other funding avenues to implement WUI fire mitigation actions. | | | | | | | |
|---|--------------------------------|----------------------------------|--|---|--|------------------------------------|--|
| Year Initiated | Applicable Jurisdiction | Lead Agency/ Organization | Supporting Agencies/ Organizations | Priority and Level of Importance (Low, Medium, High) | Projected Completion Date (Short-term, Long-term, or Ongoing) | Estimated Cost | Cost Analysis (Low, Medium, High) |
| 2014 | Oneida County | Emergency Services | N/A | Medium | Ongoing | \$0 | Low |
| Applicable Goal(s) | | Hazard(s) Mitigated | Benefits (Loss Avoided) | | Benefit Analysis (Low, Medium, High) | Potential Funding Source(s) | |
| 3 | | Wildfire | Ensure coordination of WUI fire mitigation projects. | | Medium | Local Funds; Staff Time | |
| Action/Implementation Plan and Project Description: | | | | | | | |
| 2022 Update: Ongoing | | | | | | | |

Table 22-40. Ongoing Mitigation Project 34

| Mitigation Project: Develop an agreement with developers and private landowners for access to and use of water sources for fire protection. | | | | | | | |
|--|--------------------------------|----------------------------------|---|---|--|-----------------------|--|
| Year Initiated | Applicable Jurisdiction | Lead Agency/ Organization | Supporting Agencies/ Organizations | Priority and Level of Importance (Low, Medium, High) | Projected Completion Date (Short-term, Long-term, or Ongoing) | Estimated Cost | Cost Analysis (Low, Medium, High) |

| Mitigation Project: Develop an agreement with developers and private landowners for access to and use of water sources for fire protection. | | | | | | | |
|---|---------------|-----------------------------------|--|--------------------------------------|---------|-----------------------------|--------|
| 2014 | Oneida County | P & Z Administrator/Fire District | N/A | High | Ongoing | \$5,000 | Medium |
| Applicable Goal(s) | | Hazard(s) Mitigated | Benefits (Loss Avoided) | Benefit Analysis (Low, Medium, High) | | Potential Funding Source(s) | |
| 2, 3 | | Wildfire/Structure Fire | Develop additional water supplies for fire protection. | High | | Local Funds; Staff Time | |
| Action/Implementation Plan and Project Description: | | | | | | | |
| 2022 Update: Ongoing; Seek funding from BHS SHSP and develop standard agreement and requirements; Execute agreements | | | | | | | |

Table 22-41. Ongoing Mitigation Project 35

| Mitigation Project: Install water storage on the Malad Summit and New Canyon. | | | | | | | |
|---|-------------------------|---------------------------|--|--|---|-----------------------------|-----------------------------------|
| Year Initiated | Applicable Jurisdiction | Lead Agency/ Organization | Supporting Agencies/ Organizations | Priority and Level of Importance (Low, Medium, High) | Projected Completion Date (Short-term, Long-term, or Ongoing) | Estimated Cost | Cost Analysis (Low, Medium, High) |
| 2014 | Oneida County | Fire District | N/A | High | Ongoing | \$1,000,000 | High |
| Applicable Goal(s) | | Hazard(s) Mitigated | Benefits (Loss Avoided) | Benefit Analysis (Low, Medium, High) | | Potential Funding Source(s) | |
| 2 | | Wildfire | Develop additional water supplies for fire protection. | High | | Grants | |
| Action/Implementation Plan and Project Description: | | | | | | | |
| 2022 Update: Ongoing; Seek assistance to firefighter funding | | | | | | | |

Table 22-42. Ongoing Mitigation Project 36

| Mitigation Project: Install road signs as prescribed by NFPA standards. | | | | | | | |
|--|-------------------------|---------------------------|---|--|---|-----------------------------|-----------------------------------|
| Year Initiated | Applicable Jurisdiction | Lead Agency/ Organization | Supporting Agencies/ Organizations | Priority and Level of Importance (Low, Medium, High) | Projected Completion Date (Short-term, Long-term, or Ongoing) | Estimated Cost | Cost Analysis (Low, Medium, High) |
| 2014 | Oneida County | Road and Bridge | N/A | Medium | Ongoing | \$50,000 | High |
| Applicable Goal(s) | | Hazard(s) Mitigated | Benefits (Loss Avoided) | Benefit Analysis (Low, Medium, High) | | Potential Funding Source(s) | |
| 2 | | Wildfire | Update and improve road signage and rural addressing. | Medium | | SHSP | |
| Action/Implementation Plan and Project Description: | | | | | | | |
| 2022 Update: Ongoing; Seek BLM or LHTAC grant to purchase signs; Install signs | | | | | | | |

Table 22-43. Ongoing Mitigation Project 37

| Mitigation Project: Install fireproof sleeves around power poles at designated locations. | | | | | | | |
|---|-------------------------|---------------------------|---|--|---|-----------------------------|-----------------------------------|
| Year Initiated | Applicable Jurisdiction | Lead Agency/ Organization | Supporting Agencies/ Organizations | Priority and Level of Importance (Low, Medium, High) | Projected Completion Date (Short-term, Long-term, or Ongoing) | Estimated Cost | Cost Analysis (Low, Medium, High) |
| 2014 | Oneida County | Fire District | N/A | Medium | Ongoing | \$300,000 | High |
| Applicable Goal(s) | | Hazard(s) Mitigated | Benefits (Loss Avoided) | Benefit Analysis (Low, Medium, High) | | Potential Funding Source(s) | |
| 2 | | Wildfire | Protect critical infrastructure from fire damage. | Medium | | Grants | |
| Action/Implementation Plan and Project Description: | | | | | | | |

| |
|--|
| Mitigation Project: Install fireproof sleeves around power poles at designated locations. |
| 2022 Update: Ongoing; Develop partnership with utility companies; Seek funding; Begin installation |

Table 22-44. Ongoing Mitigation Project 38

| Mitigation Project: Encourage private property owners to install and maintain smoke detectors on all levels of residences and to place detectors in all bedrooms. | | | | | | | |
|--|-------------------------|---------------------------|--|--|---|-----------------------------|-----------------------------------|
| Year Initiated | Applicable Jurisdiction | Lead Agency/ Organization | Supporting Agencies/ Organizations | Priority and Level of Importance (Low, Medium, High) | Projected Completion Date (Short-term, Long-term, or Ongoing) | Estimated Cost | Cost Analysis (Low, Medium, High) |
| 2014 | Oneida County | Fire District | N/A | Low | Ongoing | \$65,000 | High |
| Applicable Goal(s) | | Hazard(s) Mitigated | Benefits (Loss Avoided) | Benefit Analysis (Low, Medium, High) | | Potential Funding Source(s) | |
| 1, 2, 5 | | Structure Fire | Ensure all structures have minimum detection and protection devices. | Low | | Grants | |
| Action/Implementation Plan and Project Description: | | | | | | | |
| 2022 Update: Ongoing; Malad Fire Department attended community fair to encourage this | | | | | | | |

Table 22-45. Ongoing Mitigation Project 39

| Mitigation Project: Maintain an active “fight the bite” public education program. | | | | | | | |
|--|-------------------------|---------------------------|------------------------------------|--|---------------------------|----------------|-----------------------------------|
| Year Initiated | Applicable Jurisdiction | Lead Agency/ Organization | Supporting Agencies/ Organizations | Priority and Level of Importance (Low, Medium, High) | Projected Completion Date | Estimated Cost | Cost Analysis (Low, Medium, High) |

| Mitigation Project: Maintain an active “fight the bite” public education program. | | | | | | | |
|---|-------------------------|---------------------------------------|---|--|---|-----------------------------|-----------------------------------|
| Year Initiated | Applicable Jurisdiction | Lead Agency/ Organization | Supporting Agencies/ Organizations | Priority and Level of Importance (Low, Medium, High) | Projected Completion Date (Short-term, Long-term, or Ongoing) | Estimated Cost | Cost Analysis (Low, Medium, High) |
| 2014 | Oneida County | Health District/ Emergency Management | N/A | Medium | Ongoing | \$0 | Low |
| Applicable Goal(s) | | Hazard(s) Mitigated | Benefits (Loss Avoided) | Benefit Analysis (Low, Medium, High) | | Potential Funding Source(s) | |
| 1, 5 | | West Nile Virus | Build knowledge of West Nile Virus in the general public. | Medium | | Local Funds; Staff Time | |
| Action/Implementation Plan and Project Description: | | | | | | | |
| 2022 Update: Ongoing; Continue program | | | | | | | |

Table 22-46. Ongoing Mitigation Project 40

| Mitigation Project: Establish a Mosquito Abatement District. | | | | | | | |
|---|-------------------------|---------------------------|--|--|---|-----------------------------|-----------------------------------|
| Year Initiated | Applicable Jurisdiction | Lead Agency/ Organization | Supporting Agencies/ Organizations | Priority and Level of Importance (Low, Medium, High) | Projected Completion Date (Short-term, Long-term, or Ongoing) | Estimated Cost | Cost Analysis (Low, Medium, High) |
| 2014 | Oneida County | County Commissions | N/A | Low | Ongoing | \$10,000 | Medium |
| Applicable Goal(s) | | Hazard(s) Mitigated | Benefits (Loss Avoided) | Benefit Analysis (Low, Medium, High) | | Potential Funding Source(s) | |
| 1, 3 | | West Nile Virus | Protect the public from West Nile Virus. | Low | | Local Funds; Staff Time | |
| Action/Implementation Plan and Project Description: | | | | | | | |
| 2022 Update: Ongoing; Seek voter approval; Establish district | | | | | | | |

Table 22-47. Ongoing Mitigation Project 41

| Mitigation Project: Develop an EOP annex that addresses livestock quarantining. | | | | | | | |
|---|-------------------------|---------------------------|--|--|---|-----------------------------|-----------------------------------|
| Year Initiated | Applicable Jurisdiction | Lead Agency/ Organization | Supporting Agencies/ Organizations | Priority and Level of Importance (Low, Medium, High) | Projected Completion Date (Short-term, Long-term, or Ongoing) | Estimated Cost | Cost Analysis (Low, Medium, High) |
| 2014 | Oneida County | Disaster Services | N/A | Low | Ongoing | \$15,000 | Medium |
| Applicable Goal(s) | | Hazard(s) Mitigated | Benefits (Loss Avoided) | Benefit Analysis (Low, Medium, High) | | Potential Funding Source(s) | |
| 2, 4 | | Communicable Disease | Develop a standard practice for livestock quarantining in the event of a biological event. | Low | | SHSP | |
| Action/Implementation Plan and Project Description: | | | | | | | |
| 2022 Update: Ongoing; Seek funding through BHS; Develop EOP annex | | | | | | | |

Table 22-48. Ongoing Mitigation Project 42

| Mitigation Project: Conduct a public education program to assist the citizens of the county in recognizing and reporting civil disobedience events to county law enforcement. | | | | | | | |
|---|-------------------------|-------------------------------------|---|--|---|-----------------------------|-----------------------------------|
| Year Initiated | Applicable Jurisdiction | Lead Agency/ Organization | Supporting Agencies/ Organizations | Priority and Level of Importance (Low, Medium, High) | Projected Completion Date (Short-term, Long-term, or Ongoing) | Estimated Cost | Cost Analysis (Low, Medium, High) |
| 2014 | Oneida County | Sheriff's Office | N/A | Medium | Ongoing | \$10,000 | Medium |
| Applicable Goal(s) | | Hazard(s) Mitigated | Benefits (Loss Avoided) | Benefit Analysis (Low, Medium, High) | | Potential Funding Source(s) | |
| 1, 5 | | Riot/ Demonstration/ Civil Disorder | Educate the public on civil disobedience reporting. | Medium | | Local Funds; Staff Time | |

| | | | | | | | |
|--|--|--|--|--|--|--|--|
| Mitigation Project: Conduct a public education program to assist the citizens of the county in recognizing and reporting civil disobedience events to county law enforcement. | | | | | | | |
| Action/Implementation Plan and Project Description: | | | | | | | |
| 2022 Update: Ongoing | | | | | | | |

Table 22-49. Ongoing Mitigation Project 43

| Mitigation Project: Protect critical infrastructure based on the county terrorism assessment. | | | | | | | |
|--|-------------------------|---------------------------|---|--|---|-----------------------------|-----------------------------------|
| Year Initiated | Applicable Jurisdiction | Lead Agency/ Organization | Supporting Agencies/ Organizations | Priority and Level of Importance (Low, Medium, High) | Projected Completion Date (Short-term, Long-term, or Ongoing) | Estimated Cost | Cost Analysis (Low, Medium, High) |
| 2014 | Oneida County | Emergency Services | N/A | Medium | Ongoing | N/A | Low |
| Applicable Goal(s) | | Hazard(s) Mitigated | Benefits (Loss Avoided) | Benefit Analysis (Low, Medium, High) | | Potential Funding Source(s) | |
| 1, 2 | | Terrorism | Identify and protect potential terrorism targets. | Medium | | Local Funds; Staff Time | |
| Action/Implementation Plan and Project Description: | | | | | | | |
| 2022 Update: Ongoing | | | | | | | |

Malad City

Table 22-50. Ongoing Mitigation Project 44

| Mitigation Project: Develop a comprehensive Mass Shelter and Care Plan for the entire county. | | | | | | | |
|--|-------------------------|---------------------------|------------------------------------|----------------------------------|---------------------------|----------------|---------------|
| Year Initiated | Applicable Jurisdiction | Lead Agency/ Organization | Supporting Agencies/ Organizations | Priority and Level of Importance | Projected Completion Date | Estimated Cost | Cost Analysis |

| Mitigation Project: Develop a comprehensive Mass Shelter and Care Plan for the entire county. | | | | | | | |
|---|------------|-----------------------------------|--|--------------------------------------|-------------------------------------|-------------------------------|---------------------|
| | | | | (Low, Medium, High) | (Short-term, Long-term, or Ongoing) | | (Low, Medium, High) |
| 2014 | Malad City | Emergency Services | N/A | Low | Ongoing | \$15,000 | Medium |
| Applicable Goal(s) | | Hazard(s) Mitigated | Benefits (Loss Avoided) | Benefit Analysis (Low, Medium, High) | | Potential Funding Source(s) | |
| 1, 4, 5 | | Severe Winter Weather/All Hazards | Protect isolated individuals from severe winter storms and extreme cold. | Low | | Local Funds; Staff Time; SHSP | |
| Action/Implementation Plan and Project Description: | | | | | | | |
| 2022 Update: Ongoing; Seek BHS SHSP funding; award contract | | | | | | | |

Table 22-51. Ongoing Mitigation Project 45

| Mitigation Project: Develop a Continuity of Operations plan. | | | | | | | |
|--|-------------------------|---------------------------|--|--|---|-------------------------------|-----------------------------------|
| Year Initiated | Applicable Jurisdiction | Lead Agency/ Organization | Supporting Agencies/ Organizations | Priority and Level of Importance (Low, Medium, High) | Projected Completion Date (Short-term, Long-term, or Ongoing) | Estimated Cost | Cost Analysis (Low, Medium, High) |
| 2014 | Malad City | Emergency Management | N/A | Medium | Ongoing | \$5,000 | Medium |
| Applicable Goal(s) | | Hazard(s) Mitigated | Benefits (Loss Avoided) | Benefit Analysis (Low, Medium, High) | | Potential Funding Source(s) | |
| 1, 6 | | Severe Winter Weather | Protect isolated individuals from severe winter storms and extreme cold. | Medium | | Local Funds; Staff Time; SHSP | |
| Action/Implementation Plan and Project Description: | | | | | | | |
| 2022 Update: Ongoing; Seek BHS SHSP funding; award contract | | | | | | | |

Table 22-52. Ongoing Mitigation Project 46

| Mitigation Project: Develop a drought emergency plan. | | | | | | | |
|---|-------------------------|---------------------------|------------------------------------|--|---|-------------------------------|-----------------------------------|
| Year Initiated | Applicable Jurisdiction | Lead Agency/ Organization | Supporting Agencies/ Organizations | Priority and Level of Importance (Low, Medium, High) | Projected Completion Date (Short-term, Long-term, or Ongoing) | Estimated Cost | Cost Analysis (Low, Medium, High) |
| 2014 | Malad City | Emergency Management | N/A | High | Ongoing | \$5,000 | Medium |
| Applicable Goal(s) | | Hazard(s) Mitigated | Benefits (Loss Avoided) | Benefit Analysis (Low, Medium, High) | | Potential Funding Source(s) | |
| 2, 3 | | Drought | Prepare for drought events. | High | | Local Funds; Staff Time; SHSP | |
| Action/Implementation Plan and Project Description: | | | | | | | |
| 2022 Update: Ongoing; Seek BHS SHSP funding; award contract | | | | | | | |

Table 22-53. Ongoing Mitigation Project 47

| Mitigation Project: Seek floodplain manager certification. | | | | | | | |
|--|-------------------------|---------------------------|------------------------------------|--|---|-----------------------------|-----------------------------------|
| Year Initiated | Applicable Jurisdiction | Lead Agency/ Organization | Supporting Agencies/ Organizations | Priority and Level of Importance (Low, Medium, High) | Projected Completion Date (Short-term, Long-term, or Ongoing) | Estimated Cost | Cost Analysis (Low, Medium, High) |
| 2014 | Malad City | Floodplain Administrator | N/A | Medium | Ongoing | \$0 | Low |
| Applicable Goal(s) | | Hazard(s) Mitigated | Benefits (Loss Avoided) | Benefit Analysis (Low, Medium, High) | | Potential Funding Source(s) | |
| 3, 5 | | Flood | Maintain the NFIP requirements. | Medium | | Local Funds; Staff Time | |
| Action/Implementation Plan and Project Description: | | | | | | | |
| 2022 Update: Ongoing | | | | | | | |

Table 22-54. Ongoing Mitigation Project 48

| Mitigation Project: Map floodplain and flood prone areas in Malad City. | | | | | | | |
|---|-------------------------|---------------------------|---|--|---|-----------------------------|-----------------------------------|
| Year Initiated | Applicable Jurisdiction | Lead Agency/ Organization | Supporting Agencies/ Organizations | Priority and Level of Importance (Low, Medium, High) | Projected Completion Date (Short-term, Long-term, or Ongoing) | Estimated Cost | Cost Analysis (Low, Medium, High) |
| 2014 | Malad City | City Engineer | N/A | Medium | Ongoing | \$10,000 | Medium |
| Applicable Goal(s) | | Hazard(s) Mitigated | Benefits (Loss Avoided) | Benefit Analysis (Low, Medium, High) | | Potential Funding Source(s) | |
| 3, 4 | | Flood | Examine the floodplain for accuracy with NFIP requirements. | Medium | | Local Funds; Staff Time | |
| Action/Implementation Plan and Project Description: | | | | | | | |
| 2022 Update: Ongoing | | | | | | | |

Table 22-55. Ongoing Mitigation Project 49

| Mitigation Project: Place restraining hardware on the city library bookshelves. Place restraining bars or trim along the front of the bookshelves. | | | | | | | |
|--|-------------------------|---------------------------|---|--|---|-----------------------------|-----------------------------------|
| Year Initiated | Applicable Jurisdiction | Lead Agency/ Organization | Supporting Agencies/ Organizations | Priority and Level of Importance (Low, Medium, High) | Projected Completion Date (Short-term, Long-term, or Ongoing) | Estimated Cost | Cost Analysis (Low, Medium, High) |
| 2014 | Malad City | City Librarian | N/A | Medium | Ongoing | \$10,000 | Medium |
| Applicable Goal(s) | | Hazard(s) Mitigated | Benefits (Loss Avoided) | Benefit Analysis (Low, Medium, High) | | Potential Funding Source(s) | |
| 1, 2 | | Earthquake | Protect library patrons from tipping shelves and falling books. | Medium | | Grants | |
| Action/Implementation Plan and Project Description: | | | | | | | |

| |
|---|
| Mitigation Project: Place restraining hardware on the city library bookshelves. Place restraining bars or trim along the front of the bookshelves. |
| 2022 Update: Ongoing; Seek funding in city budget; install hardware |

Table 22-56. Ongoing Mitigation Project 50

| Mitigation Project: Harden city water supply against damage from earthquakes. | | | | | | | |
|---|-------------------------|---------------------------|------------------------------------|--|---|-----------------------------|-----------------------------------|
| Year Initiated | Applicable Jurisdiction | Lead Agency/ Organization | Supporting Agencies/ Organizations | Priority and Level of Importance (Low, Medium, High) | Projected Completion Date (Short-term, Long-term, or Ongoing) | Estimated Cost | Cost Analysis (Low, Medium, High) |
| 2014 | Malad City | Mayor/Public Works | N/A | Low | Ongoing | \$250,000 | High |
| Applicable Goal(s) | | Hazard(s) Mitigated | Benefits (Loss Avoided) | Benefit Analysis (Low, Medium, High) | | Potential Funding Source(s) | |
| 2 | | Earthquake | Protect infrastructure. | Low | | FEMA BRIC; HMGP | |
| Action/Implementation Plan and Project Description: | | | | | | | |
| 2022 Update: Ongoing; Develop project, conduct engineering, and BCA; Apply for HMA grant; Harden system | | | | | | | |

Table 22-57. Ongoing Mitigation Project 51

| Mitigation Project: Harden city sewer system against damage from earthquakes. | | | | | | | |
|---|-------------------------|---------------------------|------------------------------------|--|---|----------------|-----------------------------------|
| Year Initiated | Applicable Jurisdiction | Lead Agency/ Organization | Supporting Agencies/ Organizations | Priority and Level of Importance (Low, Medium, High) | Projected Completion Date (Short-term, Long-term, or Ongoing) | Estimated Cost | Cost Analysis (Low, Medium, High) |

| Mitigation Project: Harden city sewer system against damage from earthquakes. | | | | | | | |
|---|------------|---------------------|-------------------------|-----|--------------------------------------|-----------------------------|------|
| 2014 | Malad City | Mayor/Public Works | N/A | Low | Ongoing | \$250,000 | High |
| Applicable Goal(s) | | Hazard(s) Mitigated | Benefits (Loss Avoided) | | Benefit Analysis (Low, Medium, High) | Potential Funding Source(s) | |
| 2 | | Earthquake | Protect infrastructure. | | Low | FEMA BRIC; HMGP | |
| Action/Implementation Plan and Project Description: | | | | | | | |
| 2022 Update: Ongoing; Develop project, conduct engineering, and BCA; Apply for HMA grant; Harden system | | | | | | | |

Table 22-58. Ongoing Mitigation Project 52

| Mitigation Project: Harden the city computer equipment and records storage. | | | | | | | |
|---|-------------------------|---------------------------|-------------------------------------|--|---|-----------------------------|-----------------------------------|
| Year Initiated | Applicable Jurisdiction | Lead Agency/ Organization | Supporting Agencies/ Organizations | Priority and Level of Importance (Low, Medium, High) | Projected Completion Date (Short-term, Long-term, or Ongoing) | Estimated Cost | Cost Analysis (Low, Medium, High) |
| 2014 | Malad City | City Clerk | N/A | High | Ongoing | \$20,000 | Medium |
| Applicable Goal(s) | | Hazard(s) Mitigated | Benefits (Loss Avoided) | | Benefit Analysis (Low, Medium, High) | Potential Funding Source(s) | |
| 2 | | Earthquake | Protect city buildings and records. | | High | Local Funds; Staff Time | |
| Action/Implementation Plan and Project Description: | | | | | | | |
| 2022 Update: Ongoing; Seek city budget funds; Harden equipment | | | | | | | |

Table 22-59. Ongoing Mitigation Project 53

| Mitigation Project: Replace or reinforce masonry on older structures in Malad City. | | | | | | | |
|---|-------------------------|---|-------------------------------------|--|---|-----------------------------|-----------------------------------|
| Year Initiated | Applicable Jurisdiction | Lead Agency/ Organization | Supporting Agencies/ Organizations | Priority and Level of Importance (Low, Medium, High) | Projected Completion Date (Short-term, Long-term, or Ongoing) | Estimated Cost | Cost Analysis (Low, Medium, High) |
| 2014 | Malad City | Building Official/Private Property Owners | N/A | Medium | Ongoing | N/A | High |
| Applicable Goal(s) | | Hazard(s) Mitigated | Benefits (Loss Avoided) | Benefit Analysis (Low, Medium, High) | | Potential Funding Source(s) | |
| 1, 2 | | Earthquake | Protect city buildings and records. | Medium | | FEMA BRIC; HMGP | |
| Action/Implementation Plan and Project Description: | | | | | | | |
| 2022 Update: Ongoing; Create list of facilities; Harden facilities | | | | | | | |

Table 22-60. Ongoing Mitigation Project 54

| Mitigation Project: Encourage private property owners to install and maintain smoke detectors on all levels of residences and to place detectors in all bedrooms. | | | | | | | |
|---|-------------------------|---------------------------|--|--|---|-----------------------------|-----------------------------------|
| Year Initiated | Applicable Jurisdiction | Lead Agency/ Organization | Supporting Agencies/ Organizations | Priority and Level of Importance (Low, Medium, High) | Projected Completion Date (Short-term, Long-term, or Ongoing) | Estimated Cost | Cost Analysis (Low, Medium, High) |
| 2014 | Malad City | Fire Department | N/A | Medium | Ongoing | \$25,000 | Medium |
| Applicable Goal(s) | | Hazard(s) Mitigated | Benefits (Loss Avoided) | Benefit Analysis (Low, Medium, High) | | Potential Funding Source(s) | |
| 1, 2, 5 | | Structure Fire | Ensure all structures have minimum detection and protection devices. | Medium | | Local Funds; Staff Time | |

| |
|--|
| Mitigation Project: Encourage private property owners to install and maintain smoke detectors on all levels of residences and to place detectors in all bedrooms. |
| Action/Implementation Plan and Project Description: |
| 2022 Update: Ongoing; Seek funding for the Assistance to Firefighters Grants safety program; Distribute detectors |

22.2.3 Completed Mitigation Projects

Table 22-61. Completed Mitigation Projects

| COMPLETED MITIGATION PROJECTS | | | | | | |
|--|----------------|-------------------------|--------------------------------------|------------------------------|---|--------------------------|
| Mitigation Project | Year Initiated | Applicable Jurisdiction | Lead Agency/ Organization | Priority (Low, Medium, High) | Status | Hazard(s) Mitigated |
| <i>Oneida County (County-Led)</i> | | | | | | |
| Plant a living snow fence on the Summit on I-15. | 2014 | Oneida County | Road and Bridge, ITD | High | Completed (fence added north and south) | Severe Winter Weather |
| Construct new roadway out of the floodplain in the Narrows. | 2014 | Oneida County | Road and Bridge | High | Completed | Flood |
| Install new generators for dispatch, the EOC, and crucial support functions. | 2009 | Oneida County | Emergency Management | -- | Completed | Severe Weather |
| Formally adopt the floodplain ordinance. | 2009 | Oneida County | County Commission | -- | Completed | Flood |
| Appoint and seek certification for floodplain administrator. | 2009 | Oneida County | County Commission | -- | Completed | Flood |
| Develop a listing of schools and public buildings that need to be seismically retrofitted. | 2009 | Oneida County | Emergency Services/Building Official | -- | Completed | Earthquake |
| Retrofit the fire station. | 2009 | Oneida County | Fire Chief | -- | Completed (built new station) | Earthquake |
| Conduct a hazardous materials flow study for US and state highways running through the county. | 2009 | Oneida County | Emergency Services | -- | Completed | Hazardous Material Event |

| COMPLETED MITIGATION PROJECTS | | | | | | |
|---|------|---------------|----------------------------|--------|--|-----------------------|
| Conduct a county terrorism assessment. | 2009 | Oneida County | Emergency Services | -- | Completed (THIRA county level) | Terrorism |
| Install a reverse calling notification system at the Dispatch Center. | 2009 | Oneida County | Sheriff/Emergency Services | -- | Completed | All Hazards |
| <i>Malad City</i> | | | | | | |
| Develop ordinances to manage stormwater in subdivisions. | 2014 | Malad City | City Engineer | High | Completed | Flood |
| Develop a Continuity of Operations Plan. | 2014 | Malad City | Emergency Management | Medium | Completed | Severe Winter Weather |
| Seek CRS status for Malad City. | 2014 | Malad City | Floodplain Administrator | High | Completed | Flood |
| Identify evacuation shelters equipped with emergency generators. | 2009 | Malad City | Mayor/Public Works | -- | Completed (shelter plan developed with LDS Church) | Severe Winter Weather |

CHAPTER 23 PLAN MAINTENANCE

The Oneida County Multi-Jurisdictional All Hazard Mitigation Plan maintenance process includes a schedule for annual monitoring and evaluation of the programmatic outcomes established in the Plan and for producing a formal Plan revision every five years.

23.1 FORMAL REVIEW PROCESS

The Plan may be reviewed on an annual basis by the Emergency Services Coordinator and reviewed and revised every five years by the committee to determine the effectiveness of programs and to reflect changes that may affect mitigation priorities. The Emergency Services Coordinator or designee will be responsible for contacting the Mitigation Committee members and organizing the review. Committee members will be responsible for monitoring and evaluating the progress of the mitigation strategies in the Plan. The Committee will review the goals and action items to determine their relevance to changing situations in the County as well as changes in Federal policy, and to ensure they are addressing current and expected conditions. The Committee will also review the risk assessment portion of the Plan to determine if this information should be updated or modified, given any new available data. The organizations responsible for the various action items will report on the status of the projects, the success of various implementation processes, difficulties encountered, success of coordination efforts, and which strategies should be revised or removed.

The Coordinator or designee will be responsible for ensuring the updating of the Plan. The Coordinator will also notify all holders of the Plan and affected stakeholders when changes have been made. Every five years the updated plan will be submitted to the State of Idaho Office of Emergency Management and to the Federal Emergency Management Agency for review and approval.

23.2 CONTINUED PUBLIC INVOLVEMENT

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

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

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

- Oneida County Emergency Services will keep a copy of the plan on hand at their office for review and comment by the public.
- A public meeting will be held annually to provide the public with a forum for discussing concerns, opinions, and ideas with the Mitigation Steering Committee.

23.3 MONITORING, EVALUATION, AND UPDATING THE PLAN

To ensure the Oneida County Multi-Jurisdictional All Hazard Mitigation Plan continues to provide an appropriate path for risk reduction throughout the County, it is necessary to regularly evaluate and update

it. Oneida County Emergency Services will be responsible for monitoring the status of the plan and gathering appropriate parties to report the status of Mitigation Actions. The County Mitigation Steering Committee will convene on an annual basis to determine the progress of the identified mitigation actions. The Mitigation Steering Committee will also be an active participant in the next plan update. As the County Mitigation Plan matures, new stakeholders will be identified and encouraged to join the existing Mitigation Steering Committee.

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

- Annually reviewing each goal and objective to determine its relevance and appropriateness.
- Monitor and evaluate the mitigation strategies in this plan to ensure the document reflects current hazard analyses, development trends, code changes and risk analyses and perceptions.
- Ensure the appropriate implementation of annual status reports and regular maintenance of the plan. The committee will hear progress reports from the parties responsible for the various implementation actions to monitor progress.
- Create future action plans and mitigation strategies. These should be carefully assessed and prioritized using benefit-cost analysis (BCA) methodology that FEMA has developed.
- Ensure the public is invited to comment and be involved in mitigation plan updates.
- Ensure that the County complies with all applicable Federal statutes and regulations during the periods for which it receives grant funding, in compliance with 44 CFR.
- Reassess the plan in light of any major hazard event. The committee will convene within 45 days of any major event to review all applicable data and to consider the risk assessment, plan goals, objectives, and action items given the impact of the hazard event.
- Review the hazard mitigation plan in connection to other plans, projects, developments, and other significant initiatives.
- Coordinate with appropriate municipalities and authorities to incorporate regional initiatives that transcend the boundaries of the County.
- Update the plan every five years and submit for FEMA approval.
- Amend the plan whenever necessary to reflect changes in State or Federal laws and statutes required in 44 CFR.

23.4 THE FIVE-YEAR ACTION PLAN

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

The Committee will consider the following an action plan for the first 5-year planning cycle. It should be noted that the schedule below can be modified as necessary and does not include any meetings and/or activities that would be necessary following a disaster event (which would include reconvening the Mitigation Steering Committee within 45 days of a disaster or emergency to determine what mitigation projects should be prioritized during the community recovery). If an emergency meeting of the Mitigation Steering Committee occurs, this proposed schedule may be altered to fit any new needs.

Year 0:

- **2021/22:** Update Hazard Mitigation Plan, including a series of Mitigation Steering Committee meetings & Public meetings. Submit 2022 All Hazards Mitigation Plan for FEMA approval.
- **August 2022 – December 2022:** Work on Mitigation Actions, Oneida County Emergency Services to stay in contact with lead departments to keep tabs on project status.
- **December 2022:** Reconvene Committee for first annual Mitigation Steering Committee meeting. Introduce the concept of Mitigation Plan Integration with other planning documents. Host first annual Public meeting.

Year 1:

- **January 2023 – December 2023:** Work on Mitigation Actions, Oneida County Emergency Services to stay in contact with lead departments to keep tabs on project status. Encourage plan integration efforts.
- **December 2023:** Reconvene Committee for annual Mitigation Steering Committee meeting. Discuss opportunities for mitigation plan integration with other planning documents. Discuss recent hazards. Update status of projects. Host public meeting.

Year 2:

- **January 2024 – December 2024:** Work on Mitigation Actions, Oneida County Emergency Services to stay in contact with lead departments to keep tabs on project status. Encourage plan integration efforts.
- **December 2024:** Reconvene Committee for annual Mitigation Steering Committee meeting. Discuss opportunities for mitigation plan integration with other planning documents. Discuss recent hazards. Update status of projects. Host public meeting.

Year 3:

- **January 2025 – December 2025:** Work on Mitigation Actions, Oneida County Emergency Services to stay in contact with lead departments to keep tabs on project status. Encourage plan integration efforts.
- **December 2025:** Reconvene Committee for annual Mitigation Steering Committee meeting. Discuss opportunities for mitigation plan integration with other planning documents. Discuss recent hazards. Update status of projects. Host public meeting.
- **Fall 2025:** Apply for Building Resilient Infrastructure and Communities or Hazard Mitigation Grant Program funds to update next iteration of mitigation plan.

Year 4:

- **January 2026 – December 2026:** Work on Mitigation Actions, Oneida County Emergency Services to stay in contact with lead departments to keep tabs on project status. Encourage plan integration efforts. Update 2022 Oneida County Multi-Jurisdictional All Hazard Mitigation Plan, including a series of Mitigation Steering Committee meetings & Public meetings.
- **December 2026:** Reconvene Committee for annual Mitigation Steering Committee meeting. Discuss opportunities for mitigation plan integration with other planning documents. Discuss recent hazards. Update status of projects.

Year 5:

January 2027: Submit 2027 Oneida County Multi-Jurisdictional All Hazard Mitigation Plan for FEMA approval. Repeat.

23.5 ANNUAL MITIGATION STEERING COMMITTEE MEETINGS

During each annual Mitigation Steering Committee meeting, the Committee will be responsible for a brief evaluation of the Oneida County Multi-Jurisdictional All Hazard Mitigation Plan and to review the progress on Mitigation Actions.

Plan Evaluation

To evaluate the plan, the Mitigation Steering Committee should answer the following questions:

- Are the goals and objectives still relevant?
- Is the risk assessment still appropriate, or has the nature of the hazard and/or vulnerability changed over time?
- Are current resources appropriate for implementing this plan?
- Have lead agencies participated as originally proposed?
- Has the public been adequately involved in the process? Are their comments being heard?
- Have departments been integrating mitigation into their planning documents?

If the answer to each of the above questions is “yes,” the plan evaluation is complete. If any questions are answered with a “no,” the identified gap must be addressed.

Review of Mitigation Actions

Once the plan evaluation is complete, the Committee must review the status of the Mitigation Actions. To do so, the Mitigation Steering Committee should answer the following questions:

- Have the Mitigation Actions been implemented as planned?
- Have outcomes been adequate?
- What problems have occurred in the implementation process?

Meeting Documentation

Each annual Mitigation Steering Committee meeting must be documented, including the plan evaluation and review of Mitigation Actions. Mitigation Actions have been formatted to facilitate the annual review process.

23.6 IMPLEMENTATION THROUGH EXISTING PROGRAMS

Hazard mitigation practices must be incorporated within existing plans, projects and programs. Therefore, the involvement of all departments, private non-profits, private industry, and appropriate jurisdictions is necessary in order to find mitigation opportunities within existing or planned projects and programs. To execute this, Oneida County Emergency Services will assist and coordinate resources for the mitigation actions and provide strategic outreach to implement mitigation actions that meet the goals and objectives identified in this plan.

APPENDIX

APPENDIX A: ACRONYMS AND DEFINITIONS

Abutment (Dam): The abutment is the valley side against which a dam is constructed.

Acre-Foot: An acre-foot is the amount of water it takes to cover one acre to a depth of one foot. This measure is used to describe the quantity of storage in a water reservoir. An acre-foot is a unit of volume. One acre foot equals 7,758 barrels, 325,829 gallons, or 43,560 cubic feet. An average household of four will use approximately one acre-foot of water per year.

Acre-Foot of Water: An acre-foot of water is approximately 326,000 gallons of water or approximately a football field covered by one foot of water.

Active Faults: An active fault is defined as a fault displaying evidence of displacement along one or more of its traces during Holocene time (about the last 11,000 years).

Aftershocks: Aftershocks are earthquakes that occur during the seconds, hours, days, or months following a larger earthquake (main shock) in the same general region.

Alluvial Fan: An alluvial fan is a cone-shaped deposit of stream sediments, generally deposited at the base of a mountain where a stream encounters flatter terrain.

Amplitude (Seismic Waves): Amplitude refers to the maximum height of a wave crest or depth of a trough. It is the amount the ground moves as a seismic wave passes, as measured from a seismogram.

AQI: Air Quality Index

Asset: An asset is any manmade or natural feature that has value, including, but not limited to, people; buildings; infrastructure, such as bridges, roads, sewers, and water systems; lifelines, such as electricity and communication resources; and environmental, cultural, or recreational features, such as parks, wetlands, and landmarks.

Avalanche Path: The avalanche path is defined as the area in which a snow avalanche runs, generally divided into starting zone, track, and runout zone.

Base Flood: A base flood is the flood having a 1% chance of being equaled or exceeded in any given year, also known as the “100-year” or “1-percent-annual-chance” flood. The base flood is a statistical concept used to ensure that all properties subject to the National Flood Insurance Program (NFIP) are protected to the same degree against flooding.

Basin: A basin is the area within which all surface water—whether from rainfall, snowmelt, springs, or other sources—flows to a single water body or watercourse. The boundary of a river basin is defined by natural topography, such as hills, mountains, and ridges. Basins are also referred to as “watersheds” and “drainage basins.”

Bearing Capacity: The bearing capacity is the load per unit area, which the ground can safely support without excessive yield.

Bedrock: Bedrock is solid in-place rock sometimes exposed and sometimes concealed beneath the soil.

Benefit: A benefit is a net project outcome and is usually defined in monetary terms. Benefits may include direct and indirect effects. For the purposes of benefit-cost analysis of proposed mitigation measures, benefits are limited to specific, measurable, risk reduction factors, including reduction in expected property losses (buildings, contents, and functions) and protection of human life.

Benefit/Cost Analysis: A benefit/cost analysis is a systematic, quantitative method of comparing projected benefits to projected costs of a project or policy. It is used as a measure of cost-effectiveness.

BRIC: Building Resilient Infrastructure and Communities (BRIC) is a way for communities to apply for and receive hazard mitigation assistance grants. It supports states, local communities, tribes, and territories as they undertake hazard mitigation projects, reducing the risks they face from disasters and natural hazards.

Building: A building is defined as a structure that is walled and roofed, principally aboveground, and permanently fixed to a site. The term includes manufactured homes on permanent foundations on which the wheels and axles carry no weight.

Capability Assessment: A capability assessment provides a description and analysis of a community's current capacity to address threats associated with hazards. The assessment includes two components—an inventory of an agency's mission, programs, and policies, and an analysis of its capacity to carry them out. A capability assessment is an integral part of the planning process in which a community's actions to reduce losses are identified, reviewed, and analyzed, and the framework for implementation is identified. The following capabilities were reviewed under this assessment:

- Legal and regulatory capability
- Administrative and technical capability
- Fiscal capability

CIP: Capital Improvement Plan

Collapsible Soil (Hydrocompaction): Collapsible soil is loose, dry, low-density soil that decreases in volume or collapses when saturated for the first time following deposition.

Critical Areas: A critical area is an area defined by state or local regulations as deserving special protection because of unique natural features or its value as habitat for a wide range of species of flora and fauna. A sensitive/critical area is usually subject to more restrictive development regulations. These could include environmentally sensitive areas that include wetlands fish and wildlife habitat conservation areas; geologically hazardous areas; areas with a critical recharging effect on aquifers used for potable water; and frequently flooded areas. Critical areas have measurable characteristics which, when combined, create a value for or potential risk to public health, safety, and welfare.

Critical/Essential Facilities: Structures meeting one or more of the following criteria:

- Fire stations, police stations, storage facilities for vehicles/equipment needed after a hazard event, and emergency operation centers
- Hospitals, nursing homes, and housing which is likely to contain occupants who may not be sufficiently mobile to avoid injury or death as a result of a hazardous event
- Public and private utility facilities, which are vital to maintaining or restoring normal services to damaged areas after a hazardous event.
- Structures or facilities that produce, store, or use highly flammable, explosive, volatile, toxic and/or water reactive materials

CFR: Code of Federal Regulations

CFS: Cubic feet per second

Community Rating System (CRS): The CRS is a voluntary program under the NFIP that rewards participating communities (provides incentives) for exceeding the minimum requirements of the NFIP and completing activities that reduce flood hazard risk by providing flood insurance premium discounts.

Dam: A dam is any artificial barrier or controlling mechanism that can or does impound 10 acre-feet or more of water.

Dam Failure: Dam failure refers to a partial or complete breach in a dam (or levee) that impacts its integrity. Dam failures occur for a number of reasons, such as flash flooding, inadequate spillway size, mechanical failure of valves or other equipment, freezing and thawing cycles, earthquakes, and intentional destruction.

Debris Flow: Debris flow involves the relatively rapid, viscous flow of surficial material that is predominantly coarse grained.

Debris Slide: Debris slides consist of unconsolidated rock, soil, or coarse-grained material that has moved rapidly down slope, mainly along a planar surface. They occur on slopes greater than 65%.

DFIRM: Digital Flood Insurance Rate Maps

Disaster Mitigation Act of 2000 (DMA): The DMA is Public Law 106-390 and is the latest federal legislation enacted to encourage and promote proactive, pre-disaster planning as a condition of receiving financial assistance under the Robert T. Stafford Act. The DMA emphasizes planning for disasters before they occur. Under the DMA, a pre-disaster hazard mitigation program and new requirements for the national post-disaster hazard mitigation grant program (HMGP) were established.

Drainage Basin: A basin is the area within which all surface water—whether from rainfall, snowmelt, springs, or other sources—flows to a single water body or watercourse. The boundary of a river basin is defined by natural topography, such as hills, mountains, and ridges. Drainage basins are also referred to as watersheds or basins.

Drought (Agricultural): An agricultural drought is a lack of water for crop production in a given area.

Drought (Hydrologic): A hydrologic drought is a lack of water in the entire water supply for a given area.

Drought (Meteorological): A meteorological drought is a lack of precipitation compared to an area's normal amount.

Drought (Socioeconomic): A socioeconomic drought is a lack of water sufficient to support an area's population.

Earth Flow: Earth flow involves fine-grained material that slumps away from the top or upper part of a slope, leaving a scarp, and flows down to form a bulging toe.

Earthquake: An earthquake is defined as a sudden slip on a fault, volcanic or magmatic activity, and sudden stress changes in the earth that result in ground shaking and radiated seismic energy. Earthquakes can last from a few seconds to over five minutes and have been known to occur as a series of tremors over a period of several days. The actual movement of the ground in an earthquake is seldom the direct cause of injury or death. Casualties may result from falling objects and debris as shocks shake, damage, or demolish buildings and other structures.

Earthquake Fault Zone: Earthquake fault zones are regulatory zones around active faults. The zones are used to prohibit the location of critical facilities and structures designed for human occupancy from being built astride an active fault. Earthquake Fault Zones are plotted on topographic maps at a scale of one inch equals 2,000 feet. The zones vary in width but average about one-quarter mile wide.

Earthquake-Induced Seiche: Earthquake-induced seiche is defined as earthquake-generated water waves causing inundation around shores or lakes and reservoirs.

Enhanced Fujita Scale: The Enhanced Fujita Scale or EF Scale, which became operational on February 1, 2007, is used to assign a tornado a “rating” based on estimated wind speeds and related damage. When tornado-related damage is surveyed, it is compared to a list of Damage Indicators (DIs) and Degrees of Damage (DoD), which help estimate better the range of wind speeds the tornado likely produced. From that, a rating (from EF0 to EF5) is assigned. The EF Scale was revised from the original Fujita Scale to reflect better examinations of tornado damage surveys so as to align wind speeds more closely with associated storm damage. The new scale has to do with how most structures are designed.

EPA: U.S. Environmental Protection Agency

Epicenter: The epicenter is the point on the earth's surface directly above the focus of an earthquake.

EPZ: Emergency planning zone

Erosion: Erosion is the removal of earth or rock material by many types of processes (e.g., water, wind, or ice action).

Expansive Soil and Rock: Expansive soil and rock contain clay minerals that expand and contract with changes in moisture content.

Exposure: Exposure is defined as the number and dollar value of assets considered to be at risk during the occurrence of a specific hazard.

Extent: Extent is the specific measurement of a hazard occurrence, often based on a scientific scale. It is sometimes used interchangeably with the term “magnitude.”

Fault: A fault is a break in the earth along which movement occurs.

Fault Segment: A fault segment is a section of a fault that behaves independently from adjacent sections.

Fault Zone: A fault zone is an area containing numerous faults.

Federal Emergency Management Agency (FEMA): FEMA is authorized under Section 404 of the Stafford Act. It provides funding for hazard mitigation projects that are cost-effective and comply with existing post-disaster mitigation programs and activities. These projects cannot be funded through other programs to be eligible.

FERC: Federal Energy Regulatory Commission

Fill: Fill is material used to raise the surface of the land generally in a low area.

Firewise Communities Program: The Firewise Communities Program is a program of the National Fire Protection Association that encourages local solutions for safety by involving homeowners in taking individual responsibility for preparing their homes from the risk of wildfire. Firewise is a key component of Fire Adapted Communities—a collaborative approach that connects all those who play a role in wildfire education, planning, and action with comprehensive resources to help reduce risk. The program

is co-sponsored by the USDA Forest Service, the US Department of the Interior, and the National Association of State Foresters.

Fire-Resistant Vegetation: Fire-resistant vegetation are plants that do not readily ignite and burn when subjected to fire because of inherent physiological characteristics of the species, such as moisture content, fuel loading, and fuel arrangement.

Flood Insurance Rate Map (FIRM): FIRMs are the official maps on which the Federal Emergency Management Agency (FEMA) has delineated the Special Flood Hazard Area (SFHA).

Flood Insurance Study: A flood insurance study is a report published by the Federal Insurance and Mitigation Administration for a community in conjunction with the community's Flood Insurance Rate Map. The study contains such background data as the base flood discharges and water surface elevations that were used to prepare the FIRM. In most cases, a community FIRM with detailed mapping will have a corresponding flood insurance study.

Flash Flood: A flash flood occurs with little or no warning when water levels rise at an extremely fast rate.

Floodplain: A floodplain is any land area susceptible to being inundated by flood waters from any source. A Flood Insurance Rate Map identifies most, but not necessarily all, of a community's floodplain as the Special Flood Hazard Area (SFHA).

Floodplain (100-year/500-year): These are floodplains that have the potential to flood once every 100 or 500 years or that has a 1% (100-year) or 0.2% (500-year) chance of flooding equal to or in excess of that in any given year.

Floodway: A floodway is an area of land immediately adjacent to a stream or river channel that, in times of flooding, becomes an enlarged stream or river channel and carries the floodwater with the highest velocity.

Fluvial: Fluvial is a term that means concerning or pertaining to rivers or streams.

FMA: Flood Mitigation Assistance program

Focus: Focus is the point of origin of an earthquake within the earth and the origin of the earthquake's seismic waves.

Fog: Fog refers to a cloud (or condensed water droplets) near the ground. Fog forms when air close to the ground can no longer hold all the moisture it contains. Fog occurs either when air is cooled to its dew point or the amount of moisture in the air increases. Heavy fog is particularly hazardous because it can restrict surface visibility. Severe fog incidents can close roads, cause vehicle accidents, cause airport delays, and impair the effectiveness of emergency response. Financial losses associated with transportation delays caused by fog have not been calculated in the United States but are known to be substantial.

Formation (Geologic): A geologic formation is a mappable rock unit consisting of distinctive features/rock types separate from units above and below.

Freeboard: Freeboard is the margin of safety added to the base flood elevation.

Frequency: For the purposes of this plan, frequency refers to how often a hazard of specific magnitude and/or duration is expected to occur on average. Statistically, a hazard with a 100-year frequency is

expected to occur about once every 100 years on average and has a 1% chance of occurring any given year. Frequency reliability varies depending on the type of hazard considered.

Frequency (seismic waves): Frequency in regard to seismic waves refers to the number of complete cycles of a seismic wave passing a point during one second.

Fuel (Fire): Fuel for a fire could be vegetation, building material, debris, and other substances that will support combustion.

Fuel Break: Fuel break is a change in fuel continuity, type of fuel, or degree of flammability of fuel in a strategically located strip of land to reduce or hinder the rate of fire spread.

Fuel Type: Fuel type is a category of vegetation used to indicate the predominate cover of an area.

Geographic Information System (GIS): GIS is a computer software application that relates data regarding physical and other features on the earth to a database for mapping and analysis.

Goal: A goal is a general guideline that explains what is to be achieved. Goals are usually broad-based, long-term, policy-type statements and represent global visions. Goals help define the benefits that a plan is trying to achieve. The success of a hazard mitigation plan is measured by the degree to which its goals have been met (that is, by the actual benefits in terms of actual hazard mitigation).

Gradient (Slope): Gradient refers to the measure of the slope of the land surface.

Ground Failure: Ground failure is a general term referring to any type of ground cracking or subsidence, including landslides and liquefaction-induced cracks.

Ground Shaking: Ground shaking is the shaking or vibration of the ground during an earthquake.

Ground Water: Ground water is the portion of subsurface water that is in the zone of saturation.

Hazard: A hazard is a source of potential danger or adverse condition that could harm people and/or cause property damage.

Hazard Mitigation: Hazard mitigation refers to any action taken to reduce or permanently eliminate the long-term risk to human life and property and the environment posed by a hazard.

Hazard Mitigation Plan: A hazard mitigation plan is the plan resulting from a systematic evaluation of the nature and extent of vulnerabilities posed by a hazard present in society that includes the strategies needed to minimize future vulnerability to hazards.

Hazard Mitigation Grant Program (HMGP): Authorized under Section 202 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, the HMGP is administered by FEMA and provides grants to states, tribes, and local governments to implement hazard mitigation actions after a major disaster declaration. The purpose of the program is to reduce the loss of life and property due to disasters and to enable mitigation activities to be implemented as a community recovers from a disaster.

Hazus-MH: This stands for Hazards United States – Multi-Hazards and is earthquake loss estimation software that uses GIS databases developed by FEMA.

Hazards U.S. Multi-Hazard (Hazus-MH) Loss Estimation Program: Hazus-MH is a GIS-based program used to support the development of risk assessments as required under the DMA. The Hazus-MH software program assesses risk in a quantitative manner to estimate damage and losses associated with natural hazards. Hazus-MH is FEMA's nationally applicable, standardized methodology and

software program and contains modules for estimating potential losses from earthquakes, floods, and wind hazards. Hazus-MH has also been used to assess vulnerability (exposure) for other hazards.

Head (Landslide): The head of a landslide refers to the upper parts of the slide material along the contact between the disturbed material and the main scarp.

Holocene: The Holocene is a geologic epoch covering the last 10,000 years (after the last Ice Age).

HUD: U.S. Department of Housing and Urban Development

Hydraulics: Hydraulics is the branch of science or engineering that addresses fluids (especially water) in motion in rivers or canals, works and machinery for conducting or raising water, the use of water as a prime mover, and other fluid-related areas.

Hydrology: Hydrology is the analysis of waters of the earth. For example, a flood discharge estimate is developed by conducting a hydrologic study.

IBC: International Building Code

Intensity: For the purposes of this plan, intensity refers to the measure of the effects of a hazard.

Igneous Rocks: Igneous rocks are formed by the cooling and hardening of hot liquid material (magma), including rocks cooled within the earth (for example, granite) and those that cooled at the ground surface as lavas (such as basalt).

Impermeable: Impermeable materials have a texture that does not permit water to move through.

Inventory: The assets identified in a study region comprise an inventory. Inventories include assets that could be lost when a disaster occurs and community resources are at risk. Assets include people, buildings, transportation, and other valued community resources.

IPCC: Intergovernmental Panel on Climate Change

Interfluve: An interfluve is land between two streams in the same drainage basin (Interfluve, 2004).

Intermountain Seismic Belt (ISB): The ISB is a zone of pronounced seismicity, up to 120 miles wide and 800 miles long, extending from Arizona through central Utah to northwestern Montana.

IRC: International Residential Code

Lacustrine: Lacustrine is a term that means concerning or pertaining to lakes.

Landslide: Landslide is a general term for a mass of earth or rock, which moves downslope by flowing, spreading, sliding, toppling, or falling (see slope failure).

Lateral Spread: Lateral spread is defined as lateral downslope displacement of soil layers, generally several feet or more, above a liquefied layer.

Levee (Flood): A levee is a berm or dike used to contain or direct water, usually without an outlet or spillway.

Lightning: Lightning is an electrical discharge resulting from the buildup of positive and negative charges within a thunderstorm. When the buildup becomes strong enough, lightning appears as a “bolt,” usually within or between clouds and the ground. A bolt of lightning instantaneously reaches temperatures approaching 50,000°F. The rapid heating and cooling of air near lightning causes thunder.

Lightning is a major threat during thunderstorms. In the United States, an average of 182 people are injured and 33 people are killed each year by lightning (see FEMA).

Liquefaction: Liquefaction is a sudden large decrease in shear strength of a cohesionless soil (generally sand or silt) caused by collapse of soil structure and temporary increase in pore-water pressure during earthquake ground shaking.

Local Government: A local government may exist in any county, tribe, municipality, city, town, township, public authority, school district, special district, intrastate district, council of governments (regardless of whether the council of governments is incorporated as a nonprofit corporation under state law), regional or interstate government entity, or agency or instrumentality of a local government; any Indian tribe or authorized tribal organization, or Alaska Native village or organization; and any rural community, unincorporated town or village, or other public entity.

Magnitude (Earthquake): Magnitude is a quantity characteristic of the amplitude of the ground motion of an earthquake. The most commonly used measurement is the Richter magnitude scale, which is a logarithmic scale based on the motion that would be measured by a standard type of seismograph 60 miles from the earthquake's epicenter.

Metamorphic Rocks: Metamorphic rocks are formed by high temperatures and/or pressures (e.g., quartzite formed from sandstone).

Mitigation: Mitigation is the act of reducing or preventing hazards that affect society or those things deemed important to society.

Mitigation Actions: Mitigation actions are specific actions to achieve goals and objectives that minimize the effects from a disaster and reduce the loss of life and property.

Modified Mercalli Intensity (MMI): The MMI scale is the most commonly used intensity scale in the U.S.; it is a measure of the severity of earthquake shaking at a particular site as determined from its effect on the earth's surface, man, and man's structures.

NASA: National Aeronautics and Space Administration

Natural Vegetation: Natural vegetation is native plant life existing on a piece of land before any form of development.

NCDC: National Climatic Data Center

NEHRP: National Earthquake Hazards Reduction Program

NFIP: National Flood Insurance Program

NFPA: National Fire Protection Association

NOAA: National Oceanic and Atmospheric Administration

Normal Fault (Block Faulting): A normal fault is caused by crustal extension in which relative movement on opposite sides is primarily vertical.

NRC: National Research Council

NWS: National Weather Service

OTA: Congressional Office of Technology Assessment

Outlet (Dam): An outlet is a conduit through which controlled releases can be made from the reservoir.

Palmer Drought Severity Index (PDSI): The PDSI was developed by Wayne Palmer in the 1965; it measures drought severity using temperature, precipitation, and soil moisture.

Peak Ground Acceleration (PGA): Peak Ground Acceleration is a measure of the highest amplitude of ground shaking that accompanies an earthquake, based on a percentage of the force of gravity.

Period (Geologic): A period is a standard (world-wide) geologic time unit.

Permeability: Permeability is the capacity of a porous rock or soil for transmitting a fluid.

Physiographic Province: A physiographic province is defined as a region whose pattern of relief features or landforms differs significantly from that of adjacent regions.

Piping (Problem Soil and Rock): Piping is a weak incoherent layer in unconsolidated deposits that acts as a channel directing the movement of water. As the layer becomes saturated it conducts water to a free face (e.g., cliff or stream bank) that intersects the layer, and material exits out a “pipe” formed in the free face. Piping can occur in a dam as the result of progressive development of internal erosion by seepage.

Pore Space: Pore spaces are the open spaces in a rock or soil between solid grains. The spaces may be filled with gas (usually air) or liquid (usually water).

Porosity: Porosity is the ratio of the volume of pore space in rock or soil to the volume of its mass, expressed as a percentage.

PDM: Pre-Disaster Mitigation Grant Program

PGA: Peak Ground Acceleration

Preparedness: Preparedness refers to actions that strengthen the capability of government, citizens, and communities to respond to disasters.

Presidential Disaster Declaration: These declarations are typically made for events that cause more damage than state and local governments and resources can handle without federal government assistance. Generally, no specific dollar loss threshold has been established for such declarations. A Presidential Disaster Declaration puts into motion long-term federal recovery programs, some of which are matched by state programs, designed to help disaster victims, businesses, and public entities.

Probability of Occurrence: The probability of occurrence is a statistical measure or estimate of the likelihood that a hazard will occur. This probability is generally based on past hazard events in the area and a forecast of events that could occur in the future. A probability factor based on yearly values of occurrence is used to estimate probability of occurrence.

Probable Maximum Flood (PMF): A PMF would result from the most severe combination of critical meteorological and hydrologic conditions possible in a region.

Probable Maximum Precipitation (PMP): PMP is the maximum amount and duration of precipitation that can be expected to occur on a drainage basin.

Problem Soil and Rock: Problem soil and rock are geologic materials that are susceptible to volumetric changes, collapse, subsidence, or other engineering geologic problems.

Project Impact: Project Impact is an initiative of the Federal Emergency Management Agency intended to modify the way in which the United States handles natural disasters. The goal of Project Impact from a federal government perspective is to reduce the personal and economic costs of hazard events by bringing together the private and public sector to better enable the citizens of a community to protect themselves from natural hazards.

Quaternary: A quaternary is a geologic time period covering the last 1.6 million years.

Recurrence Interval: A recurrence interval refers to the length of time between occurrences of a particular event (e.g., an earthquake).

Repetitive Loss Property: A repetitive loss property is any NFIP-insured property that, since 1978 and regardless of any changes of ownership during that period, has experienced:

- Four or more paid flood losses in excess of \$1000.00; or
- Two paid flood losses in excess of \$1000.00 within any 10-year period since 1978; or
- Three or more paid losses that equal or exceed the current value of the insured property.

Return Period (or Mean Return Period): This term refers to the average period of time in years between occurrences of a particular hazard (equal to the inverse of the annual frequency of occurrence).

RHRC: Regional Hub Reception Center

Riverine: Riverine means of or produced by a river. Riverine floodplains have readily identifiable channels. Floodway maps can only be prepared for riverine floodplains.

Risk: Risk is the estimated impact that a hazard would have on people, services, facilities, and structures in a community. Risk measures the likelihood of a hazard occurring and resulting in an adverse condition that causes injury or damage. Risk is often expressed in relative terms, such as a high, moderate, or low likelihood of sustaining damage above a particular threshold due to occurrence of a specific type of hazard. Risk also can be expressed in terms of potential monetary losses associated with the intensity of the hazard.

Risk Assessment: Risk assessment is the process of measuring potential loss of life, personal injury, economic injury, and property damage resulting from hazards. This process assesses the vulnerability of people, buildings, and infrastructure to hazards and focuses on (1) hazard identification; (2) impacts of hazards on physical, social, and economic assets; (3) vulnerability identification; and (4) estimates of the cost of damage or costs that could be avoided through mitigation.

Risk Ranking: This ranking serves two purposes—first to describe the probability that a hazard will occur, and second to describe the impact a hazard will have on people, property, and the economy. Risk estimates for the city are based on the methodology that the city used to prepare the risk assessment for this plan. The following equation shows the risk ranking calculation: Risk Ranking = Probability Impact (people property economy)

Robert T. Stafford Act: The Robert T. Stafford Disaster Relief and Emergency Assistance Act, Public Law 100-107, was signed into law on November 23, 1988. This law amended the Disaster Relief Act of 1974, Public Law 93-288. The Stafford Act is the statutory authority for most federal disaster response activities, especially as they pertain to FEMA and its programs.

Rock Fall: Rock fall is the abrupt free fall or down slope movement, such as rolling or sliding, of loosened blocks or boulders from an area of bedrock. The rock-fall runout zone is the area below a rock-fall source that is at risk from falling rocks.

Rock Topple: A rock topple is the forward rotation movement of a rock unit(s) about some pivot point.

RSI: Regional Snowfall Index

Runout Zone (Avalanche): The runout zone for an avalanche is where a snow avalanche slows down and comes to rest (deposition zone). For large avalanches, the runout zone can include a powder- or wind-blast zone that extends far beyond the area of snow deposition.

Sand Blow (Earthquake): A sand blow is a deposit of sandy sediment ejected as water and sand to the surface, formed when ground shaking has caused liquefaction at depth.

Scarp: A scarp is a relatively steeper slope separating two more gentle slopes. Scarps can form as result of earthquake faulting.

Sediment: Sediment is material that is in suspension, is being transported, or has been moved from its site of origin by water, ice, or wind and has come to rest on the earth's surface either above or below the sea level.

Sedimentary Rocks: Sedimentary rocks are formed from loose sediment, such as sand, mud, or gravel deposited by water, ice, or wind, and then hardened into rock (e.g., sandstone) or formed by dissolved minerals precipitating out of solution to form rock (e.g., tufa).

Seiche: A seiche is a standing wave generated in a closed body of water, such as a lake or reservoir. Ground shaking, tectonic tilting, sub aqueous fault rupture, or landslides into water can all generate a seiche.

Seismic Waves: Seismic waves are vibrations in the earth produced during earthquakes.

Seismicity: Seismicity refers to seismic or earthquake activity.

Sensitive Clay: Sensitive clay is soil that experiences a particularly large loss of strength when disturbed. Deposits of sensitive clay are subject to failure during earthquake ground shaking.

SFHA: Special Flood Hazard Area

Shear Strength: Shear strength is defined as the internal resistance that tends to prevent adjacent parts of a solid from “shearing” or sliding past one another parallel to the plane of contact. It is measured by the maximum shear stress that can be sustained without failure.

Shear Stress: Shear stress is defined as a stress causing adjacent parts of a solid to slide past one another parallel to the plane of contact.

SHELDUS: Spatial Hazard Events and Losses Database for the U.S.

Slope Failure: Slope failure is a general term referring to any type of natural ground movement on a sloping surface (see *landslide*).

Slump: A slump is a slope failure that slides along a concave rupture surface. Generally, slumps do not move very far from the source area.

Snow Avalanche: A snow avalanche is a rapid down slope movement of a mass of snow, ice, and debris.

Special Flood Hazard Area (SFHA): The SFHA is a base floodplain delineated on a Flood Insurance Rate Map. The SFHA is mapped as a Zone A in riverine situations and Zone V in coastal situations. The SFHA may or may not encompass all of a community's flood problems.

Spectral Acceleration: Spectral acceleration is the measurement for approximate horizontal force experienced in a model earthquake. Measurements are specific to the frequency of shaking found to affect buildings during an earthquake. A 0.2-second period affects primarily one- and two-story buildings while a 1.0-second period of spectral acceleration affects buildings approximately 10 stories in height.

SPI: Standardized Precipitation Index

Stakeholder: Stakeholders could be business leaders, civic groups, academia, non-profit organizations, major employers, managers of critical facilities, farmers, developers, special purpose districts, and others whose actions could impact hazard mitigation.

Starting Zone (Avalanche): The starting zone of an avalanche is where the unstable snow or ice breaks loose and starts to slide.

Steep Slope: Different communities and agencies define it differently, depending on what it is being applied to, but generally a steep slope is a slope in which the percent slope equals or exceeds 25%. For this study, steep slope is defined as slopes greater than 33%.

StormReady Program: This is a program of the National Weather Service that helps arm America's communities with the communication and safety skills needed to save lives and property before and during a storm event. StormReady helps community leaders and emergency managers strengthen local safety programs. StormReady communities are better prepared to save lives from the onslaught of severe weather through advanced planning, education, and awareness.

Stream Bank Erosion: Stream bank erosion is common along rivers, streams, and drains where banks have been eroded, sloughed, or undercut. However, it is important to remember that a stream is a dynamic and constantly changing system. It is natural for a stream to want to meander, so not all eroding banks are "bad" and in need of repair. Generally, stream bank erosion becomes a problem where development has limited the meandering nature of streams, where streams have been channelized, or where stream bank structures (like bridges, culverts, etc.) are located in places where they can actually cause damage to downstream areas. Stabilizing these areas can help protect watercourses from continued sedimentation, damage to adjacent land uses, and unwanted meandering and improve habitats for fish and wildlife.

Subsidence: Subsidence is a settling or sinking of the earth's crust.

Surface Fault Rupture (Surface Faulting): A surface fault rupture is a propagation of an earthquake-generated fault rupture to the ground surface, displacing the surface and forming a scarp.

Sustainable Hazard Mitigation: This concept includes the sound management of natural resources, local economic and social resiliency, and the recognition that hazards and mitigation must be understood in the largest possible social and economic context.

Tectonic Subsidence: Tectonic subsidence is subsidence (down dropping) and tilting of a basin on the down dropped side of a fault during an earthquake.

Thunderstorm: A thunderstorm is a storm with lightning and thunder produced by cumulonimbus clouds. Thunderstorms usually produce gusty winds, heavy rains, and sometimes hail. Thunderstorms are usually short in duration (seldom more than two hours). Heavy rains associated with thunderstorms can lead to flash flooding during the wet or dry seasons.

Toe (Landslide): The toe of a landslide is the margin of disturbed material most distant from the main scarp.

Tornado: A tornado is a violently rotating column of air extending between and in contact with a cloud and the surface of the earth. Tornadoes are often (but not always) visible as funnel clouds. On a local scale, tornadoes are the most intense of all atmospheric circulations, and winds can reach destructive speeds of more than 300 mph. A tornado's vortex is typically a few hundred meters in diameter, and damage paths can be up to one mile wide and 50 miles long.

Track (Avalanche): This is the slope or channel down which a snow avalanche moves at a fairly uniform speed.

Unconsolidated Basin Fill: Unconsolidated basin fill is un-cemented and non-indurated sediment, chiefly clay, silt, sand, and gravel, deposited in basins.

Urban Area: An urban area is a geographical area, usually of incorporated land, covered predominately by engineered structures, including homes, schools, commercial buildings, service facilities, and recreational facilities.

USACE: United States Army Corps of Engineers

USGS: U.S. Geological Survey

Velocity (Ground Motion): Velocity is the rate of displacement of an earth particle caused by passage of a seismic wave.

Vulnerability: Vulnerability describes how exposed or susceptible an asset is to damage. Vulnerability depends on an asset's construction, contents, and the economic value of its functions. Like indirect damage, the vulnerability of one element of the community is often related to the vulnerability of another. For example, many businesses depend on uninterrupted electrical power. Flooding of an electric substation would affect not only the substation itself but businesses as well. Often, indirect effects can be much more widespread and damaging than direct effects.

Watershed: A watershed is an area that drains downgradient from areas of higher land to areas of lower land to the lowest point, which is often a common drainage basin.

Weathering: Weathering is defined as a group of processes (such as the chemical action of air, rainwater, plants, and bacteria and the mechanical action of temperature changes) whereby rocks on exposure to the weather change in character, decay, and finally crumble into soil.

Wildfire: A wildfire is uncontrolled fire burning in vegetation.

Wildland Area: A wildland area is a geographical area of unincorporated land covered predominately by natural vegetation.

Wildland Urban Interface (WUI): WUIs are wildland vegetation and forested areas adjacent to or intermingled with residential developments.

Windstorm: Windstorms are generally short-duration events involving straight-line winds or gusts exceeding 50 mph. These gusts can produce winds of sufficient strength to cause property damage. Windstorms are especially dangerous in areas with significant tree stands, exposed property, poorly constructed buildings, mobile homes (manufactured housing units), major infrastructure, and aboveground utility lines. A windstorm can topple trees and power lines; cause damage to residential, commercial, and critical facilities; and leave tons of debris in its wake.

Zone of Deformation (Earthquake): In an earthquake, the zone of deformation is the width of the area of surface faulting over which earth materials have been disturbed by fault rupture, tilting, or subsidence.

Zoning Ordinance: The zoning ordinance designates allowable land use and intensities for a local jurisdiction. Zoning ordinances consist of two components—a zoning text and a zoning map.

44 CFR: Title 44 of the Code of Federal Regulations

100-Year Flood: The term “100-year flood” can be misleading. The 100-year flood does not necessarily occur once every 100 years. Rather, it is the flood that has a 1% chance of being equaled or exceeded in any given year. Thus, the 100-year flood could occur more than once in a relatively short period of time. The Federal Emergency Management Agency (FEMA) defines it as the 1% annual chance flood, which is now the standard definition used by most federal and state agencies and by the National Flood Insurance Program (NFIP).

APPENDIX B: PLANNING TEAM, MEETING PARTICIPATION, & MEETING DOCUMENTS

Initial Planning Meeting—April 27, 2021

The plan revision began in April 2021 with a virtual kickoff meeting with the state of Idaho to initiate the project.

| ATTENDANCE ROSTER—APRIL 27, 2021 | |
|------------------------------------|--------------------|
| Agency | Representative |
| Nell J. Redfield Memorial Hospital | Jean Thomas |
| Malad City | Joan Hawkins |
| Nell J. Redfield Memorial Hospital | John Williams |
| Idaho Transportation Department | Dan Daniels |
| Malad High School | Kurt Davis |
| Road & Bridge | Lisa Baker |
| Oneida County | Bob Christophersen |
| Oneida County Sheriff's Office | Arne Jones |
| Southeastern Idaho Public Health | Avis Semrad |
| Integrated Solutions Consulting | Daiko Abe |

| Oneida County (Meeting Name & Date) <i>Kick off Meeting</i> <i>4/27</i> | | | | | |
|---|--------------------------|-----------------------|---|---|-----------|
| Name | Title | Agency | If you traveled to this event, what is the estimated mileage? | Are you Federally funded or funded via Federal grant? | Signature |
| <i>Jean Thomas</i> | <i>grat. W. Sr.</i> | | | | |
| <i>Joan Williams</i> | <i>Mayor</i> | <i>City</i> | | | |
| <i>John Williams</i> | <i>Hosp Admin.</i> | | | | |
| <i>Dan Daniels</i> | <i>Foreman</i> | <i>State of Idaho</i> | | | |
| <i>Carl Davis</i> | <i>Malad High School</i> | | | | |
| <i>Lisa Baker</i> | <i>County Roads</i> | | | | |
| <i>Bob Christophersen</i> | <i>Oneida County</i> | | | | |
| <i>Arne Jones</i> | <i>Sheriff</i> | | | | |
| <i>Avis Semrad</i> | <i>Public Health</i> | | | | |
| | | | | | |
| | | | | | |
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Stakeholder Kickoff Meeting—July 20, 2021

The first workshop to begin planning and discussing the five-year update was held on July 20, 2021 at the Oneida County Fire Station in Malad City, Idaho. The purpose of the meeting was to familiarize attendees with the topic of disaster mitigation, introduce the mitigation plan and update process, and identify hazards of concern in the county.

| ATTENDANCE ROSTER—JULY 20, 2021 | |
|--|-----------------------|
| Agency | Representative |
| Integrated Solutions Consulting | Daiko Abe |
| Southeastern Idaho Public Health | Heather Flaherty |
| Southeastern Idaho Public Health | Paige Ellis |
| Oneida County Sheriff’s Office | Arne Jones |
| Ham Radio Club | Jim Mustos |
| Oneida County | Bob Christophersen |
| Idaho Office of Emergency Management | Darin Letzring |
| Malad City | Mike Semrad |
| Malad City | Joan Hawkins |
| Idaho Enterprise | Brandon Hall |
| Raccoon Radio Club | Brenda Daniels |
| Road & Bridge | Dianna Dredge |
| ATC Communications | Julie Williams |
| Nell J. Redfield Memorial Hospital | Jean Thomas |
| Emergency Services | Dan Williams |
| Oneida County | Ken Eliason |
| Malad Public Works | Tyler Webster |

You are invited to attend our Oneida County Hazard Mitigation Plan Stakeholder kickoff meeting. Your attendance is strongly encouraged.

- **When:** Tuesday, July 20, at 6 p.m.
- **Where:** Malad Fire Department (92 S 100 W, Malad City, ID 83252)

What is this meeting?

Oneida County is in the process of updating our Multi-Jurisdictional Hazard Mitigation Plan. The plan outlines the actions jurisdictions in Oneida County take to reduce the impact to disasters. **Developing and adopting a local mitigation plan is a REQUIREMENT for federal disaster funding.**

How does this meeting help my department/jurisdiction meet the requirement?

The good news is Oneida County is developing a county-wide plan, which means we're doing most of the work for you! However, we still need to document your department/jurisdiction's involvement in the planning process. That is why we are hosting this meeting as the first step. By attending this meeting, you can show your department/jurisdiction is involved in the planning update.

Who needs to attend?

The designated Point-of-Contact for your department/jurisdiction. We also recommend your department/jurisdiction invite representatives from the following disciplines:

| | |
|--------------------------------|-------------------|
| Building Code Enforcement | Planning & Zoning |
| Elected Officials | Road and Bridge |
| Fire | School District |
| Floodplain Administration | Law Enforcement |
| Geographic Information Systems | Legal |
| | School District |

Please share this email with those representatives you want to attend this meeting.

How long is the meeting?

The meeting is only scheduled to last an hour, because we want to be respectful of your time.

What all is being covered in the meeting?

The meeting will very briefly cover what is involved in mitigation planning, what actions your department/jurisdiction needs to do to meet the planning requirements. We will also discuss hazard concerns and potential mitigation projects.

When is the meeting?

- Tuesday, July 20, 2021 at 6 p.m.

Where is the meeting?

- Malad Fire Station (92 S 100 W, Malad City, ID 83252)

If you have any questions, please do not hesitate to contact me.

Thank you,

Dan Williams

Local Jurisdiction Workshop—December 1, 2021

A meeting to workshop existing and new mitigation projects for the five-year update of the Oneida County Multi-Jurisdictional All Hazard Mitigation Plan was held on December 1, 2021 at the Oneida County Fire Station in Malad City, Idaho. Dan Williams, Oneida County Emergency Services Coordinator, conducted the meeting. The purpose of the meeting was to review the mitigation plan update process, discuss new federal mitigation programs, and update and identify existing and new mitigation projects for the county.

Those in attendance completed a worksheet that allowed them to identify any specific hazard concerns they had within their jurisdiction/organization. On another worksheet, the attending members then marked the status of ongoing mitigation projects from the previous plan and identified any new projects they wanted to include in the update.

| ATTENDANCE ROSTER—DECEMBER 1, 2021 | |
|---|-----------------------|
| Agency | Representative |
| Integrated Solutions Consulting | Daiko Abe |
| Southeastern Idaho Public Health | Devin Hughes |
| Oneida County Fire Department | Rob Hess |
| Oneida County Sheriff's Office | Arne Jones |
| Nell J. Redfield Memorial Hospital | John Williams |
| Oneida County | Bob Christophersen |
| Idaho Office of Emergency Management | Darin Letzring |
| Malad City | Joan Hawkins |
| Idaho Transportation Department | Dylan Hunt |
| Idaho Transportation Department | Quort Sullivan |
| Road & Bridge | Dianna Dredge |
| BLM | Wade Christophersen |
| Oneida County | Bill Lewis |
| Emergency Services | Dan Williams |
| Oneida County Ambulance | Britney Leckie |
| Integrated Solutions Consulting | Bayli Luebke |
| Malad Public Works | Tyler Webster |
| Oneida County Fire District | Geoff Green |
| Oneida County Fire District | Ray N Davis |
| Oneida School District | Robert Hannah |
| Public/LDS Church | Cory Ihler |
| Public/LDS Church | Jeffery Francom |
| Brandon Hall | Idaho Enterprise |



- SIGN-IN SHEET: Hazard Mitigation Plan Update -

Hazard Mitigation Plan Meeting: 12/1/2021 Mitigation Workshop + Public Meeting
 Oneida County, Idaho Malad Fire Department 6pm - 8pm

| Hazard Mitigation Planning Meeting | | | |
|------------------------------------|---------------------------|--------------|---------------------------------|
| Name | Organization | Phone | E-mail |
| Daiko Abe | ISC | 208-390-2021 | daiko.dba@i-s-consulting.com |
| Darin Letering | FOEM | 208-417-9546 | dletering@i-o-d.idaho.gov |
| DEVIN HUGHES | SIPIH | 208-243-1097 | DHUGHES@SIPIH.IDAHO.GOV |
| ARNIE JONES | Oneida Co Sheriff | 208-241-9793 | sheriff@oneidasheriff.net |
| Rob Hess | Oneida Co. Fire | 208-709-4469 | Rob.Hess27@gmail |
| ROB CHRISTOPHERSON | COMMINSURANCE | 209-766-4227 | robert_bob_christopherson@gmail |
| John Williams | NSPML | 208-475-2226 | john.williams@oneidajail.co |
| Ray Adams | Oneida Fire District | 208-705-5858 | rayadams@oneidafire.com |
| Dylan Hunt | Idaho Transportation Dept | 208-815-0138 | dylan.hunt@itd.idaho.gov |
| ROBT SULLIVAN | ITd | 208-816-6449 | robt.sullivan@itd.idaho.gov |
| Diana Dredge | County | 208-766-3270 | ddredge@ofonet.net |
| W. Christopherson | BCM | 208-709-2451 | gchristopher@bcm.gov |
| TYLER WEBSTER | MALAD CITY | 816-344-4494 | |
| Bill Lewis | Oneida County | 208-970-1879 | blewis@oneida.id.us |
| Britney Leckie | Oneida Ambulance | 208-815-6303 | britney.leckie@oneidaamb.com |
| Bayli Luedke | ISC | 719-649-2541 | bayli_star@gmail.com |

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SAVE THE DATE

**Oneida County, Idaho
2021 All Hazard Mitigation Plan (AHMP) Update
Local Jurisdiction Workshop
(Public Invited)**

Wednesday, December 1, 2021 | Malad Fire Station (92 S 100 W, Malad City, ID 83252)

Time: 6:00 PM - 8:00 PM

Bring your local planning team to our mitigation workshop. This **in-person** workshop will give our local planning team an opportunity to work with the All Hazard Mitigation Planning team to identify local hazards and areas of concern, review previously identified mitigation actions, develop future mitigation projects, prioritize mitigation projects moving forward and update your jurisdiction's section of the 2021 All Hazard Mitigation Plan.

Why: Participating in updates to the mitigation plan is a FEMA Requirement to be eligible for mitigation-related federal disaster funding before and after disasters. By bringing your local planning team to this workshop, you will be completing that requirement.

Who: This workshop is for every jurisdiction within Oneida County, and the interested public. Recommended attendees include (if applicable):

| | |
|--------------------------------|-------------------|
| Building Code Enforcement | Planning & Zoning |
| Elected Officials | Road and Bridge |
| Fire | School District |
| Floodplain Administration | Law Enforcement |
| Geographic Information Systems | Legal |
| General Public | School District |

Workshop Agenda:

The purpose of this meeting is to engage and collect information from the individual jurisdictions of Oneida County.

- Mitigation Overview
- Risk Summary/Risk Assessment Findings
- Jurisdiction Hazard Summary Activity and Breakout Session
- Review Ongoing Mitigation Actions/Projects
- Identify New Mitigation Actions

AGENDA

Oneida County, Idaho

2021/22 Hazard Mitigation Plan (HMP) Update

Local Jurisdiction Workshop

Wednesday, December 1, 2021

6:00 PM - 8:00 PM

Malad Fire Station | 92 S 100 W, Malad City, ID 83252

- Introductions
- Mitigation Overview
- Risk Summary/Risk Assessment
- Jurisdiction/Agency Hazard Summary Worksheet
- Changing Landscape of the Federal Mitigation Program & Leveraging the Plan for Future Mitigation Assistance Funds
- Review Ongoing Mitigation Actions/Projects
- Identify New Mitigation Actions
- Next Steps

Handout: New Mitigation Actions (Oneida County)

Name:

Organization/Department:

E-mail:

Phone:

New Mitigation Action (Please Describe):

| | |
|-----------------------------------|------------------------------|
| Year Initiated | 2022 (New Mitigation Action) |
| Applicable Jurisdiction | |
| Lead Agency/Organization | |
| Supporting Agencies/Organizations | |
| Potential Funding Source | |
| Estimated Cost | |
| Benefits (loss avoided) | |
| Projected Completion Date | |
| PRIORITY (High, Medium, Low) | |

Please indicate if the mitigation goals and objectives below are applicable to the new mitigation action/project). Check All That Apply.

| | |
|---|--|
| X | Place an "X" by the applicable goals, if applicable |
| | 1. To preserve life and minimize the potential for injuries or death. |
| | 2. To preserve and enhance the quality of life throughout Oneida County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage and economic losses. |
| | 3. To promote countywide coordination, planning, and training and to better prepare for disasters. |
| | 4. Integrate hazard mitigation into all appropriate plans and policies and identify potential funding sources for mitigation projects and form the basis for FEMA project grant applications. |
| | 5. Enhanced public information and education of risks and threats in Oneida County to empower personal preparedness, responsibility and a culture of resiliency. |
| | 6. Ensure continuity of government services and business operations. |

Handout: New Mitigation Actions (Oneida County)

This mitigation action:

Instructions: Circle the best option

| | Strongly Disagree (1) | Disagree (2) | Neither Agree or Disagree (3) | Agree (4) | Strongly Agree (5) |
|---|--------------------------|-----------------|----------------------------------|--------------|-----------------------|
| Social: Do you agree or disagree that the mitigation action is more likely to: be acceptable to the community; does not adversely affect a particular segment of the population; does not cause relocation of lower income people and is compatible with the community's social and cultural values. | 1 | 2 | 3 | 4 | 5 |
| Technical: Do you agree or disagree that the mitigation action is technically effective in providing a long-term reduction of losses and has minimal secondary adverse impacts. | 1 | 2 | 3 | 4 | 5 |
| Administrative: Do you agree or disagree that your jurisdiction/organization has the necessary staffing and funding to carry-out this mitigation action. | 1 | 2 | 3 | 4 | 5 |
| Political: Do you agree or disagree that the mitigation action has the support of the public and stakeholders who have been offered an opportunity to participate in the planning process. | 1 | 2 | 3 | 4 | 5 |
| Legal: Do you agree or disagree that the jurisdiction or implementing agency has the legal authority to implement and enforce the mitigation action. | 1 | 2 | 3 | 4 | 5 |
| Economic: Budget constraints can significantly deter the implementation of mitigation actions. Do you agree or disagree that the mitigation action is cost-effective, as determined by a cost benefit review, and is possible to fund? | 1 | 2 | 3 | 4 | 5 |
| Environmental: Do you agree or disagree that the mitigation action is sustainable and does not have an adverse effect on the environment, complies with federal, state, and local environmental regulations, and is consistent with the community's environmental goals. | 1 | 2 | 3 | 4 | 5 |

Place an "X" by the hazard(s) this action/project will mitigate:

| Mitigated Hazards | |
|-------------------|---|
| X | Place an "X" by the applicable hazard |
| | All Hazards |
| | Dam Failure |
| | Drought |
| | Earthquake |
| | Extreme Cold |
| | Extreme Heat |
| | Flood (Riverine/Stream) |
| | Flood (Urban/Flash Flooding) |
| | Landslide/Avalanche |
| | Severe Thunderstorm (Hail, Lightning) |
| | Severe Winter Storm |
| | Tornado and High Winds |
| | Wildfire |
| | Active Shooter |
| | Civil Disorder/Riot |
| | Hazardous Materials Release |
| | Public Health Emergency (pandemic) |
| | Terrorism |
| | Mad Cow/Hoof and Mouth |
| | Prolonged Power Outage/Utility Disruption |

Public Planning Meeting—May 26, 2022

A planning meeting was held on May 26th specifically to ensure the public had an opportunity to participate in the planning process. The meeting gave the public an opportunity to review new and ongoing mitigation strategies. The public was invited to inform the planning process, validate the final risk assessment findings, and suggest any additional mitigation strategies.

TOPIC: All Hazard Mitigation PLAN Meeting DATE: 5-26-22

| NAME | COMPANY | PHONE | EMAIL ADDRESS |
|--------------------|---|--------------|---------------------------------------|
| Kevin Letering | IOEM | 208 417 9576 | kletering@ind.idaho.gov |
| Rosey Hill | BLM | 208 478 6365 | rhill@blm.gov |
| TYLER WEBSTER | CITY OF MALAD | 816-344-4494 | MALAD PUBLIC WORKS @ GMAIL.COM |
| JULIE WILLIAMS | ATC COMMUNICATIONS | 208-766-2882 | jwilliams@atccomm.com |
| LON COLTON | ONEIDA County | 208-266-4116 | lcolton@oneida.id.us |
| Geoff Green | O.C Fire district | 208-351-6269 | oneidafiredistrict@gmail.com |
| Sharon Thomas | national & Assoc | 208-509-2267 | sharonj2@is4.edu |
| Brandon Hall | Idaho Enterprise | 208-766-4773 | newsdesk1@atcnet.net |
| Dianna Dredge | Road & Bridge | 208 766 3270 | LBOUR@atcnet.net |
| Ken Eliason | Commissioner | 208-604-3341 | keliason@atcnet.net |
| BOB CHRISTOPHERSON | COMMISSIONER | 208-766-4237 | Robert Bob Christopherson @ GMAIL.COM |
| Law Williams | REDAVELL'S MEMORIAL HOSPITAL & MALAD AREA | 208 479 7226 | Law.Williams@cmhstodakhospital.com |
| Cory Ihler | Malad LDS STAKE | 208-851-0466 | coryihler@atcnet.net |
| Bill Lewis | Oneida County Commissioner | 208-970-1379 | blewis@oneida.id.us |
| Juan Hawkins | Malad City | 208-241-2178 | juan@maladcitymayor@gmail.com |
| Paige Ellis | Southeastern Idaho Public Health | 208-221-4424 | pellis@si-ph.idaho.gov |
| | | | |
| | | | |
| | | | |

AGENDA

Oneida County, Idaho

2022 Hazard Mitigation Plan (HMP) Update

Public Meeting

Thursday, May 26, 2022
6:30 PM - 8:00 PM

Malad Fire Station | 92 S 100 W, Malad City, ID 83252

- Introductions
- Mitigation Overview
- Changing Landscape of the Federal Mitigation Program & Leveraging the Plan for Future Mitigation Assistance Funds
- Final Risk Summary/Risk Assessment Findings
- Review New and Ongoing Mitigation Actions/Projects
- Review Key Sections of the Plan
- Next Steps

APPENDIX C: NEWSPAPER ARTICLES

Idaho Enterprise Newspaper Article Regarding Stakeholder Kickoff Meeting on July 20, 2021

Hazard Mitigation Plan Update Workshop Held

The second meeting of the Oneida County Hazard Mitigation group was held at the Fire Station on Wednesday, December 1st. The meeting was a follow-up to an initial meeting held earlier in the fall, and served as a midway point in the overall process of submitting a Hazard Mitigation plan to FEMA, which will allow the county to apply for both pre-mitigation and post-response mitigation funding from a variety of federal grants. The ultimate plan is scheduled to be submitted to the state and then federal authorities in the early spring.

Daiko Abe is a representative of Integrated Solutions, the company with whom the county has contracted for the development of the mitigation plan. Abe, and Integrated Solutions, have successfully created similar mitigation plans for a number of other cities, counties, and localities. According to Abe, due to a number of changes at the federal level in terms of how funds are being distributed and classified, right now is an excellent time for counties the size of Oneida to apply for funds.

"Disaster Mitigation,"

as defined by Abe, refers to "any sustained action taken to reduce or eliminate risk to life or property from a hazardous event." The primary purposes of disaster mitigation at the systemic level include: ensuring continuity, maintaining compliance with FEMA, increasing public awareness of disaster events, promoting interagency cooperation, and, most importantly, protecting human life and property in every way possible.

Over the last 100 years, the rate of mortality associated with natural disasters has decreased at nearly the same rate the cost to property has increased. This reflects both the increased density of humans in the environment, as well as the steps put in place to reduce fatality.

As a result of a number of federal spending initiatives over the last several years, and a number of new funds resulting from COVID relief as well as the newly passed infrastructure bill, there are estimates of over 3 billion dollars potentially available in federal grants, with potentially \$11 million available in the state. Many of these

programs—such as the BRIC (Building Resistant Infrastructure Communities) and Public Assistance (PA) programs—essentially pay 75% of the cost of approved projects that either prepare against, or remediate disasters of a number of different types. Many of these projects are well outside the abilities of smaller counties such as Oneida in terms of their cost, though combinations of these federal funds and other in kind donations (that of materials, labor, etc in place of direct financing) could make them feasible.

BRIC funds are set aside by FEMA as a percentage of the monies spent during the previous budget cycle for disaster relief. Approximately 6% of those funds are set aside for the next year to serve as a basis for the available funds related to emergency planning and disaster mitigation.

The logic behind pre-response mitigation is that anticipating potential emergency situations and creating disaster resistant infrastructure can greatly reduce the costs for all stakeholders of whatever events might occur. For instance, creating an ef-

fective storm drainage system is much more financially prudent than paying for post-flood reconstruction, which will involve a new drainage system in any case.

During the first workshop, a number of general areas of potential concern for the county were discussed. Those present at the time created a set of issues that were consolidated by Integrated Solutions into a word cloud and ranked display. Among the most prominent concerns were threats to the power grid, flooding concerns, wildfires, and the possibility of another earthquake of the magnitude that rocked the town in 1975. Extreme weather at both ends of the scale, animal disease outbreaks, and hazardous material releases were also discussed.

This workshop session gave representatives of various emergency response agencies throughout the valley a chance to more specifically elaborate on the project areas they felt were most likely to present issues in the future for their departments. The meeting was attended by representatives of the Sheriff's Office, the



Daiko Abe talks with Sheriff Jones

Emergency Planner, the Road and Bridge Department, the Nell J Redfield Memorial Hospital, the City of Malad, the County, and others, who listed out specific concerns within their various agencies for inclusion into the larger mitigation plan.

The suggestions from the working group will be constructed into a list of potential projects by Integrated Solutions. Some of these projects might include the expansion or creation of drainage areas and culverts, stormwater management, wildfire breaks, road maintenance and improvement, backup power supplies, information delivery, and others.

The group will next meet in January or Febru-

ary to examine a draft of the mitigation plan after Integrated Solutions has had a chance to propose a series of specific plan solutions and incorporate them into a set of specific recommendations, as well as discuss those findings during a public meeting. After the group itself has had a chance to view and approve the plan by February, it will be finalized and then sent to the state for validation sometime in March, after which it will be sent to FEMA. Once the plan is officially validated, it will serve as a roadmap for any potential claims on disaster mitigation projects or emergency funds requested in the future.

Idaho Enterprise Newspaper Article Regarding Local Jurisdiction Workshop on December 1, 2021

Emergency Planning Committee meets

On Tuesday, July 20 the county's Emergency Manager Dan Williams held a meeting featuring speaker Daiko Abe from Integrated Solutions, a company which has taken on a contract to help the county develop a disaster mitigation plan in order to qualify for funds from FEMA and other federal agencies.

Abe explained that the 4 phases of disaster management include Preparation, Mitigation, Response, and Recovery. The point was stressed that the first two phases are the best places to minimize, or at least reduce, the loss of life and property as the result of various disasters. A mitigation plan is also required to be in compliance with FEMA regulations every 5 years. According to Abe, the Oneida County plan submitted for the last FEMA compliance process was "a really well done plan" and that the committee would be "in a really great starting place."

The initial meeting was designed to introduce county stakeholders to Abe and the planning sequence for the upcoming months, during which the mitigation plan will begin to take shape. At present, there are plans for several more meetings during the fall, culminating in a finalized plan at the end of January next year, and a Federal and State review scheduled during February or March of 2022.

The meeting was attended by a range of business owners, county officials, ranchers, the local HAM radio club, county commissioner Bob Christopherson, Nell J Redfield Memorial Hospital administrator John Williams, the Oneida County Sheriff, and others.

The federal government reported a potential

pool of over a billion dollars allocatable this year for Disaster Mitigation projects through FEMA, which require a suitable mitigation plan in place in order for communities to qualify for application under the BRIC (Building Resilient Infrastructure for Communities) grant system. The available money is primarily the result of funds from the Disaster Recovery Reform Act, under which a certain amount of money is set aside based on the prior's year's expenses on disaster mitigation.

As part of the presentation, the assembled group was asked to comment on what they felt were the most pressing potential disasters in the area, which might impact both the city of Malad, as well as Oneida County more broadly. Wildfires were the most frequently referenced potential disaster, with flooding, unexpected damage to the power grid and cybersecurity also high on the list.

Abe assured the group who would largely be expected to attend and participate in the upcoming mitigation plan meetings, that Integrated Solutions would do the lion's share of work at developing and finalizing the plan itself as a deliverable to the authorizing authorities, provided that the input from local stakeholders was sufficient to allow for a plan that was responsive to the local area in a comprehensive way. The cost to the community would ultimately end up being matched three to one by the FEMA funds, which makes the incentive to come up with a feasible plan moving forward very compelling.

The next meeting has not been scheduled yet, but will take place sometime during the beginning of October.

Idaho Enterprise Newspaper Article Regarding Public Meeting on May 26, 2022

**National Level
Exercise 2022**

— Dan Williams

Dan Williams reported on the upcoming Hazard Mitigation meeting, which will be held at the Firehouse on May 26 at 6:30 to finish the county's hazard mitigation plan. The completed plan will allow the county to qualify for a range of FEMA funds after it goes into effect. Williams requested one of the commissioners attend a national level emergency preparedness exercise with him in June. The commissioners determined to see whether they could work the meeting into their schedules. The forest service is scheduled to speak with the commission and Dan Williams in anticipation of the upcoming fire season.

APPENDIX D: PLAN ADOPTION AND ENDORSEMENT FORMS

[Will be included upon State and FEMA Approval]

APPENDIX E: REFERENCES

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