BOISE STATE UNIVERSITY

Hazard Mitigation Plan

Boise State University

TETRA TECH

April 2021

Boise State University Hazard Mitigation Plan

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PREPARED FOR

Boise State University

Office of Emergency Management
Department of Public Safety/Campus Operations Division
1910 University, MS#1287
Boise, ID 83725-1287
eoc@boisestate.edu
(208) 426-3638
https://www.boisestate.edu/publicsafety-emergencymanagement/

PREPARED BY

Tetra Tech

90 South Blackwood Avenue
Eagle, ID 83616

Phone: 208.939.4391
Fax: 208.939.4402
tetratech.com

Tetra Tech Project #103s6389

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ACKNOWLEDGMENTS

Project Manager

Rob Littrell
Assistant Director, Emergency Management
Boise State University
(208) 426-3638 office
Email: roblittrell@boisestate.edu

Other University Staff

- Jan Webster, Management Assistant, Department of Public Safety

Consultants

- Rob Flaner, CFM, Project Manager/Lead Project Planner, Tetra Tech, Inc.
- Carol Bauman, GISP, Risk Assessment Lead, Tetra Tech, Inc.
- Desmian Alexander, Planner, Tetra Tech, Inc.
- Dan Portman, Technical Editor, Tetra Tech, Inc.

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ACRONYMS/ABBREVIATIONS

Acronym or Abbreviation	Definition
AES	Architectural, Engineering Services
AQI	Air Quality Index
BLM	Bureau of Land Management
BPD	Boise Police Department
BREN	Boise River Enhancement Network
BRIC	Building Resilient Infrastructures and Communities grant program
C&CB	Capability and Capacity Building
CARE	Campus Assessment Resource and Education
CDBG-DR	Community Development Block Grant Disaster Recovery grants
CFR	Code of Federal Regulations
cfs	cubic feet per second
CIP	Capital Improvement Plan
CPF	Campus Planning and Facilities
CPSM	Capital Planning and Space Management
DHS	Department of Homeland Security
DMA	Disaster Mitigation Act of 2000
DPS	Department of Public Safety
DPS-OEM	Department of Public Safety-Office of Emergency Management
DRU	Disaster Resistant University
EAP	Emergency Action Plan
EHSS	Environmental Health, Safety and Sustainability
EMPG	Emergency Management Performance Grant
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FERC	RC—Federal Energy Regulatory Commission
FIRM	Flood Insurance Rate Map
FMA	Flood Mitigation Assistance
FO&M	Facilities, Operations & Maintenance
GIS	Geographic Information System
H&RL	Housing and Residence Life
Hazus	Hazards, United States
HMA	Hazard Mitigation Assistance Programs
HMGP	Hazard Mitigation Grant Program
HSGP	Homeland Security Grant Program
IBC	International Building Code
ICC	International Code Council
IDWR	Idaho Department of Water Resources
IRC	International Residential Code
MM	Modified Mercalli Scale

Acronym or Abbreviation	Definition
NEHRP	National Earthquake Hazards Reduction Program
NFIP	National Flood Insurance Program
NOAA	National Oceanic and Atmospheric Administration
NWS	National Weather Service
OEM	Office of Emergency Management
OIT	Office of Information Technology
PDM	Pre-Disaster Mitigation Grant Program
PGA	Peak Ground Acceleration
SPI	Standardized Precipitation Index
TOD	Transit-Oriented Development
USGS	U.S. Geological Survey

EXECUTIVE SUMMARY

INTRODUCTION

Disasters affect university campuses in the United States with high frequency, sometimes causing death and injury, and always imposing monetary losses and disruption of the institution's teaching, research, and public service. Natural, human-caused, technological and public health hazards directly impact the safety and well-being of university faculty, staff and students. They can result in loss of educational time for students and economic hardship for the university and community. While most hazards cannot be eliminated, their effects can be substantially reduced through comprehensive pre-disaster planning and mitigation actions. Boise State University has prepared a hazard mitigation plan to assess hazard-related risks and identify mitigation projects that will assist the university in preventing loss from future hazard events.

Boise State was previously included in the Idaho State Hazard Mitigation Plan prepared in 2013, and in 2016 the University participated in a multi-jurisdictional hazard mitigation plan prepared by Ada County and the cities and special-purpose districts within the county's borders. The current plan is Boise State's first stand-alone hazard mitigation plan. This plan is not intended to replace Boise State's coverage under the Idaho State Hazard Mitigation plan, but to work in conjunction with both the Ada County Hazard Mitigation plan and the Idaho State Hazard Mitigation Plan.

The first step in developing this hazard mitigation plan was to establish a planning team to carry out the planning process and a steering committee of University stakeholders to guide the planning team. The planning team assembled a list of candidates representing interests within the planning area that could have recommendations for the plan or be impacted by its recommendations. From these candidates, a steering committee was formed to oversee all phases of the plan update. The members of this committee included faculty, facility managers, students, state and local representatives and other stakeholders from the Boise State community.

Broad public participation in the planning process helped ensure that diverse points of view about the planning area's needs were considered and addressed. The public had opportunities to comment on disaster mitigation plans during the drafting stages and prior to plan approval. The planning team conducted a survey on local knowledge about hazards and mitigation, established a website to report on the plan's progress, and launched a variety of outreach activities to keep the campus community informed about the development of the plan.

The planning process was about two-thirds complete when the first cases of COVID-19 began to be reported in Idaho in March 2020. The March Steering Committee meeting was postponed in response to a statewide stay-at-home order. As COVID-19 impacts continued to rise, Ada County consistently reported among the highest numbers in the state. From March through December, progression on the hazard mitigation plan was at a standstill as the University dealt with the response to COVID-19. These impacts resulted in a gap in the planning process; however, all required planning steps were still conducted by the University.

CAMPUS PROFILE

Boise State University was founded in 1932 as Boise Junior College by the Episcopal church. After two years, the school became independent, and in 1940 it moved from St. Margaret's Hall to its present site, along the south bank of the Boise River, between Capitol Boulevard and Broadway Avenue. In 1965 it gained four-year status as Boise College and began awarding baccalaureate degrees. Four years later, the school joined the Idaho state system of higher education and was renamed Boise State College. In 1974, Boise State gained university status to become Idaho's third university.

Located today near downtown Boise in Ada County, Idaho, Boise State is a multi-faceted, state-supported institution of higher education. The main campus's more than 190 buildings on a 183-acre site include academic buildings, associated auxiliary facilities, and a considerable number of outlying buildings used for academic and associated purposes. Instructional vocational non-campus remote facilities are also maintained and operated in Meridian, Nampa, Payette, Boise, Mountain Home, and Twin Falls, Idaho. Fraternity and sorority houses (non-campus remote facilities) are also maintained and operated in Boise. Table ES-1 summarizes the critical assets of the University.

Table ES-1. Boise State Critical Assets

Asset	
Property	
Main Campus	183 acres
Off Campus Properties (Dona Larsen Park, Boas Tennis Center, Yanke Research Park, Gage Warehouse, Warm Springs Property, Park & Ride)	53 Acres
Total Acres	274.92
Total Property Value	*$83,804,288*
Critical Facilities	
Owned Buildings	177
Leased Buildings	14
Total Buildings	191
Total Building Value Replacement Cost	$1,631,675,012
Total Building Content Value	$293,754,474
Total Buildings + Contents Value	*$1,925,429,486*
Equipment	
Insured Equipment (all items over $2,000 value; 10,335 items)	$11,335,670
Auto/Fleet (195+ vehicles)	$767,487
Total Equipment Value	*$12,103,157*
Total Value	$2,021,336,931

The university employs 3,289 faculty and staff and has an enrollment of 26,272 students. The majority of Boise State University's population (about 86 percent) resides off-campus in non-university housing. Boise State offers about 200 programs of study, including 14 doctoral programs. The University confers more degrees annually than any other university in Idaho, and its programs are growing each year, with over $200 million being spent on academics and another $70 million to expand the athletics department. In addition to conducting academics and research, the university hosts multiple events on campus, with some sporting and performance events bringing up to 45,000 visitors to campus.

Boise State's total endowment is $117,104,602. The university has 24,661 unique donors as of Fiscal Year 2019. Boise State's direct and indirect activity generated $667.2 million in the state for that year, mostly in the Boise metropolitan area. The university is also a major employment driver, generating 6,987 jobs — whether through direct employment with the university or through other industries that benefit from the university's activities, such as real estate, rental activity, hotels and motels, food services, hospitals and more.

Much future development is planned for the Boise State campus. Boise State's vision and strategic direction are reflected in the 2015 Campus Master Plan, which was in the process of being updated at the time of this mitigation planning process. Highlights from the campus master plan include the following:

- The plan illustrates over 20 new academic building sites, adding over 2 million square feet of space.
- The plan strives to enhance a sense of community and belonging while adding capacity for over 2,000 new student beds, potentially doubling the number of students living on campus.
- The plan more than doubles the pedestrian center of the campus, moving vehicular traffic and major parking structures closer to campus entrances. A new circulation network will facilitate the management of vehicular traffic to prioritize pedestrians, cyclists, skaters, long boarders and transit riders.
- The master plan update illustrates capacity for significant new facilities between University Drive and Boise Avenue, which will be served by a proposed new central street and two future parking structures.

RISK ASSESSMENT

Risk assessments in this hazard mitigation plan describe the risks associated with each of 12 identified hazards of concern. The sections below summarize the assessments for each hazard.

Active Threat

An active threat is an event in which one or more persons are actively engaging in killing or attempting to kill people in a populated area. It includes active shooters as well as bomb threats. Active threat situations are unpredictable and evolve quickly. Table ES-2 summarizes the risk assessment for the active threat hazard at Boise State.

Table ES-2. Active Threat Risk Assessment

Profile	To date, there have been no active shooter incidents at Boise State University. There have been several bomb threats to Boise State University within the past few years.
Exposure and Vulnerability	Any of the over 190 structures owned and/or operated by Boise State could be considered exposed to the Active shooter hazard. For this profile, exposure and vulnerability are considered to be one and the same.
Scenario	Any scenario that involves a potential loss of life that could be avoided is a worst-case scenario.
Issues	• Prior planning and careful practice will empower the University and its staff to make the best decisions in a heightened situation, with the goal of preserving lives. • As an academic institution, with a potential vulnerable population, Boise State has active shooter risk • Campus community awareness about active threats are mission critical to preparing for, responding to and recovering from active threat incidents.

Air Quality

Local air quality can affect our daily lives. Like the weather, it can change from day to day. The federal Air Quality Index summarizes information about the health effects of the five most common air pollutants (ground-level ozone, particulate matter, carbon monoxide, sulfur dioxide, and nitrogen dioxide) and how to avoid their effects. Table ES-3 summarizes the risk assessment for the air quality hazard at Boise State.

Table ES-3. Air Quality Risk Assessment

Profile	In 2018, three Boise State University stations tracked air pollution near high traffic roads and neighborhoods and near elementary schools in the Boise School District. The results revealed average concentration levels were higher with an increase in traffic. At major intersections, particulate matter concentrations were higher on average during peak traffic hours. At the Amalgamated Sugars Plant, an increase in pollution during the night was measured due to increased semi-truck activity. The highest concentration measured at any school was well below the U.S. Environmental Protection Agency's (EPA's) allowed daily threshold of concern.
Exposure and Vulnerability	Students, faculty and support staff represent the biggest asset on the Boise State campus exposed to the air quality hazard. Some are more sensitive to the air quality hazard than others. Sensitive populations include the elderly, those with respiratory diseases, the young (children of employees and students that live on campus, and women who are pregnant (or may become pregnant).
Scenario	The worst-case scenario for this hazard would be prolonged periods of poor air quality (150 or higher on the Air Quality Index) that would interrupt outdoor sporting events that are sources of revenue of Boise State and/or an extreme wildfire smoke event that causes morbidity and/or mortality among enough people that campus health (or other local health) resources are overwhelmed.
Issues	• Air quality impacts on the Boise State campus are regional and not directly under the control of Boise State. • Poor air quality can impact outdoor activities for the campus community, which could have financial consequences for Boise State. • Air filtration systems for buildings are costly and vary across the Boise State inventory of buildings. • Air quality is not perceived as a high-risk hazard

Civil Disturbance

Civil disturbance refers to groups of people purposely choosing not to observe a law, regulation or rule, usually in order to bring attention to their cause, concern or agenda. They include riots, demonstrations, threatening individuals or assemblies that have become disruptive and may cause harm to others. Table ES-4 summarizes the risk assessment for the civil disturbance hazard at Boise State.

Table ES-4. Civil Disturbance Risk Assessment

Profile	Because of its often-spontaneous nature, it is difficult to identify specific location and severity for civil disturbance. There have been episodes of civil disturbance in Idaho, as long ago as 1885 and as recently as 2020. In public forums, the university may not regulate the content of speech but can place reasonable time, place, and manner restrictions. University Policy 1100 regulates the use of university space. The Responsible Party is the Vice President for Student Affairs and Enrollment Management. The policy applies to all University-owned and/or University-controlled facilities and property and to all users of the facilities and property.
Exposure and Vulnerability	The entire Boise State campus is vulnerable to the civil disturbance hazard. Civil disorder incidents disrupt the University's academic schedule and campus operations and events and can lead to injury and/or death for involved persons, innocent bystanders and responders.
Scenario	A worst-case scenario for this hazard for Boise State would be socially charged event that would escalate to a riot status that would lead to damage to property and death or injury to participants and/or first responders.
Issues	• This type of hazard has not typically been an issue for the Boise State campus, but as the campus community grows, the campus could become a target for civil disturbance incidents. • Generally, there will be a certain degree of warning time that a riot may occur; however, achieving certainty that an incident is imminent is not possible.

Cyberthreats

Cyberthreats refer to persons who attempt unauthorized access to a control system or network using a data communications pathway. This can be from within an organization by trusted users or from remote locations by unknown persons. Table ES-5 summarizes the risk assessment for the cyberthreat hazard at Boise State.

Table ES-5. Cyberthreat Risk Assessment

Profile	As is the case for any large government organization, Boise State will continue to be impacted and compelled to respond to cyber disruption events in the future. The nature of these attacks is projected to evolve over time. With the establishment of the Idaho Cybersecurity Taskforce in 2015, strategies and processes to detect vulnerabilities, prevent future attacks, and protect state governmental networks are being developed.
Exposure and Vulnerability	Anywhere on the Boise State campus that relies on computer technology and network-based systems for operational and support services is exposed and vulnerable to the cyberthreat hazard. There are no known quantitative approaches to estimating the vulnerability to cyberthreats. For this hazard profile, exposure and vulnerability are viewed the same.
Scenario	A worst-case scenario for the cyberthreat hazard on the Boise State campus would be attack that would affect multiple systems that would result in a shutdown of campus activities for a prolonged period.
Issues	• The campus community's reliance on computers and computer technology makes it highly susceptible to cyber. • A large-scale cyber attack to the Boise State system could result in significant functional down-time for the university. • Ever-more sophisticated cyberattacks have placed the data and assets of institutions and individuals at constant risk. • Rapid advances in intelligent technologies plus conflicting demands posed by evolving national security and individual privacy regulations negatively impact organizations' ability to control their own information.

Dam Failure

Failure of the Lucky Peak Dam has the potential to cause extensive damage on the Boise State campus. Table ES-6 summarizes the risk assessment for the dam failure hazard at Boise State.

Earthquake

An earthquake is the vibration of the earth's surface that follows a release of energy in the earth's crust. This energy can be generated by a sudden dislocation of segments of the crust or by a volcanic eruption. Most destructive quakes are caused by dislocations of the crust. Table ES-7 summarizes the risk assessment for the earthquake hazard at Boise State.

Fire

Nationwide from 2000 through 2015, there were 85 fatal fires in dormitories, fraternities, sororities and off-campus housing, resulting in 118 fatalities — an average of approximately seven per year. Table ES-8 summarizes the risk assessment for the fire hazard at Boise State.

Flood

The frequency and severity of flooding are measured using a discharge probability, which is the probability that a certain river discharge (flow) will be equaled or exceeded in a given year. Flood studies use historical records to determine the probability of occurrence for different discharge levels. The extent of flooding associated with a 1-percent annual probability of occurrence (the base flood or 100-year flood) is used as the regulatory boundary by many agencies. Table ES-9 summarizes the risk assessment for the flood hazard at Boise State.

Table ES-6. Dam Failure Risk Assessment

Profile	The planning team secured inundation mapping from the U.S. Army Corps of Engineers for the Lucky Peak Reservoir, whose failure is the dam failure event most likely to have the largest impact on the planning area. This inundation area is the focus of the risk assessment for the dam failure hazard.
Exposure	192 buildings on the Boise State campus with an estimated total replacement value of $1.67 billion are within the mapped Lucky Peak Dam failure inundation area. All campus populations occupying buildings in a dam failure inundation zone would be exposed to the risk of a dam failure. This population would fluctuate with class schedules and much of it would be transient.
Vulnerability	Estimated damage/loss amounts for the Lucky Peak Dam failure on the Boise State campus total 86 percent of the total estimated building replacement value, or $1.46 billion. Vulnerable populations are all populations downstream from dam failures that are incapable of escaping the area within the allowable time frame. This population includes the elderly, the young, and those with access and functional needs who may be unable to get themselves out of the inundation area. The vulnerable population also includes those who would not have adequate warning from a television, cell phone or radio emergency warning system.
Scenario	An earthquake in the region could lead to liquefaction of soils around a dam. This could occur without warning during any time of the day. A human-caused failure such as a terrorist attack also could trigger a catastrophic failure of a dam.
Issues	• Federally regulated dams have an adequate level of oversight for public notification in the unlikely event of failure. However, the protocol for notification of downstream citizens of imminent failure needs to be tied to local emergency response planning. • Mapping that estimates inundation depths is needed for non-federally regulated dams to better assess the risk associated with failure of these facilities. • For non-federally regulated dams, mapping of dam failure scenarios that are less extreme than the probable maximum flood but have a higher probability of occurrence can be valuable to emergency managers and community officials downstream of these facilities. • The concept of residual risk associated with structural flood control projects should be considered in the design of capital projects and the application of land use regulations. • Addressing security concerns and the need to inform the public of the risk associated with dam failure is a challenge for public officials.

Table ES-7. Earthquake Risk Assessment

Profile	Southwestern Idaho is a medium-risk area. Boise State is near two fault zones: the western Idaho fault system and Owyhee Mountains fault system. The Squaw Creek, Big Flat and Jake Creek faults are active structures near Emmett, about 25 miles north of Boise. The Squaw Creek fault has geologic evidence for movement as recently as 7,600 years ago. About 57 miles southeast of Boise and 13 miles from Grand View is the Water Tank fault, which was active as recently as 3,000 years ago. Other faults in and around Ada County do not appear to be active.
Exposure	The entire campus and population of Boise State University is potentially exposed to direct and indirect impacts from earthquakes.
Vulnerability	Estimated loss on campus for earthquake is $1.4 million for the 100-year probabilistic event, $17.5 million for the 500-year probabilistic event, and $54.9 million for the scenario of a Magnitude-7 earthquake on the Squaw Creek fault.
Scenario	The seismic event likely to have the largest impact is a 7.1 magnitude or greater event on the Squaw Creek fault. Earthquakes of this magnitude or higher would lead to massive structural failure of property on unstable soils.
Issues	• Geotechnical standards should be established that consider the probable impacts from earthquakes in the design and construction of new or enhanced facilities. • Hazard mitigation plan survey results indicate that the public does not perceive a significant seismic risk in the planning area. • Unreinforced masonry structures in the planning area are particularly vulnerable to the earthquake hazard. • It is difficult to develop seismic retrofit projects that are cost-effective for FEMA hazard mitigation grant programs, due to the lack of state and federal risk data to support FEMA benefit-cost methodologies.

Table ES-8. Fire Risk Assessment

Profile	Twenty-five percent of structures on campus are equipped with fire suppression sprinkler systems; 68 percent are constructed with fire resistive materials. There were two fire incidents in calendar year 2016, and no fire incidents in calendar years 2017 or 2018. Fire suppression response and preparedness for Boise State is the responsibility of the City of Boise Fire Department. Emergency response services are delivered from 17 fire stations located throughout the city in a 130+ square mile response area.
Exposure and Vulnerability	Anywhere on the Boise State campus could be exposed and vulnerable to the Fire hazard. The degree of vulnerability would vary based on building construction type and fire suppression system (sprinklers) availability.
Scenario	A worst-case scenario for the fire hazard on the Boise State campus would be an electrical failure that would affect multiple fire systems in multiple campus buildings. That would result in a shutdown of campus activities as well as the likely evacuation of students and staff for a prolonged period.
Issues	• The fire risk for Boise State is considered to be low.

Table ES-9. Flood Risk Assessment

Profile	Flooding in Ada County is typically caused by high-intensity, short-duration (1 to 3 hours) storms concentrated on a stream reach with already saturated soil. Two types of flooding are typical: flash floods that occur suddenly after a brief but intense downpour; and riverine floods that occur when river flows gradually rise above the river's banks. Ada County experiences episodes of river flooding almost every winter. Large floods that can cause property damage typically occur every three to seven years. Urban portions of the county annually experience nuisance flooding related to drainage issues.
Exposure	158 buildings on the Boise State campus with an estimated total replacement value of $1.60 billion are within the mapped 500-year flood zone.
Vulnerability	Estimated damage/loss amounts for the 500-year flood event on the Boise State campus total $4.16 million.
Scenario	The worst-case scenario is a series of storms that flood numerous drainage basins in a short time. This could overwhelm the response and floodplain management capability within the planning area. Major roads could be blocked, preventing critical access for many residents and critical functions.
Issues	• Flood hazard maps should be updated with the best available data. • The extent of the flood-protection currently provided by flood control facilities is not known. • Climate change could alter flood conditions in Ada County. • There needs to be a sustained effort to gather historical damage data, such as high-water marks on structures and damage reports. • The campus community should be educated about flood preparedness and resources available.

Hazardous Materials

Hazardous materials are substances that are considered severely harmful to human health and the environment, as defined by the U.S. EPA's Comprehensive Environmental Response, Compensation, and Liability Act (commonly known as Superfund). If released or misused, hazardous substances can cause death, serious injury, long-lasting health effects, and damage to structures, other properties, and the environment. Table ES-10 summarizes the risk assessment for the hazardous materials hazard at Boise State.

Power Outage

U.S. power customers experienced an average of nearly five hours of power interruptions in 2019, with an average of 3.2 hours during major (hurricane, wildfire, etc.) events and 1.5 hours of interruptions without major events. The U.S. Department of Energy estimates that these events cost U.S. businesses as much as $150 billion per year. Table ES-11 summarizes the risk assessment for the power outage hazard at Boise State.

Table ES-10. Hazardous Materials Risk Assessment

Profile	Hazardous materials are used and stored throughout the campus and can include petroleum products, laboratory chemicals, batteries, and compressed gas cylinders. Because hazardous materials are so widely used, stored and transported, a hazardous material event could take place almost anywhere.
Exposure and Vulnerability	Anywhere on the Boise State campus where individuals can be exposed biological or chemical materials is both exposed and vulnerable to the hazardous materials hazard.
Scenario	A worst-case scenario for the hazardous materials hazard on the Boise State campus would be a failure in hazardous material management or disposal that exposes the wider campus population to toxic exposures. That would result in a shutdown of campus activities as well as the likely evacuation of students and staff for a prolonged period.
Issues	• Serious hazardous materials incidents are relatively rare and difficult to predict • While there are hazardous materials on the Boise State campus, they are contained and confined, so the risk from this hazard is considered to be low.

Table ES-11. Power Outage Risk Assessment

Profile	All structures on the Boise State campus rely electrical power to some degree. Electrical power interruption can impact any campus facility. Power outages are frequent within Ada County, however, long-term outages that cause damages are not.
Exposure and Vulnerability	Anywhere on the Boise State campus that relies on electricity for operational and support services is exposed and vulnerable to the power outage hazard. This would apply to the entire campus. For this hazard profile, exposure and vulnerability are viewed the same.
Scenario	A worst-case scenario for the power outage hazard on the Boise State campus would be an electrical failure that would affect multiple systems in multiple campus buildings. That would result in a shutdown of campus activities for a prolonged period.
Issues	• Power outages can damage equipment that rely on electricity. This can be exacerbated by power surges when power is restored. • When a data center goes down due to a power outage, the loss of mission-critical data can occur. • Less than 10% of the buildings on campus are equipped with backup power. • Student housing lacks sufficient backup power.

Public Health

An outbreak is defined by the U.S. Centers for Disease Control and Prevention (CDC) as the occurrence of more cases of disease than normally expected within a specific place or group of people over a given period. On April 9, 2020, the President issued a major disaster declaration for all 50 states, including Idaho, due to the Coronavirus Disease 2019 (COVID-19). As of the time of this plan's preparation, the global COVID-19 pandemic is ongoing. Table ES-12 summarizes the risk assessment for the public health hazard at Boise State.

Severe Weather

Severe weather refers to any dangerous meteorological phenomena with the potential to cause damage, serious social disruption, or loss of human life. The most common severe weather events that impact the planning area are excessive heat events, damaging winds and severe winter weather. Table ES-13 summarizes the risk assessment for the severe weather hazard at Boise State.

Table ES-12. Public Health Risk Assessment

Profile	Health hazards that affect the residents of Ada County may arise in a variety of situations, such as during a communicable disease outbreak, after a natural disaster, or as the result of a bioterrorism incident. The mission of Boise State's Department of Environmental Health, Safety and Sustainability is to strengthen and improve the overall health of individuals, organizations, the environment, and communities. Several members of this department have assisted in projects related to the COVID-19 pandemic. University Health Services also provides convenient, accessible and high-quality health care to the campus community.
Exposure and Vulnerability	Anywhere on the Boise State campus where students and staff gather in large numbers is both exposed and vulnerable to the public health hazard. This applies to the entire campus, notably residential, athletic, and recreational facilities. For this hazard profile, exposure and vulnerability are viewed the same
Scenario	A worst-case scenario for the public health hazard on the Boise State campus would be a health epidemic that would affect multiple students and staff, resulting in a shutdown of campus activities for a prolonged period. With the current COVID-19 pandemic affecting the Boise State University population (as of August 2020) the campus is currently dealing with such a scenario.
Issues	• Challenges associated with keeping students, faculty, staff, and volunteers safe in the face of public health disease • Maintaining healthy environments on campus even when there are no public health concerns

Table ES-13. Severe Weather Risk Assessment

Profile	The three severe weather types of concern for the University—excessive heat, wind, and winter weather—cover broad areas and are not more likely to affect any portion of the planning area. The entire planning area would be equally affected. The planning area can expect to experience exposure to some type of severe weather event at least annually.
Exposure	It can be assumed that the entire planning area is exposed to some extent to severe weather events.
Vulnerability	Populations vulnerable to severe weather hazards tend to be the elderly, low income or linguistically isolated populations, people with life-threatening illnesses, residents living in areas that are isolated from major roads, and residents who lack proper shelter. Properties in poor condition or in particularly vulnerable locations may risk the most damage
Scenario	A worst-case event would involve prolonged high winds during a winter storm accompanied by thunderstorms. Such an event would have both short-term and longer-term effects.
Issues	• Older building stock built to low code standards could be vulnerable to events such as windstorms. • The capacity for backup power generation is limited. • Street tree management programs should be evaluated to help reduce impacts from tree-related damages

RISK RANKING

Through a facilitated exercise with the Steering Committee, a risk ranking was performed for the hazards of concern described in this plan using the quantitative data from the risk assessment. Based on this process, a priority of high, medium or low was assigned to each hazard. Table ES-14 shows the hazard risk ranking.

MISSION, GOALS AND OBJECTIVES

The Steering Committee identified the following mission/vision statement for this plan:

> To increase our resilience to hazards in order to protect health safety and welfare and continuity of operations for the Boise State community

Table ES-14. Hazard Risk Ranking

Hazard Ranking	Hazard Event	Score	Category
1	Cyberthreats	51	High
2	Flood	45	High
3	Power Outage	42	High
5	Air Quality	36	High
5	Public Health	36	High
5	Severe Weather	36	High
6	Earthquake	32	High
7	Dam Failure	18	Medium
7	Hazardous Materials	18	Medium
8	Active Threat	9	Low
8	Civil Disturbance	9	Low
9	Fire	3	Low

The following are the mitigation goals for the plan:

- Goal 1: Protect health and safety of the campus community (students, faculty, staff and visitors)
- Goal 2: Reduce future losses from hazard events
- Goal 3: Ensure continuity of operations
- Goal 4: Increase awareness of hazard/threat mitigation, preparedness, response and recovery

Identified objectives are as follows:

1. Take proactive steps to prevent loss of life, serious injury and/or property damage.
2. Improve warning systems and ability to communicate to the campus community during and following a disaster or emergency.
3. Provide protection for existing structures, future development, services, utilities, and grounds to the maximum extent possible.
4. Develop hazard-specific plans, conduct studies or assessments, and retrofit facilities to mitigate for hazards and minimize their impact.
5. Prevent damage to campus critical facilities.
6. Protect IT and other campus critical infrastructure.
7. Develop and provide information to students, faculty, and staff about the types of hazards they are vulnerable to, what the impact could be, where the University is at risk, and what they can do to be better prepared.
8. Minimize the impact of hazard events by incorporating hazard mitigation and adaptation into other existing planning endeavors.

RECOMMENDED MITIGATION ACTIONS

The Steering Committee identified actions that could be implemented to provide hazard mitigation benefits. Table ES-15 lists the recommended actions. Each action was assigned a priority for implementation and for pursuing grant funding. The priorities are included in the table, along with a qualitative assessment of whether benefits and costs are high, medium, or low.

The mitigation action plan presents a range of action items for reducing loss from hazard events. Some action items can be implemented through the creation of new educational programs, continued interagency coordination, or improved public participation. The planning team and the Steering Committee have established goals and objectives and have prioritized mitigation actions that will be implemented through existing plans, policies and programs. Boise State can begin to implement the highest-priority actions over the next five years. The Boise State Office of Emergency Management (OEM) will have lead responsibility for overseeing the plan implementation.

Table ES-15. Action Plan

	Benefits	Costs	Implementation Priority	Grant Pursuit Priority
Action-01: Identify and construct safe rooms and or evacuation sanctuaries in appropriate buildings throughout the campus	High	High	Medium	High
Action-02: Retrofit all campus classrooms and office spaces with inside locks or secure access (card readers) devices to provide secure shelter-in-place refuges	High	Medium	High	Medium
Action-03: Develop student/employee disaster kits for use during emergencies on campus	Medium	Medium	High	N/A
Action-04: Continue to improve camera surveillance system to include all campus areas, including key external and internal building areas	High	Medium	High	Medium
Action-05: Replace aging campus radio trunk system to ensure communications interoperability during disasters on campus	High	High	Medium	High
Action-06: Enhance building access systems with the integration of cameras, alarms, and motion sensors to enhance building security.	High	High	Medium	High
Action-07: Build up the emergency notification system to include redundant communications and improve efficient distribution during emergencies on campus. Expand capability to include: • Reader boards inside buildings • Voice notification systems • Outside ‘big-voice” system to replace the retired Carillon that covers the entire campus property footprint • Computer alerts and banners • Classroom alert signs	High	High	Medium	High
Action-08: Conduct a comprehensive analysis of underground utility infrastructure (fiber, electric, steam, storm water, cable, etc.) to identify vulnerabilities due to expansion of the university, climate change, and increased frequency of severe weather events; and recommend mitigation actions to protect.	High	High	Medium	High
Action-09: Flood-proof identified facilities on campus vulnerable to flood and/or dam failure risk as possible to reduce future flood damage	High	High	Medium	High
Action-10: Improve drainage throughout campus to avoid nuisance flooding in older campus buildings, streets and parking lots by installing drainage conveyance facilities where there are none and/or enhancing existing conveyance facilities.	High	High	Medium	High

	Benefits	Costs	Implementation Priority	Grant Pursuit Priority
Action-11: Develop and implement a vegetation management policy to ensure maintenance of open space around all buildings on campus	Medium	Low	High	N/A
Action-12: Acquire a generator with the capability to fully power the Student Union Building and possibly Sawtooth/Honors College during major incidents to allow these buildings to be used as shelters for warming, feeding and sleeping	High	High	Medium	High
Action-13: Acquire generators to provide continuous HVAC for all campus-owned residence halls and apartments	High	High	Medium	High
Action-14: Acquire generators for academic and operations support buildings to continue operations during extended power outages	High	High	Medium	High
Action-15: Continue to define/refine building design guidelines that provide the maximum, affordable safety standards for all new buildings and renovation projects	Medium	Medium	High	Medium
Action-16: Develop and maintain an enterprise system using GIS, CAD or other appropriate technologies, including existing Hazus models/applications, with the goal of providing a common platform to support planning, preparedness and mitigation activities for all campus managers	Medium	Medium	High	N/A
Action-17: Update, maintain and improve detailed inventories/information regarding hazardous chemicals, biological and radiological agents, animals, and critical works of art and cultural treasures	Medium	Medium	High	N/A
Action-18: Update the Emergency Operations Plan annually and provide to the Emergency Policy Group and Incident Management Team for review.	Medium	Medium	High	Medium
Action-19: Develop student/faculty disaster supply stockpiles for use during incidents on campus.	High	Medium	High	Medium
Action-20: Continue to expand/refine continuity plans for all academic, research, and support operations on campus to minimize downtime following a disaster impacting campus	Medium	Medium	High	N/A
Action-21: Develop memorandums of agreement with all external agencies necessary for aid before, during and after a disaster	Medium	Medium	High	N/A
Action-22: Build a new, efficient, environmentally friendly Central Power Plant to provide electricity, steam, hot water, and chilled water for the main campus to increase the sustainability and continuity of campus operations impacted by loss of power.	High	High	Medium	Medium
Action-23: Evaluate utility loops and redundancies in the campus electrical grid and continue to look into opportunities for alternate power	Medium	Medium	High	Medium
Action-24: Investigate current vulnerability of existing Office of Information Technology servers and generators and assess possibility of moving them to non-vulnerable locations (i.e. self-contained mobile data centers)	High	High	Medium	High
Action-25: Install additional uninterruptible power supply units throughout all campus server rooms to preclude power disruptions to the campus alarm systems.	High	High	Medium	High
Action-26: Continue to provide targeted/workplace violence awareness academics to all faculty, students and staff to raise preparedness on campus	Medium	Low	High	N/A
Action-27: Provide community outreach and education regarding hazards on campus during orientation, move-in, safety fairs and additional displays	Medium	Low	High	N/A
Action-28: Promote the development, and refinement of Emergency Action Plans for all departments and buildings on campus	Medium	Low	High	Medium

	Benefits	Costs	Implementation Priority	Grant Pursuit Priority
Action-29: Educate and train campus leaders about natural hazard vulnerability and assure comprehensive understanding of preparedness, response, mitigation, and recovery actions among key decision-makers (Emergency Policy Group/Incident Management Team)	Medium	Low	High	N/A
Action-30: Create an educational program to inform the campus community of risks that is continuous and provides sources of information on how to mitigate the impact of these risks and respond if something does occur.	Medium	Low	High	N/A
Action-31: Continue to define/refine building design guidelines that provide the minimum safety standards for all new buildings and renovation projects.	Medium	Low	High	Medium
Action-32: Develop/design specific mitigation projects plans with identified funding sources to add to this action plan through plan maintenance.	Medium	Low	High	N/A
Action-33: Ensure that infrastructure- and/or facility-based hazard mitigation and resiliency projects are considered and accurately reflected on the Campus Master Plan.	Medium	Low	High	N/A
Action-34: Conduct a campus assessment of areas vulnerable to vehicle-ramming incidents. Assessment can then inform areas where physical protection is most needed.	Medium	Low	High	N/A
Action-35: Replace critical roofs that are nearing end-of-warranty or are prone to damage from major weather events.	Medium	Medium	High	N/A
Action-36: Conduct a comprehensive, campus-wide facility condition assessment. Data will inform buildings with greatest infrastructure needs, often those that weaken the University's ability to mitigate hazards and improve resiliency. Effort should entail commitments for a long-term data integrity plan.	High	High	Medium	High
Action-37: Research water sustainability and reuse facilities that relieve Boise State's reliance on outside vendors and sources.	Medium	Low	High	NA

Part 1. Background and Methods

1. INTRODUCTION

Disasters affect university and college campuses in the United States with high frequency, sometimes causing death and injury, and always imposing monetary losses and disruption of the institution’s teaching, research, and public service. Natural, human-caused, technological and public health hazards directly impact the safety and well-being of university faculty, staff and students. They can result in loss of educational time for students and economic hardship for the university and community. Damage to campus buildings and infrastructure and interruption to the institutional mission result in losses that can be measured by faculty and student departures, decreases in research funding, and increases in insurance premiums.

While most hazards cannot be eliminated, their effects can be substantially reduced through comprehensive pre-disaster planning and mitigation actions. Boise State University (Boise State) has prepared this hazard mitigation plan to assess hazard-related risks and identify mitigation projects that will assist the university in preventing loss from future hazard events.

1.1 WHAT IS HAZARD MITIGATION

Hazard mitigation is defined as a way to reduce or alleviate the loss of life, personal injury, and property damage that can result from a disaster through long- and short-term strategies. It involves strategies such as planning, policy changes, programs, projects, and other activities that can mitigate the impacts of hazards.

The federal Disaster Mitigation Act (DMA) requires state and local governments to develop hazard mitigation plans as a condition for federal disaster grant assistance. The Federal Emergency Management Agency’s (FEMA) Disaster Resistant University (DRU) initiative under the DMA provides for universities to be eligible for funding from federal assistance programs for hazard mitigation projects. The DRU program’s primary objective is to encourage universities to implement mitigation through actions that focus on safeguarding their research capacity as well as the human capital associated with their academic environment.

1.2 BOISE STATE UNIVERSITY HAZARD MITIGATION PLANNING HISTORY

Boise State University’s hazard mitigation planning history is associated with two previous hazard mitigation plans prepared by other jurisdictions. The University received initial coverage under the Idaho State Hazard Mitigation Plan first prepared in 2013. In 2016, though still covered by the state plan, the University participated in a multi-jurisdictional hazard mitigation plan prepared by Ada County and the cities and special-purpose districts within the county’s borders. Boise State was not designated as a planning partner in the Ada County plan but, because of its relevance within the county planning area, supported the planning effort and prepared its own annex assessing risk and outlining mitigation actions.

The current plan is Boise State's first stand-alone hazard mitigation plan. The University chose to prepare this plan through the DRU program to address the unique risks and needs that academic institutions face in hazard mitigation. The purpose of this plan is to promote sound university policy designed to protect students, faculty, staff, citizens, critical facilities, infrastructure, intellectual property and the environment from natural and human-caused hazards. This plan identifies resources, information, and strategies for reducing risk from those hazards. Elements and strategies in the plan were selected because they meet a program requirement and because they best meet the needs of the campus community. This plan is not intended to replace Boise State's coverage under the Idaho State Hazard Mitigation plan, but to work in conjunction with both the Ada County Hazard Mitigation plan and the Idaho State Hazard Mitigation Plan.

1.3 PLAN ORGANIZATION

The Boise State University Hazard Mitigation Plan consists of three parts:

- Part 1 describes the concept of hazard mitigation, the process and methodologies used to develop this hazard mitigation plan, and significant hazard-related profile characteristics of the University, its campus, and the Boise State community.
- Part 2 provides a detailed risk assessment of the specific hazards of concern to Boise State. The assessment of each hazard describes the history, location, frequency and severity of the hazard, the University's exposure to the hazard, and the potential losses that could result from occurrences of the hazard.
- Part 3 defines the University's goals and objectives for hazard mitigation, recommended actions to mitigate hazard risks, and a strategy for implementing the recommended actions.

2. PLANNING PROCESS

2.1 PLANNING TEAM AND STEERING COMMITTEE

The first step in developing this hazard mitigation plan for Boise State University was to establish a planning team to carry out the planning process and document preparation and a steering committee of University stakeholders to guide the planning team.

The University hired Tetra Tech to assist in the core planning process. The Tetra Tech project manager assumed the role of the lead planner, reporting directly to a University-designated project manager. A planning team was formed to lead the planning effort, made up of the following members:

- Rob Littrell (Boise State University)— Assistant Director, Emergency Management
- Jan Webster (Boise State University)— Management Assistant, Department of Public Safety
- Rob Flaner (Tetra Tech)—Lead Project Planner
- Carol Bauman (Tetra Tech)—Risk Assessment Lead
- Desmian Alexander (Tetra Tech)— Planner
- Dan Portman (Tetra Tech)—Technical Editor

To be successful, hazard mitigation planning requires the collaboration and support of diverse parties whose interests can be affected by hazard losses. The planning team assembled a list of candidates representing interests within the planning area that could have recommendations for the plan or be impacted by its recommendations. From these candidates, a steering committee was formed to oversee all phases of the plan update. The members of this committee included faculty, facility managers, students, state and local representatives and other stakeholders from the Boise State community. Table 2-1 lists the committee members.

The Steering Committee met regularly as needed throughout the course of the plan's development. The planning team facilitated each Steering Committee meeting, which addressed a set of objectives based on the work plan established for the update. The Steering Committee met five times from January to October 2020. Meeting agendas, notes and attendance logs are available for review upon request.

Table 2-1. Steering Committee Members

Name	Title	Department or Agency
Alicia Estey[a]	Chief of Staff and Chief Compliance Officer	President's Office (Committee Chairperson)
Robert Littrell[b]	Assistant Director	Department of Public Safety-Office of Emergency Management (DPS-OEM)
Jan Webster	Management Assistant	DPS-OEM
Ann Wozniak	University Architect and Director	Architecture and Engineering Services
Erin Muggli	Executive Assistant to the Provost, Project Manager for Undergraduate Studies	Academic Affairs
Ken Kline	Associate Vice President	Office of Budget and Planning
Nicole Nimmons	Associate Vice President	Campus Services
Drew Alexander	Capital Planner	Capital Assets/Development
Christy Jordan	Director	Capital Planning/Space Management
Greg Hahn	Associate Vice President	Communications & Marketing
John Kaplan	Associate Vice President	DPS-Security & Police Services
Jason Weaving	Associate Director	DPS-Security
Sam Patterson	Director	Transportation, Parking, and Safety Systems
Suzy Arnette	Director	Environmental Health, Safety, and Sustainability
Barbara Beagles	Director	Facilities Operations & Maintenance
Brittany Brand	Director for the Boise State University (Hazard and Climate Resilience Institute)	Faculty-National College Credit Recommendation Service
Texie Montoya	Associate General Counsel	General Counsel
Tara Brooks	Director of Business Operations	University Health Services
Luke Jones	Director	Housing & Residence Life
Shawn Miller	Employee Relations	Human Resources
Brian Bolt	Deputy CIO	Office of Information Technology (OIT)
Samantha Lind	Sponsored Projects Administrator	Research-Office of Sponsored Programs
Matt Lundgren	Interim Director	Research-Compliance
Elliot Cox	Security Analyst	Compliance
Kip McBean	Risk Manager	Risk Management
Chris Wuthrich	Dean of Students	Student Affairs

a. Steering Committee Chair
b. Steering Committee Vice-Chair

2.2 DEFINING THE PLANNING AREA

At the outset of planning, the planning team and steering committee defined the specific boundaries of the planning area to be addressed. These boundaries affect the detailed risk assessment and the selection of mitigation actions. For this hazard mitigation plan, the planning area was defined as all areas on University-owned property, defined as "on-campus" as depicted in Figure 2-1.

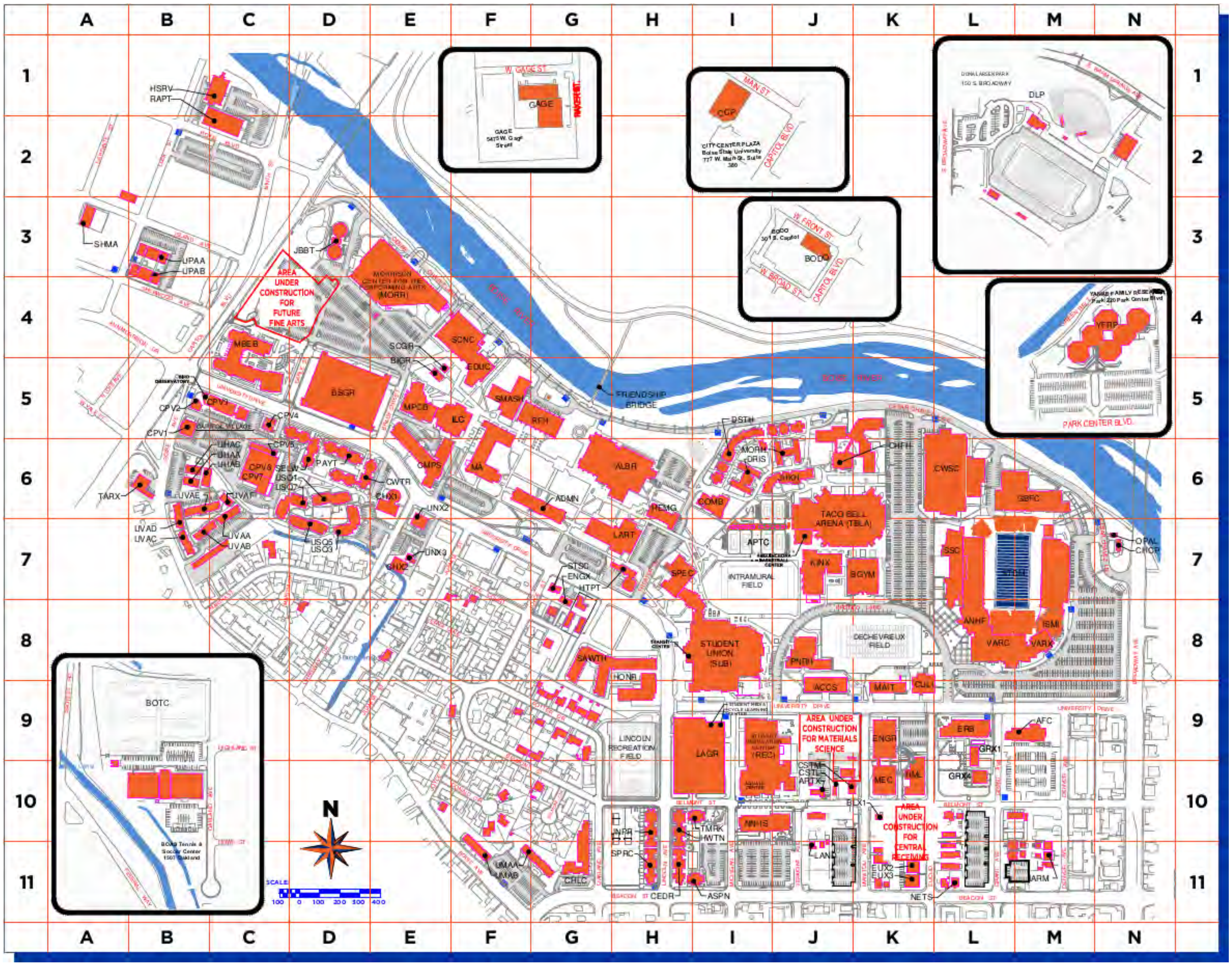


Figure 2-1. Boise State University Planning Area

2.3 COORDINATION WITH OTHER AGENCIES

As the plan update process proceeded, the following agencies were invited to participate and were kept apprised of plan development milestones:

- Idaho Office of Emergency Management
- Idaho Department of Water Resources (IDWR)
- Ada County Emergency Management
- Hazard and Climate Resilience Institute
- Boise Fire Department
- Community Planning Association of Southwest Idaho

These agencies received meeting announcements, meeting agendas, and meeting minutes by e-mail throughout the plan update process. They supported the effort by attending meetings or providing feedback on issues. Other agencies that provided input include the Idaho Silver Jackets, the National Weather Service, the U.S. Army Corps of Engineers, and the Bureau of Land Management.

All the agencies listed above were provided an opportunity to comment on this plan update, primarily through the hazard mitigation plan website. Each was sent an e-mail message informing them that draft portions of the plan were available for review.

2.4 REVIEW OF PLANS, PROGRAMS AND POLICIES

Effective hazard mitigation planning must include review and incorporation, if appropriate, of existing plans, studies, reports and technical information. At the initiation of this planning process, all relevant planning documents, studies, reports, technical information, and Boise State policies relevant to hazard mitigation were reviewed and incorporated into the plan, as appropriate. The following programs can affect mitigation within the planning area:

- The Idaho State hazard Mitigation Plan
- 2016 Ada County Multi-Hazard Mitigation Plan
- SAV report, Boise State University Campus, Boise, Idaho
- Boise State Emergency Response Plan

2.5 PUBLIC 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. The strategy for involving the public in this plan update emphasized the following elements:

- Represent the whole campus community on the Steering Committee.
- Use a survey to determine the campus community's perception of risk.
- Attempt to reach as much of the campus community as possible using multiple media, including social media
- Identify and involve planning area stakeholders.

2.5.1 Campus Community

The term "campus community" was used as the cornerstone for stakeholder engagement through the public involvement strategy deployed for this planning process. The term "campus community" was defined as follows:

> *The students who are admitted or enrolled in the University or are participating in programs offered by the University, faculty, professional personnel, classified staff, and volunteers. Because of the University's role in and connection to the surrounding community, the term also includes civic stakeholders from within Ada County. where there is an interface in the goals and objectives for this plan.*

This campus community was the target of the public involvement strategy discussed below.

2.5.2 Project Website

A website was set up at the following address at the start of the project to provide information to project stakeholders and to Boise State students, faculty and staff:

https://www.boisestate.edu/publicsafety-emergencymanagement/

The website remained active during the course of the project through adoption of the plan. It contained the following information:

- Steering Committee meeting agendas and meeting summaries
- Frequently asked questions and answers
- Copy of the draft plan
- Link to hazard mitigation survey
- Notice of campus community comment period
- Boise State mitigation planning point of contact

2.5.3 Hazard Mitigation Survey

Utilizing academic resources available to this planning process, a survey was distributed to the campus community. The goals established by the Steering Committee for this survey were as follows:

- Gauge the campus community's perceptions of natural hazards.
- Assess preparedness levels.
- Understand expectations of who is responsible during and after an event.
- Provide information sources and identify preferences.
- Learn about the community's experience traveling to/from Boise State during severe weather.
- Assess concerns about missing school/work due to severe weather.
- Gather information about traveling around campus during severe weather.

The survey was distributed to the campus community via over 13,000 e-mails, with a return rate of over 11 percent. Over 46 percent of the surveys submitted were completed by students. Feedback from this survey was provided to the Steering Committee during its October 11, 2019 meeting. The Steering Committee used the results and analysis to inform the development and prioritization of actions for this plan. A full summary of survey results can be found in Appendix A.

2.5.4 Public Meetings

The COVID-19 pandemic had a significant impact on the public outreach strategy for this plan. Idaho's first confirmed case of COVID-19 was reported on March 13, 2020 in an Ada County resident. On March 24, 2020, Central District Health confirmed community transmission in an Ada County resident. This was followed on March 25 by a statewide order for residents to stay at and work from home as much as possible. The order also closed non-essential businesses and banned non-essential gatherings for at least 21 days. As of this writing, the COVID-19 response restrictions are still impacting the campus community.

Because of these impacts, the initial public engagement strategy for this effort, which included two phases of open public meetings, was abandoned. Under a revised strategy, the survey, rather than public meetings, served as the principal means to gage the campus community's perception of risk, and campus community access to the proposed draft plan was provided through means other than in-person meetings.

Once the draft plan was assembled, a two-week public comment period was advertised to the campus community via e-mail and social media outlets. This public comment period ran from December 14, 2020 to January 8, 2021. The draft plan was posted to the Boise State Hazard Mitigation Plan website. During this comment period, comment on the draft plan was solicited as follows:

- Presentations were made to the Boise State Incident Management Team on December 18, 2020, and January 8, 2021
- Links to the plan were sent directly to the City of Boise and Ada County Emergency Management. Ada County Emergency Management provided comments on January 8, 2020.

No virtual or in-person public meetings were attempted during the comment period because students—key members of the campus community—were off campus due to the COVID-19 pandemic response and the holidays. This led the outreach to focus on the faculty and outside stakeholders. In all, five sets of comments were received during the public comment process that resulted in revisions to this plan.

Because public outreach was limited during the plan development and comment period, the University will emphasize hazard-related educational outreach in the coming years. The University will give high priority to actions recommended in this hazard mitigation plan that include such educational outreach efforts (Actions 29 and 30; see Section 20.1). In the short term, the focus will be on using the Emergency Management website and promoting preparedness and education through social media outlets. Once the public gathering restrictions are lifted by Central District Health, the efforts will be expanded to include in-person public meetings and activities.

2.5.5 Gap in Planning

The planning process was approximately 70 percent complete heading into March 2020 as the first cases of COVID-19 began to be reported in Idaho. The March Steering Committee meeting was postponed in response to the Governor's statewide stay-at-home order. As COVID-19 impacts continued to rise, Ada County consistently reported among the highest numbers in the state. From March through December, progression on the Mitigation Plan was at a standstill as the University dealt with the response to COVID-19. All these impacts resulted in a gap in the planning process.

Many of the key plan components were vetted and validated via the Steering Committee process prior to the COVID-19 response. However, two key components were not: confirmation of the action plan, and presentation of the draft plan to the campus community for review and comment. The Core Planning team determined that the gap in planning would not impact these two components, as the campus community would have the opportunity to review and comment on the proposed actions via the final public comment process conducted prior to plan submittal to the State of Idaho. Therefore, it was determined that there was no need to backtrack on the plan's components that were finalized prior to March 2020.

2.5.6 Plan Development Chronology/Milestones

Table 2-2 summarizes important milestones in the development of the plan update.

Table 2-2. Plan Development Milestones

Date	Event	Description	Attendance
2020			
1/11	Initial Steering Committee Meeting	• Introductions • Idaho Office of Emergency Management grant requirements • Admin Requirements • Mitigation Plan Overview • Hazard/Threat Assessment • Summary/Wrap-up	20
2/8	Steering Committee Meeting #2	• Complete campus profile o Assign primary campus experts for review and approval o Rewrite and refine the description if possible o Add or revise the section to better reflect our campus community o Identify follow-on action items to complete the section following this session • Identify educational and outreach events o Identify SME-s to address SC	16
4/11	Resource Organization	Boise State selects Tetra Tech, Inc via its procurement process to provide technical assistance in the completion of the Plan	N/A
4/12	Steering Committee Meeting #3	• Overview of Severe Weather Potential for the Treasure Valley, Jay Breidenbach • History of Flooding on the Boise River System (Major Events) and current Flood Control Plan, Brandon Hobbs • Advanced Hydrologic Prediction Service and Flood Forecasting, Troy Lindquist • Impact of Climate Change to Stream Flow and Reservoir Usage, Dr. Alejandro Flores • Impact of Volcanic Ash to the Treasure Valley, Dr Brittany Brand • Potential and Impact of Earthquakes in Boise, Lee Liberty • Air Quality Threat and Impact to Campus Activities, Pam Aishlin,	32
5/6	Core Planning Team Meeting	• Project timeline • Risk assessment update • Public Outreach strategy • Action planning	4
5/10	Steering Committee Meeting #4	• Hazard Mitigation Planning basics. Why are we here? • Risk Assessment update • Critical facilities definition and inventory • Vision for the plan	23
11/1	Public Outreach	Hazard Mitigation Survey disseminated to the campus community	N/A
10/11	Steering Committee Meeting #5	• Survey results • What is Hazus? • Risk assessment results • Risk ranking Exercise • Next steps • Q&A	19
12/14	Public Outreach	Initiation of the final draft public comment period for the campus community. Draft plan posted to a hazard mitigation website.	N/A
12/18	Public Outreach	Presentation on the draft plan and information on the public comment period presented by Rob Littrell to the Boise State Incident Management Team.	40

Date	Event	Description	Attendance
2021			
1/8	Public Outreach	2nd presentation of the draft plan to the Boise State Incident Management Team by Rob Littrell. Closure of the public comment period	40
1/11	Public Outreach	Comments were received from Ada County Emergency Management.	N/A
1/22	Plan review	Submittal of draft plan to Idaho Office of Emergency Management for Pre-Adoption Review	NA
3/4	Plan Adoption	Plan adopted by Boise State	
3/10	Plan Approval	Final plan approval granted by FEMA Region 10	

3. CAMPUS PROFILE

Effective hazard mitigation for universities must consider the programs offered, research activities, size, location, the distribution of the campus community and its dynamic population composed of students, faculty, staff and a variety of visitors. Visitors and students, especially freshman, are often unfamiliar with the community and the potential hazards that can occur. The dynamic and diverse population on campus and the functions of the campus present a unique challenge in hazard mitigation and awareness.

3.1 CAMPUS OVERVIEW

Located near downtown Boise in Ada County, Idaho, on the south bank of the Boise River opposite Julia Davis Park, Boise State is a multi-faceted, state-supported institution of higher education. The campus is at an elevation of 2,700 feet above sea level, bounded by Capitol Boulevard on the west and Broadway Avenue to the east.

The main campus's more than 190 buildings on a 183-acre site (see Figure 3-1) include academic buildings, associated auxiliary facilities, and a considerable number of outlying residence buildings used for academic and associated purposes. Instructional vocational non-campus remote facilities are also maintained and operated in Meridian, Nampa, Payette, Boise, Mountain Home, and Twin Falls, Idaho. Fraternity and sorority houses (non-campus remote facilities) are also maintained and operated in Boise. Boise State has spent over $300 million since 2003 on academic, residential, and athletics facilities across campus.

The university employs 3,289 faculty and staff and has an enrollment of 26,272 students, with 17,673 attending full time. Boise State has a total undergraduate enrollment of 22,939 – 43 percent male and 57 percent female. In addition to conducting academics and research, the university hosts multiple events on campus, with some sporting and performance events bringing up to 45,000 visitors to campus.

Boise State University is designated as a doctoral research institution by the Carnegie Classification of Institutions of Higher Education. Boise State offers about 200 programs of study, including 14 doctoral programs. Boise State is becoming a metropolitan research university of distinction in the Pacific Northwest. The University confers more degrees annually than any other university in Idaho, and its programs are growing each year, with over $200 million being spent on academics and another $70 million to expand the athletics department.

3.1.1 Administration

The University's administration is responsible for implementing new and existing University policies, programs, and directives. Boise State's leadership team is made up of the executive team and the administrative council. The executive team includes the president, provost/vice president, several vice provosts, and the deans of several academic programs. Individually and collectively, members advise the president and provide effective, responsive and informed leadership to the university.

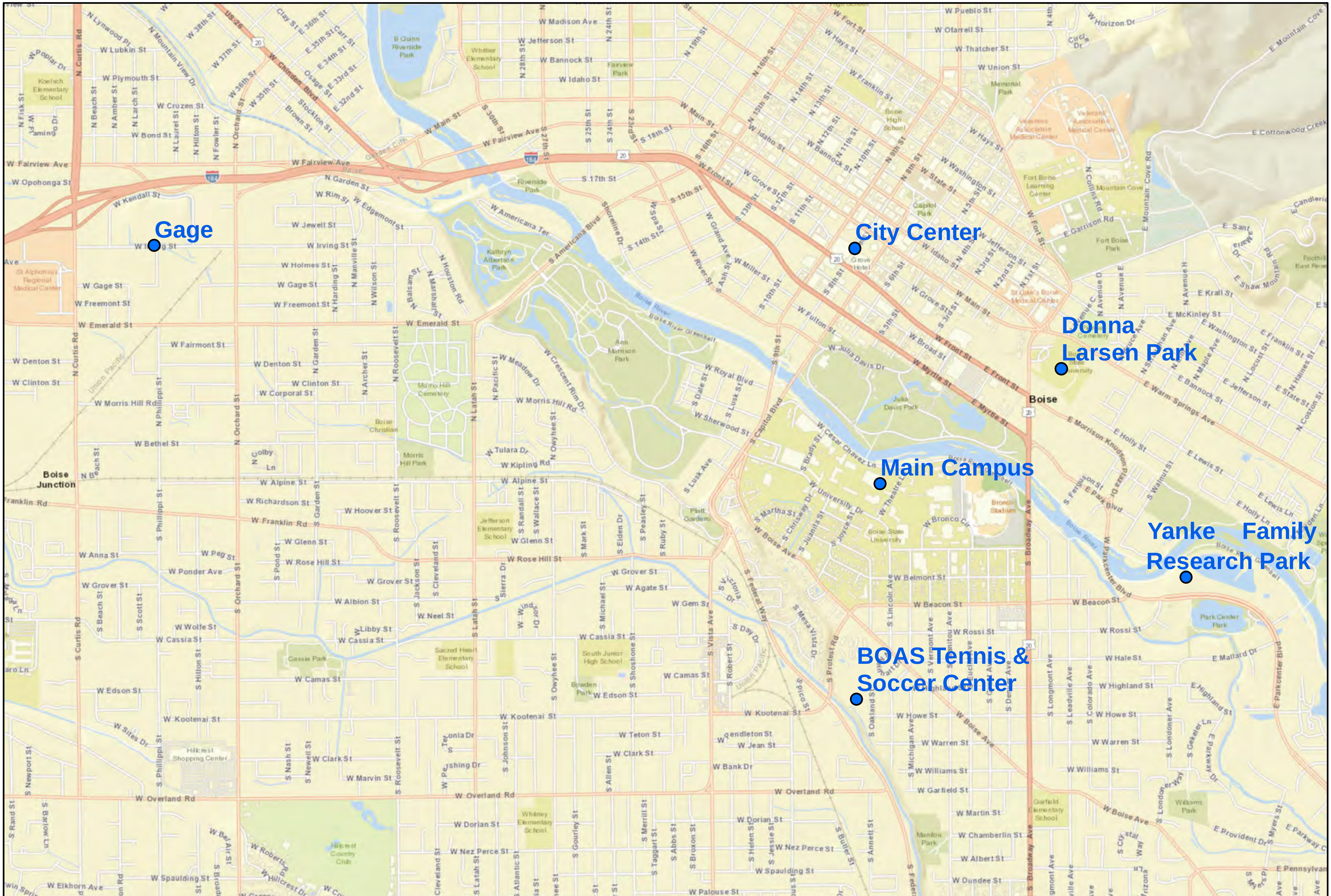


Figure 3-1. Boise State University Campus, Planning Area, and Surroundings

Campus & Other Building Locations

N

0 0.325 0.65 Miles

Data Sources: BSU, Esri

The Associated Students of Boise State University is the official student government at Boise State. The student government has two core purposes: Facilitate educational, intellectual, social, and cultural engagement at the University; and advocate for the interests of students at the University.

3.1.2 Housing

Boise State has nine residence halls on campus providing student housing: Towers, Chaffee, Morrison, Driscoll, Keiser, Taylor, the Honors College and Sawtooth Hall, University Square and University Suites. The Student Housing Office, located in Chaffee Residence Hall, coordinates administrative activities of these residence halls. The residence buildings are distributed across the campus and have a total combined occupancy of 2,375, or approximately 9 percent of the total enrollment as of August 1, 2020.

3.1.3 Academics

The student-faculty ratio at Boise State University is 18:1, and 33 percent of classes have fewer than 20 students. The U.S. News and World Report "Best Colleges" ranking ranked Boise State #298 out of 398 national universities. The average freshman retention rate, an indicator of student satisfaction, is 80 percent. Boise State's admissions is selective, with an acceptance rate of 77 percent. Half the applicants admitted to Boise State University have an SAT score 1030 and 1230 or an ACT score between 20 and 26. One quarter of admitted applicants achieved scores above these ranges and one quarter scored below these ranges.

Students' Areas of Studies

The most popular undergraduate majors are Nursing (1,040 students), Psychology (780 students), Biology (746 students), Health Studies (731 students), and Computer Science (684 students). The most popular graduate programs are Social Work (465 students), Business Administration (452 students), and Organizational Performance and Workplace Learning (162 students).

Campus Research

Expenditures for research projects at Boise State University reached more than $41 million in fiscal year 2018 – an 18 percent increase over the previous year and a 64 percent increase since fiscal year 2014, according to data tracked by the National Science Foundation's (NSF) Higher Education Research and Development survey. The annual survey is the primary source of information on research and development expenditures at U.S. colleges and universities across the nation that expend at least $150,000 in separately accounted for research and development in a fiscal year.

Boise State's federal expenditures increased by more than 25 percent between FY17 and FY18. As in past years, NSF expenditures remain the highest among federal agencies at $9.3 million. Some of the largest increases came from agencies including the Department of Defense, with more than $1.4 million in FY18 (an increase of nearly 40 percent over FY17); NASA, with more than $1.9 million (an increase of more than 91 percent); and the Department of Energy, with more than $3.7 million in funding (an increase of nearly 54 percent). Table 3-1 summarizes major current research programs at Boise State.

Table 3-1. University Research Programs

Research Program	Description
Arts and Humanities Institute	The Arts and Humanities Institute supports faculty and student research and creative activity at Boise State.
Basque Studies Consortium	A multi-disciplinary program of advanced study of the Basque people that involves varied aspects of language, history, politics, economics, etc.
Beowulf Cluster Laboratory	Located in the College of Engineering, the lab houses two clusters: a 61 node Beowulf cluster with 122 2.4 GHz Xeon processors and a 3-node developmental cluster with six 2.4 GHz Xeon processors. The lab is sponsored by National Science Foundation Major Research Infrastructure Award No. 0321233.
Biomolecular Research Center	The focus of this center is the study of biomolecules, with emphasis on proteins and protein interactions.
Boise State Writing Center	The writing center works with writers of all levels and abilities at any stage of the writing process.
Center for Applied Archaeological Science	This center has conducted research throughout Idaho and other western states. Its offices conduct small and large-scale cultural resource surveys and excavations and can manage multiple projects and tasks simultaneously.
Center for Excellence for Environmental Health and Safety	The mission is to promote and enhance environmental health and occupational safety in Idaho through a combination of research and service.
Center for the Geophysical Investigation of the Shallow Subsurface	The center's general goal is to focus undergraduate and graduate geoscientific research on the structure, processes, and properties of the uppermost part of the Earth's crust.
Center for Health Policy	The Center for Health Policy is a health sciences research organization providing expertise in research addressing health cost, quality and access; evaluation of programs and policies; and management of grants and projects.
Center for Idaho History and Politics	The Center for Idaho History and Politics promotes an active and engaged appreciation of the essential interaction between politics and history.
Center for Materials Characterization	The Boise State Center for Materials Characterization was to provide a state-of-the-art characterization facility in order to attract more students into science and engineering careers, to improve science and engineering education at the undergraduate and graduate levels, and to foster leading research and interaction with local industry.
Center for Multicultural Educational Opportunities	The mission of the Center for Multicultural and Educational Opportunities at Boise State University is to encourage and facilitate academic achievement and personal growth among under-represented groups in our schools and communities and to foster and celebrate human diversity.
Center for Orthopedic and Biomechanics Research	The center's mission is to advance understanding of the mechanical and neuromuscular characteristics of human movement through basic science, engineering, clinical research and education.
Center for Physical Activity and Sport	The Center for Physical Activity and Sport seeks to promote the physical, psychological and social benefits of physical activity and sport among youth and adolescents.
Center for Professional Development	The Boise State Center for Professional Development provides businesses, government agencies, non-profit organizations and individual professionals with hands-on, immediately applicable learning opportunities.
Center for the Study of Aging	The Center's multidisciplinary approach to aging offers a comprehensive learning experience with a focus on community engagement. Activities of the Center are guided by the philosophy that aging is a lifetime endeavor. It is not a condition to be treated or an event that happens at a particular age, but rather a process that unfolds over the course of one's life.
Center for Teaching and Learning	The Center for Teaching and Learning designs and facilitates workshops, programs, and other events that help Boise State instructors to adopt or adapt best practices in teaching, learn from colleagues, and reflect upon the choices we make as educators.

Research Program	Description
Center for School Improvement and Policy Studies	The Center's mission is to build partnerships to support K-12 schools, educators, and students. Their current work includes many projects to provide technical assistance to schools and community partners, to provide professional development for educators, and to increase educational opportunities and outcomes for students.
Idaho Microfabrication Lab	The Idaho Microfabrication Lab consists of a 900 square foot Class 1000 clean room, a 1500 square foot process lab, and a 900 square foot metrology lab. The lab is equipped to fabricate microelectronic devices using various thin film deposition techniques, chemical processing, photolithography, and plasma etching.
Idaho Small Business Development Center	The Idaho Small Business Development Center is a statewide, university-based organization which has been helping small businesses succeed since 1986.
Institute for Inclusive & Transformative Scholarship	The Institute for Inclusive & Transformative Scholarship was founded in summer 2020. The Institute was formerly the Institute for STEM & Diversity Initiatives that was formed in 2015. The institute increases access to, supports professional development in, and accelerates the impacts from transformative scholarship.
Institute for the Study of Behavior Health and Addiction	The Institute for the Study of Behavioral Health and Addiction is a joint endeavor of the Colleges of Education and Health Sciences, providing coordinated and complementary information dissemination, training and professional development opportunities, research and program evaluation services for behavioral health and addiction prevention and treatment professionals and organizations at Boise State and in the community, and fostering community, organizational and legislative relationships throughout the state of Idaho.
Literacy Center	In the Boise State Literacy Lab, children in grades 1-12 are tutored either one-on-one or in small groups by undergraduate teacher candidates.
New Product Development Lab	The NPD Lab helps inventors, entrepreneurs and manufacturers design, prototype, build, test and deliver new products.
Osher Lifelong Learning Institute	The Osher Lifelong Learning Institute at Boise State University is a membership-based lifelong learning program. It offers a wide variety of college-level, non-credit offerings for intellectually curious adults age 50 and over.
Raptor Research Center	The Raptor Research Center supports graduate education for the unique Master of Science in Raptor Biology at Boise State University, conducts research about birds of prey (raptors) and the habitats in which they occur
Research Computing	Advancing research at Boise State through innovative technical partnerships and grant development to support a robust cyberinfrastructure.

3.1.4 Physical Characteristics

Geology

Located along the south bank of the Boise River, the campus geology consists of a fluvial geomorphology typical for floodplains adjacent to sediment laden streams. Most on-campus structures are outside the FEMA-mapped 100-year floodplain, but many are within the FEMA-mapped 500-year floodplain. Since the Boise River system flows are regulated by Lucky Peak dam, the floodplain geology is not constantly replenished by unconsolidated sediments typical of unregulated stream systems.

Most new construction on campus was constructed on imported fill material that has been compacted to code and standard specifications. The National Earthquake Hazard Reduction Program (NEHRP) soil classification for the campus location is D, Stiff Soil. Site class is a simplified method for characterizing the ground-motion amplifying effects of soft soils during an earthquake by evaluating the relation of average shear-wave velocity in the upper 100 feet of the soil–rock column to the amplification of shaking at ground surface. Site classes C, D, and E represent increasingly softer soil conditions that result in increasing amplification of ground shaking.

Climate

Ada County has a four-season climate with generally mild temperatures. Climate recording stations are found in Boise and Kuna. Average daily temperatures reach the 70s in July and August and fall to just below freezing in December and January. Precipitation is heaviest during winter and spring and drops off during summer. On average, Boise receives just over 12 inches of precipitation annually, including 20 inches of snowfall a year. Kuna receives just under 10 inches of precipitation and 12 inches of snow.

3.1.5 History

Founding and Development of the University

Boise State University was founded in 1932 as Boise Junior College by the Episcopal church. After two years, the school became independent, and in 1940 it moved from St. Margaret's Hall to its present site, along the south bank of the Boise River, between Capitol Boulevard and Broadway Avenue.

In 1965 it gained four-year status as Boise College and began awarding baccalaureate degrees. Four years later, the school joined the Idaho state system of higher education and was renamed Boise State College. In 1974, Boise State gained university status to become Idaho's third university.

History of Hazard Events

Boise State University is in Ada County. Presidential disaster declarations are typically issued for hazard events that cause more damage than state and local governments can handle without federal assistance. A presidential disaster declaration puts federal recovery programs into motion to help disaster victims, businesses and public entities. The State of Idaho has experienced 25 declared events since 1956. Four of these events impacted Ada County, as listed in Table 3-2.

Table 3-2. Presidential Disaster Declarations in Idaho for Ada County Hazards of Concern

Type of Event	Date	Disaster Declaration	Counties Impacted[a]
COVID-19 Pandemic	4/9/2020	DR-4534	All Idaho Counties
Flooding	10/7/2017	DR-4342-ID	Ada County, Canyon County
Wildfires	9/1/2000	DR-1341	Ada, Bannock, Bingham, Blaine, Boise, Clearwater, Custer, Elmore, Fort Hall Indian Reservation, Idaho, Jerome, Lemhi, Lewis, Lincoln, Power, and Valley
Heavy rains & flooding	12/31/1964	DR-186	Ada, Bannock, Benewah, Blaine, Boise, Bonneville, Butte, Camas, Caribou, Cassia, Clearwater, Elmore, Gem, Gooding, Idaho, Jerome, Kootenai, Latah, Lewis, Lincoln, Minidoka, Nez Perce, Owyhee, Payette, Power, Shoshone, and Washington.

a. Federal disaster declarations were not issued by county until 1964. Declarations prior to that date are statewide

3.2 CAMPUS ASSETS

Table 3-3 summarizes the critical assets of the University.

Table 3-3. Boise State Critical Assets

Asset	
Property	
Main Campus	183 acres
Off Campus Properties (Dona Larsen Park, Boas Tennis Center, Yanke Research Park, Gage Warehouse, Warm Springs Property, Park & Ride)	53 Acres
Total Acres	274.92
Total Property Value	*$83,804,288*
Critical Facilities	
Owned Buildings	177
Leased Buildings	14
Total Buildings	191
Total Square Footage of All Buildings	5,673,881
Total Building Value Replacement Cost	$1,631,675,012
Total Building Content Value	$293,754,474
Total Buildings + Contents Value	*$1,925,429,486*
Equipment	
Insured Equipment (all items over $2,000 value; 10,335 items)	$11,335,670
Auto/Fleet (195+ vehicles)	$767,487
Total Equipment Value	*$12,103,157*
Total Value	$2,021,336,931

3.2.1 Building Stock

Buildings are an important asset to the campus. Their vulnerability depends upon characteristics such as size, age, building materials and construction quality. Other vulnerability factors include building value, historic value, building contents, occupancy, and whether hazardous materials are stored in them. Figure 3-2 presents an aerial view of the campus identifying buildings by name and number. Key characteristics of the University's building stock are summarized in Table 3-4. A detailed inventory of all Boise State assets is provided in Appendix B.

Buildings constructed of concrete or reinforced steel have a better chance of withstanding a disaster than those constructed of unreinforced masonry or wood. Buildings constructed with unreinforced masonry are at greatest risk to damage from earthquakes. Those constructed from wood frame construction are at greatest risk to fire. Buildings constructed from unreinforced masonry or wood are at a greater risk to damage during an explosion compared to those constructed of concrete or reinforced steel.

The percent of buildings on campus that contain sprinkler systems is identified in Table 3-4. All residence halls are sprinklered. All campus buildings have fire alarm systems and evacuation maps showing a primary and secondary route to exit. In some cases, it is an exterior fire escape.

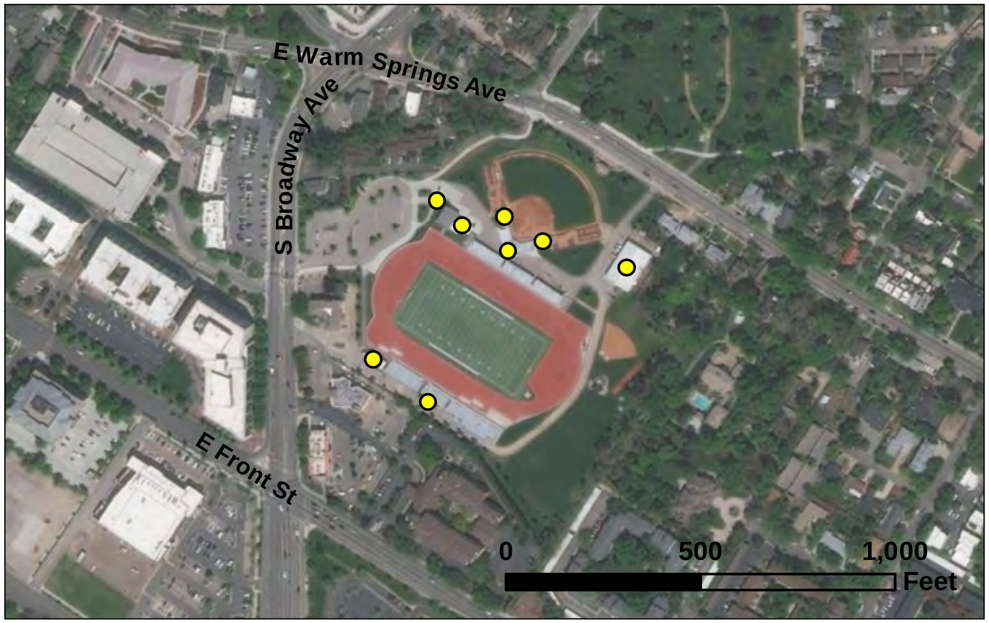
3.2.2 Critical Facilities and Infrastructure

Campus Critical Facilities and Services

Campus critical facilities and services are defined as facilities and services that are essential or critical to campus operations on a daily basis and after an emergency. Examples include shelters, medical care facilities, emergency services (police, fire ambulance), information storage, communications, and utilities.

Figure 3-2a. Campus Buildings Map

Donna Larsen Park



City Center

BOAS Tennis & Soccer Center

Gage

Yanke Family Research Park

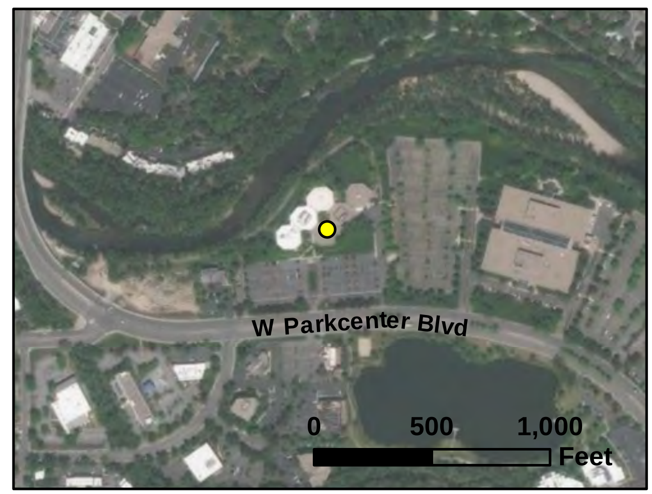


Figure 3-2b. Campus Buildings Map

BSU Buildings

N

Data Sources: BSU, Esri

Table 3-4. General Building Stock Summary

General Building Stock	Value
Total Buildings	191
Average Square Footage	29,706 square feet
Average Age of Structures	37.5 years
# of Structures more than 1-Story in Height	85
% of Structures with Emergency Generators	10.5%
% of Structures with Automatic Fire Sprinklers	7.7%
Construction Class[a]	
% of Structures that are Construction Class A	2.1%
% of Structures that are Construction Class B	6.3%
% of Structures that are Construction Class C	9.4%
% of Structures that are Construction Class D	46.1%
% of Structures that are Construction Class E	4.2%
% of Structures that are Construction Class F	9.4%
% of Structures that are Construction Class G	4.2%
% of Structures that are Construction Class H	17.3%
% of Structures with an Unknown Construction Class (U)	1%

a. Building Construction Class: A - Fire-Protected Steel Frame, B - Reinforced Concrete Frame, C - Unprotected Steel Frame With Non-Combustible (Masonry) Exterior, D - Wood Frame, E - Steel Frame With Combustible Exterior Walls, F - Steel Stud, G – Pre-cast Frame, H - Unreinforced Concrete Frame, U – Unknown

Administration Building/Office of the Registrar

The first building on campus, the Administration building, originally included all classrooms, library, faculty offices, administrative offices, and student meeting space. It was built by the Works Progress Administration and opened in the fall of 1940. In 1951 it was formally designated Oliver O. Haga Hall, but it is rarely called by that name. Due to the original plan to make River Road (now Cesar Chavez Boulevard) the main thoroughfare for campus, there are no doors on the south side of the building facing University Drive. The building currently houses campus administration and the Office of the Registrar. The Registrar assists with transcripts, registration and course scheduling, transfer credit and graduation evaluation, determination of Idaho residency for tuition, and catalog information.

Office of Risk Management and Insurance

The Office of Risk Management and Insurance protects Boise State University assets and community by serving as a resource to prevent losses arising from natural and man-made hazards. This office provides risk assessments and consulting; insurance policy coverage and detail; and training in worker's compensation, certificates of insurance, and how to report. It also handles claims, including investigation, facilitation, and after-action review, and provides for the overall protection of the campus population and property.

University Health Services

Located in the Norco Building on the second floor, University Health Services supports the educational mission of Boise State University by providing convenient, accessible and high-quality health care to the campus community. This agency provides a wide range of comprehensive and integrated services to students, faculty, staff and their dependents on campus.

Department of Public Safety

The Department of Public Safety has its own facility at 2245 W. University Drive. It manages, promotes, and enhances campus safety and security; encourages sustainable transportation options; facilitates campus access and parking; and provides campus support services to university students, faculty, staff, community partners, and visitors. Campus Security, Emergency Management, Transportation and Parking, and Integrated Security Technology all fall under the purview of Public Safety. Campus buildings, parking lots, and other ground areas are actively patrolled by the Boise State Senior Security Officers and Boise Police Department officers.

Shelters and Residence Halls

Boise State University has several on-campus residence halls and apartment options for students interested in greater independence, with the added convenience of living on campus.

Facilities Services

Facilities Operations and Maintenance supports the university's strategic mission by professionally maintaining safe, functional and attractive facilities and grounds, while also providing quality support services to the campus community.

Boise State maintains a strong commitment to campus safety and security. Exterior lighting is an important part of this commitment. Motor vehicle parking lots, pedestrian walkways, and building exteriors are well lit. Surveys of exterior lighting on campus are conducted by Boise State Senior Security Officers on a regular basis, and discrepancies are reported to the Facilities Operations and Maintenance Department for appropriate action. Members of the campus community are encouraged to report any exterior lighting deficiencies to the Facilities Operations and Maintenance Department.

Exterior doors on campus are locked and secured each evening by building occupants, custodial personnel, and Boise State Senior Security Officers. These personnel report door and security hardware operating deficiencies to the Facilities Operations and Maintenance Department daily through the work order process, which tracks all trouble areas to ensure they are repaired.

The maintenance and security of campus buildings spans the areas of key control, maintenance of door hardware, replacement of broken windows, fire protection, fire drills, hazardous waste policy, ventilation, life safety items, etc. The campus continues to move more to electronic building access systems and away from key locks, which allows monitoring of students and employees going into and out of buildings after hours and on weekends. Although costly to implement, badge access is easier to maintain when students and employees become inactive than legacy key systems, because it is difficult to account for physical key inventories.

Shrubbery, trees, and other vegetation on campus are trimmed and managed on an ongoing basis to meet safety standards, within the guidelines of Crime Prevention Through Environmental Design, as well as to help prevent individuals from concealing themselves within that vegetation. Facilities Operations and Maintenance Department personnel and the Department of Public Safety continually survey the campus grounds to help ensure a safe environment.

The River Edge and Vista West Apartment complexes employ their own maintenance personnel who regularly conduct walkthroughs to ensure proper lighting, clear access of pathways and other maintenance issues are executed in a timely manner. Shrubbery maintenance is also regularly conducted by staff at each apartment.

Campus Critical Infrastructure

Campus infrastructure includes systems that are essential for campus activities, administrative operations, maintaining many types of campus experiments, and campus communications. Boise State buildings require electricity, natural gas, petroleum fuel, telecommunications, water, wastewater, and fiber networks to maintain a multitude of operations throughout the campus. Determining the location, condition and vulnerability of utilities and communications systems necessary for the campus to function is an important step in mitigation of potential damage and overall risk from hazards.

Utility Tunnels

Utility tunnels are located underneath the Boise State University campus. Underground utility construction performed by Claude H. Nix Construction/Jasco Inc. included micro-tunneling, jack-and-bore, pipe ramming and pipe bursting. A general survey on the use of underground, walk-through tunnels for utility systems indicated that this concept has been successfully and extensively employed at universities and government installations but is not commonly used in cities. There appears to be no set criteria or design for utility tunnels, and an optimization of the parameters is needed.

Since many parallels exist between institutions and expected urban renewal projects, extrapolation of the utility tunnel concept to these projects appears worthwhile. Modifications to utility tunnels to incorporate civil defense shelter space appear possible, but further design studies are required.

Central Heating Plant

A heat plant is located southeast of the Administration Building. Campus security monitors the location. The central heating plant provides steam heat to the entire campus except for family housing. The Heat Plant contains the main boilers that generate steam for heat. The water tanks that supply the boilers are located in the Utilities Area. The heat is transferred to other campus buildings through underground steam tunnels, which are typically 4 feet wide and 4 feet high. Individuals have used the tunnels to go from one building to the next and from buildings to the Heat Plant. The steam pipe is routed underground in 12-inch pipe, sharing conduit space with 4-inch condensate lines for water removal. A series of steam traps are located throughout the system. Automatic relief valves assist with the release of condensed steam (condensate) while preventing a loss of steam and steam pressure. This allows for an even flow of steam heat regardless of the distance from the source to the final heat delivery.

The 12-inch pipelines are equipped with expansion joints to allow for the expansion and contraction of the lines depending on internal pipe and ambient or surrounding temperature. A series of steam gates allow for the two main branches of the lines to operate efficiently and for other flow branches that do not follow a straight path.

There are 36 locations where the steam pipelines are routed to buildings on the main campus. The tunnels are accessible in university buildings and through hatches located in main sidewalks on the campus. Cement conduit in the manholes leads to the main steam tunnel for maintenance and operations. Buildings not connected to the Heat Plant use stand-alone boilers or electric heat. The Heat Plant has two 600-horsepower (hp) natural gas boilers, one 200-hp natural gas boiler, and a condensate return collection tank.

Electrical Power

The electric power supplier for the Boise State campus is Idaho Power Company, which is involved in the generation, purchase, transmission, distribution, and sale of electric energy in a 24,000-square-mile area in southern Idaho and eastern Oregon for an estimated population of 895,000 people.

The Boise State campus has an underground power grid system that is operated and maintained by the Facilities, Operations & Maintenance (FO&M) Department. Two power lines enter the campus boundary on the south-central side of campus, and one line enters the campus on the northwest side of the campus. The main electrical power feed bank for the campus is located within the Heat Plant area. A secondary electrical feed, which supplies the western portion of the university, enters the campus at a separate location; this secondary feed supplies electric power to a limited number of campus buildings. The main power line to the Heat Plant area is supplied solely from the Grove Street Substation, which is located about one-half of a mile from campus in the downtown area of Boise. Grove Street Substation also supplies electric power to three quarters of downtown Boise.

A disruption of electric power would impact the entire Boise State campus. ln the event of an electrical power outage, it would take about 4 hours before campus operations would be affected. Some campus buildings have generators, but they are primarily for life safety systems, not operations. If the outage were expected to last longer than 4 hours, classes would most likely be dismissed. Longer outages would result in closure. The time of day and time of year would impact the decision on how soon the campus would close.

Natural Gas

The natural gas supplier for Boise State campus is Intermountain Gas Company, a privately owned natural gas utility headquartered in Boise that serves more than 275,000 customers. Natural gas is used on site primarily for firing the steam boilers. Depending on the time of year, (primarily winter) an extended interruption of natural gas supply would significantly impact campus operations.

One main natural gas pipeline routes gas to separate metered pipelines at each campus building that uses natural gas. Depending on the building, natural gas pipeline size varies; typically, the pipelines are 1.5 to 2 inches in diameter. The Heat Plant is highly depended on natural gas for operating the boilers that generate steam for distribution throughout the campus. Other buildings use natural gas for localized space heating, as a supplemental heat source, and for cooking.

Petroleum Fuel

Small amounts of petroleum fuel are used by the maintenance department. Additionally, on-site diesel fuel generators provide backup power in the event of a prolonged electric power outage. There are two standby generators and 16 other generators for safety-related concerns (e.g., emergency lighting for evacuation) on campus. All diesel fuel generators are supplied by day tanks (24-hour supply). Additionally, 200 gallons of diesel fuel and 500 gallons of gasoline (an 8-day supply) are stored near the Campus Security office for campus vehicles.

Telecommunications

The main components of the campus IT network include the telephone building, located adjacent to the Heat Plant, and the physical locations of the main IT hub and two secondary hubs. All student and faculty records, financial transactions, continuity of business transactions and communications, and scientific computing are dependent on the fiber backbone, the main servers and routers, and equipment for operations. All telephone fiber and copper lines that serve the buildings on campus pass through the communication room. From within the communication room, cables and fiber links are distributed throughout the campus. The communication room is served by an uninterruptible power supply (UPS) and a backup generator that is powered by natural gas.

Most of the main telecommunications, telephone, copper and fiber lines, are routed through the campus steam tunnel network. Because there are issues related to climate control and damage caused by steam pipeline breaks and during steam line maintenance, the IT department is working to move these data lines into their own separate buried conduit. Part of this conversion has started, but it will take several years before it is complete. The main tunnel locations where fiber lines are encased are on Belmont Street. There is also a fiber loop from Belmont Street to University Drive and around the Applied Technology area. There is a series of fiber lines that are routed through the steam tunnels from Capital Boulevard to Lincoln A venue, with lines routed to the Communications Building, the auxiliary gym, and the pavilion.

Both telecommunications lines and IT fiber are connected to the main IT backbone network. The backbone of the network is in three buildings; the primary hub is in the Business and Economics Building. The primary hub houses all the servers, routers, and main commercial T2 and T3 lines. The primary hub has a backup diesel fuel generator, UPS system, and stand-alone HVAC system that provides dedicated computer air and climate control. The primary hub does not have a fire suppression system in the room. A fire suppression system is planned to be installed in the near future. Boise State depends on the primary hub's operations to supply all internet, intranet, communication, and transfer of records operations. All financial and payroll services as well as other vital statistics and academic records are also part of this critical system. Loss of the primary hub would cost around $5 million to replace. Site personnel estimate that a new hub could be operational in two weeks.

There are a few university servers housed in the two other secondary hubs, which are located at the Science/Nursing Building and the Micron Engineering Building. The secondary hubs act as secondary telecommunications rooms that support connectivity for the fiber loop backbone. Connections from the hubs are transmitted to the primary hub for routing. The Micron Engineering Building IT room houses both university IT equipment, which is controlled by OJT, and Engineering Department IT servers and computer equipment; the equipment is collocated. The Engineering Department's servers and routers are separated from the main IT system by firewalls. The secondary hub at the Micron Engineering Building has a UPS system, and a dedicated HVAC system. The secondary hub at the Science/Nursing Building is in its own stand-alone locked room and has a standby, diesel-fueled generator and a UPS system. This hub is located inside a contained room that is within the building's maintenance storage room where cleaning supplies, ladders, etc., are kept and accessed by a variety of people.

The campus IT network is distributed to most of the buildings and facilities located on the Boise State campus and to some of the acquired residential and commercial satellite buildings that have been annexed to campus. The university is in a rapid expansion mode and there are many satellite houses near the university that have been acquired by the university to be used for additional departments and classrooms. These satellite buildings are not all connected to the IT network.

Water

Water is needed for potable uses and to operate the boilers and HVAC equipment. The City of Boise Public Works Department supplies water to the campus. The City of Boise Public Works has a contract with Suez Water Company, which owns and operates the water infrastructure used by the city. The water infrastructure is a circular distribution system with cross connections that are routed along Broadway Avenue, University Drive, Capitol Boulevard, and Campus Lane with multiple cross connections. Campus distribution pipelines connect into the main Suez Water Company-owned pipeline.

The campus distribution pipelines are routed throughout the campus in various locations and provide individual connections to campus facilities. The domestic water utility is supplied to the campus buildings through a series of main and ancillary pipelines of varying size to provide adequate pressure to each building for hygiene, boilers, drinking water, and other uses. The largest pipeline, a 24-inch main, is routed into the campus from Broadway Street and is channeled to the main water loop through 12-inch pipelines. A 14-inch pipeline supplies water to the Heat Plant for the boilers and hot water tanks. The bulk of the main loop is supplied from a 12-inch pipe with a small section supported by a 10-inch pipe that surrounds the Lyle Smith Field. Smaller 6- and 8-inch pipelines are routed to individual campus buildings.

Wastewater

Wastewater discharge capability is needed during classes and major events. The wastewater service provider is the City of Boise Public Works, which provides wastewater service to about 215,000 people in and around Boise and owns operates the City of Boise water infrastructure. The City of Boise Public Works department maintains the sanitary sewer system. The Utilities Maintenance group, part of the Operations Division of Public Works, maintains over 650 miles of sanitary sewer collection pipeline over 25 lift stations (pump stations) positioned throughout the service area.

All wastewater pipelines coming from campus buildings (typically 4- to 10-inch pipelines) tie into the City of Boise wastewater distribution system. The system is a typical gravity-fed system with a 36-inch pipeline that is located along the northern and western boundary of the campus and 21- and 27-inch pipelines that are located along the southern boundary of the campus. The wastewater removal pipelines are also looped to the main campus locations. Individual buildings typically use a gravity flow system that routes to a single main pipe that is directed into the campus sewer lines. The Kinesiology Building and the Taco Bell Arena are the only buildings identified that require electric power to remove wastewater. The Kinesiology Building has a sump pump and Taco Bell Arena uses macerator pumps to discharge wastewater to the City of Boise wastewater distribution system. There is a separate stormwater removal system that is part of the City of Boise infrastructure. Water collection and drainage of this water is handled separate from the gravity feed lines.

Hazardous Materials

Hazardous materials stored in buildings present a risk to the building, its contents, and the building occupants. Hazardous material risk was ranked as low, medium, and high by campus personnel based on the volume and type of materials stored:

- Low indicates no or very few chemicals such as cleaning supplies
- Medium indicates moderate amount of chemicals, such as maintenance chemicals or a photo lab or art studio
- High indicates very toxic chemicals usually found in science laboratories or central power stations.

Appendix B identifies which buildings house hazardous materials on the Boise State campus and Figure 3-2 shows the location of these buildings.

Community Critical Facilities and Services

Critical facilities and infrastructure are those that are essential to the health and welfare of the population. These are especially important after a hazard event. The 2016 Ada County Hazard Mitigation Plan defined "critical facilities/infrastructure as follows:

> A critical facility is one that is deemed vital to the Ada County planning area's ability to provide essential services while protecting life and property. A critical facility may be a system or an asset, either physical or virtual, the loss of which would have a profound impact on the security, economy, public health or safety, environment, or any combination of thereof, across the planning area.

For the Ada County Multi-Hazard Mitigation Plan, the following are defined as critical facilities:

- Police, fire and paramedic stations, emergency vehicle and equipment storage facilities, and emergency operations and communications centers needed for response before, during, and after hazard events
- Public and private utilities and infrastructure vital to normal services in areas damaged by hazard events. These include but are not limited to water, wastewater, and stormwater facilities, dams, irrigation conveyance facilities, transmission and distribution facilities for natural gas, electricity and geothermal, land-based phone, cell phone, internet emergency broadcast facilities and emergency radios
- Public gathering places that could be used as evacuation centers during large-scale disasters
- Hospitals, extended care facilities, urgent care facilities and housing that may contain occupants not sufficiently mobile to avoid death or injury during a hazard event
- Transportation systems for vital supplies and services to and throughout the community, including roads, bridges, railways, airports and pipelines
- Government and educational facilities central to governance and quality of life along with response and recovery actions after a hazard event
- Facilities that produce, use, or store volatile, flammable, explosive, toxic, and/or water-reactive materials (these facilities are called Tier II facilities)
- Infrastructure to help safely convey high-water events from the source to the edge of the planning area.

3.2.3 Historic and Cultural Resources

Historic Buildings

Preserving and maintaining historic buildings on campus preserves a part of the University's past and adds to the atmosphere of the campus environment by preserving architecture. Construction materials and techniques used during the late 19th and early 20th century cause historical buildings to be more at risk for earthquakes.

Although many buildings on the Boise State campus are eligible for inclusion in the National Register of Historic Places, as of 2020 only two are so classified on both the state and federal registers:

- The Administration Building, classified November 17, 1982
- Christ Chapel, classified July 17, 1974

Landscaping

Landscape Services is responsible for the installation and maintenance of landscaping elements designed to provide a safe and inviting space for the Boise State community. This agency manages the care of all trees, turf, shrubs, flowers and irrigation, including fertilizer application and pest control. Additionally, during periods of inclement weather, it is tasked with storm response, snow removal and the application of deicer.

Athletics and Campus Events

Athletic and cultural events on campus draw attendance from the student population and the community. High attendance at athletic events presents an increased risk of human loss in the event of a catastrophic event. Major athletic facilities on campus include the Albertson Stadium, Bronco Gym, and ExtraMile Arena. Visitors to campus are often unaware of potential hazards or what to do in the event of a disaster.

Albertsons Stadium

The Albertsons Stadium (formerly Bronco Stadium) broke ground in 1969 and was dedicated on September 11, 1970. Originally constructed with 14,500 seats at a cost of $2.2 million in 1970, Albertsons Stadium has undergone two expansions since then. In 1974, the east side upper deck was added, increasing the seating capacity to 20,000. Portable end zone seating had the capacity of the stadium at 22,600 through the 1996 season. At that point, the most recent expansion took place, raising the current capacity to over 36,000. With the original cost and the two subsequent expansions, the total cost of Albertsons Stadium is estimated to be over $13.54 million.

Bronco Gym

Bronco Gym, opened in 1955, is the original home of Boise State’s men’s and women’s basketball, gymnastics and volleyball teams, but it now serves only as the home of Bronco volleyball. It is located on the east side of campus next to ExtraMile Arena and across the parking lot from Albertsons Stadium. Bronco Gym opened in the fall of 1955 and originally seated 3,500 fans. The facility has seen several renovations over the years, including a downsizing in seating during the mid-80s to approximately 1,400, giving the gym a loud and energized home court feel. Recent renovations include a new floor, new bleacher seating in the lower tier — including stadium seating on the east side — new sound system and a video board.

The first collegiate athletic event held in Bronco Gym was on Jan. 13, 1956—a men’s basketball game between Boise Junior College and the College of Southern Utah in front of 2,600 fans. Except for eight years during the 1990s when volleyball played in ExtraMile Arena, Bronco Gym has been the primary home of the team since its start in the fall of 1970.

ExtraMile Arena

ExtraMile Arena hosts Boise State’s men’s basketball, women’s basketball and gymnastics competitions. It also features music and entertainment acts year in and year out. The on-campus facility is the premier sports and entertainment venue in Boise. ExtraMile Arena is also a nine-time host site for the NCAA Men’s Basketball Tournament First and Second Rounds, which is set to return in 2021. Opened in the spring of 1982, ExtraMile Arena (formerly known as The Pavilion and Taco Bell Arena) has undergone continuous upgrades to provide fans a first-class experience. The features include a state-of-the-art center-hung video board, LED ribbon boards, ADA-compliant closed-caption boards, and a concert-grade sound system.

Student Union

The Student Union is the main multipurpose center for campus life at Boise State University. It provides educational, cultural, social, recreational, and leadership programs and services to enhance student academic experience. The Student Union’s west main entrance and transit center were revamped in 2017 with the addition of a Starbucks and wider hallway to support movement of students and guests within the facility. The Student Union leads campus-wide event services and coordination through University Event Services, a one-stop-shop for campus events.

3.3 DEMOGRAPHICS

3.3.1 Student Enrollment

Boise State set a new fall enrollment record in 2019 with a total of 26,272 students. The 2019 number marks a nearly 3 percent increase over fall 2018 and an almost 19 percent increase over the past five years. The university also welcomed the largest first-year class in school history for the fourth year in a row in 2019 — there were 3,027 first-time students enrolled at Boise State, up 5 percent from the previous year. This first-year class included 1,630 Idaho residents, a number that has climbed 23.2 percent over the past five years.

Of the 26,272 students enrolled in 2019, 17,673 (about 67 percent) attended full time, and 8,599 (33 percent) attended part-time. Out-of-state and in-state students accounted for 29 and 71 percent, respectively. International students (1 percent) came from 44 countries.

The fall 2019 number includes 16,898 undergraduate, degree-seeking students, up 2.2 percent over the past year. Boise State is Idaho’s largest graduate school, and graduate enrollment was at a record high in 2019 with 2,927 degree-seeking students. This includes 2,388 students pursuing master’s degrees, up 8.6 percent in one year, and 380 pursuing doctoral degrees, up 4.4 percent for 2019.

Idaho high school students continue to get a head start on college by taking advantage of low-cost concurrent enrollment classes. In 2019, 5,781 are enrolled in these college-level courses through Boise State. The state and its universities subsidize the cost of these credits as part of the overall effort to ensure that 60 percent of Idahoans between the ages of 25 and 35 have college degrees or certificates.

The majority of Boise State University’s population (about 86 percent) resides off-campus in non-university housing. Students of all ages reside in the residence halls; however, most students living on campus are freshman. All students taking six or more credit hours, with less than 30 credit hours accomplished in a residence hall setting, are required to live in university-owned residence halls. Exemptions from this policy include marriage, physical custody of a dependent child, living with a family member, and other circumstances. Family housing consists of apartments and houses. Family housing is leased, with priority given to students with dependents.

3.3.2 Faculty, Staff and Visitors

Faculty and staff are dispersed in various buildings around campus and generally have offices within their own departments. Administration is generally located in the Administration Building. Boise State employs 1,410 faculty members, 790 of whom are full-time and 620 are part-time. There are 1,879 total professional and classified staff ,of whom 1,802 are full-time and 77 are part-time (includes 1,343 professional staff and 536 classified staff). In all, there are 2,592 full-time and 697 part-time employees (3,289 total) at Boise State University.

Visitors come to tour the campus, visit students, and attend various cultural and athletic activities on campus. Athletic events such as football and basketball games often have a high attendance of students and visitors.

3.3.3 Timing of On-Campus Population

Populations on campus are dynamic. Occupancy in buildings and residence halls varies based on the time of day and day of the week, and from semester to semester. Most students are on the campus between the hours of 8:00 a.m. and 5:00 p.m. Daytime populations are spread out among all buildings.

Fall semester generally begins the fourth week in August and ends the second week in December. Spring semester generally begins the second week in January and ends the first week in May. Summer sessions generally begin during the second week in May and end during the third week in August. Summer semester may consist of two three-week sessions, two five-week sessions, two seven-week sessions, one ten-week session, or one 14-week session.

3.4 ECONOMICS

Boise State's total endowment is $117,104,602. The university has more than $2 billion in total assets and 24,661 unique donors as of Fiscal Year 2019. Boise State's direct and indirect activity generated $667.2 million in the state for that year, mostly in the Boise metropolitan area. The university is also a major employment driver, generating 6,987 jobs — whether through direct employment with the university or through other industries that benefit from the university's activities, such as real estate, rental activity, hotels and motels, food services, hospitals and more.

Boise State alumni play a role in the university's ongoing support of the state. Boise State has helped build the state's workforce over time, as close to 68 percent of Boise State graduates stay in Idaho and contribute to the state's economy. Alumni living in Idaho in 2015 contributed approximately $1.2 billion to the state's economy that year alone.

For every $1 the state allocated to Boise State in FY2015, the university returned $8 in economic activity. When the contributions and impact of Boise State alumni were included, that benefit tripled to $24. While it is a common misperception that public universities do not generate tax revenue, Boise State generated $34 million in state and local taxes in 2015.

Boise State University's rapidly expanding research efforts drove $35.4 million in economic activity in 2015 and created 210 Idaho jobs. The university's capital projects created $57.2 million in economic activity and supported and sustained 431 jobs. In 2015, Boise State Athletics had a total impact on the state of $102 million through payroll and department spending, but also from visitors from outside the area.

Since FY2015, Boise State has welcomed two record-setting first-year classes and has continued to grow research expenditures as well as graduate and doctoral offerings. Today, about one-third of all students in Idaho's entire public higher education system are enrolled at Boise State, and the university awards nearly half of all bachelor's degrees conferred by Idaho's public institutions.

3.5 FUTURE DEVELOPMENT

Land use and development trends at Boise State include the construction of new buildings to respond to campus needs, and upgrading buildings, infrastructure and critical facilities to better protect life safety, address environmental concerns and minimize property damage from hazard events. Boise State follows design guidelines and construction standards when planning new buildings (Boise State University, 2020). Hazard mitigation is integrated into these guidelines and standards to reduce the effects of hazards on new buildings and infrastructure.

Much future development is planned for the Boise State campus. Boise State's vision and strategic direction are reflected in the 2015 Campus Master Plan (Boise State University, 2015). The Boise State University campus has undergone a significant transformation since the first campus master plan in 1998. Since then, each master plan update has looked back to document major accomplishments, and looked forward to provide a vision of the campus and facilities needed to meet the projected needs of the institution. The 2015 master plan is among three critical tools for campus development:

- A strategic plan that sets direction for the institution
- A master plan that maps out the physical development required to realize the strategic plan
- A financial plan that facilitates the implementation of the master plan and the strategic plan.

The 2015 plan is an update of the previous campus plan: updating maps to reflect completed projects; integrating current plans and projects in design or construction phases; analyzing the current master plan and its capacity to meet projected needs; and developing and evaluating alternatives for development of the southern expansion study area. Highlights from this master plan include the following:

- The plan illustrates over 20 new academic building sites, adding capacity for over 2 million square feet of new facilities.
- The greenbelt is woven into the campus with improved pedestrian corridors extending to the southernmost edges of the expanded campus.
- The plan strives to enhance a sense of community and belonging while adding capacity for over 2,000 new student beds, potentially doubling the number of students living on campus.
- The plan supports a more fully integrated and engaged 24/7 student life experience.
- The master plan update expands all aspects of student life on campus with an integrated approach to housing and recreation in addition to significant expansion of athletic facilities.
- This plan more than doubles the pedestrian center of the campus, moving vehicular traffic and major parking structures closer to campus entrances.
- The plan creates a new circulation network that facilitates the management of vehicular traffic to prioritize pedestrians, cyclists, skaters, long boarders and transit riders.
- Improved bicycle infrastructure is a major component of the 2015 master plan.
- The master plan update illustrates capacity for significant new facilities between University Drive and Boise Avenue, which will be served by a proposed new central street and two future parking structures.

3.6 CAPABILITY ASSESSMENT

The planning team performed an analysis of existing capabilities called a "capability assessment." A capability assessment creates an inventory of an agency's mission, programs and policies, and evaluates its capacity to carry them out. The assessment identifies gaps in core capabilities, so that filling those gaps can become hazard mitigation actions included in the action plan in Chapter 20. The University views each core capability to be fully adaptable as needed to meet the best interests of Boise State. This adaptability is itself considered to be an overarching capability.

Boise State's Emergency Manger will provide overall coordination of hazard mitigation on campus. In-house capabilities to implement mitigation projects are generally within the offices of Safety and Risk Management and Facilities Services, as described below.

3.6.1 Planning and Regulatory Capabilities

The following existing codes, ordinances, policies or plans are applicable to this hazard mitigation plan:

- State of Idaho Statutes
- Boise City Code:
  - Title 4: Building Regulations
  - Title 7: Fire Regulations
  - Title 8: Health and Sanitation
  - Title 11: Zoning
- Ada County Emergency Management Emergency Plans
- Boise State University Emergency Operations Plan

3.6.2 Fiscal, Administrative and Technical Capabilities

An assessment of fiscal capabilities is presented in Table 3-5. An assessment of administrative and technical capabilities is presented in Table 3-6.

3.6.3 Education and Outreach Capabilities

An assessment of education and outreach capabilities is presented in Table 3-7.

3.6.4 Integration with Other Planning Initiatives

Existing Integration

The following plans and programs currently integrate the goals, risk assessment and/or recommendations of the Multi-Hazard Mitigation Plan:

- Boise State University Emergency Operations Plan
- Boise State University Continuity of Operations Plan
- Boise State University Building Coordinator Emergency Action Plans (1 for each of the 40+ major buildings on campus)

Table 3-5. Fiscal Capability

Financial Resources	Accessible or Eligible to Use?
Capital Improvements Project Funding	Yes
Authority to Levy Taxes for Specific Purposes	No
User Fees for Water, Sewer, Gas or Electric Service	No
Incur Debt through General Obligation Bonds	No
Incur Debt through Special Tax Bonds	No
Incur Debt through Private Activity Bonds	No
State-Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	No
Other	No

Table 3-6. Administrative and Technical Capability

Staff/Personnel Resources	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices	Yes	Campus Planning & Facilities, Idaho Department of Public Works
Engineers or professionals trained in building or infrastructure construction practices	Yes	Campus Planning & Facilities, Idaho Department of Public Works
Planners or engineers with an understanding of natural hazards	Yes	Campus Planning & Facilities, Idaho Department of Public Works
Staff with training in benefit/cost analysis	Yes	Boise State Risk Management
Surveyors	Yes	Campus Planning & Facilities, Idaho Department of Public Works
Personnel skilled or trained in GIS applications	No	
Scientist familiar with natural hazards in local area	Yes	Boise State University Instructors
Emergency manager	Yes	Boise State Office of Emergency Management
Grant writers	Yes	Boise State Research
Other	No	

Table 3-7. Education and Outreach

Criteria	Response
Do you have a Public Information Officer or Communications Office?	Yes
Do you have personnel skilled or trained in website development?	Yes/Various divisions on campus
Do you have hazard mitigation information available on your website? • If yes, please briefly describe.	Yes Link to Ada County Emergency Management website
Do you utilize social media for hazard mitigation education and outreach? • If yes, please briefly describe.	Yes Twitter and Facebook accounts
Do you have any citizen boards or commissions that address issues related to hazard mitigation? • If yes, please briefly specify.	Yes Emergency Policy and Operations Groups
Do you have any other programs already in place that could be used to communicate hazard-related information? • If yes, please briefly describe.	Yes Emergency Operations Plan, Annex for Emergency Notification Protocols
Do you have any established warning systems for hazard events? • If yes, please briefly describe.	Yes Emergency Notification System: BroncoAlert. Provides Emergency Notification and Timely Warning

Opportunities for Future Integration

The following plans and programs do not currently integrate the goals, risk assessment and/or recommendations of the hazard mitigation plan, but provide an opportunity for future integration:

- Boise State University Building Design Guidelines. Boise State is working on defining campus safety and mitigation standards for all new building construction and renovations with the Campus Planning & Facilities group.
- Expansion of the campus Emergency Management Committee to include more campus faculty with subject matter expertise on natural and human-caused disasters.
- Creation of a campus Public Safety group to host quarterly sessions including emergency responders from Ada County and the City of Boise to discuss risk assessment, mitigation and preparedness on campus.

4. IDENTIFIED HAZARDS OF CONCERN

The Steering Committee considered the full range of natural hazards that could impact the planning area and then ranked the hazards that present the greatest concern. The process incorporated review of the Idaho State Hazard Mitigation Plan and the 2016 Ada County Multi-Hazard Mitigation Plan, as well as local, state and federal information on the frequency, magnitude and costs associated with hazards that have impacted or could impact the campus planning area. Anecdotal information regarding natural hazards and the perceived vulnerability of the planning area's assets to them was also used. Based on the review, this plan update addresses the following hazards of concern:

- Active threat
- Air quality
- Civil disturbance
- Cyberthreats
- Dam failure
- Earthquake
- Fire
- Flood
- Hazardous materials
- Power outage
- Public heath
- Severe weather

Of these hazards, earthquake, flood and severe weather are considered natural hazards. The remaining hazards of concern are categorized as "human-caused" or "technological" hazards. The natural hazards, as well as dam failure, which can be assessed similarly to the flood hazard, can be evaluated to develop quantitative estimates of the people and structures exposed to the hazard and potential losses if one of these hazard events occurs. The evaluation of human-caused hazards is a more qualitative assessment of risk.

5. RISK ASSESSMENT METHODOLOGY

The risk assessments in Part 2 of this hazard mitigation plan describe the risks associated with each identified hazard of concern. Each chapter describes the hazard, the planning area's vulnerabilities, and probable event scenarios. The following steps were used to define the risk of each hazard:

- Identify and profile each hazard—The following information is given for each hazard:
  - Geographic areas most affected by the hazard
  - Event frequency estimates
  - Severity estimates
  - Warning time likely to be available for response.
- Determine exposure to each hazard—Exposure was determined by overlaying hazard maps with an inventory of structures, facilities, and systems to determine which of them would be exposed to each hazard. For each identified hazard of concern, the best available existing data delineating a hazard area was selected. Data sets were evaluated based on scale, age and source. Additionally, data available in a GIS-compatible format with coverage of the full extent of the planning area were preferentially selected for use in the analysis.
- Assess the vulnerability of exposed facilities—Vulnerability of exposed structures and infrastructure was determined by interpreting the probability of occurrence of each event and assessing structures, facilities, and systems that are exposed to each hazard. Tools such as GIS and FEMA's hazard-modeling program called Hazus were used to perform this assessment for the flood, dam failure and earthquake hazards. Outputs like those from Hazus were generated for other hazards, using maps generated by the Hazus program.

5.1 MAPPING

A review of national, state and county databases was performed to locate available spatially based data relevant to this planning effort. Maps were produced using GIS software to show the spatial extent and location of identified hazards when such data was available. These maps are included in the hazard profile chapters of this document.

5.2 FEMA'S HAZUS PROGRAM

5.2.1 Overview

In 1997, FEMA developed the standardized Hazards U.S., or Hazus, model to estimate losses caused by earthquakes and identify areas that face the highest risk and potential for loss. Hazus was later expanded into a multi-hazard methodology with new models for estimating potential losses from hurricanes and floods.

Hazus is a GIS-based software program used to support risk assessments, mitigation planning, and emergency planning and response. It provides a wide range of inventory data, such as demographics, building stock, critical facility, transportation and utility lifeline, and multiple models to estimate potential losses from natural disasters. The program maps and displays hazard data and the results of damage and economic loss estimates for buildings and infrastructure. Its advantages include the following:

- Provides a consistent methodology for assessing risk across geographic and political entities.
- Provides a way to save data so that it can readily be updated as population, inventory, and other factors change and as mitigation planning efforts evolve.
- Facilitates the review of mitigation plans because it helps to ensure that FEMA methodologies are incorporated.
- Supports grant applications by calculating benefits using FEMA definitions and terminology.
- Produces hazard data and loss estimates that can be used in communication with local stakeholders.
- Is administered by the local government and can be used to manage and update a hazard mitigation plan throughout its implementation.

5.2.2 Levels of Detail for Evaluation

Hazus provides default data for inventory, vulnerability and hazards; this default data can be supplemented with local data to provide a more refined analysis. The model can carry out three levels of analysis, depending on the format and level of detail of information about the planning area:

- **Level 1**—All of the information needed to produce an estimate of losses is included in the software's default data. This data is derived from national databases and describes in general terms the characteristic parameters of the planning area.
- **Level 2**—More accurate estimates of losses require more detailed information about the planning area. To produce Level 2 estimates of losses, detailed information is required about local geology, hydrology, hydraulics and building inventory, as well as data about utilities and critical facilities. This information is needed in a GIS format.
- **Level 3**—This level of analysis generates the most accurate estimate of losses. It requires detailed engineering and geotechnical information to customize it for the planning area.

5.2.3 Application for This Plan

The following methods were used to assess specific natural hazards for this plan:

- **Flood**—A Level 2 analysis was performed. GIS building and valuation data (replacement cost values and detailed structure information) for over 210 facilities were loaded into Hazus. An updated inventory was used in place of the Hazus defaults for essential facilities, transportation and utilities. The Current Ada County Digital Flood Insurance Rate Map was used to delineate flood hazard areas and estimate potential losses from the FEMA 100- and 500-year flood events. The preliminary Ada County flood boundary data and depth grids came from FEMA. A flood depth grid was generated using those flood boundaries, detailed flood study cross sections, and multiple digital elevation models, including 1-foot Boise Foothills LiDAR, 3-meter Boise River LiDAR, and a 10-meter USGS elevation model.
- **Dam Failure**—Dam failure inundation mapping for Ada County was provided by the U.S. Army Corps of Engineers for the Lucky Peak Reservoir. This data was imported into Hazus and a modified Level 2

analysis was run using the flood methodology described above that included an updated inventory of over 210 user-defined facilities in the exposed area.

- **Earthquake**—A Level 2 analysis was performed to assess earthquake risk and exposure. Hazus pre-loaded fault and probabilistic data prepared by the U.S. Geological Survey (USGS) were used for the analysis of this hazard. An updated general building stock inventory was developed using replacement cost values and detailed structure information from assessor tables. An updated inventory of essential facilities, transportation and utility features was used in place of the Hazus defaults. One scenario event and two probabilistic events were modeled:
  - ➢ The scenario event was based on a 2012 U.S. Geological Survey scenario of the Squaw Creek fault, using a Magnitude of 7.0.
  - ➢ The standard Hazus analysis for the 100- and 500-year probabilistic events was run.

5.3 SEVERE WEATHER

For most of the hazards evaluated in this risk assessment, historical data was not adequate to model future losses. However, GIS can map hazard areas and calculate exposures if geographic information is available on the locations of the hazards and inventory data. Severe weather data was downloaded from the Natural Resources Conservation Service and the National Climatic Data Center.

5.4 NON-NATURAL HAZARDS

44 CFR, Section 201.6 requires local hazard mitigation plans to fully assess "natural hazards" that can impact a planning area and states that such plans may also consider other hazards of interest (non-natural hazards). The Boise State risk assessment in this plan includes profiles and assessments for both natural and non-natural hazards. The level of detail for the profiles depend on whether the hazard is natural or non-natural. Natural hazard profiles are more quantitative and building specific to meet the Section 201.6 risk assessment requirements. The non-natural hazard profiles are more qualitative, with an emphasis on the consequence of the hazard on the campus community. For this risk assessment, the following hazards were treated as "non-natural hazards:

- Active threat
- Air quality
- Civil disturbance
- Cyberthreats
- Fire
- Hazardous materials
- Public heath

5.5 LIMITATIONS

Loss estimates, exposure assessments and hazard-specific vulnerability evaluations rely on the best available data and methodologies. Uncertainties are inherent in any loss estimation methodology and arise in part from incomplete scientific knowledge concerning natural hazards and their effects on the built environment. Uncertainties also result from the following:

- Approximations and simplifications necessary to conduct a study

- Incomplete or outdated inventory, demographic or economic parameter data
- The unique nature, geographic extent and severity of each hazard
- Mitigation measures already employed
- The amount of advance notice residents have to prepare for a specific hazard event.

These factors can affect loss estimates by a factor of two or more. Therefore, potential exposure and loss estimates are approximate and should be used only to understand relative risk. Over the long term, Boise State will collect additional data to assist in estimating potential losses associated with other hazards.

Part 2. RISK ASSESSMENT

6. ACTIVE THREAT

6.1 GENERAL BACKGROUND

An active threat is an event in which one or more persons actively engage in killing or attempting to kill people in a populated area. It includes active shooters as well as bomb threats. Active threat situations are unpredictable and evolve quickly.

6.1.1 Active Shooters

In most cases, active shooters use firearms and there is no pattern or method to their selection of victims. Because active shooter situations are often over within 10 to 15 minutes, before law enforcement arrives on the scene, individuals must be mentally and physically prepared to deal with an active shooter situation (DHS, 2008). The following are good practices for coping with an active shooter situation:

- Be aware of the environment and any possible dangers
- Take note of the two nearest exits in any facility
- If in an office, stay there and secure the door
- If in a hallway, get into a room and secure the door
- As a last resort, attempt to take the active shooter down.

In an analysis completed by the Federal Bureau of Investigation (FBI), 57 of the 277 active shooter incidents in the United States between 2000 and 2018 (20.6 percent) took place in an educational setting, including 15 at institutions of higher education (FBI, 2018). In 2019, the FBI reported 28 mass shootings, with three incidents taking place within an educational institution. One of those incidents was at an institution of higher learning; two students were killed, and four students were wounded (FBI, 2019).

6.1.2 Bomb Threats

A bomb threat or bomb scare is a threat, usually verbal or written, to detonate an explosive or incendiary device to cause property damage, death or injury, and/or to incite fear, whether or not such a device actually exists. The following are guidelines for responding to a bomb threat:

- Stay calm.
- If the phone has Caller ID, record the number displayed.
- Gain the attention of someone else close-by, point to this information, and have that person call 911 from any other campus or cell phone. This call should be made out of hearing range from the caller.

- Try to keep the caller on the phone long enough to complete a bomb threat phone call checklist.
- Work with arriving emergency personnel to assist them in evaluating the situation.
- Assist emergency responders with a search of the area if requested.
- Provide for an orderly evacuation only when ordered by emergency personnel.
- Do not sound the evacuation alarm or evacuate the building unless told to do so by the building coordinator or incident commander.
- If ordered to evacuate, proceed to safe assembly locations. Do not return to an evacuated building unless told to do so by the on-scene incident commander.

6.2 HAZARD PROFILE

6.2.1 Threat Assessment and On-Campus Training

Threat assessments on campus are conducted by Boise State's CARE (Campus Assessment Resource and Education) Team, chaired by the associate vice president of the Department of Public Safety or a designee. Students and staff who are concerned about someone on campus of potential self-harm or harm to others can submit a CARE report (https://www.boisestate.edu/care/). The team works with campus departments, law enforcement, and mental health agencies to expedite assessment and intervention of reported individuals. The associate vice president of the Department of Public Safety may enlist the expertise and assistance of resources outside the University as needed and anyone with knowledge of the reported situation.

The Office of Emergency Management offers department or unit trainings regarding active shooter awareness training. The following videos are recommended for all students, faculty and staff at Boise State:

- **Active Attacker – Response and Prevention** (https://youtu.be/Pnmf2MIX0hM)—This is the video Boise State is currently using in its "Targeted Violence Awareness" academics. Produced by the University of Michigan, this video covers "run/hide/fight" tactics promoted by the FBI and the Department of Homeland Security, ways to recognize the signs of an active assailant, and the "If You See Something, Say Something" guidance to prevent a targeted violence incident before it happens.
- **Evan** (https://youtu.be/A8syQeFtBKc)—Produced by the Sandy Hook Promise, this video describes how to recognize the signs of a potential active assailant.
- **Shots Fired on Campus** (https://vimeo.com/224491379/802254de0a)—This video presents tips and guidance for preparing for an active attacker scenario in a campus setting.

6.2.2 Previous Events

There have been no active threat incidents at Boise State University. There have been several bomb threats within the past few years.

6.3 EXPOSURE AND VULNERABILITY

Active threats are intentional and often planned. The target of an active shooter is typically not structures, but the population within the structures; bomb threats target both people and structures. All structures that can be utilized for mass gatherings are exposed to the active threat hazard. For this profile, exposure and vulnerability are considered to be one and the same. If a structure is identified as being exposed, it is also considered to be vulnerable. Any of the over 190 structures owned and/or operated by Boise State could be considered exposed to the active threat hazard. The degree of the exposure and vulnerability is dependent on numerous factors:

- Confinement of the building's occupancy
- Points for evacuation
- Accessibility
- Building security
- Response times for security personnel

6.4 SCENARIO

Any scenario that involves a potential loss of life that could be avoided is a worst-case scenario. Any of the over 190 Boise State buildings and/or mass gathering facilities could be targets for an active threat. The best mitigation for this hazard is proactive preparedness and prevention on campus. Understanding human behavior and being sensitive to warning signs is critical to avoiding these types of events.

6.5 ISSUES

Important issues associated with the active threat hazard include the following:

- Active shooter incidents occur in areas where the general population is not anticipating danger.
- There is no single best method to react to an active shooter.
- Prior planning and careful practice will empower the University and its staff to make the best decisions in a heightened situation, with the goal of preserving lives.
- Generally, there will be a certain degree of warning time that an active threat may occur; however, achieving certainty that an incident is imminent is not possible.
- As an academic institution, with a potential vulnerable population, Boise State has active shooter risk.
- Campus community awareness about active threats are critical to preparing for, responding to, and recovering from active threat incidents.

7. AIR QUALITY

7.1 GENERAL BACKGROUND

Millions of people live in areas where air pollution can cause serious health problems. Like the weather, air quality changes from day to day. The U.S. Environmental Protection Agency (EPA) developed the Air Quality Index (AQI) to make information available about the health effects of the most common air pollutants, and about how to avoid those effects. Monitors record pollution at over 1,000 locations in the United States for four common air pollutants.

7.1.1 Monitored AQI Pollutants

Ground-Level Ozone

Ground-level ozone is the main ingredient in smog. Ground level ozone is produced when emissions from vehicles, power plants, industrial boilers and other fossil fuel burning facilities react with sunlight. It often forms in warmer months when there is more sunlight, and peaks during rush hour when many cars are on the road. People at greater risk from ground-level ozone are people with lung diseases, such as asthma, older adults, children, and adults who are active outdoors. Common effects are as follows:

- Irritation of the respiratory system, causing coughing, throat irritation or a burning sensation in people's airways
- Reduced lung function, creating feelings of chest tightness, wheezing, or shortness of breath
- Aggravation of asthma and asthma attacks
- Damage (potentially permanent) to the lining of the lungs, making the lungs more vulnerable to infection

Particulate Matter

Particulate matter (PM) refers to small particles, both solid and liquid, that can enter the lungs and cause respiratory problems. Particulate matter that is between 2.5 and 10 micrometers (smaller than the width of a human hair), called PM 10, arises from crushing and grinding activities and dust on roads. PM less than 2.5 micrometers, called PM 2.5, can only be seen through an electron microscope. It comes from cars, power plants, wood burning, forest fires, and other combustion. In addition, ammonia from fertilized fields and manure can combine with industrial emissions to form PM 2.5. PM 2.5 can penetrate deep into the lungs, enter the bloodstream, move to other organs, and cause serious health problems. Common effects are as follows.

- It can cause coughing, wheezing, shortness of breath, palpitations, and fatigue

- It can aggravate asthma and chronic bronchitis and has been linked to cardiac arrhythmia and heart attacks.
- People with heart or lung diseases and older adults are more at risk of hospital and emergency room visits or, in some cases, even death from heart or lung disease.
- Healthy people may experience temporary symptoms that include irritation of the eyes, nose and throat, coughing, phlegm, chest tightness, and shortness of breath.

Carbon Monoxide

Carbon monoxide—a colorless, odorless gas—forms when carbon does not burn completely. Most carbon monoxide pollution comes from vehicles, but it is also caused by industrial combustion, wood burning stoves and wildfires. High levels of carbon monoxide often occur in cold weather, as cold temperatures make combustion less complete and trap the gas closer to the ground. Common effects are as follows.

- Because carbon monoxide decreases the amount of oxygen reaching the body's organs, it can cause flu-like symptoms and chest pain in those with cardiovascular disease.
- High levels of carbon monoxide can result in dizziness, blurred vision and confusion; very high levels can cause death.
- While everyone is susceptible to carbon monoxide poisoning, the unborn, babies, the elderly, and people with chronic heart disease, anemia, or respiratory problems are most at risk.

Sulfur Dioxide

Sulfur dioxide is produced when coal and oil fuels containing sulfur are burned in power plants and refineries. Normally the irritating gas is kept out of the body by the nasal passages, but when physical exertion necessitates mouth breathing, sulfur dioxide can affect health. Common effects are as follows.

- It can cause wheezing, shortness of breath and tightness in the chest.
- Long-term exposure can aggravate asthma and other chronic lung and cardiovascular diseases.

Sulfur dioxide also contributes to the formation of particulate matter.

7.1.2 AQI Levels

An AQI reading of 100 for each pollutant is deemed safe. An AQI number under 100 signifies good or acceptable air quality, while a number over 100 is cause for concern and triggers an alert for vulnerable groups. If two or more pollutants exceed 100, the highest number becomes the value for the day, and agencies must alert all groups that are vulnerable to those pollutants. Levels over 300 mean very hazardous conditions. State and local agencies must report the AQI daily in U.S. cities with populations over 350,000; smaller cities may also do it as a public service. Figure 7-1 shows the AQI values and associated health concerns.

Air Quality Index Levels of Health Concern	Numerical Value	Meaning
Good	0 to 50	Air quality is considered satisfactory, and air pollution poses little or no risk.
Moderate	51 to 100	Air quality is acceptable; however, for some pollutants there may be a moderate health concern for a very small number of people who are unusually sensitive to air pollution.
Unhealthy for Sensitive Groups	101 to 150	Members of sensitive groups may experience health effects. The general public is not likely to be affected.
Unhealthy	151 to 200	Everyone may begin to experience health effects; members of sensitive groups may experience more serious health effects.
Very Unhealthy	201 to 300	Health alert: everyone may experience more serious health effects.
Hazardous	301 to 500	Health warnings of emergency conditions. The entire population is more likely to be affected.

Figure 7-1. AQI Index and Associated Health Concerns

7.2 HAZARD PROFILE

In 2018, three Boise State students completed a capstone study entitled, "Air Quality in the Treasure Valley." They tracked air pollution near high traffic roads (10 intersections around Boise) and around the Amalgamated Sugars Production Plant (at the plant and along I-84 nearby); and they distinguished air pollution near elementary schools in the Boise School District.

Each sample at each intersection and sugar plant location was an average of three or four tests of the concentration of airborne particulate matter up to 2.5 micrometers in diameter (called "PM 2.5" levels). Readings were made during the day and in the evening after perceived peak traffic hours. Three elementary schools very close to roadways produced the comparative model. General findings were as follows:

- At the major intersections, particulate matter concentrations were higher on average during the peak traffic hours of 4 to 7 p.m.; however, a statistical difference was not found.
- At the Amalgamated Sugars Plant, a significant increase in pollution at night was measured due to increased semi-truck activity.
- The tested elementary schools are affected by particulate matter produced by traffic, as well as idling cars. Garfield Elementary School had the highest PM 2.5 concentrations of the test sites. The study attributes this to its location at the major intersection of Broadway and Boise Avenue.
- Even the highest concentration measured at any school was well below the EPA's allowed daily threshold of concern of 35 micrograms per cubic meter.

7.3 EXPOSURE AND VULNERABILITY

The air quality hazard is not likely to damage buildings or infrastructure. It is more likely to impact the people who live, work and study in these buildings or are serviced by that infrastructure. Exposure and vulnerability are considered to be one in the same for this hazard.

Some members of Boise State's students and faculty are more sensitive to the air quality hazard than others. Sensitive populations include the elderly and those with respiratory diseases.

7.4 SCENARIO

There are typically two drivers to air quality issues impacting Ada County and the Boise State campus:

- An **inversion** is a deviation from the normal change in the atmosphere with altitude. Normally, air temperature decreases with an increase in altitude. During an inversion, warmer air is held above cooler air— inverting the normal temperature profile with altitude. Temperature inversions stop normal atmospheric convection in the affected area and can trap air pollution, such as smog, close to the ground. An inversion can act as a cap. If this cap is broken, convection of any moisture present can erupt into violent thunderstorms. Temperature inversion can result in freezing rain in cold climates. The Ada County planning area is usually susceptible to inversions from December to March.
- **Wildfires** release large amounts of carbon dioxide, black carbon, brown carbon, and ozone precursors into the atmosphere. These emissions affect radiation, clouds, and climate on regional and global scales. Wildfires also emit substantial amounts of volatile and semi-volatile organic materials and nitrogen oxides that form ozone and organic particulate matter. Direct emissions of toxic pollutants can affect first responders and local residents. In addition, the formation of other pollutants as the air is transported can lead to harmful exposures for populations in regions far away from the wildfires. Wildfire tends to impact the planning area during summer but can occur into the fall, depending on conditions.

The worst-case scenario for this hazard would be prolonged periods of poor air quality (150 AQI or higher) that interrupt outdoor events, including sporting events that are sources of revenue for Boise State.

7.5 ISSUES

Important issues associated with the air quality hazard include the following:

- Air quality impacts on the Boise State campus are regional and not directly under the control of Boise State.
- Poor air quality can impact outdoor activities for the campus community, which could have financial consequences for Boise State.
- Air filtration systems for buildings are costly and vary across the Boise State inventory of buildings.
- Air quality is not perceived as a high risk hazard

8. CIVIL DISTURBANCE

8.1 GENERAL BACKGROUND

(This section includes excerpts from the 2018 Idaho State Hazard Mitigation Plan)

Civil disturbance refers to groups of people purposely choosing not to observe a law, regulation or rule, usually in order to bring attention to a cause, concern or agenda. It is typically a protest against major socio-political problems. Typically, the severity of the action coincides with the level of public outrage. Civil disturbance also can arise out of union protest, institutional population uprising, or large celebrations that become disorderly.

Civil disturbance includes riots, demonstrations, threatening individuals, and assemblies that become disruptive and may cause harm to others. It can take the form of small gatherings or large groups blocking or impeding access to a building or disrupting normal activities by generating noise and intimidating people. Demonstrations can range from a peaceful sit-in to a riot, in which a mob burns or otherwise destroys property and terrorizes individuals. Even in its more passive forms (e.g., a group that blocks roadways, sidewalks, or buildings), it interferes with public order. Often, protests intended to be a peaceful demonstration escalate into greater chaos.

Civil disturbance may be spontaneous or may result from escalating tensions in a community or the larger society. The Occupy Wall Street movement, for example, began in September 2011 in New York City and spread to over 100 cities in the United States, including Boise. Civil disorder can erupt anywhere, but the most likely locations are areas with large population groups or gatherings. Civil disorder also can occur near where a "trigger event" occurred, such as the 2014 unrest in Ferguson, Missouri.

Civil violence is most often directed at objects that reflect civil values—property, industry, and services. When demonstrators protested against the World Trade Organization gathering in Seattle in 1999, for example, brand name stores such as the GAP and Starbucks were singled out as representative of the global commercialization the protesters were opposing.

8.2 HAZARD PROFILE

8.2.1 Location

Because of its often-spontaneous nature, it is difficult to identify specific locations susceptible to civil disturbance. However, information gathered in advance may warn officials and provide locations of future civil disturbance. Areas important to the state, region, or nation that may be targets for civil disturbance include universities, landmarks, correctional facilities, and major industrial facilities. College campuses have been the sight of a resurgence in peaceful protest, and some have experienced shout-down efforts and violent riots.

8.2.2 Past Events and Future Frequency

While large-scale civil disturbance is not common in Southwest Idaho, its frequency could increase as more population moves into the region. Societal trends and emerging social issues should be watched closely, as they have led to instances in the past. While the probability of future civil disturbance is difficult to predict, given past occurrences and the significance of the Boise State campus to Idaho and the Ada County community, civil disturbance incidents at the campus are possible.

There have been several episodes of civil disturbance in Idaho. Chinese immigrant mining disturbances date back to 1885, and miner strikes and confrontations were recorded in the 1890s, when Idaho governors requested federal assistance to suppress insurrection on two occasions. Incidents have resulted from disorderly conduct at races or firework celebrations, which required law enforcement intervention and led jurisdictions to change policies to prevent future disturbances. Other incidents include protests for moving nuclear waste through Idaho and individual hydrogen-sulfide suicides. Kootenai County spent time and resources preparing for and maintaining law and order during the Aryan Nation parades in the 1980s and in 2000. The 2001 Rainbow Family gathering in Idaho's remote Sawtooth Mountains led to a state declaration. Recent protests in Boise include the Occupy movement protests in 2012 and protests by United Vision for Idaho in 2017 (see Figure 8-1 and Figure 8-2).

Source: Russell 2012

Figure 8-1. Occupy Boise Demonstration

Source: Kruesi 2017

Figure 8-2. United Vision for Idaho Protestors in Boise on August 22, 2017

8.2.3 Severity

The magnitude or severity of a civil disturbance coincides with the level of public outrage. Civil disturbances can be minor or can disrupt the functioning of a community for weeks or months. A riot in Los Angeles in April 1992 spread across the Los Angeles metropolitan area over a 6-day period. Civil disorder incidents, regardless of intent, can lead to injury and/or death for involved persons, innocent bystanders and responders.

8.2.4 Warning Time

Civil disturbances occur with little to no warning; however, certain events may trigger riots. Riots can occur as a result of controversial court rulings, unfair working conditions, or general unrest. They can even be triggered by favorable or unfavorable sports outcomes. Thus, there often is some warning time that a riot may occur; however, achieving certainty that an incident is imminent is not possible.

8.2.5 Boise State Policy

Boise State University is a state institution of higher education supportive of the right of free expression and speech by the campus community and others. The time, place, and manner of free expression activities may be regulated to prevent unreasonable interference or conflict with the educational, research, housing, or other legitimate functions of the University, including the normal use by others of public areas or other scheduled activities. In public forums such as the Quad, the university may not regulate the content of speech but can place reasonable time, place, and manner restrictions. University Policy 1100, regulating the use of university space, applies to all University-owned or -controlled facilities and property and to all users of the facilities and property. The Vice President for Student Affairs and Enrollment Management, in consultation with University Event Services, is responsible for the administration and implementation of regulations for the use of public areas.

8.3 EXPOSURE AND VULNERABILITY

The entire Boise State campus is exposed and vulnerable to the civil disturbance hazard. The number of people exposed to any civil disturbance depends on the size of the disturbance and the population density of the disturbance location. Increases in visiting populations or hosting of major political, economic, or social events may increase the exposure.

8.4 SCENARIO

A worst-case scenario for this hazard for Boise State would be a socially charged event that lasts for an extended period and escalates to a riot that results in property damage, death, or injury. Violent escalation is typically initiated by people outside of the organizers' control who seek to take advantage of a politically charged environment. If this situation were to occur at a time where there was a large influx of population on campus (e.g., during a Boise State football home game), the exposure would be increased as well as the profile of the event. This would tax Boise State and local resources to respond to the event.

8.5 ISSUES

Important issues associated with the civil disturbance hazard include the following:

- This type of hazard has not typically been an issue for the Boise State campus, but as the campus community grows and Boise State gains national recognition, the campus could become a target for civil disturbance incidents.
- Considering the profile of Boise State in the state of Idaho, there is a distinct possibility that Boise State could become a target for future civil disturbance events.

- Violence is often the result of demonstrators conducting unlawful or criminal acts. The depth of violence is determined by the willingness of the demonstrators to display and voice their opinions in support of their cause.
- Being part of a crowd of people has certain effects on different people, and individuals are susceptible to behaving in a way that is contrary to their normal behavior, causing law abiding citizens to act in ways they might not normally act.
- Civil disturbances often occur with little to no warning. There may be some warning in advance that a riot may occur, but achieving certainty that an incident is imminent is not possible.

9. CYBERTHREATS

9.1 GENERAL BACKGROUND

Cyberthreats are attempts to gain unauthorized access to a control system device or network using a data communications pathway. This access can be directed from within an organization by trusted users or from remote locations by unknown persons using the internet. Cyberthreat activities include espionage, hacking, identity theft, crime, and terrorism. Protecting against these threats requires a secure cyber-barrier around the potentially targeted system or network. Common sources of cyberthreats are described in the sections below.

9.1.1 National Governments

National cyber warfare programs pose a threat along the entire spectrum of objectives that might harm U.S. interests—from propaganda and low-level nuisance web page defacements to espionage and serious disruption. Their goal is to weaken, disrupt or destroy the United States. Their sub-goals include espionage for attack purposes, espionage for technology advancement, disruption of infrastructure to attack the U.S. economy, or attack of infrastructure when attacked by the United States to damage the U.S. ability to continue its attacks.

The tradecraft needed to effectively employ technology and tools remains an important limiting factor, particularly against more difficult targets such as classified networks or critical infrastructure. Only government-sponsored programs have the discipline, commitment, and resources to cause widespread, long-duration damage to U.S. critical infrastructures.

9.1.2 Terrorists

The goal of terrorist cyber-attacks is to spread terror throughout the U.S. civilian population or to weaken the U.S. economy in order to reduce the nation's ability to continue to fight terrorism. Traditional terrorist adversaries of the United States pose only a limited cyberthreat because they are less developed in their computer network capabilities and propensity to pursue cyber means than are other types of adversaries. Terrorists are likely to stay focused on traditional attack methods in the near term. More substantial cyberthreats are possible in the future as a more technically competent generation enters the ranks.

9.1.3 Industrial Spies and Organized Crime Groups

International corporate spies and organized crime organizations pose a medium-level threat to the United States through their ability to conduct industrial espionage and large-scale monetary theft as well as their ability to hire or develop hacker talent. Their goals are profit based. Their sub-goals include attacks on infrastructure for profit to competitors, theft of trade secrets, and blackmail of a business using public exposure as a threat.

9.1.4 Hacktivists

Hacktivists are a small, foreign population of politically active hackers that includes individuals and groups with anti-U.S. motives. They pose a medium-level threat of carrying out an isolated but damaging attack. Most international hacktivist groups appear bent on propaganda rather than damage to critical infrastructures. Their goal is to support a political agenda. Their sub-goals are propaganda achieving notoriety for their cause.

9.1.5 Hackers

Although the most numerous and publicized cyber intrusions and other incidents are ascribed to lone computer-hacking hobbyists, such hackers pose a negligible threat of widespread, long-duration damage to national-level infrastructures. Most hackers do not have the requisite tradecraft to threaten difficult targets such as critical U.S. networks and even fewer have a motive to do so. Nevertheless, the large worldwide population of hackers poses a relatively high threat of an isolated or brief disruption causing serious damage, including extensive property damage or loss of life. As the hacker population grows, so does the likelihood of an exceptionally skilled and malicious hacker attempting and succeeding in such an attack. In addition, the huge worldwide volume of relatively less skilled hacking activity raises the possibility of inadvertent disruption of a critical infrastructure.

9.2 HAZARD PROFILE

9.2.1 Location

Cyber disruptions are not geography-based; they can occur anywhere across the Boise State campus where technological systems exist or are utilized. They can originate from any computer to affect any other computer in the world. If a system is connected to the internet or operating on a wireless frequency, it is susceptible. Targets of cyber disruptions can be individual computers, networks, organizations, business sectors, or governments. Both public and private operations in the State of Idaho are threatened on a near-daily basis by millions of current cyberattacks developed to automatically seek technological vulnerabilities.

9.2.2 Frequency

Like any large government organization, Boise State will continue to be impacted and compelled to respond to cyberthreat events in the future. The nature of these attacks is projected to evolve over time. With the establishment of the Idaho Cybersecurity Taskforce in 2015, strategies and processes to detect vulnerabilities, prevent future attacks, and protect state governmental networks are being developed (Idaho Office of the Governor, 2015).

9.2.3 Severity

There is no severity ranking for cyberthreats. The severity of an incident will vary greatly based on the extent and duration of the impact, the specific system attacked, the warning time, and the ability to preempt an attack.

9.2.4 Warning Time

A cyberthreat can occur with little or no warning. The State of Idaho's Cybersecurity Taskforce implements strategies and processes to detect vulnerabilities, prevent future attacks, and protect state government networks

(Idaho Office of the Governor, 2015). At the federal level, numerous agencies, such as the FBI and the Central Intelligence Agency, are working collaboratively to thwart cyberthreats. The warning time depends upon the ability of these agencies to recognize that a threat exists and their ability to stop the attack. Even with these agencies on task to monitor cyberthreats, an attack can occur with no warning.

9.2.5 University Initiative to Address Cybersecurity

Boise State's College of Engineering and Division of Extended Studies have partnered to secure a grant from the Idaho Workforce Development Council focused on building an online cyber-physical systems security certificate. The grant covers 36 months of development and program startup and will enable Boise State to create a high-demand, innovative online cyber-physical systems security certificate. The initiative was developed with support from industry partners including Simplot, Idaho National Laboratory and Idaho Air National Guard. Additional technical design inputs were provided by Albertsons, Idaho Power and the Boise Chapter of Information Systems Security Association members. The program is designed to be accessible to anyone interested in earning the credential, regardless of where they live in Idaho. Potential benefits include the following:

- A trained workforce in cybersecurity
- Expansion of the industry network and collaboration with communities and universities across the state to ensure that businesses and industry are able to meet rapidly growing cyber operational needs.
- Leveraging expertise from across the university to create a relevant and fully accessible program for Idaho

9.3 EXPOSURE AND VULNERABILITY

Anywhere on the Boise State campus that relies on computer technology and network-based systems for operational and support services is exposed to the cyberthreat hazard.

In cyber security, a vulnerability is a weakness that can be exploited by a cyber-attack to gain unauthorized access to or perform unauthorized actions on a computer system. Systems can be put in place to attempt to block these attacks, but the capabilities and capacities of cyberthreat tacticians is ever evolving, which makes it a challenge to maintain the effectiveness of these systems. The vulnerability of the Boise State campus to cyberthreats is dynamic. For this hazard profile, exposure and vulnerability are considered to be the same.

9.4 SCENARIO

A worst-case scenario for the cyberthreat hazard on the Boise State campus would be an attack that affects multiple systems and results in a shutdown of campus activities for a prolonged period. While this type of scenario is unlikely, it is possible considering the dynamic nature of this hazard. As an academic service provider, any hazard that impacts Boise State's ability to provide its academic services is a high impact hazard.

9.5 ISSUES

Important issues associated with the cyberthreat hazard include the following:

- The Boise State campus community's reliance on computers and computer technology makes it highly susceptible to cyberthreats.

- A large-scale cyber attack to the Boise State system could result in some significant functional down-time for the university.
- Cyberthreats are dynamic in that the capabilities of those that want to do harm is ever changing, and it is a challenge for those that are susceptible to stay ahead of them with preparedness.
- Ever-more sophisticated cyberattacks involving malware, phishing, machine learning, artificial intelligence, cryptocurrency and more have placed the data and assets of corporations, governments, academic institutions and individuals at constant risk.
- Rapid advances in intelligent technologies plus conflicting demands posed by evolving national security and individual privacy regulations negatively impact organizations' ability to control their own information.

10. DAM FAILURE

10.1 GENERAL BACKGROUND

10.1.1 Causes of Dam Failure

Dam failures in the United States typically occur in one of four ways:

- Overtopping of the primary dam structure, which accounts for 34 percent of all dam failures, can occur due to inadequate spillway design, settlement of the dam crest, blockage of spillways, and other factors.
- Foundation defects due to differential settlement, slides, slope instability, uplift pressures, and foundation seepage can also cause dam failure. These account for 30 percent of all dam failures.
- Failure due to piping and seepage accounts for 20 percent of all failures. These are caused by internal erosion due to piping and seepage, erosion along hydraulic structures such as spillways, erosion due to animal burrows, and cracks in the dam structure.
- Failure due to problems with conduits and valves, typically caused by the piping of embankment material into conduits through joints or cracks, constitutes 10 percent of all failures.

The remaining 6 percent of dam failures are due to miscellaneous causes. Many are secondary results of other disasters, such as earthquakes, landslides, storms, snowmelt, equipment malfunction, structural damage, and sabotage. The most likely disaster-related causes of dam failure in Ada County are earthquakes, excessive rainfall and landslides. Poor construction, lack of maintenance and repair, and deficient operational procedures are preventable or correctable through regular inspections.

10.1.2 Regulatory Oversight

Idaho Department of Water Resources Dam Safety Program

The Dam Safety Program of Idaho's Department of Water Resources (IDWR) regulates nearly 600 water storage dams and more than 20 mine tailing impoundments across the state. The program regulates dams greater than or equal to 10 feet tall or reservoirs greater than or equal to 50 acre-feet in capacity. Dams are classifies by size:

- Large—40 feet high or more or with a storage capacity of more than 4,000-acre feet of water. 104 dams are currently listed as large.
- Intermediate—More than 20 but less than 40 feet high or with a storage capacity of 100 to 4,000-acre feet of water. 198 dams are currently listed as intermediate.
- Small—20 feet high or less and a storage capacity of less than 100-acre feet of water. 244 dams are currently listed as small.

All statutory-sized dams must be inspected by the IDWR no less than every five years. The frequency between individual dam inspections depends on items such as the project's physical condition, method of construction, maintenance record, age, hazard rating, and size and storage capacity. Inspection reports prepared by the IDWR for non-federal dams are available through the state office in Boise (Idaho Dam Safety Web Site, 2011).

National Dam Safety Act

The potential for catastrophic flooding due to dam failures led to passage of the National Dam Safety Act (Public Law 92-367), which requires a periodic engineering analysis of every major dam in the country. The goal of this FEMA-monitored effort is to identify and mitigate the risk of dam failure in order to protect lives and property.

U.S. Army Corps of Engineers Dam Safety Program

The U.S. Army Corps of Engineers is responsible for safety inspections of some federal and non-federal dams in the United States that meet size and storage limitations specified in the National Dam Safety Act. The Corps has inventoried dams; surveyed each state and federal agency's capabilities, practices and regulations regarding design, construction, operation and maintenance of the dams; and developed guidelines for inspection and evaluation of dam safety (U.S. Army Corps of Engineers, 1997).

Federal Energy Regulatory Commission Dam Safety Program

The Federal Energy Regulatory Commission (FERC) has the largest dam safety program in the United States. The FERC cooperates with many federal and state agencies to ensure and promote dam safety and, more recently, homeland security. There are 3,036 dams that are part of regulated hydroelectric projects in the FERC program. Two-thirds of these are more than 50 years old. As dams age, concern about their safety and integrity grows, so oversight and regular inspection are important. FERC staff inspects hydroelectric projects on an unscheduled basis to investigate the following:

- Potential dam safety problems
- Complaints about constructing and operating a project
- Safety concerns related to natural disasters
- Issues concerning compliance with the terms and conditions of a license.

Every five years, an independent consulting engineer, approved by the FERC, must inspect and evaluate projects with dams higher than 32.8 feet, or with a total storage capacity of more than 2,000 acre-feet.

FERC staff monitors and evaluates seismic research in geographic areas where there are concerns about seismic activity. This information is applied in investigating and performing structural analyses of hydroelectric projects in these areas. FERC staff also evaluates the effects of potential and actual large floods on the safety of dams. During and following floods, FERC staff visits dams and licensed projects, determines the extent of damage, if any, and directs any necessary studies or remedial measures the licensee must undertake.

The FERC requires licensees to prepare emergency action plans (EAPs) and conducts training sessions on how to develop and test these plans. The plans outline an early warning system if there is an actual or potential sudden release of water from a dam due to failure. The plans include operational procedures that may be used, such as reducing reservoir levels and reducing downstream flows, as well as procedures for notifying affected residents and agencies responsible for emergency management. These plans are frequently updated and tested to ensure that everyone knows what to do in emergency situations.

U.S. Bureau of Reclamation

The U.S. Bureau of Reclamation's Dam Safety Program was implemented in 1978 under the Reclamation Safety of Dams Act (Public Law 95-578; and subsequent amendments). Program development and administration of dam safety activities are the responsibility of Reclamation's Dam Safety Office in Denver, Colorado. Under this program, dams must be operated and maintained in a safe manner, as ensured by inspections for safety deficiencies, analyses utilizing current technologies and designs, and corrective actions as needed based on current engineering practices.

The Bureau's Safety Evaluation of Existing Dams program performs site evaluations and identifies potential safety deficiencies on Department of Interior dams. The objective is to quickly identify dams that pose an increased threat to the public and complete analyses needed to expedite corrective action.

The Bureau's Safety of Dams program focuses on evaluating and implementing actions to resolve safety concerns at Bureau dams. Under this program, staff complete studies and identify and implement needed corrective actions. The course of action depends on assessments of risks and liabilities with environmental and public involvement input to the decision-making process.

10.2 HAZARD PROFILE

10.2.1 Past Events

The 2018 *State of Idaho Hazard Mitigation Plan* lists the following dam failures in Idaho, none of which impacted the Boise State campus:

- **Teton Dam Failure, 1976—**On June 5, 1976, Teton Dam in Fremont County failed (see Figure 10-1), releasing an estimated 80 billion gallons of water into the Upper Snake River Valley. Devastating flooding occurred in Wilford, Sugar City, Rexburg, and Roberts; additional significant flooding occurred in Idaho Falls and Blackfoot. At the time of its failure, Teton Dam was brand new. The dam was a zoned earth-fill structure with a volume of 10 million cubic yards. The floodwaters threatened American Falls Dam downstream on the Snake River. Dam managers opened the outlet works on American Falls to empty the reservoir and save American Falls Dam and the string of dams farther down the Snake River.
- **Oakley Dam, 1984—**Oakley Dam nearly overtopped; a canal was constructed to mitigate flooding.
- **Twin Falls County Dam, 1984—**Salmon Falls Creek dam release caused flooding.
- **Kirby Dam Failure, 1991—**In the summer of 1990, the old log crib structure of the Kirby Dam near Atlanta became unsound and was in jeopardy of failing. A strategy to stabilize the dam developed by the IDWR and the U.S. Forest Service was unsuccessful. On May 26, 1991, Kirby Dam collapsed, cutting off electrical power and blocking the primary access bridge to Atlanta. Sediments containing arsenic, mercury and cadmium were released into the Middle Fork of the Boise River.
- **Brown's Pond Dam, 2010—**Browns Pond Dam was overtopped and breached during a rain-on-snow event.

Figure 10-1. Teton Dam Failure, 1976

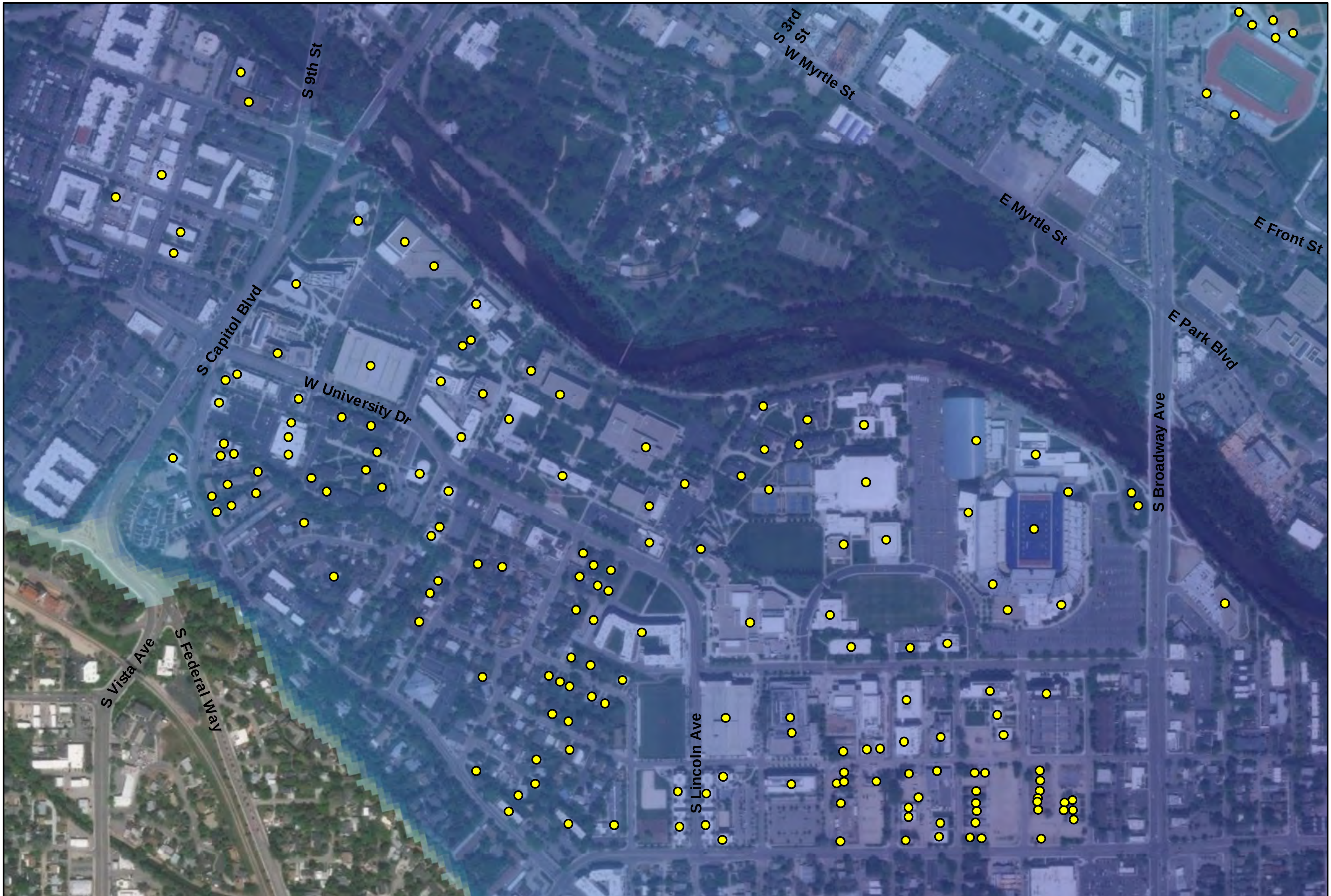
10.2.2 Location

According to Idaho's Dam Safety Program, 26 dams with potential to impact Ada County impound a combined 1.319 million acre-feet of water. These dams are listed in Table 10-1. Five are operated by federal agencies, and the rest are under the jurisdiction of the state.

Dam failure inundation mapping is not available for every dam in the County. The Corps of Engineers provided inundation mapping for the Lucky Peak Reservoir, which is the dam most likely to have the largest impact on the planning area. This inundation area reflects the normal high pool and maximum inundation area associated with dam operations. Figure 10-2 illustrates the Lucky Peak Dam inundation area as used for the risk assessment.

10.2.3 Frequency

Dam failure events usually coincide with events that cause them, such as earthquakes, landslides and excessive rainfall and snowmelt. There is a "residual risk" associated with dams. Residual risk is the risk that remains after safeguards have been implemented. For dams, it is associated with events beyond those that the facility was designed to withstand. The overall probability of a dam failure is low in today's regulatory and dam safety environment.



Inundation Depth

Value

High : 57 ft

Low : 0 ft

BSU Buildings

N

0 0.1 0.2 Miles

Data Sources: BSU, Esri, USACE

Figure 10-2a. Lucky Peak Dam Failure Inundation Area

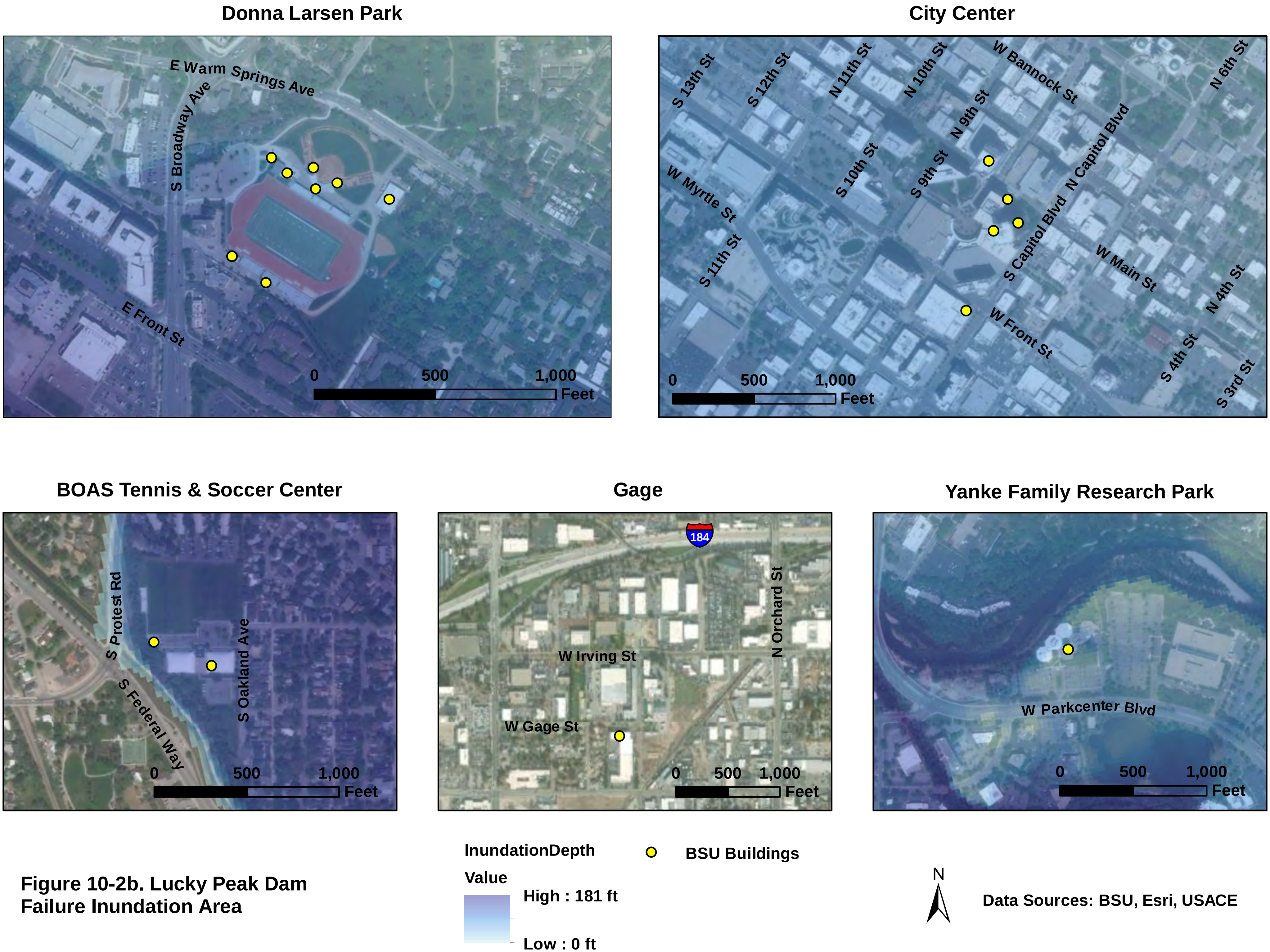


Figure 10-2b. Lucky Peak Dam Failure Inundation Area

Table 10-1. Dams That Impact Ada County

Name	National ID #	County	Year Built	Dam Type	Purpose	Crest Length (feet)	Height (feet)	Storage Capacity (acre-feet)	Downstream Hazard Potential
Swan Falls	ID00049	Ada	1901	Gravity	Hydro	1187	40	5800	Significant
CJ Strike	ID00054	Elmore	1952	Earth	Hydro	3220	115	250,000	High
Stuart Gulch-Main Fork	ID00480	Ada	1998	Earth	Flood Control	570	76.3	61	High
IDC Effluent Storage	ID00490	Ada	1998	Earth	Irrigation	3125	20	105	Significant
Blacks Creek	ID00208	Ada	1915	Earth	Multi-use	1700	51.5	3640	High
Barber	ID00207	Ada	1906	Timber	Multi-use	1225	3503	180	High
Micron #1	ID00415	Ada	1984	Earth	Multi-use	550	14	155	Low
Micron #2	ID00561	Ada	1991	Earth	Other	1720	12	0	Significant
Micron #3	ID00560	Ada	1997	Earth	Other	1540	13	30	Low
Hubbard	ID00376	Ada	1902	Earth	Irrigation	6000	23	4060	High
Boise Diversion	ID00281	Ada	1908	Gravity	Multi-use	500	56.9	600	High
Arrowrock	ID00280	Elmore	1915	Arch	Multi-use	1150	350	272,224	High
Anderson Ranch	ID00279	Elmore	1950	Earth	Multi-use	1350	456	474,942	High
Lucky Peak	ID00288	Ada	1954	Earth	Multi-use	2340	258	307,000	High
Orchard	ID00206	Ada	1902	Earth	Multi-use	2800	42.8	0	Significant
Terteling	ID00562	Ada	1973	Earth	Multi-use	1770	16.3	20	Low
Hidden Hollow Detention	ID00564	Ada	1997	Earth	Other	375	22.6	20	Low
Cottonwood Cr., Upper	ID00565	Ada	1961	Earth	Flood Control	840	18.1	17	High
Cottonwood Cr., Middle	ID00567	Ada	1961	Earth	Flood Control	1210	23.6	40	High
Cottonwood Cr., Middle	ID00477	Ada	1961	Earth	Flood Control	1710	15.4	88	High
Crane Creek-Main Fork	ID00478	Ada	1998	Earth	Flood Control	204	44	19	Significant
Crane Creek-East Fork	ID00479	Ada	1998	Earth	Flood Control	316	60.4	28	Significant
City of Kuna	ID00688	Ada	2001	Earth	Multi-use	940	18.3	15	Low
High Plains Estates	ID00691	Ada	2005	Erath	Multi-use	340	15.6	19	Significant
Hidden Springs-Cell 1A	ID00699	Ada	2007	Earth	Multi-use	--	26	9.4	Low
Hidden Springs-Cell 3A	ID00695	Ada	2007	Earth	Multi-use	--	42.5	81.3	High

10.2.4 Severity

The Idaho Dam Safety Program classifies dams and reservoirs in a three-tier hazard rating system based on the potential consequences to downstream life and property that would result from a failure of the dam and sudden release of water (Idaho Dam Safety Web Site, 2011):

- **High Hazard**—If failure were to occur, the consequences likely would be a direct loss of human life and extensive property damage. All high-hazard dams must be properly designed and at all times responsibly maintained and operated. IDWR considers the inundation of residential structures with floodwater from a dam break to a depth greater than or equal to 2 feet to be a sufficient reason for assigning a high-hazard rating. An up-to-date EAP is a requirement for all owners of high-hazard dams.
- **Significant Hazard**—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 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**—The sparsely populated areas where low hazard dams typically are located would be largely unaffected by a dam breach. Although the dam and its works may be destroyed, damage to downstream property would be restricted to undeveloped land with minimal impact on infrastructure.

Table 10-2 shows the Corps of Engineers classification system for the hazard potential of dam failures. The Idaho and Corps of Engineers hazard rating systems are both based only on the potential consequences of a dam failure; neither system takes into account the probability of such failures.

Table 10-2. Hazard Potential Classification

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

a. Categories are assigned to overall projects, not individual structures at a project.
b. Loss of life potential based on inundation mapping of area downstream of the project. Analyses of loss of life potential should take into account the population at risk, time of flood wave travel, and warning time.
c. Indirect threats to life caused by the interruption of lifeline services due to project failure or operational disruption; for example, loss of critical medical facilities or access to them.
d. Damage to project facilities and downstream property and indirect impact due to loss of project services, such as impact due to loss of a dam and navigation pool, or impact due to loss of water or power supply.
e. Environmental impact downstream caused by the incremental flood wave produced by the project failure, beyond what would normally be expected for the magnitude flood event under which the failure occurs.

Source: U.S. Army Corps of Engineers, 1995

10.2.5 Warning Time

Warning time for dam failure varies depending on the cause of the failure. In events of extreme precipitation or massive snowmelt, evacuations can be planned with sufficient time. In the event of a structural failure due to earthquake, there may be no warning time. A dam’s structural type also affects warning time. Earthen dams do not tend to fail completely or instantaneously. Once a breach is initiated, discharging water erodes the breach until either the reservoir water is depleted or the breach resists further erosion. Concrete gravity dams also tend to have a partial breach as one or more monolith sections are forced apart by escaping water. The time of breach formation ranges from a few minutes to a few hours (U.S. Army Corps of Engineers, 1997).

Ada County Emergency Management protocols for flood warning and response to imminent dam failure are included in the flood warning portion of the Ada County Flood Response Plan. These protocols are tied to EAPs for each dam.

10.3 EXPOSURE

The flood module of Hazus was used for a Level 2 assessment of dam failure. Where possible, the Hazus data was enhanced using GIS data from county, state and federal sources.

10.3.1 Population

All campus populations occupying buildings in a dam failure inundation zone would be exposed to the risk of a dam failure. Much of this population would be transient and would fluctuate with class schedules.

10.3.2 Property

Table 10-3 summarizes the total number of structures in the Lucky Peak Dam inundation area on the Boise State campus. Over 95 percent of the structures on campus are in the inundation area. The value of exposed buildings is summarized in Table 10-3. A detailed breakdown of all structures located in the inundation area can be found in Appendix C. The estimated replacement costs value of building-and-contents exposed to the Lucky Peak Dam inundation area is $1.86 billion, 96 percent of the total replacement cost value of the planning area.

Table 10-3. Value of Property Exposed to Lucky Peak Dam Inundation Area

Number of Buildings in Inundation Area	185
Building Replacement Cost Value Exposed	$1,568,384,516
Contents Value Exposed	$289,158,995
Total Value Exposed	$1,857,543,511
Total Exposed Value as % of Total Replacement Value	*96%*

10.3.3 Environment

The environment would be exposed to several risks in the event of dam failure. The inundation could introduce many foreign elements into local waterways. This could result in destruction of downstream habitat and could have detrimental effects on many species of animals, especially endangered species such as salmon.

10.4 VULNERABILITY

10.4.1 Population

The potential for loss of life is affected by the capacity of available evacuation routes. Vulnerable populations are all populations downstream from dam failures that are incapable of escaping the area within the allowable time frame. This population includes the elderly, the young and those who have access and functional needs, who may be unable to get themselves out of the inundation area. The vulnerable population also includes those who would not have adequate warning from a television, cell phone or radio emergency warning system.

10.4.2 Property

Vulnerable properties are those closest to the dam inundation area. These properties would experience the largest, most destructive surge of water. Low-lying areas are also vulnerable since they are where the dam waters would collect. Transportation routes are vulnerable to dam inundation and have the potential to be wiped out, creating isolation issues. This includes all roads, railroads and bridges in the path of the dam inundation. Those that are most vulnerable are those that are already in poor condition and would not be able to withstand a large water surge. Utilities such as overhead power lines, cable and phone lines could also be vulnerable. Loss of these utilities could create additional isolation issues for the inundation areas.

It is estimated that there could be $1.6 billion of loss from a dam failure affecting the planning area. This represents 100 percent of the total exposure within the inundation area, or 84.1 percent of the total replacement cost value of the planning area. Table 10-4 summarizes the loss estimates for dam failure.

Table 10-4. Loss Estimates for Dam Failure

Structures Impacted[a]	185
Estimated Building Loss	$1,335,172,989
Estimated Contents Loss	$284,020,434
Estimated Total Loss	$1,619,193,422
Estimated Total Loss as % of Total Replacement Value	*84.1*

10.4.3 Environment

The environment would be vulnerable to several risks in the event of dam failure. The inundation could introduce foreign elements into local waterways, resulting in destruction of downstream habitat and detrimental effects on many species of animals, especially endangered species such as coho salmon. The extent of the vulnerability of the environment is the same as the exposure of the environment.

10.5 SCENARIO

An earthquake in the region could lead to liquefaction of soils around a dam. This could occur without warning during any time of the day. A human-caused failure such as a terrorist attack also could trigger a catastrophic failure of a dam.

While the probability of dam failure is very low, the probability of flooding associated with changes to dam operational parameters in response to climate change is higher. Dam designs and operations are developed based on hydrographs from historical records. If these hydrographs experience significant changes over time due to the impacts of climate change, dam design and operations may no longer be valid for the changed condition. This could have significant impacts on dams that provide flood control. Specified release rates and impound thresholds may have to be changed. This would result in increased discharges downstream of these facilities, increasing the probability and severity of flooding.

10.6 ISSUES

Flooding as a result of a dam failure would significantly impact properties and populations in the inundation zones. There is often limited warning time for such failures. These events are frequently associated with other natural hazard events such as earthquakes, landslides or severe weather, which limits their predictability and compounds the hazard. Important issues associated with dam failure hazard include the following:

- Federally regulated dams have an adequate level of oversight and sophistication in the development of EAPs for public notification in the unlikely event of failure. However, the protocol for notification of downstream citizens of imminent failure needs to be tied to local emergency response planning.
- Mapping for federally regulated dams is already required and available; however, mapping for non-federally regulated dams that estimates inundation depths is needed to better assess the risk associated with dam failure from these facilities.

- Most dam failure mapping required at federal levels requires determination of the probable maximum flood. While the probable maximum flood represents a worst-case scenario, it is generally the event with the lowest probability of occurrence. For non-federally regulated dams, mapping of dam failure scenarios that are less extreme than the probable maximum flood but have a higher probability of occurrence can be valuable to emergency managers and community officials downstream of these facilities. This type of mapping can illustrate areas potentially impacted by more frequent events to support emergency response and preparedness.
- The concept of residual risk associated with structural flood control projects should be considered in the design of capital projects and the application of land use regulations.
- Addressing security concerns and the need to inform the public of the risk associated with dam failure is a challenge for public officials.

11. EARTHQUAKE

11.1 GENERAL BACKGROUND

11.1.1 How Earthquakes Happen

An earthquake is the vibration of the earth's surface that follows a release of energy in the earth's crust. This energy can be generated by a sudden dislocation of segments of the crust or by a volcanic eruption. Most destructive quakes are caused by dislocations of the crust. The crust may first bend and then, when the stress exceeds the strength of the rocks, break and snap to a new position. In the process of breaking, vibrations called "seismic waves" are generated. These waves travel outward from the source of the earthquake along the surface and through the earth at varying speeds, depending on the material through which they move. Earthquakes tend to occur along faults, which are zones of weakness in the earth's crust. Even if a fault zone has recently experienced an earthquake, there is no guarantee that all the stress has been relieved. Another earthquake could still occur. In fact, relieving stress along one part of a fault may increase stress in another part.

Horizontal Extension

Most earthquakes occur at the boundaries of Earth's tectonic plates. Idaho is not on a plate boundary, but many faults in the state have produced large earthquakes. Tectonic forces in the western part of the North American plate combine with high heat from the underlying mantel to stretch the crust in a northeast-southwest direction. In response to this stretching, the rigid crust breaks and shifts along faults, and the fault movement produces earthquakes. Stretching, or horizontal extension, of the crust produces a type of dipping fault called a "normal" fault (Figure 11-1). The movement of normal faults is characterized by the crust above the fault plane moving down relative to the crust below the fault plane. This up/down movement differs from movement on strike-slip faults like the San Andreas Fault in California, where the crust on one side of the fault slides horizontally past the crust on the other side. Earthquakes in Idaho can be generated by movement on a variety of types of faults, but the faults that are considered capable of generating large surface-faulting earthquakes are mainly normal faults.

Seismic Conditions in Idaho

Most earthquakes in Idaho occur along a belt of seismicity called the Intermountain Seismic Belt that extends from the northwest corner of Montana, along the Idaho-Wyoming border, through Utah, and into southern Nevada. Along most of its length, the Intermountain Seismic Belt straddles the boundary between the Basin and Range Province to the west and more stable parts of North America to the east.

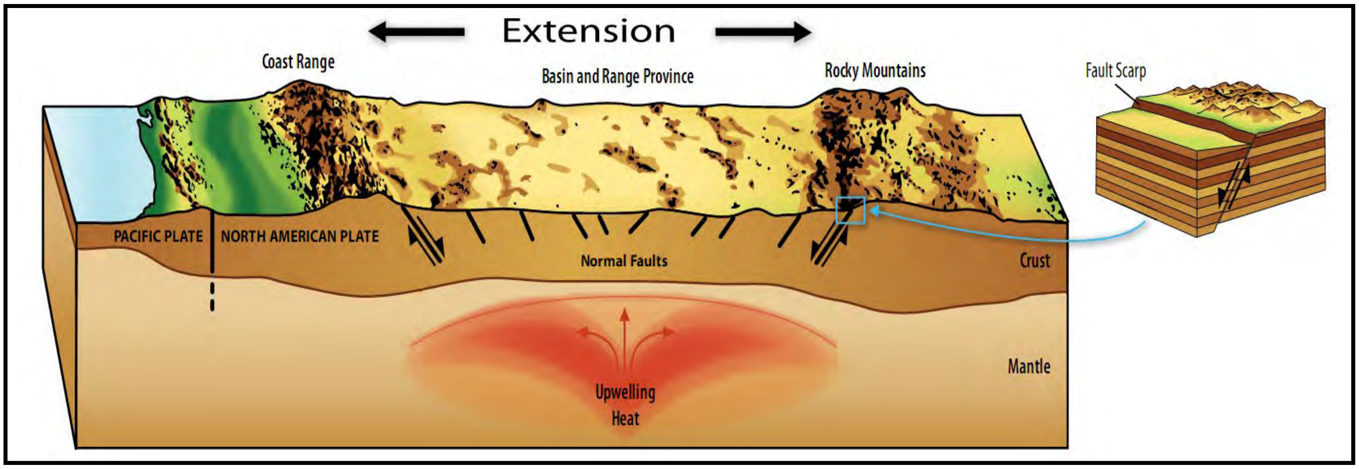


Figure 11-1. Horizontal Extension Creates Normal Faults

The eastern Snake River Plain formed as the North American continent passed over a "hotspot" of hot rock rising from the earth's mantle. This plume is called the "Yellowstone hotspot" because it is presently located in the Yellowstone National Park area. Beginning along the Oregon-Nevada-Idaho border about 14.5 million years ago and continuing as recently as 600,000 years ago in Yellowstone, the hotspot melted crustal rocks passing over it, creating huge volumes of magma that erupted to form explosive calderas. These calderas are progressively younger to the northeast because of the continuous movement of the North American continent over the hotspot.

In an area around the eastern Snake River Plain, the Yellowstone hotspot has interacted with the Basin and Range Province to create a pattern of earthquakes and mountain building called the Yellowstone Tectonic Parabola Figure 11-2). A major branch of the Intermountain Seismic Belt extends from the Yellowstone area westward across central Idaho. This zone includes at least eight major active faults and has been the site of numerous earthquake swarms and seismic events, including the two largest historic earthquakes in the Intermountain West.

The pattern of earthquake activity in eastern and central Idaho seems to be related to interactions between the Yellowstone hotspot and the Basin and Range Province to the west. Geologists divide the region into five tectonic belts based on historical earthquake activity and the age and amount of movement on prehistoric faults. Within the Snake River Plain, earthquake activity is very low. Earthquake activity increases and faults become younger away from the Plain, culminating in a band of active faults that forms the tectonic parabola on the east.

11.1.2 Earthquake Classifications

Earthquakes are classified according to the amount of energy released as measured by magnitude or intensity scales. Currently the most commonly used scales are the moment magnitude (Mw) scale, and the modified Mercalli intensity scale. Estimates of moment magnitude roughly match the local magnitude scale commonly called the Richter scale.

One advantage of the moment magnitude scale is that, unlike other magnitude scales, it does not saturate at the upper end. That is, there is no value beyond which all large earthquakes have about the same magnitude. For this reason, moment magnitude is now the most often used estimate of large earthquake magnitudes. Table 11-1 presents a classification of earthquakes according to their magnitude. Table 11-2 compares the moment magnitude scale to the modified Mercalli intensity scale.

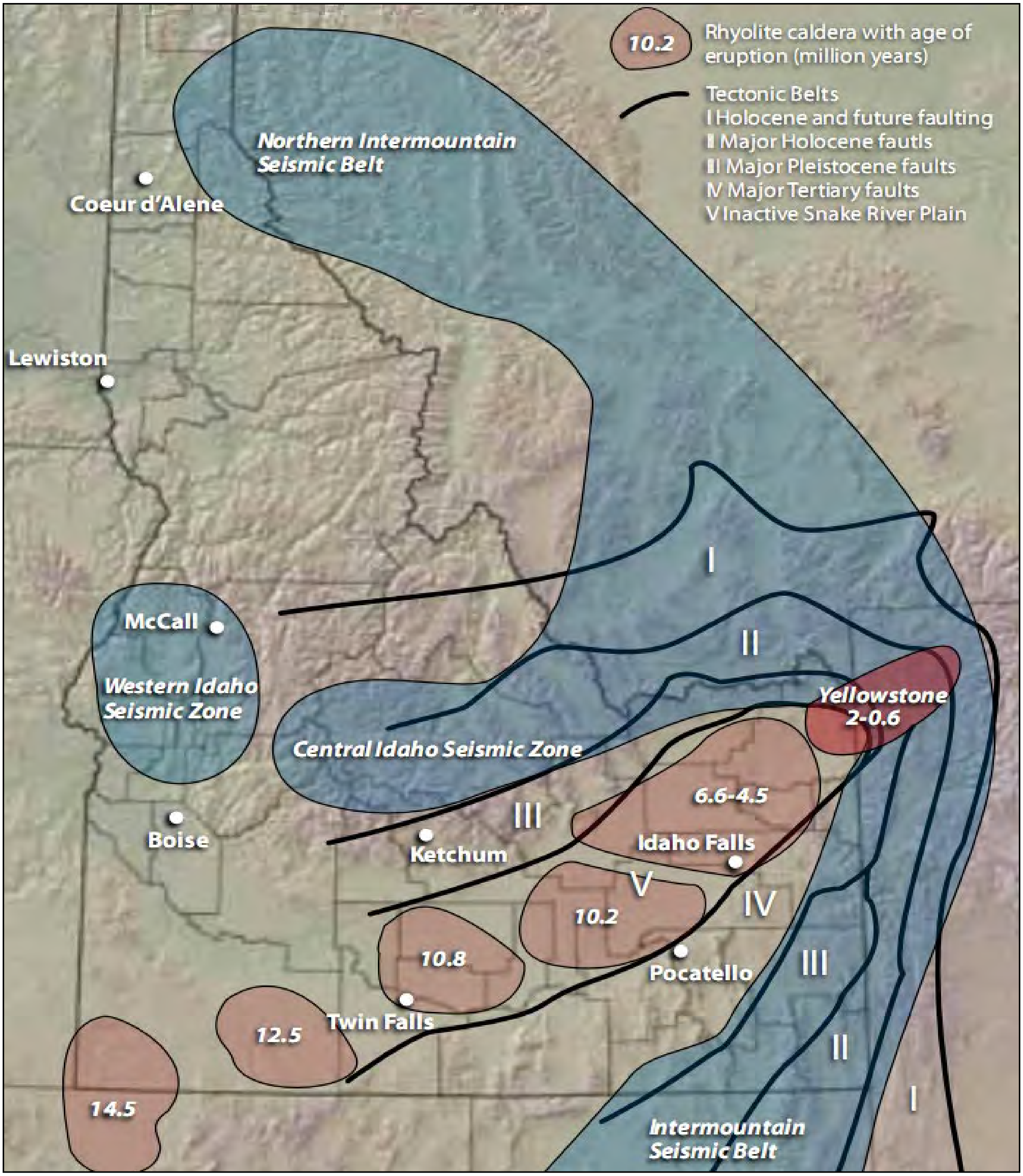


Figure 11-2. Volcanic and Tectonic Features of the Yellowstone-Snake River Plain System

Table 11-1. Earthquake Magnitude Classes

Magnitude Class	Magnitude Range (M = magnitude)
Great	M > 8
Major	7 <= M < 7.9
Strong	6 <= M < 6.9
Moderate	5 <= M < 5.9
Light	4 <= M < 4.9
Minor	3 <= M < 3.9
Micro	M < 3

Table 11-2. Earthquake Magnitude and Intensity

Magnitude (Mw)	Intensity (Modified Mercalli)	Description
1.0—3.0	I	I. Not felt except by a very few under especially favorable conditions
3.0—3.9	II—III	II. Felt only by a few persons at rest, especially on upper floors of buildings. III. Felt quite noticeably by persons indoors, especially on upper floors of buildings. Many people do not recognize it is an earthquake. Standing cars may rock slightly. Vibrations similar to the passing of a truck. Duration estimated.
4.0—4.9	IV—V	IV. Felt indoors by many, outdoors by few during the day. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like a heavy truck striking building. Standing cars rocked noticeably.
5.0—5.9	VI—VII	VI. Felt by all; many frightened. Some heavy furniture moved; a few instances of fallen plaster. Damage slight. VII. Damage negligible in buildings of good design and construction; slight in well-built ordinary structures; considerable in poorly built or badly designed structures. Some chimneys broken.
6.0—6.9	VII—IX	VIII. Damage slight in specially designed structures; considerable damage in ordinary buildings with partial collapse. Damage great in poorly built structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned. IX. Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb. Damage great in substantial buildings, with partial collapse. Buildings shifted off foundations.
7.0 and higher	VIII and higher	X. Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations. Rails bent. XI. Few, if any (masonry) structures remain standing. Bridges destroyed. Rails bent greatly. XII. Damage total. Lines of sight and level are distorted. Objects thrown into the air.

11.1.3 Ground Motion

Earthquake hazard assessment is also based on expected ground motion. This involves determining the annual probability that certain ground motion accelerations will be exceeded, then summing the annual probabilities over the time period of interest. The most commonly mapped ground motion parameters are the horizontal and vertical peak ground accelerations (PGA) for a given soil or rock type. Instruments called accelerographs record levels of ground motion due to earthquakes at stations throughout a region. These readings are recorded by state and federal agencies that monitor and predict seismic activity.

PGA values form the basis of seismic zone maps that are included in building codes such as the International Building Code. Building codes that include seismic provisions specify the horizontal force due to lateral acceleration that a building should be able to withstand during an earthquake. PGA values are directly related to these lateral forces that could damage "short period structures" (e.g. single-family dwellings). Longer period response components determine the lateral forces that damage larger structures (apartment buildings, factories, high-rises, bridges). Table 11-3 lists damage potential by PGA factors compared to the Mercalli scale.

Table 11-3. Mercalli Scale and Peak Ground Acceleration Comparison

Mercalli Scale	Potential Damage	Estimated PGA
I	None	0.017
II-III	None	0.017
IV	None	0.014-0.039
V	Very Light	0.039-0.092
VI	None to Slight; USGS-Light	0.02-0.05
	Unreinforced Masonry-Stair Step Cracks; Damage to Chimneys; Threshold of Damage	0.04-0.18
VII	Slight-Moderate; USGS-Moderate	0.05-0.10
	Unreinforced Masonry-Significant; Cracking of parapets	0.08-0.16
	Masonry may fail; Threshold of Structural Damage	0.10-0.34
VIII	Moderate-Extensive; USGS: Moderate-Heavy	0.10-0.20
	Unreinforced Masonry-Extensive Cracking; fall of parapets and gable ends	0.16-0.65
IX	Extensive-Complete; USGS-Heavy	0.20-0.50
	Structural collapse of some un-reinforced masonry buildings; walls out of plane. Damage to seismically designed structures	0.32-1.24
X	Complete ground failures; USGS- Very Heavy (X+); Structural collapse of most un-reinforced masonry buildings; notable damage to seismically designed structures; ground failure	0.50-1.00

11.1.4 Effect of Soil Types

The impact of an earthquake on structures and infrastructure is largely a function of ground shaking, distance from the source of the quake, and liquefaction, a secondary effect of an earthquake in which soils lose their shear strength and flow or behave as liquid, thereby damaging structures that derive their support from the soil. Liquefaction generally occurs in soft, unconsolidated sedimentary soils. The National Earthquake Hazard Reduction Program (NEHRP) creates maps based on soil characteristics to help identify locations subject to liquefaction. Table 11-4 summarizes NEHRP soil classifications.

Table 11-4. NEHRP Soil Classification System

NEHRP Soil Type	Description	Mean Shear Velocity to 30 meters (m/s)
A	Hard Rock	1,500
B	Firm to Hard Rock	760-1,500
C	Dense Soil/Soft Rock	360-760
D	Stiff Soil	180-360
E	Soft Clays	< 180
F	Special Study Soils (liquefiable soils, sensitive clays, organic soils, soft clays >36 meters thick)	

NEHRP Soils B and C typically can sustain ground shaking without much effect, dependent on the earthquake magnitude. The areas that are commonly most affected by ground shaking have NEHRP Soils D, E and F. In general, these areas are also most susceptible to liquefaction.

Soil liquefaction occurs when water-saturated sands, silts or gravelly soils are shaken so violently that the individual grains lose contact with one another and float freely in the water, turning the ground into a pudding-like liquid. Building and road foundations lose load-bearing strength and may sink into what was previously solid ground. Unless properly secured, hazardous materials can be released, causing significant damage to the environment and people. Earthen dams and levees are highly susceptible to seismic events and the impacts of their eventual failures can be considered secondary risks for earthquakes.

11.2 HAZARD PROFILE

11.2.1 Past Events

Earthquakes can occur throughout Idaho. Most earthquakes felt by Idaho residents occur within the Yellowstone Tectonic Parabola. Notable exceptions include large earthquakes in northern Nevada, eastern Washington and western Montana. The 2008 magnitude-6.0 Wells, Nevada earthquake was felt by thousands in Boise, Twin Falls and Pocatello. A magnitude 6.5 event with an epicenter 72 miles north of Boise occurred on March 31, 2020, that was felt in the City of Boise and caused minor damage in the region. No damage from this event was reported on the Boise State Campus. Because large earthquakes are felt over hundreds of miles, the locations of some early events not recorded by seismographs are uncertain. Table 11-5 lists past seismic events felt in Idaho.

11.2.2 Location

The impact of an earthquake is largely a function of the following components:

- Ground shaking (ground motion accelerations)
- Liquefaction (soil instability)
- Distance from the source (both horizontally and vertically).

Mapping that shows the impacts of these components was used to assess the risk of earthquakes in the planning area. The mapping used in this assessment is described below.

Local Faults

Boise State is near two fault zones: the western Idaho fault system and Owyhee Mountains fault system. The Squaw Creek, Big Flat and Jake Creek faults are active structures near Emmett, about 25 miles north of Boise. The Squaw Creek fault has geologic evidence for movement as recently as 7,600 years ago. About 57 miles southeast of Boise and 13 miles from Grand View is the Water Tank fault. Discovered in 1997, this fault was active as recently as 3,000 years ago. Other faults in and around Ada County do not appear to be active.

Shake Maps

A shake map is a representation of ground shaking produced by an earthquake. The information it presents is different from the earthquake magnitude and epicenter that are released after an earthquake because shake maps focus on the ground shaking resulting from the earthquake, rather than the parameters describing the earthquake source. An earthquake has only one magnitude and one epicenter, but it produces a range of ground shaking at sites throughout the region, depending on the distance from the earthquake, the rock and soil conditions at sites, and variations in the propagation of seismic waves from the earthquake.

Table 11-5. Historical Earthquakes Strongly Felt in Idaho

Year	Magnitude	Location	Description
1872	7.4	Lake Chelan, WA	Largest quake in Washington State; felt strongly in north Idaho.
1884	6.0	Bear Lake Valley	The earthquake damaged houses considerably in Paris, Idaho.
1905	6.0	SW Idaho or NE NV	Considerable damage at Shoshone, Idaho.
1913	5.0	Adams County	Broke windows and dishes.
1914	6.0	Utah-Idaho State Line	Intensity VII; between Ogden, Utah and Montpelier, Idaho.
1915	7.75	Pleasant valley, NV	Considerable damage in southwest Idaho a hundred miles from epicenter.
1916	6.0	North of Boise	Boise residents rushed into the street; chimneys fell.
1918	5.0	North Idaho	Widely felt near Sandpoint.
1925	6.6	SW Montana	Felt throughout Idaho.
1926	4.0	North Idaho	Felt at Avery and Wallace.
1927	5.0	Connor Creek	On Idaho-Oregon border west of Cascade.
1934	6.6	Hansel valley, UT	Largest Utah event on record; 20 miles south of Idaho border. 2 fatalities.
1935	6.25	Helena, MT	Extensive damage. Multiple large events throughout Idaho. 4 fatalities.
1936	6.4	Walla Walla, WA	Damaging earthquake; widely felt in Idaho.
1942	5.0	Sandpoint area	Cracked plaster; rock fall onto railroad tracks.
1944	6.0	Central Idaho	Knocked people to ground in Custer County.
1944	4.0	Lewiston area	Widely felt in northern Idaho.
1945	6.0	Central Idaho	Epicenter near Clayton. Slight damage in Idaho City and Weiser.
1947	6.25	Southwest Montana	Epicenter in Gravelly range, 10 miles north of Idaho border.
1947	5.0	Central Idaho	Several large cracks formed in a well-constructed brick building.
1959	7.3	Hebgen Lake, MT	Major event, extensive fault scarps. 20 miles from Idaho. 29 fatalities.
1960	5.0	Soda Springs	Foundations and plaster cracked.
1962	5.7	Cache Valley	Heavily damaged older buildings.
1963	5.0	Clayton	Plaster cracked and windows broken.
1969	5.0	Ketchum	Cement floors cracked.
1975	6.1	NW Yellowstone	Widely felt in Yellowstone region.
1975	6.1	Pocatello Valley	Some 520 homes damaged in Ridgedale and Malad City.
1977	4.5	Cascade	Drywall, foundations cracked. Ceiling beams separated.
1978	4.0	Flathead lake, MT	Felt in northwest Idaho.
1983	6.9	Borah Peak	Major event, 21-mile surface scarp, 11 buildings destroyed, 2 fatalities.
1984	5.0	Challis	Largest of many Borah Peak aftershocks.
1988	4.1	Cooper Pass	Montana border northeast of Mullan.
1994	5.9	Draney Peak	Remote area on Wyoming border. One injury from falling flower pot.
1994	3.5	Avery area	Rare north Idaho event centered near Hoyt Mountain.
1999	5.3	Lima, MT	In Red Rock valley just north of Idaho border.
2001	4.0	Spokane, WA	At least 75 felt events at shallow depth beneath the city.
2005	5.6	Dillon, MT	Felt across Idaho.
2005	4.0	Alpha Swarm	Four Magnitude-4 events, thousands of smaller tremors south of Cascade.
2008	6.0	Wells, NV	Felt strongly throughout southern Idaho.

A shake map shows the extent and variation of ground shaking in a region immediately following significant earthquakes. Maps are derived from peak ground motion amplitudes recorded on accelerometers, with interpolation where data are lacking. Color-coded instrumental intensity maps are derived from empirical relations between peak ground motions and Modified Mercalli intensity.

Two types of shake map are typically generated:

- A **probabilistic seismic hazard map** shows the hazard from earthquakes that geologists and seismologists agree could occur. The maps are expressed in terms of probability of exceeding a certain ground motion, such as the 10-percent probability of exceedance in 50 years. This level of ground shaking has been used for designing buildings in high seismic areas. Figure 11-3 and Figure 11-4 show the estimated ground motion for the 100-year and 500-year probabilistic earthquakes in Ada County.
- Earthquake scenario maps describe the expected ground motions and effects of hypothetical large earthquakes for a region. Maps of these scenarios can be used to support all phases of emergency management. The scenario chosen for this plan is a Magnitude 7.0 event on the Squaw Creek fault (see Figure 11-5).

NEHRP Soil Maps

NEHRP soil types define locations that will be significantly impacted by an earthquake. This is a key component to assessing seismic risk. NEHRP soils data is available for the Ada County planning area, but it is not a countywide data set. Figure 11-6 shows the available NEHRP soil classification for the planning area.

Liquefaction Maps

Soil liquefaction maps are useful tools to assess potential damage from earthquakes. When the ground liquefies, sandy or silty materials saturated with water behave like a liquid, causing pipes to leak, roads and airport runways to buckle, and building foundations to be damaged. In general, areas with NEHRP Soils D, E and F are also susceptible to liquefaction. If there is a dry soil crust, excess water will sometimes come to the surface through cracks in the confining layer, bringing liquefied sand with it, creating sand boils. This is a vital need for assessing seismic risk within the planning area. Liquefaction maps are available for the planning area, but they are not countywide. This data tracks with where NEHRP soils data is available. Available liquefaction mapping is shown in Figure 11-7.

11.2.3 Frequency

Hundreds of earthquakes have been recorded in Idaho. Table 11-6 summarizes statistics from 1973 to 2019. The 2,264 events in that period represent an average of 49 per year. This average includes the many aftershocks that occur after large earthquakes. For example, there were 22 earthquakes in 1981-82, the year before the 1983 Borah Peak event. Aftershocks raised the yearly total to 87 in 1983-84 and 161 in 1984-85. The number of small earthquakes (magnitude less than 3) is greatly under-reported in Idaho because of limited seismic monitoring.

Table 11-6. Idaho Earthquake Statistics 1973-2019

	Number of events
Magnitude 2-3	1,067
Magnitude 3-4	1,081
Magnitude 4-5	104
Magnitude 5-6	8
Magnitude 6-7	2
Total	2,262

Source: USGS National Earthquake Information Center Preliminary Determination of Epicenters earthquake catalog, 05/2020

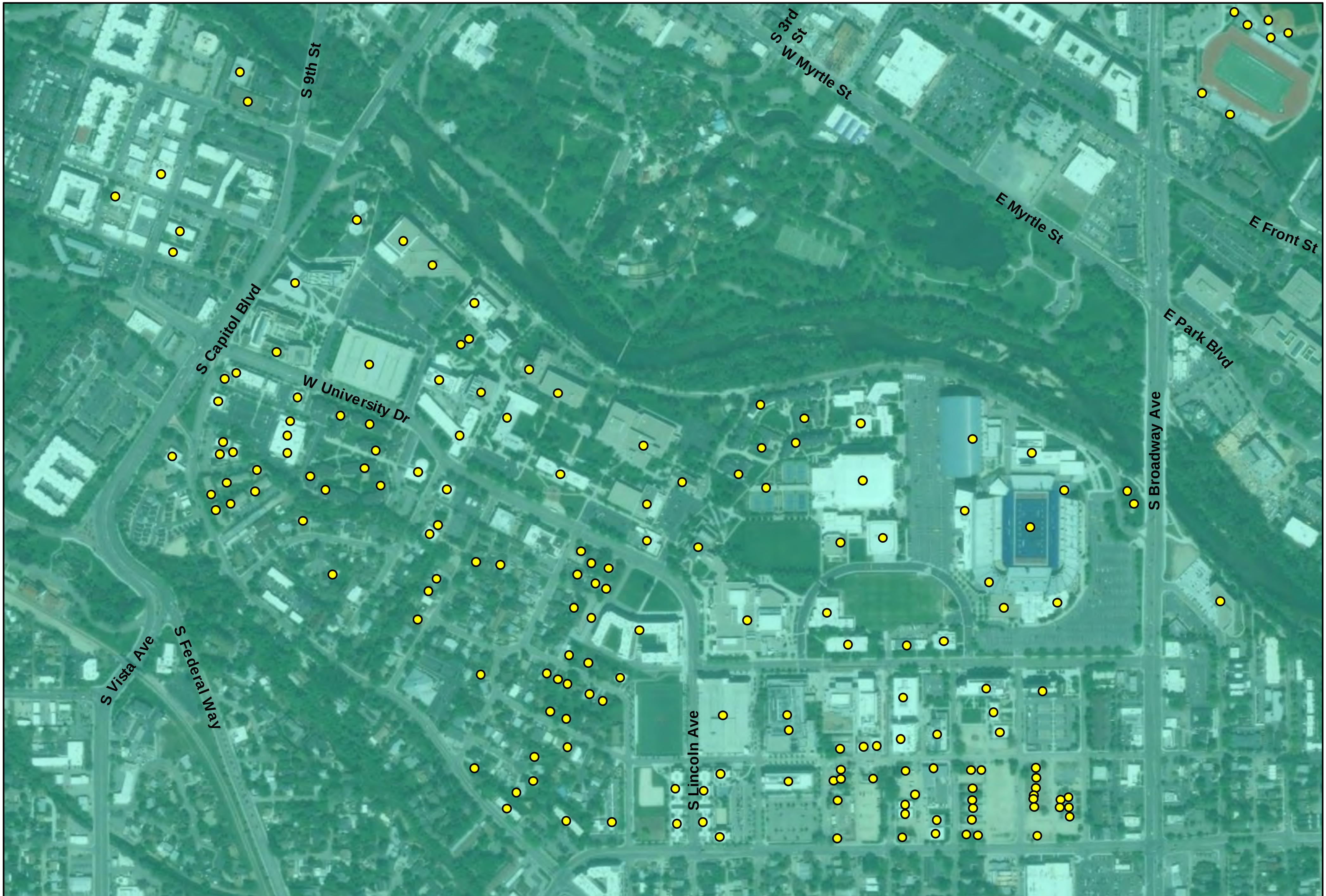


Figure 11-3a. Peak Ground Acceleration for a 100-Year Probabilistic Event

Data Sources: BSU, Esri, Hazus v4.2 SP03

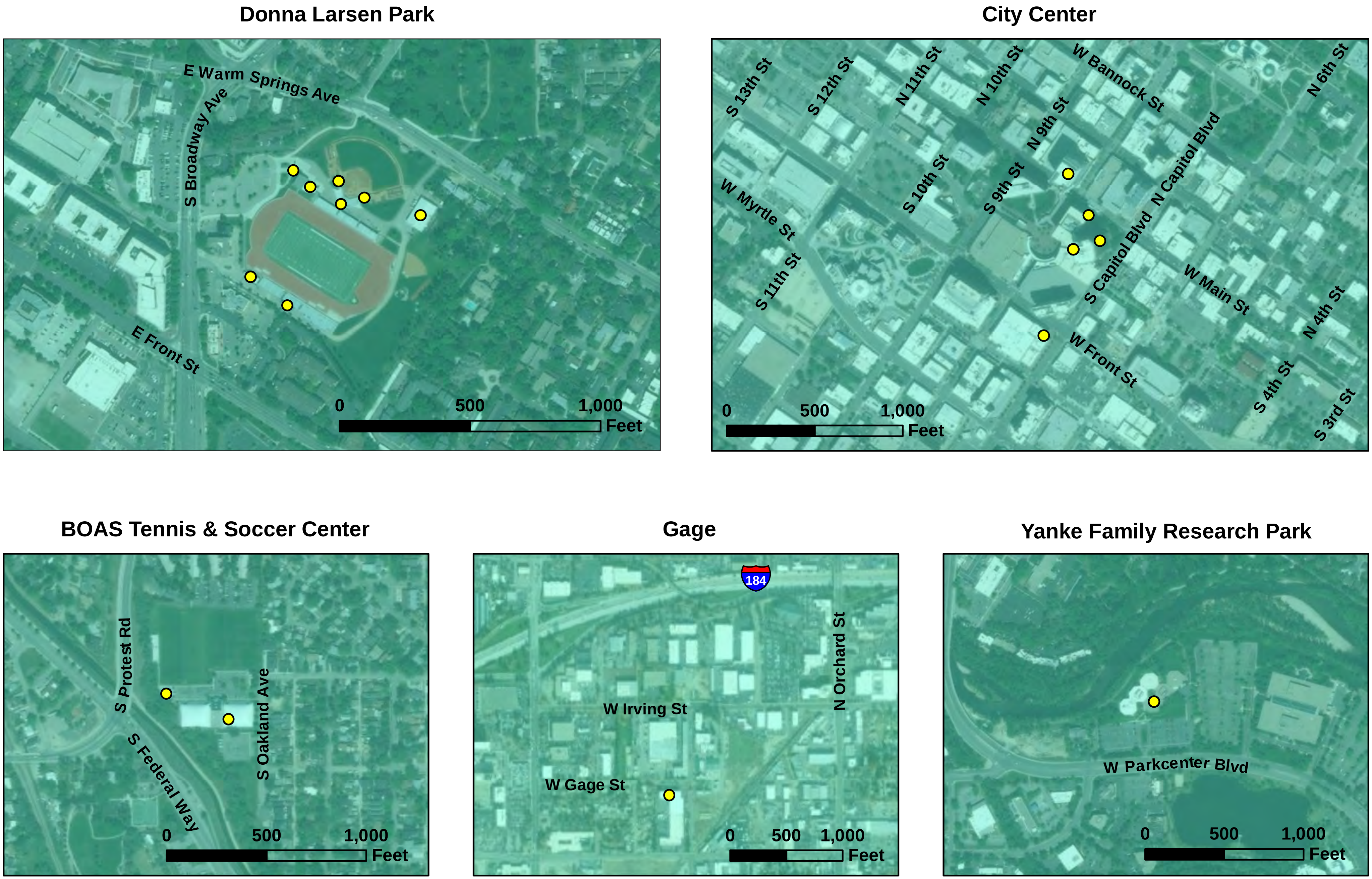


Figure 11-3b. Peak Ground Acceleration for a 100-Year Probabilistic Event

Modified Mercalli Intensity Scale

IV (None - Light)

Intensity scale described as: (potential damage - perceived shaking)

BSU Buildings

N

Data Sources: BSU, Esri, Hazus v4.2 SP03

Figure 11-4a. Peak Ground Acceleration for a 500-Year Probabilistic Event

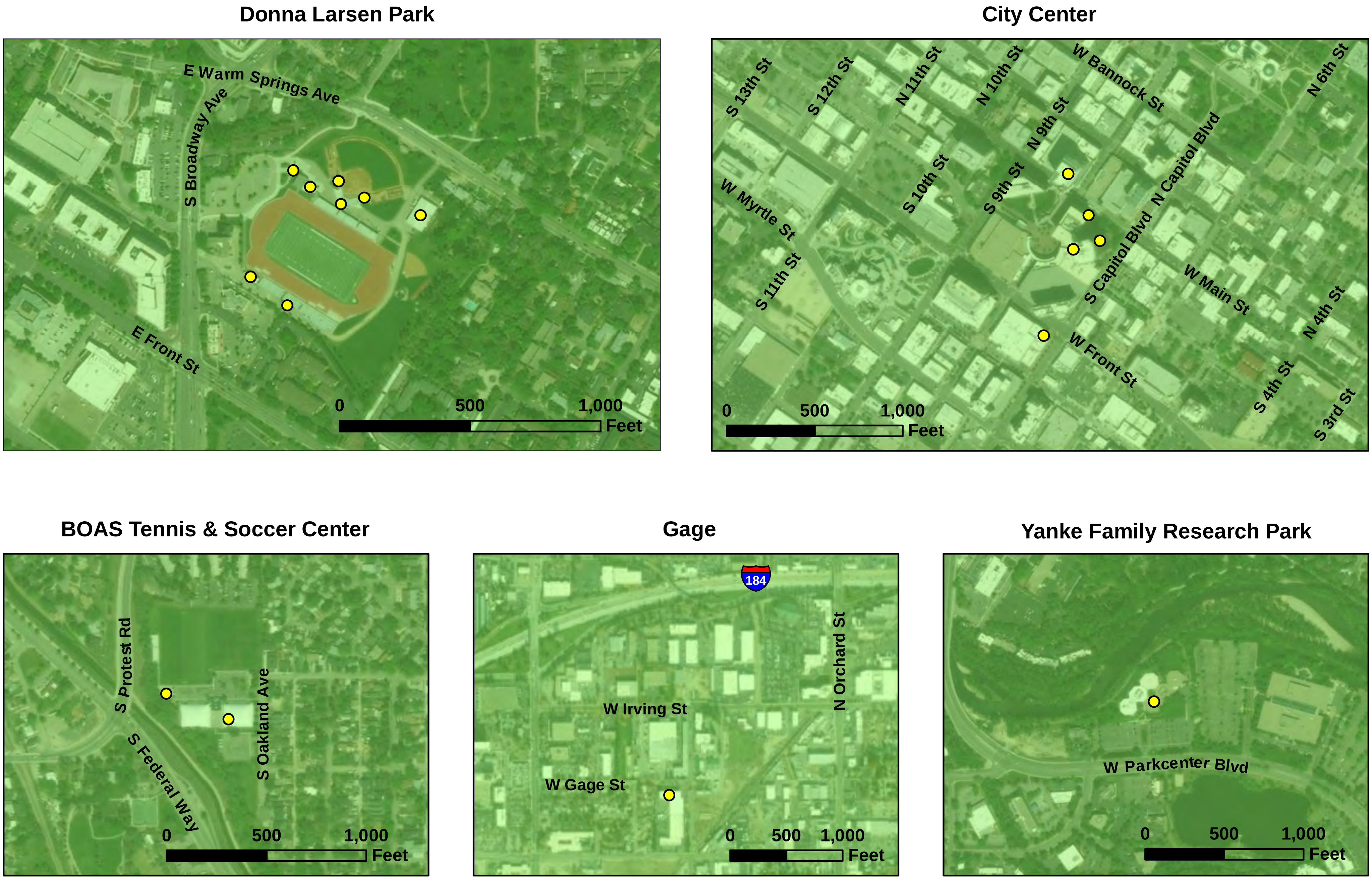


Figure 11-4b. Peak Ground Acceleration for a 500-Year Probabilistic Event

Modified Mercalli Intensity Scale

V (Very Light - Moderate)

VI (Ligh t- Strong)

Intensity scale described as: (potential damage - perceived shaking)

BSU Buildings

N

Data Sources: BSU, Esri, Hazus v4.2 SP03

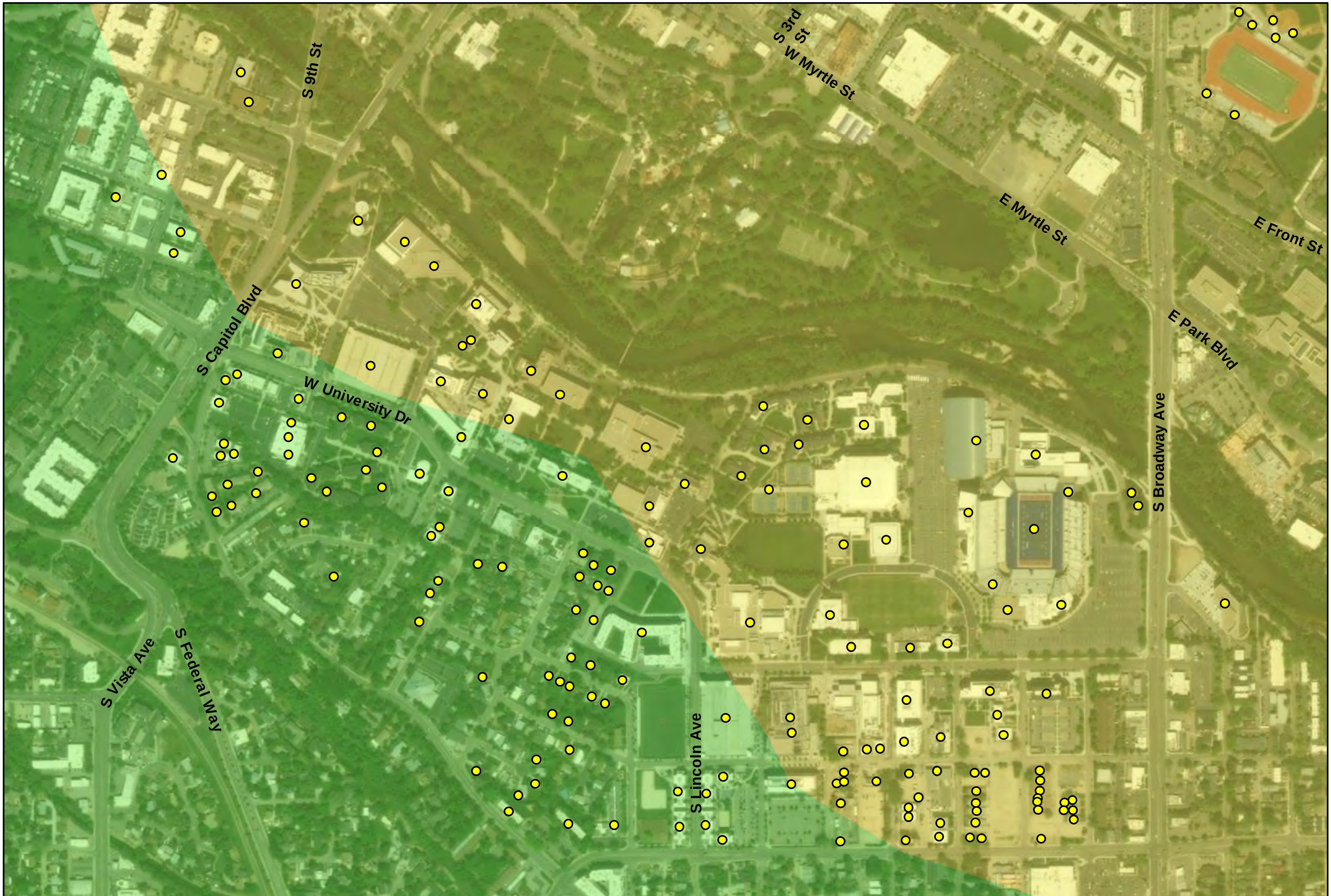


Figure 11-5a. Peak Ground Acceleration for the 7.0-Magnitude Squaw Creek Fault Scenario

Modified Mercalli Intensity Scale

V (Very Light - Moderate)

VI (Ligh t- Strong)

Intensity scale described as: (potential damage - perceived shaking)

BSU Buildings

N

0 0.1 0.2 Miles

Data Sources: BSU, Esri, USGS

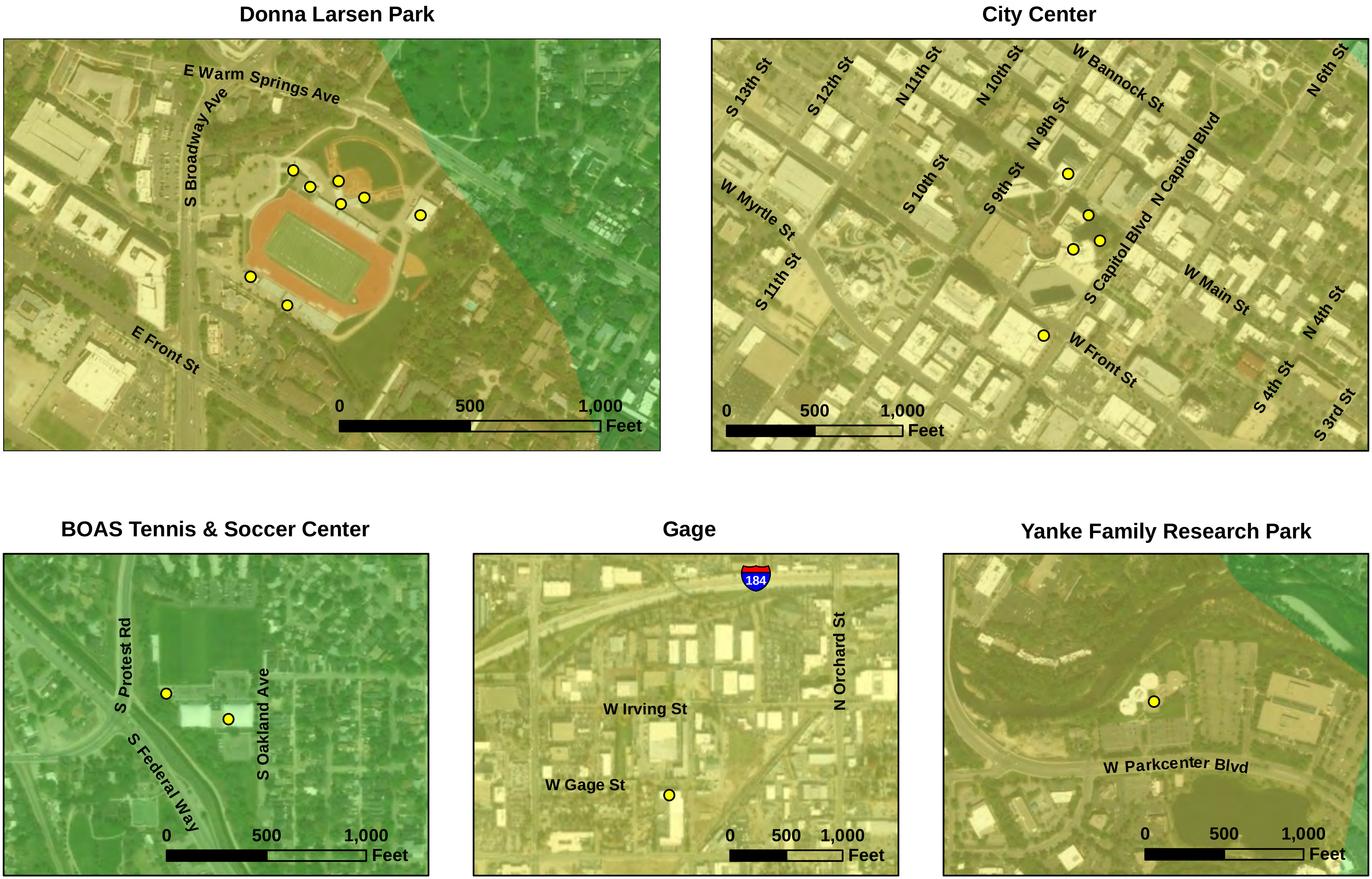


Figure 11-5b. Peak Ground Acceleration for the 7.0-Magnitude Squaw Creek Fault Scenario

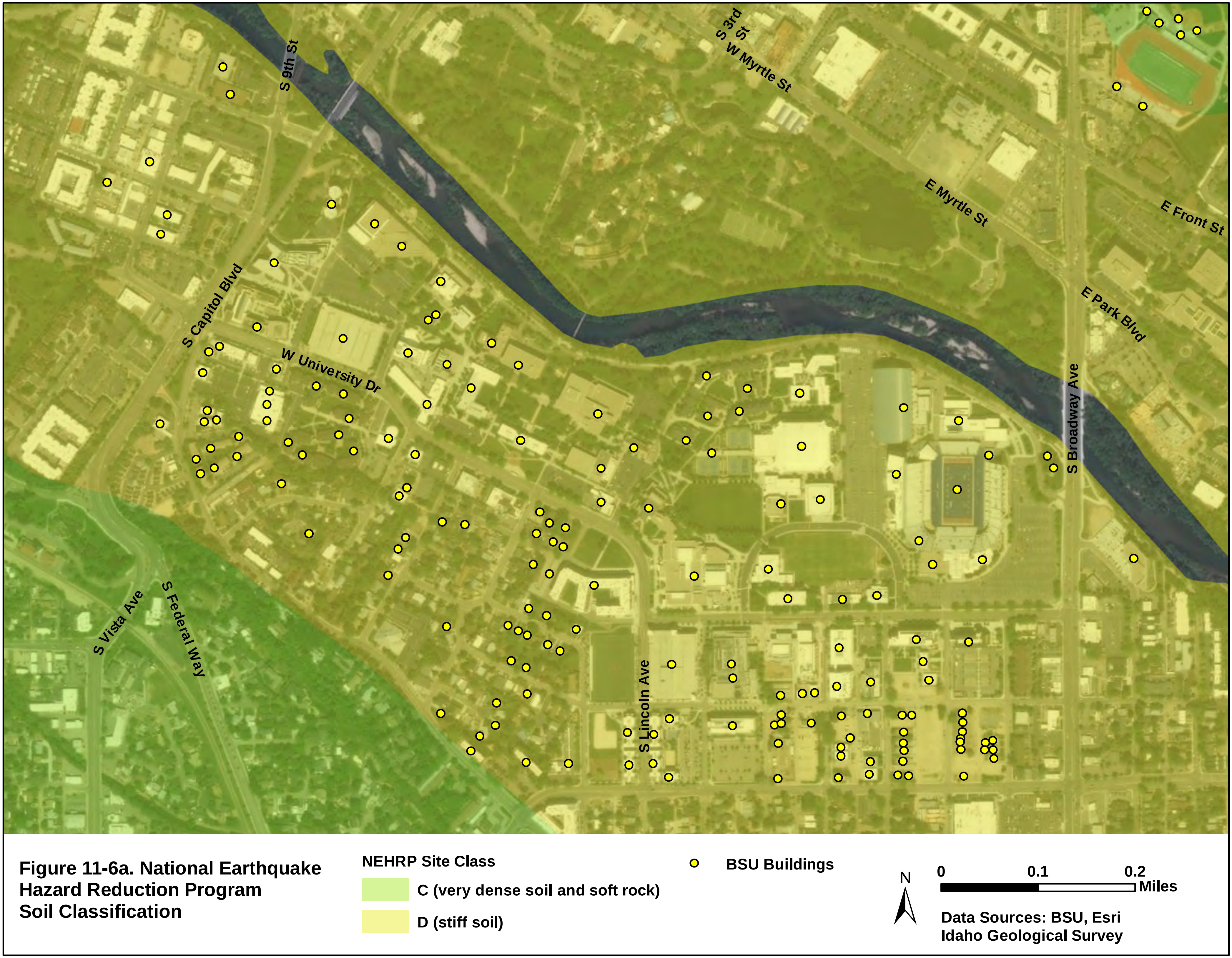


Figure 11-6a. National Earthquake Hazard Reduction Program Soil Classification

Data Sources: BSU, Esri
Idaho Geological Survey

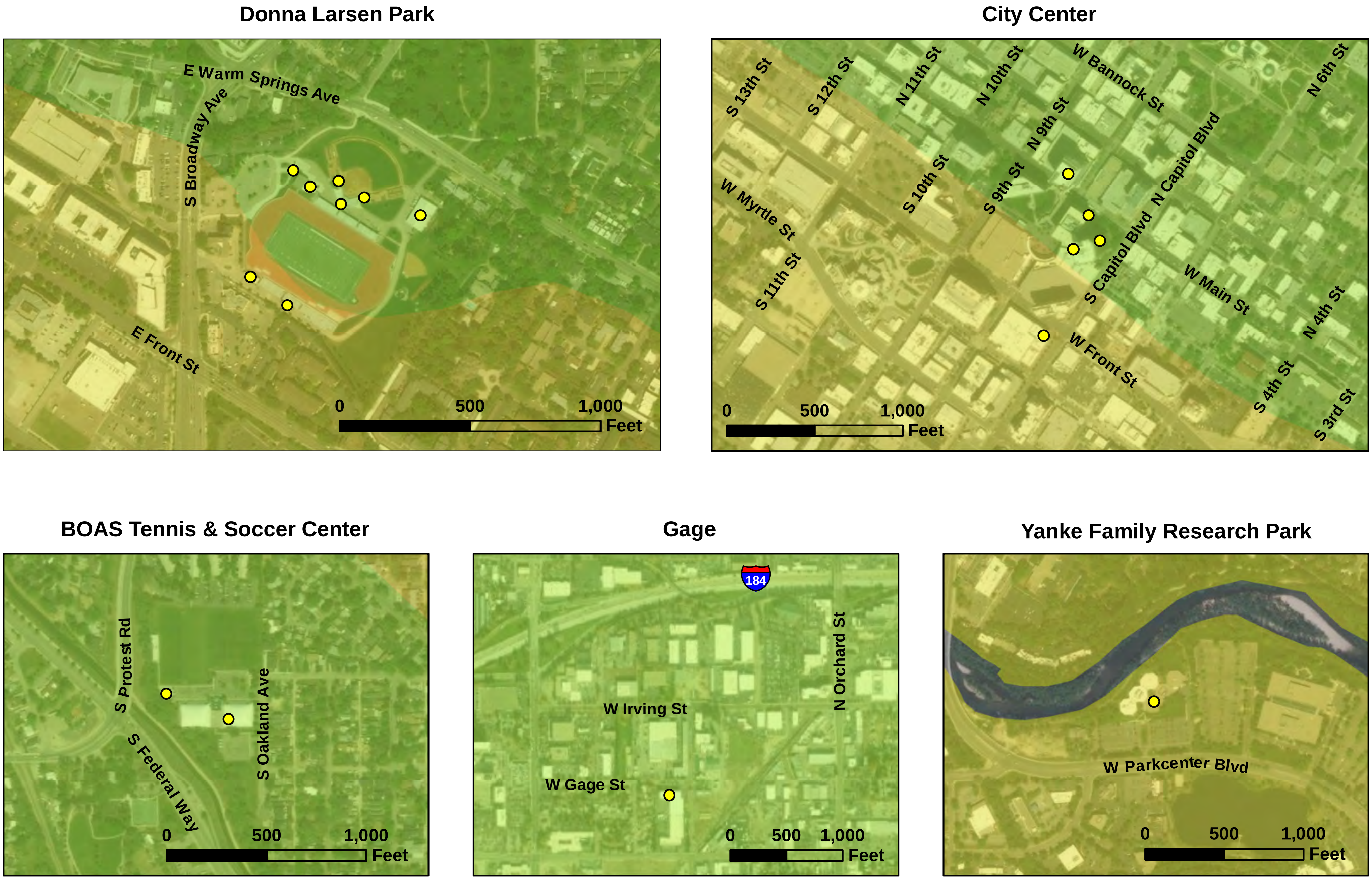


Figure 11-6b. National Earthquake Hazard Reduction Program Soil Classification

NEHRP Site Class
C (very dense soil and soft rock)
D (stiff soil)

BSU Buildings

N

Data Sources: BSU, Esri, Idaho Geological Survey

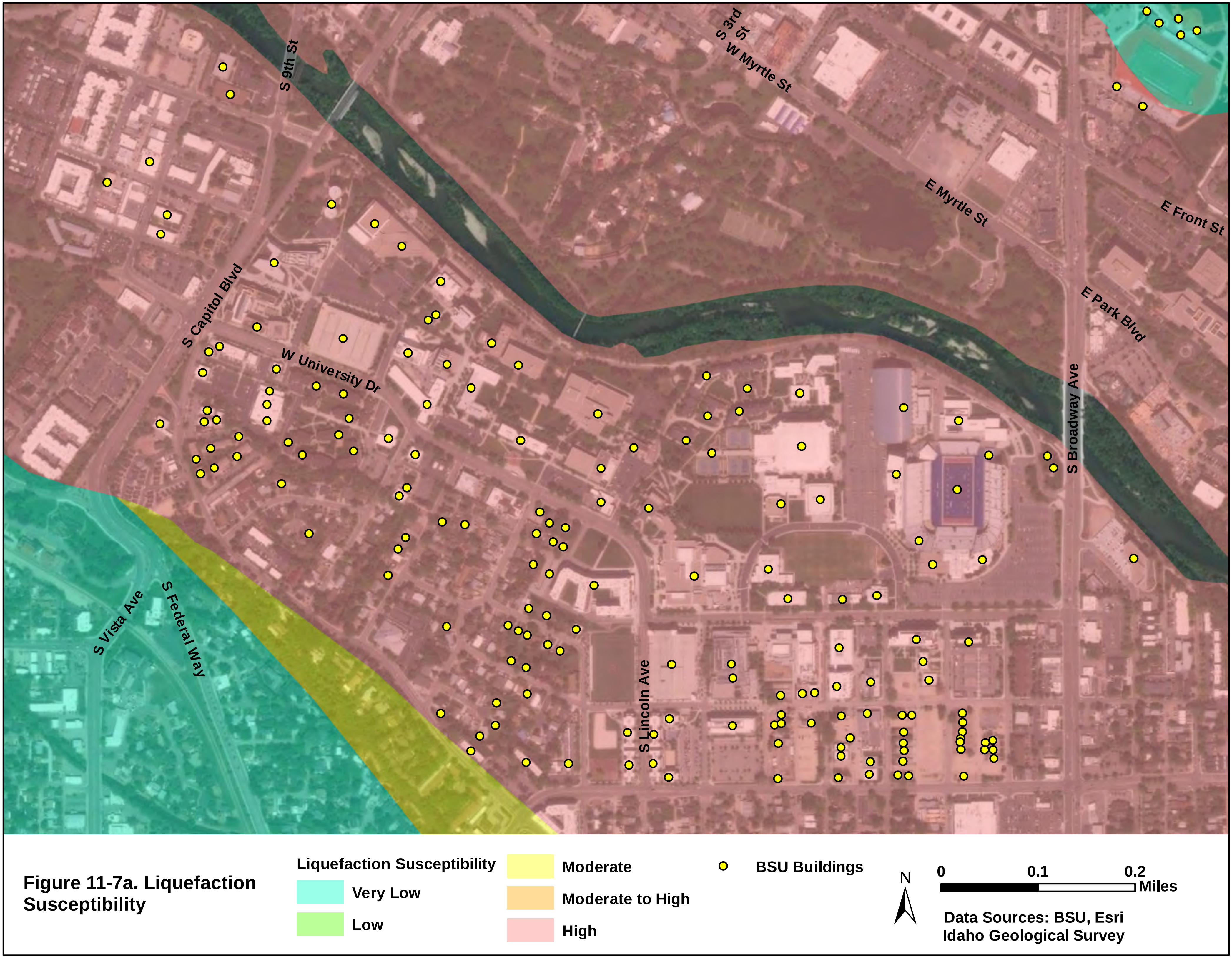


Figure 11-7a. Liquefaction Susceptibility

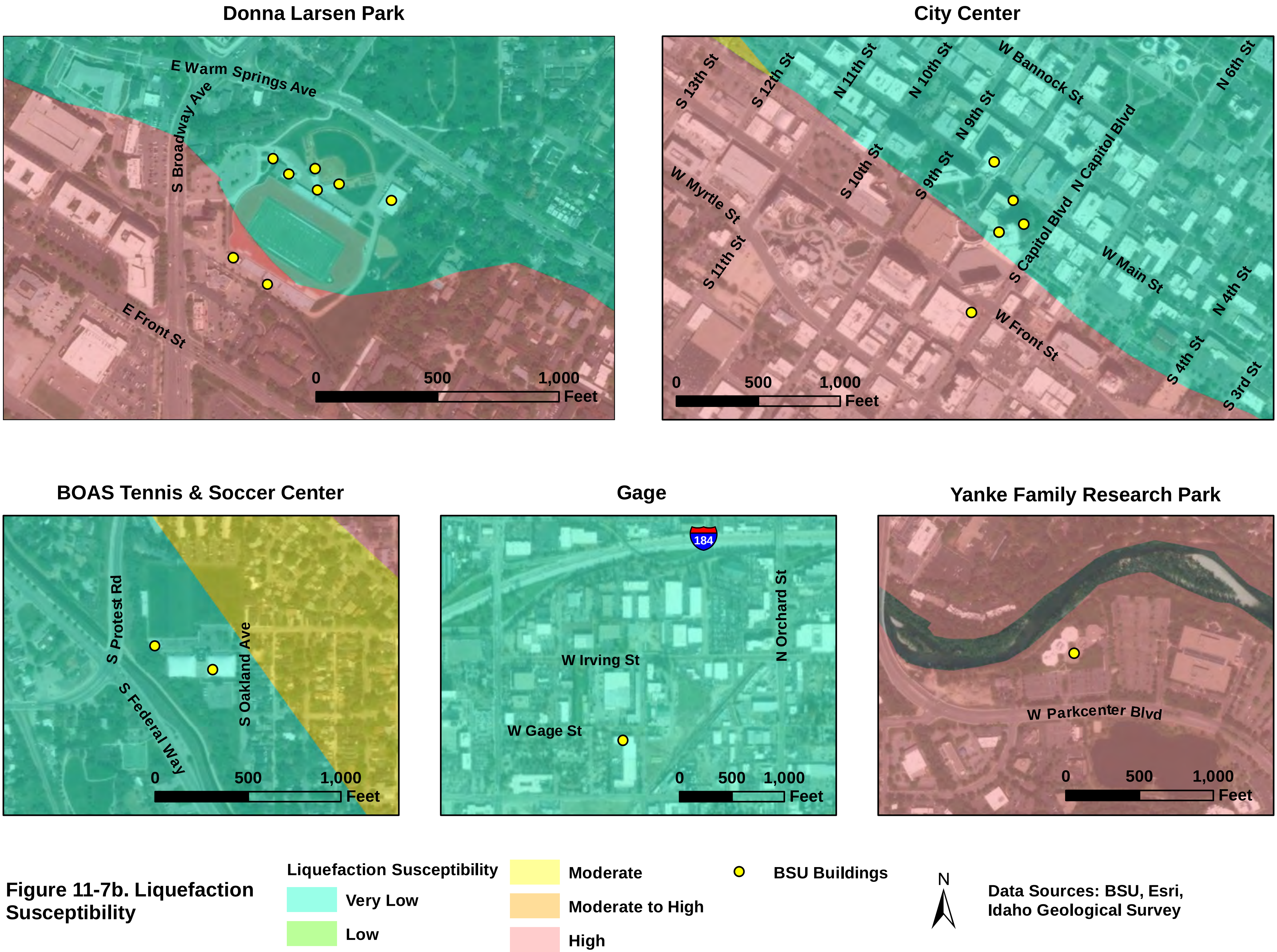


Figure 11-7b. Liquefaction Susceptibility

Seismologists use a historical distribution of extreme values to estimate the probability of shaking at or above a given intensity over a 50-year year exposure time. Using this methodology, Idaho Geological Survey has estimated the following for Ada County (Boise metropolitan area):

- A >50-percent chance of a midrange intensity event (VI or greater) in any 50-year period.
- A 33-percent chance of intensity VII in any 50-year period.
- An 18-percent chance of intensity VIII in any 50-year period
- A 10-percent chance of intensity IX in any 50-year period

These probabilities are for the maximum shaking on unstable sites within a 300-mile radius of the Boise area. The exact location of unstable sites is not known for the entire planning area due to the lack of countywide NEHRP soils maps.

11.2.4 Severity

The severity of an earthquake can be expressed in terms of intensity or magnitude. Intensity represents the observed effects of ground shaking on people, buildings and natural features. Magnitude is related to the amount of seismic energy released at the hypocenter of an earthquake. It is determined by the amplitude of the earthquake waves recorded on instruments. Whereas intensity varies depending on location with respect to the earthquake epicenter, magnitude is represented by a single, instrumentally determined value for each earthquake event. The severity of an earthquake event can be measured in the following terms:

- How hard did the ground shake?
- How did the ground move? (Horizontally or vertically)
- How stable was the soil?
- What is the fragility of the built environment in the area of impact?

Small, local faults produce lower magnitude quakes, but ground shaking can be strong, and damage can be significant in areas close to the fault. In contrast, large regional faults can generate earthquakes of great magnitudes but, because of their distance and depth, they may result in only moderate shaking in an area.

The severity of a seismic event is directly correlated to the stability of the ground close to the event’s epicenter. The difference in severity between intensity ranges can be immense. A poorly built structure on a stable site in Boise may survive a large earthquake better than a well-built structure on an unstable site. Thorough geotechnical site evaluations should be the rule of thumb for new construction in the planning area until creditable soils mapping becomes available.

The USGS creates ground motion maps based on current information about fault zones, showing the PGA that has a certain probability (2 percent or 10 percent) of being exceeded in a 50-year period. The PGA is measured in numbers of g’s (the acceleration associated with gravity). Figure 11-8 shows the PGAs with a 2-percent exceedance chance in 50 years in the northwestern United States. Southwestern Idaho is a medium-risk area.

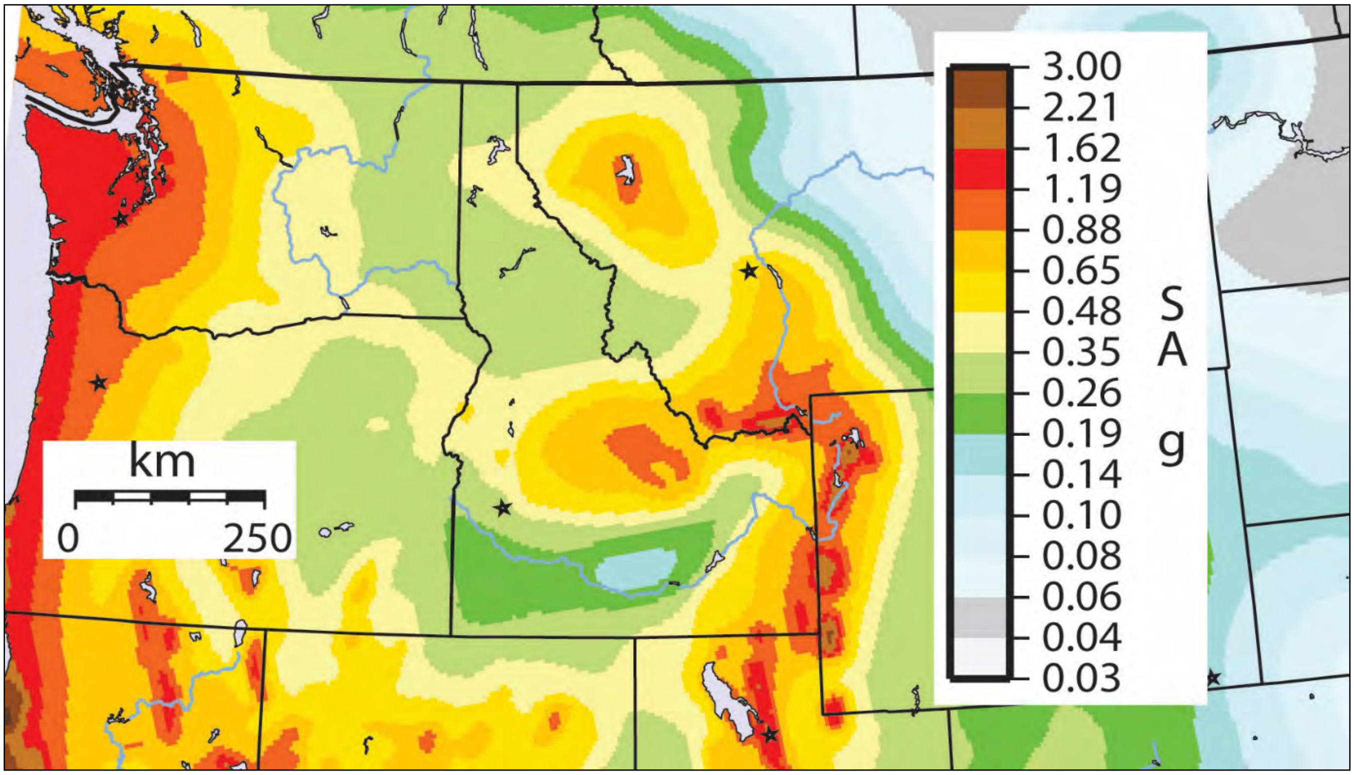


Figure 11-8. PGA with 2-Percent Probability of Exceedance in 50 Years, Northwest Region

11.2.5 Warning Time

Earthquakes can last from a few seconds to over five minutes. They may be one-time events or occur as a series of tremors over several days. There is currently no reliable way to predict the day or month that an earthquake will occur at any given location. Research is being done with warning systems that use the low energy waves that precede major earthquakes. These potential warning systems give approximately 40 seconds notice that a major earthquake is about to occur. The warning time is very short, but it could allow for someone to get under a desk, step away from a hazardous material they are working with, or shut down a computer system.

11.3 EXPOSURE

11.3.1 Population

The entire population of the Boise State University campus is potentially exposed to direct and indirect impacts from earthquakes. The degree of exposure is dependent on many factors, including the age and construction type of the structures people live in, the soil types buildings are constructed on, their proximity to fault location, etc. Whether directly impacted or indirectly impact, the entire population will have to deal with the consequences of earthquakes to some degree. Business interruption could keep people from working, road closures could isolate populations, and loss of functions of utilities could impact populations that suffered no direct damage from an event itself.

11.3.2 Property

According to Boise State University, there are 191 buildings owned or leased by the University, with a total replacement cost value of $1.925 billion (structure and contents). Since all structures in the planning area are susceptible to earthquake impacts, this total represents the campus-wide property exposure to earthquakes.

11.3.3 Environment

Secondary hazards associated with earthquakes have some of the most damaging effects on the environment. Earthquake-induced landslides can significantly impact surrounding habitat. It is also possible for streams to be rerouted after an earthquake. This can change the water quality, possibly damaging habitat and feeding areas. There is a possibility of streams fed by groundwater drying up because of changes in underlying geology.

11.4 VULNERABILITY

Earthquake vulnerability data was generated for the 100-year and 500-year earthquakes and the Squaw Creek scenario event using a Level 2 Hazus analysis. Once the location and size of a hypothetical earthquake are identified, Hazus estimates the intensity of the ground shaking, the number of buildings damaged, the number of casualties, the damage to transportation systems and utilities, the number of people displaced from their homes, and the estimated cost of repair and clean up.

11.4.1 Property

Building Age

Building codes were not state mandated in Idaho until 2008. However, the Ada County planning area has had a strong influence of building code enforcement as modern building codes have evolved nationally. Seismic code requirements have principally come from California, due to that state's immense seismic risk. The California State Building Code Council has identified significant milestones in building and seismic code requirements that can be used as a gauge of structural integrity of existing building stock. Using these time periods, the planning team used Hazus to identify the number of structures in the County by date of construction. Table 11-7 shows the results of this analysis.

Table 11-7. Age of Structures in Ada County

Time Period	Number of Current County Structures Built in Period	Significance of Time Frame
Pre-1933	4	Before 1933, there were no explicit earthquake requirements in building codes. State law did not require local governments to have building officials or issue building permits.
1933-1940	1	In 1940, the first strong motion recording was made.
1941-1960	39	In 1960, the Structural Engineers Association of California published guidelines on recommended earthquake provisions.
1961-1975	98	In 1975, significant improvements were made to lateral force requirements.
1976-1994	71	In 1994, the Uniform Building Code was amended to include provisions for seismic safety.
1994—present	86	Seismic code is currently enforced.
Total	299	

Earthquake Damage Estimates

Table 11-8 summarizes the estimated damage caused by the modeled earthquake events to building (combined damage to structures and their contents). The analysis also estimated the amount of earthquake-caused debris, which is also summarized in Table 11-8. See Appendix C for loss estimate detail for all structures for the three earthquake scenarios

Table 11-8. Earthquake Building Loss Potential

	Total Economic Loss	Debris to Be Removed (x 1,000 tons)
100- Year Probabilistic Earthquake	$1,425,334	0.44
500- Year Probabilistic Earthquake	$17,680,764	5.84
7.0-Magnitude Squaw Creek Fault	$54,810,621	7.85

Level of Damage

Hazus classifies the vulnerability of structures to earthquake in five categories: no damage, slight damage, moderate damage, extensive damage, or complete damage. The model was used to assign a vulnerability category to each critical facility in the planning area. Table 11-9 summarizes the range of results for all buildings on campus for the three modeled earthquake events. See Appendix C for loss estimate detail for individual structures.

Table 11-9. Building State Averages for Earthquake Scenarios

	Range of Probabilities of Experiencing the Indicated Level of Damage				
Category[a]	No Damage	Slight Damage	Moderate Damage	Extensive Damage	Complete Damage
100-Year Probabilistic	97.4% - 99.9%	0.1% - 2.1%	0.0% - 0.8%	0.0% - 0.1%	0.0%
500-Year Probabilistic	83.9% - 97.1%	2.0% - 11.1%	0.2% - 5.2%	0.0% - 1.2%	0.0%
7.0-M Squaw Creek Fault	64.4% - 99.1%	0.8% - 23.9%	0.0% - 6.3%	0.0% - 4.8%	0.0% - 1.2%

Time to Return to Functionality

Hazus estimates the time to restore critical facilities to fully functional use. Results are presented as probability of being functional at specified time increments: 1, 3, 7, 14, 30 and 90 days after the event. For example, Hazus may estimate that a facility has 5 percent chance of being fully functional at Day 3, and a 95-percent chance of being fully functional at Day 90. Table 11-10 summarizes the range of results for all buildings on campus for the three modeled earthquake events. See Appendix C for loss estimate detail for individual structures.

Table 11-10. Average Functionality of Buildings following Scenario Events

	Range of Probabilities of Being Fully Functional (%)					
	at Day 1	at Day 3	at Day 7	at Day 14	at Day 30	at Day 90
100-Year Probabilistic	97.4% - 99.8%	97.4% - 99.8%	99.1% - 99.9%	99.1% - 99.9%	99.9%	99.9%
500-Year Probabilistic	83.8% - 97.1%	84.4% - 97.2%	93.5% - 99.8%	93.5% - 99.8%	98.7% - 99.9%	99.9%
7.0-M Squaw Creek Fault	64.3% – 99.1%	65.4% – 99.1%	87.6% - 99.9%	87.7% - 99.9%	94.0% - 99.9%	98.8% - 99.9%

11.5 SCENARIO

Any seismic activity of 6.0 or greater on faults within the planning area would have significant impacts throughout Ada County. The seismic event likely to have the largest impact is a 7.1 magnitude or greater event on the Squaw Creek fault. Potential warning systems could give 40 seconds' notice that a major earthquake is about to occur; this would not provide adequate time for preparation. Earthquakes of this magnitude or higher would lead to massive structural failure of property on unstable soils. With the abundance of imported fill used to elevate building pads for homes in the Boise River floodplain, liquefaction impacts in these areas could be widespread. Un-engineered canal embankments would likely fail, representing a loss of critical infrastructure. The structural integrity of Lucky Peak Dam could be jeopardized as well. These events could cause secondary hazards, including landslides and mudslides. River valley hydraulic-fill sediment areas are also vulnerable to slope failure, often as a result of loss of cohesion in clay-rich soils. Soil liquefaction would occur in water-saturated sands, silts or gravelly soils.

11.6 ISSUES

Important issues associated with the earthquake hazard include the following:

- Geotechnical standards should be established that consider the probable impacts from earthquakes in the design and construction of new or enhanced facilities.
- Earthquakes could trigger other natural hazard events such as dam failures, which could severely impact the Boise State campus.
- Dam failure warning and evacuation plans, and procedures should be updated to reflect the earthquake risk associated with many earthen dams in the planning area.
- Hazard mitigation plan survey results indicate that the public does not perceive a significant seismic risk in the planning area.
- Unreinforced masonry structures in the planning area are particularly vulnerable to the earthquake hazard.
- It is difficult to develop seismic retrofit projects that are cost-effective for FEMA hazard mitigation grant programs, due to the lack of state and federal risk data to support FEMA benefit-cost methodologies.

12. FIRE

12.1 GENERAL BACKGROUND

The National Fire Protection Association examined 85 fatal fires in dormitories, fraternities, sororities and off-campus housing from 2000 through 2015, resulting in 118 fatalities. The NFPA reports the following statistics regarding these fatal fires:

- 94 percent took place in off-campus housing.
- Males accounted for 67 percent of all victims.
- More than half (58 percent) occurred in residences where smoke alarms were missing, had been disconnected, or had their battery removed. A common theme among these fatal fires was that students get annoyed when smoke alarms activate while cooking and remove the batteries, and they rarely replace the batteries after cooking.
- Fire sprinklers were not present in any of the 85 fatal campus fires. According to the NFPA, the death rate drops by 82 percent in structures equipped with fire sprinkler systems. The rate of property damage from a fire in non-sprinklered homes averages $20,000 compared to $7,000 for sprinklered homes, a 65 percent decrease. Fires in non-sprinklered restaurants cause an average of $53,000 in property damage, but this falls to $13,000 when sprinklers are present, a 75 percent decrease.
- The leading causes of the fires were:
  - Smoking (29 percent)
  - Intentional actions (16 percent)
  - Electrical (11 percent)
  - Cooking (9 percent)
  - Undetermined (18 percent)
- Alcohol was a factor in 76 percent of the fires.
- 70 percent occurred on Friday, Saturday or Sunday.
- 73 percent occurred between midnight and 6 a.m.
- April was the peak month (13 percent) for fatal fires in campus housing, with January, May and October at 12 percent each. Predictably, the least number of fires occurred in June, July and August, when there are fewer students enrolled in classes at colleges and universities.

The high percentage of fatal campus fires that occurred in off-campus housing (94 percent) speaks to the nature of that living environment. At many colleges, especially those in an urban environment, students have little choice but to live in an enclave of homes offered by some landlords. Strict dormitory rules are absent from these dwellings. For on-campus housing, colleges and universities control building maintenance such as fire safety features and electrical systems. The school also controls what the students bring into the housing buildings, with limits on risky items such as halogen lamps, hot plates, electric frying pans, toaster ovens, and space heaters. The college, to some extent, also can control student behavior in on-campus housing, especially for the two biggest factors involved in fatalities — drinking and smoking.

12.2 HAZARD PROFILE

12.2.1 Fire Incidents

There were two fire incidents in calendar year 2016, and no fire incidents in calendar years 2017 or 2018. The fire incident log is maintained by Housing and Residence Life and is available for public review during normal business hours at the Boise State Housing and Residence Life Office, in Chaffee Hall.

12.2.2 Fire Safety Systems

All buildings on campus have fire and smoke detection alarm systems. All buildings have been identified for fire code requirements. All hydrants on campus have been upgraded. Fire drills are routinely practiced. Within the residence halls, fire drills are conducted in each building at the beginning of each academic period. Fire drills are unannounced and assist in the educational process for students and staff alike

The Jeanne Clery Disclosure of Campus Security Policy and Campus Crime Statistics Act requires higher education institutions to provide timely warnings of crimes and other factors that represent a threat to the safety of students or employees. The law is intended to provide students and their families, as higher education consumers, with accurate, complete, and timely information about safety on campus. In compliance with this law, the Boise State Department of Public Safety produces an Annual Security and Fire Safety Report. This report contains information about University fire safety practices and is prepared in cooperation with Housing and Residence Life, the Department of Public Safety, Environmental Health, Safety and Sustainability, and other University departments. The most recent report presented the following information on the primary housing facilities for Boise State students:

- **Barnes Towers** have 2-hour firewalls and 1-hour fire doors. The fire alarm system has smoke and heat detectors, manual pull stations, and audible and visible alarm notification devices. Stairwells are protected with fire doors.
- **Chaffee Hall** is of concrete masonry construction. “D” wing is sprinklered, and “D” wing resident rooms have smoke control doors. The fire alarm system has smoke and heat detectors, manual pull stations, and audible and visible alarm notification devices. Stairwells are protected with fire doors.
- **Driscoll Hall** is 100 percent sprinklered with 2-hour firewalls and smoke control doors between the suites. The fire alarm system has smoke and heat detectors, manual pull stations, and audible and visible alarm notification devices. Stairwells are protected with fire doors.
- **Keiser Hall** is 100 percent sprinklered with 2-hour firewalls and fire dampers in the heating, ventilation and air conditioning (HVAC) system. Stairwells are protected with 1-hour fire doors. The fire alarm system has smoke and heat detectors, manual pull stations, and audible and visible alarm notification devices. Stairwells are protected with fire doors.
- **Aspen, Cedar, Hawthorne, Juniper, Spruce, and Tamarack Houses** (that make up the Lincoln Townhomes) are 100 percent sprinklered and each apartment has smoke detectors connected to the fire alarm system. There are also audible and visible warning devices in the stairwells.

- **Morrison Hall** is 100 percent sprinklered with 2-hour firewalls and smoke control doors between the suites. The fire alarm system has smoke and heat detectors, manual pull stations, and audible and visible alarm notification devices. Stairwells are protected with fire doors.
- **Taylor Hall** is 100 percent sprinklered with 2-hour firewalls and fire dampers in the HVAC system. Stairwells are protected with 1-hour fire doors. The fire alarm system has smoke and heat detectors, manual pull stations, and audible and visible alarm notification devices. Stairwells are protected with fire doors.
- **University Heights Apartments** are of brick construction. Each apartment has standalone smoke detectors, exterior manual pull stations and exterior audible and visible alarm notification devices.
- **University Manor Apartments** are of brick construction. Each apartment has standalone smoke detectors, exterior manual pull stations and exterior audible and visible alarm notification devices.
- **University Park Apartments** are of concrete, masonry construction. Each apartment has standalone smoke detectors, exterior manual pull stations and exterior audible and visible alarm notification devices.
- **Clearwater, Payette, and Selway Suites** (formerly University Square A, B, and C) and University Square D, E, F, and G are 100 percent sprinklered. The fire alarm system has smoke detectors, heat detectors, manual pull stations, and audible and visible alarm notification devices. Each apartment has standalone smoke detectors. Stairwells are protected with fire doors.
- **University Village Apartments** have standalone smoke detectors, exterior manual pull stations and exterior audible and visible alarm notification devices. It also has two-hour firewalls.
- **1816/1818 and 1827/1829 Yale Court** consists of two free-standing, two story apartment buildings where each floor has four double-occupancy rooms. The fire alarm system has smoke detectors, heat detectors, and fire extinguishers in each unit.
- **Honors College and Sawtooth Hall** are 100 percent sprinklered. The fire alarm system has smoke detectors, manual pull stations and audible and visible notification devices. Stairwells are protected with fire doors.
- **Rivers Edge Apartments** (Boise State Housing is the 2nd floor only) are 100 percent sprinklered and each apartment has smoke detectors and fire alarm pull stations. Multiple fire extinguishers are in the hallways and evacuation route posters are posted near the elevators.
- **Vista West Apartments** (Boise State Housing is the 3rd floor only) are 100 percent sprinklered and each apartment has smoke detectors and fire alarm pull stations. Multiple fire extinguishers are in the hallways and evacuation route posters are posted near the elevators. Strobe lights are also activated in cases of emergency or fire. Additionally, Vista West utilizes intercoms in each room to alert residents of a fire or other emergency.
- **1156/1158 Euclid Annex** is a one-story duplex of conventional wood frame construction. Each unit has stand-alone smoke detectors and fire extinguishers. This building is used only for emergency housing and on rare occasion.
- **1162/1164 Euclid Annex** is a one-story duplex of conventional wood frame construction. Each unit has stand-alone smoke detectors and fire extinguishers. This building is used only for emergency housing and on rare occasion.

For the 2016-2017 academic year covered in this report, Boise State leased individual floors for student housing at Rivers Edge Apartments and Vista West Apartments. The lease for these complexes ended in May of 2017. These properties were considered “non-campus” locations for Clery Act purposes, but a description of their fire safety systems was included in the report. Fire statistics were to be collected and published for these complexes in the 2017 and 2018 Annual Security and Fire Safety Report.

12.2.3 Fire Suppression Responsibility

Fire suppression response and preparedness for Boise State is the responsibility of the City of Boise Fire Department, which serves a population of nearly 236,000 residents in Idaho’s largest city. Emergency response services are delivered from 17 fire stations located throughout the city in a 130+ square mile response area. The department employs nearly 300 employees in four divisions: Administration, Operations, Fire Prevention and Emergency Management. The department has an annual operating budget of $57 million and a capital budget in excess of $2.7 million.

12.3 EXPOSURE AND VULNERABILITY

Anywhere on the Boise State campus could be exposed and vulnerable to the fire hazard. There are no quantitative approaches to estimating the vulnerability to fire threats. The degree of vulnerability would vary based on building construction type and fire suppression system (sprinklers) availability. Of 192 structures on campus, 75 are equipped with fire suppression sprinkler systems. Campus structures constructed with what would be classified as fire resistive materials account for 68 percent of all University buildings. See Appendix B for more building specific information.

12.4 SCENARIO

A worst-case scenario for the fire hazard on the Boise State campus would be an electrical failure that affects multiple fire systems in multiple campus buildings. That would result in a shutdown of campus activities as well as the likely evacuation of students and staff for a prolonged period. While this type of scenario is unlikely, it is possible considering the dynamic nature of this hazard. As an academic service provider, any hazard that impacts Boise State’s ability to provide its academic services is a high impact hazard.

12.5 ISSUES

The fire risk for Boise State is considered to be low.

13. FLOOD

13.1 GENERAL BACKGROUND

A floodplain is the area adjacent to a river, creek or lake that becomes inundated during a flood. Floodplains may be broad, as when a river crosses an extensive flat landscape, or narrow, as when a river is confined in a canyon.

When floodwaters recede after a flood event, they leave behind layers of rock and mud. These gradually build up to create a new floor of the floodplain. Floodplains generally contain unconsolidated sediments (accumulations of sand, gravel, loam, silt, and/or clay), often extending below the bed of the stream. These sediments provide a natural filtering system, with water percolating back into the ground and replenishing groundwater. These are often important aquifers, the water drawn from them being filtered compared to the water in the stream. Fertile, flat reclaimed floodplain lands are commonly used for agriculture, commerce and residential development.

Connections between a river and its floodplain are most apparent during and after major flood events. These areas form a complex physical and biological system that not only supports a variety of natural resources but also provides natural flood and erosion control. When a river is separated from its floodplain with levees and other flood control facilities, natural, built-in benefits can be lost, altered, or significantly reduced.

13.1.1 Measuring Floods and Floodplains

The frequency and severity of flooding are measured using a discharge probability, which is the probability that a certain river discharge (flow) will be equaled or exceeded in a given year. Flood studies use historical records to determine the probability of occurrence for different discharge levels. The flood frequency equals 100 divided by the discharge probability. For example, the 100-year discharge has a 1-percent chance of being equaled or exceeded in any given year. The “annual flood” is the greatest flood event expected to occur in a typical year. These measurements reflect statistical averages only; it is possible for two or more floods with a 100-year or higher recurrence interval to occur in a short time period. The same flood can have different recurrence intervals at different points on a river.

The extent of flooding associated with a 1-percent annual probability of occurrence (the base flood or 100-year flood) is used as the regulatory boundary by many agencies. Also referred to as the special flood hazard area, this boundary is a convenient tool for assessing vulnerability and risk in flood-prone communities. Many communities have maps that show the extent and likely depth of flooding for the base flood. Corresponding water-surface elevations describe the elevation of water that will result from a given discharge level, which is one of the most important factors used in estimating flood damage.

13.1.2 Floodplain Ecosystems

Floodplains can support ecosystems that are rich in plant and animal species. A floodplain can contain 100 or even 1,000 times as many species as a river. Wetting of the floodplain soil releases an immediate surge of nutrients: those left over from the last flood, and those that result from the rapid decomposition of organic matter that has accumulated since then. Microscopic organisms thrive and larger species enter a rapid breeding cycle. Opportunistic feeders (particularly birds) move in to take advantage. The production of nutrients peaks and falls away quickly, but the surge of new growth endures for some time. This makes floodplains valuable for agriculture. Species growing in floodplains are markedly different from those that grow outside floodplains. For instance, riparian trees (trees that grow in floodplains) tend to be very tolerant of root disturbance and very quick growing compared to non-riparian trees.

13.1.3 Effects of Human Activities

Because they border water bodies, floodplains have historically been popular sites to establish settlements. Human activities tend to concentrate in floodplains for several reasons: water is readily available; land is fertile and suitable for farming; transportation by water is easily accessible; and land is flatter and easier to develop. But human activity in floodplains frequently interferes with the natural function of floodplains. It can affect the distribution and timing of drainage, thereby increasing flood problems. Human development can create local flooding problems by altering or confining drainage channels. This increases flood potential in two ways: it reduces the stream's capacity to contain flows, and it increases flow rates or velocities downstream during all stages of a flood event. Human activities can interface effectively with a floodplain if steps are taken to mitigate the activities' adverse impacts on floodplain functions.

The severity of damage caused by a flood depends on several variables: how much area is flooded, the height of flooding, the velocity of flow, the rate of rise, sediment and debris carried, the duration of flooding, and the effectiveness of flood fighting.

13.1.4 Federal Flood Programs

National Flood Insurance Program

The NFIP makes federally backed flood insurance available to homeowners, renters and business owners in participating communities. For most participating communities, FEMA has prepared a detailed Flood Insurance Study. The study presents water surface elevations for floods of various magnitudes, including the 1-percent annual chance flood and the 0.2-percent annual chance flood (the 500-year flood). Base flood elevations and the boundaries of the 100- and 500-year floodplains are shown on Flood Insurance Rate Maps (FIRMs), which are the principal tool for identifying the severity and location of the flood hazard. FIRMs are the most detailed and consistent data source available, and for many communities they represent the minimum area of oversight under their floodplain management program.

Participants in the NFIP must follow NFIP criteria for regulating development in floodplains. Before issuing a permit to build in a floodplain, participating jurisdictions must ensure that three criteria are met:

- New buildings and those undergoing substantial improvements must, at a minimum, be elevated to protect against damage by the 100-year flood.

- New floodplain development must not aggravate existing flood problems or increase damage to other properties.
- New floodplain development must exercise a reasonable and prudent effort to reduce its adverse impacts on threatened salmonid species.

The City of Boise participates in the NFIP and portions of the Boise State campus intersect its regulated floodplain. Any development that occurs within the City's regulated floodplain is subject to the provisions of the City of Boise Municipal Code, Title 11, Chapter 8; pursuant to the City's participating in the NFIP.

13.2 HAZARD PROFILE

Flooding in Ada County is typically caused by high-intensity, short-duration (1 to 3 hours) storms concentrated on a stream reach with already saturated soil. Two types of flooding are typical:

- Flash floods that occur suddenly after a brief but intense downpour. They move rapidly, end suddenly, and can occur in areas not generally associated with flooding (such as subdivisions not adjacent to a water body and areas serviced by underground drainage systems). Although the duration of these events is usually brief, the damage they cause can be severe. Flash floods cannot be predicted accurately and happen whenever there are heavy storms.
- Riverine floods described in terms of their extent (including the horizontal area affected and the vertical depth of floodwater) and the related probability of occurrence (expressed as the percentage chance that a flood of a specific extent will occur in any given year).

Flooding is predominantly confined within traditional riverine valleys. Locally, some natural or manmade levees separate channels from floodplains and cause independent overland flow paths. Occasionally, railroad, highway or canal embankments form barriers, resulting in ponding or diversion of flows. Some localized flooding not associated with stream overflow can occur where there are no drainage facilities to control flows or when runoff volumes exceed the design capacity of drainage facilities.

13.2.1 Principal Flooding Sources

The Boise River

The Boise River is about 200 miles long and flows generally east to west. The headwaters are in the Sawtooth Mountains and the mouth is near Parma, Idaho, where it empties into the Snake River. Principal tributaries of the Boise River are the North, Middle, and South Forks, and Mores Creek. Total drainage area of the Boise River is 4,134 square miles. Deep V-shaped valleys, steep slopes and narrow ridges characterize the watershed above Lucky Peak Dam. In the upper basin, elevation ranges from 3,000 to 10,600 feet. The watershed below Lucky Peak Dam is roughly 1,485 square miles and is composed of river bottoms, terraces, and low rolling to steep hills. The bottomland adjoining the main stream constitutes the floodplain and varies from 1 to 3 miles in width.

Water gradients on the Boise River vary from 150 feet per mile in the upper reaches of the watershed to 6 feet per mile in the lower Reaches from Barber Dam to the Ada-Canyon County border, the river has an average slope of 11.5 feet per mile. The natural runoff of the Boise River usually consists of low flows from late July through February, increasing flows during March, and high flows in April, May and June. Occasionally this pattern is interrupted by high flows of short duration in winter caused by rainstorms. Most of the runoff is generated above Lucky Peak Dam. Average discharge near Boise is about 2,750 cubic feet per second (cfs) or 2 million acre-feet per year. The maximum recorded mean daily discharge was 35,500 cfs, on June 14, 1896.

The principal dams on the Boise River are Anderson Ranch, Arrowrock and Lucky Peak. These dams provide flood-control storage for 64 percent of the drainage area of the river. The dams have greatly reduced the magnitude and frequency of Boise River floods. Despite the flood protection provided by the existing system, major floods still cannot be fully controlled. Boise River water levels reach bank-full stage (6,500 cfs at the Glenwood Bridge gage) virtually every year. However, the reservoirs provide enough regulation to generally allow for 24 to 72 hours' warning before cities along the Boise River in Ada County experience major flooding.

The river's ability to carry a flood has been significantly reduced over time by siltation. Before the upstream dams regulated flows, spring runoff flushed and scoured the river channel. Since 1954, when Lucky Peak, the last of the three big dams, went into operation, the capacity of the river channel has gradually been reduced. A 1972 USGS study noted a considerable decrease in stream capacity at the gauging stations at Notus and Boise. At the same river stage, flows at Notus were 11,800 cfs in 1938 and 8,000 cfs in 1972. Flows at the same stage at Boise were 9,600 cfs in 1943 and 7,700 cfs in 1972. This is a reduction in carrying capacity of 32 percent at Notus and 20 percent in Boise. In the decades since that study, silt has continued to be deposited in the floodway. With present downstream channel capacity, there is not enough reservoir space in the system to fully regulate the standard flood. There is a 1-percent chance in any year of flows at Boise exceeding 16,600 cfs, and a 2-percent chance in any year of flows exceeding 11,000 cfs.

Other factors that affect flooding on the Boise River are the construction and condition of levees, the proliferation of plant growth along the river, and the construction of structures in the floodway. With these changes, water levels that in the past were merely an inconvenience now can cause significant damage. Flood elevations may be only slightly less for the 10- or 50-year flood than for the 100-year flood; so unforeseen debris blockages may cause 100-year elevations during a 10-year flood.

Urban Flooding

Like many areas in the western United States, Ada County, including the Boise State University campus, has experienced rapid change due to urban development in once rural areas. Drainage facilities in these recently urbanized areas are a series of pipes, roadside ditches and channels. Urban flooding occurs when these conveyance systems lack the capacity to convey rainfall runoff to nearby creeks, streams and rivers. As drainage facilities are overwhelmed, roads and transportation corridors become conveyance facilities. The two key factors that contribute to urban flooding are rainfall intensity and duration. Topography, soil conditions, urbanization and groundcover also play an important role.

Urban floods can be a great disturbance of daily life in urban areas. Roads can be blocked, and people may be unable to go to work or school. Economic damage can be high, but the number of casualties is usually limited, because of the nature of the flood. On flat terrain, the flow speed is low, and people can still drive through it. The water rises relatively slowly and usually does not reach life endangering depths.

13.2.2 Past Events

Ada County has a long and extensive history of flooding. The most common problem areas for flooding are the Boise River and the Boise Foothills streams. The greatest floods of known magnitude on the Boise River occurred on June 14, 1896, with a peak flow of 35,500 cfs, and in April 1943, with a peak flow of 21,000 cfs. Both events occurred prior to the river being regulated by Lucky Peak Dam. Table 13-1 shows flood events that have impacted the planning area since 1955.

Table 13-1. Ada County Flood Events

Date	Declaration #	Type of event
5/31/2017	DR-4342	Planned Dam Release
The Boise River remained in flood during the entire month of May due to planned release from Lucky Peak dam. Regulated flows were above flood stage for 101 days resulting in extensive damage to the Greenbelt and Nature Trail paths. Extensive flood fight efforts continued in the Eagle Island area to prevent a pit capture. Widespread flooding continued on Eagle Island in the Riviera Estates area where several homes were surrounded by water and low-lying roads were inundated. Large portions of Ann Morrison Park, Barber Park, and Marianne Williams Park were impacted by flood waters. Some residential streets continued to be impacted by flood waters, especially in the Garden City Warehouse District and on Eagle Island. A pit capture occurred just downstream of Eagle Island causing a major shift in the river channel. Streets in the Stonebriar development just downstream of the Highway 16 bridge were inundated by water. Severe bank erosion and large trees washed into the river caused problems in the river channel and at some bridge crossings.		
4/30/2017	DR-4342	Planned Dam Release
Planned releases from Lucky Peak Reservoir for flood control ranged from 7800 CFS to 8900 CFS during the month of April. The prolonged flood flows continued to cause extensive damage to the Greenbelt and Nature Trail paths. Flood waters inundated portions of Eagle Island, particularly along Artesian Road and Hatchery Road. Numerous homes in Riviera Estates were surrounded by water. Flood fight efforts continued to focus in the Eagle Island area with extensive sandbagging taking place. Additional flood fight efforts to mitigate a pit capture continued along the Eagle Island south channel of the river. Flood diversion tubes and muscle wall barriers were used to limit river encroachment on the sandpit. Large sections of Ann Morrison Park, Marianne Williams Park, and Barber Park were flooded. Some residential streets adjacent to the river had water on them, especially in the Garden City Warehouse District.		
03/06/2017	DR-4342	Planned Dam Release
The Army Corps of Engineers and Bureau of Reclamation increased regulated flows from Lucky Peak Reservoir putting the Boise River in flood for the remainder of the month of March. Flooding was expected to continue through late spring.		
7/08/2015	N/A	Flash Flood
Strong thunderstorms and heavy rain crossed parts of southwest Idaho. Heavy rain from slow moving thunderstorms caused flash flooding in downtown Boise and in the north and northwest parts of the city. Over an inch of rain fell in less than an hour in parts of Boise.		
5/01/2012	N/A	Planned Dam Release
Unusually high rainfall triggered a rapid snow melt. Peak inflow into the three-dam reservoir system was over 26,000 cfs. Flows peaked at 8100 cfs through town. The high flows also caused an overtopping of a canal headgate and two riverbank breeches along the Little Pioneer Ditch. Uncontrolled flows into the irrigation canal caused flooding on agricultural lands and threatened numerous public rights of way in Star. Ada County Highway District took the lead and completed the bank repairs that resolved this issue.		
5/30/2011	N/A	Planned Dam Release
Due to capacity issues at Lucky Peak Dam, officials were forced to increase flow on the Boise River, causing the channel to go above flood stage during the day. The river crested at 10.03 feet around 3:00 pm MDT.		
5/20/2008	N/A	Flooding-Boise River
High flows on the Boise River forced Boise Parks & Recreation to close three sections of the Greenbelt. The walking-only pedestrian area was underwater from the Cottonwoods Apartments past River Run in southeast Boise. Two other areas were also closed: Broadway Avenue tunnel on the north side of the river and Loggers Creek footbridge from Leadville Avenue east to the Park Center Bridge.		
5/25/2006	N/A	Flooding-Boise River
High water levels along the Boise River created a breach in the riverbank near Eagle Island. About 8- 10 homes along Artesian and Trout Roads were affected. The State of Idaho repaired the breach. For the affected residents Ada County provided sandbags, portable toilets, sump pumps and diesel for tractors.		
5/11/2006	N/A	Flooding –Boise River
High flows on the Boise River eroded a bridge near Garden City and nearly caused it to collapse into the river.		
7/7/2004	N/A	Urban Flooding
The Idaho State Capital building was inundated by a flash flood. The flood occurred in the basement, displacing about 20 workers. Repairs are estimated to be between $70,000 and $100,000.		
3/7/1999	N/A	Flooding-Boise River
High water levels released from Lucky Peak Reservoir caused flooding in low lying areas. Segments of the Greenbelt were closed and areas in southeast Boise near Logger's Creek and Cottonwood Apartments were flooded. A 200' section of riverbank near Eagle's Starwood subdivision collapsed.		

Date	Declaration #	Type of event
May/June 1998	N/A	Flooding-Boise/Snake
Two weeks of rain fell on a melting snowpack caused flooding along the Snake, Weiser, Payette and Boise Rivers for the second year in a row. A levee break near Eagle Island caused flooding of nearby homes.		
March/July 1997	DR 1177	Riverine Flooding
Rapid melt of a record snowmelt led to flooded rivers throughout southern Idaho. The Snake River Basin received significant snowfall during the winter of 1996-97, and in higher elevations the snowpack exceeded 250 percent of normal, causing above normal runoff during the spring melt.		
1/1/1997	DR 1154	Riverine Flooding
Warm temperatures combined with a rainfall 4-6 times normal caused snowmelt triggering floods, mudslides and avalanches in the Weiser, Payette and Salmon River drainages, damaging communities and infrastructure throughout Idaho. Increased flows in the Boise River to make room in reservoirs flooded homes and businesses along Eagle Island. A dike near South Eagle Road broke, flooding a road and surrounding fields. Parts of the Greenbelt along the Boise River were closed.		
May 1993	N/A	Flooding-Boise River
Boise River floodwaters soaked 10 Eagle homes; 1 woman drowned.		
June 1983	N/A	Flooding-Boise River
Snowmelt caused by high temperatures led to the raising of the Boise River to a peak runoff of 24,294 cfs. Flooding damaged the Greenbelt and riverbanks along Barber Park, Parkcenter, Garden City and Eagle Island. Homes along the river were flooded, and residents of Eagle Island used boats to travel. Cottonwood trees fell into the river, causing damming and further flooding. Municipal Park lost a chunk of land 300' long and 55' deep.		
5/26/1973	N/A	Flooding-Canal
A 30' wide break in the Ridenbaugh Canal flooded the Triangle Dairy and 15 houses in SE Boise with muddy, waist-deep water. The affected area was between Broadway/Linden/Leadville		
1/17/1971	N/A	Urban Flooding
Heavy rain and snow over four days caused flooding in southwest Idaho. Basements, yards and low-lying roads were flooded. In Orchard, 3 of 30 homes were evacuated by rowboat. Floodwaters covered approximately 160 acres in the town.		
5/22/1965	N/A	Flooding-Boise River
300 acres of farmland and several houses near Eagle Island were flooded by the Boise River when a levee broke.		
12/21/1964	N/A	Riverine Flooding
Warm weather combined with heavy rains and melting snow caused flooding along the Payette, Big Wood, Little Wood, Portneuf, Clearwater and Boise River drainages. Hwy 21 and 15, US 95N and 30E were closed. Over 100 homes were damaged, numerous bridges were washed out, and thousands of acres of farmlands were flooded. Two deaths were attributed to the flood. A state of emergency was declared. Boise was isolated as surrounding roads and highways were closed, train and bus service cut off.		
8/20/1959	N/A	Cloudburst Floods
Severe thunderstorms in the NE Boise Foothills were estimated to be a 50- to 100-year rainfall event; 0.30" of rain fell in 5 minutes at Deer Point. Earlier Lucky Peak fires had denuded the foothills of vegetation. Floodwaters were diverted along Broadway Avenue to the Boise River. Some 500 houses were damaged by mud; over 160 acres were covered by silt and debris. The agriculture area between Lucky Peak Dam and East Boise suffered extensive property, crop and livestock losses. The Boise police clubhouse on Mountain Cove Road was destroyed. The Idaho National Guard headquarters on Reserve Street was inundated.		
1/12/1958	N/A	Flash Flooding
A rainstorm that dumped over 2" of rain in Boise in a 12-hour period caused extensive flooding and heavy crop damage. Homes, roads and storm basins were flooded, several families were evacuated. The Boise Bench was hit hardest, with one family on Atlantic Street evacuated when their house was flooded with over a foot of water.		

13.2.3 Location

Major floods in Ada County have resulted from intense rainstorms between November and March. Flooding in portions of the county has been extensively documented by gage records, high water marks, damage surveys and personal accounts. This documentation was the basis for the June 19, 2020, Digital Flood Insurance Rate Map for Ada County generated by FEMA. The resulting area of flood risk is shown on Figure 13-1.

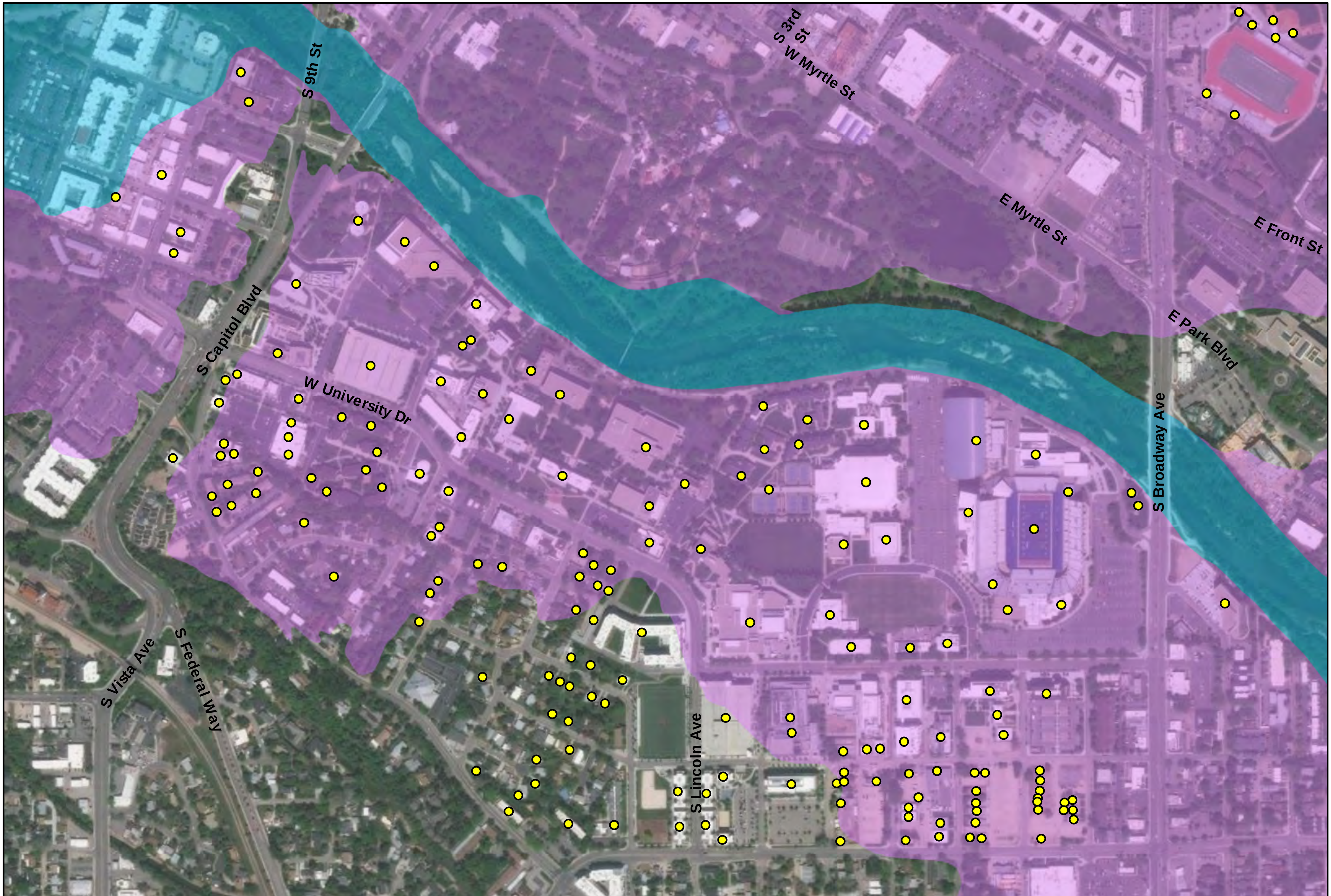
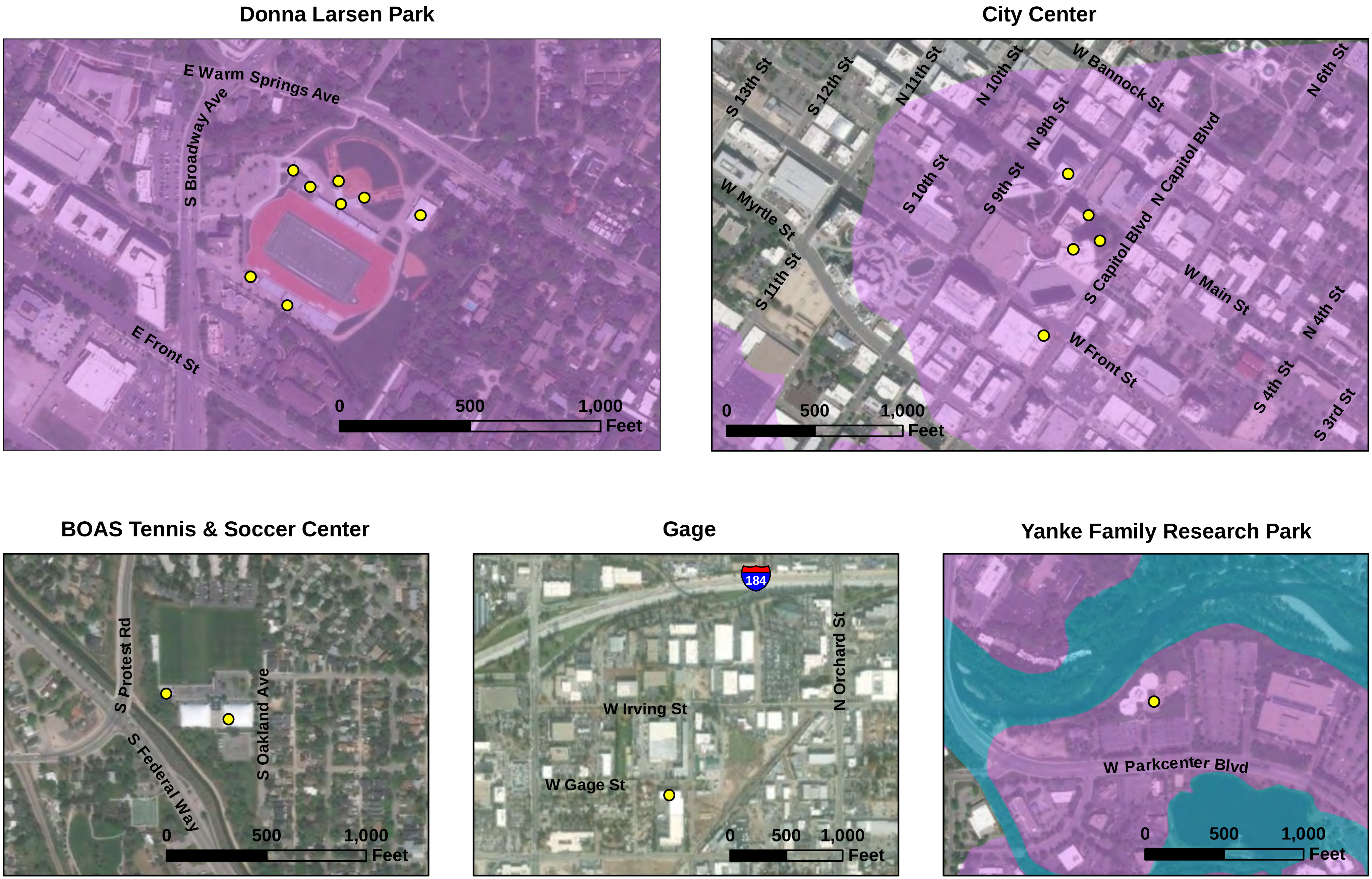


Figure 13-1a. FEMA-Mapped Flood Hazard Areas



BSU Buildings

1% Annual Chance Flood

0.2% Annual Chance Flood

N

Data Sources: BSU, Esri, FEMA

Figure 13-1b. FEMA-Mapped Flood Hazard Areas

13.2.4 Frequency

Ada County experiences episodes of river flooding almost every winter. Large floods that can cause property damage typically occur every three to seven years. Urban portions of the county annually experience nuisance flooding related to drainage issues.

13.2.5 Severity

The principal factors affecting flood damage are flood depth and velocity. The deeper and faster flood flows become, the more damage they can cause. Shallow flooding with high velocities can cause as much damage as deep flooding with slow velocity. This is especially true when a channel migrates over a broad floodplain, redirecting high velocity flows and transporting debris and sediment. Flood severity is often evaluated by examining peak discharges; Table 13-2 lists peak flows used by FEMA to map the floodplains of Ada County with relevance to the Boise State campus.

Table 13-2. Summary of Peak Discharges Within Ada County

Source/Location	Drainage Area (Square Miles)	Discharge (cubic feet/second)			
		10-Year	50-Year	100-Year	500-Year
Boise River at Lucky Peak Dam (regulated flows)	2,250	7,200	11,000	16,600	34,800
Boise River Side Channel at Park Center	N/A	N/A	N/A	675	N/A

13.2.6 Warning Time

Due to the extended pattern of weather conditions needed to cause serious flooding, warning times for floods can be between 24 and 48 hours. Flash flooding can be less predictable, but potential hazard areas can be warned in advanced of potential flash flooding danger.

Ada County Emergency Management has developed a Flood Response Plan outlining the response to flooding in the planning area. Since flows on the Boise River system are regulated by the Corps of Engineers, warning on this system is tied to water release rates set by the Corps. Each significant increase in release rates from Lucky Peak Dam requires notification to emergency managers by the Corps. These announcements usually occur well in advance (24 to 48 hours) of increased release rates.

The National Weather Service (NWS) uses a two-tiered warning system for flash flooding:

- A Flash Flood Watch covers a large area (a thousand square miles or greater, usually several counties) for up to 12 hours. A Flash Flood Watch is issued when conditions are favorable to produce flash flooding on the Boise Foothills within the next 12 hours.
- A Flash Flood Warning generally covers a very small area (a few square miles to several hundred square miles) for up to 6 hours. A flash flood warning for the Boise Foothills is issued under the following conditions:
  - Rainfall in the Boise Foothills is occurring or is imminent and is falling at a rate that could cause flash flooding.
  - Heavy rainfall is falling on snowpack and flash flooding is occurring or imminent.
  - Flash flooding is occurring and has been confirmed by stream flow gauges, NWS spotters, emergency responders or citizens.

13.2.7 Natural and Beneficial Floodplain Functions

What Are Beneficial Floodplain Functions?

Flooding is a natural event, and floodplains provide many natural and beneficial functions. Riparian areas—the zones along the edge of a river or stream that are influenced by or are an influence upon the water body—generally have a greater diversity and structure of vegetation than upland areas. Shelter, space, food and water available in these areas determine the health of wildlife populations.

Many species of mammals, birds, reptiles, amphibians and fish live in Ada County in plant communities that are dependent upon streams, wetlands and floodplains. Changes in hydrologic conditions can result in a change in the plant community. Wildlife and fish are impacted when plant communities are eliminated or fundamentally altered to reduce habitat. Wildlife populations are limited by shelter, space, food and water. Since water supply is a major limiting factor for many animals, riparian communities are of special importance. Human disturbance to riparian areas can limit wildlife's access to water, remove breeding or nesting sites, and eliminate suitable areas for rearing young. Wildlife relies on riparian areas in the following ways:

- Mammals depend upon a supply of water for their existence. Riparian communities have a greater diversity and structure of vegetation than other upland areas. Beavers and muskrats are now recolonizing streams, wetlands and fallow farm fields, which are converted wetlands. As residences are built in rural areas, there is an increasing concern with beaver dams causing flooding of low-lying areas and abandoned farm ditches being filled in, which can lead to localized flooding.
- A great number of birds are associated with riparian areas. They swim, dive, feed along the shoreline, or snatch food from above. Rivers, lakes and wetlands are important feeding and resting areas for migratory and resident waterfowl. Threatened or endangered species such as the bald eagle or the peregrine falcon eat prey from these riparian areas.
- Amphibians and reptiles are some of the least common forms of wildlife in riparian areas, but species such as the western pond turtle and the spotted frog are known to inhabit the waterways and wetlands.
- Fish habitat throughout Ada County varies widely based on natural conditions and human influence.

The Boise River Enhancement Plan

In 2011, local stakeholders held a workshop on environmental enhancement opportunities on the Boise River, with a goal to increase opportunities for public and private ecosystem enhancement of the Lower Boise River by establishing networks, building knowledge, envisioning possibilities and tackling challenges. The workshop, titled "From Vision to Reality," brought together 106 area experts, academics, decision makers, and citizens, who together identified key enhancement goals, challenges, approaches, and next steps.

Participants agreed that the most important next step was to continue the group and develop a plan. Interested organizations formed the Boise River Enhancement Network (BREN). This group received a grant from the Bureau of Reclamation's WaterSMART program to establish a watershed group and write a watershed enhancement plan. BREN used the results of the workshop to identify key subject areas.

The *Boise River Enhancement Plan* is a result of these efforts (BREN, 2015). This plan was developed through a literature review and stakeholder input. From the existing literature and research, summary reports were created for four subject areas: geomorphology, fisheries and aquatic habitat, wetland and riparian habitat, and water quality. The most pertinent issues and solutions from these reports were identified for application in the Enhancement Plan. The papers are included as appendices to the Enhancement Plan. Other appendices include a geomorphic assessment performed for the BREN effort, case studies of activities in the watershed, BREN governance and outreach documentation, and project concepts from other watersheds.

The Enhancement Plan provides an overview of the ecological condition of the river and identifies key issues and enhancement opportunities. It identifies projects that bring the greatest benefit to multiple ecological subject areas and recommends a collaborative approach to achieve the vision. Important next steps include continuing outreach, research, funding and identification of site-specific actions. The *Boise River Enhancement Plan* will meet beneficial function requirements of FEMA's Community Rating System for the Ada County planning area.

Integrating elements of the *Boise River Enhancement Plan* with this hazard mitigation plan will ensure viability and integration of both plans as the community seeks to make the Ada County planning area more flood resilient. The complete *Boise River Enhancement Plan* is available on the BREN website.

13.3 EXPOSURE

A Level 2 Hazus analysis was used to assess exposure to flooding in the planning area. The model used Census data at the block level and FEMA floodplain data, which has a level of accuracy acceptable for planning purposes. Where possible, the Hazus default data was enhanced using local GIS data from county, state and federal sources.

13.3.1 Population

None of the built environment on campus currently intersects the 100-year floodplain, but most of the campus is within the 500-year floodplain. All campus populations occupying buildings in the 500-year inundation zone would be exposed to the risk of a flood. Much of this population would be transient and would fluctuate with class schedules.

13.3.2 Property

Table 13-3 summarizes the total number and value of Boise State campus structures in the 500-year flood area. Over 50 percent of the structures on campus are in the 500-year inundation area. A detailed breakdown of all structures located in the inundation area can be found in Appendix C.

Table 13-3. Value of Property Exposed to 500-Year Flood Zone

Number of Buildings in Inundation Area	152
Building Replacement Cost Value Exposed	$1,507,138,677
Contents Value Exposed	$283,449,214
Total Value Exposed	$1,790,587,781
Total Exposed Value as % of Total Replacement Value	*93.0*

13.3.3 Environment

Flooding can impact the environment in negative ways. Migrating fish can wash into roads or over dikes into flooded fields, with no possibility of escape. Pollution from roads, such as oil, and hazardous materials can wash into rivers and streams. During floods, these can settle onto normally dry soils, polluting them for agricultural uses. Human development such as bridge abutments and levees, and logjams from timber harvesting can increase stream bank erosion, causing rivers and streams to migrate into non-natural courses.

13.4 VULNERABILITY

13.4.1 Population

Vulnerable Populations

The potential for loss of life is affected by the capacity of evacuation routes. Vulnerable populations are those who live, work, attend classes, and recreate in flood inundation areas and are incapable of escaping the area quickly. This population includes the elderly, the young and those who have access and functional needs, who may be unable to get themselves out of the inundation area. The vulnerable population also includes those who would not have adequate warning from a television, cell phone or radio emergency warning system.

Public Health and Safety During and After Floods

Floods and their aftermath present the following threats to public health and safety:

- **Unsafe food—**Floodwaters contain bacteria, dirt, oil, human and animal waste, and farm and industrial chemicals. Their contact with food items, including food crops in agricultural lands, can make that food unsafe to eat. Refrigerated and frozen foods are affected during power outages caused by flooding. Foods in cardboard, plastic bags, jars, bottles, and paper packaging may be unhygienic with mold contamination.
- **Contaminated drinking and washing water and poor sanitation—**Flooding impairs clean water sources with pollutants. The pollutants also saturate into the groundwater. Flooded wastewater treatment plants can be overloaded, resulting in backflows of raw sewage. Private wells can be contaminated by floodwaters. Private sewage disposal systems can become a cause of infection if they or overflow.
- **Mosquitoes and animals—**Floods provide new breeding grounds for mosquitoes in wet areas and stagnant pools. The public should dispose of dead animals that can carry viruses and diseases only in accordance with guidelines issued by local animal control authorities.
- **Mold and mildew—**Excessive exposure to mold and mildew can cause flood victims—especially those with allergies and asthma—to contract upper respiratory diseases, triggering cold-like symptoms. Molds grow in as short a period as 24 to 48 hours in wet and damp areas of buildings and homes that have not been cleaned after flooding, such as water-infiltrated walls, floors, carpets, toilets and bathrooms. Very small mold spores inhaled by human bodies can cause allergic reactions or respiratory problems.
- **Carbon monoxide poisoning—**In the event of power outages following floods, some people use alternative fuels for heating or cooking in enclosed spaces, (stoves, generators, lanterns, gas ranges, charcoal, wood, etc.). Built-up carbon monoxide from these sources can poison people and animals.
- **Hazards when reentering and cleaning flooded homes and buildings—**Flooded buildings can pose health hazards to people entering them. Electrical power systems can become hazardous. Gas leaks can trigger fire and explosion. Flood debris—such as broken bottles, wood, stones and walls—may cause injuries. Containers of hazardous chemicals may be buried under flood debris. Hazardous dust and mold can circulate through a building and be inhaled by those engaged in cleanup and restoration.
- **Mental stress and fatigue—**People who live through a devastating flood can experience long-term anxiety, anger, depression, lethargy, hyperactivity, or sleeplessness. The expense and effort required to repair flood-damaged homes places severe financial and psychological burdens on the people affected. There is also a long-term concern among the affected that their homes can be flooded again in the future.

Current loss estimation models such as Hazus are not equipped to measure public health impacts such as these. The best mitigation for these impacts is to educate the public on prevention and to address them in flood planning.

13.4.2 Property

Estimated Damage

Hazus uses historical flood insurance claim data to estimate losses to structures and their contents from flooding by looking at depth of flooding and type of structure. For this analysis, local data on facilities was used instead of the default inventory data provided with Hazus. Table 13-4 summarizes the loss estimates for the 500-year flood event. Detailed loss estimates by building are provided in Appendix C.

Table 13-4. Loss Estimates for the 500-Year Flood Event

Structures Impacted[a]	40
Estimated Building Loss	$1,853,732
Estimated Contents Loss	$1,941,488
Estimated Total Loss	$3,795,220
Estimated Total Loss as % of Total Replacement Value	*0.2%*

a. "Impacted" means the estimated flood depth for the scenario is over the lowest finished floor for the building being modeled

Repetitive Loss

A repetitive loss property is defined by FEMA as an NFIP-insured property that has experienced any of the following since 1978, regardless of any changes in ownership:

- Four or more paid losses in excess of $1,000
- Two paid losses in excess of $1,000 within any rolling 10-year period
- Three or more paid losses that equal or exceed the current value of the insured property.

Repetitive loss properties make up 1 to 2 percent of flood insurance policies in force nationally, yet they account for 40 percent of the nation's flood insurance claim payments. FEMA-sponsored programs, such as the Community Rating System, require participating communities to identify repetitive loss areas. A repetitive loss area is the portion of a floodplain holding structures that FEMA has identified as meeting the definition of repetitive loss. The key identifiers for repetitive loss properties are the existence of flood insurance policies and claims paid by the policies. Identifying repetitive loss areas helps to identify structures that are at risk but are not on FEMA's list of repetitive loss structures because no flood insurance policy was in force at the time of loss.

Based on data provided by the IDWR, there were no identified repetitive loss properties within Ada County as of May 31, 2020. Therefore, there are no identified repetitive loss properties on the Boise State campus.

13.5 SCENARIO

The primary water courses in Ada County flood at irregular intervals, generally in response to a succession of intense thunderstorms in summer or rain-on-snow events in winter. Storm patterns of warm, moist air usually occur between early November and late March. The worst-case scenario is a series of such storms that flood numerous drainage basins in a short time. This could overwhelm response and floodplain management capacity in the planning area. Major roads could be blocked, preventing access for many residents. High in-channel flows could cause water courses to scour, possibly washing out roads and creating more isolation.

The potential impacts of climate change on operation of Lucky Peak Dam also poses a flood risk. The Boise River could see increased flows in response to a changing hydrograph that dictates dam operations.

13.6 ISSUES

Important issues associated with the flood hazard include the following:

- Flood hazard maps should be updated with the best available data, science and technology to reflect actual flood risk.
- The extent of flood-protection currently provided by flood control facilities (dams, dikes and levees) is not known due to the lack of an established national policy on flood protection standards.
- The risk associated with the flood hazard overlaps the risk associated with other hazards such as earthquake and dam failure. This provides an opportunity to seek mitigation alternatives with multiple objectives that can reduce risk for multiple hazards.
- Potential climate change could alter flood conditions in Ada County.
- More information is needed on flood risk to support the concept of risk-based analysis of capital projects.
- There needs to be a sustained effort to gather historical damage data, such as high-water marks on structures and damage reports, to measure the cost-effectiveness of future mitigation projects.
- Ongoing flood hazard mitigation will require funding from multiple sources.
- There needs to be a coordinated hazard mitigation effort between jurisdictions affected by flood hazards in the county.
- The campus community should be educated about flood preparedness and the resources available during and after floods.
- The concept of residual risk should be considered in the design of future capital flood control projects and should be communicated with residents living in the floodplain.
- Existing floodplain-compatible uses such as agricultural and open space need to be maintained. There is constant pressure to convert these existing uses to more intense uses within the planning area during times of moderate to high growth.

14. HAZARDOUS MATERIALS

14.1 GENERAL BACKGROUND

Hazardous materials are substances that are considered severely harmful to human health and the environment, as defined by the U.S. EPA's Comprehensive Environmental Response, Compensation, and Liability Act (commonly known as Superfund). Many hazardous materials are commonly used substances that are harmless in their normal uses but dangerous if released. The EPA designates more than 800 substances as hazardous and identifies many more as potentially hazardous due to their characteristics and the circumstances of their release (EPA, 2013). If released or misused, hazardous substances can cause death, serious injury, long-lasting health effects, and damage to structures, other properties, and the environment. Many products containing hazardous substances that are used and stored in homes are shipped daily on highways, railroads, waterways, and pipelines.

A hazardous material release is the contamination of air, water, or soil by any material that, because of its quantity, concentration, or physical or chemical characteristics, threatens human health, the environment, or property. The following are the most common types of hazardous material incidents:

- **Fixed-Facility Hazardous Materials Incident**—This is the uncontrolled release of materials from a fixed site capable of posing a risk to health, safety, and property. It is possible to identify and prepare for a fixed-facility incident because federal and state laws require those facilities to notify state and local authorities about what is being used or produced at the site.
- **Hazardous Materials Transportation Incident**—A hazardous materials transportation incident is any event resulting in uncontrolled release of materials during transport that can pose a risk to health, safety, and property. Transportation incidents are difficult to prepare for because there is little notice about what materials could be involved should an accident happen. Hazardous materials transportation incidents can occur anywhere, although most occur on major federal or state highways or major rail lines.

14.2 HAZARD PROFILE

14.2.1 Location

Hazardous materials used and stored throughout the campus include petroleum products, laboratory chemicals, batteries, and compressed gas cylinders. Waste materials generated from labs and research may be hazardous and can include infectious waste, radiological waste, photographic and x-ray fixer waste, and chromatography waste. Building renovations also have hazardous material concerns associated with asbestos, lead-based paint, and mold. Most chemicals are stored on sturdy shelves with lips for protection against spillage from minor earthquakes. Petroleum storage is centralized and has secondary containment.

Because hazardous materials are so widely used, stored, and transported, a hazardous material event could take place almost anywhere. Many hazardous materials are used, stored, and transported in very large quantities, so the impacts of an event may be widespread and powerful.

Buildings with hazardous materials are listed in the building inventory provided in Appendix B. According to the 2013 Idaho State Hazard Mitigation Plan, there are 152 Tier II facilities (facilities with hazardous chemicals above certain quantities) in Ada County, some of which are on the Boise State campus.

14.2.2 Prevention Measures

Campus Operations has several hazardous chemical safety resources. The fume hood is a common method of controlling inhalation exposures to hazardous substances. Each fume hood is certified annually by Environmental Health, Safety, and Sustainability (EHSS) to ensure it is functioning properly and maintains a correct face velocity between 80 and 120 feet per minute, measured at the sash threshold (lower velocities may be inadequate to contain contaminants and higher velocities can result in eddy currents that cause flow outside the hood). A sticker on the side of the hood indicates the certification date, average face velocity, and sash height during certification.

Boise State University is committed to minimizing occupational exposure to bloodborne pathogens using engineering controls, administrative controls, and as necessary, personal protective equipment. The Campus Operations department developed its Exposure Control Plan to eliminate or minimize exposure for all employees who may have the potential for occupational exposure to bloodborne pathogens. The plan complies with all applicable federal and state laws regarding blood-borne pathogens. It applies to occupations on campus that have been identified as having a potential occupational exposure to bloodborne pathogens and other potentially infectious materials, such as the following:

- Campus security
- Childcare services
- Janitorial/custodial staff
- Athletic trainers
- Health care workers in student health
- Research and academic laboratory workers handling human blood, tissues, cell cultures and other potentially infectious materials

Boise State has prioritized actions to address vulnerabilities in its hazardous waste management protocols Most of the solid waste generated at Boise State can be disposed of in the landfill without creating an environmental hazard. If waste is free of any radiological, biological, or hazardous chemical contamination, it may be placed in a dumpster to enter the landfill trash stream or sent for recycling. This type of waste may be considered “general waste” and is handled by Facilities Operations and Maintenance. Improvements to hazardous waste management protocols can be put in place to attempt to prevent these exposures, but given the small amount of hazardous waste generated on campus, few changes are likely necessary.

14.3 EXPOSURE AND VULNERABILITY

Boise State has some exposure to hazardous materials. Anywhere on the Boise State campus where individuals can be exposed to biological or chemical materials is both exposed and vulnerable to the hazardous materials hazard. This applies primarily to health care facilities, research and academic laboratories, childcare centers, and athletic facilities on campus. Custodial and security staff may also be vulnerable to exposure to hazardous materials. For this hazard profile, exposure and vulnerability are viewed the same.

14.4 SCENARIO

A worst-case scenario for the hazardous materials hazard on the Boise State campus would be a failure in hazardous material management or disposal that exposes the wider campus population to toxic exposures. That would result in a shutdown of campus activities as well as the likely evacuation of students and staff for a prolonged period. While this type of scenario is unlikely, it is possible considering the dynamic nature of this hazard. As an academic service provider, any hazard that impacts Boise State's ability to provide its academic services is a high impact hazard.

14.5 ISSUES

Important issues associated with the active hazardous materials hazard include the following:

- Serious hazardous materials incidents —those causing hospitalizations, deaths, and large-scale economic loss and environmental damage—are generally the result of a series of improbable events involving large quantities of material and are thus relatively rare and difficult to predict.
- The severity of a hazardous substance release will depend on whether it is from a fixed or mobile source, the size of impact, the toxicity and properties of the substance, duration of the release, and the environmental conditions (wind, precipitation, terrain, etc.).
- The warning time for an incident at an on-site or fixed facility will vary.
- While there are hazardous materials on the Boise State campus, they are contained and confined, so the risk from this hazard is considered to be low.

15. POWER OUTAGE

15.1 GENERAL BACKGROUND

U.S. power customers experienced an average of nearly five hours of power interruptions in 2019: an average of 3.2 hours during major events (hurricane, wildfire, etc.) and 1.5 hours of interruptions without major events. The U.S. Department of Energy estimates that these interruptions cost U.S. businesses as much as $150 billion. Power outages can be caused by almost any hazard, as well as by human error or equipment failures. Anything from an earthquake to a terrorist event could cause utilities to fail. Hazards that can rapidly compromise utility systems include earthquakes, severe summer weather, and severe winter weather. A wildfire in the region could disrupt the power supply if a major transmission line were burned and damaged.

Given the age of current electrical grid infrastructure and the expected increase of severe weather events, power outages have the potential to become ever more frequent in coming years.

15.2 HAZARD PROFILE

Power outages are a major threat to campus resilience. From 2000 to 2014, outages increased from 2.5 to almost 18 disruptions per month. A power outage on the Boise State campus can close campus facilities and threaten research laboratories that may lack adequate secondary power systems. Any such disruptions can be handled for a short time frame but can become problematic in long term outages. If electricity were lost for a long period of time, the campus could be without heat and other services. Vulnerable populations needing powered medical equipment would be additionally threatened by a long-term power outage. Power outages are frequent in Ada County; however, long-term outages that cause damage are not.

The Boise State campus is reliant on Idaho Power for its electrical supply. Should those services be lost, the campus would be without electrical power. Potential power interruption modes of failure caused by natural and man-made hazards include, but are not limited to:

- Remote (off-campus) electrical grid failure
- Campus primary electrical failure
- Remote failure of natural gas distribution or transmission
- Failure of backup heating fuel systems

Other modes of failure exist, but these are primary to the function of the entire campus. In the event of loss of electricity or heat source during the winter, campus could be rendered uninhabitable and the property damage and lost research could be extensive. There is no magnitude rating for power outage incidents at present.

During power shortages and outages, Boise State classes, offices, administrative and computer network systems carry on unless specifically directed otherwise by the University President, or a designated representative, who determines when to call for the cancellation of classes, evacuation of buildings and orderly shutdown of administrative and computer network systems. University guidance calls for the following measures in response to power outages for students, faculty, and staff on campus:

- If directed to evacuate buildings, shut off switches to as many electrical items as possible.
- Use clear safe escape routes and exits and proceed to safe assembly locations as identified in the evacuation route map and instructions posted in each building.
- Assist persons requiring evacuation assistance to designated areas for evacuation assistance. Advise the Building Coordinator or Security of their location when leaving the building.
- To report a localized power outage, contact Facilities Operation and Maintenance and then the Department of Public Safety. call 9-1-1 unless unable to contact FO&M or DPS.
- Do not return to evacuated buildings until directed to do so by authorities.

15.3 EXPOSURE AND VULNERABILITY

Electrical power interruption can impact any Boise State facility that relies on electricity for operational and support services. All structures on the campus rely on electrical power to some degree and are therefore both exposed and vulnerable to the power outage hazard. For this hazard profile, exposure and vulnerability are the same.

Electrical infrastructure is especially vulnerable to severe weather events, aging infrastructure, and exploitation by a cyber-attack to gain unauthorized access to or perform unauthorized actions on a computer system. Improvements to primary and backup electrical systems can be put in place to attempt to block these outages, but growing power needs and aging infrastructure make it a challenge to maintain the effectiveness of these systems. Therefore, the vulnerability of the Boise State campus to power outages is dynamic. The University has prioritized actions to address vulnerabilities of its existing primary and secondary electrical systems.

15.4 SCENARIO

A worst-case scenario for the power outage hazard on the Boise State campus would be an electrical failure that affects multiple systems in multiple campus buildings. That would result in a shutdown of campus activities for a prolonged period. While this type of scenario is unlikely, it is possible considering the dynamic nature of this hazard. As an academic service provider, any hazard that impacts Boise State’s ability to provide its academic services is a high impact hazard.

15.5 ISSUES

Important issues associated with the power outage hazard include the following:

- The Boise State community’s reliance on power makes it susceptible to power interruptions of any duration. The longer the disruption, the larger the impact.
- Power outages can damage equipment that relies on electricity. This can be exacerbated by power surges when power is restored.

- Outages can lead to decreased student productivity.
- Power outage is a secondary impact from any major hazard event, such as a dam failure, earthquake or flood.
- When a data center goes down due to a power outage, a loss of critical data can occur.
- Emergency power supply and/or redundant power sources are critical to resilience from the impacts from this hazard.
- Fewer than 10 percent of the buildings on campus are equipped with backup power.
- Student housing lacks sufficient backup power.

16. PUBLIC HEALTH

16.1 GENERAL BACKGROUND

An outbreak is defined by the U.S. Centers for Disease Control and Prevention (CDC) as the occurrence of more cases of disease than normally expected within a specific place or group of people over a given period. In the State of Idaho, certain health care providers, health care facility administrators, and laboratorians, among others, must report suspected outbreaks, diseases, or other health conditions identified by the state to their local public health district or the state within a specified time frame (Idaho Administrative Procedure Act 16.02.10).

The following diseases, in alphabetical order, have potential to become widespread in Idaho without ongoing surveillance and mitigation measures in Idaho and abroad (IOEM, 2018):

- **Ebola virus disease** is a rare and deadly disease caused by infection with one of the Ebola virus species. Ebola viruses are transmitted through direct contact with contaminated blood or body fluids of a person who is sick or has died from Ebola. There have been no reported cases of Ebola virus disease contracted in the United States, but in 2014, two U.S. residents were infected with Ebola virus while traveling to areas where it is found, and were diagnosed in the United States; two healthcare workers who provided care for the first of these patients also became infected with Ebola virus.
- **HIV** is an abbreviation for human immunodeficiency virus. This viral infection is transmitted from someone who has HIV to another person by exposure to certain body fluids through sexual intercourse, sharing needles or syringes, from an infected mother to child during pregnancy or breastfeeding, and by receiving a blood transfusion, blood products, or organ/tissue transplants that are contaminated by HIV (currently an extremely small risk in the United States).
- **Influenza** is an infectious viral disease of birds and mammals commonly transmitted through aerosols produced by coughing or sneezing. People who have influenza can have some or all these symptoms: fever, cough, sore throat, runny nose, muscle aches, headaches, fatigue, vomiting, and diarrhea. Influenza virus strains that were new or had not circulated in a while caused pandemics in the late 20th and 21st centuries. Vaccines against a novel influenza will not be available immediately in most pandemics.
- **Measles** is a respiratory disease caused by the measles virus. It can lead to pneumonia, encephalitis (swelling of the brain), and death. Measles is one of the most contagious of all infectious diseases: approximately 90 percent of susceptible people with close contact to someone with measles will get the disease. The virus spreads through the air through coughing and sneezing. The measles-mumps-rubella vaccine protects against measles.
- **Mosquito-borne diseases** are those spread by the bite of an infected mosquito. Diseases that are spread to people by mosquitoes include Chikungunya, dengue, malaria, Saint Louis encephalitis, West Nile virus disease, and Zika virus disease.

- **Mumps** is a contagious disease caused by the mumps virus. It is spread through saliva or mucus from the mouth, nose, or throat through coughing, sneezing or talking, sharing items such as cups or eating utensils, and touching contaminated objects. The best way to protect against mumps is to be vaccinated with the measles-mumps-rubella vaccine. Mumps outbreaks can occur in a highly vaccinated population, especially in settings where people are in close contact, such as colleges and camps.
- **Pertussis** (whooping cough) is a highly contagious, respiratory disease caused by the pertussis bacterium. Early signs of pertussis resemble those of a cold, followed after one or two weeks by uncontrollable, violent coughing, vomiting and exhaustion. Vaccines that protect against pertussis include DtaP, for babies and children, and Tdap for preteens, teens, and adults.
- **Plague** is a disease that affects humans and other mammals. It is caused by the bacterium Yersinia pestis. Humans usually get plague after being bitten by a rodent flea that is carrying the plague bacterium or by handling an infected animal. An outbreak of plague among ground squirrels occurred in southwestern Idaho during 2016 and 2017.
- **Severe acute respiratory syndrome** is a viral respiratory illness caused by an associated coronavirus. The syndrome usually begins with a high fever and mild respiratory symptoms that can progress to a condition in which oxygen levels in the blood are too low.
- **Tuberculosis** is a disease caused by the bacterium Mycobacterium tuberculosis. The bacteria usually attack the lungs but can attack any part of the body such as the kidney, spine, and brain. Tuberculosis is spread through the air from one person to another when a person with tuberculosis of the lungs or throat coughs, sneezes, speaks, or sings. Tuberculosis was once the leading cause of death in the United States and is one of the top 10 causes of death worldwide. Multidrug-resistant tuberculosis is a public health crisis and security threat.
- **Rabies** is a viral disease of mammals most often transmitted through the bite of a rabid animal. It infects the central nervous system, ultimately causing disease in the brain and death. In Idaho, rabies is endemic in bats, but not in terrestrial mammals. Only bat strains of rabies have been documented in Idaho. However, since 1967, three skunks, three cats, one bobcat, and one horse were found to have rabies, as well as one raccoon that was imported from Florida.

On April 9, 2020, the President issued a major disaster declaration for all 50 states, including Idaho, due to the Coronavirus Disease 2019 (COVID-19). As of the time of this plan's preparation, the global COVID-19 pandemic is ongoing. Idaho's response to COVID-19 is now primarily local or regional in nature. The State of Idaho and governor's office will continue to monitor statewide COVID-19 activity and work closely with the seven public health districts across the state to ensure the health and safety of Idahoans. Idaho was reporting 25,100 confirmed and probable cases as of August 10, 2020 (Idaho.gov, 2020).

16.2 HAZARD PROFILE

Boise State University has several departments dedicated to public health. In addition to bachelor and master programs in public health, the university has the Department of Environmental Health, Safety and Sustainability (EHHS), whose mission is to strengthen and improve the overall health of individuals, organizations, the environment, and communities using evidence-based teaching, scholarship, and service. Several members of this department have assisted in projects related to the COVID-19 pandemic. University Health Services provides health care to the campus community through a wide range of comprehensive and integrated services to students, faculty, staff and their dependents on campus.

In response to the COVID-19 pandemic, Boise State has created a tracking dashboard for monitoring all COVID-19 cases that affect the campus community. As of August 15, 2020, there were 915 total campus case: 59 faculty or staff; 240 cases residential students; and 616 off-campus students. Cases at that time represented 6.23 percent of the campus' population of 14,696. The campus at that time had 153 beds available for COVID-19 isolation use and a testing center had been established in the Campus School.

16.2.1 Location and Severity

Health hazards that affect the residents of Ada County may arise in a variety of situations, such as during a communicable disease outbreak, after a natural disaster, or as the result of a bioterrorism incident. The relative ease of world-wide travel, in addition to the world's expanding global food industry, ensures that all countries are vulnerable to pandemic events at any time.

16.2.2 Planning Capability

Central District Health (Public Health District IV) is one of seven public health districts in Idaho, serving the counties of Ada, Boise, Elmore, and Valley. The health districts were established in 1970 under Idaho Code to ensure essential public health services are available to protect the health of all citizens of the state. Central District Health's emphasis is on decreasing risk factors for chronic disease, improving quality of life and increasing the years of healthy life among residents. The Central District Health Department has developed and maintains a regional preparedness and response plan for pandemic that covers all of Ada County including Boise State University.

16.3 EXPOSURE AND VULNERABILITY

Anywhere on the Boise State campus where students and staff gather in large numbers is both exposed and vulnerable to the public health hazard. This applies to the entire campus, but especially to residential, athletic, and recreational facilities. For this hazard profile, exposure and vulnerability are viewed the same.

Systems such as social distancing, quarantine, and contact tracing can be put in place to attempt to prevent exposure, but the capability of campus public health departments to deal with a large-scale epidemic is limited due to on-campus health resources. Therefore, the vulnerability of the Boise State campus to public health threats is dynamic.

16.4 SCENARIO

A worst-case scenario for the public health hazard on the Boise State campus would be a health epidemic that affects multiple students and staff, resulting in a shutdown of campus activities for a prolonged period. With the current COVID-19 pandemic affecting the Boise State population (as of August 2020) the campus is currently dealing with such a scenario. As an academic service provider, any hazard that impacts Boise State's ability to provide its academic services is a high impact hazard.

16.5 ISSUES

Important issues associated with the public health hazard include the following:

- Enormous challenges associated with keeping students, faculty, staff, and volunteers safe due to the public health disease such as the coronavirus.
- Understanding the impacts from the transition to virtual learning. How effective is virtual learning over the long-term?
- The following behaviors present issues for high risk:
  - ➢ Irregularly scheduled cleaning and disinfection of frequently touched areas
  - ➢ Students and faculty regularly engaging in in-person learning, activities, and events
  - ➢ Students and faculty sharing some objects
  - ➢ Students, faculty, and staff attending large or small out-of-class social gatherings and events
  - ➢ Students, faculty, and staff dining in indoor dining rooms with or without social distancing
  - ➢ Students, faculty, and staff not following steps such as proper use of face masks, social distancing, hand hygiene to protect themselves and others, and not be required to do so
  - ➢ Use of public buses, campus buses/shuttles or other high occupancy enclosed vehicles with limited ventilation and/or that require students, faculty, or staff to have sustained close contact with others.
- The maintenance of healthy environments on campus even when there are no public health concerns.

17. SEVERE WEATHER

17.1 GENERAL BACKGROUND

Severe weather refers to any dangerous meteorological phenomena with the potential to cause damage, serious social disruption, or loss of human life. The most common severe weather events that impact the planning area are excessive heat events, damaging winds and severe winter weather. These types of severe weather are described in the following sections.

17.1.1 Excessive Heat Events

Excessive heat events are defined by the EPA as "summertime weather that is substantially hotter and/or more humid than average for a location at that time of year" (U.S. EPA, 2006). Heat waves are excessive heat events that typically last two or more days (CDC, 2014). Because extreme heat is relative to the usual weather in a region, criteria that define an extreme heat event may differ among jurisdictions and with the time of year. In general, extreme heat events can be characterized by temperatures greater than 90 °F, warm stagnant air masses and consecutive nights with higher-than-usual minimum temperatures (CDC, 2009).

Heat Index

Extreme heat events are often a result of more than ambient air temperature. Heat index tables (see Figure 17-1) are commonly used to provide information about how hot it feels based on several meteorological conditions. Heat index values are for shady, light wind conditions; exposure to full sunshine can increase heat index values by up to 15 °F. Strong winds with very hot, dry air also can be extremely hazardous (NWS, 2014b).

Heat Islands

Extreme heat events may be exacerbated in urban areas, where reduced air flow, reduced vegetation and increased generation of waste heat can contribute to temperatures that are several degrees higher than in surrounding rural or less urbanized areas. When urban buildings, roads and other infrastructure replace open land and vegetation, surfaces that were once permeable and moist become impermeable and dry. These changes cause urban areas to become warmer than the surrounding areas, serving as contiguous regions of higher temperatures. This phenomenon is known as urban heat island effect. Heat islands can affect communities by increasing peak summer energy demand, air pollution, greenhouse gas emissions, heat-related illness and death, and water quality degradation.

Source: National Weather Service/NOAA

Temperature (°F)

Relative Humidity (%)	80	82	84	86	88	90	92	94	96	98	100	102	104	106	108	110
40	80	81	83	85	88	91	94	97	101	105	109	114	119	124	130	136
45	80	82	84	87	89	93	96	100	104	109	114	119	124	130	137	
50	81	83	85	88	91	95	99	103	108	113	118	124	131	137		
55	81	84	86	89	93	97	101	106	112	117	124	130	137			
60	82	84	88	91	95	100	105	110	116	123	129	137				
65	82	85	89	93	98	103	108	114	121	128	136					
70	83	86	90	95	100	105	112	119	126	134						
75	84	88	92	97	103	109	116	124	132							
80	84	89	94	100	106	113	121	129								
85	85	90	96	102	110	117	126	135								
90	86	91	98	105	113	122	131									
95	86	93	100	108	117	127										
100	87	95	103	112	121	132										

Likelihood of Heat Disorders with Prolonged Exposure or Strenuous Activity

Caution Extreme Caution Danger Extreme Danger

Figure 17-1. Heat Index Chart

17.1.2 Damaging Winds

Damaging winds are classified as those exceeding 60 mph. Damage from such winds accounts for half of all severe weather reports in the lower 48 states. Wind speeds can reach up to 100 mph and can produce a damage path extending for hundreds of miles. Isolated wind events in mountainous regions have more localized effects. Windstorms in Idaho typically occur from October through March (IOEM, 2013). There are seven types of damaging winds:

- **Straight-line winds—**Any thunderstorm wind that is not associated with rotation; this term is used mainly to differentiate from tornado winds. Most thunderstorms produce some straight-line winds as a result of outflow generated by the thunderstorm downdraft.
- **Downdrafts—**A small-scale column of air that rapidly sinks toward the ground.
- **Downbursts—**A strong downdraft with horizontal dimensions larger than 2.5 miles resulting in an outward burst or damaging winds on or near the ground. Downburst winds may begin as a microburst and spread out over a wider area, sometimes producing damage similar to a strong tornado. Although usually associated with thunderstorms, downbursts can occur with showers too weak to produce thunder.
- **Microbursts—**A small, concentrated downburst that produces an outward burst of damaging winds at the surface. Microbursts are generally less than 2.5 miles across and short-lived, lasting only 5 to 10 minutes, with maximum wind speeds up to 168 mph. There are two kinds of microbursts: wet and dry. A wet microburst is accompanied by heavy precipitation at the surface. Dry microbursts, common in places like the high plains and the intermountain west, occur with little or no precipitation reaching the ground.

- **Gust front—**A gust front is the leading edge of rain-cooled air that clashes with warmer thunderstorm inflow. Gust fronts are characterized by a wind shift, temperature drop, and gusty winds out ahead of a thunderstorm. Sometimes the winds push up air above them, forming a shelf cloud or detached roll cloud.
- **Derecho—**A derecho is a widespread thunderstorm wind caused when new thunderstorms form along the leading edge of an outflow boundary (the boundary formed by horizontal spreading of thunderstorm-cooled air). The word "derecho" is of Spanish origin and means "straight ahead." Thunderstorms feed on the boundary and continue to reproduce. Derechos typically occur in summer when complexes of thunderstorms form over plains, producing heavy rain and severe wind. The damaging winds can last a long time and cover a large area.
- **Bow Echo—**A bow echo is a linear wind front bent outward in a bow shape. Damaging straight-line winds often occur near the center of a bow echo. Bow echoes can be 200 miles long, last for several hours, and produce extensive wind damage at the ground.

Windstorms can result in collapsed or damaged buildings, damaged or blocked roads and bridges, damaged traffic signals, streetlights and parks, and other damage. They can also cause direct losses to buildings, people, and vital equipment. There are direct consequences to the local economy resulting from windstorms related to both physical damage and interrupted services.

Wind pressure can create a direct and frontal assault on a structure, pushing walls, doors, and windows inward. Conversely, passing currents can create lift and suction forces that act to pull building components and surfaces outward. As positive and negative forces impact a building's doors, windows and walls, the result can be roof or building component failures and considerable structural damage. The effects of winds are magnified in the upper levels of multi-story structures.

Debris carried along by extreme winds can contribute directly to loss of life and indirectly to the failure of protective building envelopes. Falling trees and branches can damage buildings, power lines, and other property and infrastructure. Tree limbs breaking in winds of only 45 mph can be thrown over 75 feet, so overhead power lines can be damaged even in relatively minor windstorm events. During wet winters, saturated soils cause trees to become less stable and more vulnerable to uprooting from high winds. Utility lines brought down by summer thunderstorms have also been known to cause fires, which start in dry roadside vegetation. Electric power lines falling to the pavement create the possibility of lethal electric shock.

Downed trees and power lines, and damaged property also can be major hindrances to emergency response and disaster recovery. Emergency response operations can be complicated when roads are blocked or when power supplies are interrupted. Industry and commerce can suffer losses from interruptions in electric service and from extended road closures.

17.1.3 Severe Winter Weather

Blizzards and Snowstorms

The National Weather Service defines a winter storm as having significant snowfall, ice and/or freezing rain; the quantity of precipitation varies by elevation. Heavy snowfall is 4 inches or more in a 12-hour period, or 6 inches or more in a 24-hour period in non-mountainous areas; and 12 inches or more in a 12-hour period or 18 inches or more in a 24-hour period in mountainous areas. There are three key ingredients to a severe winter storm:

- **Cold Air**—Below-freezing temperatures in the clouds and near the ground are necessary to make snow and/or ice.

- **Moisture**—Moisture is required in order to form clouds and precipitation. Air blowing across a body of water, such as a large lake or the ocean, is a typical source of moisture.
- **Lift**—Lift is required in order to raise the moist air to form the clouds and cause precipitation. An example of lift is warm air colliding with cold air and being forced to rise over the cold dome. The boundary between the warm and cold air masses is called a front. Another example of lift is air flowing up a mountain side.

Areas most vulnerable to winter storms are those affected by convergence of dry, cold air from the interior of the North American continent and warm, moist air off the Pacific Ocean. When strong storms crossing the Pacific arrive at the coast, if the air is cold enough, snow falls. As the moisture rises into the mountains, heavy snow closes mountain passes and can cause avalanches. Cold air from the north must filter through mountain canyons into basins and valleys to the south. If the cold air is deep enough, it can spill over a mountain ridge. As the air funnels through canyons and over ridges, wind speeds can reach 100 mph. High winds with snow results in a blizzard.

Ice Storms

The National Weather Service defines an ice storm as a storm that results in the accumulation of at least 0.25 inches of ice on exposed surfaces. Ice storms occur when rain falls from a warm, moist, layer of atmosphere into a below freezing, drier layer near the ground. The rain freezes on contact with the cold ground and exposed surfaces, causing damage to trees, utility wires, and structures (see Figure 17-2).

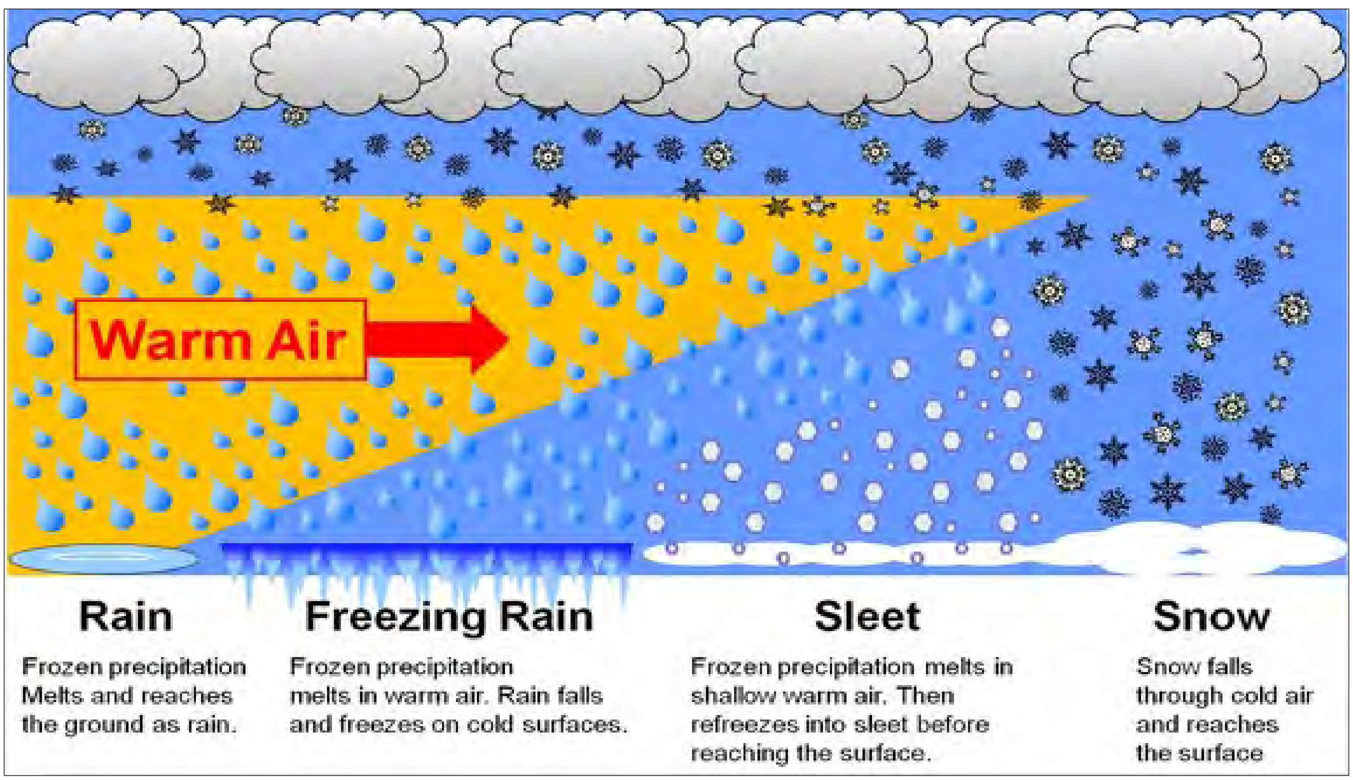


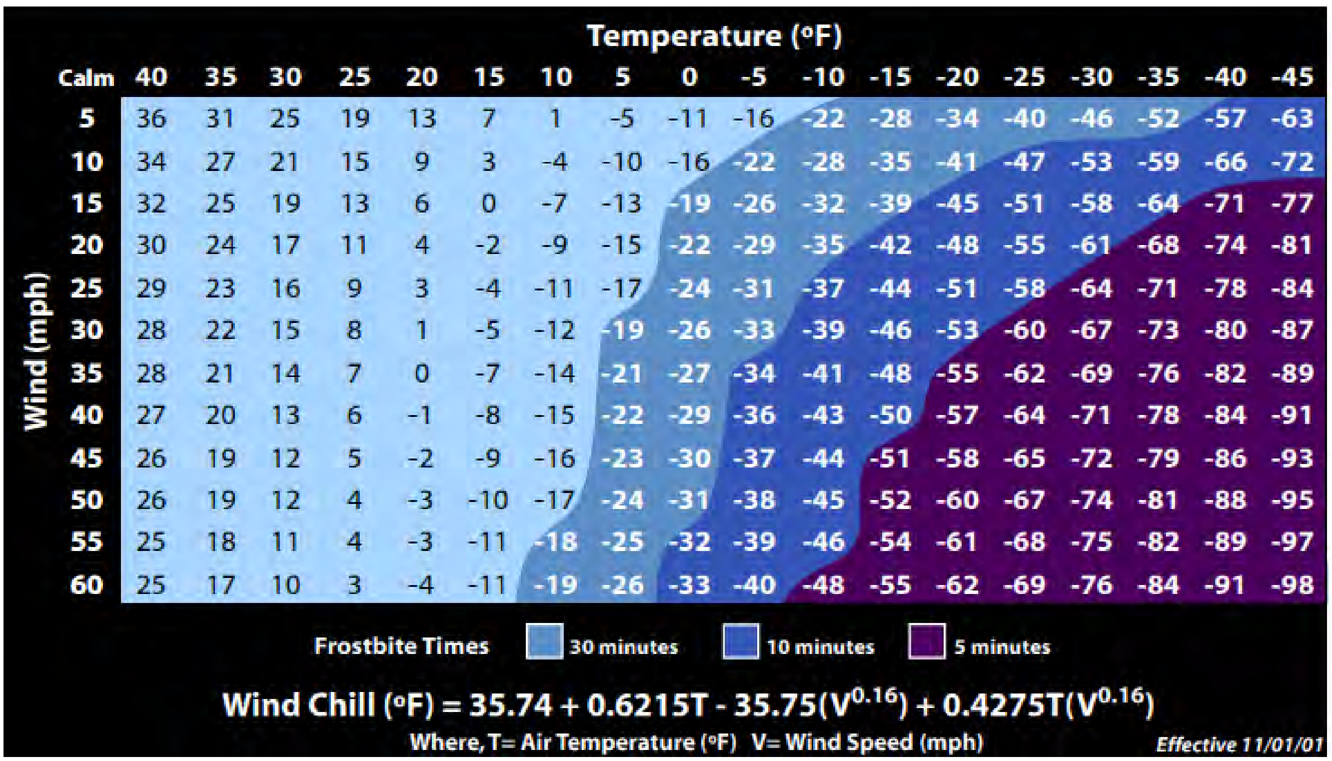
Figure 17-2. The Formation of Different Kinds of Precipitation

Ice accretion generally ranges from a trace to 1 inch. Accumulations between 1/4-inch and 1/2-inch can cause small branch and faulty limb breakage. Accumulations of 1/2-inch to 1 inch can cause significant breakage. Strong winds increase the potential for damage from ice accumulation.

Extreme Cold and Wind Chill

Weather that constitutes extreme cold varies across different parts of the U.S. In regions relatively unaccustomed to winter weather, near freezing temperatures are considered extreme cold (CDC, 2014a). Extreme cold can often accompany severe winter storms. Wind can exacerbate the effects of cold temperatures by carrying heat away from the body more quickly, thus making it feel colder than is indicated by the temperature. This phenomenon is known as wind chill. Wind chill is the temperature that your body feels when the air temperature is combined with wind speed (CDC, 2014a). Figure 17-3 shows the value of wind chill based on ambient temperature and wind speed.

Source: National Weather Service/NOAA



Temperature (°F)

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

Frostbite Times: 30 minutes; 10 minutes; 5 minutes

$$\text{Wind Chill (°F)} = 35.74 + 0.6215T - 35.75(V^{0.16}) + 0.4275T(V^{0.16})$$

Where, T= Air Temperature (°F) V= Wind Speed (mph)

Effective 11/01/01

Figure 17-3. Wind Chill Chart

17.2 HAZARD PROFILE

17.2.1 Past Events

Table 17-1 summarizes severe weather events in Ada County since 1970 as recorded by the National Oceanic and Atmospheric Administration (NOAA).

Table 17-1. Severe Weather Events Impacting Planning Area Since 1970

Date	Type	Deaths or Injuries	Property Damage
4/30/2020	Thunderstorm Wind	0	None reported
A strong low-pressure system swept across the Pacific Northwest initiating severe convection across parts of Southwest Idaho. The automated surface observing system at Boise recorded a wind gust of 61 mph with numerous reports of wind damage across the Treasure Valley.			
8/24/2017	Thunderstorm Wind	0	None Reported
A cold front draped across the Oregon Idaho border combined with hot afternoon temperatures for the development of strong to severe thunderstorms over parts of Southwest Idaho. The Boise airport measured a wind gust of 58 MPH at 6:41 MST.			
3/21/2016	Hail	0	None Reported
An Upper level trough and a strong upper level jet of 110 knots was the focus for severe thunderstorms across parts of Southwest Idaho. A National Weather Service employee reported one-inch hail at Star, Idaho.			
5/26/2015	Hail	0	None reported
Largest hail 1.5 inches and smallest about a penny at the intersection of Floating Feather Road and Pollard Lane. Reported on social media.			
8/10/2015	Thunderstorm Wind	0	None reported
Monsoon moisture moved northward out of Arizona creating conditions for severe convection over Southwest Idaho. A 61 MPH wind gust was recorded at the Boise Automated Surface Observing System and numerous reports of damage were received by the NWS.			
3/17/2014	Thunderstorm Wind	0	None reported
A powerful cold front raced through Southwest and South-Central Idaho on the 17th with numerous reports of damage and power outages. Numerous reports of power outages reported by Idaho Power.			
3/6/2013	Thunderstorm Wind	0	None reported
A trough rotating around a large, cold, upper level low centered off the Oregon coast swept across Southwest Idaho on the afternoon of the 6th. Strong to severe thunderstorms developed along the associated front bringing damaging winds and hail up to three quarters of an inch to the area. A National Weather Service storm survey estimated a 60 to 65 MPH wind gust destroyed an announcer's booth at the Meridian Lions Club rodeo grounds. In addition, four sets of unsecured grandstand bleachers were flipped upside down and rolled over a fence into the middle of the rodeo grounds.			
2/06/2013	Fog/Freezing Rain	1 injury	None reported
Dense fog and a brief period of freezing rain in the Treasure Valley of Southwest Idaho caused numerous accidents throughout the area. Numerous reports of slide offs, roll overs and crashes due to dense fog and freezing rain in the area.			
1/18/2012	Heavy Snow	0	None reported
A major winter storm slammed into the Pacific Northwest and spread heavy snow across parts of Eastern Oregon and Southwest Idaho on the 17th and 18th. Impacts were felt in many of the major population centers including the Boise metro area and along the Interstate 84 corridor. The storm continued in the mountains through the 20th where two to three feet of snow fell over a four-day period. Four to Eight inches of new snow were reported by various sources in the Treasure Valley and nine inches at Mountain Home.			
4/25/2011	Thunderstorm Wind	0	None reported
A strong cold front produced high winds and isolated severe convection leading to significant wind damage to locations in the Treasure Valley of Southwest Idaho on the 25th. KTVB reported wind damage near Rocky Mountain High School in Meridian and around the Kuna area. Hail was covering the ground in the affected areas.			
8/21/2010	Thunderstorm Wind	70 (injuries)	$10,000
A dry cold front moving across Eastern Oregon and Idaho set off a series of mainly dry thunderstorms generating severe outflow winds in the Treasure Valley, including Boise, and the Snake River plain throughout the evening of the 21st. Minor injuries were reported from the Western Idaho Fair as a result of temporary structures collapsing.			
6/4/2010	Thunderstorm Wind	0	$10,000
The Boise Automated Surface Observing Systems measured a wind gust of 59 MPH and NWS employees reported downed trees and fences in Southeast Boise along Surprise Valley Way. Ada County Emergency Manager reported power lines down in Southwest Boise and trees and traffic lights down in Garden City.			
6/29/2006	Thunderstorm Wind	0	$5,000
Very moist air mass combined with a well-defined vortices center and maximum day time heating to produce widespread pulse thunderstorms yielding numerous reports of nickel size hail and wind damage including downed trees and power lines			

Date	Type	Deaths or Injuries	Property Damage
1/30/2004	Thunderstorm Wind	0	$15,000
During the morning of January 30, a fast-moving cold front produced several severe thunderstorms, very strong (in excess of 60 MPH) winds and snow showers as it moved eastward across Eastern Oregon and Southwestern Idaho. Fairly large trees were blown down in Payette in Payette County and in Nampa in Canyon County. There were also reports of trees down in Baker and Malheur counties in Oregon. Power was briefly knocked out in northern Owyhee County as the line of thunderstorms moved across the county.			
1/16/1999	Thunderstorm Wind	0	$5,000
During the morning of January 16, a line of strong rain showers and ice pellet showers produced severe wind gusts near Boise. A spotter reported the roof of a small barn was blown off and a tree was uprooted. A second spotter reported a small outbuilding was blown 50 yards and power lines were downed.			
9/7/1998	Thunderstorm Wind	0	$20,000
Scattered thunderstorms produced heavy rains and isolated wet microbursts in the Boise area. Numerous reports of street flooding were received from around the city. Lightning caused a structure fire in Boise while about 3000 people were without power due to trees falling on power lines. At Shadow Valley on the outskirts of Boise, winds ripped two sections of roof from an elementary school.			
9/6/1998	Thunderstorm Wind	0	$8,000
During the evening of September 6th scattered thunderstorms moved through the Treasure Valley and Boise Mountains with heavy rain and isolated wet microbursts. In and around Boise numerous reports of street flooding were received while in Boise County several small mud slides covered the road between Garden Valley and Lowman. Winds gusted to an estimated 60 to 70 mph at the NWS office in Boise, while numerous reports of trees down were received from around the city. Winds toppled a tree onto a car and caused scattered power outages			
4/23/1998	Thunderstorm/ Wind/Hail	0	$20,000
A severe thunderstorm cut a path of damage from Owyhee Count through the Boise area and into the Boise Mountains. As the storm crossed into Ada County numerous reports of large hail up to golf ball size were received along with damaging winds up to 59 mph. Many trees were blown down and a greenhouse sustained heavy damage from large hail. In Canyon County and Gem County golf ball hail was reported. As the storm moved into Boise County golf ball size hail was reported by spotters in Horseshoe Bend and winds damaged a mobile home. Windblown debris smashed a car window. A wind gust of 74 mph was reported south of Idaho City.			

17.2.2 Location

The three severe weather types of concern for the University—excessive heat, wind, and winter weather—cover broad areas and are not more likely to affect any portion of the planning area. The entire planning area would be equally affected.

17.2.3 Frequency

The severe weather events for Ada County shown in Table 17-1 are often related to high winds associated with winter storms and thunderstorms. The planning area can expect to experience exposure to some type of severe weather event at least annually.

17.2.4 Severity

The most common problems associated with severe storms are immobility and loss of utilities. Fatalities are uncommon but can occur. Power lines may be downed due to high winds or ice accumulation, and services such as water or phone may not be able to operate without power. Physical damage to homes and facilities can be caused by wind or accumulation of snow or ice. Even a small accumulation of snow can cause havoc on transportation systems due to a lack of snow clearing equipment and experienced drivers and the hilly terrain.

Windstorms can be a frequent problem in the planning area and have been known to cause damage to utilities. The predicted wind speed given in wind warnings issued by the National Weather Service is for a one-minute average; gusts may be 25 to 30 percent higher. Lower wind speeds typical in the lower valleys are still high enough to knock down trees and power lines and cause other property damage.

Ice storms accompanied by high winds can have especially destructive impacts, especially on trees, power lines, and utility services. While sleet and hail can create hazards for motorists when they accumulate, freezing rain can cause the most dangerous conditions in the planning area. Ice buildup can bring down trees, communication towers and wires, creating hazards for property owners, motorists and pedestrians. Rain can fall on frozen streets, cars, and other sub-freezing surfaces, creating dangerous conditions.

The severity of an extreme heat event depends on the number of consecutive days it lasts (U.S. EPA, 2006). Urban heat island effect can exacerbate the severity of an extreme heat event. Impacts of an extreme heat event may include increased energy consumption, elevated emissions of air pollutants and greenhouse gases, compromised human health and comfort, and impaired water quality (U.S. EPA, 2015). Extreme heat can also impact infrastructure by warping bridges, causing roads to buckle, and melting runways.

17.2.5 Warning Time

Meteorologists can often predict the likelihood of a severe weather event. This can give several days of warning time. However, meteorologists cannot predict the exact time of onset or severity of such events. Some may come on more quickly and have only a few hours of warning time.

17.3 EXPOSURE

17.3.1 Population and Property

It can be assumed that the entire planning area population and all buildings on campus are exposed to some extent to severe weather events.

17.3.2 Environment

The environment is highly exposed to severe weather. Natural habitats such as streams and trees are exposed to the elements during a severe storm and risk major damage and destruction. Prolonged rains can saturate soils and lead to slope failure. Flooding events caused by severe weather or snowmelt can produce river channel migration or damage riparian habitat.

17.4 VULNERABILITY

17.4.1 Population

Populations vulnerable to severe weather hazards tend to be the elderly, low income or linguistically isolated populations, people with life-threatening illnesses, residents living in areas that are isolated from major roads, and residents who lack proper shelter. Power outages can be life threatening to those dependent on electricity for life support. Isolation of these populations is a significant concern. These populations face isolation and exposure during severe weather events and could suffer more secondary effects of the hazard. Population vulnerabilities to specific types of severe weather event are as follows:

- **Damaging Winds—**Debris carried by extreme winds and trees felled by gusty conditions can contribute directly to loss of life and indirectly to the failure of protective building envelopes. Utility lines brought down by thunderstorms have also been known to cause fires, which start in dry roadside vegetation. Electric power lines falling to the pavement create the possibility of lethal electric shock.
- **Extreme Temperatures—**Individuals with physical or mobility constraints, cognitive impairments, economic constraints, or social isolation are typically at greater risk to the adverse effects of excessive heat events. The average summertime mortality for excessive heat events is dependent upon the methodology used to derive such estimates. Certain medical conditions, such as heat stroke, can be directly attributable to excessive heat, while others may be exacerbated by excessive heat, resulting in medical emergencies. Individuals who lack shelter and heating are particularly vulnerable to extreme cold and wind chill.
- **Severe Winter Weather—**Many of the deaths that result from severe winter weather are indirectly related to the actual weather event, including deaths resulting from traffic accidents on icy roads and heart attacks while shoveling snow. Icy road conditions that lead to major traffic accidents can make it difficult for emergency personnel to travel. This may pose a secondary threat to life if police, fire, and medical personnel cannot respond to calls. Homeless populations that lack adequate shelter are also vulnerable to severe winter weather events.

17.4.2 Property

All property is vulnerable during severe weather events, but properties in poor condition or in particularly vulnerable locations may risk the most damage. Those that are located under or near overhead lines or near large trees may be vulnerable to falling ice or may be damaged in the event of a collapse.

17.4.3 Environment

The vulnerability of the environment to severe weather is the same as the exposure.

17.5 SCENARIO

Severe local storms can occur frequently, and impacts can be significant, particularly when secondary hazards of flood and landslide occur. A worst-case event would involve prolonged high winds during a winter storm accompanied by thunderstorms. Such an event would have both short-term and longer-term effects. Initially, schools and roads would be closed due to power outages caused by high winds and downed tree obstructions. In more rural areas, some subdivisions could experience limited ingress and egress. Prolonged rain could produce flooding, overtopped culverts with ponded water on roads, and landslides on steep slopes. Flooding and landslides could further obstruct roads and bridges, further isolating residents.

17.6 ISSUES

Important issues associated with the severe weather hazard include the following:

- Older building stock in the planning area is built to low code standards or none at all. These structures could be highly vulnerable to severe weather events such as windstorms.
- Redundancy of power supply throughout the planning area must be evaluated to better understand what areas may be vulnerable.

- The capacity for backup power generation is limited.
- Public education on dealing with the impacts of severe weather needs to continue so that the campus community can be better informed and prepared for severe weather events.
- Debris management (downed trees, etc.) must be addressed, because debris can impact the severity of severe weather events, requires coordination efforts, and may require additional funding.
- Street tree management programs should be evaluated to help reduce impacts from tree-related damages.

18. RISK RANKING

Through a facilitated exercise with the Steering Committee, a risk ranking was performed for the hazards of concern described in this plan using the quantitative data from the risk assessment. The Steering Committee was broken up into groups, and each group was asked to use the risk analysis data provided to qualitatively rank risk based on the following definition:

> Risk = Probability x Impact
>
> where impact is the function of the impact of each hazard on the Boise State population, Boise State property, and the continuity of critical University operations

Each group reported its findings, and the entire Steering Committee came to consensus on final rankings for each hazard. The university will use these rankings to target actions that will mitigate impacts from the hazards with the highest impacts on the university. The risk ranking process is described in the following sections.

18.1 PROBABILITY OF OCCURRENCE

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

- High—Hazard event is likely to occur within 25 years (Probability Factor = 3)
- Medium—Hazard event is likely to occur within 100 years (Probability Factor =2)
- Low—Hazard event is not likely to occur within 100 years (Probability Factor =1)
- No exposure—There is no probability of occurrence (Probability Factor = 0)

The assessment of hazard frequency is generally based on past hazard events in the area. Table 18-1 summarizes the probability assessment for each hazard of concern for this plan.

18.2 IMPACT

The impact of each hazard is divided into three categories: impacts on people, impacts on property, and impacts on the University's continuity of operations. These categories are also assigned weighted values. Impact on people was assigned a weighting factor of 3, impact on property was assigned a weighting factor of 2 and impact on the continuity of operations was assigned a weighting factor of 1.

Table 18-1. Probability of Hazards

Hazard Event	Probability (high, medium, low)	Probability Factor
Active Threat	Low	1
Air Quality	High	3
Civil Disturbance	Low	1
Cyberthreats	High	3
Dam Failure	Low	1
Earthquake	Medium	2
Fire	Low	1
Flood	High	3
Hazardous Materials	High	3
Power Outage	High	3
Public Health	High	3
Severe Weather	High	3

Impact factors for each category are as follows:

- **People**—Values are assigned based on the percent of total population on campus exposed to the hazard event. The degree of impact on individuals will vary and is not measurable, 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. Impact factors were assigned as follows:
  - High—25 percent or more of the population is exposed to a hazard (Impact Factor = 3)
  - Medium—10 percent to 24 percent of the population is exposed to a hazard (Impact Factor = 2)
  - Low—9 percent 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**—Values are assigned based on the percent of total assets exposed to the hazard event:
  - High—25 percent or more of the total replacement value of assets is exposed to a hazard (Impact Factor = 3)
  - Medium—10 percent to 24 percent of the total replacement value of assets is exposed to a hazard (Impact Factor = 2)
  - Low—9 percent or less of the total replacement value of assets is exposed to the hazard (Impact Factor = 1)
  - No impact—None of the total replacement value is exposed to a hazard (Impact Factor = 0)
- **Continuity of Operations**—Impact on operations is assessed based on estimates of how long it will take the University to become 100-percent operable after a hazard event. The estimated functional downtime for critical facilities has been subjectively assigned an impact as follows:
  - High—Functional downtime of 14 days or more (Impact Factor = 3)
  - Medium—Functional downtime of 7 to 14 days (Impact Factor = 2)
  - Low—Functional downtime of 7 days or less (Impact Factor = 1)
  - No impact—No functional downtime is estimated from the hazard (Impact Factor = 0).

Table 18-2, Table 18-3 and Table 18-4 summarize the impacts for each hazard.

Table 18-2. Impact on People from Hazards

Hazard Event	Impact (high, medium, low)	Impact Factor	Multiplied by Weighting Factor (3)
Active Threat	Medium	2	2x3=6
Air Quality	High	3	3x3=9
Civil Disturbance	Medium	2	2x3=6
Cyberthreats	High	3	3x3=9
Dam Failure	High	3	3x3=9
Earthquake	High	3	3x3=9
Fire	None	0	0x3=0
Flood	High	3	3x3=9
Hazardous Materials	Low	1	1x3=3
Power Outage	High	3	3x3=9
Public Health	High	3	3x3=9
Severe Weather	High	3	3x3=9

Table 18-3. Impact on Property from Hazards

Hazard Event	Impact (high, medium, low)	Impact Factor	Multiplied by Weighting Factor (2)
Active Threat	Low	1	1x2=2
Air Quality	Low	1	1x2=2
Civil Disturbance	Low	1	1x2=2
Cyberthreats	Medium/High	2.5	2.5x2=5
Dam Failure	High	3	3x2=6
Earthquake	Medium	2	2x2=4
Fire	None	0	0x2=0
Flood	Medium	2	2x2=4
Hazardous Materials	Low	1	1x2=2
Power Outage	Medium	2	2x2=4
Public Health	None	0	0x2=0
Severe Weather	Low	1	1x2=2

Table 18-4. Impact on Economy from Hazards

Hazard Event	Impact (high, medium, low)	Impact Factor	Multiplied by Weighting Factor (3)
Active Threat	Low	1	1x1=1
Air Quality	Low	1	1x1=1
Civil Disturbance	Low	1	1x1=1
Cyberthreats	High	3	3x1=3
Dam Failure	High	3	3x1=3
Earthquake	High	3	3x1=3
Fire	Low	1	1x1=1
Flood	Medium	2	2x1=2
Hazardous Materials	Low	1	1x1=1
Power Outage	Low	1	1x1=1
Public Health	High	3	3x1=3
Severe Weather	Low	1	1x1=1

18.3 RISK RATING AND RANKING

The risk rating for each hazard was determined by multiplying the probability factor by the sum of the weighted impact factors for people, property, and operations, as summarized in Table 18-5.

Table 18-5. Hazard Risk Rating

Hazard Event	Probability Factor	Sum of Weighted Impact Factors	Total (Probability x Impact)
Active Threat	1	6+2+1=9	1x9=9
Air Quality	3	9+2+1=12	3x12=36
Civil Disturbance	1	6+2+1=9	1x9=9
Cyberthreats	3	9+5+3=17	3x17=51
Dam Failure	1	9+6+3=18	1x18=18
Earthquake	2	9+4+3=16	2x16=32
Fire	3	0+0+1=1	3x1=3
Flood	3	9+4+2=15	3x15=45
Hazardous Materials	3	3+2+1=6	3x6=18
Power Outage	3	9+4+1=14	3x14=42
Public Health	3	9+0+3=12	3x12=36
Severe Weather	3	9+2+1=12	3x12=36

Based on these ratings, a priority of high, medium or low was assigned to each hazard. Table 18-6 shows the hazard risk categories and ranking.

Table 18-6. Hazard Risk Ranking

Hazard Ranking	Hazard Event	Category
1	Cyberthreats	High
2	Flood	High
3	Power Outage	High
5	Air Quality	High
5	Public Health	High
5	Severe Weather	High
6	Earthquake	High
7	Dam Failure	Medium
7	Hazardous Materials	Medium
8	Active Threat	Low
8	Civil Disturbance	Low
9	Fire	Low

Part 3. Mitigation Plan

19. MISSION, GOALS AND OBJECTIVES

Hazard mitigation plans must identify goals for reducing long-term vulnerabilities to identified hazards (44 CFR Section 201.6.c(3i)). Boise State's mitigation strategy is to establish a mission/vision statement, goals and objectives, and then identify action items within the framework of the goals to reduce the effects of hazards and threats on the campus community, property, and existing infrastructure in a cost effective and technically feasible manner. These planning components were determined throughout the mitigation planning process and based on campus responses in the last five years. The mission, goals and objectives provide direction and the framework to guide the university in choosing actions that will reduce future hazard and threat related losses.

19.1 MISSION/VISION STATEMENT

Through a collaborative process during its May 10, 2019, meeting, the Steering Committee identified the following mission/vision statement to direct the goal setting for this plan:

> To increase our resilience to hazards in order to protect health safety and welfare and continuity of operations for the Boise State community

19.2 GOALS

The following are the mitigation goals for this plan:

- Goal 1: Protect health and safety of the campus community (students, faculty, staff and visitors)
- Goal 2: Reduce future losses from hazard events
- Goal 3: Ensure continuity of operations
- Goal 4: Increase awareness of hazard/threat mitigation, preparedness, response and recovery

Achievement of these goals defines the effectiveness of a mitigation strategy.

19.3 OBJECTIVES

Each selected objective meets multiple goals, serving as a stand-alone measurement of the effectiveness of a mitigation action, rather than as a subset of a goal. The objectives also are used to help establish priorities. The objectives are as follows:

9. Take proactive steps to prevent loss of life, serious injury and/or property damage.
10. Improve warning systems and ability to communicate to the campus community during and following a disaster or emergency.

11. Provide protection for existing structures, future development, services, utilities, and grounds to the maximum extent possible.
12. Develop hazard-specific plans, conduct studies or assessments, and retrofit facilities to mitigate for hazards and minimize their impact.
13. Prevent damage to campus critical facilities.
14. Protect IT and other campus critical infrastructure.
15. Develop and provide information to students, faculty, and staff about the types of hazards they are vulnerable to, what the impact could be, where the University is at risk, and what they can do to be better prepared.
16. Minimize the impact of hazard events by incorporating hazard mitigation and adaptation into other existing planning endeavors.

20. RECOMMENDED MITIGATION ACTIONS

20.1 SELECTED MITIGATION ACTIONS

The Steering Committee identified actions that could be implemented to provide hazard mitigation benefits. Table 20-1 lists the recommended actions.

20.2 BENEFIT/COST REVIEW

44 CFR requires the prioritization of the action plan according to a benefit/cost analysis (Section 201.6.c.3iii). Because some projects may not be implemented for up to 10 years, and associated costs and benefits could change dramatically in that time, the benefit/cost analysis for this plan was not of the detail required for eligibility under the Hazard Mitigation Grant Program (HMGP) or Pre-Disaster Mitigation (PDM) grant program. Instead, parameters were established for assigning subjective ratings (high, medium and low) to costs and benefits:

- Cost ratings were defined as follows:
  - **High**—There is no source of existing funding that will cover the cost of the project; implementation would require new revenue through an alternative source (for example, 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.
- Benefit ratings were 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.

Using this approach, projects with positive benefit versus cost ratios (such as high over high, high over medium, medium over low, etc.) are considered cost-beneficial and are prioritized accordingly. For many of the strategies identified in this action plan, the may seek financial assistance under the HMGP or PDM 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 University reserves the right to define “benefits” according to parameters that meet the goals and objectives of this plan.

Findings of the qualitative benefit-cost analysis are included in Table 20-2.

Table 20-1. Action Plan

<table>
<tr><th>Applies to New or Existing Assets</th><th>Objectives Met</th><th>Lead Agency[a]</th><th>Support Agency[a]</th><th>Estimated Cost</th><th>Sources of Funding[b]</th><th>Timeline[c]</th></tr>
<tr><td colspan="7">Action-01: Identify and construct safe rooms and or evacuation sanctuaries in appropriate buildings throughout the campus</td></tr>
<tr><td>Hazards Mitigated:</td><td colspan="6">Active threat, Civil disturbance, Dam failure, Earthquake, Fire, Flood, Hazardous materials, Power outage, Severe weather</td></tr>
<tr><td>Existing</td><td>1, 2, 7</td><td>FO&M</td><td>DPS, CPF, AES</td><td>High</td><td>FEMA, BRIC, EMPG, Boise State Funds</td><td>Short Term</td></tr>
<tr><td colspan="7">Action-02: Retrofit all campus classrooms and office spaces with inside locks or secure access (card readers) devices to provide secure shelter-in-place refuges</td></tr>
<tr><td>Hazards Mitigated:</td><td colspan="6">Active threat, Civil disturbance</td></tr>
<tr><td>Existing</td><td>1, 2, 7</td><td>FO&M</td><td>DPS, CPF, AES</td><td>Medium</td><td>FEMA, BRIC, EMPG, HSGP, Boise State Funds</td><td>Short Term</td></tr>
<tr><td colspan="7">Action-03: Develop student/employee disaster kits for use during emergencies on campus</td></tr>
<tr><td>Hazards Mitigated:</td><td colspan="6">Active threat, Air quality, Civil disturbance, Cyberthreats, Dam failure, Earthquake, Fire, Flood, Hazardous materials, Power outage, Public heath, Severe weather</td></tr>
<tr><td>N/A</td><td>1, 2, 7</td><td>OEM</td><td>EHSS, FO&M</td><td>Medium</td><td>Boise State Funds</td><td>Short Term</td></tr>
<tr><td colspan="7">Action-04: Continue to improve camera surveillance system to include all campus areas, including key external and internal building areas</td></tr>
<tr><td>Hazards Mitigated:</td><td colspan="6">Active threat, Civil disturbance</td></tr>
<tr><td>New and Existing</td><td>2, 3, 4, 5, 6</td><td>DPS</td><td>FO&M, CPF, AES</td><td>Medium</td><td>EMPG, HSGP, Boise State Funds</td><td>Short Term</td></tr>
<tr><td colspan="7">Action-05: Replace aging campus radio trunk system to ensure communications interoperability during disasters on campus</td></tr>
<tr><td>Hazards Mitigated:</td><td colspan="6">Active threat, Air quality, Civil disturbance, Cyberthreats, Dam failure, Earthquake, Fire, Flood, Hazardous materials, Power outage, Public heath, Severe weather</td></tr>
<tr><td>Existing</td><td>1, 2</td><td>FO&M</td><td>DPS, CPF, AES</td><td>High</td><td>FEMA, BRIC, EMPG, HSGP, Boise State Funds</td><td>Short Term</td></tr>
<tr><td colspan="7">Action-06: Enhance building access systems with the integration of cameras, alarms, and motion sensors to enhance building security.</td></tr>
<tr><td>Hazards Mitigated:</td><td colspan="6">Active threat, Civil disturbance, Cyberthreats, Fire</td></tr>
<tr><td>Existing</td><td>2, 3, 4, 5, 6</td><td>DPS</td><td>FO&M, CPF, AES</td><td>High</td><td>EMPG, HSGP, Boise State Funds</td><td>Short Term</td></tr>
<tr><td colspan="7">Action-07: Build up the emergency notification system to include redundant communications and improve efficient distribution during emergencies on campus. Expand capability to include:
Reader boards inside buildings
Voice notification systems
Outside ‘big-voice” system to replace the retired Carillon that covers the entire campus property footprint
Computer alerts and banners
Classroom alert signs</td></tr>
<tr><td>Hazards Mitigated:</td><td colspan="6">Active threat, Air quality, Civil disturbance, Cyberthreats, Dam failure, Earthquake, Fire, Flood, Hazardous materials, Power outage, Public heath, Severe weather</td></tr>
<tr><td>New and Existing</td><td>1, 2</td><td>FO&M</td><td>AES, CPF, EHSS, OEM, DPS, OIT</td><td>High</td><td>EMPG, HSGP, Boise State Funds</td><td>Short Term</td></tr>
<tr><td colspan="7">Action-08: Conduct a comprehensive analysis of underground utility infrastructure (fiber, electric, steam, storm water, cable, etc.) to identify vulnerabilities due to expansion of the university, climate change, and increased frequency of severe weather events; and recommend mitigation actions to protect.</td></tr>
<tr><td>Hazards Mitigated:</td><td colspan="6">Civil disturbance, Cyberthreats, Dam failure, Earthquake, Fire, Flood, Severe weather</td></tr>
<tr><td>Existing</td><td>1, 3, 4, 5, 6</td><td>AES</td><td>CPF, EHSS, OIT</td><td>High</td><td>FEMA HMA (BRIC, FMA, HMGP), Boise State Funds</td><td>Short Term</td></tr>
</table>

Applies to New or Existing Assets	Objectives Met	Lead Agency[a]	Support Agency[a]	Estimated Cost	Sources of Funding[b]	Timeline[c]
Action-09: Flood-proof identified facilities on campus vulnerable to flood and/or dam failure risk as possible to reduce future flood damage						
Hazards Mitigated: Flood, Dam Failure, Severe Weather						
Existing	1, 3, 4, 5	AES	EHSS, CPF, FO&M	High	FEMA HMA (BRIC, FMA, HMGP), Boise State Funds	Long Term
Action-10: Improve drainage throughout campus to avoid nuisance flooding in older campus buildings, streets and parking lots by installing drainage conveyance facilities where there are none and/or enhancing existing conveyance facilities.						
Hazards Mitigated: Flood, Dam Failure, Severe Weather						
New and Existing	1, 3, 4, 5	AES	EHSS, CPF, FO&M, DPS-Trans	High	FEMA HMA (BRIC, FMA, HMGP), Boise State Funds	Long Term
Action-11: Develop and implement a vegetation management policy to ensure maintenance of open space around all buildings on campus						
Hazards Mitigated: Air Quality, Fire, Severe Weather						
New and Existing	1, 3, 5, 8	FO&M	DPS, AES, CPF	Low	Boise State Funds under existing programs	Short Term, Ongoing
Action-12: Acquire a generator with the capability to fully power the Student Union Building and possibly Sawtooth/Honors College during major incidents to allow these buildings to be used as shelters for warming, feeding and sleeping						
Hazards Mitigated: Active threat, Air quality, Civil disturbance, Cyberthreats, Dam failure, Earthquake, Fire, Flood, Hazardous materials, Power outage, Public heath, Severe weather						
Existing	1, 4, 5, 8	AES	CPF, FO&M, H&RL	High	FEMA HMA (BRIC, FMA, HMGP), Boise State Funds	Short Term
Action-13: Acquire generators to provide continuous HVAC for all campus-owned residence halls and apartments						
Hazards Mitigated: Active threat, Air quality, Civil disturbance, Cyberthreats, Dam failure, Earthquake, Fire, Flood, Hazardous materials, Power outage, Public heath, Severe weather						
Existing	1, 4, 5, 8	AES	CPF, FO&M, H&RL	High	FEMA HMA (BRIC, FMA, HMGP), Boise State Funds	Short Term
Action-14: Acquire generators for academic and operations support buildings to continue operations during extended power outages						
Hazards Mitigated: Active threat, Air quality, Civil disturbance, Cyberthreats, Dam failure, Earthquake, Fire, Flood, Hazardous materials, Power outage, Public heath, Severe weather						
Existing	1, 4, 5, 8	AES	CPF, FO&M, H&RL	High	FEMA HMA (BRIC, FMA, HMGP), Boise State Funds	Short Term
Action-15: Continue to define/refine building design guidelines that provide the maximum, affordable safety standards for all new buildings and renovation projects						
Hazards Mitigated Active threat, Air quality, Civil disturbance, Cyberthreats, Dam failure, Earthquake, Fire, Flood, Hazardous materials, Power outage, Public heath, Severe weather						
New	1, 3, 4, 5, 6, 8	AES	FO&M, CPF, DPS	Medium	FEMA (BRIC, C&CB), Boise State Funds	Short Term, Ongoing
Action-16: Develop and maintain an enterprise system using GIS, CAD or other appropriate technologies, including existing Hazus models/applications, with the goal of providing a common platform to support planning, preparedness and mitigation activities for all campus managers						
Hazards Mitigated Active threat, Air quality, Civil disturbance, Cyberthreats, Dam failure, Earthquake, Fire, Flood, Hazardous materials, Power outage, Public heath, Severe weather						
New and Existing	1, 2, 3, 4, 5, 6, 7, 8	CPF	AES, EHSS, DPS, OIT	Medium	Boise State Funds under existing programs	Short Term, Ongoing

Applies to New or Existing Assets	Objectives Met	Lead Agency[a]	Support Agency[a]	Estimated Cost	Sources of Funding[b]	Timeline[c]
Action-17: Update, maintain and improve detailed inventories/information regarding hazardous chemicals, biological and radiological agents, animals, and critical works of art and cultural treasures						
Hazards Mitigated	Hazardous Materials, Civil Disturbance					
Existing	2, 4, 8	EHSS	Academic Affairs	Medium	Boise State Funds under existing programs	Short Term,
Action-18: Update the Emergency Operations Plan annually and provide to the Emergency Policy Group and Incident Management Team for review.						
Hazards Mitigated	Active threat, Air quality, Civil disturbance, Cyberthreats, Dam failure, Earthquake, Fire, Flood, Hazardous materials, Power outage, Public heath, Severe weather					
New and Existing	1, 2, 4, 8	OEM	EHSS, DPS, FO&M, Academic Affairs, Student Affairs, Finance/Admin	Medium	EMPG, HSGP, Boise State Funds under existing programs	Short Term, Ongoing
Action-19: Develop student/faculty disaster supply stockpiles for use during incidents on campus.						
Hazards Mitigated	Active threat, Air quality, Civil disturbance, Cyberthreats, Dam failure, Earthquake, Fire, Flood, Hazardous materials, Power outage, Public heath, Severe weather					
N/A	1, 2, 7	OEM	DPS, FO&M, EHSS	Medium	EMPG, HSGP, Boise State Funds under existing programs	Short Term, Ongoing
Action-20: Continue to expand/refine continuity plans for all academic, research, and support operations on campus to minimize downtime following a disaster impacting campus						
Hazards Mitigated	Active threat, Air quality, Civil disturbance, Cyberthreats, Dam failure, Earthquake, Fire, Flood, Hazardous materials, Power outage, Public heath, Severe weather					
New and Existing	1, 2, 4, 8	OEM	N/A	Low	Boise State Funds under existing programs	Short Term, Ongoing
Action-21: Develop memorandums of agreement with all external agencies necessary for aid before, during and after a disaster						
Hazards Mitigated	Active threat, Air quality, Civil disturbance, Cyberthreats, Dam failure, Earthquake, Fire, Flood, Hazardous materials, Power outage, Public heath, Severe weather					
N/A	1, 2, 7	OEM	N/A	Low	Boise State Funds under existing programs	Short Term, Ongoing
Action-22: Build a new, efficient, environmentally friendly Central Power Plant to provide electricity, steam, hot water, and chilled water for the main campus to increase the sustainability and continuity of campus operations impacted by loss of power.						
Hazards Mitigated	Active threat, Air quality, Civil disturbance, Cyberthreats, Dam failure, Earthquake, Fire, Flood, Hazardous materials, Power outage, Public heath, Severe weather					
New	1, 3, 5, 6, 8	AES	CPF, FO&M	High	FEMA (BRIC), Department of Energy Grants, Boise State Funding	Long Term
Action-23: Evaluate utility loops and redundancies in the campus electrical grid and continue to look into opportunities for alternate power						
Hazards Mitigated	Power Outage					
New and Existing	1, 3, 4, 5, 6, 8	AES	CPF, FO&M	Medium	FEMA (BRIC, C&CB), Department of Energy Grants, Boise State Funding	Short Term
Action-24: Investigate current vulnerability of existing OIT servers and generators and assess possibility of moving them to non-vulnerable locations (i.e. self-contained mobile data centers)						
Hazards Mitigated	Cyberthreats, Dam failure, Fire, Flood, Power outage, Severe weather					
Existing	1, 3, 4, 5, 6	OIT	AES, CPF, FO&M	High	FEMA HMA (BRIC, FMA, HMGP), Boise State Funds	Long Term

Applies to New or Existing Assets	Objectives Met	Lead Agency[a]	Support Agency[a]	Estimated Cost	Sources of Funding[b]	Timeline[c]
Action-25: Install additional UPS units throughout all campus server rooms to preclude power disruptions to the campus alarm systems.						
Hazards Mitigated	Cyberthreats, Dam failure, Earthquake, Fire, Flood, Power outage, Severe weather					
Existing	1, 3, 4, 5, 6	OIT	DPS, FO&M, CPF, AES	High	FEMA HMA (BRIC, FMA, HMGP), Boise State Funds	Long Term
Action-26: Continue to provide targeted/workplace violence awareness academics to all faculty, students and staff to raise preparedness on campus						
Hazards Mitigated	Active Threat, Civil Disturbance					
N/A	1, 7	DPS	BPD	Low	Boise State Funds under existing programs	Short Term, Ongoing
Action-27: Provide community outreach and education regarding hazards on campus during orientation, move-in, safety fairs and additional displays						
Hazards Mitigated	Active threat, Air quality, Civil disturbance, Cyberthreats, Dam failure, Earthquake, Fire, Flood, Hazardous materials, Power outage, Public heath, Severe weather					
N/A	1, 7	EHSS	OEM, DPS, BPD	Low	Boise State Funds under existing programs	Short Term, Ongoing
Action-28: Promote the development, and refinement of Emergency Action Plans for all departments and buildings on campus						
Hazards Mitigated	Active threat, Air quality, Civil disturbance, Cyberthreats, Dam failure, Earthquake, Fire, Flood, Hazardous materials, Power outage, Public heath, Severe weather					
N/A	1, 2, 4, 8	EHSS	DPS, OEM	Low	EMPG, HSGP, Boise State Funds under existing programs	Short Term, Ongoing
Action-29: Educate and train campus leaders about natural hazard vulnerability and assure comprehensive understanding of preparedness, response, mitigation, and recovery actions among key decision-makers (Emergency Policy Group/Incident Management Team)						
Hazards Mitigated	Active threat, Air quality, Civil disturbance, Cyberthreats, Dam failure, Earthquake, Fire, Flood, Hazardous materials, Power outage, Public heath, Severe weather					
Existing	1, 2, 4, 8	OEM	EHSS, DPS	Low	Boise State Funds under existing programs	Short Term, Ongoing
Action-30: Create an educational program to inform the campus community of risks that is continuous and provides sources of information on how to mitigate the impact of these risks and respond if something does occur.						
Hazards Mitigated	Active threat, Air quality, Civil disturbance, Cyberthreats, Dam failure, Earthquake, Fire, Flood, Hazardous materials, Power outage, Public heath, Severe weather					
N/A	1, 7	OEM	EHSS, DPS	Low	Boise State Funds under existing programs	Short Term, Ongoing
Action-31: Continue to define/refine building design guidelines that provide the minimum safety standards for all new buildings and renovation projects.						
Hazards Mitigated	Active threat, Air quality, Civil disturbance, Cyberthreats, Dam failure, Earthquake, Fire, Flood, Hazardous materials, Power outage, Public heath, Severe weather					
N/A	1, 7	AES	CPF, EHSS, DPS, OIT	Low	FEMA (BRIC, C&CB), Boise State Funds under existing programs	Short Term, Ongoing
Action-32: Develop/design specific mitigation projects plans with identified funding sources to add to this action plan through plan maintenance.						
Hazards Mitigated	Active threat, Air quality, Civil disturbance, Cyberthreats, Dam failure, Earthquake, Fire, Flood, Hazardous materials, Power outage, Public heath, Severe weather					
New and Existing	1, 4, 8	AES	CPF, EHSS, DPS, OIT	Low	Boise State Funds under existing programs	Short Term, Ongoing

Applies to New or Existing Assets	Objectives Met	Lead Agency[a]	Support Agency[a]	Estimated Cost	Sources of Funding[b]	Timeline[c]
Action-33: Ensure that infrastructure- and/or facility-based hazard mitigation and resiliency projects are considered and accurately reflected on the Campus Master Plan.						
Hazards Mitigated	Active threat, Air quality, Civil disturbance, Cyberthreats, Dam failure, Earthquake, Fire, Flood, Hazardous materials, Power outage, Public heath, Severe weather					
New	1, 4, 8	CPSM	AES, EHSS, DPS, FO&M	Low	Boise State Funds under existing programs	Short Term, Ongoing
Action-34: Conduct a campus assessment of areas vulnerable to vehicle-ramming incidents. Assessment can then inform areas where physical protection is most needed.						
Hazards Mitigated	Civil Disturbance					
Existing	1, 2, 7	DPS	AES, CPSM, EHSS	Medium	Boise State Funds under existing programs	Short Term, Ongoing
Action-35: Replace critical roofs that are nearing end-of-warranty or are prone to damage from major weather events.						
Hazards Mitigated	Fire, Severe weather					
Existing	1, 3, 4, 5	FO&M	AES	Medium	Boise State Funds under existing programs	Short Term, Ongoing
Action-36: Conduct a comprehensive, campus-wide facility condition assessment. Data will inform buildings with greatest infrastructure needs, often those that weaken the University's ability to mitigate hazards and improve resiliency. Effort should entail commitments for a long-term data integrity plan.						
Hazards Mitigated	Active threat, Air quality, Dam failure, Earthquake, Fire, Flood, Hazardous materials, Power outage, Severe weather					
Existing	1, 3, 4, 5, 6	CPF	N/A	High	FEMA (BRIC, C&CB), Boise State Funds under existing programs	Short term
Action-37: Research water sustainability and reuse facilities that relieve Boise State's reliance on outside vendors and sources.						
Hazards Mitigated	Overall Campus resilience					
New and Existing	1, 3, 4, 5, 6	CPF	N/A	Low	Boise State Funds under existing programs	Short Term, Ongoing

a. Agency Names: AES = Architectural, Engineering Services; BPD= Boise Police Department; CPF = Campus Planning and Facilities; CPSM = Capital Planning and Space Management; DPS = Department of Public Safety; EHSS = Environmental Health, Safety and Sustainability; FO&M = Facilities, Operations & Maintenance; H&RL = Housing and Residence Life; OEM = Office of Emergency Management; OIT = Office of Information Technology

b. Funding Sources: BRIC = Building Resilient Infrastructures and Communities grant program; C&CB = Capability and Capacity Building; EMPG = Emergency Management Performance Grant; FMA = Flood Mitigation Assistance; HMA = Hazard Mitigation Assistance Programs; HMGP = Hazard Mitigation Grant Program; HSGP = Homeland Security Grant Program

c. Timeline: Short Term = to be completed in 1 to 5 years; Long Term = to be completed in greater than 5 years; Ongoing = currently being funded and implemented under existing programs.

Table 20-2. Benefit-Cost Analysis and Prioritization of Mitigation Actions

Action #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	Can Project Be Funded Under Existing Programs/ Budgets?	Implementation Priority	Grant Pursuit Priority
Action-1	3	High	High	Yes	Yes	No	Medium	High
Action-2	3	High	Medium	Yes	Yes	Yes	High	Medium
Action-3	3	Medium	Medium	Yes	No	Yes	High	N/A
Action-4	5	High	Medium	Yes	Yes	Yes	High	Medium
Action-5	2	High	High	Yes	Yes	No	Medium	High
Action-6	5	High	High	Yes	Yes	No	Medium	High
Action-7	2	High	High	Yes	Yes	No	Medium	High
Action-8	5	High	High	Yes	Yes	No	Medium	High
Action-9	4	High	High	Yes	Yes	No	Medium	High
Action-10	4	High	High	Yes	Yes	No	Medium	High
Action-11	4	Medium	Low	Yes	No	Yes	High	N/A
Action-12	4	High	High	Yes	Yes	No	Medium	High
Action-13	4	High	High	Yes	Yes	No	Medium	High
Action-14	4	High	High	Yes	Yes	No	Medium	High
Action-15	6	Medium	Medium	Yes	Yes	Yes	High	Medium
Action-16	8	Medium	Medium	Yes	No	Yes	High	N/A
Action-17	3	Medium	Medium	Yes	No	Yes	High	N/A
Action-18	4	Medium	Medium	Yes	Yes	Yes	High	Medium
Action-19	3	High	Medium	Yes	Yes	Yes	High	Medium
Action-20	4	Medium	Medium	Yes	No	Yes	High	N/A
Action-21	3	Medium	Medium	Yes	No	Yes	High	N/A
Action-22	5	High	High	Yes	Yes	No	Medium	Medium
Action-23	6	Medium	Medium	Yes	Yes	Yes	High	Medium
Action-24	5	High	High	Yes	Yes	No	Medium	High
Action-25	5	High	High	Yes	Yes	No	Medium	High
Action-26	2	Medium	Low	Yes	No	Yes	High	N/A
Action-27	2	Medium	Low	Yes	No	Yes	High	N/A
Action-28	4	Medium	Low	Yes	Yes	Yes	High	Medium
Action-29	4	Medium	Low	Yes	No	Yes	High	N/A
Action-30	2	Medium	Low	Yes	No	Yes	High	N/A
Action-31	2	Medium	Low	Yes	Yes	Yes	High	Medium
Action-32	3	Medium	Low	Yes	No	Yes	High	N/A
Action-33	3	Medium	Low	Yes	No	Yes	High	N/A
Action-34	3	Medium	Low	Yes	No	Yes	High	N/A
Action-35	4	Medium	Medium	Yes	No	Yes	High	N/A
Action-36	5	High	High	Yes	Yes	No	Medium	High
Action-37	5	Medium	Low	Yes	No	Yes	High	NA

20.3 ACTION PLAN PRIORITIZATION

Two priorities were identified for each recommended action:

- Implementation Priority
  - **High Priority**—A project that meets multiple objectives (i.e., multiple hazards), has benefits that exceed cost, has funding secured or is an ongoing project and meets eligibility requirements for the HMGP or PDM grant program. High priority projects can be completed in the short term (1 to 5 years).
  - **Medium Priority**—A project that meets goals and objectives, that has benefits that exceed costs, and for which funding has not been secured but that is grant eligible under HMGP, PDM or other grant programs. 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 Priority**—A project that will mitigate the risk of a hazard, that 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 PDM grant funding, and for which the time line for completion is long term (1 to 10 years). Low priority projects may be eligible for other sources of grant funding from other programs.
- Grant Pursuit Priority
  - **High Priority**—An action that meets identified grant eligibility requirements, has high benefits, and is listed as high or medium implementation priority; local funding options are unavailable or available local funds could be used instead for actions that are not eligible for grant funding.
  - **Medium Priority**—An action that meets identified grant eligibility requirements, has medium or low benefits, and is listed as medium or low implementation priority; local funding options are unavailable.
  - **Low Priority**—An action that has not been identified as meeting any grant eligibility requirements.

If the implementation priority for an action is low due to lack of available funding and that action has been determined to be grant eligible, then the grant pursuit priority will be upgraded to high. Table 20-2 lists priorities for each action.

20.4 CLASSIFICATION OF MITIGATION ACTIONS

To illustrate the range of mitigation alternatives considered to address each hazard assessed in this plan, each recommended action was classified based on the hazard it addresses and the type of mitigation it involves (in compliance with 44 CFR Section 201.6.c.3.ii). Table 20-3 shows these classifications. Mitigation types used for this categorization are as follows:

- **Prevention**—Government, administrative or regulatory actions that influence the way land and buildings are developed to reduce hazard losses. Includes planning and zoning, floodplain laws, capital improvement programs, open space preservation, and stormwater management regulations.
- **Property Protection**—Modification of buildings or structures to protect them from a hazard or removal of structures from a hazard area. Includes acquisition, elevation, relocation, structural retrofit, storm shutters, and shatter-resistant glass.
- **Public Education and Awareness**—Actions to inform residents and elected officials about hazards and ways to mitigate them. Includes outreach projects, real estate disclosure, hazard information centers, and school-age and adult education.

Table 20-3. Analysis of Mitigation Actions

Hazard Type	Action Addressing Hazard, by Mitigation Type							
	Prevention	Property Protection	Public Education & Awareness	Natural Resource Protection	Emergency Services	Structural Projects	Climate Resiliency	Community Capacity Building
High-Risk Hazards								
Cyber	8, 15, 16, 24, 31, 32, 33	5	27, 29, 30		3, 7, 12, 13, 14, 18, 19, 20, 25, 28		22	3, 7, 8, 12, 13, 14, 15, 16, 22, 24, 27, 28, 29, 30, 31, 33, 37
Flood	1, 8, 15, 16, 24, 31, 32, 33	5, 9	27, 29, 30		1, 3, 7, 12, 13, 14, 18, 19, 20, 21, 25, 28	10	22	1, 3, 7, 8, 12, 13, 14, 15, 16, 22, 24, 27, 28, 29, 30, 31, 33, 37
Power Outage	15, 16, 23, 24, 31, 32, 33	5, 36	27, 29, 30		3, 7, 12, 13, 14, 18, 19, 20, 21, 25, 28		22	3, 7, 12, 13, 14, 15, 16, 22, 23, 27, 28, 29, 30, 31, 33, 37
Air Quality	11, 15, 16, 31, 32, 33	5, 36	27, 29, 30	11	3, 7, 12, 13, 14, 18, 19, 20, 21, 28		11, 22	3, 7, 12, 13, 14, 15, 16, 22, 27, 28, 29, 30, 31, 33, 37
Public Health	15, 16, 31, 32, 33	5, 36	27, 29, 30		3, 7, 12, 13, 14, 18, 19, 20, 21, 28		22	3, 7, 12, 13, 14, 15, 16, 22, 27, 28, 29, 30, 31, 33, 37
Severe Weather	8, 11, 15, 16, 24, 31, 32, 33	5, 9, 35, 36	27, 29, 30	11	3, 7, 12, 13, 14, 18, 19, 20, 21, 25, 28	10	11, 22	3, 7, 8, 12, 13, 14, 15, 16, 22, 24, 27, 28, 29, 30, 31, 33, 37
Earthquake	1, 8, 15, 16, 31, 32, 33	5, 36	27, 29, 30		1, 3, 7, 12, 13, 14, 18, 19, 20, 21, 25, 28			3, 7, 8, 12, 13, 14, 15, 16, 22, 27, 28, 29, 30, 31, 33, 37
Medium Risak Hazards								
Dam Failure	1, 8, 15, 16, 24, 31, 32, 33	5, 9, 36	27, 29, 30		1, 3, 7, 12, 13, 14, 18, 19, 20, 21, 25, 28	10	22	1, 3, 7, 8, 12, 13, 14, 15, 16, 22, 24, 27, 28, 29, 30, 37, 31, 33
Hazardous Materials	1, 15, 16, 17, 31, 32, 33	5, 36	27, 29, 30		1, 3, 7, 12, 13, 14, 18, 19, 20, 21, 28		22	1, 3, 7, 12, 13, 14, 15, 16, 17, 22, 27, 29, 30, 31, 33, 37
Low Risk Hazards								
Active Threat	1, 15, 16, 31, 32, 33	5, 36	26, 27, 29, 30		1, 2, 3, 4, 6, 7, 12, 13, 14, 18, 19, 20, 21, 25, 28		22	1, 3, 7, 12, 13, 14, 15, 16, 22, 26, 27, 28, 29, 30, 31, 33, 37
Civil Disturbance	1, 8, 15, 16, 17, 31, 32, 33, 34	5, 36	26, 27, 29, 30		1, 2, 3, 4, 6, 7, 12, 13, 14, 18, 19, 20, 21, 25, 28		22	1, 3, 7, 8, 12, 13, 14, 15, 16, 17, 22, 26, 27, 28, 29, 30, 31, 33, 34, 37
Fire	1, 8, 11, 15, 16, 31, 32, 33	5, 35, 36	27, 29, 30	11	1, 3, 6, 7, 12, 13, 14, 18, 19, 20, 21, 25, 28		11, 22	1, 3, 7, 8, 12, 13, 14, 15, 16, 22, 27, 28, 29, 30, 31, 33, 37

- **Natural Resource Protection**—Actions that minimize hazard loss and preserve or restore the functions of natural systems. Includes sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, wetland restoration and preservation, and green infrastructure.

- **Emergency Services**—Actions that protect people and property during and immediately after a hazard event. Includes warning systems, emergency response services, and the protection of essential facilities.
- **Structural Projects**—Actions that involve the construction of structures to reduce the impact of a hazard. Includes dams, setback levees, floodwalls, retaining walls, and safe rooms.
- **Climate Resiliency**—Actions that incorporate methods to mitigate and/or adapt to the impacts of climate change. Includes aquifer storage and recovery activities, incorporating future conditions projections in project design or planning, or actions that specifically address jurisdiction-specific climate change risks, such as sea level rise or urban heat island effect.
- **Community Capacity Building**—Actions that increase or enhance local capabilities to adjust to potential damage, to take advantage of opportunities, or to respond to consequences. Includes staff training, memorandums of understanding, development of plans and studies, and monitoring programs.

21. ADOPTION AND IMPLEMENTATION

21.1 PLAN ADOPTION

A hazard mitigation plan must document formal adoption by the governing body of the jurisdiction requesting federal approval of the plan (44 CFR, Section 201.6.c.5). DMA compliance and its benefits cannot be achieved until the plan is adopted. This plan was submitted for a review to the Idaho Office of Emergency Management and FEMA. Once these agencies' approval was provided, the University formally adopted the plan. Copies of the resolution adopting this plan and the final approval letter from FEMA can be found in Appendix D.

21.2 PLAN IMPLEMENTATION

The mitigation action plan presents a range of actions for reducing losses from hazards. Some actions can be implemented through the creation of new educational programs, continued interagency coordination, or improved public participation. The planning team and the Steering Committee have established goals and objectives and have prioritized mitigation actions that will be implemented through existing plans, policies and programs. Boise State can begin to implement the highest-priority actions over the next five years. The Boise State Office of Emergency Management (OEM) will have lead responsibility for overseeing the plan implementation.

21.3 PLAN MAINTENANCE STRATEGY

A hazard mitigation plan must present a plan maintenance process that includes the following (44 CFR Section 201.6.c.4):

- A section describing the method and schedule of monitoring, evaluating, and updating the mitigation plan over a 5-year cycle
- A process by which local governments incorporate the requirements of the mitigation plan into other planning mechanisms, such as comprehensive or capital improvement plans, when appropriate
- A discussion on how the community will continue public participation in the plan maintenance process.

This section details the formal process to ensure that this hazard mitigation plan remains an active and relevant document and that the University maintains its eligibility for applicable funding sources. The plan maintenance process includes a schedule for monitoring and evaluating the plan annually and producing an updated plan every five years. This section also describes how public participation will be integrated throughout the plan maintenance and implementation process. It explains how the mitigation strategies outlined in this plan will be incorporated into existing planning mechanisms and programs, such as comprehensive land-use planning processes, capital improvement planning, and building code enforcement and implementation. The plan's format allows sections to be reviewed and updated as new data becomes available, resulting in a plan that will remain current.

21.3.1 Emergency Management Working Group

The Boise State University Emergency Management Working Group (composed of the Mitigation Steering Group) will be responsible for monitoring (annually at a minimum), evaluating, and updating this plan. The principal role of the working group in this plan maintenance strategy will be to review the annual progress report and provide input on possible enhancements to be considered at the next update. Future plan updates will be overseen by a steering committee similar to the one that participated in this update process, so keeping an interim steering committee intact will provide a head start on future updates. The steering committee's role will be to review the progress report to identify issues needing to be addressed by future plan updates.

Hazard mitigation projects will be prioritized by the Emergency Management Working Group with support and suggestions from faculty, staff, and the student body. Unless otherwise specified by the university, the working group will oversee implementation of the recommended projects. Department responsible for mitigation actions will report on the status of their projects and identify which implementation processes worked well, any difficulties encountered, how coordination efforts are proceeding, and which actions could be revised.

21.3.2 Annual Progress Report

The minimum task for the annual progress report will be to evaluate the progress of the action plan during a 12-month performance period. This review will include the following:

- Summary of any hazard events that occurred during the performance period and the impact these events had on the planning area
- Review of mitigation success stories
- Review of continuing public involvement
- Brief discussion about why targeted strategies were not completed
- Re-evaluation of the action plan to determine if the timeline for identified projects needs to be amended (such as changing a long-term project to a short-term one because of new funding)
- Recommendations for new projects
- Changes in or potential for new funding options (grant opportunities)
- Impact of any other planning programs or initiatives that involve hazard mitigation.

Boise State participates as a contributory stakeholder in the multi-jurisdictional hazard mitigation planning effort that covers Ada County, all its cities, and several special purpose districts within the County. This planning effort uses a web-based, automated plan maintenance platform called the BATool^{SM}, and Ada County Emergency Management has given Boise State access to this tool by to support its progress reporting and plan maintenance efforts. Boise State will use this or a similar platform to support progress reporting efforts.

When each annual progress report is completed, the Emergency Management Working Group committee will convene, review and provide feedback to the University on items reported in the report. The University will make the report available to the campus community on the University website dedicated to the hazard mitigation plan. Annual progress reporting is not required under 44 CFR, but it may enhance opportunities for funding.

21.3.3 Plan Update

Local hazard mitigation plans must be reviewed, revised if appropriate, and resubmitted for approval in order to remain eligible for benefits under the DMA (44 CFR, Section 201.6.d.3). This plan will be updated at least every five years. At the discretion of the University, updates may be incorporated more frequently, especially after a major hazard event. Boise State representatives will start meeting to discuss mitigation updates at least 12 months prior to the plan expiration date to ensure that the plan does not expire which would cause funding eligibility to lapse. The Office of Emergency Management will ensure that plan update is accomplished in a timely manner. Departments overseeing the update process will review the goals and objectives of the previous plan and evaluate them to determine whether they are still pertinent and current.

It will not be the intent of future updates to develop a completely new hazard mitigation plan for the planning area. The update will, at a minimum, include the following elements:

- The update process will be convened through a committee-base process.
- The hazard risk assessment will be reviewed and, if necessary, updated using best available information and technologies.
- The action plans will be reviewed and revised to account for any actions completed, dropped, or changed and to account for changes in the risk assessment or new policies identified under other planning mechanisms.
- The draft update will be sent to appropriate agencies and organizations for comment.
- The public will be given an opportunity to comment on the update prior to adoption.

21.3.4 Continuing Public Involvement

The campus community will continue to be apprised of the plan's progress through the hazard mitigation website, including providing copies of annual progress reports on the website. This site will not only house the final plan, but it will also become the one-stop shop for information regarding the plan and its implementation.

Upon initiation of future update processes, a new public involvement strategy will be initiated based on guidance from a new steering committee. This strategy will be based on the needs and capabilities of the University at the time of the update. At a minimum, this will include the use of local media outlets within the planning area.

21.3.5 Incorporation into Other Planning Mechanisms

The information on hazard, risk, vulnerability and mitigation contained in this plan is based on the best science and technology available at the time this update was prepared. The University supports the creation of a linkage between the hazard mitigation plan and other Boise State plans by identifying a mitigation action as such and giving that action a high priority. The Office of Emergency Management will be responsible for ensuring that the hazard mitigation plan goals are incorporated into applicable revisions of the AES Master Plan and any new planning projects undertaken by the university. The hazard mitigation plan will likewise consider any changes in Boise State's various planning documents and incorporate the information accordingly during the next update.

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To Be Completed

Boise State University Hazard Mitigation Plan

Appendix A. Hazard Mitigation Survey Results

Boise State Campus Hazard Survey

Preliminary results Dec. 2019

Carson MacPherson Krutsky | PhD Student -- Dr. Brittany Brand | Associate Professor -- Rob Littrell | Boise State Emergency Manager

Survey Goals

To assess student, faculty, and staff—

- perceptions of natural hazards
- preparedness levels
- expectations of who is responsible during and after an event
- information sources and preferences
- experiences with travelling to/from BSU during severe weather
- concerns about missing school/work due to severe weather
- concerns about traveling around campus during severe weather

So that we can—

Get baseline for how prepared and aware people are

Have a better picture of the impact severe weather has on commuters

Develop better messaging to students, staff, & faculty during and after events

Sample

So far: 1,443 responses (~11%)

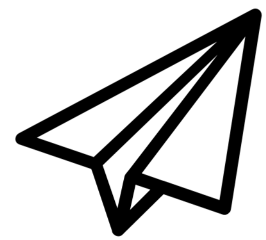
Staff & faculty

6,633

Students

6,991

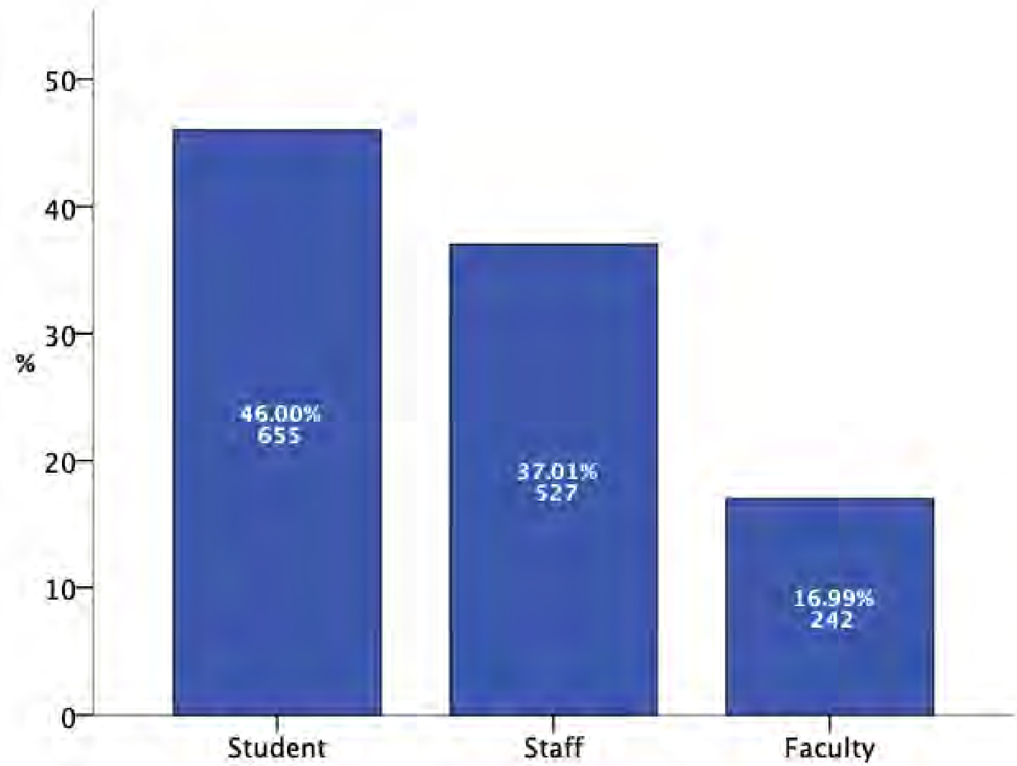
Total emails sent



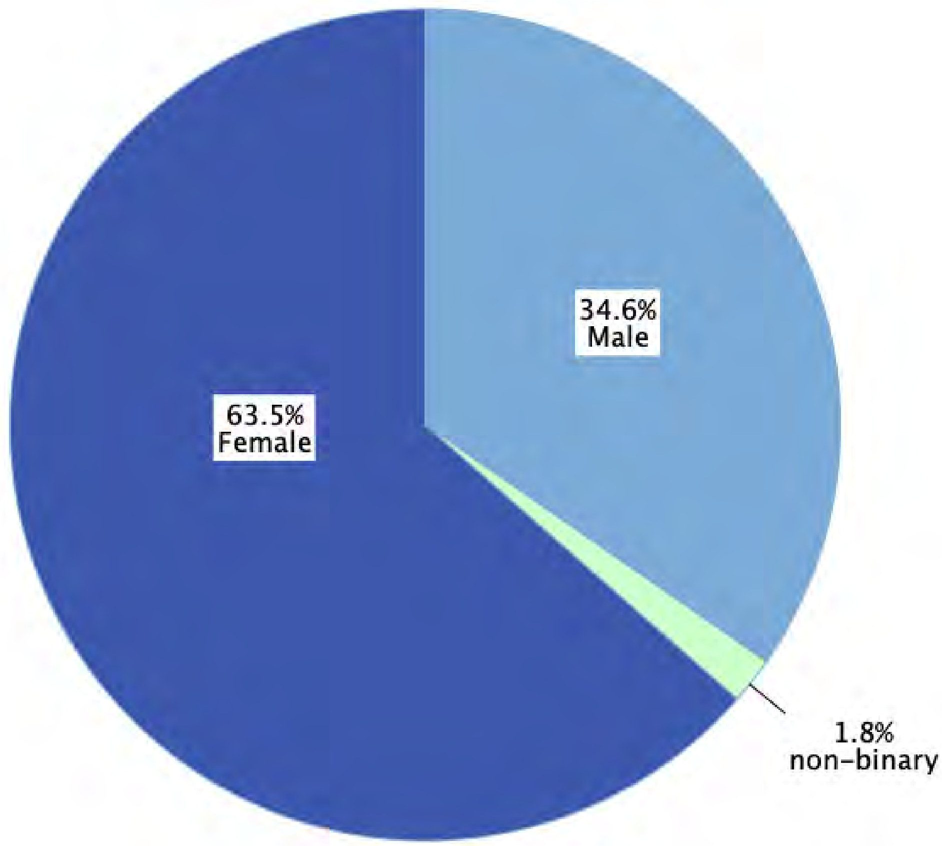
13,473

(144 bounced)

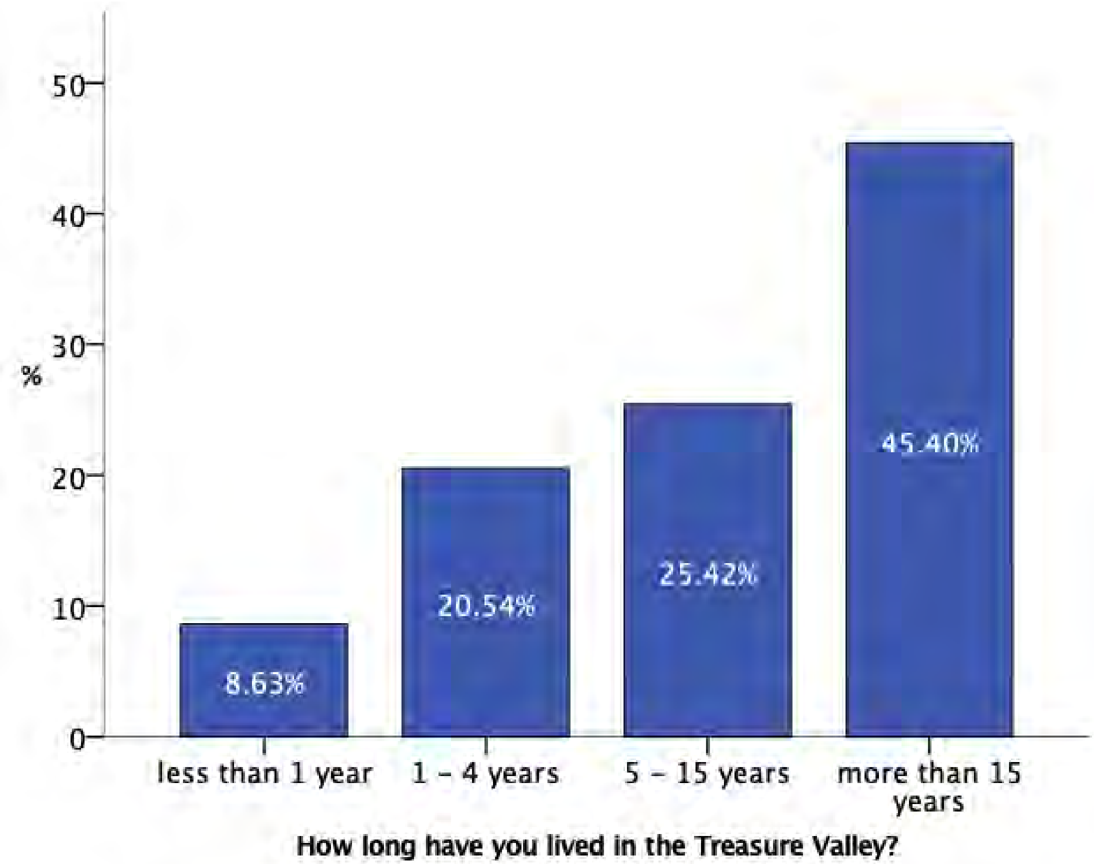
Demographics Status



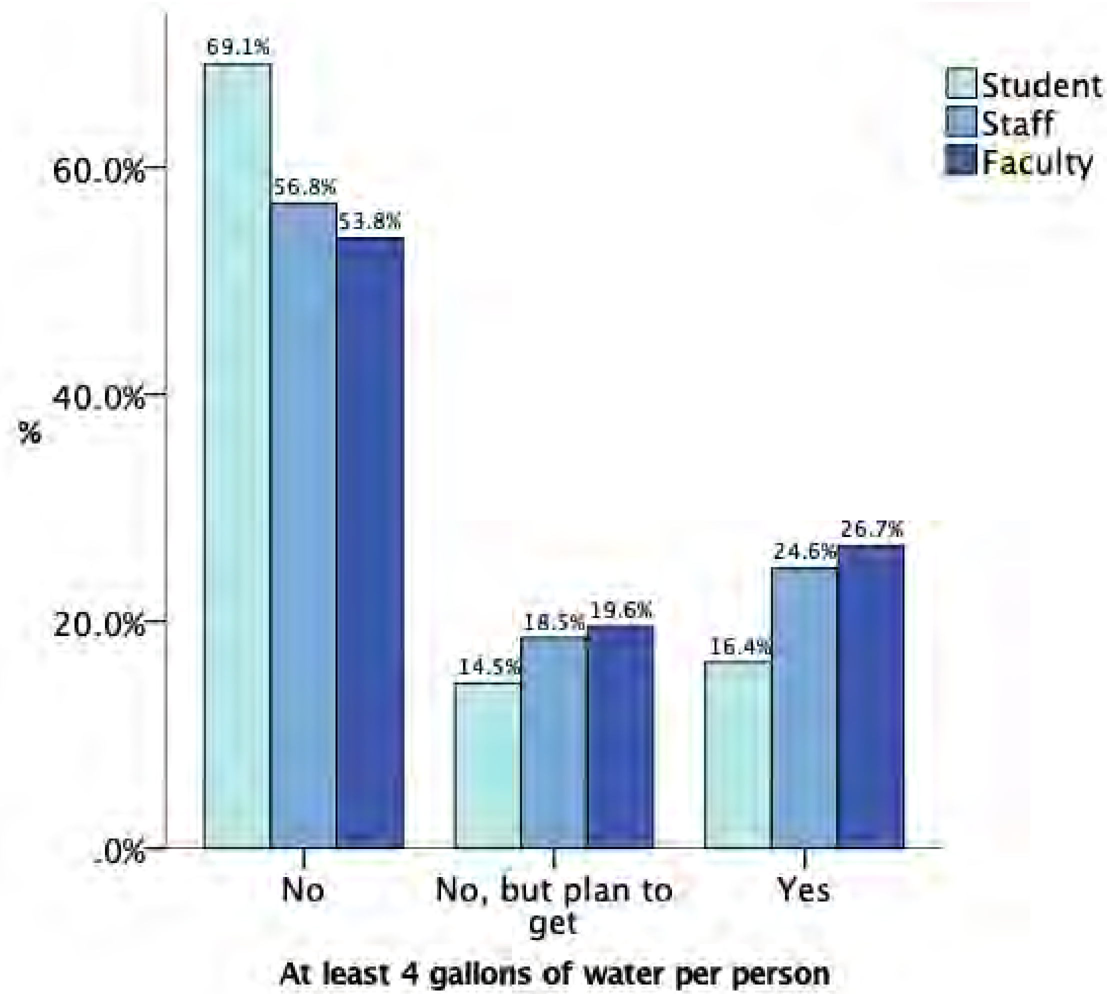
Demographics
Gender



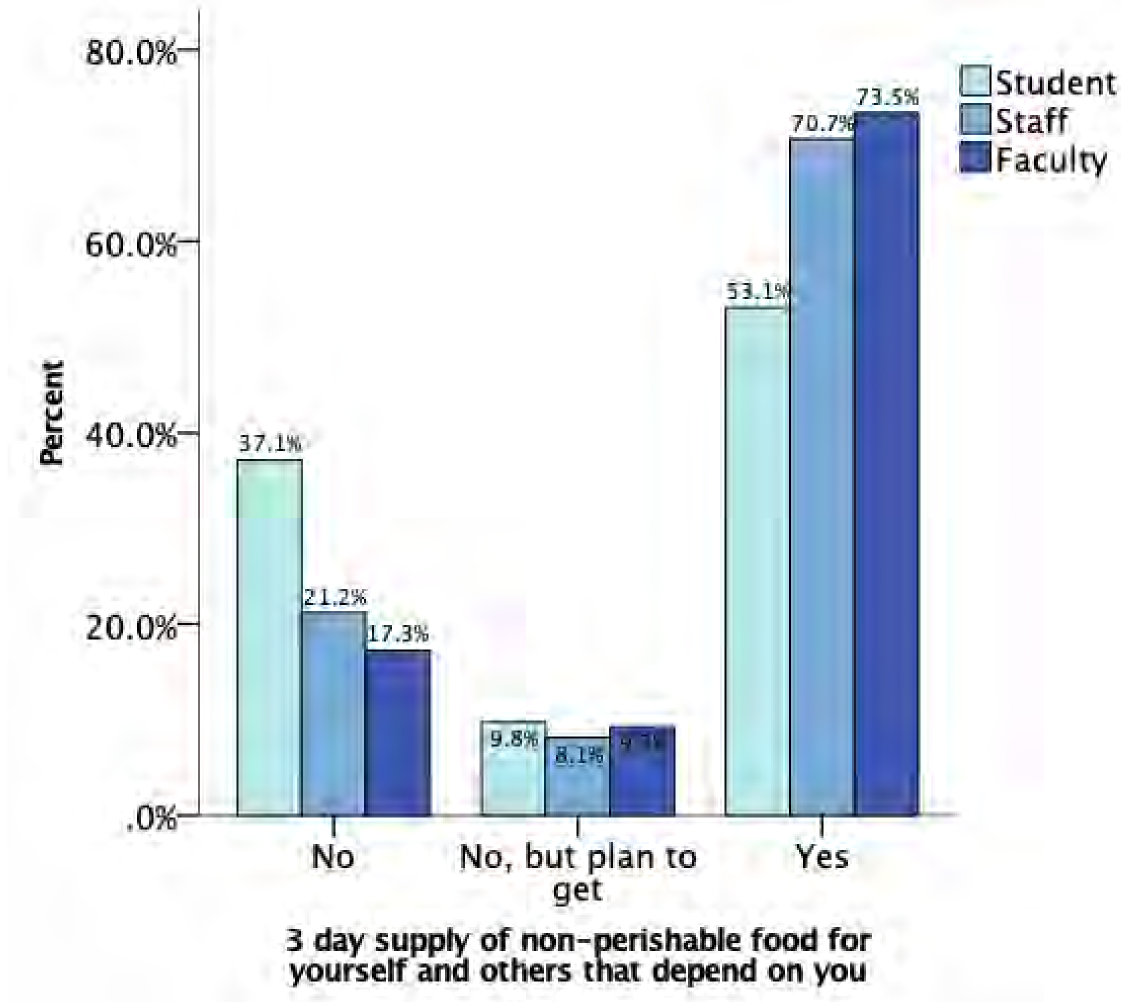
Demographics Residence time



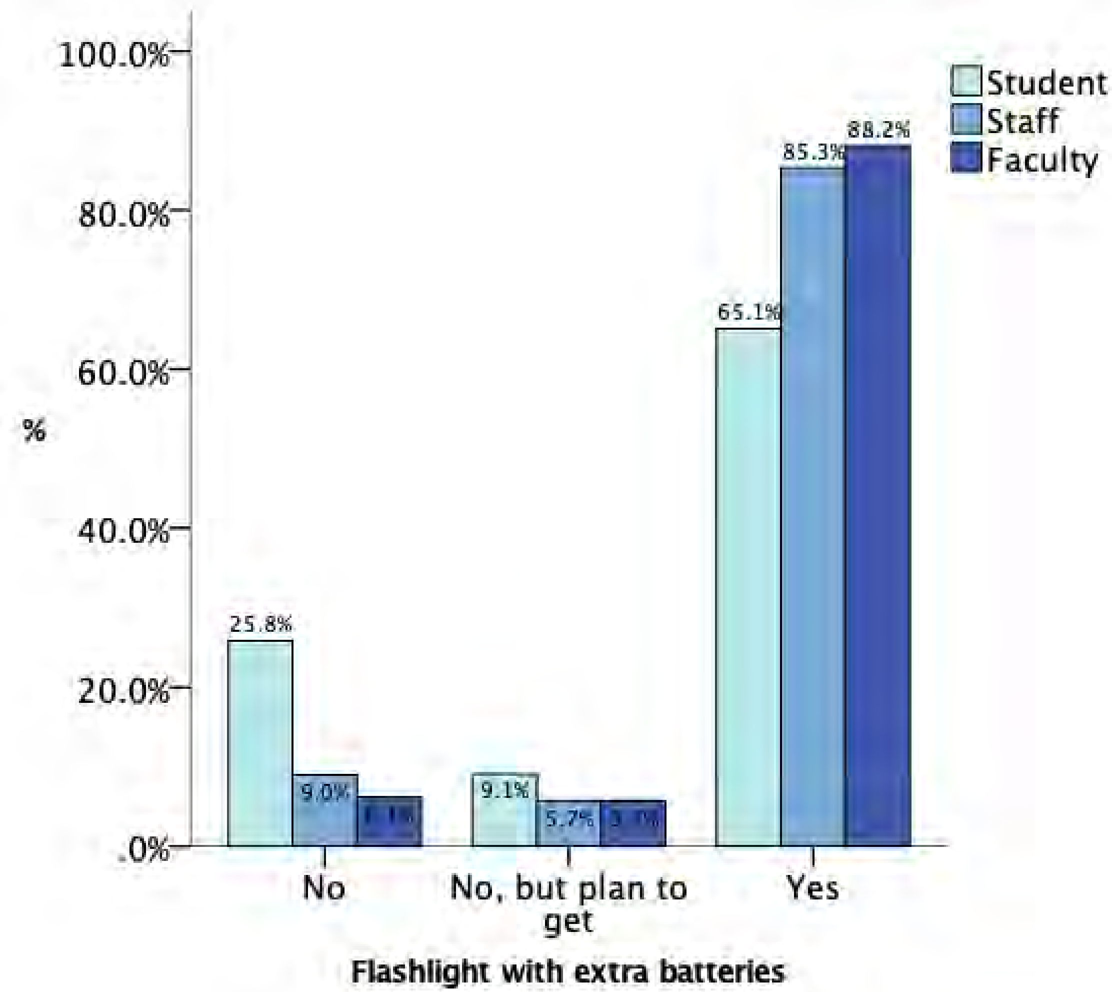
Preparedness levels



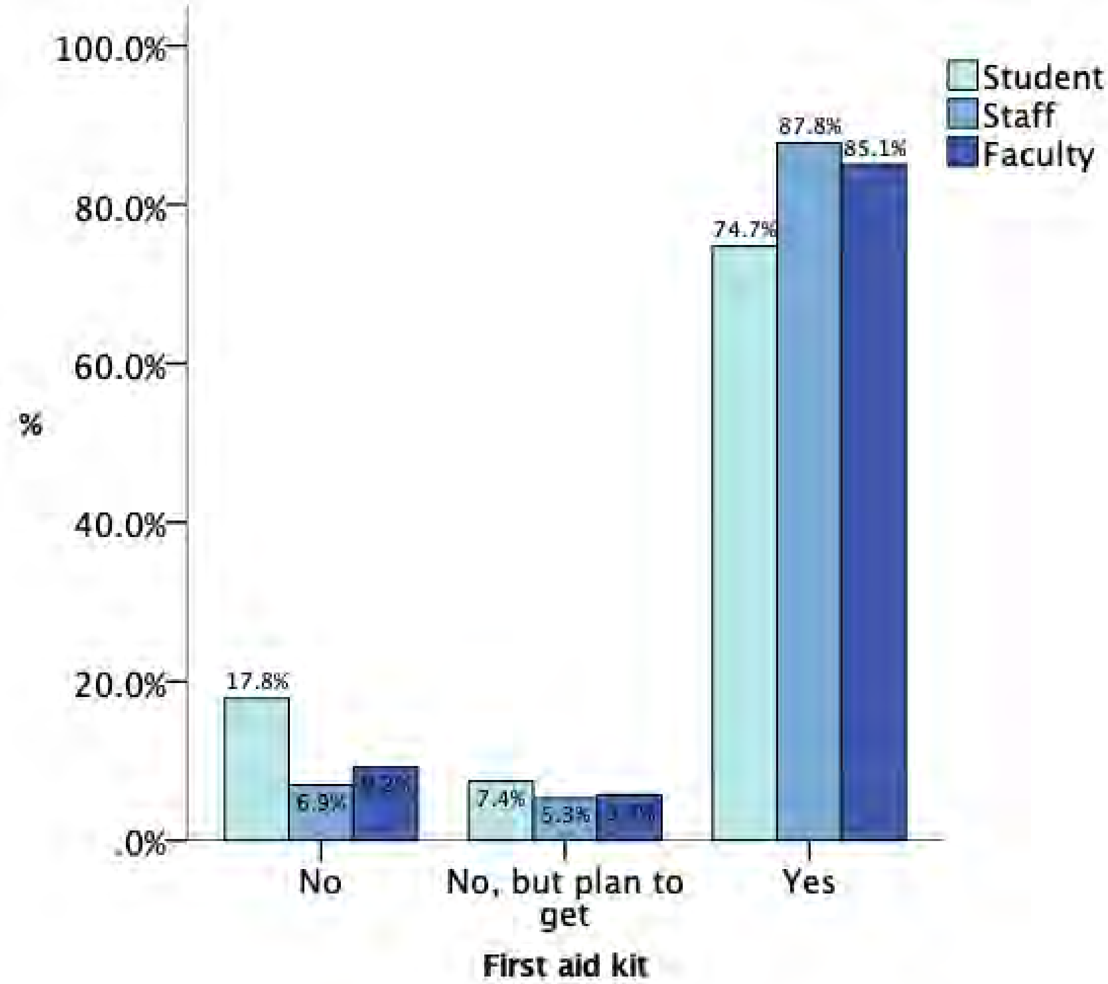
Preparedness levels



Preparedness levels



Preparedness levels



Preparedness levels

- Very few people have enough water stored if there was an emergency today (~80% do not have water ready)
- Students are consistently less prepared than staff & faculty
- Most people have some food, a flashlight, and first aid kit available

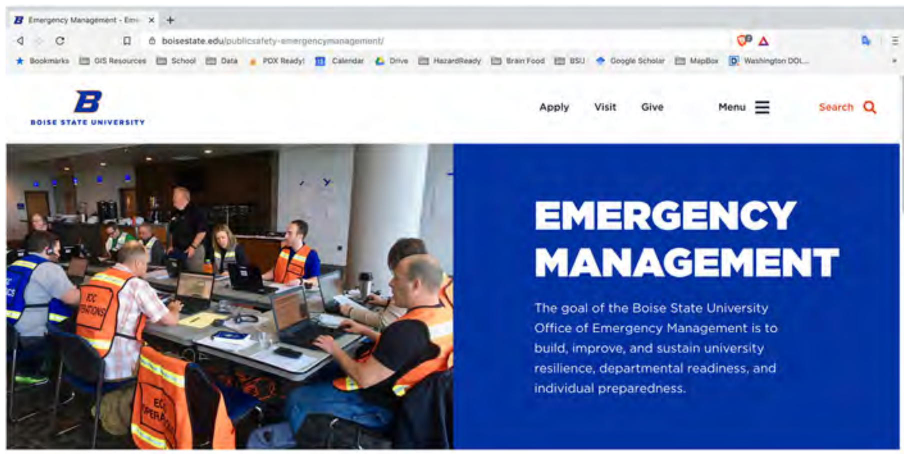
Information Sources & Preferences

How do you prefer to receive information about natural hazard events and preparedness steps you could take? (check all that apply)

	Responses		
	N	Percent of responses (n=3152)	Percent of Cases/ Respondents (n =1285)
1. Internet	955	30.3%	74.3%
2. BSU OEM	645	20.5%	50.2%
3. Social Media	392	12.4%	30.5%
4. BSU Workshops	317	10.1%	24.7%
5. Peers	297	9.4%	23.1%
6. Print media	283	9.0%	22.0%
7. Radio or TV	263	8.3%	20.5%
	3152	100.0%	245.3%

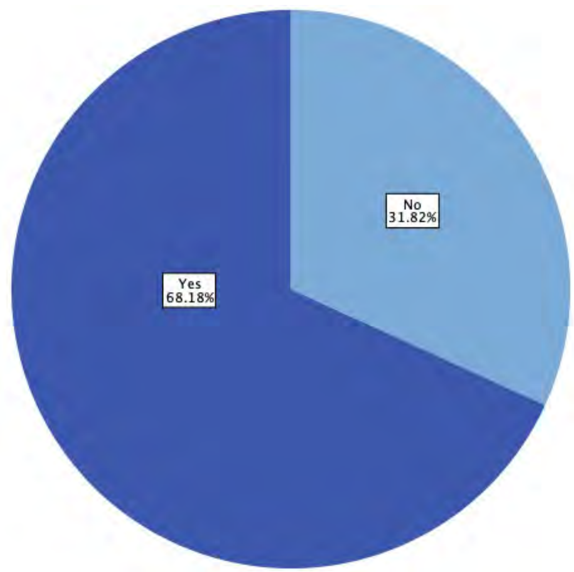
Information Sources & Preferences

People look to Boise State's Office of Emergency Management, websites, & social media for information on hazards & preparedness.

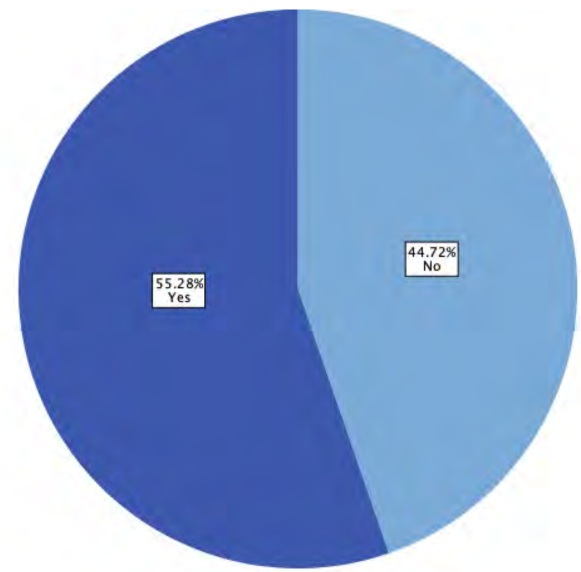


Past travel experiences

Have you traveled to campus during unsafe travel conditions **to avoid missing school/work**?



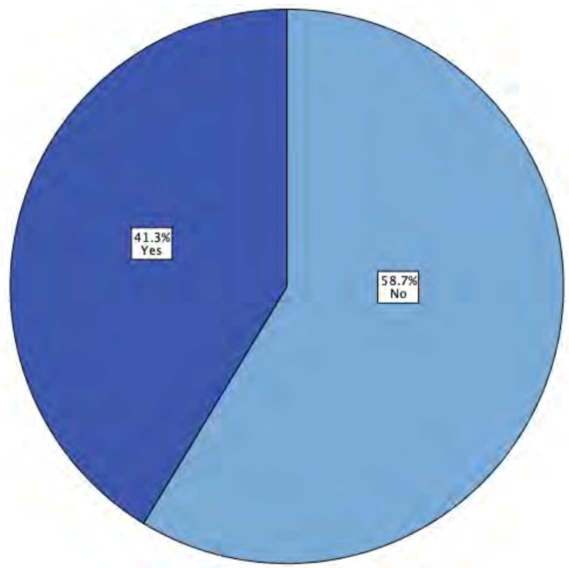
Faculty & Staff



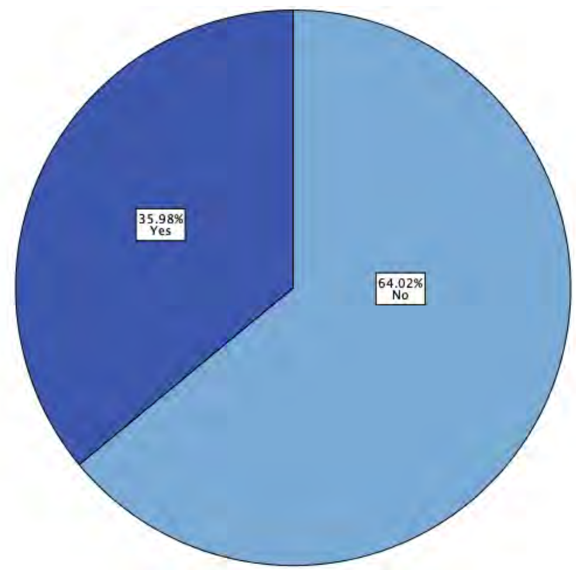
Students

Past travel experiences

Have you **missed class/work** due to unsafe travel conditions?



Faculty & Staff



Students

Past travel experiences

People prioritize getting to school or work above staying at home if travel conditions are unsafe

35-40%
people

missed class or work because of unsafe travel conditions

55%
students

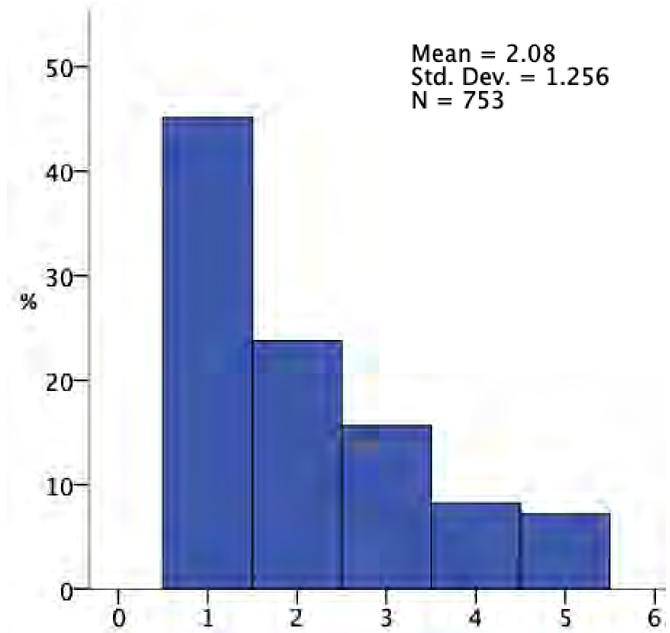
~70%
faculty & staff

traveled during unsafe travel conditions To avoid missing school or work

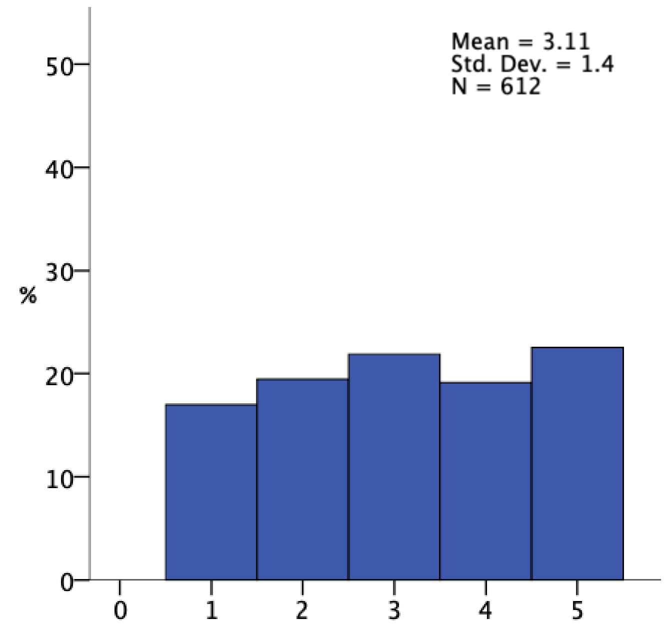
Concerns about missing school/work

How concerned are you that **missing class/work** due to a hazard-related event would **negatively affect your success in classes/employment** at Boise State?

(1=not at all concerned 5=very concerned)



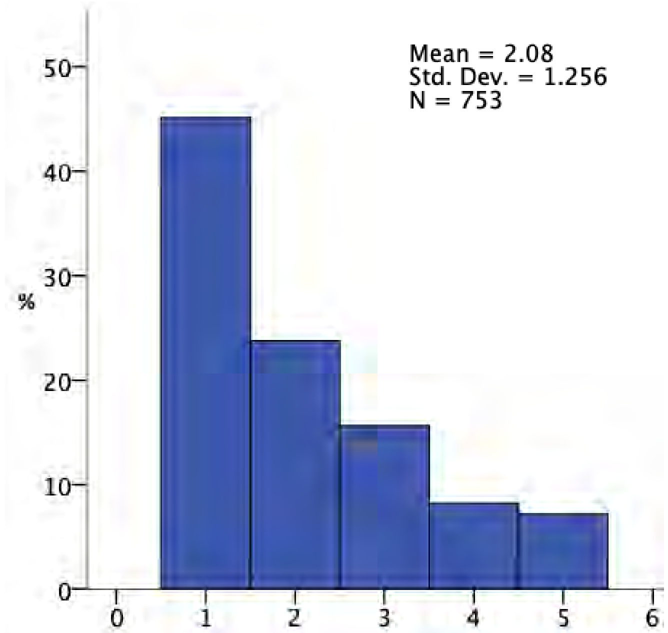
Faculty & Staff



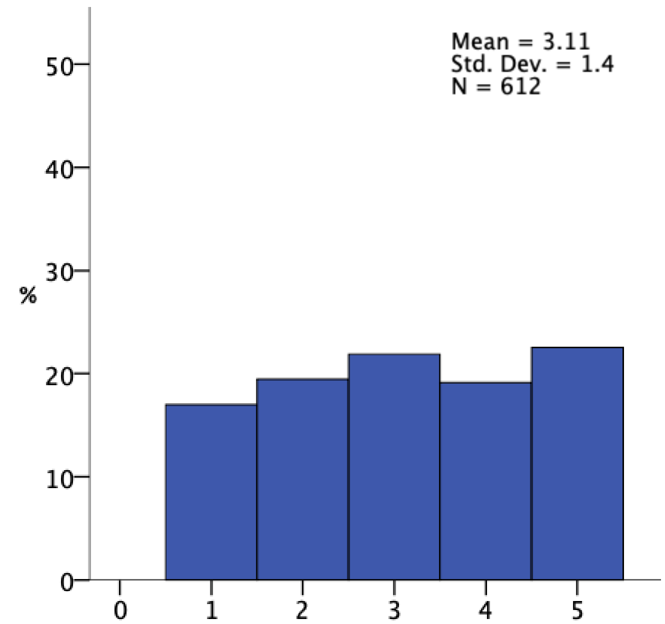
Students

Concerns about missing school/work

Students are more concerned than faculty and staff that missing school/work will affect their ability to succeed at Boise State



Faculty & Staff



Students

Quotes

"Educating students on how to prepare for natural hazards should be prioritized. Ex, likelihood of flooding. How high can the water level rise? Not so much worried about snow/ ice. From what I see the city and campus do a good job of controlling them."

Quotes

"I would like to receive a text message on Sunday night or at 7am on Monday morning saying that Monday morning classes are cancelled due to poor driving conditions due to severe weather. Getting messages about morning class cancelations by noon do not work for those who have classes at 9am."

Quotes

"I think you should have disaster prepping as a workshop/free class on campus. I know of several students who would be interested in starting a club centered around disaster preparedness."

Quotes

"I think Boise State needs to take more ownership when severe winter weather makes travelling to campus hazardous. The administration worries about the students but then puts employees in a no-win position. They say it's ALL the employee's choice, but in reality that is not always true. When the offices all have to remain open, employees are forced to travel to cover even when it's truly not safe for them to do so. Case in point is 2016/2017 (Snowmageddon) - roads were impassible and yet we were supposed to show up."

Boise State University Hazard Mitigation Plan

Appendix B. University Asset Inventory

B. UNIVERSITY ASSET INVENTORY

Boise State University Building Characteristics											
No.	Name	Own or Lease	Fire Sprinklers (yes/no)	Backup Power (yes/no)	Haz Mat Risk[a] (L/M/H)	Year Built	Square Feet	Building Value[b]	Content Value[c]	Construction Class[d]	# Stories
004	Administration	O	N	N	L	4/25/1940	42,576	$13,577,470	$2,142,151	H	3
5	Hemingway Center	O	N	N	L	4/25/1940	13,323	$6,628,709	$1,009,674	H	1
6	Heat Plant and Telephone Building	O	N	Y	L	4/25/1940	7,033	$5,135,372	$2,493,488	H	1
7	Campus School	O	N	N	L	5/9/1953	31,757	$6,064,399	$771,540	H	1
8	Opaline School House	O	N	N	L	3/30/1914	591	$118,656	$7,925	D	1
9	Maintenance Shops	O	N	N	M	4/12/1927	9,433	$817,573	$272,325	H	1
11	Communication	O	N	N	L	5/6/1941	20,913	$3,045,169	$1,898,881	H	2
13	Morrison Ctr for Performing Arts (Aux.)	O	Y	N	L	6/8/1984	138,757	$84,503,013	$3,688,288	C	4
14	Morrison Ctr for the Performing Arts (Ed.)	O	Y	Y	L	6/8/1984	69,335	$10,691,368	$16,037,053	C	4
15	Extra Mile Arena	O	Y	Y	L	1/1/1982	292,793	$75,183,608	$4,303,736	B	4
16	Simplot Micron Advising and Success Hub	O	Y	Y		6/10/1986	43,091	$11,406,395	$5,957,074	H	3
20	Morrison Hall	O	N	N	L	5/6/1951	19,394	$3,638,649	$284,585	D	3
21	Driscoll Hall	O	N	N	L	5/6/1951	20,672	$3,824,406	$133,399	D	3
22	1803 Donald Circle, Student Housing	O	N	N	L	5/22/1967	1,373	$135,220	$4,136	D	1
23	1809 Donald Circle, Student Housing	O	N	N	L	5/21/1966	1,902	$256,481	$4,136	D	1
24	Mathematics	O	N	N	L	5/10/1955	58,938	$15,478,940	$6,696,328	H	2
25	Bronco Gymnasium - Department of Kinesiology	O	N	N	L	5/10/1955	44,940	$9,864,949	$1,096,058	H	3
27	Albertsons Library	O	Y	Y	L	5/19/1964	202,932	$73,213,028	$122,097,230	H	4
28	Boulder Hall	O	N	N	L	5/19/1964	29,488	$4,663,023	$163,834	D	2

No.	Name	Own or Lease	Fire Sprinklers (yes/no)	Backup Power (yes/no)	Haz Mat Risk[a] (L/M/H)	Year Built	Square Feet	Building Value[b]	Content Value[c]	Construction Class[d]	# Stories
29	Charles P Ruch Engineering Building	L	Y	Y	H	6/13/1989	65,089	$38,365,083	$14,828,394	C	3
30	Liberal Arts	O	N	N	L	5/22/1967	59,054	$9,178,325	$1,048,592	H	2
31	Chaffee Hall	O	N	N	L	5/22/1967	94,372	$171,742,526	$1,422,933	D	3
32	Student Union	O	Y	Y	L	5/22/1967	309,606	$125,700,036	$6,154,658	B	3
34	Riverfront Hall (Education Bldg.)	O		Y	L	5/26/1971	66,815	$17,713,723	$11,247,410	B	3
35	Albertsons Stadium (East and SW Side and DeChevrieux)	O	N	N	L	5/25/1970	115,680	$48,084,843	$2,673,210	B	7
36	Varsity Center (Simplot Center for Athletic Excellence), Nickelson-Yanke Center	O	N	N	L	5/25/1970	42,965	$9,556,319	$1,362,330	D	1
37	Kinesiology Annex (Pool)	O	N	N	M	5/26/1971	32,341	$7,184,917	$244,987	H	2
38	Varsity Center Annex	L	N	N	L	6/9/1985	9,084	$1,751,582	$359,295	H	I
39	John B. Barnes Towers	O		N	L	5/25/1970	66,607	$10,234,670	$978,266	C	7
40	Chrisway Annex	O	N	N	L	5/13/1958	8,344	$1,583,371	$493,036	D	1
49	2065 University Drive (Student Systems Annex)	O	N	N	L	5/5/1950	2,742	$342,009	$205,380	D	1
54	English Annex	O	N	N	L	6/2/1978	3,309	$424,308	$25,826	D	1
56	Pioneer Hall	O	N	N	L	5/29/1974	23,806	$4,460,401	$444,538	H	1
62	Special Events Center	O	Y	N	L	5/30/1975	26,481	$5,833,486	$406,332	B	2
65	Art Annex #1	O	N	N	L	5/1/1946	2,111	$307,840	$41,334	D	1
70	Landscape Services	O	N	N	M	11/1/1946	2,120	$112,718	$207,315	D	1
71	Education	O	Y	Y	L	6/3/1979	90,784	$20,806,666	$2,933,773	C	3
72	Science Building	O	Y	Y	M	6/1/1977	105,223	$59,530,157	$11,346,593	C	7
74	Science Greenhouse (Sci Nursing)	O	N	N	L	6/1/1977	711	$154,701	$1,605	D	1
75	Copper Basin	O	N	N	L	6/1/1977	10,230	$2,113,523	$235,017	G	1
78	Student Housing Maintenance	O	N	N	L	5/13/1958	5,755	$480,772	$188,621	G	2
79	Manitou Annex #3	O	N	N	L	6/16/1992	2,871	$364,258	$500,968	D	1
81	Euclid Annex #4	O	N	N	L	5/30/1975	2,112	$206,164	$57,729	D	1
82	2055 University Drive (Annex 2)	O	N	N	L	6/23/1999	4,200	$590,157	$161,994	D	1
83	Biology Greenhouse	O	N	N	L	6/23/1999	1,699	$239,292	$44,450	D	1

No.	Name	Own or Lease	Fire Sprinklers (yes/no)	Backup Power (yes/no)	Haz Mat Risk[a] (L/M/H)	Year Built	Square Feet	Building Value[b]	Content Value[c]	Construction Class[d]	# Stories
84	Const. Materials & Methods Lab	O	N	N	M	6/23/1999	786	$229,295	$30,171	F	1
85	Appleton Tennis Center	O	N	N	L	6/26/2002	3,256	$2,780,145	$14,091	G	1
87	Boas Tennis and Soccer Ctr.	O	N	Y	L	6/15/1991	44,705	$2,673,156	$73,032	D	1
89	Construction Management	O	N	N	M	6/23/1999	2,108	$124,614	$30,922	D	1
90	Student Success Ctr. (Annex #8)	O	N	N	L	5/10/1949	1,946	$231,166	$160,976	D	1
93	Children's Ctr. (1830 Beacon St.)	O	N	N	L	6/19/1995	17,458	$2,451,262	$792,540	D	1
96	Garage Stadium Storage	O	N	N	L	6/10/1986	2,917	$271,651	$23,775	D	1
98	Theatre Arts Annex (Costume Shop)	O	N	N	L	5/7/1952	7,805	$800,592	$83,830	D	1
99	1375 Belmont Annex	O	N	N	L	12/30/1999	1,254	$132,616	$97,638	D	1
100	Harry Morrison Civil Engineering	O	Y	N	M	6/23/1999	19,037	$11,519,981	$2,886,560	B	2
101	Micron Engineering Center	O	Y	Y	M	6/23/1999	69,098	$42,092,199	$15,353,675	B	5
102	Student Recreation Center	O	Y	N	L	6/26/2002	93,143	$28,213,869	$1,329,820	B	2
102A	Student Recreation Center - Natatorium	O	Y	N	L	7/1/2010	20,210	$9,999,932	$422,531	B	2
104	Brady Street Garage	O	N	N	L	6/25/2001	399,194	$28,413,491	$157,468	B	4
105	1015 Grant Avenue Annex	O	Y	N	L	6/25/2001	8,211	$1,743,802	$383,801	G	2
110	FO&M Training Center	O	N	N	L	5/16/1961	1,357	$162,306	$171,625	H	1
114	1113 Denver Annex	O	N	N	L	5/5/1950	1,643	$205,851	$286,046	D	1
115	1113 Denver Annex Garage	O	N	N	L	5/5/1950	496	$27,290	$36,990	D	1
116	Internal Audit	O	N	N	L	5/5/1950	1,661	$189,912	$84,540	D	1
117	Internal Audit	O	N	N	L	5/5/1950	496	$27,290	$0	D	1
119	Grant Annex 4, 1023 S. Grant	O	N	N	L	6/4/1980	4,298	$545,308	$61,337	D	1
121	Health Sciences - Riverside	O	Y	N	L	6/8/1984	22,505	$4,725,281	$1,410,812	C	2
122	Raptor Research Center	O	N	N	L	5/25/1970	15,108	$2,809,419	$132,678	H	1
123	Multi-Purpose Classroom Building	O	Y	N	L	6/21/1997	60,406	$16,900,572	$3,913,610	C	4
125	1114 Manitou Annex #2	O	N	N	L	6/21/1997	1,957	$266,372	$215,218	D	1
137	1406 Chrisway Annex 2	O	N	N	L	6/26/2002	4,211	$453,582	$132,678	D	1
138	TECenter (Technology and Entrepreneurial Center)	O	Y	N	M	6/27/2003	39,427	$16,184,148	$131,365	F	1

No.	Name	Own or Lease	Fire Sprinklers (yes/no)	Backup Power (yes/no)	Haz Mat Risk[a] (L/M/H)	Year Built	Square Feet	Building Value[b]	Content Value[c]	Construction Class[d]	# Stories
143	Idaho Center Sports Center	L	N	N	L	N/A	3,413	$0	$1,321,653	D	1
144	Capitol Village #5	O	Y	Y	L	6/24/2000	3,839	$1,245,627	$117,703	D	1
146	1029 Lusk Annex	L	N	N	L	N/A	5,000	$0	$322,827	H	1
152	David S. Taylor Hall	O	Y	Y	L	6/28/2004	71,324	$13,407,142	$882,218	D	3
153	John H. Keiser Hall	O	Y	Y	L	6/28/2004	48,710	$9,113,274	$705,664	D	4
154	University Suites - “Selway Suites”	O	Y	N	L	6/28/2004	46,681	$5,800,000	$455,338	D	4
155	University Suites - “Payette Suites”	O	Y	N	L	6/28/2004	35,373	$4,528,011	$381,187	F	4
156	University Suites - “Clearwater Suites”	O	Y	N	L	6/28/2004	35,657	$4,349,974	$284,585	F	4
157	University Square - Jade Hall	O	Y	N	L	6/28/2004	27,339	$3,531,567	$60,961	F	3
158	University Square - Topaz Hall	O	Y	N	L	6/28/2004	27,469	$3,398,743	$60,961	F	3
159	University Square - Jasper Hall	O	Y	N	L	6/28/2004	27,469	$3,411,348	$60,961	F	3
160	University Square - Garnet Hall	O	Y	N	L	6/28/2004	33,287	$3,909,843	$71,122	F	3
164	Allen Noble Hall of Fame	O	N	N	L	5/25/1970	13,697	$3,871,698	$100,570	H	2
166	Christ Chapel	O	N	N	L	11/1/2017	0	$293,255	$0	D	1
173	University Heights Apartments - A	O	N	N	L	5/29/1974	8,459	$1,207,504	$30,479	H	3
174	University Heights Apartments - B	O	N	N	L	5/29/1974	8,826	$1,268,343	$30,479	H	3
175	University Heights Apartments - C	O	N	N	L	5/29/1974	8,418	$1,207,504	$30,479	H	3
176	University Manor Apartments - A	O	N	N	L	5/29/1974	21,402	$2,324,896	$152,402	H	3
177	University Manor Apartments - B	O	N	N	L	5/26/1971	17,215	$2,324,896	$60,961	H	3
178	University Park Apartments - A (N)	O	N	N	L	5/26/1971	23,509	$2,877,654	$60,961	H	3
179	University Park Apartments - B (S)	O	N	N	L	5/26/1971	23,509	$2,877,654	$60,961	H	3
180	University Village Apartments - A	O	N	N	L	6/19/1995	12,114	$1,370,852	$32,778	D	3
181	University Village Apartments - B	O	N	N	L	6/19/1995	12,114	$1,370,852	$32,778	D	3
182	University Village Apartments - C	O	N	N	L	6/19/1995	12,114	$1,370,852	$32,778	D	3
183	University Village Apartments - D	O	N	N	L	6/19/1995	12,114	$1,370,852	$32,778	D	3
184	University Village Apartments - E	O	N	N	L	6/19/1995	18,241	$2,015,910	$32,778	D	3
185	University Village Apartments - F	O	Y	N	L	6/19/1995	2,183	$238,771	$45,720	D	3
198	Network Services	O	N	N	L	5/20/1965	1,520	$120,948	$174,931	H	1
203	Euclid Annex #2	O	N	N	L	6/27/2003	3,320	$421,225	$194,051	D	1

No.	Name	Own or Lease	Fire Sprinklers (yes/no)	Backup Power (yes/no)	Haz Mat Risk[a] (L/M/H)	Year Built	Square Feet	Building Value[b]	Content Value[c]	Construction Class[d]	# Stories
204	Euclid Annex #3	O	N	N	L	6/27/2003	4,150	$526,531	$228,313	D	1
210	Capitol Village #2	O	Y	N	L	6/24/2003	2,082	$441,185	$7,421	H	1
211	Capitol Village #3 (Advancement Bldg.)	O	Y	N	L	6/24/2003	12,497	$1,476,695	$11,170	H	1
213	Capitol Village #4	O	Y	N	L	6/24/2003	3,407	$684,228	$39,702	H	1
214	Capitol Village #1	O	Y	N	L	6/24/2003	4,898	$1,199,691	$123,255	D	1
215	Capitol Village #6	O	Y	N	L	6/24/2003	12,199	$7,381,089	$90,116	H	1
216	CGISS Lease	L	N	N	L	N/A	5,000	$0	$978,884	H	1
219	Soccer Field Restroom/Concession Bldg.	O	N	N	L	6/27/1905	1,031	$189,392	$0	H	1
234	Caven-Williams Sports Complex	O	Y	N	L	6/30/2006	98,606	$13,814,954	$38,862	C	3
235	Interactive Teaching & Learning Center	O	Y	Y	L	7/1/2007	67,656	$20,601,252	$2,213,137	C	4
242	1156 - 1158 Euclid Annex	O	N	N	L	N/A	2,464	$214,394	$0	D	1
243	1162 - 1164 Euclid Annex	O	N	N	L	N/A	2,534	$214,394	$0	D	1
245	1142-1144 Euclid Annex	O	N	N	L	N/A	2,097	$214,394	$353,056	D	1
247	1350 W. Victory Road	L	N	N	L	N/A	100	$0	$6,476	D	1
255	Lincoln Avenue Garage	O	N	N	L	7/1/2007	468,037	$35,872,808	$589,058	B	5
259	Norco Building: Nursing Department, University Health Services	O	Y	Y	L	7/3/2009	82,054	$24,030,125	$2,894,703	C	6
264	Stueckle Sky Center	O	Y	Y	L	N/A	179,971	$54,208,455	$2,470,022	C	6
266	1130 S. Manitou	O	N	N	L	7/3/2009	2,008	$26,782	$6,350	D	1
267	Environmental Research Building	O	Y	Y	M	7/2/2008	97,761	$62,715,238	$23,478	C	5
270	Waste Materials Storage Bldg.	O	Y	N	H	5/10/1955	333	$154,686	$0	F	1
278	Dona Larsen Park - Track & Field Equipment Building	O	N	N	L	7/5/2011	7,968	$773,611	$123,008	E	1
285	1121 S. Denver	O	N	N	L	7/2/2008	1,197	$143,971	$43,503	D	1
289	Ron and Linda Yanke Family Research Park	O	Y	Y	L	5/28/1973	84,053	$16,202,910	$1,060,188	D	2
292	Dona Larsen Park Softball Storage Shed	O	N	N	L	5/3/1948	120	$5,858	$3,626	E	1

No.	Name	Own or Lease	Fire Sprinklers (yes/no)	Backup Power (yes/no)	Haz Mat Risk[a] (L/M/H)	Year Built	Square Feet	Building Value[b]	Content Value[c]	Construction Class[d]	# Stories
298	Micron Business and Economics Building	O	Y	N	M	N/A	133,077	$47,908,983	$1,924,498	C	5
299	1870 Belmont	O	Y	N	L	7/1/2007	1,828	$72,030	$4,136	D	1
301	1514 S. Martha Cir	O	N	N	L	8/13/2019	1,534	$70,831	$4,136	D	1
302	1630 S. Joyce	O	N	N	L	7/6/2012	1,289	$98,399	$4,136	D	1.5
305	1816 Yale	O	N	N	L	5/17/1962	803	$313,361	$0	D	2
306	1827 Yale	O	N	N	L	5/10/1955	2,925	$316,903	$0	D	2
307	1855 Belmont	O	Y	N	L	5/25/1970	1,698	$166,681	$4,136	D	1
308	1406 S. Juanita	O	N	N	L	6/28/2004	1,173	$312,220	$156,110	D	1
309	1803 W. Potter	O	N	N	L	6/29/2005	2,409	$164,218	$4,096	D	1
310	1509 S. Joyce	O	N	N	L	5/17/1962	1,985	$91,277	$4,096	D	1
319	1110 S. Grant	O	N	N	L	5/16/1961	1,838	$171,890	$4,136	D	1
320	1808 Donald Circle	O	Y	N	L	5/21/1966	1,425	$173,244	$14,478	D	1
324	Boise State Meridian Center (Extended Studies)	L	Y	N	L	N/A	9,058	$138,815	$0	G	1
326	The Lincoln Townhouses - “Tamarack House”	O	Y	N	L	7/5/2012	14,568	$2,099,685	$117,843	F	4
327	The Lincoln Townhouses - “Hawthorne House”	O	Y	N	L	7/5/2012	33,520	$4,831,237	$290,407	F	4
328	The Lincoln Townhouses - “Juniper House”	O	Y	N	L	7/5/2012	33,547	$4,835,129	$290,407	F	4
329	The Lincoln Townhouses - “Cedar House”	O	Y	N	L	7/5/2012	27,606	$3,978,852	$247,889	F	4
330	The Lincoln Townhouses - “Aspen House”	O	Y	N	L	7/5/2012	14,549	$2,096,947	$117,843	F	4
331	The Lincoln Townhouses - “Spruce House”	O	Y	N	L	7/5/2012	27,544	$3,969,916	$247,889	F	4
332	Gene Bleymaier Football Complex	O	Y	N	L	7/5/2012	74,768	$24,443,974	$5,693,788	G	2
334	1708 Potter	O	Y	N	L	5/13/1955	1,535	$186,579	$4,136	D	1
336	1810 Potter	O	Y	N	L	5/16/1961	1,107	$1,067,803	$4,136	D	1

No.	Name	Own or Lease	Fire Sprinklers (yes/no)	Backup Power (yes/no)	Haz Mat Risk[a] (L/M/H)	Year Built	Square Feet	Building Value[b]	Content Value[c]	Construction Class[d]	# Stories
338	1519 Juanita	O	Y	N	L	5/14/1959	1,144	$139,075	$4,136	D	1
341	Dona Larsen Park - North Restroom	O	N	N	L	N/A	3,609	$360,553	$0	E	1
342	Dona Larsen Park - South Restroom	O	N	N	L	N/A	1,584	$137,020	$4,096	E	1
343	Dona Larsen Park - Football Pressbox	O	N	N	L	7/6/2012	1,081	$355,225	$355,225	E	1
344	Dona Larsen Park - East Softball Dugout	O	N	N	L	7/6/2012	672	$23,435	$0	E	1
345	Dona Larsen Park - West Softball Dugout	L	N	N	L	7/6/2012	672	$23,435	$0	E	1
346	Dona Larsen Park - Softball Pressbox	L	N	N	L	7/6/2012	454	$242,209	$2,152	E	1
347	301 S. Capital	O	Y	N	L	7/6/2012	8,862	$2,915,991	$77,872	G	3
348	University Plaza	O	Y	N	L	4/16/2020	90,127	$22,309,007	$131,426	C	5
349	Center for Visual Arts	O	Y	N	L	6/30/2019	104,820	$45,957,706	$77,101	C	4
351	1814 W Potter Drive	O	Y	N	L	5/6/1951	820	$81,671	$4,136	D	1
352	5475 W. Gage Street	O	Y	N	M	N/A	29,874	$2,875,571	$2,529,985	G	1
354	1411 Belmont	O	N	N	L	4/10/1925	409	$41,886	$0	D	1
355	1427 - 1429 Belmont	O	N	N	L	5/29/1974	2,016	$208,977	$4,136	D	1
358	1112 Manitou Garage	O	N	N	L	5/11/1959	936	$0	$0	D	1
360	1817 W Potter Drive	O	Y	N	L	5/13/1950	931	$101,988	$4,136	D	1
361	1607-1609 Martha Street	O	N	N	L	5/13/1958	1,776	$215,852	$4,136	D	1
362	2500 Boise Ave	O	Y	N	L	N/A	5,856	$347,218	$5,300	D	1
363	1225 Belmont	O	N	N	L	N/A	1,104	$104,659	$0	D	1
364	1225 Belmont Shop	O	N	N	M	N/A	672	$26,231	$0	D	1
365	Capitol Village #7	O	Y	N	L	5/13/2000	21,693	$14,311,956	$1,516,069	B	1
366	1711 Potter Drive	O	N	N	L	6/1/1958	1,470	$233,666	$4,136	D	1
367	City Center Plaza	O	Y	N	L	12/21/2016	45,767	$12,749,271	$2,350,346	A	9
368	Alumni and Friends Center	O	Y	N	L	5/1/2016	44,758	$15,626,404	$800,423	C	4
369	1843 University Drive	O	N	N	L	5/13/1948	2,926	$3,089,868	$4,136	D	1
370	1802/1804 Yale Court	O	N	N	L	5/13/1948	1,088	$100,626	$4,136	D	1
371	1806/1808 Yale Court	O	N	N	L	8/13/2019	1,088	$100,626	$4,136	D	1
374	1813 Potter Drive	O	N	N	L	5/13/1951	830	$73,990	$4,136	D	1
375	1862 W Belmont St	O	N	N	L	5/13/1962	1,158	$104,488	$4,136	D	1
377	City Center Plaza Bronco Shop	L	Y	N	L	4/17/2017	3,078	$0	$35,350	A	9
380	Honors College Live Learn Community	O	Y	N	L	4/17/2017	19,732	$3,004,197	$2,688,865	C	5

No.	Name	Own or Lease	Fire Sprinklers (yes/no)	Backup Power (yes/no)	Haz Mat Risk[a] (L/M/H)	Year Built	Square Feet	Building Value[b]	Content Value[c]	Construction Class[d]	# Stories
383	Unit 0115, Idaho Self-Storage - River	L	N	N	L	4/17/2017	400	$0	$36,558	F	1
384	Unit 0113, Idaho Self-Storage - River	L	N	N	L	4/17/2017	200	$0	$36,558	F	1
385	City Center Plaza - Bike Condo	O	N	N	L	4/17/2017	1,158	$50,887	$36,196	U	1
386	City Center Plaza - 3rd floor Fenced Bike Parking	L	N	N	L	6/30/2017	1,429	$25,444	$36,196	U	1
387	US BANK Building	L	Y	N	L	6/30/2017	3,078	$0	$875,672	A	15
388	1923 Yale Ct. and 1923 ½ Yale Court	O	N	N	L	11/14/2017	1,718	$279,665	$4,136	D	1
389	1815 Potter Dr.	O	Y	N	L	11/1/1946	849	$192,725	$4,136	D	1
390	Leatherman Peak	O	N	N	L	11/1/1951	8,364	$1,836,104	$112,858	F	2
391	1501 Juanita St.	O	N	N	L	12/30/2018	4,148	$468,792	$14,478	D	2
392	1105 Manitou	O	Y	N	L	11/1/1948	1,856	$239,604	$4,136	D	1
393	1435 University Dr	O	Y	N	L	6/15/2020	97,964	$44,091,961	$606,000	A	3
396	1507-1509 Juanita	O	N	N	L	9/18/1967	1,532	$338,466	$0	D	1
400	1801 W. Yale Court	O	N	N	L	4/9/1962	5,808	$974,374	$0	H	1
	Total						5,673,881	$1,631,675,012	$293,754,474		

a. Hazardous Materials: Low (L) - no or very few chemicals such as cleaning supplies, Medium (M) - moderate amount of chemicals such as maintenance chemicals or a photo lab or art studio, High (H) - very toxic chemicals usually found in science laboratories or central power stations.
b. Building Value - based on values reported by the university to the State of Montana Risk and Tort Management Division. The division puts a four percent increase on the value to ensure it is insured at market value. Figure 3-5 shows Building Values
c. Content Value - based on values reported by the university to the state of Montana Risk and Tort Management Division. Building content values includes all of the physical property in the building. Economic damages associated with building content include but are not limited to books, technical instruments, research equipment, art, specimens, and furniture. Figure 3-4 shows Content Values.
d. Building Construction Class: A - Fire-Protected Steel Frame, B - Reinforced Concrete Frame, C - Unprotected Steel Frame With Non-Combustible (Masonry) Exterior, D - Wood Frame, E - Steel Frame With Combustible Exterior Walls, F - Steel Stud, G – Pre-cast Frame, H - Unreinforced Concrete Frame, U – Unknown

Boise State University Hazard Mitigation Plan

Appendix C. Exposure and Loss by Asset

C. Exposure and Loss by Asset

Boise State University Building Damage Estimates for FEMA 500-Year Flood

Building Code	Building Name	Structure Replacement Cost	Content Replacement Cost	Structure in Flood Zone	Building Damage Percent	Building Loss	Content Damage Percent	Content Loss
004	Administration	$13,577,470	$2,142,151	Y	0.0	$0	0.0	$0
005	Hemingway Center	$6,628,709	$1,009,674	Y	0.0	$0	0.0	$0
006	Heat Plant and Telephone Building	$5,135,372	$2,493,488	Y	0.0	$0	0.0	$0
007	Campus School	$6,064,399	$771,540	Y	0.0	$0	0.0	$0
008	Opaline School House	$118,656	$7,925	Y	0.0	$0	0.0	$0
009	Maintenance Shops	$817,573	$272,325	Y	1.3	$10,870	1.3	$3,621
011	Communication	$3,045,169	$1,898,881	Y	0.0	$0	0.0	$0
013	Morrison Ctr for Performing Arts (Aux.)	$84,503,013	$3,688,288	Y	0.0	$0	0.0	$0
014	Morrison Ctr for the Performing Arts (Ed.)	$10,691,368	$16,037,053	Y	0.0	$0	0.0	$0
015	ExtraMile Arena	$75,183,608	$4,303,736	Y	0.0	$0	0.0	$0
016	Simplot Micron Advising and Success Hub	$11,406,395	$5,957,074	Y	0.0	$0	0.0	$0
020	Morrison Hall	$3,638,649	$284,585	Y	0.0	$0	0.0	$0
021	Driscoll Hall	$3,824,406	$133,399	Y	0.0	$0	0.0	$0
022	1803 Donald Circle, Student Housing	$135,220	$4,136	N	0.0	$0	0.0	$0
023	1809 Donald Circle, Student Housing	$256,481	$4,136	N	0.0	$0	0.0	$0
024	Mathematics	$15,478,940	$6,696,328	Y	0.0	$0	0.0	$0
025	Bronco Gymnasium - Department of Kinesiology	$9,864,949	$1,096,058	Y	0.0	$0	0.0	$0
027	Albertsons Library	$73,213,028	$122,097,230	Y	0.0	$0	0.0	$0
028	Boulder Hall	$4,663,023	$163,834	Y	0.0	$0	0.0	$0
029	Charles P Ruch Engineering Building	$38,365,083	$14,828,394	Y	0.0	$0	0.0	$0
030	Liberal Arts	$9,178,325	$1,048,592	Y	0.0	$0	0.0	$0

Building Code	Building Name	Structure Replacement Cost	Content Replacement Cost	Structure in Flood Zone	Building Damage Percent	Building Loss	Content Damage Percent	Content Loss
031	Chaffee Hall	$171,742,526	$1,422,933	Y	0.0	$0	0.0	$0
032	Student Union	$125,700,036	$6,154,658	Y	0.0	$0	0.0	$0
034	Riverfront Hall	$17,713,723	$11,247,410	Y	0.0	$0	0.0	$0
035	Albertsons Stadium	$48,084,843	$2,673,210	Y	0.2	$83,468	2.3	$60,323
036	Varsity Center (Simplot Center for Athletic Excellence), Nickelson-Yanke Center	$9,556,319	$1,362,330	Y	0.2	$16,588	2.3	$30,742
037	Kinesiology Annex (Pool)	$7,184,917	$244,987	Y	0.0	$0	0.0	$0
038	Varsity Center Annex	$1,751,582	$359,295	Y	0.2	$3,040	2.3	$8,108
039	John B. Barnes Towers	$10,234,670	$978,266	Y	0.0	$0	0.0	$0
040	Chrisway Annex	$1,583,371	$493,036	Y	0.0	$0	0.0	$0
049	2065 University Drive (Annex 3)	$342,009	$205,380	Y	0.0	$0	0.0	$0
054	English Annex	$424,308	$25,826	Y	0.0	$0	0.0	$0
056	Pioneer Hall	$4,460,401	$444,538	Y	0.0	$0	0.0	$0
062	Special Events Center	$5,833,486	$406,332	Y	0.0	$0	0.0	$0
065	Art Annex #1	$307,840	$41,334	Y	0.0	$0	0.0	$0
070	Landscape Services	$112,718	$207,315	N	0.0	$0	0.0	$0
071	Education	$20,806,666	$2,933,773	Y	0.0	$0	0.0	$0
072	Science Building	$59,530,157	$11,346,593	Y	0.0	$0	0.0	$0
074	Science Greenhouse (Sci Nursing)	$154,701	$1,605	Y	0.0	$0	0.0	$0
075	Copper Basin	$2,113,523	$235,017	Y	1.8	$38,050	1.8	$4,231
078	Student Housing Maintenance	$480,772	$188,621	Y	6.0	$28,912	5.6	$10,639
079	Manitou Annex #3	$364,258	$500,968	Y	0.6	$2,079	0.6	$2,860
081	Euclid Annex #4	$206,164	$57,729	Y	0.0	$0	0.0	$0
082	2055 University Drive (Annex 2)	$590,157	$161,994	Y	0.0	$0	0.0	$0
083	Biology Greenhouse	$239,292	$44,450	Y	0.0	$0	0.0	$0
084	Const. Materials & Methods Lab	$229,295	$30,171	Y	0.0	$0	0.0	$0
085	Appleton Tennis Center	$2,780,145	$14,091	Y	0.0	$0	0.0	$0
087	Boas Tennis and Soccer Ctr.	$2,673,156	$73,032	N	0.0	$0	0.0	$0
089	Construction Management	$124,614	$30,922	Y	0.0	$0	0.0	$0
090	Student Success Ctr. (Annex #8)	$231,166	$160,976	Y	0.0	$0	0.0	$0
093	Children’s Ctr.	$2,451,262	$792,540	N	0.0	$0	0.0	$0
096	Garage Stadium Storage	$271,651	$23,775	Y	0.2	$472	2.3	$537

Building Code	Building Name	Structure Replacement Cost	Content Replacement Cost	Structure in Flood Zone	Building Damage Percent	Building Loss	Content Damage Percent	Content Loss
098	Theatre Arts Annex (Costume Shop)	$800,592	$83,830	Y	0.0	$0	0.0	$0
099	1375 Belmont Annex	$132,616	$97,638	Y	0.0	$0	0.0	$0
100	Harry Morrison Civil Engineering	$11,519,981	$2,886,560	Y	0.0	$0	0.0	$0
101	Micron Engineering Center	$42,092,199	$15,353,675	Y	0.0	$0	0.0	$0
102	Student Recreation Center	$28,213,869	$1,329,820	Y	0.0	$0	0.0	$0
102A	Student Recreation Center - Natatorium	$9,999,932	$422,531	Y	0.0	$0	0.0	$0
104	Brady Street Garage	$28,413,491	$157,468	Y	0.0	$0	0.0	$0
105	1015 Grant Avenue Annex	$1,743,802	$383,801	Y	0.0	$0	0.0	$0
110	FO&M Training Center	$162,306	$171,625	Y	0.0	$0	0.0	$0
114	1113 Denver Annex	$205,851	$286,046	Y	0.0	$0	0.0	$0
115	1113 Denver Annex Garage	$27,290	$36,990	Y	0.0	$0	0.0	$0
116	Internal Audit	$189,912	$84,540	Y	0.0	$0	0.0	$0
117	Internal Audit	$27,290	$0	Y	0.0	$0	0.0	$0
119	Grant Annex 4, 1023 S. Grant	$545,308	$61,337	Y	0.0	$0	0.0	$0
121	Health Sciences - Riverside	$4,725,281	$1,410,812	Y	7.5	$353,542	41.6	$587,102
122	Raptor Research Center	$2,809,419	$132,678	Y	7.2	$201,927	39.4	$52,283
123	Multi-Purpose Classroom Building	$16,900,572	$3,913,610	Y	0.0	$0	0.0	$0
125	1114 Manitou Annex #2	$266,372	$215,218	Y	0.8	$2,108	0.8	$1,703
137	1406 Chrisway Annex 2	$453,582	$132,678	Y	0.0	$0	0.0	$0
138	TECenter (Technology and Entrepreneurial Center)	$16,184,148	$131,365	N	0.0	$0	0.0	$0
143	Idaho Center Sports Center	$0	$1,321,653	N	0.0	$0	0.0	$0
144	Capitol Village #5	$1,245,627	$117,703	Y	0.0	$0	0.0	$0
146	1029 Lusk Annex	$0	$322,827	Y	11.7	$0	18.9	$61,055
152	David S. Taylor Hall	$13,407,142	$882,218	Y	0.0	$0	0.0	$0
153	John H. Keiser Hall	$9,113,274	$705,664	Y	0.0	$0	0.0	$0
154	University Suites - “Selway Suites”	$5,800,000	$455,338	Y	0.0	$0	0.0	$0
155	University Suites - “Payette Suites”	$4,528,011	$381,187	Y	0.0	$0	0.0	$0
156	University Suites - “Clearwater Suites”	$4,349,974	$284,585	Y	0.0	$0	0.0	$0
157	University Square - Jade Hall	$3,531,567	$60,961	Y	0.0	$0	0.0	$0
158	University Square - Topaz Hall	$3,398,743	$60,961	Y	0.0	$0	0.0	$0
159	University Square - Jasper Hall	$3,411,348	$60,961	Y	0.0	$0	0.0	$0
160	University Square - Garnet Hall	$3,909,843	$71,122	Y	0.0	$0	0.0	$0

Building Code	Building Name	Structure Replacement Cost	Content Replacement Cost	Structure in Flood Zone	Building Damage Percent	Building Loss	Content Damage Percent	Content Loss
164	Allen Noble Hall of Fame	$3,871,698	$100,570	Y	0.2	$6,721	2.3	$2,269
166	Christ Chapel	$293,255	$0	Y	0.0	$0	0.0	$0
173	University Heights Apartments - A	$1,207,504	$30,479	Y	0.0	$0	0.0	$0
174	University Heights Apartments - B	$1,268,343	$30,479	Y	0.0	$0	0.0	$0
175	University Heights Apartments - C	$1,207,504	$30,479	Y	0.0	$0	0.0	$0
176	University Manor Apartments - A	$2,324,896	$152,402	N	0.0	$0	0.0	$0
177	University Manor Apartments - B	$2,324,896	$60,961	N	0.0	$0	0.0	$0
178	University Park Apartments - A (N)	$2,877,654	$60,961	Y	0.0	$0	0.0	$0
179	University Park Apartments - B (S)	$2,877,654	$60,961	Y	0.0	$0	0.0	$0
180	University Village Apartments - A	$1,370,852	$32,778	Y	1.9	$25,603	1.5	$490
181	University Village Apartments - B	$1,370,852	$32,778	Y	0.0	$0	0.0	$0
182	University Village Apartments - C	$1,370,852	$32,778	Y	0.0	$0	0.0	$0
183	University Village Apartments - D	$1,370,852	$32,778	Y	0.0	$0	0.0	$0
184	University Village Apartments - E	$2,015,910	$32,778	Y	0.0	$0	0.0	$0
185	University Village Apartments - F	$238,771	$45,720	Y	0.0	$0	0.0	$0
198	Network Services	$120,948	$174,931	Y	0.3	$315	0.3	$456
203	Euclid Annex #2	$421,225	$194,051	Y	0.1	$592	0.1	$273
204	Euclid Annex #3	$526,531	$228,313	Y	0.1	$761	0.1	$330
210	Capitol Village #2	$441,185	$7,421	N	0.0	$0	0.0	$0
211	Capitol Village #3	$1,476,695	$11,170	Y	0.0	$0	0.0	$0
213	Capitol Village #4	$684,228	$39,702	Y	0.0	$0	0.0	$0
214	Capitol Village #1	$1,199,691	$123,255	N	0.0	$0	0.0	$0
215	Capitol Village #6	$7,381,089	$90,116	Y	0.0	$0	0.0	$0
216	CGISS Lease	$0	$978,884	Y	9.0	$0	58.6	$573,331
219	Soccer Field Restroom/Concession Bldg.	$189,392	$0	N	0.0	$0	0.0	$0
234	Caven-Williams Sports Complex	$13,814,954	$38,862	Y	0.0	$0	0.0	$0
235	Interactive Teaching & Learning Center	$20,601,252	$2,213,137	Y	0.0	$0	0.0	$0
242	1156 - 1158 Euclid Annex	$214,394	$0	Y	0.0	$0	0.0	$0
243	1162 - 1164 Euclid Annex	$214,394	$0	Y	0.1	$191	0.1	$0
245	1142-1144 Euclid Annex	$214,394	$353,056	Y	0.0	$0	0.0	$0
247	1350 W. Victory Road	$0	$6,476	N	0.0	$0	0.0	$0
255	Lincoln Avenue Garage	$35,872,808	$589,058	Y	0.0	$0	0.0	$0

Building Code	Building Name	Structure Replacement Cost	Content Replacement Cost	Structure in Flood Zone	Building Damage Percent	Building Loss	Content Damage Percent	Content Loss
258	Access Mini Storage - Boise State Radio	$30,532	$117,068	N	0.0	$0	0.0	$0
259	Norco Building: Nursing Department, University Health Services	$24,030,125	$2,894,703	N	0.0	$0	0.0	$0
264	Stueckle Sky Center	$54,208,455	$2,470,022	Y	0.0	$0	0.0	$0
266	1130 S. Manitou	$26,782	$6,350	Y	0.6	$150	0.7	$48
267	Environmental Research Building	$62,715,238	$23,478	Y	0.0	$0	0.0	$0
270	Waste Materials Storage Bldg.	$154,686	$0	Y	0.0	$0	0.0	$0
278	Dona Larsen Park - Track & Field Equipment Building	$773,611	$123,008	Y	0.9	$6,962	11.7	$14,390
285	1121 S. Denver	$143,971	$43,503	Y	0.0	$0	0.0	$0
289	Ron and Linda Yanke Family Research Park	$16,202,910	$1,060,188	Y	5.4	$868,928	29.0	$307,405
292	Dona Larsen Park Softball Storage Shed	$5,858	$3,626	Y	11.5	$672	59.2	$2,145
298	Micron Business and Economics Building	$47,908,983	$1,924,498	Y	0.0	$0	0.0	$0
299	1870 Belmont	$72,030	$4,136	N	0.0	$0	0.0	$0
301	1514 S. Martha Cir	$70,831	$4,136	Y	13.4	$9,459	16.4	$676
302	1630 S. Joyce	$98,399	$4,136	N	0.0	$0	0.0	$0
305	1816 Yale	$313,361	$0	Y	0.0	$0	0.0	$0
306	1827 Yale	$316,903	$0	Y	0.0	$0	0.0	$0
307	1855 Belmont	$166,681	$4,136	N	0.0	$0	0.0	$0
308	1406 S. Juanita	$312,220	$156,110	Y	0.6	$1,896	0.8	$1,264
309	1803 W. Potter	$164,218	$4,096	N	0.0	$0	0.0	$0
310	1509 S. Joyce	$91,277	$4,096	N	0.0	$0	0.0	$0
319	1110 S. Grant	$171,890	$4,136	Y	0.0	$0	0.0	$0
320	1808 Donald Circle	$173,244	$14,478	N	0.0	$0	0.0	$0
324	Boise State Meridian Center (Extended Studies)	$138,815	$0	N	0.0	$0	0.0	$0
326	The Lincoln Townhouses - “Tamarack House”	$2,099,685	$117,843	N	0.0	$0	0.0	$0
327	The Lincoln Townhouses - “Hawthorne House”	$4,831,237	$290,407	N	0.0	$0	0.0	$0
328	The Lincoln Townhouses - “Juniper House”	$4,835,129	$290,407	N	0.0	$0	0.0	$0
329	The Lincoln Townhouses - “Cedar House”	$3,978,852	$247,889	N	0.0	$0	0.0	$0
330	The Lincoln Townhouses - “Aspen House”	$2,096,947	$117,843	N	0.0	$0	0.0	$0
331	The Lincoln Townhouses - “Spruce House”	$3,969,916	$247,889	N	0.0	$0	0.0	$0
332	Gene Bleymaier Football Complex	$24,443,974	$5,693,788	Y	0.0	$0	0.0	$0
334	1708 Potter	$186,579	$4,136	N	0.0	$0	0.0	$0
336	1810 Potter	$1,067,803	$4,136	N	0.0	$0	0.0	$0

Building Code	Building Name	Structure Replacement Cost	Content Replacement Cost	Structure in Flood Zone	Building Damage Percent	Building Loss	Content Damage Percent	Content Loss
338	1519 Juanita	$139,075	$4,136	N	0.0	$0	0.0	$0
341	Dona Larsen Park - North Restroom	$360,553	$0	Y	11.5	$41,331	59.2	$0
342	Dona Larsen Park - South Restroom	$137,020	$4,096	Y	11.5	$15,707	59.2	$2,424
343	Dona Larsen Park - Football Pressbox	$355,225	$355,225	Y	11.5	$40,720	59.2	$210,180
344	Dona Larsen Park - East Softball Dugout	$23,435	$0	Y	11.5	$2,686	59.2	$0
345	Dona Larsen Park - West Softball Dugout	$23,435	$0	Y	11.5	$2,686	59.2	$0
346	Dona Larsen Park - Softball Pressbox	$242,209	$2,152	Y	11.5	$27,765	59.2	$1,273
347	301 S. Capital	$2,915,991	$77,872	Y	0.0	$0	0.0	$0
348	University Plaza	$22,309,007	$131,426	Y	0.0	$0	0.0	$0
349	Center for Visual Arts	$45,957,706	$77,101	Y	0.0	$0	0.0	$0
351	1814 W Potter Drive	$81,671	$4,136	N	0.0	$0	0.0	$0
352	5475 W. Gage Street	$2,875,571	$2,529,985	N	0.0	$0	0.0	$0
354	1411 Belmont	$41,886	$0	Y	0.5	$190	0.5	$0
355	1427 - 1429 Belmont	$208,977	$4,136	Y	0.8	$1,579	0.8	$31
358	1112 Manitou Garage	$0	$0	Y	0.0	$0	0.0	$0
360	1817 W Potter Drive	$101,988	$4,136	N	0.0	$0	0.0	$0
361	1607-1609 Martha Street	$215,852	$4,136	Y	9.5	$20,451	11.8	$487
362	2500 Boise Ave	$347,218	$5,300	N	0.0	$0	0.0	$0
363	1225 Belmont	$104,659	$0	Y	0.0	$0	0.0	$0
364	1225 Belmont Shop	$26,231	$0	Y	0.0	$0	0.0	$0
365	Capitol Village #7	$14,311,956	$1,516,069	Y	0.0	$0	0.0	$0
366	1711 Potter Drive	$233,666	$4,136	N	0.0	$0	0.0	$0
367	City Center Plaza	$12,749,271	$2,350,346	Y	0.0	$0	0.0	$0
368	Alumni and Friends Center	$15,626,404	$800,423	Y	0.0	$0	0.0	$0
369	1843 University Drive	$3,089,868	$4,136	Y	0.0	$0	0.0	$0
370	1802/1804 Yale Court	$100,626	$4,136	Y	0.0	$0	0.0	$0
371	1806/1808 Yale Court	$100,626	$4,136	Y	0.0	$0	0.0	$0
374	1813 Potter Drive	$73,990	$4,136	N	0.0	$0	0.0	$0
375	1862 W Belmont St	$104,488	$4,136	N	0.0	$0	0.0	$0
377	City Center Plaza Bronco Shop	$0	$35,350	Y	0.0	$0	0.0	$0
380	Honors College Live Learn Community	$3,004,197	$2,688,865	Y	0.0	$0	0.0	$0
383	Unit 0115, Idaho Self Storage - River	$0	$36,558	Y	0.9	$0	0.0	$0

Building Code	Building Name	Structure Replacement Cost	Content Replacement Cost	Structure in Flood Zone	Building Damage Percent	Building Loss	Content Damage Percent	Content Loss
384	Unit 0113, Idaho Self Storage - River	$0	$36,558	Y	0.9	$0	0.0	$0
385	City Center Plaza - Bike Condo	$50,887	$36,196	Y	0.0	$0	0.0	$0
386	City Center Plaza - 3rd floor Fenced Bike Parking	$25,444	$36,196	Y	0.0	$0	0.0	$0
387	US BANK Building	$0	$875,672	Y	0.0	$0	0.0	$0
388	1923 Yale Ct.	$279,665	$4,136	Y	0.0	$0	0.0	$0
389	1815 Potter Dr.	$192,725	$4,136	N	0.0	$0	0.0	$0
390	Leatherman Peak	$1,836,104	$112,858	Y	0.0	$0	0.0	$0
391	1501 Juanita St.	$468,792	$14,478	Y	4.1	$19,374	5.4	$776
392	1105 Manitou	$239,604	$4,136	Y	0.6	$1,502	0.8	$35
393	1435 University Dr (New Bldg.; Not Modeled)	$44,091,961	$606,000					
396	1507-1509 Juanita	$338,466	$0	Y	4.9	$16,434	6.2	$0
400	1801 W. Yale Court	$974,374	$0	Y	0.0	$0	0.0	$0
TOTAL		$1,631,705,544	$293,871,543			$1,853,732		$1,941,488

Boise State University Building Damage Estimates for Lucky Peak Dam Failure

Building Code	Building Name	Structure Replacement Cost	Content Replacement Cost	Structure in Flood Zone	Building Damage Percent	Building Loss	Content Damage Percent	Content Loss
004	Administration	$13,577,470	$2,142,151	Y	79	$10,726,201	72	$1,542,349
005	Hemingway Center	$6,628,709	$1,009,674	Y	89	$5,899,551	100	$1,009,674
006	Heat Plant and Telephone Building	$5,135,372	$2,493,488	Y	79	$4,056,944	72	$1,795,311
007	Campus School	$6,064,399	$771,540	Y	89	$5,397,315	100	$771,540
008	Opaline School House	$118,656	$7,925	Y	76	$90,179	96	$7,608
009	Maintenance Shops	$817,573	$272,325	Y	79	$645,883	72	$196,074
011	Communication	$3,045,169	$1,898,881	Y	89	$2,710,200	100	$1,898,881
013	Morrison Ctr for Performing Arts (Aux.)	$84,503,013	$3,688,288	Y	76	$64,222,290	96	$3,540,756
014	Morrison Ctr for the Performing Arts (Ed.)	$10,691,368	$16,037,053	Y	89	$9,515,318	100	$16,037,053
015	ExtraMile Arena	$75,183,608	$4,303,736	Y	89	$66,913,411	100	$4,303,736
016	Simplot Micron Advising and Success Hub	$11,406,395	$5,957,074	Y	89	$10,151,692	100	$5,957,074
020	Morrison Hall	$3,638,649	$284,585	Y	87	$3,165,625	100	$284,585
021	Driscoll Hall	$3,824,406	$133,399	Y	87	$3,327,233	100	$133,399
022	1803 Donald Circle, Student Housing	$135,220	$4,136	Y	87	$117,641	100	$4,136
023	1809 Donald Circle, Student Housing	$256,481	$4,136	Y	87	$223,138	100	$4,136
024	Mathematics	$15,478,940	$6,696,328	Y	89	$13,776,257	100	$6,696,328
025	Bronco Gymnasium - Department of Kinesiology	$9,864,949	$1,096,058	Y	89	$8,779,805	100	$1,096,058
027	Albertsons Library	$73,213,028	$122,097,230	Y	89	$65,159,595	100	$122,097,230
028	Boulder Hall	$4,663,023	$163,834	Y	89	$4,150,090	100	$163,834
029	Charles P Ruch Engineering Building	$38,365,083	$14,828,394	Y	89	$34,144,924	100	$14,828,394
030	Liberal Arts	$9,178,325	$1,048,592	Y	89	$8,168,709	100	$1,048,592
031	Chaffee Hall	$171,742,526	$1,422,933	Y	87	$149,415,998	100	$1,422,933
032	Student Union	$125,700,036	$6,154,658	Y	89	$111,873,032	100	$6,154,658
034	Riverfront Hall	$17,713,723	$11,247,410	Y	89	$15,765,213	100	$11,247,410
035	Albertsons Stadium	$48,084,843	$2,673,210	Y	76	$36,544,481	96	$2,566,282
036	Varsity Center (Simplot Center for Athletic Excellence), Nickelson-Yanke Center	$9,556,319	$1,362,330	Y	76	$7,262,802	96	$1,307,837
037	Kinesiology Annex (Pool)	$7,184,917	$244,987	Y	76	$5,460,537	96	$235,188
038	Varsity Center Annex	$1,751,582	$359,295	Y	76	$1,331,202	96	$344,923
039	John B. Barnes Towers	$10,234,670	$978,266	Y	87	$8,904,163	100	$978,266
040	Chrisway Annex	$1,583,371	$493,036	Y	89	$1,409,200	100	$493,036

Building Code	Building Name	Structure Replacement Cost	Content Replacement Cost	Structure in Flood Zone	Building Damage Percent	Building Loss	Content Damage Percent	Content Loss
049	2065 University Drive (Annex 3)	$342,009	$205,380	Y	89	$304,388	100	$205,380
054	English Annex	$424,308	$25,826	Y	89	$377,634	100	$25,826
056	Pioneer Hall	$4,460,401	$444,538	Y	89	$3,969,757	100	$444,538
062	Special Events Center	$5,833,486	$406,332	Y	76	$4,433,449	96	$390,079
065	Art Annex #1	$307,840	$41,334	Y	89	$273,978	100	$41,334
070	Landscape Services	$112,718	$207,315	Y	84	$94,683	80	$165,852
071	Education	$20,806,666	$2,933,773	Y	89	$18,517,933	100	$2,933,773
072	Science Building	$59,530,157	$11,346,593	Y	89	$52,981,840	100	$11,346,593
074	Science Greenhouse (Sci Nursing)	$154,701	$1,605	Y	89	$137,684	100	$1,605
075	Copper Basin	$2,113,523	$235,017	Y	79	$1,669,683	72	$169,212
078	Student Housing Maintenance	$480,772	$188,621	Y	65	$312,502	81	$152,783
079	Manitou Annex #3	$364,258	$500,968	Y	79	$287,764	72	$360,697
081	Euclid Annex #4	$206,164	$57,729	Y	79	$162,870	72	$41,565
082	2055 University Drive (Annex 2)	$590,157	$161,994	Y	89	$525,240	100	$161,994
083	Biology Greenhouse	$239,292	$44,450	Y	89	$212,970	100	$44,450
084	Const. Materials & Methods Lab	$229,295	$30,171	Y	89	$204,073	100	$30,171
085	Appleton Tennis Center	$2,780,145	$14,091	Y	76	$2,112,910	96	$13,527
087	Boas Tennis and Soccer Ctr.	$2,673,156	$73,032	Y	76	$2,031,599	96	$70,111
089	Construction Management	$124,614	$30,922	Y	89	$110,906	100	$30,922
090	Student Success Ctr. (Annex #8)	$231,166	$160,976	Y	79	$182,621	72	$115,903
093	Children's Ctr.	$2,451,262	$792,540	Y	82	$2,010,035	98	$776,689
096	Garage Stadium Storage	$271,651	$23,775	Y	76	$206,455	96	$22,824
098	Theatre Arts Annex (Costume Shop)	$800,592	$83,830	Y	89	$712,527	100	$83,830
099	1375 Belmont Annex	$132,616	$97,638	Y	89	$118,028	100	$97,638
100	Harry Morrison Civil Engineering	$11,519,981	$2,886,560	Y	89	$10,252,783	100	$2,886,560
101	Micron Engineering Center	$42,092,199	$15,353,675	Y	89	$37,462,057	100	$15,353,675
102	Student Recreation Center	$28,213,869	$1,329,820	Y	76	$21,442,540	96	$1,276,627
102A	Student Recreation Center - Natatorium	$9,999,932	$422,531	Y	76	$7,599,948	96	$405,630
104	Brady Street Garage	$28,413,491	$157,468	Y	96	$27,276,951	100	$157,468
105	1015 Grant Avenue Annex	$1,743,802	$383,801	Y	89	$1,551,984	100	$383,801
110	FO&M Training Center	$162,306	$171,625	Y	96	$155,814	100	$171,625
114	1113 Denver Annex	$205,851	$286,046	Y	79	$162,622	72	$205,953

Building Code	Building Name	Structure Replacement Cost	Content Replacement Cost	Structure in Flood Zone	Building Damage Percent	Building Loss	Content Damage Percent	Content Loss
115	1113 Denver Annex Garage	$27,290	$36,990	Y	96	$26,198	100	$36,990
116	Internal Audit	$189,912	$84,540	Y	79	$150,030	72	$60,869
117	Internal Audit	$27,290	$0	Y	96	$26,198	100	$0
119	Grant Annex 4, 1023 S. Grant	$545,308	$61,337	Y	89	$485,324	100	$61,337
121	Health Sciences - Riverside	$4,725,281	$1,410,812	Y	89	$4,205,500	100	$1,410,812
122	Raptor Research Center	$2,809,419	$132,678	Y	89	$2,500,383	100	$132,678
123	Multi-Purpose Classroom Building	$16,900,572	$3,913,610	Y	89	$15,041,509	100	$3,913,610
125	1114 Manitou Annex #2	$266,372	$215,218	Y	79	$210,434	72	$154,957
137	1406 Chrisway Annex 2	$453,582	$132,678	Y	79	$358,330	72	$95,528
138	TECenter (Technology and Entrepreneurial Center)	$16,184,148	$131,365	N	0	$0	0	$0
143	Idaho Center Sports Center	$0	$1,321,653	N	0	$0	0	$0
144	Capitol Village #5	$1,245,627	$117,703	Y	78	$971,589	94	$110,641
146	1029 Lusk Annex	$0	$322,827	Y	79	$0	72	$232,435
152	David S. Taylor Hall	$13,407,142	$882,218	Y	87	$11,664,214	100	$882,218
153	John H. Keiser Hall	$9,113,274	$705,664	Y	87	$7,928,548	100	$705,664
154	University Suites - “Selway Suites”	$5,800,000	$455,338	Y	87	$5,046,000	100	$455,338
155	University Suites - “Payette Suites”	$4,528,011	$381,187	Y	87	$3,939,370	100	$381,187
156	University Suites - “Clearwater Suites”	$4,349,974	$284,585	Y	87	$3,784,477	100	$284,585
157	University Square - Jade Hall	$3,531,567	$60,961	Y	87	$3,072,463	100	$60,961
158	University Square - Topaz Hall	$3,398,743	$60,961	Y	87	$2,956,906	100	$60,961
159	University Square - Jasper Hall	$3,411,348	$60,961	Y	87	$2,967,873	100	$60,961
160	University Square - Garnet Hall	$3,909,843	$71,122	Y	87	$3,401,563	100	$71,122
164	Allen Noble Hall of Fame	$3,871,698	$100,570	Y	76	$2,942,490	96	$96,547
166	Christ Chapel	$293,255	$0	Y	85	$249,267	100	$0
173	University Heights Apartments - A	$1,207,504	$30,479	Y	58	$700,352	60	$18,287
174	University Heights Apartments - B	$1,268,343	$30,479	Y	58	$735,639	60	$18,287
175	University Heights Apartments - C	$1,207,504	$30,479	Y	58	$700,352	60	$18,287
176	University Manor Apartments - A	$2,324,896	$152,402	Y	58	$1,348,440	60	$91,441
177	University Manor Apartments - B	$2,324,896	$60,961	Y	58	$1,348,440	60	$36,577
178	University Park Apartments - A (N)	$2,877,654	$60,961	Y	58	$1,669,039	60	$36,577
179	University Park Apartments - B (S)	$2,877,654	$60,961	Y	58	$1,669,039	60	$36,577
180	University Village Apartments - A	$1,370,852	$32,778	Y	58	$795,094	60	$19,667

Building Code	Building Name	Structure Replacement Cost	Content Replacement Cost	Structure in Flood Zone	Building Damage Percent	Building Loss	Content Damage Percent	Content Loss
181	University Village Apartments - B	$1,370,852	$32,778	Y	58	$795,094	60	$19,667
182	University Village Apartments - C	$1,370,852	$32,778	Y	58	$795,094	60	$19,667
183	University Village Apartments - D	$1,370,852	$32,778	Y	58	$795,094	60	$19,667
184	University Village Apartments - E	$2,015,910	$32,778	Y	58	$1,169,228	60	$19,667
185	University Village Apartments - F	$238,771	$45,720	Y	58	$138,487	60	$27,432
198	Network Services	$120,948	$174,931	Y	79	$95,549	72	$125,950
203	Euclid Annex #2	$421,225	$194,051	Y	79	$332,768	72	$139,717
204	Euclid Annex #3	$526,531	$228,313	Y	79	$415,959	72	$164,385
210	Capitol Village #2	$441,185	$7,421	Y	79	$348,536	72	$5,343
211	Capitol Village #3	$1,476,695	$11,170	Y	79	$1,166,589	72	$8,042
213	Capitol Village #4	$684,228	$39,702	Y	79	$540,540	72	$28,585
214	Capitol Village #1	$1,199,691	$123,255	Y	79	$947,756	72	$88,744
215	Capitol Village #6	$7,381,089	$90,116	Y	89	$6,569,169	100	$90,116
216	CGISS Lease	$0	$978,884	Y	89	$0	100	$978,884
219	Soccer Field Restroom/Concession Bldg.	$189,392	$0	Y	76	$143,938	96	$0
234	Caven-Williams Sports Complex	$13,814,954	$38,862	Y	76	$10,499,365	96	$37,308
235	Interactive Teaching & Learning Center	$20,601,252	$2,213,137	Y	89	$18,335,114	100	$2,213,137
242	1156 - 1158 Euclid Annex	$214,394	$0	Y	79	$169,371	72	$0
243	1162 - 1164 Euclid Annex	$214,394	$0	Y	79	$169,371	72	$0
245	1142-1144 Euclid Annex	$214,394	$353,056	Y	79	$169,371	72	$254,200
247	1350 W. Victory Road	$0	$6,476	N	6	$0	5	$336
255	Lincoln Avenue Garage	$35,872,808	$589,058	Y	96	$34,437,896	100	$589,058
258	Access Mini Storage - Boise State Radio	$30,532	$117,068	N	0	$0	0	$0
259	Norco Building: Nursing Department, University Health Services	$24,030,125	$2,894,703	Y	89	$21,386,811	100	$2,894,703
264	Stueckle Sky Center	$54,208,455	$2,470,022	Y	76	$41,198,426	96	$2,371,221
266	1130 S. Manitou	$26,782	$6,350	Y	84	$22,497	80	$5,080
267	Environmental Research Building	$62,715,238	$23,478	Y	89	$55,816,562	100	$23,478
270	Waste Materials Storage Bldg.	$154,686	$0	Y	89	$137,671	100	$0
278	Dona Larsen Park - Track & Field Equipment Building	$773,611	$123,008	Y	76	$587,944	96	$118,088
285	1121 S. Denver	$143,971	$43,503	Y	84	$120,936	80	$34,802
289	Ron and Linda Yanke Family Research Park	$16,202,910	$1,060,188	Y	89	$14,420,590	100	$1,060,188

Building Code	Building Name	Structure Replacement Cost	Content Replacement Cost	Structure in Flood Zone	Building Damage Percent	Building Loss	Content Damage Percent	Content Loss
292	Dona Larsen Park Softball Storage Shed	$5,858	$3,626	Y	76	$4,452	96	$3,481
298	Micron Business and Economics Building	$47,908,983	$1,924,498	Y	89	$42,638,995	100	$1,924,498
299	1870 Belmont	$72,030	$4,136	Y	84	$60,505	80	$3,309
301	1514 S. Martha Cir	$70,831	$4,136	Y	84	$59,498	80	$3,309
302	1630 S. Joyce	$98,399	$4,136	Y	84	$82,655	80	$3,309
305	1816 Yale	$313,361	$0	Y	87	$272,624	100	$0
306	1827 Yale	$316,903	$0	Y	87	$275,706	100	$0
307	1855 Belmont	$166,681	$4,136	Y	84	$140,012	80	$3,309
308	1406 S. Juanita	$312,220	$156,110	Y	84	$262,265	80	$124,888
309	1803 W. Potter	$164,218	$4,096	Y	84	$137,943	80	$3,277
310	1509 S. Joyce	$91,277	$4,096	Y	84	$76,673	80	$3,277
319	1110 S. Grant	$171,890	$4,136	Y	58	$99,696	60	$2,482
320	1808 Donald Circle	$173,244	$14,478	Y	84	$145,525	80	$11,582
324	Boise State Meridian Center (Extended Studies)	$138,815	$0	N	0	$0	0	$0
326	The Lincoln Townhouses - “Tamarack House”	$2,099,685	$117,843	Y	58	$1,217,817	60	$70,706
327	The Lincoln Townhouses - “Hawthorne House”	$4,831,237	$290,407	Y	58	$2,802,117	60	$174,244
328	The Lincoln Townhouses - “Juniper House”	$4,835,129	$290,407	Y	58	$2,804,375	60	$174,244
329	The Lincoln Townhouses - “Cedar House”	$3,978,852	$247,889	Y	58	$2,307,734	60	$148,733
330	The Lincoln Townhouses - “Aspen House”	$2,096,947	$117,843	Y	58	$1,216,229	60	$70,706
331	The Lincoln Townhouses - “Spruce House”	$3,969,916	$247,889	Y	58	$2,302,551	60	$148,733
332	Gene Bleymaier Football Complex	$24,443,974	$5,693,788	Y	76	$18,577,420	96	$5,466,036
334	1708 Potter	$186,579	$4,136	Y	84	$156,726	80	$3,309
336	1810 Potter	$1,067,803	$4,136	Y	84	$896,955	80	$3,309
338	1519 Juanita	$139,075	$4,136	Y	84	$116,823	80	$3,309
341	Dona Larsen Park - North Restroom	$360,553	$0	Y	76	$274,020	96	$0
342	Dona Larsen Park - South Restroom	$137,020	$4,096	Y	76	$104,135	96	$3,932
343	Dona Larsen Park - Football Pressbox	$355,225	$355,225	Y	76	$269,971	96	$341,016
344	Dona Larsen Park - East Softball Dugout	$23,435	$0	Y	76	$17,811	96	$0
345	Dona Larsen Park - West Softball Dugout	$23,435	$0	Y	76	$17,811	96	$0
346	Dona Larsen Park - Softball Pressbox	$242,209	$2,152	Y	76	$184,079	96	$2,066
347	301 S. Capital	$2,915,991	$77,872	Y	89	$2,595,232	100	$77,872
348	University Plaza	$22,309,007	$131,426	Y	89	$19,855,016	100	$131,426

Building Code	Building Name	Structure Replacement Cost	Content Replacement Cost	Structure in Flood Zone	Building Damage Percent	Building Loss	Content Damage Percent	Content Loss
349	Center for Visual Arts	$45,957,706	$77,101	Y	89	$40,902,358	100	$77,101
351	1814 W Potter Drive	$81,671	$4,136	Y	84	$68,604	80	$3,309
352	5475 W. Gage Street	$2,875,571	$2,529,985	N	0	$0	0	$0
354	1411 Belmont	$41,886	$0	Y	79	$33,090	72	$0
355	1427 - 1429 Belmont	$208,977	$4,136	Y	79	$165,092	72	$2,978
358	1112 Manitou Garage	$0	$0	Y	96	$0	100	$0
360	1817 W Potter Drive	$101,988	$4,136	Y	84	$85,670	80	$3,309
361	1607-1609 Martha Street	$215,852	$4,136	Y	84	$181,316	80	$3,309
362	2500 Boise Ave	$347,218	$5,300	Y	89	$309,024	100	$5,300
363	1225 Belmont	$104,659	$0	Y	84	$87,914	80	$0
364	1225 Belmont Shop	$26,231	$0	Y	84	$22,034	80	$0
365	Capitol Village #7	$14,311,956	$1,516,069	Y	89	$12,737,641	100	$1,516,069
366	1711 Potter Drive	$233,666	$4,136	Y	84	$196,279	80	$3,309
367	City Center Plaza	$12,749,271	$2,350,346	Y	79	$10,071,924	72	$1,692,249
368	Alumni and Friends Center	$15,626,404	$800,423	Y	79	$12,344,859	72	$576,305
369	1843 University Drive	$3,089,868	$4,136	Y	58	$1,792,123	60	$2,482
370	1802/1804 Yale Court	$100,626	$4,136	Y	58	$58,363	60	$2,482
371	1806/1808 Yale Court	$100,626	$4,136	Y	58	$58,363	60	$2,482
374	1813 Potter Drive	$73,990	$4,136	Y	84	$62,152	80	$3,309
375	1862 W Belmont St	$104,488	$4,136	Y	84	$87,770	80	$3,309
377	City Center Plaza Bronco Shop	$0	$35,350	Y	78	$0	94	$33,229
380	Honors College Live Learn Community	$3,004,197	$2,688,865	Y	87	$2,613,651	100	$2,688,865
383	Unit 0115, Idaho Self Storage - River	$0	$36,558	Y	65	$0	81	$29,612
384	Unit 0113, Idaho Self Storage - River	$0	$36,558	Y	65	$0	81	$29,612
385	City Center Plaza - Bike Condo	$50,887	$36,196	Y	79	$40,201	72	$26,061
386	City Center Plaza - 3rd floor Fenced Bike Parking	$25,444	$36,196	Y	79	$20,101	72	$26,061
387	US BANK Building	$0	$875,672	Y	79	$0	72	$630,484
388	1923 Yale Ct.	$279,665	$4,136	Y	84	$234,919	80	$3,309
389	1815 Potter Dr.	$192,725	$4,136	Y	84	$161,889	80	$3,309
390	Leatherman Peak	$1,836,104	$112,858	Y	89	$1,634,133	100	$112,858
391	1501 Juanita St.	$468,792	$14,478	Y	84	$393,785	80	$11,582
392	1105 Manitou	$239,604	$4,136	Y	84	$201,267	80	$3,309

Building Code	Building Name	Structure Replacement Cost	Content Replacement Cost	Structure in Flood Zone	Building Damage Percent	Building Loss	Content Damage Percent	Content Loss
393	1435 University Dr (New Bldg.; Not Modeled)	$44,091,961	$606,000					
396	1507-1509 Juanita	$338,466	$0	Y	84	$284,311	80	$0
400	1801 W. Yale Court	$974,374	$0	Y	58	$565,137	60	$0
TOTAL		$1,631,705,544	$293,871,543			$1,335,172,989		$284,020,434

Boise State University Building Loss Estimates for Squaw Creek M7.0 Earthquake Scenario

Building Code	Building Name	Structure Replacement Cost	Content Replacement Cost	Economic Loss
004	Administration	$13,577,470	$2,142,151	$382,042
005	Hemingway Center	$6,628,709	$1,009,674	$281,109
006	Heat Plant and Telephone Building	$5,135,372	$2,493,488	$395,651
007	Campus School	$6,064,399	$771,540	$66,260
008	Opaline School House	$118,656	$7,925	$11,516
009	Maintenance Shops	$817,573	$272,325	$62,989
011	Communication	$3,045,169	$1,898,881	$177,970
013	Morrison Ctr for Performing Arts (Aux.)	$84,503,013	$3,688,288	$5,370,268
014	Morrison Ctr for the Performing Arts (Ed.)	$10,691,368	$16,037,053	$569,208
015	ExtraMile Arena	$75,183,608	$4,303,736	$4,002,775
016	Simplot Micron Advising and Success Hub	$11,406,395	$5,957,074	$598,302
020	Morrison Hall	$3,638,649	$284,585	$211,759
021	Driscoll Hall	$3,824,406	$133,399	$222,569
022	1803 Donald Circle, Student Housing	$135,220	$4,136	$474
023	1809 Donald Circle, Student Housing	$256,481	$4,136	$900
024	Mathematics	$15,478,940	$6,696,328	$169,125
025	Bronco Gymnasium - Department of Kinesiology	$9,864,949	$1,096,058	$576,541
027	Albertsons Library	$73,213,028	$122,097,230	$4,278,815
028	Boulder Hall	$4,663,023	$163,834	$272,523
029	Charles P Ruch Engineering Building	$38,365,083	$14,828,394	$2,012,372
030	Liberal Arts	$9,178,325	$1,048,592	$536,412
031	Chaffee Hall	$171,742,526	$1,422,933	$999,491
032	Student Union	$125,700,036	$6,154,658	$1,446,409
034	Riverfront Hall	$17,713,723	$11,247,410	$1,035,249
035	Albertsons Stadium	$48,084,843	$2,673,210	$1,563,471
036	Varsity Center (Simplot Center for Athletic Excellence), Nickelson-Yanke Center	$9,556,319	$1,362,330	$558,503
037	Kinesiology Annex (Pool)	$7,184,917	$244,987	$419,911
038	Varsity Center Annex	$1,751,582	$359,295	$93,254
039	John B. Barnes Towers	$10,234,670	$978,266	$595,628
040	Chrisway Annex	$1,583,371	$493,036	$17,300
049	2065 University Drive (Annex 3)	$342,009	$205,380	$3,737
054	English Annex	$424,308	$25,826	$1,931

Building Code	Building Name	Structure Replacement Cost	Content Replacement Cost	Economic Loss
056	Pioneer Hall	$4,460,401	$444,538	$260,681
062	Special Events Center	$5,833,486	$406,332	$340,929
065	Art Annex #1	$307,840	$41,334	$17,991
070	Landscape Services	$112,718	$207,315	$6,089
071	Education	$20,806,666	$2,933,773	$1,091,376
072	Science Building	$59,530,157	$11,346,593	$3,169,386
074	Science Greenhouse (Sci Nursing)	$154,701	$1,605	$8,115
075	Copper Basin	$2,113,523	$235,017	$110,091
078	Student Housing Maintenance	$480,772	$188,621	$15,385
079	Manitou Annex #3	$364,258	$500,968	$16,619
081	Euclid Annex #4	$206,164	$57,729	$11,137
082	2055 University Drive (Annex 2)	$590,157	$161,994	$2,686
083	Biology Greenhouse	$239,292	$44,450	$1,089
084	Const. Materials & Methods Lab	$229,295	$30,171	$12,027
085	Appleton Tennis Center	$2,780,145	$14,091	$145,828
087	Boas Tennis and Soccer Ctr.	$2,673,156	$73,032	$6,452
089	Construction Management	$124,614	$30,922	$6,536
090	Student Success Ctr. (Annex #8)	$231,166	$160,976	$1,442
093	Children’s Ctr.	$2,451,262	$792,540	$5,917
096	Garage Stadium Storage	$271,651	$23,775	$14,249
098	Theatre Arts Annex (Costume Shop)	$800,592	$83,830	$4,173
099	1375 Belmont Annex	$132,616	$97,638	$6,956
100	Harry Morrison Civil Engineering	$11,519,981	$2,886,560	$604,260
101	Micron Engineering Center	$42,092,199	$15,353,675	$2,207,871
102	Student Recreation Center	$28,213,869	$1,329,820	$1,479,908
102A	Student Recreation Center - Natatorium	$9,999,932	$422,531	$367,851
104	Brady Street Garage	$28,413,491	$157,468	$169,081
105	1015 Grant Avenue Annex	$1,743,802	$383,801	$91,468
110	FO&M Training Center	$162,306	$171,625	$10,463
114	1113 Denver Annex	$205,851	$286,046	$11,120
115	1113 Denver Annex Garage	$27,290	$36,990	$1,759
116	Internal Audit	$189,912	$84,540	$10,259
117	Internal Audit	$27,290	$0	$1,759

Building Code	Building Name	Structure Replacement Cost	Content Replacement Cost	Economic Loss
119	Grant Annex 4, 1023 S. Grant	$545,308	$61,337	$23,980
121	Health Sciences - Riverside	$4,725,281	$1,410,812	$251,574
122	Raptor Research Center	$2,809,419	$132,678	$164,192
123	Multi-Purpose Classroom Building	$16,900,572	$3,913,610	$76,927
125	1114 Manitou Annex #2	$266,372	$215,218	$14,067
137	1406 Chrisway Annex 2	$453,582	$132,678	$1,193
138	TECenter (Technology and Entrepreneurial Center)	$16,184,148	$131,365	$0
143	Idaho Center Sports Center	$0	$1,321,653	$0
144	Capitol Village #5	$1,245,627	$117,703	$6,148
146	1029 Lusk Annex	$0	$322,827	$41,289
152	David S. Taylor Hall	$13,407,142	$882,218	$698,360
153	John H. Keiser Hall	$9,113,274	$705,664	$474,698
154	University Suites - “Selway Suites”	$5,800,000	$455,338	$24,114
155	University Suites - “Payette Suites”	$4,528,011	$381,187	$18,826
156	University Suites - “Clearwater Suites”	$4,349,974	$284,585	$18,086
157	University Square - Jade Hall	$3,531,567	$60,961	$14,683
158	University Square - Topaz Hall	$3,398,743	$60,961	$7,601
159	University Square - Jasper Hall	$3,411,348	$60,961	$14,183
160	University Square - Garnet Hall	$3,909,843	$71,122	$16,256
164	Allen Noble Hall of Fame	$3,871,698	$100,570	$226,275
166	Christ Chapel	$293,255	$0	$15,761
173	University Heights Apartments - A	$1,207,504	$30,479	$5,722
174	University Heights Apartments - B	$1,268,343	$30,479	$6,011
175	University Heights Apartments - C	$1,207,504	$30,479	$5,722
176	University Manor Apartments - A	$2,324,896	$152,402	$11,017
177	University Manor Apartments - B	$2,324,896	$60,961	$11,017
178	University Park Apartments - A (N)	$2,877,654	$60,961	$30,676
179	University Park Apartments - B (S)	$2,877,654	$60,961	$30,676
180	University Village Apartments - A	$1,370,852	$32,778	$3,066
181	University Village Apartments - B	$1,370,852	$32,778	$3,066
182	University Village Apartments - C	$1,370,852	$32,778	$3,066
183	University Village Apartments - D	$1,370,852	$32,778	$3,066
184	University Village Apartments - E	$2,015,910	$32,778	$4,508

Building Code	Building Name	Structure Replacement Cost	Content Replacement Cost	Economic Loss
185	University Village Apartments - F	$238,771	$45,720	$628
198	Network Services	$120,948	$174,931	$6,534
203	Euclid Annex #2	$421,225	$194,051	$15,954
204	Euclid Annex #3	$526,531	$228,313	$23,568
210	Capitol Village #2	$441,185	$7,421	$2,178
211	Capitol Village #3	$1,476,695	$11,170	$6,140
213	Capitol Village #4	$684,228	$39,702	$3,377
214	Capitol Village #1	$1,199,691	$123,255	$5,922
215	Capitol Village #6	$7,381,089	$90,116	$33,597
216	CGISS Lease	$0	$978,884	$3,562
219	Soccer Field Restroom/Concession Bldg.	$189,392	$0	$4,833
234	Caven-Williams Sports Complex	$13,814,954	$38,862	$724,639
235	Interactive Teaching & Learning Center	$20,601,252	$2,213,137	$84,763
242	1156 - 1158 Euclid Annex	$214,394	$0	$11,322
243	1162 - 1164 Euclid Annex	$214,394	$0	$11,322
245	1142-1144 Euclid Annex	$214,394	$353,056	$11,322
247	1350 W. Victory Road	$0	$6,476	$138
255	Lincoln Avenue Garage	$35,872,808	$589,058	$1,927,943
258	Access Mini Storage - Boise State Radio	$30,532	$117,068	$164
259	Norco Building: Nursing Department, University Health Services	$24,030,125	$2,894,703	$104,659
264	Stueckle Sky Center	$54,208,455	$2,470,022	$2,843,407
266	1130 S. Manitou	$26,782	$6,350	$6,849
267	Environmental Research Building	$62,715,238	$23,478	$3,289,615
270	Waste Materials Storage Bldg.	$154,686	$0	$8,114
278	Dona Larsen Park - Track & Field Equipment Building	$773,611	$123,008	$8,453
285	1121 S. Denver	$143,971	$43,503	$7,777
289	Ron and Linda Yanke Family Research Park	$16,202,910	$1,060,188	$849,895
292	Dona Larsen Park Softball Storage Shed	$5,858	$3,626	$27
298	Micron Business and Economics Building	$47,908,983	$1,924,498	$218,068
299	1870 Belmont	$72,030	$4,136	$253
301	1514 S. Martha Cir	$70,831	$4,136	$248
302	1630 S. Joyce	$98,399	$4,136	$345
305	1816 Yale	$313,361	$0	$1,547

Building Code	Building Name	Structure Replacement Cost	Content Replacement Cost	Economic Loss
306	1827 Yale	$316,903	$0	$1,564
307	1855 Belmont	$166,681	$4,136	$585
308	1406 S. Juanita	$312,220	$156,110	$325
309	1803 W. Potter	$164,218	$4,096	$1,186
310	1509 S. Joyce	$91,277	$4,096	$469
319	1110 S. Grant	$171,890	$4,136	$9,285
320	1808 Donald Circle	$173,244	$14,478	$608
324	Boise State Meridian Center (Extended Studies)	$138,815	$0	$7,622
326	The Lincoln Townhouses - “Tamarack House”	$2,099,685	$117,843	$16,995
327	The Lincoln Townhouses - “Hawthorne House”	$4,831,237	$290,407	$16,995
328	The Lincoln Townhouses - “Juniper House”	$4,835,129	$290,407	$16,995
329	The Lincoln Townhouses - “Cedar House”	$3,978,852	$247,889	$14,501
330	The Lincoln Townhouses - “Aspen House”	$2,096,947	$117,843	$6,547
331	The Lincoln Townhouses - “Spruce House”	$3,969,916	$247,889	$14,501
332	Gene Bleymaier Football Complex	$24,443,974	$5,693,788	$1,282,165
334	1708 Potter	$186,579	$4,136	$1,164
336	1810 Potter	$1,067,803	$4,136	$666
338	1519 Juanita	$139,075	$4,136	$488
341	Dona Larsen Park - North Restroom	$360,553	$0	$1,641
342	Dona Larsen Park - South Restroom	$137,020	$4,096	$982
343	Dona Larsen Park - Football Pressbox	$355,225	$355,225	$480
344	Dona Larsen Park - East Softball Dugout	$23,435	$0	$107
345	Dona Larsen Park - West Softball Dugout	$23,435	$0	$107
346	Dona Larsen Park - Softball Pressbox	$242,209	$2,152	$1,102
347	301 S. Capital	$2,915,991	$77,872	$152,953
348	University Plaza	$22,309,007	$131,426	$103,436
349	Center for Visual Arts	$45,957,706	$77,101	$2,410,629
351	1814 W Potter Drive	$81,671	$4,136	$509
352	5475 W. Gage Street	$2,875,571	$2,529,985	$52,780
354	1411 Belmont	$41,886	$0	$2,263
355	1427 - 1429 Belmont	$208,977	$4,136	$11,289
358	1112 Manitou Garage	$0	$0	$4,520
360	1817 W Potter Drive	$101,988	$4,136	$358

Building Code	Building Name	Structure Replacement Cost	Content Replacement Cost	Economic Loss
361	1607-1609 Martha Street	$215,852	$4,136	$757
362	2500 Boise Ave	$347,218	$5,300	$366
363	1225 Belmont	$104,659	$0	$5,527
364	1225 Belmont Shop	$26,231	$0	$1,385
365	Capitol Village #7	$14,311,956	$1,516,069	$39,622
366	1711 Potter Drive	$233,666	$4,136	$1,457
367	City Center Plaza	$12,749,271	$2,350,346	$53,007
368	Alumni and Friends Center	$15,626,404	$800,423	$813,959
369	1843 University Drive	$3,089,868	$4,136	$16,691
370	1802/1804 Yale Court	$100,626	$4,136	$628
371	1806/1808 Yale Court	$100,626	$4,136	$497
374	1813 Potter Drive	$73,990	$4,136	$461
375	1862 W Belmont St	$104,488	$4,136	$366
377	City Center Plaza Bronco Shop	$0	$35,350	$1,872
380	Honors College Live Learn Community	$3,004,197	$2,688,865	$14,157
383	Unit 0115, Idaho Self Storage - River	$0	$36,558	$3,381
384	Unit 0113, Idaho Self Storage - River	$0	$36,558	$1,690
385	City Center Plaza - Bike Condo	$50,887	$36,196	$293
386	City Center Plaza - 3rd floor Fenced Bike Parking	$25,444	$36,196	$1,128
387	US BANK Building	$0	$875,672	$4,052
388	1923 Yale Ct.	$279,665	$4,136	$1,439
389	1815 Potter Dr.	$192,725	$4,136	$1,202
390	Leatherman Peak	$1,836,104	$112,858	$96,310
391	1501 Juanita St.	$468,792	$14,478	$1,644
392	1105 Manitou	$239,604	$4,136	$12,943
393	1435 University Dr (New Bldg.; Not Modeled)	$44,091,961	$606,000	
396	1507-1509 Juanita	$338,466	$0	$1,187
400	1801 W. Yale Court	$974,374	$0	$10,387
TOTAL		$1,631,705,544	$293,871,543	$54,810,621

Boise State University Building Damage Probability for Squaw Creek M7.0 Earthquake Scenario

Building Code	Building Name	Probability of...					Probability of at Least...		
		No Damage	Slight Damage	Moderate Damage	Extensive Damage	Complete Damage	Slight Damage	Moderate Damage	Extensive Damage
004	Administration	75.11%	23.64%	1.23%	0.00%	0.00%	24.88%	1.23%	0.00%
005	Hemingway Center	78.49%	11.15%	4.39%	4.79%	1.16%	21.50%	10.34%	5.95%
006	Heat Plant and Telephone Building	68.91%	23.88%	1.36%	4.66%	1.16%	31.08%	7.19%	5.82%
007	Campus School	92.99%	5.65%	1.32%	0.02%	0.00%	7.00%	1.34%	0.02%
008	Opaline School House	64.36%	23.35%	6.31%	4.79%	1.16%	35.63%	12.27%	5.96%
009	Maintenance Shops	68.91%	23.88%	1.36%	4.66%	1.16%	31.08%	7.19%	5.82%
011	Communication	87.57%	5.32%	1.24%	4.68%	1.16%	12.42%	7.09%	5.85%
013	Morrison Ctr for Performing Arts (Aux.)	90.87%	2.92%	0.36%	4.66%	1.16%	9.12%	6.19%	5.82%
014	Morrison Ctr for the Performing Arts (Ed.)	90.87%	2.92%	0.36%	4.66%	1.16%	9.12%	6.19%	5.82%
015	ExtraMile Arena	90.87%	2.92%	0.36%	4.66%	1.16%	9.12%	6.19%	5.82%
016	Simplot Micron Advising and Success Hub	90.87%	2.92%	0.36%	4.66%	1.16%	9.12%	6.19%	5.82%
020	Morrison Hall	84.47%	9.51%	0.17%	4.66%	1.16%	15.52%	6.00%	5.82%
021	Driscoll Hall	84.47%	9.51%	0.17%	4.66%	1.16%	15.52%	6.00%	5.82%
022	1803 Donald Circle, Student Housing	96.57%	3.36%	0.05%	0.00%	0.00%	3.42%	0.05%	0.00%
023	1809 Donald Circle, Student Housing	96.57%	3.36%	0.05%	0.00%	0.00%	3.42%	0.05%	0.00%
024	Mathematics	92.99%	5.65%	1.32%	0.02%	0.00%	7.00%	1.34%	0.02%
025	Bronco Gymnasium - Department of Kinesiology	87.57%	5.32%	1.24%	4.68%	1.16%	12.42%	7.09%	5.85%
027	Albertsons Library	87.57%	5.32%	1.24%	4.68%	1.16%	12.42%	7.09%	5.85%
028	Boulder Hall	87.57%	5.32%	1.24%	4.68%	1.16%	12.42%	7.09%	5.85%
029	Charles P Ruch Engineering Building	90.87%	2.92%	0.36%	4.66%	1.16%	9.12%	6.19%	5.82%
030	Liberal Arts	87.57%	5.32%	1.24%	4.68%	1.16%	12.42%	7.09%	5.85%
031	Chaffee Hall	84.47%	9.51%	0.17%	4.66%	1.16%	15.52%	6.00%	5.82%
032	Student Union	92.99%	5.65%	1.32%	0.02%	0.00%	7.00%	1.34%	0.02%
034	Riverfront Hall	87.57%	5.32%	1.24%	4.68%	1.16%	12.42%	7.09%	5.85%
035	Albertsons Stadium	87.57%	5.32%	1.24%	4.68%	1.16%	12.42%	7.09%	5.85%
036	Varsity Center (Simplot Center for Athletic Excellence), Nickelson-Yanke Center	87.57%	5.32%	1.24%	4.68%	1.16%	12.42%	7.09%	5.85%
037	Kinesiology Annex (Pool)	87.57%	5.32%	1.24%	4.68%	1.16%	12.42%	7.09%	5.85%
038	Varsity Center Annex	90.87%	2.92%	0.36%	4.66%	1.16%	9.12%	6.19%	5.82%
039	John B. Barnes Towers	84.47%	9.51%	0.17%	4.66%	1.16%	15.52%	6.00%	5.82%
040	Chrisway Annex	92.99%	5.65%	1.32%	0.02%	0.00%	7.00%	1.34%	0.02%

Building Code	Building Name	Probability of... No Damage	Slight Damage	Moderate Damage	Extensive Damage	Complete Damage	Probability of at Least... Slight Damage	Moderate Damage	Extensive Damage
049	2065 University Drive (Annex 3)	92.99%	5.65%	1.32%	0.02%	0.00%	7.00%	1.34%	0.02%
054	English Annex	96.50%	3.10%	0.38%	0.00%	0.00%	3.49%	0.38%	0.00%
056	Pioneer Hall	87.57%	5.32%	1.24%	4.68%	1.16%	12.42%	7.09%	5.85%
062	Special Events Center	87.57%	5.32%	1.24%	4.68%	1.16%	12.42%	7.09%	5.85%
065	Art Annex #1	87.57%	5.32%	1.24%	4.68%	1.16%	12.42%	7.09%	5.85%
070	Landscape Services	88.54%	5.51%	0.11%	4.66%	1.16%	11.45%	5.94%	5.82%
071	Education	90.87%	2.92%	0.36%	4.66%	1.16%	9.12%	6.19%	5.82%
072	Science Building	90.87%	2.92%	0.36%	4.66%	1.16%	9.12%	6.19%	5.82%
074	Science Greenhouse (Sci Nursing)	90.87%	2.92%	0.36%	4.66%	1.16%	9.12%	6.19%	5.82%
075	Copper Basin	90.35%	3.75%	0.06%	4.66%	1.16%	9.64%	5.89%	5.82%
078	Student Housing Maintenance	82.53%	12.64%	4.66%	0.15%	0.00%	17.46%	4.81%	0.15%
079	Manitou Annex #3	89.58%	4.52%	0.05%	4.66%	1.16%	10.41%	5.88%	5.82%
081	Euclid Annex #4	88.54%	5.51%	0.11%	4.66%	1.16%	11.45%	5.94%	5.82%
082	2055 University Drive (Annex 2)	96.50%	3.10%	0.38%	0.00%	0.00%	3.49%	0.38%	0.00%
083	Biology Greenhouse	96.50%	3.10%	0.38%	0.00%	0.00%	3.49%	0.38%	0.00%
084	Const. Materials & Methods Lab	90.87%	2.92%	0.36%	4.66%	1.16%	9.12%	6.19%	5.82%
085	Appleton Tennis Center	90.87%	2.92%	0.36%	4.66%	1.16%	9.12%	6.19%	5.82%
087	Boas Tennis and Soccer Ctr.	98.08%	1.73%	0.18%	0.00%	0.00%	1.91%	0.18%	0.00%
089	Construction Management	90.87%	2.92%	0.36%	4.66%	1.16%	9.12%	6.19%	5.82%
090	Student Success Ctr. (Annex #8)	94.02%	5.85%	0.12%	0.00%	0.00%	5.97%	0.12%	0.00%
093	Children's Ctr.	98.08%	1.73%	0.18%	0.00%	0.00%	1.91%	0.18%	0.00%
096	Garage Stadium Storage	90.87%	2.92%	0.36%	4.66%	1.16%	9.12%	6.19%	5.82%
098	Theatre Arts Annex (Costume Shop)	96.38%	3.05%	0.54%	0.01%	0.00%	3.61%	0.56%	0.01%
099	1375 Belmont Annex	90.87%	2.92%	0.36%	4.66%	1.16%	9.12%	6.19%	5.82%
100	Harry Morrison Civil Engineering	90.87%	2.92%	0.36%	4.66%	1.16%	9.12%	6.19%	5.82%
101	Micron Engineering Center	90.87%	2.92%	0.36%	4.66%	1.16%	9.12%	6.19%	5.82%
102	Student Recreation Center	90.87%	2.92%	0.36%	4.66%	1.16%	9.12%	6.19%	5.82%
102A	Student Recreation Center - Natatorium	90.87%	2.92%	0.36%	4.66%	1.16%	9.12%	6.19%	5.82%
104	Brady Street Garage	94.70%	5.04%	0.25%	0.00%	0.00%	5.29%	0.25%	0.00%
105	1015 Grant Avenue Annex	90.87%	2.92%	0.36%	4.66%	1.16%	9.12%	6.19%	5.82%
110	FO&M Training Center	81.78%	10.99%	1.37%	4.67%	1.16%	18.21%	7.22%	5.84%
114	1113 Denver Annex	88.54%	5.51%	0.11%	4.66%	1.16%	11.45%	5.94%	5.82%

Building Code	Building Name	Probability of... No Damage	Slight Damage	Moderate Damage	Extensive Damage	Complete Damage	Probability of at Least... Slight Damage	Moderate Damage	Extensive Damage
115	1113 Denver Annex Garage	81.78%	10.99%	1.37%	4.67%	1.16%	18.21%	7.22%	5.84%
116	Internal Audit	88.54%	5.51%	0.11%	4.66%	1.16%	11.45%	5.94%	5.82%
117	Internal Audit	81.78%	10.99%	1.37%	4.67%	1.16%	18.21%	7.22%	5.84%
119	Grant Annex 4, 1023 S. Grant	90.87%	2.92%	0.36%	4.66%	1.16%	9.12%	6.19%	5.82%
121	Health Sciences - Riverside	90.87%	2.92%	0.36%	4.66%	1.16%	9.12%	6.19%	5.82%
122	Raptor Research Center	87.57%	5.32%	1.24%	4.68%	1.16%	12.42%	7.09%	5.85%
123	Multi-Purpose Classroom Building	96.50%	3.10%	0.38%	0.00%	0.00%	3.49%	0.38%	0.00%
125	1114 Manitou Annex #2	89.58%	4.52%	0.05%	4.66%	1.16%	10.41%	5.88%	5.82%
137	1406 Chrisway Annex 2	97.38%	2.59%	0.02%	0.00%	0.00%	2.61%	0.02%	0.00%
138	TECenter (Technology and Entrepreneurial Center)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
143	Idaho Center Sports Center	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
144	Capitol Village #5	95.13%	4.81%	0.05%	0.00%	0.00%	4.86%	0.05%	0.00%
146	1029 Lusk Annex	89.58%	4.52%	0.05%	4.66%	1.16%	10.41%	5.88%	5.82%
152	David S. Taylor Hall	90.35%	3.75%	0.06%	4.66%	1.16%	9.64%	5.89%	5.82%
153	John H. Keiser Hall	90.35%	3.75%	0.06%	4.66%	1.16%	9.64%	5.89%	5.82%
154	University Suites - “Selway Suites”	95.94%	3.98%	0.06%	0.00%	0.00%	4.05%	0.06%	0.00%
155	University Suites - “Payette Suites”	95.94%	3.98%	0.06%	0.00%	0.00%	4.05%	0.06%	0.00%
156	University Suites - “Clearwater Suites”	95.94%	3.98%	0.06%	0.00%	0.00%	4.05%	0.06%	0.00%
157	University Square - Jade Hall	95.94%	3.98%	0.06%	0.00%	0.00%	4.05%	0.06%	0.00%
158	University Square - Topaz Hall	97.81%	2.15%	0.03%	0.00%	0.00%	2.18%	0.03%	0.00%
159	University Square - Jasper Hall	95.94%	3.98%	0.06%	0.00%	0.00%	4.05%	0.06%	0.00%
160	University Square - Garnet Hall	95.94%	3.98%	0.06%	0.00%	0.00%	4.05%	0.06%	0.00%
164	Allen Noble Hall of Fame	87.57%	5.32%	1.24%	4.68%	1.16%	12.42%	7.09%	5.85%
166	Christ Chapel	89.18%	4.75%	0.23%	4.66%	1.16%	10.81%	6.06%	5.82%
173	University Heights Apartments - A	95.33%	4.61%	0.05%	0.00%	0.00%	4.66%	0.05%	0.00%
174	University Heights Apartments - B	95.33%	4.61%	0.05%	0.00%	0.00%	4.66%	0.05%	0.00%
175	University Heights Apartments - C	95.33%	4.61%	0.05%	0.00%	0.00%	4.66%	0.05%	0.00%
176	University Manor Apartments - A	95.33%	4.61%	0.05%	0.00%	0.00%	4.66%	0.05%	0.00%
177	University Manor Apartments - B	95.33%	4.61%	0.05%	0.00%	0.00%	4.66%	0.05%	0.00%
178	University Park Apartments - A (N)	89.70%	10.10%	0.18%	0.00%	0.00%	10.29%	0.18%	0.00%
179	University Park Apartments - B (S)	89.70%	10.10%	0.18%	0.00%	0.00%	10.29%	0.18%	0.00%
180	University Village Apartments - A	97.81%	2.15%	0.03%	0.00%	0.00%	2.18%	0.03%	0.00%

Building Code	Building Name	Probability of... No Damage	Slight Damage	Moderate Damage	Extensive Damage	Complete Damage	Probability of at Least... Slight Damage	Moderate Damage	Extensive Damage
181	University Village Apartments - B	97.81%	2.15%	0.03%	0.00%	0.00%	2.18%	0.03%	0.00%
182	University Village Apartments - C	97.81%	2.15%	0.03%	0.00%	0.00%	2.18%	0.03%	0.00%
183	University Village Apartments - D	97.81%	2.15%	0.03%	0.00%	0.00%	2.18%	0.03%	0.00%
184	University Village Apartments - E	97.81%	2.15%	0.03%	0.00%	0.00%	2.18%	0.03%	0.00%
185	University Village Apartments - F	97.38%	2.59%	0.02%	0.00%	0.00%	2.61%	0.02%	0.00%
198	Network Services	88.54%	5.51%	0.11%	4.66%	1.16%	11.45%	5.94%	5.82%
203	Euclid Annex #2	89.58%	4.52%	0.05%	4.66%	1.16%	10.41%	5.88%	5.82%
204	Euclid Annex #3	89.58%	4.52%	0.05%	4.66%	1.16%	10.41%	5.88%	5.82%
210	Capitol Village #2	95.13%	4.81%	0.05%	0.00%	0.00%	4.86%	0.05%	0.00%
211	Capitol Village #3	95.94%	3.98%	0.06%	0.00%	0.00%	4.05%	0.06%	0.00%
213	Capitol Village #4	95.13%	4.81%	0.05%	0.00%	0.00%	4.86%	0.05%	0.00%
214	Capitol Village #1	95.13%	4.81%	0.05%	0.00%	0.00%	4.86%	0.05%	0.00%
215	Capitol Village #6	96.50%	3.10%	0.38%	0.00%	0.00%	3.49%	0.38%	0.00%
216	CGISS Lease	96.50%	3.10%	0.38%	0.00%	0.00%	3.49%	0.38%	0.00%
219	Soccer Field Restroom/Concession Bldg.	82.06%	15.30%	2.59%	0.03%	0.00%	17.93%	2.62%	0.03%
234	Caven-Williams Sports Complex	90.87%	2.92%	0.36%	4.66%	1.16%	9.12%	6.19%	5.82%
235	Interactive Teaching & Learning Center	96.50%	3.10%	0.38%	0.00%	0.00%	3.49%	0.38%	0.00%
242	1156 - 1158 Euclid Annex	89.58%	4.52%	0.05%	4.66%	1.16%	10.41%	5.88%	5.82%
243	1162 - 1164 Euclid Annex	89.58%	4.52%	0.05%	4.66%	1.16%	10.41%	5.88%	5.82%
245	1142-1144 Euclid Annex	89.58%	4.52%	0.05%	4.66%	1.16%	10.41%	5.88%	5.82%
247	1350 W. Victory Road	92.03%	6.99%	0.95%	0.01%	0.00%	7.96%	0.96%	0.01%
255	Lincoln Avenue Garage	89.18%	4.75%	0.23%	4.66%	1.16%	10.81%	6.06%	5.82%
258	Access Mini Storage - Boise State Radio	95.82%	3.77%	0.40%	0.00%	0.00%	4.17%	0.40%	0.00%
259	Norco Building: Nursing Department, University Health Services	96.50%	3.10%	0.38%	0.00%	0.00%	3.49%	0.38%	0.00%
264	Stueckle Sky Center	90.87%	2.92%	0.36%	4.66%	1.16%	9.12%	6.19%	5.82%
266	1130 S. Manitou	88.54%	5.51%	0.11%	4.66%	1.16%	11.45%	5.94%	5.82%
267	Environmental Research Building	90.87%	2.92%	0.36%	4.66%	1.16%	9.12%	6.19%	5.82%
270	Waste Materials Storage Bldg.	90.87%	2.92%	0.36%	4.66%	1.16%	9.12%	6.19%	5.82%
278	Dona Larsen Park - Track & Field Equipment Building	92.99%	5.65%	1.32%	0.02%	0.00%	7.00%	1.34%	0.02%
285	1121 S. Denver	88.54%	5.51%	0.11%	4.66%	1.16%	11.45%	5.94%	5.82%

Building Code	Building Name	Probability of... No Damage	Slight Damage	Moderate Damage	Extensive Damage	Complete Damage	Probability of at Least... Slight Damage	Moderate Damage	Extensive Damage
289	Ron and Linda Yanke Family Research Park	90.87%	2.92%	0.36%	4.66%	1.16%	9.12%	6.19%	5.82%
292	Dona Larsen Park Softball Storage Shed	96.50%	3.10%	0.38%	0.00%	0.00%	3.49%	0.38%	0.00%
298	Micron Business and Economics Building	96.50%	3.10%	0.38%	0.00%	0.00%	3.49%	0.38%	0.00%
299	1870 Belmont	96.57%	3.36%	0.05%	0.00%	0.00%	3.42%	0.05%	0.00%
301	1514 S. Martha Cir	96.57%	3.36%	0.05%	0.00%	0.00%	3.42%	0.05%	0.00%
302	1630 S. Joyce	96.57%	3.36%	0.05%	0.00%	0.00%	3.42%	0.05%	0.00%
305	1816 Yale	95.13%	4.81%	0.05%	0.00%	0.00%	4.86%	0.05%	0.00%
306	1827 Yale	95.13%	4.81%	0.05%	0.00%	0.00%	4.86%	0.05%	0.00%
307	1855 Belmont	96.57%	3.36%	0.05%	0.00%	0.00%	3.42%	0.05%	0.00%
308	1406 S. Juanita	96.57%	3.36%	0.05%	0.00%	0.00%	3.42%	0.05%	0.00%
309	1803 W. Potter	94.02%	5.85%	0.12%	0.00%	0.00%	5.97%	0.12%	0.00%
310	1509 S. Joyce	96.57%	3.36%	0.05%	0.00%	0.00%	3.42%	0.05%	0.00%
319	1110 S. Grant	88.54%	5.51%	0.11%	4.66%	1.16%	11.45%	5.94%	5.82%
320	1808 Donald Circle	96.57%	3.36%	0.05%	0.00%	0.00%	3.42%	0.05%	0.00%
324	Boise State Meridian Center (Extended Studies)	96.50%	3.10%	0.38%	0.00%	0.00%	3.49%	0.38%	0.00%
326	The Lincoln Townhouses - “Tamarack House”	95.94%	3.98%	0.06%	0.00%	0.00%	4.05%	0.06%	0.00%
327	The Lincoln Townhouses - “Hawthorne House”	95.94%	3.98%	0.06%	0.00%	0.00%	4.05%	0.06%	0.00%
328	The Lincoln Townhouses - “Juniper House”	95.94%	3.98%	0.06%	0.00%	0.00%	4.05%	0.06%	0.00%
329	The Lincoln Townhouses - “Cedar House”	95.94%	3.98%	0.06%	0.00%	0.00%	4.05%	0.06%	0.00%
330	The Lincoln Townhouses - “Aspen House”	95.94%	3.98%	0.06%	0.00%	0.00%	4.05%	0.06%	0.00%
331	The Lincoln Townhouses - “Spruce House”	95.94%	3.98%	0.06%	0.00%	0.00%	4.05%	0.06%	0.00%
332	Gene Bleymaier Football Complex	90.87%	2.92%	0.36%	4.66%	1.16%	9.12%	6.19%	5.82%
334	1708 Potter	94.02%	5.85%	0.12%	0.00%	0.00%	5.97%	0.12%	0.00%
336	1810 Potter	94.02%	5.85%	0.12%	0.00%	0.00%	5.97%	0.12%	0.00%
338	1519 Juanita	96.57%	3.36%	0.05%	0.00%	0.00%	3.42%	0.05%	0.00%
341	Dona Larsen Park - North Restroom	96.50%	3.10%	0.38%	0.00%	0.00%	3.49%	0.38%	0.00%
342	Dona Larsen Park - South Restroom	96.50%	3.10%	0.38%	0.00%	0.00%	3.49%	0.38%	0.00%
343	Dona Larsen Park - Football Pressbox	96.50%	3.10%	0.38%	0.00%	0.00%	3.49%	0.38%	0.00%
344	Dona Larsen Park - East Softball Dugout	96.50%	3.10%	0.38%	0.00%	0.00%	3.49%	0.38%	0.00%
345	Dona Larsen Park - West Softball Dugout	96.50%	3.10%	0.38%	0.00%	0.00%	3.49%	0.38%	0.00%
346	Dona Larsen Park - Softball Pressbox	96.50%	3.10%	0.38%	0.00%	0.00%	3.49%	0.38%	0.00%
347	301 S. Capital	90.87%	2.92%	0.36%	4.66%	1.16%	9.12%	6.19%	5.82%

Building Code	Building Name	Probability of... No Damage	Slight Damage	Moderate Damage	Extensive Damage	Complete Damage	Probability of at Least... Slight Damage	Moderate Damage	Extensive Damage
348	University Plaza	90.87%	2.92%	0.36%	4.66%	1.16%	9.12%	6.19%	5.82%
349	Center for Visual Arts	90.87%	2.92%	0.36%	4.66%	1.16%	9.12%	6.19%	5.82%
351	1814 W Potter Drive	94.02%	5.85%	0.12%	0.00%	0.00%	5.97%	0.12%	0.00%
352	5475 W. Gage Street	87.16%	10.91%	1.89%	0.02%	0.00%	12.83%	1.91%	0.02%
354	1411 Belmont	88.54%	5.51%	0.11%	4.66%	1.16%	11.45%	5.94%	5.82%
355	1427 - 1429 Belmont	88.54%	5.51%	0.11%	4.66%	1.16%	11.45%	5.94%	5.82%
358	1112 Manitou Garage	81.78%	10.99%	1.37%	4.67%	1.16%	18.21%	7.22%	5.84%
360	1817 W Potter Drive	96.57%	3.36%	0.05%	0.00%	0.00%	3.42%	0.05%	0.00%
361	1607-1609 Martha Street	96.57%	3.36%	0.05%	0.00%	0.00%	3.42%	0.05%	0.00%
362	2500 Boise Ave	99.12%	0.79%	0.07%	0.00%	0.00%	0.87%	0.07%	0.00%
363	1225 Belmont	89.58%	4.52%	0.05%	4.66%	1.16%	10.41%	5.88%	5.82%
364	1225 Belmont Shop	89.58%	4.52%	0.05%	4.66%	1.16%	10.41%	5.88%	5.82%
365	Capitol Village #7	96.50%	3.10%	0.38%	0.00%	0.00%	3.49%	0.38%	0.00%
366	1711 Potter Drive	94.02%	5.85%	0.12%	0.00%	0.00%	5.97%	0.12%	0.00%
367	City Center Plaza	95.94%	3.98%	0.06%	0.00%	0.00%	4.05%	0.06%	0.00%
368	Alumni and Friends Center	90.35%	3.75%	0.06%	4.66%	1.16%	9.64%	5.89%	5.82%
369	1843 University Drive	88.54%	5.51%	0.11%	4.66%	1.16%	11.45%	5.94%	5.82%
370	1802/1804 Yale Court	94.02%	5.85%	0.12%	0.00%	0.00%	5.97%	0.12%	0.00%
371	1806/1808 Yale Court	95.13%	4.81%	0.05%	0.00%	0.00%	4.86%	0.05%	0.00%
374	1813 Potter Drive	94.02%	5.85%	0.12%	0.00%	0.00%	5.97%	0.12%	0.00%
375	1862 W Belmont St	96.57%	3.36%	0.05%	0.00%	0.00%	3.42%	0.05%	0.00%
377	City Center Plaza Bronco Shop	95.13%	4.81%	0.05%	0.00%	0.00%	4.86%	0.05%	0.00%
380	Honors College Live Learn Community	95.94%	3.98%	0.06%	0.00%	0.00%	4.05%	0.06%	0.00%
383	Unit 0115, Idaho Self Storage - River	82.08%	10.28%	1.78%	4.68%	1.16%	17.91%	7.63%	5.85%
384	Unit 0113, Idaho Self Storage - River	82.08%	10.28%	1.78%	4.68%	1.16%	17.91%	7.63%	5.85%
385	City Center Plaza - Bike Condo	95.13%	4.81%	0.05%	0.00%	0.00%	4.86%	0.05%	0.00%
386	City Center Plaza - 3rd floor Fenced Bike Parking	95.13%	4.81%	0.05%	0.00%	0.00%	4.86%	0.05%	0.00%
387	US BANK Building	95.94%	3.98%	0.06%	0.00%	0.00%	4.05%	0.06%	0.00%
388	1923 Yale Ct.	94.02%	5.85%	0.12%	0.00%	0.00%	5.97%	0.12%	0.00%
389	1815 Potter Dr.	94.02%	5.85%	0.12%	0.00%	0.00%	5.97%	0.12%	0.00%
390	Leatherman Peak	90.87%	2.92%	0.36%	4.66%	1.16%	9.12%	6.19%	5.82%
391	1501 Juanita St.	96.57%	3.36%	0.05%	0.00%	0.00%	3.42%	0.05%	0.00%

Building Code	Building Name	Probability of...					Probability of at Least...		
		No Damage	Slight Damage	Moderate Damage	Extensive Damage	Complete Damage	Slight Damage	Moderate Damage	Extensive Damage
392	1105 Manitou	88.54%	5.51%	0.11%	4.66%	1.16%	11.45%	5.94%	5.82%
393	1435 University Dr (New Bldg.; Not Modeled)								
396	1507-1509 Juanita	96.57%	3.36%	0.05%	0.00%	0.00%	3.42%	0.05%	0.00%
400	1801 W. Yale Court	89.70%	10.10%	0.18%	0.00%	0.00%	10.29%	0.18%	0.00%

Boise State University Building Return to Functionality for Squaw Creek M7.0 Earthquake Scenario

Building Code	Building Name	Functionality (%) at Day 1	Functionality (%) at Day 3	Functionality (%) at Day 7	Functionality (%) at Day 14	Functionality (%) at Day 30	Functionality (%) at Day 90
004	Administration	75.1	76.2	98.6	98.7	99.9	99.9
005	Hemingway Center	78.4	79	89.6	89.6	94	98.8
006	Heat Plant and Telephone Building	68.9	70	92.7	92.7	94.1	98.8
007	Campus School	92.9	93.2	98.6	98.6	99.9	99.9
008	Opaline School House	64.3	65.4	87.6	87.7	94	98.8
009	Maintenance Shops	68.9	70	92.7	92.7	94.1	98.8
011	Communication	87.5	87.8	92.8	92.8	94.1	98.8
013	Morrison Ctr for Performing Arts (Aux.)	90.8	91	93.7	93.7	94.1	98.8
014	Morrison Ctr for the Performing Arts (Ed.)	90.8	91	93.7	93.7	94.1	98.8
015	ExtraMile Arena	90.8	91	93.7	93.7	94.1	98.8
016	Simplot Micron Advising and Success Hub	90.8	91	93.7	93.7	94.1	98.8
020	Morrison Hall	84.4	84.9	93.9	93.9	94.1	98.8
021	Driscoll Hall	84.4	84.9	93.9	93.9	94.1	98.8
022	1803 Donald Circle, Student Housing	96.5	96.7	99.9	99.9	99.9	99.9
023	1809 Donald Circle, Student Housing	96.5	96.7	99.9	99.9	99.9	99.9
024	Mathematics	92.9	93.2	98.6	98.6	99.9	99.9
025	Bronco Gymnasium - Department of Kinesiology	87.5	87.8	92.8	92.8	94.1	98.8
027	Albertsons Library	87.5	87.8	92.8	92.8	94.1	98.8
028	Boulder Hall	87.5	87.8	92.8	92.8	94.1	98.8
029	Charles P Ruch Engineering Building	90.8	91	93.7	93.7	94.1	98.8
030	Liberal Arts	87.5	87.8	92.8	92.8	94.1	98.8
031	Chaffee Hall	84.4	84.9	93.9	93.9	94.1	98.8
032	Student Union	92.9	93.2	98.6	98.6	99.9	99.9
034	Riverfront Hall	87.5	87.8	92.8	92.8	94.1	98.8
035	Albertsons Stadium	87.5	87.8	92.8	92.8	94.1	98.8
036	Varsity Center (Simplot Center for Athletic Excellence), Nickelson-Yanke Center	87.5	87.8	92.8	92.8	94.1	98.8
037	Kinesiology Annex (Pool)	87.5	87.8	92.8	92.8	94.1	98.8
038	Varsity Center Annex	90.8	91	93.7	93.7	94.1	98.8
039	John B. Barnes Towers	84.4	84.9	93.9	93.9	94.1	98.8
040	Chrisway Annex	92.9	93.2	98.6	98.6	99.9	99.9
049	2065 University Drive (Annex 3)	92.9	93.2	98.6	98.6	99.9	99.9

Building Code	Building Name	Functionality (%) at Day 1	Functionality (%) at Day 3	Functionality (%) at Day 7	Functionality (%) at Day 14	Functionality (%) at Day 30	Functionality (%) at Day 90
054	English Annex	96.5	96.6	99.5	99.6	99.9	99.9
056	Pioneer Hall	87.5	87.8	92.8	92.8	94.1	98.8
062	Special Events Center	87.5	87.8	92.8	92.8	94.1	98.8
065	Art Annex #1	87.5	87.8	92.8	92.8	94.1	98.8
070	Landscape Services	88.5	88.8	94	94	94.1	98.8
071	Education	90.8	91	93.7	93.7	94.1	98.8
072	Science Building	90.8	91	93.7	93.7	94.1	98.8
074	Science Greenhouse (Sci Nursing)	90.8	91	93.7	93.7	94.1	98.8
075	Copper Basin	90.3	90.5	94	94.1	94.1	98.8
078	Student Housing Maintenance	82.5	83.1	95.1	95.1	99.8	99.9
079	Manitou Annex #3	89.5	89.7	94	94.1	94.1	98.8
081	Euclid Annex #4	88.5	88.8	94	94	94.1	98.8
082	2055 University Drive (Annex 2)	96.5	96.6	99.5	99.6	99.9	99.9
083	Biology Greenhouse	96.5	96.6	99.5	99.6	99.9	99.9
084	Const. Materials & Methods Lab	90.8	91	93.7	93.7	94.1	98.8
085	Appleton Tennis Center	90.8	91	93.7	93.7	94.1	98.8
087	Boas Tennis and Soccer Ctr.	98	98.1	99.8	99.8	99.9	99.9
089	Construction Management	90.8	91	93.7	93.7	94.1	98.8
090	Student Success Ctr. (Annex #8)	94	94.3	99.8	99.8	99.9	99.9
093	Children’s Ctr.	98	98.1	99.8	99.8	99.9	99.9
096	Garage Stadium Storage	90.8	91	93.7	93.7	94.1	98.8
098	Theatre Arts Annex (Costume Shop)	96.3	96.5	99.4	99.4	99.9	99.9
099	1375 Belmont Annex	90.8	91	93.7	93.7	94.1	98.8
100	Harry Morrison Civil Engineering	90.8	91	93.7	93.7	94.1	98.8
101	Micron Engineering Center	90.8	91	93.7	93.7	94.1	98.8
102	Student Recreation Center	90.8	91	93.7	93.7	94.1	98.8
102A	Student Recreation Center - Natatorium	90.8	91	93.7	93.7	94.1	98.8
104	Brady Street Garage	94.7	94.9	99.7	99.7	99.9	99.9
105	1015 Grant Avenue Annex	90.8	91	93.7	93.7	94.1	98.8
110	FO&M Training Center	81.7	82.3	92.7	92.7	94.1	98.8
114	1113 Denver Annex	88.5	88.8	94	94	94.1	98.8
115	1113 Denver Annex Garage	81.7	82.3	92.7	92.7	94.1	98.8
116	Internal Audit	88.5	88.8	94	94	94.1	98.8

Building Code	Building Name	Functionality (%) at Day 1	Functionality (%) at Day 3	Functionality (%) at Day 7	Functionality (%) at Day 14	Functionality (%) at Day 30	Functionality (%) at Day 90
117	Internal Audit	81.7	82.3	92.7	92.7	94.1	98.8
119	Grant Annex 4, 1023 S. Grant	90.8	91	93.7	93.7	94.1	98.8
121	Health Sciences - Riverside	90.8	91	93.7	93.7	94.1	98.8
122	Raptor Research Center	87.5	87.8	92.8	92.8	94.1	98.8
123	Multi-Purpose Classroom Building	96.5	96.6	99.5	99.6	99.9	99.9
125	1114 Manitou Annex #2	89.5	89.7	94	94.1	94.1	98.8
137	1406 Chrisway Annex 2	97.3	97.5	99.9	99.9	99.9	99.9
138	TECenter (Technology and Entrepreneurial Center)	0	0	0	0	0	0
143	Idaho Center Sports Center	0	0	0	0	0	0
144	Capitol Village #5	95.1	95.3	99.9	99.9	99.9	99.9
146	1029 Lusk Annex	89.5	89.7	94	94.1	94.1	98.8
152	David S. Taylor Hall	90.3	90.5	94	94.1	94.1	98.8
153	John H. Keiser Hall	90.3	90.5	94	94.1	94.1	98.8
154	University Suites - “Selway Suites”	95.9	96.1	99.9	99.9	99.9	99.9
155	University Suites - “Payette Suites”	95.9	96.1	99.9	99.9	99.9	99.9
156	University Suites - “Clearwater Suites”	95.9	96.1	99.9	99.9	99.9	99.9
157	University Square - Jade Hall	95.9	96.1	99.9	99.9	99.9	99.9
158	University Square - Topaz Hall	97.8	97.9	99.9	99.9	99.9	99.9
159	University Square - Jasper Hall	95.9	96.1	99.9	99.9	99.9	99.9
160	University Square - Garnet Hall	95.9	96.1	99.9	99.9	99.9	99.9
164	Allen Noble Hall of Fame	87.5	87.8	92.8	92.8	94.1	98.8
166	Christ Chapel	89.1	89.4	93.9	93.9	94.1	98.8
173	University Heights Apartments - A	95.3	95.5	99.9	99.9	99.9	99.9
174	University Heights Apartments - B	95.3	95.5	99.9	99.9	99.9	99.9
175	University Heights Apartments - C	95.3	95.5	99.9	99.9	99.9	99.9
176	University Manor Apartments - A	95.3	95.5	99.9	99.9	99.9	99.9
177	University Manor Apartments - B	95.3	95.5	99.9	99.9	99.9	99.9
178	University Park Apartments - A (N)	89.7	90.1	99.7	99.8	99.9	99.9
179	University Park Apartments - B (S)	89.7	90.1	99.7	99.8	99.9	99.9
180	University Village Apartments - A	97.8	97.9	99.9	99.9	99.9	99.9
181	University Village Apartments - B	97.8	97.9	99.9	99.9	99.9	99.9
182	University Village Apartments - C	97.8	97.9	99.9	99.9	99.9	99.9
183	University Village Apartments - D	97.8	97.9	99.9	99.9	99.9	99.9

Building Code	Building Name	Functionality (%) at Day 1	Functionality (%) at Day 3	Functionality (%) at Day 7	Functionality (%) at Day 14	Functionality (%) at Day 30	Functionality (%) at Day 90
184	University Village Apartments - E	97.8	97.9	99.9	99.9	99.9	99.9
185	University Village Apartments - F	97.3	97.5	99.9	99.9	99.9	99.9
198	Network Services	88.5	88.8	94	94	94.1	98.8
203	Euclid Annex #2	89.5	89.7	94	94.1	94.1	98.8
204	Euclid Annex #3	89.5	89.7	94	94.1	94.1	98.8
210	Capitol Village #2	95.1	95.3	99.9	99.9	99.9	99.9
211	Capitol Village #3	95.9	96.1	99.9	99.9	99.9	99.9
213	Capitol Village #4	95.1	95.3	99.9	99.9	99.9	99.9
214	Capitol Village #1	95.1	95.3	99.9	99.9	99.9	99.9
215	Capitol Village #6	96.5	96.6	99.5	99.6	99.9	99.9
216	CGISS Lease	96.5	96.6	99.5	99.6	99.9	99.9
219	Soccer Field Restroom/Concession Bldg.	82	82.7	97.3	97.3	99.9	99.9
234	Caven-Williams Sports Complex	90.8	91	93.7	93.7	94.1	98.8
235	Interactive Teaching & Learning Center	96.5	96.6	99.5	99.6	99.9	99.9
242	1156 - 1158 Euclid Annex	89.5	89.7	94	94.1	94.1	98.8
243	1162 - 1164 Euclid Annex	89.5	89.7	94	94.1	94.1	98.8
245	1142-1144 Euclid Annex	89.5	89.7	94	94.1	94.1	98.8
247	1350 W. Victory Road	92	92.3	99	99	99.9	99.9
255	Lincoln Avenue Garage	89.1	89.4	93.9	93.9	94.1	98.8
258	Access Mini Storage - Boise State Radio	95.8	96	99.5	99.5	99.9	99.9
259	Norco Building: Nursing Department, University Health Services	96.5	96.6	99.5	99.6	99.9	99.9
264	Stueckle Sky Center	90.8	91	93.7	93.7	94.1	98.8
266	1130 S. Manitou	88.5	88.8	94	94	94.1	98.8
267	Environmental Research Building	90.8	91	93.7	93.7	94.1	98.8
270	Waste Materials Storage Bldg.	90.8	91	93.7	93.7	94.1	98.8
278	Dona Larsen Park - Track & Field Equipment Building	92.9	93.2	98.6	98.6	99.9	99.9
285	1121 S. Denver	88.5	88.8	94	94	94.1	98.8
289	Ron and Linda Yanke Family Research Park	90.8	91	93.7	93.7	94.1	98.8
292	Dona Larsen Park Softball Storage Shed	96.5	96.6	99.5	99.6	99.9	99.9
298	Micron Business and Economics Building	96.5	96.6	99.5	99.6	99.9	99.9
299	1870 Belmont	96.5	96.7	99.9	99.9	99.9	99.9
301	1514 S. Martha Cir	96.5	96.7	99.9	99.9	99.9	99.9
302	1630 S. Joyce	96.5	96.7	99.9	99.9	99.9	99.9

Building Code	Building Name	Functionality (%) at Day 1	Functionality (%) at Day 3	Functionality (%) at Day 7	Functionality (%) at Day 14	Functionality (%) at Day 30	Functionality (%) at Day 90
305	1816 Yale	95.1	95.3	99.9	99.9	99.9	99.9
306	1827 Yale	95.1	95.3	99.9	99.9	99.9	99.9
307	1855 Belmont	96.5	96.7	99.9	99.9	99.9	99.9
308	1406 S. Juanita	96.5	96.7	99.9	99.9	99.9	99.9
309	1803 W. Potter	94	94.3	99.8	99.8	99.9	99.9
310	1509 S. Joyce	96.5	96.7	99.9	99.9	99.9	99.9
319	1110 S. Grant	88.5	88.8	94	94	94.1	98.8
320	1808 Donald Circle	96.5	96.7	99.9	99.9	99.9	99.9
324	Boise State Meridian Center (Extended Studies)	96.5	96.6	99.5	99.6	99.9	99.9
326	The Lincoln Townhouses - “Tamarack House”	95.9	96.1	99.9	99.9	99.9	99.9
327	The Lincoln Townhouses - “Hawthorne House”	95.9	96.1	99.9	99.9	99.9	99.9
328	The Lincoln Townhouses - “Juniper House”	95.9	96.1	99.9	99.9	99.9	99.9
329	The Lincoln Townhouses - “Cedar House”	95.9	96.1	99.9	99.9	99.9	99.9
330	The Lincoln Townhouses - “Aspen House”	95.9	96.1	99.9	99.9	99.9	99.9
331	The Lincoln Townhouses - “Spruce House”	95.9	96.1	99.9	99.9	99.9	99.9
332	Gene Bleymaier Football Complex	90.8	91	93.7	93.7	94.1	98.8
334	1708 Potter	94	94.3	99.8	99.8	99.9	99.9
336	1810 Potter	94	94.3	99.8	99.8	99.9	99.9
338	1519 Juanita	96.5	96.7	99.9	99.9	99.9	99.9
341	Dona Larsen Park - North Restroom	96.5	96.6	99.5	99.6	99.9	99.9
342	Dona Larsen Park - South Restroom	96.5	96.6	99.5	99.6	99.9	99.9
343	Dona Larsen Park - Football Pressbox	96.5	96.6	99.5	99.6	99.9	99.9
344	Dona Larsen Park - East Softball Dugout	96.5	96.6	99.5	99.6	99.9	99.9
345	Dona Larsen Park - West Softball Dugout	96.5	96.6	99.5	99.6	99.9	99.9
346	Dona Larsen Park - Softball Pressbox	96.5	96.6	99.5	99.6	99.9	99.9
347	301 S. Capital	90.8	91	93.7	93.7	94.1	98.8
348	University Plaza	90.8	91	93.7	93.7	94.1	98.8
349	Center for Visual Arts	90.8	91	93.7	93.7	94.1	98.8
351	1814 W Potter Drive	94	94.3	99.8	99.8	99.9	99.9
352	5475 W. Gage Street	87.1	87.6	98	98	99.9	99.9
354	1411 Belmont	88.5	88.8	94	94	94.1	98.8
355	1427 - 1429 Belmont	88.5	88.8	94	94	94.1	98.8
358	1112 Manitou Garage	81.7	82.3	92.7	92.7	94.1	98.8

Building Code	Building Name	Functionality (%) at Day 1	Functionality (%) at Day 3	Functionality (%) at Day 7	Functionality (%) at Day 14	Functionality (%) at Day 30	Functionality (%) at Day 90
360	1817 W Potter Drive	96.5	96.7	99.9	99.9	99.9	99.9
361	1607-1609 Martha Street	96.5	96.7	99.9	99.9	99.9	99.9
362	2500 Boise Ave	99.1	99.1	99.9	99.9	99.9	99.9
363	1225 Belmont	89.5	89.7	94	94.1	94.1	98.8
364	1225 Belmont Shop	89.5	89.7	94	94.1	94.1	98.8
365	Capitol Village #7	96.5	96.6	99.5	99.6	99.9	99.9
366	1711 Potter Drive	94	94.3	99.8	99.8	99.9	99.9
367	City Center Plaza	95.9	96.1	99.9	99.9	99.9	99.9
368	Alumni and Friends Center	90.3	90.5	94	94.1	94.1	98.8
369	1843 University Drive	88.5	88.8	94	94	94.1	98.8
370	1802/1804 Yale Court	94	94.3	99.8	99.8	99.9	99.9
371	1806/1808 Yale Court	95.1	95.3	99.9	99.9	99.9	99.9
374	1813 Potter Drive	94	94.3	99.8	99.8	99.9	99.9
375	1862 W Belmont St	96.5	96.7	99.9	99.9	99.9	99.9
377	City Center Plaza Bronco Shop	95.1	95.3	99.9	99.9	99.9	99.9
380	Honors College Live Learn Community	95.9	96.1	99.9	99.9	99.9	99.9
383	Unit 0115, Idaho Self Storage - River	82	82.5	92.3	92.3	94.1	98.8
384	Unit 0113, Idaho Self Storage - River	82	82.5	92.3	92.3	94.1	98.8
385	City Center Plaza - Bike Condo	95.1	95.3	99.9	99.9	99.9	99.9
386	City Center Plaza - 3rd floor Fenced Bike Parking	95.1	95.3	99.9	99.9	99.9	99.9
387	US BANK Building	95.9	96.1	99.9	99.9	99.9	99.9
388	1923 Yale Ct.	94	94.3	99.8	99.8	99.9	99.9
389	1815 Potter Dr.	94	94.3	99.8	99.8	99.9	99.9
390	Leatherman Peak	90.8	91	93.7	93.7	94.1	98.8
391	1501 Juanita St.	96.5	96.7	99.9	99.9	99.9	99.9
392	1105 Manitou	88.5	88.8	94	94	94.1	98.8
393	1435 University Dr (New Bldg.; Not Modeled)						
396	1507-1509 Juanita	96.5	96.7	99.9	99.9	99.9	99.9
400	1801 W. Yale Court	89.7	90.1	99.7	99.8	99.9	99.9

Boise State University Building Loss Estimates for 500-Year Probabilistic Earthquake

Building Code	Building Name	Structure Replacement Cost	Content Replacement Cost	Economic Loss
004	Administration	$13,577,470	$2,142,151	$228,744
005	Hemingway Center	$6,628,709	$1,009,674	$129,239
006	Heat Plant and Telephone Building	$5,135,372	$2,493,488	$86,517
007	Campus School	$6,064,399	$771,540	$118,360
008	Opaline School House	$118,656	$7,925	$3,993
009	Maintenance Shops	$817,573	$272,325	$13,774
011	Communication	$3,045,169	$1,898,881	$59,433
013	Morrison Ctr for Performing Arts (Aux.)	$84,503,013	$3,688,288	$1,139,820
014	Morrison Ctr for the Performing Arts (Ed.)	$10,691,368	$16,037,053	$120,812
015	ExtraMile Arena	$75,183,608	$4,303,736	$849,575
016	Simplot Micron Advising and Success Hub	$11,406,395	$5,957,074	$126,987
020	Morrison Hall	$3,638,649	$284,585	$30,866
021	Driscoll Hall	$3,824,406	$133,399	$32,442
022	1803 Donald Circle, Student Housing	$135,220	$4,136	$1,302
023	1809 Donald Circle, Student Housing	$256,481	$4,136	$2,469
024	Mathematics	$15,478,940	$6,696,328	$302,106
025	Bronco Gymnasium - Department of Kinesiology	$9,864,949	$1,096,058	$192,537
027	Albertsons Library	$73,213,028	$122,097,230	$1,428,916
028	Boulder Hall	$4,663,023	$163,834	$91,009
029	Charles P Ruch Engineering Building	$38,365,083	$14,828,394	$427,119
030	Liberal Arts	$9,178,325	$1,048,592	$179,136
031	Chaffee Hall	$171,742,526	$1,422,933	$145,685
032	Student Union	$125,700,036	$6,154,658	$2,583,711
034	Riverfront Hall	$17,713,723	$11,247,410	$345,723
035	Albertsons Stadium	$48,084,843	$2,673,210	$522,123
036	Varsity Center (Simplot Center for Athletic Excellence), Nickelson-Yanke Center	$9,556,319	$1,362,330	$186,513
037	Kinesiology Annex (Pool)	$7,184,917	$244,987	$140,230
038	Varsity Center Annex	$1,751,582	$359,295	$19,793
039	John B. Barnes Towers	$10,234,670	$978,266	$86,818
040	Chrisway Annex	$1,583,371	$493,036	$30,903
049	2065 University Drive (Annex 3)	$342,009	$205,380	$6,675
054	English Annex	$424,308	$25,826	$4,724

Building Code	Building Name	Structure Replacement Cost	Content Replacement Cost	Economic Loss
056	Pioneer Hall	$4,460,401	$444,538	$87,055
062	Special Events Center	$5,833,486	$406,332	$113,854
065	Art Annex #1	$307,840	$41,334	$6,008
070	Landscape Services	$112,718	$207,315	$1,085
071	Education	$20,806,666	$2,933,773	$231,641
072	Science Building	$59,530,157	$11,346,593	$672,691
074	Science Greenhouse (Sci Nursing)	$154,701	$1,605	$1,722
075	Copper Basin	$2,113,523	$235,017	$14,326
078	Student Housing Maintenance	$480,772	$188,621	$17,715
079	Manitou Annex #3	$364,258	$500,968	$1,941
081	Euclid Annex #4	$206,164	$57,729	$1,984
082	2055 University Drive (Annex 2)	$590,157	$161,994	$6,570
083	Biology Greenhouse	$239,292	$44,450	$2,664
084	Const. Materials & Methods Lab	$229,295	$30,171	$2,553
085	Appleton Tennis Center	$2,780,145	$14,091	$30,951
087	Boas Tennis and Soccer Ctr.	$2,673,156	$73,032	$17,803
089	Construction Management	$124,614	$30,922	$1,387
090	Student Success Ctr. (Annex #8)	$231,166	$160,976	$2,225
093	Children's Ctr.	$2,451,262	$792,540	$27,290
096	Garage Stadium Storage	$271,651	$23,775	$3,024
098	Theatre Arts Annex (Costume Shop)	$800,592	$83,830	$15,625
099	1375 Belmont Annex	$132,616	$97,638	$1,476
100	Harry Morrison Civil Engineering	$11,519,981	$2,886,560	$128,252
101	Micron Engineering Center	$42,092,199	$15,353,675	$468,613
102	Student Recreation Center	$28,213,869	$1,329,820	$314,105
102A	Student Recreation Center - Natatorium	$9,999,932	$422,531	$78,075
104	Brady Street Garage	$28,413,491	$157,468	$302,331
105	1015 Grant Avenue Annex	$1,743,802	$383,801	$19,414
110	FO&M Training Center	$162,306	$171,625	$2,715
114	1113 Denver Annex	$205,851	$286,046	$1,981
115	1113 Denver Annex Garage	$27,290	$36,990	$457
116	Internal Audit	$189,912	$84,540	$1,828
117	Internal Audit	$27,290	$0	$457

Building Code	Building Name	Structure Replacement Cost	Content Replacement Cost	Economic Loss
119	Grant Annex 4, 1023 S. Grant	$545,308	$61,337	$5,090
121	Health Sciences - Riverside	$4,725,281	$1,410,812	$53,396
122	Raptor Research Center	$2,809,419	$132,678	$54,832
123	Multi-Purpose Classroom Building	$16,900,572	$3,913,610	$188,154
125	1114 Manitou Annex #2	$266,372	$215,218	$1,643
137	1406 Chrisway Annex 2	$453,582	$132,678	$2,797
138	TECenter (Technology and Entrepreneurial Center)	$16,184,148	$131,365	$0
143	Idaho Center Sports Center	$0	$1,321,653	$0
144	Capitol Village #5	$1,245,627	$117,703	$7,682
146	1029 Lusk Annex	$0	$322,827	$4,822
152	David S. Taylor Hall	$13,407,142	$882,218	$90,878
153	John H. Keiser Hall	$9,113,274	$705,664	$61,773
154	University Suites - “Selway Suites”	$5,800,000	$455,338	$39,314
155	University Suites - “Payette Suites”	$4,528,011	$381,187	$30,692
156	University Suites - “Clearwater Suites”	$4,349,974	$284,585	$29,486
157	University Square - Jade Hall	$3,531,567	$60,961	$23,938
158	University Square - Topaz Hall	$3,398,743	$60,961	$23,038
159	University Square - Jasper Hall	$3,411,348	$60,961	$23,123
160	University Square - Garnet Hall	$3,909,843	$71,122	$26,502
164	Allen Noble Hall of Fame	$3,871,698	$100,570	$75,565
166	Christ Chapel	$293,255	$0	$3,120
173	University Heights Apartments - A	$1,207,504	$30,479	$10,243
174	University Heights Apartments - B	$1,268,343	$30,479	$10,759
175	University Heights Apartments - C	$1,207,504	$30,479	$10,243
176	University Manor Apartments - A	$2,324,896	$152,402	$11,224
177	University Manor Apartments - B	$2,324,896	$60,961	$19,722
178	University Park Apartments - A (N)	$2,877,654	$60,961	$24,410
179	University Park Apartments - B (S)	$2,877,654	$60,961	$24,410
180	University Village Apartments - A	$1,370,852	$32,778	$9,292
181	University Village Apartments - B	$1,370,852	$32,778	$9,292
182	University Village Apartments - C	$1,370,852	$32,778	$9,292
183	University Village Apartments - D	$1,370,852	$32,778	$9,292
184	University Village Apartments - E	$2,015,910	$32,778	$13,664

Building Code	Building Name	Structure Replacement Cost	Content Replacement Cost	Economic Loss
185	University Village Apartments - F	$238,771	$45,720	$1,473
198	Network Services	$120,948	$174,931	$1,164
203	Euclid Annex #2	$421,225	$194,051	$1,863
204	Euclid Annex #3	$526,531	$228,313	$2,752
210	Capitol Village #2	$441,185	$7,421	$2,721
211	Capitol Village #3	$1,476,695	$11,170	$10,010
213	Capitol Village #4	$684,228	$39,702	$4,220
214	Capitol Village #1	$1,199,691	$123,255	$7,399
215	Capitol Village #6	$7,381,089	$90,116	$82,174
216	CGISS Lease	$0	$978,884	$8,712
219	Soccer Field Restroom/Concession Bldg.	$189,392	$0	$3,920
234	Caven-Williams Sports Complex	$13,814,954	$38,862	$153,802
235	Interactive Teaching & Learning Center	$20,601,252	$2,213,137	$207,320
242	1156 - 1158 Euclid Annex	$214,394	$0	$1,322
243	1162 - 1164 Euclid Annex	$214,394	$0	$1,322
245	1142-1144 Euclid Annex	$214,394	$353,056	$1,322
247	1350 W. Victory Road	$0	$6,476	$171
255	Lincoln Avenue Garage	$35,872,808	$589,058	$381,701
258	Access Mini Storage - Boise State Radio	$30,532	$117,068	$406
259	Norco Building: Nursing Department, University Health Services	$24,030,125	$2,894,703	$255,984
264	Stueckle Sky Center	$54,208,455	$2,470,022	$603,503
266	1130 S. Manitou	$26,782	$6,350	$1,220
267	Environmental Research Building	$62,715,238	$23,478	$698,209
270	Waste Materials Storage Bldg.	$154,686	$0	$1,722
278	Dona Larsen Park - Track & Field Equipment Building	$773,611	$123,008	$9,924
285	1121 S. Denver	$143,971	$43,503	$1,386
289	Ron and Linda Yanke Family Research Park	$16,202,910	$1,060,188	$180,387
292	Dona Larsen Park Softball Storage Shed	$5,858	$3,626	$39
298	Micron Business and Economics Building	$47,908,983	$1,924,498	$533,371
299	1870 Belmont	$72,030	$4,136	$693
301	1514 S. Martha Cir	$70,831	$4,136	$682
302	1630 S. Joyce	$98,399	$4,136	$947
305	1816 Yale	$313,361	$0	$1,933

Building Code	Building Name	Structure Replacement Cost	Content Replacement Cost	Economic Loss
306	1827 Yale	$316,903	$0	$1,954
307	1855 Belmont	$166,681	$4,136	$1,604
308	1406 S. Juanita	$312,220	$156,110	$892
309	1803 W. Potter	$164,218	$4,096	$1,830
310	1509 S. Joyce	$91,277	$4,096	$1,287
319	1110 S. Grant	$171,890	$4,136	$1,655
320	1808 Donald Circle	$173,244	$14,478	$1,668
324	Boise State Meridian Center (Extended Studies)	$138,815	$0	$9,486
326	The Lincoln Townhouses - “Tamarack House”	$2,099,685	$117,843	$27,707
327	The Lincoln Townhouses - “Hawthorne House”	$4,831,237	$290,407	$27,707
328	The Lincoln Townhouses - “Juniper House”	$4,835,129	$290,407	$27,707
329	The Lincoln Townhouses - “Cedar House”	$3,978,852	$247,889	$23,642
330	The Lincoln Townhouses - “Aspen House”	$2,096,947	$117,843	$10,674
331	The Lincoln Townhouses - “Spruce House”	$3,969,916	$247,889	$23,642
332	Gene Bleymaier Football Complex	$24,443,974	$5,693,788	$272,135
334	1708 Potter	$186,579	$4,136	$1,796
336	1810 Potter	$1,067,803	$4,136	$1,028
338	1519 Juanita	$139,075	$4,136	$1,339
341	Dona Larsen Park - North Restroom	$360,553	$0	$2,401
342	Dona Larsen Park - South Restroom	$137,020	$4,096	$1,437
343	Dona Larsen Park - Football Pressbox	$355,225	$355,225	$702
344	Dona Larsen Park - East Softball Dugout	$23,435	$0	$156
345	Dona Larsen Park - West Softball Dugout	$23,435	$0	$156
346	Dona Larsen Park - Softball Pressbox	$242,209	$2,152	$1,613
347	301 S. Capital	$2,915,991	$77,872	$32,464
348	University Plaza	$22,309,007	$131,426	$21,954
349	Center for Visual Arts	$45,957,706	$77,101	$511,647
351	1814 W Potter Drive	$81,671	$4,136	$786
352	5475 W. Gage Street	$2,875,571	$2,529,985	$36,093
354	1411 Belmont	$41,886	$0	$403
355	1427 - 1429 Belmont	$208,977	$4,136	$2,012
358	1112 Manitou Garage	$0	$0	$1,173
360	1817 W Potter Drive	$101,988	$4,136	$982

Building Code	Building Name	Structure Replacement Cost	Content Replacement Cost	Economic Loss
361	1607-1609 Martha Street	$215,852	$4,136	$2,078
362	2500 Boise Ave	$347,218	$5,300	$2,292
363	1225 Belmont	$104,659	$0	$645
364	1225 Belmont Shop	$26,231	$0	$162
365	Capitol Village #7	$14,311,956	$1,516,069	$96,910
366	1711 Potter Drive	$233,666	$4,136	$2,249
367	City Center Plaza	$12,749,271	$2,350,346	$49,490
368	Alumni and Friends Center	$15,626,404	$800,423	$105,921
369	1843 University Drive	$3,089,868	$4,136	$2,974
370	1802/1804 Yale Court	$100,626	$4,136	$969
371	1806/1808 Yale Court	$100,626	$4,136	$621
374	1813 Potter Drive	$73,990	$4,136	$712
375	1862 W Belmont St	$104,488	$4,136	$1,006
377	City Center Plaza Bronco Shop	$0	$35,350	$1,286
380	Honors College Live Learn Community	$3,004,197	$2,688,865	$23,081
383	Unit 0115, Idaho Self Storage - River	$0	$36,558	$1,122
384	Unit 0113, Idaho Self Storage - River	$0	$36,558	$561
385	City Center Plaza - Bike Condo	$50,887	$36,196	$201
386	City Center Plaza - 3rd floor Fenced Bike Parking	$25,444	$36,196	$775
387	US BANK Building	$0	$875,672	$3,783
388	1923 Yale Ct.	$279,665	$4,136	$2,221
389	1815 Potter Dr.	$192,725	$4,136	$1,855
390	Leatherman Peak	$1,836,104	$112,858	$20,441
391	1501 Juanita St.	$468,792	$14,478	$4,512
392	1105 Manitou	$239,604	$4,136	$2,306
393	1435 University Dr (New Bldg.; Not Modeled)	$44,091,961	$606,000	
396	1507-1509 Juanita	$338,466	$0	$3,258
400	1801 W. Yale Court	$974,374	$0	$8,265
TOTAL		$1,631,705,544	$293,871,543	$17,680,764

Boise State University Building Damage Probability for 500-Year Probabilistic Earthquake

Building Code	Building Name	Probability of... No Damage	Slight Damage	Moderate Damage	Extensive Damage	Complete Damage	Probability of at Least... Slight Damage	Moderate Damage	Extensive Damage
004	Administration	87.39%	11.14%	1.41%	0.04%	0.00%	12.60%	1.46%	0.04%
005	Hemingway Center	86.69%	7.05%	5.21%	1.02%	0.01%	13.30%	6.25%	1.03%
006	Heat Plant and Telephone Building	87.39%	11.14%	1.41%	0.04%	0.00%	12.60%	1.46%	0.04%
007	Campus School	91.68%	4.97%	2.93%	0.39%	0.00%	8.31%	3.33%	0.40%
008	Opaline School House	83.89%	10.82%	4.71%	0.55%	0.01%	16.10%	5.28%	0.57%
009	Maintenance Shops	87.39%	11.14%	1.41%	0.04%	0.00%	12.60%	1.46%	0.04%
011	Communication	91.68%	4.97%	2.93%	0.39%	0.00%	8.31%	3.33%	0.40%
013	Morrison Ctr for Performing Arts (Aux.)	94.71%	3.50%	1.59%	0.18%	0.00%	5.28%	1.78%	0.18%
014	Morrison Ctr for the Performing Arts (Ed.)	94.71%	3.50%	1.59%	0.18%	0.00%	5.28%	1.78%	0.18%
015	ExtraMile Arena	94.71%	3.50%	1.59%	0.18%	0.00%	5.28%	1.78%	0.18%
016	Simplot Micron Advising and Success Hub	94.71%	3.50%	1.59%	0.18%	0.00%	5.28%	1.78%	0.18%
020	Morrison Hall	92.97%	6.49%	0.49%	0.02%	0.00%	7.02%	0.53%	0.03%
021	Driscoll Hall	92.97%	6.49%	0.49%	0.02%	0.00%	7.02%	0.53%	0.03%
022	1803 Donald Circle, Student Housing	93.14%	5.93%	0.84%	0.06%	0.00%	6.85%	0.91%	0.07%
023	1809 Donald Circle, Student Housing	93.14%	5.93%	0.84%	0.06%	0.00%	6.85%	0.91%	0.07%
024	Mathematics	91.68%	4.97%	2.93%	0.39%	0.00%	8.31%	3.33%	0.40%
025	Bronco Gymnasium - Department of Kinesiology	91.68%	4.97%	2.93%	0.39%	0.00%	8.31%	3.33%	0.40%
027	Albertsons Library	91.68%	4.97%	2.93%	0.39%	0.00%	8.31%	3.33%	0.40%
028	Boulder Hall	91.68%	4.97%	2.93%	0.39%	0.00%	8.31%	3.33%	0.40%
029	Charles P Ruch Engineering Building	94.71%	3.50%	1.59%	0.18%	0.00%	5.28%	1.78%	0.18%
030	Liberal Arts	91.68%	4.97%	2.93%	0.39%	0.00%	8.31%	3.33%	0.40%
031	Chaffee Hall	92.97%	6.49%	0.49%	0.02%	0.00%	7.02%	0.53%	0.03%
032	Student Union	91.68%	4.97%	2.93%	0.39%	0.00%	8.31%	3.33%	0.40%
034	Riverfront Hall	91.68%	4.97%	2.93%	0.39%	0.00%	8.31%	3.33%	0.40%
035	Albertsons Stadium	91.68%	4.97%	2.93%	0.39%	0.00%	8.31%	3.33%	0.40%
036	Varsity Center (Simplot Center for Athletic Excellence), Nickelson-Yanke Center	91.68%	4.97%	2.93%	0.39%	0.00%	8.31%	3.33%	0.40%
037	Kinesiology Annex (Pool)	91.68%	4.97%	2.93%	0.39%	0.00%	8.31%	3.33%	0.40%
038	Varsity Center Annex	94.71%	3.50%	1.59%	0.18%	0.00%	5.28%	1.78%	0.18%
039	John B. Barnes Towers	92.97%	6.49%	0.49%	0.02%	0.00%	7.02%	0.53%	0.03%
040	Chrisway Annex	91.68%	4.97%	2.93%	0.39%	0.00%	8.31%	3.33%	0.40%

Building Code	Building Name	Probability of...					Probability of at Least...		
		No Damage	Slight Damage	Moderate Damage	Extensive Damage	Complete Damage	Slight Damage	Moderate Damage	Extensive Damage
049	2065 University Drive (Annex 3)	91.68%	4.97%	2.93%	0.39%	0.00%	8.31%	3.33%	0.40%
054	English Annex	94.71%	3.50%	1.59%	0.18%	0.00%	5.28%	1.78%	0.18%
056	Pioneer Hall	91.68%	4.97%	2.93%	0.39%	0.00%	8.31%	3.33%	0.40%
062	Special Events Center	91.68%	4.97%	2.93%	0.39%	0.00%	8.31%	3.33%	0.40%
065	Art Annex #1	91.68%	4.97%	2.93%	0.39%	0.00%	8.31%	3.33%	0.40%
070	Landscape Services	93.14%	5.93%	0.84%	0.06%	0.00%	6.85%	0.91%	0.07%
071	Education	94.71%	3.50%	1.59%	0.18%	0.00%	5.28%	1.78%	0.18%
072	Science Building	94.71%	3.50%	1.59%	0.18%	0.00%	5.28%	1.78%	0.18%
074	Science Greenhouse (Sci Nursing)	94.71%	3.50%	1.59%	0.18%	0.00%	5.28%	1.78%	0.18%
075	Copper Basin	94.99%	4.40%	0.56%	0.03%	0.00%	5.00%	0.60%	0.03%
078	Student Housing Maintenance	86.87%	6.70%	5.15%	1.25%	0.01%	13.12%	6.42%	1.27%
079	Manitou Annex #3	95.00%	4.58%	0.36%	0.03%	0.00%	4.99%	0.40%	0.03%
081	Euclid Annex #4	93.14%	5.93%	0.84%	0.06%	0.00%	6.85%	0.91%	0.07%
082	2055 University Drive (Annex 2)	94.71%	3.50%	1.59%	0.18%	0.00%	5.28%	1.78%	0.18%
083	Biology Greenhouse	94.71%	3.50%	1.59%	0.18%	0.00%	5.28%	1.78%	0.18%
084	Const. Materials & Methods Lab	94.71%	3.50%	1.59%	0.18%	0.00%	5.28%	1.78%	0.18%
085	Appleton Tennis Center	94.71%	3.50%	1.59%	0.18%	0.00%	5.28%	1.78%	0.18%
087	Boas Tennis and Soccer Ctr.	96.67%	2.28%	0.94%	0.09%	0.00%	3.32%	1.04%	0.09%
089	Construction Management	94.71%	3.50%	1.59%	0.18%	0.00%	5.28%	1.78%	0.18%
090	Student Success Ctr. (Annex #8)	93.14%	5.93%	0.84%	0.06%	0.00%	6.85%	0.91%	0.07%
093	Children's Ctr.	94.71%	3.50%	1.59%	0.18%	0.00%	5.28%	1.78%	0.18%
096	Garage Stadium Storage	94.71%	3.50%	1.59%	0.18%	0.00%	5.28%	1.78%	0.18%
098	Theatre Arts Annex (Costume Shop)	91.68%	4.97%	2.93%	0.39%	0.00%	8.31%	3.33%	0.40%
099	1375 Belmont Annex	94.71%	3.50%	1.59%	0.18%	0.00%	5.28%	1.78%	0.18%
100	Harry Morrison Civil Engineering	94.71%	3.50%	1.59%	0.18%	0.00%	5.28%	1.78%	0.18%
101	Micron Engineering Center	94.71%	3.50%	1.59%	0.18%	0.00%	5.28%	1.78%	0.18%
102	Student Recreation Center	94.71%	3.50%	1.59%	0.18%	0.00%	5.28%	1.78%	0.18%
102A	Student Recreation Center - Natatorium	94.71%	3.50%	1.59%	0.18%	0.00%	5.28%	1.78%	0.18%
104	Brady Street Garage	93.69%	4.96%	1.20%	0.13%	0.00%	6.30%	1.33%	0.13%
105	1015 Grant Avenue Annex	94.71%	3.50%	1.59%	0.18%	0.00%	5.28%	1.78%	0.18%
110	FO&M Training Center	90.73%	6.86%	2.23%	0.15%	0.00%	9.26%	2.39%	0.16%
114	1113 Denver Annex	93.14%	5.93%	0.84%	0.06%	0.00%	6.85%	0.91%	0.07%

Building Code	Building Name	Probability of… No Damage	Slight Damage	Moderate Damage	Extensive Damage	Complete Damage	Probability of at Least… Slight Damage	Moderate Damage	Extensive Damage
115	1113 Denver Annex Garage	90.73%	6.86%	2.23%	0.15%	0.00%	9.26%	2.39%	0.16%
116	Internal Audit	93.14%	5.93%	0.84%	0.06%	0.00%	6.85%	0.91%	0.07%
117	Internal Audit	90.73%	6.86%	2.23%	0.15%	0.00%	9.26%	2.39%	0.16%
119	Grant Annex 4, 1023 S. Grant	94.71%	3.50%	1.59%	0.18%	0.00%	5.28%	1.78%	0.18%
121	Health Sciences - Riverside	94.71%	3.50%	1.59%	0.18%	0.00%	5.28%	1.78%	0.18%
122	Raptor Research Center	91.68%	4.97%	2.93%	0.39%	0.00%	8.31%	3.33%	0.40%
123	Multi-Purpose Classroom Building	94.71%	3.50%	1.59%	0.18%	0.00%	5.28%	1.78%	0.18%
125	1114 Manitou Annex #2	95.00%	4.58%	0.36%	0.03%	0.00%	4.99%	0.40%	0.03%
137	1406 Chrisway Annex 2	95.00%	4.58%	0.36%	0.03%	0.00%	4.99%	0.40%	0.03%
138	TECenter (Technology and Entrepreneurial Center)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
143	Idaho Center Sports Center	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
144	Capitol Village #5	95.00%	4.58%	0.36%	0.03%	0.00%	4.99%	0.40%	0.03%
146	1029 Lusk Annex	95.00%	4.58%	0.36%	0.03%	0.00%	4.99%	0.40%	0.03%
152	David S. Taylor Hall	94.99%	4.40%	0.56%	0.03%	0.00%	5.00%	0.60%	0.03%
153	John H. Keiser Hall	94.99%	4.40%	0.56%	0.03%	0.00%	5.00%	0.60%	0.03%
154	University Suites - “Selway Suites”	94.99%	4.40%	0.56%	0.03%	0.00%	5.00%	0.60%	0.03%
155	University Suites - “Payette Suites”	94.99%	4.40%	0.56%	0.03%	0.00%	5.00%	0.60%	0.03%
156	University Suites - “Clearwater Suites”	94.99%	4.40%	0.56%	0.03%	0.00%	5.00%	0.60%	0.03%
157	University Square - Jade Hall	94.99%	4.40%	0.56%	0.03%	0.00%	5.00%	0.60%	0.03%
158	University Square - Topaz Hall	94.99%	4.40%	0.56%	0.03%	0.00%	5.00%	0.60%	0.03%
159	University Square - Jasper Hall	94.99%	4.40%	0.56%	0.03%	0.00%	5.00%	0.60%	0.03%
160	University Square - Garnet Hall	94.99%	4.40%	0.56%	0.03%	0.00%	5.00%	0.60%	0.03%
164	Allen Noble Hall of Fame	91.68%	4.97%	2.93%	0.39%	0.00%	8.31%	3.33%	0.40%
166	Christ Chapel	93.69%	4.96%	1.20%	0.13%	0.00%	6.30%	1.33%	0.13%
173	University Heights Apartments - A	92.97%	6.49%	0.49%	0.02%	0.00%	7.02%	0.53%	0.03%
174	University Heights Apartments - B	92.97%	6.49%	0.49%	0.02%	0.00%	7.02%	0.53%	0.03%
175	University Heights Apartments - C	92.97%	6.49%	0.49%	0.02%	0.00%	7.02%	0.53%	0.03%
176	University Manor Apartments - A	95.78%	3.98%	0.23%	0.00%	0.00%	4.21%	0.23%	0.00%
177	University Manor Apartments - B	92.97%	6.49%	0.49%	0.02%	0.00%	7.02%	0.53%	0.03%
178	University Park Apartments - A (N)	92.97%	6.49%	0.49%	0.02%	0.00%	7.02%	0.53%	0.03%
179	University Park Apartments - B (S)	92.97%	6.49%	0.49%	0.02%	0.00%	7.02%	0.53%	0.03%
180	University Village Apartments - A	94.99%	4.40%	0.56%	0.03%	0.00%	5.00%	0.60%	0.03%

Building Code	Building Name	Probability of...					Probability of at Least...		
		No Damage	Slight Damage	Moderate Damage	Extensive Damage	Complete Damage	Slight Damage	Moderate Damage	Extensive Damage
181	University Village Apartments - B	94.99%	4.40%	0.56%	0.03%	0.00%	5.00%	0.60%	0.03%
182	University Village Apartments - C	94.99%	4.40%	0.56%	0.03%	0.00%	5.00%	0.60%	0.03%
183	University Village Apartments - D	94.99%	4.40%	0.56%	0.03%	0.00%	5.00%	0.60%	0.03%
184	University Village Apartments - E	94.99%	4.40%	0.56%	0.03%	0.00%	5.00%	0.60%	0.03%
185	University Village Apartments - F	95.00%	4.58%	0.36%	0.03%	0.00%	4.99%	0.40%	0.03%
198	Network Services	93.14%	5.93%	0.84%	0.06%	0.00%	6.85%	0.91%	0.07%
203	Euclid Annex #2	95.00%	4.58%	0.36%	0.03%	0.00%	4.99%	0.40%	0.03%
204	Euclid Annex #3	95.00%	4.58%	0.36%	0.03%	0.00%	4.99%	0.40%	0.03%
210	Capitol Village #2	95.00%	4.58%	0.36%	0.03%	0.00%	4.99%	0.40%	0.03%
211	Capitol Village #3	94.99%	4.40%	0.56%	0.03%	0.00%	5.00%	0.60%	0.03%
213	Capitol Village #4	95.00%	4.58%	0.36%	0.03%	0.00%	4.99%	0.40%	0.03%
214	Capitol Village #1	95.00%	4.58%	0.36%	0.03%	0.00%	4.99%	0.40%	0.03%
215	Capitol Village #6	94.71%	3.50%	1.59%	0.18%	0.00%	5.28%	1.78%	0.18%
216	CGISS Lease	94.71%	3.50%	1.59%	0.18%	0.00%	5.28%	1.78%	0.18%
219	Soccer Field Restroom/Concession Bldg.	89.17%	7.77%	2.79%	0.26%	0.00%	10.82%	3.05%	0.26%
234	Caven-Williams Sports Complex	94.71%	3.50%	1.59%	0.18%	0.00%	5.28%	1.78%	0.18%
235	Interactive Teaching & Learning Center	94.71%	3.50%	1.59%	0.18%	0.00%	5.28%	1.78%	0.18%
242	1156 - 1158 Euclid Annex	95.00%	4.58%	0.36%	0.03%	0.00%	4.99%	0.40%	0.03%
243	1162 - 1164 Euclid Annex	95.00%	4.58%	0.36%	0.03%	0.00%	4.99%	0.40%	0.03%
245	1142-1144 Euclid Annex	95.00%	4.58%	0.36%	0.03%	0.00%	4.99%	0.40%	0.03%
247	1350 W. Victory Road	93.22%	4.73%	1.87%	0.14%	0.01%	6.77%	2.04%	0.16%
255	Lincoln Avenue Garage	93.69%	4.96%	1.20%	0.13%	0.00%	6.30%	1.33%	0.13%
258	Access Mini Storage - Boise State Radio	93.28%	4.69%	1.85%	0.14%	0.01%	6.71%	2.01%	0.16%
259	Norco Building: Nursing Department, University Health Services	94.71%	3.50%	1.59%	0.18%	0.00%	5.28%	1.78%	0.18%
264	Stueckle Sky Center	94.71%	3.50%	1.59%	0.18%	0.00%	5.28%	1.78%	0.18%
266	1130 S. Manitou	93.14%	5.93%	0.84%	0.06%	0.00%	6.85%	0.91%	0.07%
267	Environmental Research Building	94.71%	3.50%	1.59%	0.18%	0.00%	5.28%	1.78%	0.18%
270	Waste Materials Storage Bldg.	94.71%	3.50%	1.59%	0.18%	0.00%	5.28%	1.78%	0.18%
278	Dona Larsen Park - Track & Field Equipment Building	94.18%	3.66%	1.92%	0.21%	0.00%	5.81%	2.14%	0.21%
285	1121 S. Denver	93.14%	5.93%	0.84%	0.06%	0.00%	6.85%	0.91%	0.07%

Building Code	Building Name	Probability of... No Damage	Slight Damage	Moderate Damage	Extensive Damage	Complete Damage	Probability of at Least... Slight Damage	Moderate Damage	Extensive Damage
289	Ron and Linda Yanke Family Research Park	94.71%	3.50%	1.59%	0.18%	0.00%	5.28%	1.78%	0.18%
292	Dona Larsen Park Softball Storage Shed	96.67%	2.28%	0.94%	0.09%	0.00%	3.32%	1.04%	0.09%
298	Micron Business and Economics Building	94.71%	3.50%	1.59%	0.18%	0.00%	5.28%	1.78%	0.18%
299	1870 Belmont	93.14%	5.93%	0.84%	0.06%	0.00%	6.85%	0.91%	0.07%
301	1514 S. Martha Cir	93.14%	5.93%	0.84%	0.06%	0.00%	6.85%	0.91%	0.07%
302	1630 S. Joyce	93.14%	5.93%	0.84%	0.06%	0.00%	6.85%	0.91%	0.07%
305	1816 Yale	95.00%	4.58%	0.36%	0.03%	0.00%	4.99%	0.40%	0.03%
306	1827 Yale	95.00%	4.58%	0.36%	0.03%	0.00%	4.99%	0.40%	0.03%
307	1855 Belmont	93.14%	5.93%	0.84%	0.06%	0.00%	6.85%	0.91%	0.07%
308	1406 S. Juanita	93.14%	5.93%	0.84%	0.06%	0.00%	6.85%	0.91%	0.07%
309	1803 W. Potter	93.14%	5.93%	0.84%	0.06%	0.00%	6.85%	0.91%	0.07%
310	1509 S. Joyce	93.14%	5.93%	0.84%	0.06%	0.00%	6.85%	0.91%	0.07%
319	1110 S. Grant	93.14%	5.93%	0.84%	0.06%	0.00%	6.85%	0.91%	0.07%
320	1808 Donald Circle	93.14%	5.93%	0.84%	0.06%	0.00%	6.85%	0.91%	0.07%
324	Boise State Meridian Center (Extended Studies)	97.12%	1.99%	0.80%	0.07%	0.00%	2.87%	0.88%	0.07%
326	The Lincoln Townhouses - “Tamarack House”	94.99%	4.40%	0.56%	0.03%	0.00%	5.00%	0.60%	0.03%
327	The Lincoln Townhouses - “Hawthorne House”	94.99%	4.40%	0.56%	0.03%	0.00%	5.00%	0.60%	0.03%
328	The Lincoln Townhouses - “Juniper House”	94.99%	4.40%	0.56%	0.03%	0.00%	5.00%	0.60%	0.03%
329	The Lincoln Townhouses - “Cedar House”	94.99%	4.40%	0.56%	0.03%	0.00%	5.00%	0.60%	0.03%
330	The Lincoln Townhouses - “Aspen House”	94.99%	4.40%	0.56%	0.03%	0.00%	5.00%	0.60%	0.03%
331	The Lincoln Townhouses - “Spruce House”	94.99%	4.40%	0.56%	0.03%	0.00%	5.00%	0.60%	0.03%
332	Gene Bleymaier Football Complex	94.71%	3.50%	1.59%	0.18%	0.00%	5.28%	1.78%	0.18%
334	1708 Potter	93.14%	5.93%	0.84%	0.06%	0.00%	6.85%	0.91%	0.07%
336	1810 Potter	93.14%	5.93%	0.84%	0.06%	0.00%	6.85%	0.91%	0.07%
338	1519 Juanita	93.14%	5.93%	0.84%	0.06%	0.00%	6.85%	0.91%	0.07%
341	Dona Larsen Park - North Restroom	96.67%	2.28%	0.94%	0.09%	0.00%	3.32%	1.04%	0.09%
342	Dona Larsen Park - South Restroom	96.67%	2.28%	0.94%	0.09%	0.00%	3.32%	1.04%	0.09%
343	Dona Larsen Park - Football Pressbox	96.67%	2.28%	0.94%	0.09%	0.00%	3.32%	1.04%	0.09%
344	Dona Larsen Park - East Softball Dugout	96.67%	2.28%	0.94%	0.09%	0.00%	3.32%	1.04%	0.09%
345	Dona Larsen Park - West Softball Dugout	96.67%	2.28%	0.94%	0.09%	0.00%	3.32%	1.04%	0.09%
346	Dona Larsen Park - Softball Pressbox	96.67%	2.28%	0.94%	0.09%	0.00%	3.32%	1.04%	0.09%
347	301 S. Capital	94.71%	3.50%	1.59%	0.18%	0.00%	5.28%	1.78%	0.18%

Building Code	Building Name	Probability of... No Damage	Slight Damage	Moderate Damage	Extensive Damage	Complete Damage	Probability of at Least... Slight Damage	Moderate Damage	Extensive Damage
348	University Plaza	94.71%	3.50%	1.59%	0.18%	0.00%	5.28%	1.78%	0.18%
349	Center for Visual Arts	94.71%	3.50%	1.59%	0.18%	0.00%	5.28%	1.78%	0.18%
351	1814 W Potter Drive	93.14%	5.93%	0.84%	0.06%	0.00%	6.85%	0.91%	0.07%
352	5475 W. Gage Street	93.54%	4.52%	1.77%	0.13%	0.01%	6.45%	1.92%	0.15%
354	1411 Belmont	93.14%	5.93%	0.84%	0.06%	0.00%	6.85%	0.91%	0.07%
355	1427 - 1429 Belmont	93.14%	5.93%	0.84%	0.06%	0.00%	6.85%	0.91%	0.07%
358	1112 Manitou Garage	90.73%	6.86%	2.23%	0.15%	0.00%	9.26%	2.39%	0.16%
360	1817 W Potter Drive	93.14%	5.93%	0.84%	0.06%	0.00%	6.85%	0.91%	0.07%
361	1607-1609 Martha Street	93.14%	5.93%	0.84%	0.06%	0.00%	6.85%	0.91%	0.07%
362	2500 Boise Ave	96.70%	2.26%	0.93%	0.09%	0.00%	3.29%	1.03%	0.09%
363	1225 Belmont	95.00%	4.58%	0.36%	0.03%	0.00%	4.99%	0.40%	0.03%
364	1225 Belmont Shop	95.00%	4.58%	0.36%	0.03%	0.00%	4.99%	0.40%	0.03%
365	Capitol Village #7	94.71%	3.50%	1.59%	0.18%	0.00%	5.28%	1.78%	0.18%
366	1711 Potter Drive	93.14%	5.93%	0.84%	0.06%	0.00%	6.85%	0.91%	0.07%
367	City Center Plaza	96.98%	2.70%	0.29%	0.01%	0.00%	3.01%	0.30%	0.01%
368	Alumni and Friends Center	94.99%	4.40%	0.56%	0.03%	0.00%	5.00%	0.60%	0.03%
369	1843 University Drive	93.14%	5.93%	0.84%	0.06%	0.00%	6.85%	0.91%	0.07%
370	1802/1804 Yale Court	93.14%	5.93%	0.84%	0.06%	0.00%	6.85%	0.91%	0.07%
371	1806/1808 Yale Court	95.00%	4.58%	0.36%	0.03%	0.00%	4.99%	0.40%	0.03%
374	1813 Potter Drive	93.14%	5.93%	0.84%	0.06%	0.00%	6.85%	0.91%	0.07%
375	1862 W Belmont St	93.14%	5.93%	0.84%	0.06%	0.00%	6.85%	0.91%	0.07%
377	City Center Plaza Bronco Shop	97.09%	2.72%	0.18%	0.00%	0.00%	2.90%	0.18%	0.00%
380	Honors College Live Learn Community	94.99%	4.40%	0.56%	0.03%	0.00%	5.00%	0.60%	0.03%
383	Unit 0115, Idaho Self Storage - River	89.59%	6.95%	3.12%	0.29%	0.03%	10.40%	3.45%	0.33%
384	Unit 0113, Idaho Self Storage - River	89.59%	6.95%	3.12%	0.29%	0.03%	10.40%	3.45%	0.33%
385	City Center Plaza - Bike Condo	97.09%	2.72%	0.18%	0.00%	0.00%	2.90%	0.18%	0.00%
386	City Center Plaza - 3rd floor Fenced Bike Parking	97.09%	2.72%	0.18%	0.00%	0.00%	2.90%	0.18%	0.00%
387	US BANK Building	96.98%	2.70%	0.29%	0.01%	0.00%	3.01%	0.30%	0.01%
388	1923 Yale Ct.	93.14%	5.93%	0.84%	0.06%	0.00%	6.85%	0.91%	0.07%
389	1815 Potter Dr.	93.14%	5.93%	0.84%	0.06%	0.00%	6.85%	0.91%	0.07%
390	Leatherman Peak	94.71%	3.50%	1.59%	0.18%	0.00%	5.28%	1.78%	0.18%
391	1501 Juanita St.	93.14%	5.93%	0.84%	0.06%	0.00%	6.85%	0.91%	0.07%

Building Code	Building Name	Probability of...					Probability of at Least...		
		No Damage	Slight Damage	Moderate Damage	Extensive Damage	Complete Damage	Slight Damage	Moderate Damage	Extensive Damage
392	1105 Manitou	93.14%	5.93%	0.84%	0.06%	0.00%	6.85%	0.91%	0.07%
393	1435 University Dr (New Bldg.; Not Modeled)								
396	1507-1509 Juanita	93.14%	5.93%	0.84%	0.06%	0.00%	6.85%	0.91%	0.07%
400	1801 W. Yale Court	92.97%	6.49%	0.49%	0.02%	0.00%	7.02%	0.53%	0.03%

Boise State University Building Return to Functionality for 500-Year Probabilistic Earthquake

Building Code	Building Name	Functionality (%) at Day 1	Functionality (%) at Day 3	Functionality (%) at Day 7	Functionality (%) at Day 14	Functionality (%) at Day 30	Functionality (%) at Day 90
004	Administration	87.3	87.9	98.4	98.5	99.9	99.9
005	Hemingway Center	86.6	87	93.7	93.7	98.9	99.9
006	Heat Plant and Telephone Building	87.3	87.9	98.4	98.5	99.9	99.9
007	Campus School	91.6	91.9	96.6	96.6	99.5	99.9
008	Opaline School House	83.8	84.4	94.6	94.7	99.4	99.9
009	Maintenance Shops	87.3	87.9	98.4	98.5	99.9	99.9
011	Communication	91.6	91.9	96.6	96.6	99.5	99.9
013	Morrison Ctr for Performing Arts (Aux.)	94.7	94.8	98.2	98.2	99.8	99.9
014	Morrison Ctr for the Performing Arts (Ed.)	94.7	94.8	98.2	98.2	99.8	99.9
015	ExtraMile Arena	94.7	94.8	98.2	98.2	99.8	99.9
016	Simplot Micron Advising and Success Hub	94.7	94.8	98.2	98.2	99.8	99.9
020	Morrison Hall	92.9	93.2	99.4	99.4	99.9	99.9
021	Driscoll Hall	92.9	93.2	99.4	99.4	99.9	99.9
022	1803 Donald Circle, Student Housing	93.1	93.4	99	99	99.9	99.9
023	1809 Donald Circle, Student Housing	93.1	93.4	99	99	99.9	99.9
024	Mathematics	91.6	91.9	96.6	96.6	99.5	99.9
025	Bronco Gymnasium - Department of Kinesiology	91.6	91.9	96.6	96.6	99.5	99.9
027	Albertsons Library	91.6	91.9	96.6	96.6	99.5	99.9
028	Boulder Hall	91.6	91.9	96.6	96.6	99.5	99.9
029	Charles P Ruch Engineering Building	94.7	94.8	98.2	98.2	99.8	99.9
030	Liberal Arts	91.6	91.9	96.6	96.6	99.5	99.9
031	Chaffee Hall	92.9	93.2	99.4	99.4	99.9	99.9
032	Student Union	91.6	91.9	96.6	96.6	99.5	99.9
034	Riverfront Hall	91.6	91.9	96.6	96.6	99.5	99.9
035	Albertsons Stadium	91.6	91.9	96.6	96.6	99.5	99.9
036	Varsity Center (Simplot Center for Athletic Excellence), Nickelson-Yanke Center	91.6	91.9	96.6	96.6	99.5	99.9
037	Kinesiology Annex (Pool)	91.6	91.9	96.6	96.6	99.5	99.9
038	Varsity Center Annex	94.7	94.8	98.2	98.2	99.8	99.9
039	John B. Barnes Towers	92.9	93.2	99.4	99.4	99.9	99.9
040	Chrisway Annex	91.6	91.9	96.6	96.6	99.5	99.9
049	2065 University Drive (Annex 3)	91.6	91.9	96.6	96.6	99.5	99.9

Building Code	Building Name	Functionality (%) at Day 1	Functionality (%) at Day 3	Functionality (%) at Day 7	Functionality (%) at Day 14	Functionality (%) at Day 30	Functionality (%) at Day 90
054	English Annex	94.7	94.8	98.2	98.2	99.8	99.9
056	Pioneer Hall	91.6	91.9	96.6	96.6	99.5	99.9
062	Special Events Center	91.6	91.9	96.6	96.6	99.5	99.9
065	Art Annex #1	91.6	91.9	96.6	96.6	99.5	99.9
070	Landscape Services	93.1	93.4	99	99	99.9	99.9
071	Education	94.7	94.8	98.2	98.2	99.8	99.9
072	Science Building	94.7	94.8	98.2	98.2	99.8	99.9
074	Science Greenhouse (Sci Nursing)	94.7	94.8	98.2	98.2	99.8	99.9
075	Copper Basin	94.9	95.2	99.3	99.3	99.9	99.9
078	Student Housing Maintenance	86.8	87.1	93.5	93.5	98.7	99.9
079	Manitou Annex #3	95	95.2	99.5	99.5	99.9	99.9
081	Euclid Annex #4	93.1	93.4	99	99	99.9	99.9
082	2055 University Drive (Annex 2)	94.7	94.8	98.2	98.2	99.8	99.9
083	Biology Greenhouse	94.7	94.8	98.2	98.2	99.8	99.9
084	Const. Materials & Methods Lab	94.7	94.8	98.2	98.2	99.8	99.9
085	Appleton Tennis Center	94.7	94.8	98.2	98.2	99.8	99.9
087	Boas Tennis and Soccer Ctr.	96.6	96.7	98.9	98.9	99.8	99.9
089	Construction Management	94.7	94.8	98.2	98.2	99.8	99.9
090	Student Success Ctr. (Annex #8)	93.1	93.4	99	99	99.9	99.9
093	Children's Ctr.	94.7	94.8	98.2	98.2	99.8	99.9
096	Garage Stadium Storage	94.7	94.8	98.2	98.2	99.8	99.9
098	Theatre Arts Annex (Costume Shop)	91.6	91.9	96.6	96.6	99.5	99.9
099	1375 Belmont Annex	94.7	94.8	98.2	98.2	99.8	99.9
100	Harry Morrison Civil Engineering	94.7	94.8	98.2	98.2	99.8	99.9
101	Micron Engineering Center	94.7	94.8	98.2	98.2	99.8	99.9
102	Student Recreation Center	94.7	94.8	98.2	98.2	99.8	99.9
102A	Student Recreation Center - Natatorium	94.7	94.8	98.2	98.2	99.8	99.9
104	Brady Street Garage	93.6	93.9	98.6	98.6	99.8	99.9
105	1015 Grant Avenue Annex	94.7	94.8	98.2	98.2	99.8	99.9
110	FO&M Training Center	90.7	91	97.5	97.5	99.8	99.9
114	1113 Denver Annex	93.1	93.4	99	99	99.9	99.9
115	1113 Denver Annex Garage	90.7	91	97.5	97.5	99.8	99.9
116	Internal Audit	93.1	93.4	99	99	99.9	99.9

Building Code	Building Name	Functionality (%) at Day 1	Functionality (%) at Day 3	Functionality (%) at Day 7	Functionality (%) at Day 14	Functionality (%) at Day 30	Functionality (%) at Day 90
117	Internal Audit	90.7	91	97.5	97.5	99.8	99.9
119	Grant Annex 4, 1023 S. Grant	94.7	94.8	98.2	98.2	99.8	99.9
121	Health Sciences - Riverside	94.7	94.8	98.2	98.2	99.8	99.9
122	Raptor Research Center	91.6	91.9	96.6	96.6	99.5	99.9
123	Multi-Purpose Classroom Building	94.7	94.8	98.2	98.2	99.8	99.9
125	1114 Manitou Annex #2	95	95.2	99.5	99.5	99.9	99.9
137	1406 Chrisway Annex 2	95	95.2	99.5	99.5	99.9	99.9
138	TECenter (Technology and Entrepreneurial Center)	0	0	0	0	0	0
143	Idaho Center Sports Center	0	0	0	0	0	0
144	Capitol Village #5	95	95.2	99.5	99.5	99.9	99.9
146	1029 Lusk Annex	95	95.2	99.5	99.5	99.9	99.9
152	David S. Taylor Hall	94.9	95.2	99.3	99.3	99.9	99.9
153	John H. Keiser Hall	94.9	95.2	99.3	99.3	99.9	99.9
154	University Suites - “Selway Suites”	94.9	95.2	99.3	99.3	99.9	99.9
155	University Suites - “Payette Suites”	94.9	95.2	99.3	99.3	99.9	99.9
156	University Suites - “Clearwater Suites”	94.9	95.2	99.3	99.3	99.9	99.9
157	University Square - Jade Hall	94.9	95.2	99.3	99.3	99.9	99.9
158	University Square - Topaz Hall	94.9	95.2	99.3	99.3	99.9	99.9
159	University Square - Jasper Hall	94.9	95.2	99.3	99.3	99.9	99.9
160	University Square - Garnet Hall	94.9	95.2	99.3	99.3	99.9	99.9
164	Allen Noble Hall of Fame	91.6	91.9	96.6	96.6	99.5	99.9
166	Christ Chapel	93.6	93.9	98.6	98.6	99.8	99.9
173	University Heights Apartments - A	92.9	93.2	99.4	99.4	99.9	99.9
174	University Heights Apartments - B	92.9	93.2	99.4	99.4	99.9	99.9
175	University Heights Apartments - C	92.9	93.2	99.4	99.4	99.9	99.9
176	University Manor Apartments - A	95.7	95.9	99.7	99.7	99.9	99.9
177	University Manor Apartments - B	92.9	93.2	99.4	99.4	99.9	99.9
178	University Park Apartments - A (N)	92.9	93.2	99.4	99.4	99.9	99.9
179	University Park Apartments - B (S)	92.9	93.2	99.4	99.4	99.9	99.9
180	University Village Apartments - A	94.9	95.2	99.3	99.3	99.9	99.9
181	University Village Apartments - B	94.9	95.2	99.3	99.3	99.9	99.9
182	University Village Apartments - C	94.9	95.2	99.3	99.3	99.9	99.9
183	University Village Apartments - D	94.9	95.2	99.3	99.3	99.9	99.9

Building Code	Building Name	Functionality (%) at Day 1	Functionality (%) at Day 3	Functionality (%) at Day 7	Functionality (%) at Day 14	Functionality (%) at Day 30	Functionality (%) at Day 90
184	University Village Apartments - E	94.9	95.2	99.3	99.3	99.9	99.9
185	University Village Apartments - F	95	95.2	99.5	99.5	99.9	99.9
198	Network Services	93.1	93.4	99	99	99.9	99.9
203	Euclid Annex #2	95	95.2	99.5	99.5	99.9	99.9
204	Euclid Annex #3	95	95.2	99.5	99.5	99.9	99.9
210	Capitol Village #2	95	95.2	99.5	99.5	99.9	99.9
211	Capitol Village #3	94.9	95.2	99.3	99.3	99.9	99.9
213	Capitol Village #4	95	95.2	99.5	99.5	99.9	99.9
214	Capitol Village #1	95	95.2	99.5	99.5	99.9	99.9
215	Capitol Village #6	94.7	94.8	98.2	98.2	99.8	99.9
216	CGISS Lease	94.7	94.8	98.2	98.2	99.8	99.9
219	Soccer Field Restroom/Concession Bldg.	89.1	89.5	96.9	96.9	99.7	99.9
234	Caven-Williams Sports Complex	94.7	94.8	98.2	98.2	99.8	99.9
235	Interactive Teaching & Learning Center	94.7	94.8	98.2	98.2	99.8	99.9
242	1156 - 1158 Euclid Annex	95	95.2	99.5	99.5	99.9	99.9
243	1162 - 1164 Euclid Annex	95	95.2	99.5	99.5	99.9	99.9
245	1142-1144 Euclid Annex	95	95.2	99.5	99.5	99.9	99.9
247	1350 W. Victory Road	93.2	93.4	97.9	97.9	99.8	99.9
255	Lincoln Avenue Garage	93.6	93.9	98.6	98.6	99.8	99.9
258	Access Mini Storage - Boise State Radio	93.2	93.5	97.9	97.9	99.8	99.9
259	Norco Building: Nursing Department, University Health Services	94.7	94.8	98.2	98.2	99.8	99.9
264	Stueckle Sky Center	94.7	94.8	98.2	98.2	99.8	99.9
266	1130 S. Manitou	93.1	93.4	99	99	99.9	99.9
267	Environmental Research Building	94.7	94.8	98.2	98.2	99.8	99.9
270	Waste Materials Storage Bldg.	94.7	94.8	98.2	98.2	99.8	99.9
278	Dona Larsen Park - Track & Field Equipment Building	94.1	94.3	97.8	97.8	99.7	99.9
285	1121 S. Denver	93.1	93.4	99	99	99.9	99.9
289	Ron and Linda Yanke Family Research Park	94.7	94.8	98.2	98.2	99.8	99.9
292	Dona Larsen Park Softball Storage Shed	96.6	96.7	98.9	98.9	99.8	99.9
298	Micron Business and Economics Building	94.7	94.8	98.2	98.2	99.8	99.9
299	1870 Belmont	93.1	93.4	99	99	99.9	99.9
301	1514 S. Martha Cir	93.1	93.4	99	99	99.9	99.9
302	1630 S. Joyce	93.1	93.4	99	99	99.9	99.9

Building Code	Building Name	Functionality (%) at Day 1	Functionality (%) at Day 3	Functionality (%) at Day 7	Functionality (%) at Day 14	Functionality (%) at Day 30	Functionality (%) at Day 90
305	1816 Yale	95	95.2	99.5	99.5	99.9	99.9
306	1827 Yale	95	95.2	99.5	99.5	99.9	99.9
307	1855 Belmont	93.1	93.4	99	99	99.9	99.9
308	1406 S. Juanita	93.1	93.4	99	99	99.9	99.9
309	1803 W. Potter	93.1	93.4	99	99	99.9	99.9
310	1509 S. Joyce	93.1	93.4	99	99	99.9	99.9
319	1110 S. Grant	93.1	93.4	99	99	99.9	99.9
320	1808 Donald Circle	93.1	93.4	99	99	99.9	99.9
324	Boise State Meridian Center (Extended Studies)	97.1	97.2	99.1	99.1	99.9	99.9
326	The Lincoln Townhouses - “Tamarack House”	94.9	95.2	99.3	99.3	99.9	99.9
327	The Lincoln Townhouses - “Hawthorne House”	94.9	95.2	99.3	99.3	99.9	99.9
328	The Lincoln Townhouses - “Juniper House”	94.9	95.2	99.3	99.3	99.9	99.9
329	The Lincoln Townhouses - “Cedar House”	94.9	95.2	99.3	99.3	99.9	99.9
330	The Lincoln Townhouses - “Aspen House”	94.9	95.2	99.3	99.3	99.9	99.9
331	The Lincoln Townhouses - “Spruce House”	94.9	95.2	99.3	99.3	99.9	99.9
332	Gene Bleymaier Football Complex	94.7	94.8	98.2	98.2	99.8	99.9
334	1708 Potter	93.1	93.4	99	99	99.9	99.9
336	1810 Potter	93.1	93.4	99	99	99.9	99.9
338	1519 Juanita	93.1	93.4	99	99	99.9	99.9
341	Dona Larsen Park - North Restroom	96.6	96.7	98.9	98.9	99.8	99.9
342	Dona Larsen Park - South Restroom	96.6	96.7	98.9	98.9	99.8	99.9
343	Dona Larsen Park - Football Pressbox	96.6	96.7	98.9	98.9	99.8	99.9
344	Dona Larsen Park - East Softball Dugout	96.6	96.7	98.9	98.9	99.8	99.9
345	Dona Larsen Park - West Softball Dugout	96.6	96.7	98.9	98.9	99.8	99.9
346	Dona Larsen Park - Softball Pressbox	96.6	96.7	98.9	98.9	99.8	99.9
347	301 S. Capital	94.7	94.8	98.2	98.2	99.8	99.9
348	University Plaza	94.7	94.8	98.2	98.2	99.8	99.9
349	Center for Visual Arts	94.7	94.8	98.2	98.2	99.8	99.9
351	1814 W Potter Drive	93.1	93.4	99	99	99.9	99.9
352	5475 W. Gage Street	93.5	93.7	98	98	99.8	99.9
354	1411 Belmont	93.1	93.4	99	99	99.9	99.9
355	1427 - 1429 Belmont	93.1	93.4	99	99	99.9	99.9
358	1112 Manitou Garage	90.7	91	97.5	97.5	99.8	99.9

Building Code	Building Name	Functionality (%) at Day 1	Functionality (%) at Day 3	Functionality (%) at Day 7	Functionality (%) at Day 14	Functionality (%) at Day 30	Functionality (%) at Day 90
360	1817 W Potter Drive	93.1	93.4	99	99	99.9	99.9
361	1607-1609 Martha Street	93.1	93.4	99	99	99.9	99.9
362	2500 Boise Ave	96.7	96.8	98.9	98.9	99.8	99.9
363	1225 Belmont	95	95.2	99.5	99.5	99.9	99.9
364	1225 Belmont Shop	95	95.2	99.5	99.5	99.9	99.9
365	Capitol Village #7	94.7	94.8	98.2	98.2	99.8	99.9
366	1711 Potter Drive	93.1	93.4	99	99	99.9	99.9
367	City Center Plaza	96.9	97.1	99.6	99.6	99.9	99.9
368	Alumni and Friends Center	94.9	95.2	99.3	99.3	99.9	99.9
369	1843 University Drive	93.1	93.4	99	99	99.9	99.9
370	1802/1804 Yale Court	93.1	93.4	99	99	99.9	99.9
371	1806/1808 Yale Court	95	95.2	99.5	99.5	99.9	99.9
374	1813 Potter Drive	93.1	93.4	99	99	99.9	99.9
375	1862 W Belmont St	93.1	93.4	99	99	99.9	99.9
377	City Center Plaza Bronco Shop	97	97.2	99.8	99.8	99.9	99.9
380	Honors College Live Learn Community	94.9	95.2	99.3	99.3	99.9	99.9
383	Unit 0115, Idaho Self Storage - River	89.5	89.9	96.5	96.5	99.6	99.9
384	Unit 0113, Idaho Self Storage - River	89.5	89.9	96.5	96.5	99.6	99.9
385	City Center Plaza - Bike Condo	97	97.2	99.8	99.8	99.9	99.9
386	City Center Plaza - 3rd floor Fenced Bike Parking	97	97.2	99.8	99.8	99.9	99.9
387	US BANK Building	96.9	97.1	99.6	99.6	99.9	99.9
388	1923 Yale Ct.	93.1	93.4	99	99	99.9	99.9
389	1815 Potter Dr.	93.1	93.4	99	99	99.9	99.9
390	Leatherman Peak	94.7	94.8	98.2	98.2	99.8	99.9
391	1501 Juanita St.	93.1	93.4	99	99	99.9	99.9
392	1105 Manitou	93.1	93.4	99	99	99.9	99.9
393	1435 University Dr (New Bldg.; Not Modeled)						
396	1507-1509 Juanita	93.1	93.4	99	99	99.9	99.9
400	1801 W. Yale Court	92.9	93.2	99.4	99.4	99.9	99.9

Boise State University Building Loss Estimates for 100-Year Probabilistic Earthquake

Building Code	Building Name	Structure Replacement Cost	Content Replacement Cost	Economic Loss
004	Administration	$13,577,470	$2,142,151	$23,276
005	Hemingway Center	$6,628,709	$1,009,674	$19,377
006	Heat Plant and Telephone Building	$5,135,372	$2,493,488	$8,803
007	Campus School	$6,064,399	$771,540	$12,607
008	Opaline School House	$118,656	$7,925	$454
009	Maintenance Shops	$817,573	$272,325	$1,402
011	Communication	$3,045,169	$1,898,881	$6,330
013	Morrison Ctr for Performing Arts (Aux.)	$84,503,013	$3,688,288	$73,634
014	Morrison Ctr for the Performing Arts (Ed.)	$10,691,368	$16,037,053	$7,805
015	ExtraMile Arena	$75,183,608	$4,303,736	$54,884
016	Simplot Micron Advising and Success Hub	$11,406,395	$5,957,074	$8,204
020	Morrison Hall	$3,638,649	$284,585	$2,223
021	Driscoll Hall	$3,824,406	$133,399	$2,336
022	1803 Donald Circle, Student Housing	$135,220	$4,136	$85
023	1809 Donald Circle, Student Housing	$256,481	$4,136	$162
024	Mathematics	$15,478,940	$6,696,328	$32,178
025	Bronco Gymnasium - Department of Kinesiology	$9,864,949	$1,096,058	$20,507
027	Albertsons Library	$73,213,028	$122,097,230	$152,197
028	Boulder Hall	$4,663,023	$163,834	$9,694
029	Charles P Ruch Engineering Building	$38,365,083	$14,828,394	$27,593
030	Liberal Arts	$9,178,325	$1,048,592	$19,080
031	Chaffee Hall	$171,742,526	$1,422,933	$10,491
032	Student Union	$125,700,036	$6,154,658	$275,196
034	Riverfront Hall	$17,713,723	$11,247,410	$36,824
035	Albertsons Stadium	$48,084,843	$2,673,210	$55,612
036	Varsity Center (Simplot Center for Athletic Excellence), Nickelson-Yanke Center	$9,556,319	$1,362,330	$19,866
037	Kinesiology Annex (Pool)	$7,184,917	$244,987	$14,936
038	Varsity Center Annex	$1,751,582	$359,295	$1,279
039	John B. Barnes Towers	$10,234,670	$978,266	$6,252
040	Chrisway Annex	$1,583,371	$493,036	$3,292
049	2065 University Drive (Annex 3)	$342,009	$205,380	$711
054	English Annex	$424,308	$25,826	$305

Building Code	Building Name	Structure Replacement Cost	Content Replacement Cost	Economic Loss
056	Pioneer Hall	$4,460,401	$444,538	$9,272
062	Special Events Center	$5,833,486	$406,332	$12,127
065	Art Annex #1	$307,840	$41,334	$640
070	Landscape Services	$112,718	$207,315	$71
071	Education	$20,806,666	$2,933,773	$14,964
072	Science Building	$59,530,157	$11,346,593	$43,457
074	Science Greenhouse (Sci Nursing)	$154,701	$1,605	$111
075	Copper Basin	$2,113,523	$235,017	$708
078	Student Housing Maintenance	$480,772	$188,621	$1,928
079	Manitou Annex #3	$364,258	$500,968	$81
081	Euclid Annex #4	$206,164	$57,729	$130
082	2055 University Drive (Annex 2)	$590,157	$161,994	$424
083	Biology Greenhouse	$239,292	$44,450	$172
084	Const. Materials & Methods Lab	$229,295	$30,171	$165
085	Appleton Tennis Center	$2,780,145	$14,091	$2,000
087	Boas Tennis and Soccer Ctr.	$2,673,156	$73,032	$922
089	Construction Management	$124,614	$30,922	$90
090	Student Success Ctr. (Annex #8)	$231,166	$160,976	$146
093	Children's Ctr.	$2,451,262	$792,540	$1,763
096	Garage Stadium Storage	$271,651	$23,775	$195
098	Theatre Arts Annex (Costume Shop)	$800,592	$83,830	$1,664
099	1375 Belmont Annex	$132,616	$97,638	$95
100	Harry Morrison Civil Engineering	$11,519,981	$2,886,560	$8,285
101	Micron Engineering Center	$42,092,199	$15,353,675	$30,273
102	Student Recreation Center	$28,213,869	$1,329,820	$20,292
102A	Student Recreation Center - Natatorium	$9,999,932	$422,531	$5,044
104	Brady Street Garage	$28,413,491	$157,468	$17,356
105	1015 Grant Avenue Annex	$1,743,802	$383,801	$1,254
110	FO&M Training Center	$162,306	$171,625	$232
114	1113 Denver Annex	$205,851	$286,046	$130
115	1113 Denver Annex Garage	$27,290	$36,990	$39
116	Internal Audit	$189,912	$84,540	$120
117	Internal Audit	$27,290	$0	$39

Building Code	Building Name	Structure Replacement Cost	Content Replacement Cost	Economic Loss
119	Grant Annex 4, 1023 S. Grant	$545,308	$61,337	$329
121	Health Sciences - Riverside	$4,725,281	$1,410,812	$3,449
122	Raptor Research Center	$2,809,419	$132,678	$5,840
123	Multi-Purpose Classroom Building	$16,900,572	$3,913,610	$12,155
125	1114 Manitou Annex #2	$266,372	$215,218	$68
137	1406 Chrisway Annex 2	$453,582	$132,678	$116
138	TECenter (Technology and Entrepreneurial Center)	$16,184,148	$131,365	$0
143	Idaho Center Sports Center	$0	$1,321,653	$0
144	Capitol Village #5	$1,245,627	$117,703	$319
146	1029 Lusk Annex	$0	$322,827	$200
152	David S. Taylor Hall	$13,407,142	$882,218	$4,491
153	John H. Keiser Hall	$9,113,274	$705,664	$3,053
154	University Suites - “Selway Suites”	$5,800,000	$455,338	$1,943
155	University Suites - “Payette Suites”	$4,528,011	$381,187	$1,517
156	University Suites - “Clearwater Suites”	$4,349,974	$284,585	$1,457
157	University Square - Jade Hall	$3,531,567	$60,961	$1,183
158	University Square - Topaz Hall	$3,398,743	$60,961	$1,138
159	University Square - Jasper Hall	$3,411,348	$60,961	$1,143
160	University Square - Garnet Hall	$3,909,843	$71,122	$1,310
164	Allen Noble Hall of Fame	$3,871,698	$100,570	$8,049
166	Christ Chapel	$293,255	$0	$179
173	University Heights Apartments - A	$1,207,504	$30,479	$738
174	University Heights Apartments - B	$1,268,343	$30,479	$775
175	University Heights Apartments - C	$1,207,504	$30,479	$738
176	University Manor Apartments - A	$2,324,896	$152,402	$733
177	University Manor Apartments - B	$2,324,896	$60,961	$1,420
178	University Park Apartments - A (N)	$2,877,654	$60,961	$1,758
179	University Park Apartments - B (S)	$2,877,654	$60,961	$1,758
180	University Village Apartments - A	$1,370,852	$32,778	$459
181	University Village Apartments - B	$1,370,852	$32,778	$459
182	University Village Apartments - C	$1,370,852	$32,778	$459
183	University Village Apartments - D	$1,370,852	$32,778	$459
184	University Village Apartments - E	$2,015,910	$32,778	$675

Building Code	Building Name	Structure Replacement Cost	Content Replacement Cost	Economic Loss
185	University Village Apartments - F	$238,771	$45,720	$61
198	Network Services	$120,948	$174,931	$76
203	Euclid Annex #2	$421,225	$194,051	$77
204	Euclid Annex #3	$526,531	$228,313	$114
210	Capitol Village #2	$441,185	$7,421	$113
211	Capitol Village #3	$1,476,695	$11,170	$495
213	Capitol Village #4	$684,228	$39,702	$175
214	Capitol Village #1	$1,199,691	$123,255	$307
215	Capitol Village #6	$7,381,089	$90,116	$5,309
216	CGISS Lease	$0	$978,884	$563
219	Soccer Field Restroom/Concession Bldg.	$189,392	$0	$440
234	Caven-Williams Sports Complex	$13,814,954	$38,862	$9,936
235	Interactive Teaching & Learning Center	$20,601,252	$2,213,137	$13,393
242	1156 - 1158 Euclid Annex	$214,394	$0	$55
243	1162 - 1164 Euclid Annex	$214,394	$0	$55
245	1142-1144 Euclid Annex	$214,394	$353,056	$55
247	1350 W. Victory Road	$0	$6,476	$10
255	Lincoln Avenue Garage	$35,872,808	$589,058	$21,912
258	Access Mini Storage - Boise State Radio	$30,532	$117,068	$23
259	Norco Building: Nursing Department, University Health Services	$24,030,125	$2,894,703	$16,537
264	Stueckle Sky Center	$54,208,455	$2,470,022	$38,987
266	1130 S. Manitou	$26,782	$6,350	$80
267	Environmental Research Building	$62,715,238	$23,478	$45,106
270	Waste Materials Storage Bldg.	$154,686	$0	$111
278	Dona Larsen Park - Track & Field Equipment Building	$773,611	$123,008	$915
285	1121 S. Denver	$143,971	$43,503	$91
289	Ron and Linda Yanke Family Research Park	$16,202,910	$1,060,188	$11,653
292	Dona Larsen Park Softball Storage Shed	$5,858	$3,626	$2
298	Micron Business and Economics Building	$47,908,983	$1,924,498	$34,457
299	1870 Belmont	$72,030	$4,136	$45
301	1514 S. Martha Cir	$70,831	$4,136	$45
302	1630 S. Joyce	$98,399	$4,136	$62
305	1816 Yale	$313,361	$0	$80

Building Code	Building Name	Structure Replacement Cost	Content Replacement Cost	Economic Loss
306	1827 Yale	$316,903	$0	$81
307	1855 Belmont	$166,681	$4,136	$105
308	1406 S. Juanita	$312,220	$156,110	$58
309	1803 W. Potter	$164,218	$4,096	$120
310	1509 S. Joyce	$91,277	$4,096	$84
319	1110 S. Grant	$171,890	$4,136	$108
320	1808 Donald Circle	$173,244	$14,478	$109
324	Boise State Meridian Center (Extended Studies)	$138,815	$0	$462
326	The Lincoln Townhouses - “Tamarack House”	$2,099,685	$117,843	$1,369
327	The Lincoln Townhouses - “Hawthorne House”	$4,831,237	$290,407	$1,369
328	The Lincoln Townhouses - “Juniper House”	$4,835,129	$290,407	$1,369
329	The Lincoln Townhouses - “Cedar House”	$3,978,852	$247,889	$1,168
330	The Lincoln Townhouses - “Aspen House”	$2,096,947	$117,843	$527
331	The Lincoln Townhouses - “Spruce House”	$3,969,916	$247,889	$1,168
332	Gene Bleymaier Football Complex	$24,443,974	$5,693,788	$17,580
334	1708 Potter	$186,579	$4,136	$118
336	1810 Potter	$1,067,803	$4,136	$67
338	1519 Juanita	$139,075	$4,136	$88
341	Dona Larsen Park - North Restroom	$360,553	$0	$124
342	Dona Larsen Park - South Restroom	$137,020	$4,096	$74
343	Dona Larsen Park - Football Pressbox	$355,225	$355,225	$36
344	Dona Larsen Park - East Softball Dugout	$23,435	$0	$8
345	Dona Larsen Park - West Softball Dugout	$23,435	$0	$8
346	Dona Larsen Park - Softball Pressbox	$242,209	$2,152	$84
347	301 S. Capital	$2,915,991	$77,872	$2,097
348	University Plaza	$22,309,007	$131,426	$1,418
349	Center for Visual Arts	$45,957,706	$77,101	$33,053
351	1814 W Potter Drive	$81,671	$4,136	$51
352	5475 W. Gage Street	$2,875,571	$2,529,985	$1,955
354	1411 Belmont	$41,886	$0	$26
355	1427 - 1429 Belmont	$208,977	$4,136	$132
358	1112 Manitou Garage	$0	$0	$100
360	1817 W Potter Drive	$101,988	$4,136	$64

Building Code	Building Name	Structure Replacement Cost	Content Replacement Cost	Economic Loss
361	1607-1609 Martha Street	$215,852	$4,136	$136
362	2500 Boise Ave	$347,218	$5,300	$120
363	1225 Belmont	$104,659	$0	$27
364	1225 Belmont Shop	$26,231	$0	$7
365	Capitol Village #7	$14,311,956	$1,516,069	$6,261
366	1711 Potter Drive	$233,666	$4,136	$147
367	City Center Plaza	$12,749,271	$2,350,346	$2,010
368	Alumni and Friends Center	$15,626,404	$800,423	$5,234
369	1843 University Drive	$3,089,868	$4,136	$195
370	1802/1804 Yale Court	$100,626	$4,136	$63
371	1806/1808 Yale Court	$100,626	$4,136	$26
374	1813 Potter Drive	$73,990	$4,136	$47
375	1862 W Belmont St	$104,488	$4,136	$66
377	City Center Plaza Bronco Shop	$0	$35,350	$41
380	Honors College Live Learn Community	$3,004,197	$2,688,865	$1,141
383	Unit 0115, Idaho Self Storage - River	$0	$36,558	$73
384	Unit 0113, Idaho Self Storage - River	$0	$36,558	$36
385	City Center Plaza - Bike Condo	$50,887	$36,196	$6
386	City Center Plaza - 3rd floor Fenced Bike Parking	$25,444	$36,196	$25
387	US BANK Building	$0	$875,672	$154
388	1923 Yale Ct.	$279,665	$4,136	$145
389	1815 Potter Dr.	$192,725	$4,136	$122
390	Leatherman Peak	$1,836,104	$112,858	$1,321
391	1501 Juanita St.	$468,792	$14,478	$296
392	1105 Manitou	$239,604	$4,136	$151
393	1435 University Dr (New Bldg.; Not Modeled)	$44,091,961	$606,000	
396	1507-1509 Juanita	$338,466	$0	$213
400	1801 W. Yale Court	$974,374	$0	$595
TOTAL		$1,631,705,544	$293,871,543	$1,425,334

Boise State University Building Damage Probability for 100-Year Probabilistic Earthquake

Building Code	Building Name	Probability of...					Probability of at Least...		
		No Damage	Slight Damage	Moderate Damage	Extensive Damage	Complete Damage	Slight Damage	Moderate Damage	Extensive Damage
004	Administration	98.43%	1.50%	0.06%	0.00%	0.00%	1.56%	0.06%	0.00%
005	Hemingway Center	97.40%	1.74%	0.76%	0.08%	0.00%	2.59%	0.85%	0.08%
006	Heat Plant and Telephone Building	98.43%	1.50%	0.06%	0.00%	0.00%	1.56%	0.06%	0.00%
007	Campus School	98.85%	0.83%	0.28%	0.02%	0.00%	1.14%	0.31%	0.02%
008	Opaline School House	97.47%	2.08%	0.41%	0.02%	0.00%	2.52%	0.44%	0.02%
009	Maintenance Shops	98.43%	1.50%	0.06%	0.00%	0.00%	1.56%	0.06%	0.00%
011	Communication	98.85%	0.83%	0.28%	0.02%	0.00%	1.14%	0.31%	0.02%
013	Morrison Ctr for Performing Arts (Aux.)	99.59%	0.29%	0.09%	0.01%	0.00%	0.40%	0.10%	0.01%
014	Morrison Ctr for the Performing Arts (Ed.)	99.59%	0.29%	0.09%	0.01%	0.00%	0.40%	0.10%	0.01%
015	ExtraMile Arena	99.59%	0.29%	0.09%	0.01%	0.00%	0.40%	0.10%	0.01%
016	Simplot Micron Advising and Success Hub	99.59%	0.29%	0.09%	0.01%	0.00%	0.40%	0.10%	0.01%
020	Morrison Hall	99.43%	0.54%	0.02%	0.00%	0.00%	0.56%	0.02%	0.00%
021	Driscoll Hall	99.43%	0.54%	0.02%	0.00%	0.00%	0.56%	0.02%	0.00%
022	1803 Donald Circle, Student Housing	99.47%	0.48%	0.04%	0.00%	0.00%	0.52%	0.04%	0.00%
023	1809 Donald Circle, Student Housing	99.47%	0.48%	0.04%	0.00%	0.00%	0.52%	0.04%	0.00%
024	Mathematics	98.85%	0.83%	0.28%	0.02%	0.00%	1.14%	0.31%	0.02%
025	Bronco Gymnasium - Department of Kinesiology	98.85%	0.83%	0.28%	0.02%	0.00%	1.14%	0.31%	0.02%
027	Albertsons Library	98.85%	0.83%	0.28%	0.02%	0.00%	1.14%	0.31%	0.02%
028	Boulder Hall	98.85%	0.83%	0.28%	0.02%	0.00%	1.14%	0.31%	0.02%
029	Charles P Ruch Engineering Building	99.59%	0.29%	0.09%	0.01%	0.00%	0.40%	0.10%	0.01%
030	Liberal Arts	98.85%	0.83%	0.28%	0.02%	0.00%	1.14%	0.31%	0.02%
031	Chaffee Hall	99.43%	0.54%	0.02%	0.00%	0.00%	0.56%	0.02%	0.00%
032	Student Union	98.85%	0.83%	0.28%	0.02%	0.00%	1.14%	0.31%	0.02%
034	Riverfront Hall	98.85%	0.83%	0.28%	0.02%	0.00%	1.14%	0.31%	0.02%
035	Albertsons Stadium	98.85%	0.83%	0.28%	0.02%	0.00%	1.14%	0.31%	0.02%
036	Varsity Center (Simplot Center for Athletic Excellence), Nickelson-Yanke Center	98.85%	0.83%	0.28%	0.02%	0.00%	1.14%	0.31%	0.02%
037	Kinesiology Annex (Pool)	98.85%	0.83%	0.28%	0.02%	0.00%	1.14%	0.31%	0.02%
038	Varsity Center Annex	99.59%	0.29%	0.09%	0.01%	0.00%	0.40%	0.10%	0.01%
039	John B. Barnes Towers	99.43%	0.54%	0.02%	0.00%	0.00%	0.56%	0.02%	0.00%
040	Chrisway Annex	98.85%	0.83%	0.28%	0.02%	0.00%	1.14%	0.31%	0.02%

Building Code	Building Name	Probability of... No Damage	Slight Damage	Moderate Damage	Extensive Damage	Complete Damage	Probability of at Least... Slight Damage	Moderate Damage	Extensive Damage
049	2065 University Drive (Annex 3)	98.85%	0.83%	0.28%	0.02%	0.00%	1.14%	0.31%	0.02%
054	English Annex	99.59%	0.29%	0.09%	0.01%	0.00%	0.40%	0.10%	0.01%
056	Pioneer Hall	98.85%	0.83%	0.28%	0.02%	0.00%	1.14%	0.31%	0.02%
062	Special Events Center	98.85%	0.83%	0.28%	0.02%	0.00%	1.14%	0.31%	0.02%
065	Art Annex #1	98.85%	0.83%	0.28%	0.02%	0.00%	1.14%	0.31%	0.02%
070	Landscape Services	99.47%	0.48%	0.04%	0.00%	0.00%	0.52%	0.04%	0.00%
071	Education	99.59%	0.29%	0.09%	0.01%	0.00%	0.40%	0.10%	0.01%
072	Science Building	99.59%	0.29%	0.09%	0.01%	0.00%	0.40%	0.10%	0.01%
074	Science Greenhouse (Sci Nursing)	99.59%	0.29%	0.09%	0.01%	0.00%	0.40%	0.10%	0.01%
075	Copper Basin	99.70%	0.26%	0.02%	0.00%	0.00%	0.29%	0.02%	0.00%
078	Student Housing Maintenance	98.29%	1.03%	0.58%	0.09%	0.00%	1.70%	0.67%	0.09%
079	Manitou Annex #3	99.76%	0.22%	0.01%	0.00%	0.00%	0.23%	0.01%	0.00%
081	Euclid Annex #4	99.47%	0.48%	0.04%	0.00%	0.00%	0.52%	0.04%	0.00%
082	2055 University Drive (Annex 2)	99.59%	0.29%	0.09%	0.01%	0.00%	0.40%	0.10%	0.01%
083	Biology Greenhouse	99.59%	0.29%	0.09%	0.01%	0.00%	0.40%	0.10%	0.01%
084	Const. Materials & Methods Lab	99.59%	0.29%	0.09%	0.01%	0.00%	0.40%	0.10%	0.01%
085	Appleton Tennis Center	99.59%	0.29%	0.09%	0.01%	0.00%	0.40%	0.10%	0.01%
087	Boas Tennis and Soccer Ctr.	99.78%	0.15%	0.05%	0.00%	0.00%	0.21%	0.05%	0.00%
089	Construction Management	99.59%	0.29%	0.09%	0.01%	0.00%	0.40%	0.10%	0.01%
090	Student Success Ctr. (Annex #8)	99.47%	0.48%	0.04%	0.00%	0.00%	0.52%	0.04%	0.00%
093	Children's Ctr.	99.59%	0.29%	0.09%	0.01%	0.00%	0.40%	0.10%	0.01%
096	Garage Stadium Storage	99.59%	0.29%	0.09%	0.01%	0.00%	0.40%	0.10%	0.01%
098	Theatre Arts Annex (Costume Shop)	98.85%	0.83%	0.28%	0.02%	0.00%	1.14%	0.31%	0.02%
099	1375 Belmont Annex	99.59%	0.29%	0.09%	0.01%	0.00%	0.40%	0.10%	0.01%
100	Harry Morrison Civil Engineering	99.59%	0.29%	0.09%	0.01%	0.00%	0.40%	0.10%	0.01%
101	Micron Engineering Center	99.59%	0.29%	0.09%	0.01%	0.00%	0.40%	0.10%	0.01%
102	Student Recreation Center	99.59%	0.29%	0.09%	0.01%	0.00%	0.40%	0.10%	0.01%
102A	Student Recreation Center - Natatorium	99.59%	0.29%	0.09%	0.01%	0.00%	0.40%	0.10%	0.01%
104	Brady Street Garage	99.54%	0.38%	0.06%	0.00%	0.00%	0.45%	0.06%	0.00%
105	1015 Grant Avenue Annex	99.59%	0.29%	0.09%	0.01%	0.00%	0.40%	0.10%	0.01%
110	FO&M Training Center	98.95%	0.89%	0.14%	0.00%	0.00%	1.04%	0.14%	0.00%
114	1113 Denver Annex	99.47%	0.48%	0.04%	0.00%	0.00%	0.52%	0.04%	0.00%

Building Code	Building Name	Probability of... No Damage	Slight Damage	Moderate Damage	Extensive Damage	Complete Damage	Probability of at Least... Slight Damage	Moderate Damage	Extensive Damage
115	1113 Denver Annex Garage	98.95%	0.89%	0.14%	0.00%	0.00%	1.04%	0.14%	0.00%
116	Internal Audit	99.47%	0.48%	0.04%	0.00%	0.00%	0.52%	0.04%	0.00%
117	Internal Audit	98.95%	0.89%	0.14%	0.00%	0.00%	1.04%	0.14%	0.00%
119	Grant Annex 4, 1023 S. Grant	99.59%	0.29%	0.09%	0.01%	0.00%	0.40%	0.10%	0.01%
121	Health Sciences - Riverside	99.59%	0.29%	0.09%	0.01%	0.00%	0.40%	0.10%	0.01%
122	Raptor Research Center	98.85%	0.83%	0.28%	0.02%	0.00%	1.14%	0.31%	0.02%
123	Multi-Purpose Classroom Building	99.59%	0.29%	0.09%	0.01%	0.00%	0.40%	0.10%	0.01%
125	1114 Manitou Annex #2	99.76%	0.22%	0.01%	0.00%	0.00%	0.23%	0.01%	0.00%
137	1406 Chrisway Annex 2	99.76%	0.22%	0.01%	0.00%	0.00%	0.23%	0.01%	0.00%
138	TECenter (Technology and Entrepreneurial Center)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
143	Idaho Center Sports Center	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
144	Capitol Village #5	99.76%	0.22%	0.01%	0.00%	0.00%	0.23%	0.01%	0.00%
146	1029 Lusk Annex	99.76%	0.22%	0.01%	0.00%	0.00%	0.23%	0.01%	0.00%
152	David S. Taylor Hall	99.70%	0.26%	0.02%	0.00%	0.00%	0.29%	0.02%	0.00%
153	John H. Keiser Hall	99.70%	0.26%	0.02%	0.00%	0.00%	0.29%	0.02%	0.00%
154	University Suites - “Selway Suites”	99.70%	0.26%	0.02%	0.00%	0.00%	0.29%	0.02%	0.00%
155	University Suites - “Payette Suites”	99.70%	0.26%	0.02%	0.00%	0.00%	0.29%	0.02%	0.00%
156	University Suites - “Clearwater Suites”	99.70%	0.26%	0.02%	0.00%	0.00%	0.29%	0.02%	0.00%
157	University Square - Jade Hall	99.70%	0.26%	0.02%	0.00%	0.00%	0.29%	0.02%	0.00%
158	University Square - Topaz Hall	99.70%	0.26%	0.02%	0.00%	0.00%	0.29%	0.02%	0.00%
159	University Square - Jasper Hall	99.70%	0.26%	0.02%	0.00%	0.00%	0.29%	0.02%	0.00%
160	University Square - Garnet Hall	99.70%	0.26%	0.02%	0.00%	0.00%	0.29%	0.02%	0.00%
164	Allen Noble Hall of Fame	98.85%	0.83%	0.28%	0.02%	0.00%	1.14%	0.31%	0.02%
166	Christ Chapel	99.54%	0.38%	0.06%	0.00%	0.00%	0.45%	0.06%	0.00%
173	University Heights Apartments - A	99.43%	0.54%	0.02%	0.00%	0.00%	0.56%	0.02%	0.00%
174	University Heights Apartments - B	99.43%	0.54%	0.02%	0.00%	0.00%	0.56%	0.02%	0.00%
175	University Heights Apartments - C	99.43%	0.54%	0.02%	0.00%	0.00%	0.56%	0.02%	0.00%
176	University Manor Apartments - A	99.69%	0.28%	0.01%	0.00%	0.00%	0.30%	0.01%	0.00%
177	University Manor Apartments - B	99.43%	0.54%	0.02%	0.00%	0.00%	0.56%	0.02%	0.00%
178	University Park Apartments - A (N)	99.43%	0.54%	0.02%	0.00%	0.00%	0.56%	0.02%	0.00%
179	University Park Apartments - B (S)	99.43%	0.54%	0.02%	0.00%	0.00%	0.56%	0.02%	0.00%
180	University Village Apartments - A	99.70%	0.26%	0.02%	0.00%	0.00%	0.29%	0.02%	0.00%

Building Code	Building Name	Probability of... No Damage	Slight Damage	Moderate Damage	Extensive Damage	Complete Damage	Probability of at Least... Slight Damage	Moderate Damage	Extensive Damage
181	University Village Apartments - B	99.70%	0.26%	0.02%	0.00%	0.00%	0.29%	0.02%	0.00%
182	University Village Apartments - C	99.70%	0.26%	0.02%	0.00%	0.00%	0.29%	0.02%	0.00%
183	University Village Apartments - D	99.70%	0.26%	0.02%	0.00%	0.00%	0.29%	0.02%	0.00%
184	University Village Apartments - E	99.70%	0.26%	0.02%	0.00%	0.00%	0.29%	0.02%	0.00%
185	University Village Apartments - F	99.76%	0.22%	0.01%	0.00%	0.00%	0.23%	0.01%	0.00%
198	Network Services	99.47%	0.48%	0.04%	0.00%	0.00%	0.52%	0.04%	0.00%
203	Euclid Annex #2	99.76%	0.22%	0.01%	0.00%	0.00%	0.23%	0.01%	0.00%
204	Euclid Annex #3	99.76%	0.22%	0.01%	0.00%	0.00%	0.23%	0.01%	0.00%
210	Capitol Village #2	99.76%	0.22%	0.01%	0.00%	0.00%	0.23%	0.01%	0.00%
211	Capitol Village #3	99.70%	0.26%	0.02%	0.00%	0.00%	0.29%	0.02%	0.00%
213	Capitol Village #4	99.76%	0.22%	0.01%	0.00%	0.00%	0.23%	0.01%	0.00%
214	Capitol Village #1	99.76%	0.22%	0.01%	0.00%	0.00%	0.23%	0.01%	0.00%
215	Capitol Village #6	99.59%	0.29%	0.09%	0.01%	0.00%	0.40%	0.10%	0.01%
216	CGISS Lease	99.59%	0.29%	0.09%	0.01%	0.00%	0.40%	0.10%	0.01%
219	Soccer Field Restroom/Concession Bldg.	98.38%	1.36%	0.23%	0.01%	0.00%	1.61%	0.25%	0.01%
234	Caven-Williams Sports Complex	99.59%	0.29%	0.09%	0.01%	0.00%	0.40%	0.10%	0.01%
235	Interactive Teaching & Learning Center	99.59%	0.29%	0.09%	0.01%	0.00%	0.40%	0.10%	0.01%
242	1156 - 1158 Euclid Annex	99.76%	0.22%	0.01%	0.00%	0.00%	0.23%	0.01%	0.00%
243	1162 - 1164 Euclid Annex	99.76%	0.22%	0.01%	0.00%	0.00%	0.23%	0.01%	0.00%
245	1142-1144 Euclid Annex	99.76%	0.22%	0.01%	0.00%	0.00%	0.23%	0.01%	0.00%
247	1350 W. Victory Road	99.54%	0.35%	0.08%	0.01%	0.00%	0.45%	0.09%	0.01%
255	Lincoln Avenue Garage	99.54%	0.38%	0.06%	0.00%	0.00%	0.45%	0.06%	0.00%
258	Access Mini Storage - Boise State Radio	99.55%	0.35%	0.08%	0.01%	0.00%	0.44%	0.09%	0.01%
259	Norco Building: Nursing Department, University Health Services	99.59%	0.29%	0.09%	0.01%	0.00%	0.40%	0.10%	0.01%
264	Stueckle Sky Center	99.59%	0.29%	0.09%	0.01%	0.00%	0.40%	0.10%	0.01%
266	1130 S. Manitou	99.47%	0.48%	0.04%	0.00%	0.00%	0.52%	0.04%	0.00%
267	Environmental Research Building	99.59%	0.29%	0.09%	0.01%	0.00%	0.40%	0.10%	0.01%
270	Waste Materials Storage Bldg.	99.59%	0.29%	0.09%	0.01%	0.00%	0.40%	0.10%	0.01%
278	Dona Larsen Park - Track & Field Equipment Building	99.30%	0.52%	0.15%	0.01%	0.00%	0.69%	0.17%	0.01%
285	1121 S. Denver	99.47%	0.48%	0.04%	0.00%	0.00%	0.52%	0.04%	0.00%

Building Code	Building Name	Probability of... No Damage	Slight Damage	Moderate Damage	Extensive Damage	Complete Damage	Probability of at Least... Slight Damage	Moderate Damage	Extensive Damage
289	Ron and Linda Yanke Family Research Park	99.59%	0.29%	0.09%	0.01%	0.00%	0.40%	0.10%	0.01%
292	Dona Larsen Park Softball Storage Shed	99.78%	0.15%	0.05%	0.00%	0.00%	0.21%	0.05%	0.00%
298	Micron Business and Economics Building	99.59%	0.29%	0.09%	0.01%	0.00%	0.40%	0.10%	0.01%
299	1870 Belmont	99.47%	0.48%	0.04%	0.00%	0.00%	0.52%	0.04%	0.00%
301	1514 S. Martha Cir	99.47%	0.48%	0.04%	0.00%	0.00%	0.52%	0.04%	0.00%
302	1630 S. Joyce	99.47%	0.48%	0.04%	0.00%	0.00%	0.52%	0.04%	0.00%
305	1816 Yale	99.76%	0.22%	0.01%	0.00%	0.00%	0.23%	0.01%	0.00%
306	1827 Yale	99.76%	0.22%	0.01%	0.00%	0.00%	0.23%	0.01%	0.00%
307	1855 Belmont	99.47%	0.48%	0.04%	0.00%	0.00%	0.52%	0.04%	0.00%
308	1406 S. Juanita	99.47%	0.48%	0.04%	0.00%	0.00%	0.52%	0.04%	0.00%
309	1803 W. Potter	99.47%	0.48%	0.04%	0.00%	0.00%	0.52%	0.04%	0.00%
310	1509 S. Joyce	99.47%	0.48%	0.04%	0.00%	0.00%	0.52%	0.04%	0.00%
319	1110 S. Grant	99.47%	0.48%	0.04%	0.00%	0.00%	0.52%	0.04%	0.00%
320	1808 Donald Circle	99.47%	0.48%	0.04%	0.00%	0.00%	0.52%	0.04%	0.00%
324	Boise State Meridian Center (Extended Studies)	99.82%	0.12%	0.04%	0.00%	0.00%	0.17%	0.04%	0.00%
326	The Lincoln Townhouses - “Tamarack House”	99.70%	0.26%	0.02%	0.00%	0.00%	0.29%	0.02%	0.00%
327	The Lincoln Townhouses - “Hawthorne House”	99.70%	0.26%	0.02%	0.00%	0.00%	0.29%	0.02%	0.00%
328	The Lincoln Townhouses - “Juniper House”	99.70%	0.26%	0.02%	0.00%	0.00%	0.29%	0.02%	0.00%
329	The Lincoln Townhouses - “Cedar House”	99.70%	0.26%	0.02%	0.00%	0.00%	0.29%	0.02%	0.00%
330	The Lincoln Townhouses - “Aspen House”	99.70%	0.26%	0.02%	0.00%	0.00%	0.29%	0.02%	0.00%
331	The Lincoln Townhouses - “Spruce House”	99.70%	0.26%	0.02%	0.00%	0.00%	0.29%	0.02%	0.00%
332	Gene Bleymaier Football Complex	99.59%	0.29%	0.09%	0.01%	0.00%	0.40%	0.10%	0.01%
334	1708 Potter	99.47%	0.48%	0.04%	0.00%	0.00%	0.52%	0.04%	0.00%
336	1810 Potter	99.47%	0.48%	0.04%	0.00%	0.00%	0.52%	0.04%	0.00%
338	1519 Juanita	99.47%	0.48%	0.04%	0.00%	0.00%	0.52%	0.04%	0.00%
341	Dona Larsen Park - North Restroom	99.78%	0.15%	0.05%	0.00%	0.00%	0.21%	0.05%	0.00%
342	Dona Larsen Park - South Restroom	99.78%	0.15%	0.05%	0.00%	0.00%	0.21%	0.05%	0.00%
343	Dona Larsen Park - Football Pressbox	99.78%	0.15%	0.05%	0.00%	0.00%	0.21%	0.05%	0.00%
344	Dona Larsen Park - East Softball Dugout	99.78%	0.15%	0.05%	0.00%	0.00%	0.21%	0.05%	0.00%
345	Dona Larsen Park - West Softball Dugout	99.78%	0.15%	0.05%	0.00%	0.00%	0.21%	0.05%	0.00%
346	Dona Larsen Park - Softball Pressbox	99.78%	0.15%	0.05%	0.00%	0.00%	0.21%	0.05%	0.00%
347	301 S. Capital	99.59%	0.29%	0.09%	0.01%	0.00%	0.40%	0.10%	0.01%

Building Code	Building Name	Probability of... No Damage	Slight Damage	Moderate Damage	Extensive Damage	Complete Damage	Probability of at Least... Slight Damage	Moderate Damage	Extensive Damage
348	University Plaza	99.59%	0.29%	0.09%	0.01%	0.00%	0.40%	0.10%	0.01%
349	Center for Visual Arts	99.59%	0.29%	0.09%	0.01%	0.00%	0.40%	0.10%	0.01%
351	1814 W Potter Drive	99.47%	0.48%	0.04%	0.00%	0.00%	0.52%	0.04%	0.00%
352	5475 W. Gage Street	99.57%	0.33%	0.09%	0.00%	0.00%	0.42%	0.09%	0.00%
354	1411 Belmont	99.47%	0.48%	0.04%	0.00%	0.00%	0.52%	0.04%	0.00%
355	1427 - 1429 Belmont	99.47%	0.48%	0.04%	0.00%	0.00%	0.52%	0.04%	0.00%
358	1112 Manitou Garage	98.95%	0.89%	0.14%	0.00%	0.00%	1.04%	0.14%	0.00%
360	1817 W Potter Drive	99.47%	0.48%	0.04%	0.00%	0.00%	0.52%	0.04%	0.00%
361	1607-1609 Martha Street	99.47%	0.48%	0.04%	0.00%	0.00%	0.52%	0.04%	0.00%
362	2500 Boise Ave	99.79%	0.15%	0.05%	0.00%	0.00%	0.20%	0.05%	0.00%
363	1225 Belmont	99.76%	0.22%	0.01%	0.00%	0.00%	0.23%	0.01%	0.00%
364	1225 Belmont Shop	99.76%	0.22%	0.01%	0.00%	0.00%	0.23%	0.01%	0.00%
365	Capitol Village #7	99.59%	0.29%	0.09%	0.01%	0.00%	0.40%	0.10%	0.01%
366	1711 Potter Drive	99.47%	0.48%	0.04%	0.00%	0.00%	0.52%	0.04%	0.00%
367	City Center Plaza	99.85%	0.12%	0.01%	0.00%	0.00%	0.14%	0.01%	0.00%
368	Alumni and Friends Center	99.70%	0.26%	0.02%	0.00%	0.00%	0.29%	0.02%	0.00%
369	1843 University Drive	99.47%	0.48%	0.04%	0.00%	0.00%	0.52%	0.04%	0.00%
370	1802/1804 Yale Court	99.47%	0.48%	0.04%	0.00%	0.00%	0.52%	0.04%	0.00%
371	1806/1808 Yale Court	99.76%	0.22%	0.01%	0.00%	0.00%	0.23%	0.01%	0.00%
374	1813 Potter Drive	99.47%	0.48%	0.04%	0.00%	0.00%	0.52%	0.04%	0.00%
375	1862 W Belmont St	99.47%	0.48%	0.04%	0.00%	0.00%	0.52%	0.04%	0.00%
377	City Center Plaza Bronco Shop	99.88%	0.11%	0.00%	0.00%	0.00%	0.11%	0.00%	0.00%
380	Honors College Live Learn Community	99.70%	0.26%	0.02%	0.00%	0.00%	0.29%	0.02%	0.00%
383	Unit 0115, Idaho Self Storage - River	99.12%	0.67%	0.17%	0.01%	0.00%	0.87%	0.19%	0.01%
384	Unit 0113, Idaho Self Storage - River	99.12%	0.67%	0.17%	0.01%	0.00%	0.87%	0.19%	0.01%
385	City Center Plaza - Bike Condo	99.88%	0.11%	0.00%	0.00%	0.00%	0.11%	0.00%	0.00%
386	City Center Plaza - 3rd floor Fenced Bike Parking	99.88%	0.11%	0.00%	0.00%	0.00%	0.11%	0.00%	0.00%
387	US BANK Building	99.85%	0.12%	0.01%	0.00%	0.00%	0.14%	0.01%	0.00%
388	1923 Yale Ct.	99.47%	0.48%	0.04%	0.00%	0.00%	0.52%	0.04%	0.00%
389	1815 Potter Dr.	99.47%	0.48%	0.04%	0.00%	0.00%	0.52%	0.04%	0.00%
390	Leatherman Peak	99.59%	0.29%	0.09%	0.01%	0.00%	0.40%	0.10%	0.01%
391	1501 Juanita St.	99.47%	0.48%	0.04%	0.00%	0.00%	0.52%	0.04%	0.00%

Building Code	Building Name	Probability of…					Probability of at Least…		
		No Damage	Slight Damage	Moderate Damage	Extensive Damage	Complete Damage	Slight Damage	Moderate Damage	Extensive Damage
392	1105 Manitou	99.47%	0.48%	0.04%	0.00%	0.00%	0.52%	0.04%	0.00%
393	1435 University Dr (New Bldg.; Not Modeled)								
396	1507-1509 Juanita	99.47%	0.48%	0.04%	0.00%	0.00%	0.52%	0.04%	0.00%
400	1801 W. Yale Court	99.43%	0.54%	0.02%	0.00%	0.00%	0.56%	0.02%	0.00%

Boise State University Building Return to Functionality for 100-Year Probabilistic Earthquake

Building Code	Building Name	Functionality (%) at Day 1	Functionality (%) at Day 3	Functionality (%) at Day 7	Functionality (%) at Day 14	Functionality (%) at Day 30	Functionality (%) at Day 90
004	Administration	98.4	98.5	99.9	99.9	99.9	99.9
005	Hemingway Center	97.4	97.4	99.1	99.1	99.9	99.9
006	Heat Plant and Telephone Building	98.4	98.5	99.9	99.9	99.9	99.9
007	Campus School	98.8	98.8	99.6	99.6	99.9	99.9
008	Opaline School House	97.4	97.5	99.5	99.5	99.9	99.9
009	Maintenance Shops	98.4	98.5	99.9	99.9	99.9	99.9
011	Communication	98.8	98.8	99.6	99.6	99.9	99.9
013	Morrison Ctr for Performing Arts (Aux.)	99.5	99.6	99.8	99.8	99.9	99.9
014	Morrison Ctr for the Performing Arts (Ed.)	99.5	99.6	99.8	99.8	99.9	99.9
015	ExtraMile Arena	99.5	99.6	99.8	99.8	99.9	99.9
016	Simplot Micron Advising and Success Hub	99.5	99.6	99.8	99.8	99.9	99.9
020	Morrison Hall	99.4	99.4	99.9	99.9	99.9	99.9
021	Driscoll Hall	99.4	99.4	99.9	99.9	99.9	99.9
022	1803 Donald Circle, Student Housing	99.4	99.4	99.9	99.9	99.9	99.9
023	1809 Donald Circle, Student Housing	99.4	99.4	99.9	99.9	99.9	99.9
024	Mathematics	98.8	98.8	99.6	99.6	99.9	99.9
025	Bronco Gymnasium - Department of Kinesiology	98.8	98.8	99.6	99.6	99.9	99.9
027	Albertsons Library	98.8	98.8	99.6	99.6	99.9	99.9
028	Boulder Hall	98.8	98.8	99.6	99.6	99.9	99.9
029	Charles P Ruch Engineering Building	99.5	99.6	99.8	99.8	99.9	99.9
030	Liberal Arts	98.8	98.8	99.6	99.6	99.9	99.9
031	Chaffee Hall	99.4	99.4	99.9	99.9	99.9	99.9
032	Student Union	98.8	98.8	99.6	99.6	99.9	99.9
034	Riverfront Hall	98.8	98.8	99.6	99.6	99.9	99.9
035	Albertsons Stadium	98.8	98.8	99.6	99.6	99.9	99.9
036	Varsity Center (Simplot Center for Athletic Excellence), Nickelson-Yanke Center	98.8	98.8	99.6	99.6	99.9	99.9
037	Kinesiology Annex (Pool)	98.8	98.8	99.6	99.6	99.9	99.9
038	Varsity Center Annex	99.5	99.6	99.8	99.8	99.9	99.9
039	John B. Barnes Towers	99.4	99.4	99.9	99.9	99.9	99.9
040	Chrisway Annex	98.8	98.8	99.6	99.6	99.9	99.9
049	2065 University Drive (Annex 3)	98.8	98.8	99.6	99.6	99.9	99.9

Building Code	Building Name	Functionality (%) at Day 1	Functionality (%) at Day 3	Functionality (%) at Day 7	Functionality (%) at Day 14	Functionality (%) at Day 30	Functionality (%) at Day 90
054	English Annex	99.5	99.6	99.8	99.8	99.9	99.9
056	Pioneer Hall	98.8	98.8	99.6	99.6	99.9	99.9
062	Special Events Center	98.8	98.8	99.6	99.6	99.9	99.9
065	Art Annex #1	98.8	98.8	99.6	99.6	99.9	99.9
070	Landscape Services	99.4	99.4	99.9	99.9	99.9	99.9
071	Education	99.5	99.6	99.8	99.8	99.9	99.9
072	Science Building	99.5	99.6	99.8	99.8	99.9	99.9
074	Science Greenhouse (Sci Nursing)	99.5	99.6	99.8	99.8	99.9	99.9
075	Copper Basin	99.7	99.7	99.9	99.9	99.9	99.9
078	Student Housing Maintenance	98.2	98.3	99.3	99.3	99.9	99.9
079	Manitou Annex #3	99.7	99.7	99.9	99.9	99.9	99.9
081	Euclid Annex #4	99.4	99.4	99.9	99.9	99.9	99.9
082	2055 University Drive (Annex 2)	99.5	99.6	99.8	99.8	99.9	99.9
083	Biology Greenhouse	99.5	99.6	99.8	99.8	99.9	99.9
084	Const. Materials & Methods Lab	99.5	99.6	99.8	99.8	99.9	99.9
085	Appleton Tennis Center	99.5	99.6	99.8	99.8	99.9	99.9
087	Boas Tennis and Soccer Ctr.	99.7	99.7	99.9	99.9	99.9	99.9
089	Construction Management	99.5	99.6	99.8	99.8	99.9	99.9
090	Student Success Ctr. (Annex #8)	99.4	99.4	99.9	99.9	99.9	99.9
093	Children’s Ctr.	99.5	99.6	99.8	99.8	99.9	99.9
096	Garage Stadium Storage	99.5	99.6	99.8	99.8	99.9	99.9
098	Theatre Arts Annex (Costume Shop)	98.8	98.8	99.6	99.6	99.9	99.9
099	1375 Belmont Annex	99.5	99.6	99.8	99.8	99.9	99.9
100	Harry Morrison Civil Engineering	99.5	99.6	99.8	99.8	99.9	99.9
101	Micron Engineering Center	99.5	99.6	99.8	99.8	99.9	99.9
102	Student Recreation Center	99.5	99.6	99.8	99.8	99.9	99.9
102A	Student Recreation Center - Natatorium	99.5	99.6	99.8	99.8	99.9	99.9
104	Brady Street Garage	99.5	99.5	99.9	99.9	99.9	99.9
105	1015 Grant Avenue Annex	99.5	99.6	99.8	99.8	99.9	99.9
110	FO&M Training Center	98.9	98.9	99.8	99.8	99.9	99.9
114	1113 Denver Annex	99.4	99.4	99.9	99.9	99.9	99.9
115	1113 Denver Annex Garage	98.9	98.9	99.8	99.8	99.9	99.9
116	Internal Audit	99.4	99.4	99.9	99.9	99.9	99.9

Building Code	Building Name	Functionality (%) at Day 1	Functionality (%) at Day 3	Functionality (%) at Day 7	Functionality (%) at Day 14	Functionality (%) at Day 30	Functionality (%) at Day 90
117	Internal Audit	98.9	98.9	99.8	99.8	99.9	99.9
119	Grant Annex 4, 1023 S. Grant	99.5	99.6	99.8	99.8	99.9	99.9
121	Health Sciences - Riverside	99.5	99.6	99.8	99.8	99.9	99.9
122	Raptor Research Center	98.8	98.8	99.6	99.6	99.9	99.9
123	Multi-Purpose Classroom Building	99.5	99.6	99.8	99.8	99.9	99.9
125	1114 Manitou Annex #2	99.7	99.7	99.9	99.9	99.9	99.9
137	1406 Chrisway Annex 2	99.7	99.7	99.9	99.9	99.9	99.9
138	TECenter (Technology and Entrepreneurial Center)	0	0	0	0	0	0
143	Idaho Center Sports Center	0	0	0	0	0	0
144	Capitol Village #5	99.7	99.7	99.9	99.9	99.9	99.9
146	1029 Lusk Annex	99.7	99.7	99.9	99.9	99.9	99.9
152	David S. Taylor Hall	99.7	99.7	99.9	99.9	99.9	99.9
153	John H. Keiser Hall	99.7	99.7	99.9	99.9	99.9	99.9
154	University Suites - “Selway Suites”	99.7	99.7	99.9	99.9	99.9	99.9
155	University Suites - “Payette Suites”	99.7	99.7	99.9	99.9	99.9	99.9
156	University Suites - “Clearwater Suites”	99.7	99.7	99.9	99.9	99.9	99.9
157	University Square - Jade Hall	99.7	99.7	99.9	99.9	99.9	99.9
158	University Square - Topaz Hall	99.7	99.7	99.9	99.9	99.9	99.9
159	University Square - Jasper Hall	99.7	99.7	99.9	99.9	99.9	99.9
160	University Square - Garnet Hall	99.7	99.7	99.9	99.9	99.9	99.9
164	Allen Noble Hall of Fame	98.8	98.8	99.6	99.6	99.9	99.9
166	Christ Chapel	99.5	99.5	99.9	99.9	99.9	99.9
173	University Heights Apartments - A	99.4	99.4	99.9	99.9	99.9	99.9
174	University Heights Apartments - B	99.4	99.4	99.9	99.9	99.9	99.9
175	University Heights Apartments - C	99.4	99.4	99.9	99.9	99.9	99.9
176	University Manor Apartments - A	99.6	99.7	99.9	99.9	99.9	99.9
177	University Manor Apartments - B	99.4	99.4	99.9	99.9	99.9	99.9
178	University Park Apartments - A (N)	99.4	99.4	99.9	99.9	99.9	99.9
179	University Park Apartments - B (S)	99.4	99.4	99.9	99.9	99.9	99.9
180	University Village Apartments - A	99.7	99.7	99.9	99.9	99.9	99.9
181	University Village Apartments - B	99.7	99.7	99.9	99.9	99.9	99.9
182	University Village Apartments - C	99.7	99.7	99.9	99.9	99.9	99.9
183	University Village Apartments - D	99.7	99.7	99.9	99.9	99.9	99.9

Building Code	Building Name	Functionality (%) at Day 1	Functionality (%) at Day 3	Functionality (%) at Day 7	Functionality (%) at Day 14	Functionality (%) at Day 30	Functionality (%) at Day 90
184	University Village Apartments - E	99.7	99.7	99.9	99.9	99.9	99.9
185	University Village Apartments - F	99.7	99.7	99.9	99.9	99.9	99.9
198	Network Services	99.4	99.4	99.9	99.9	99.9	99.9
203	Euclid Annex #2	99.7	99.7	99.9	99.9	99.9	99.9
204	Euclid Annex #3	99.7	99.7	99.9	99.9	99.9	99.9
210	Capitol Village #2	99.7	99.7	99.9	99.9	99.9	99.9
211	Capitol Village #3	99.7	99.7	99.9	99.9	99.9	99.9
213	Capitol Village #4	99.7	99.7	99.9	99.9	99.9	99.9
214	Capitol Village #1	99.7	99.7	99.9	99.9	99.9	99.9
215	Capitol Village #6	99.5	99.6	99.8	99.8	99.9	99.9
216	CGISS Lease	99.5	99.6	99.8	99.8	99.9	99.9
219	Soccer Field Restroom/Concession Bldg.	98.3	98.4	99.7	99.7	99.9	99.9
234	Caven-Williams Sports Complex	99.5	99.6	99.8	99.8	99.9	99.9
235	Interactive Teaching & Learning Center	99.5	99.6	99.8	99.8	99.9	99.9
242	1156 - 1158 Euclid Annex	99.7	99.7	99.9	99.9	99.9	99.9
243	1162 - 1164 Euclid Annex	99.7	99.7	99.9	99.9	99.9	99.9
245	1142-1144 Euclid Annex	99.7	99.7	99.9	99.9	99.9	99.9
247	1350 W. Victory Road	99.5	99.5	99.8	99.8	99.9	99.9
255	Lincoln Avenue Garage	99.5	99.5	99.9	99.9	99.9	99.9
258	Access Mini Storage - Boise State Radio	99.5	99.5	99.8	99.9	99.9	99.9
259	Norco Building: Nursing Department, University Health Services	99.5	99.6	99.8	99.8	99.9	99.9
264	Stueckle Sky Center	99.5	99.6	99.8	99.8	99.9	99.9
266	1130 S. Manitou	99.4	99.4	99.9	99.9	99.9	99.9
267	Environmental Research Building	99.5	99.6	99.8	99.8	99.9	99.9
270	Waste Materials Storage Bldg.	99.5	99.6	99.8	99.8	99.9	99.9
278	Dona Larsen Park - Track & Field Equipment Building	99.3	99.3	99.8	99.8	99.9	99.9
285	1121 S. Denver	99.4	99.4	99.9	99.9	99.9	99.9
289	Ron and Linda Yanke Family Research Park	99.5	99.6	99.8	99.8	99.9	99.9
292	Dona Larsen Park Softball Storage Shed	99.7	99.7	99.9	99.9	99.9	99.9
298	Micron Business and Economics Building	99.5	99.6	99.8	99.8	99.9	99.9
299	1870 Belmont	99.4	99.4	99.9	99.9	99.9	99.9
301	1514 S. Martha Cir	99.4	99.4	99.9	99.9	99.9	99.9
302	1630 S. Joyce	99.4	99.4	99.9	99.9	99.9	99.9

Building Code	Building Name	Functionality (%) at Day 1	Functionality (%) at Day 3	Functionality (%) at Day 7	Functionality (%) at Day 14	Functionality (%) at Day 30	Functionality (%) at Day 90
305	1816 Yale	99.7	99.7	99.9	99.9	99.9	99.9
306	1827 Yale	99.7	99.7	99.9	99.9	99.9	99.9
307	1855 Belmont	99.4	99.4	99.9	99.9	99.9	99.9
308	1406 S. Juanita	99.4	99.4	99.9	99.9	99.9	99.9
309	1803 W. Potter	99.4	99.4	99.9	99.9	99.9	99.9
310	1509 S. Joyce	99.4	99.4	99.9	99.9	99.9	99.9
319	1110 S. Grant	99.4	99.4	99.9	99.9	99.9	99.9
320	1808 Donald Circle	99.4	99.4	99.9	99.9	99.9	99.9
324	Boise State Meridian Center (Extended Studies)	99.8	99.8	99.9	99.9	99.9	99.9
326	The Lincoln Townhouses - “Tamarack House”	99.7	99.7	99.9	99.9	99.9	99.9
327	The Lincoln Townhouses - “Hawthorne House”	99.7	99.7	99.9	99.9	99.9	99.9
328	The Lincoln Townhouses - “Juniper House”	99.7	99.7	99.9	99.9	99.9	99.9
329	The Lincoln Townhouses - “Cedar House”	99.7	99.7	99.9	99.9	99.9	99.9
330	The Lincoln Townhouses - “Aspen House”	99.7	99.7	99.9	99.9	99.9	99.9
331	The Lincoln Townhouses - “Spruce House”	99.7	99.7	99.9	99.9	99.9	99.9
332	Gene Bleymaier Football Complex	99.5	99.6	99.8	99.8	99.9	99.9
334	1708 Potter	99.4	99.4	99.9	99.9	99.9	99.9
336	1810 Potter	99.4	99.4	99.9	99.9	99.9	99.9
338	1519 Juanita	99.4	99.4	99.9	99.9	99.9	99.9
341	Dona Larsen Park - North Restroom	99.7	99.7	99.9	99.9	99.9	99.9
342	Dona Larsen Park - South Restroom	99.7	99.7	99.9	99.9	99.9	99.9
343	Dona Larsen Park - Football Pressbox	99.7	99.7	99.9	99.9	99.9	99.9
344	Dona Larsen Park - East Softball Dugout	99.7	99.7	99.9	99.9	99.9	99.9
345	Dona Larsen Park - West Softball Dugout	99.7	99.7	99.9	99.9	99.9	99.9
346	Dona Larsen Park - Softball Pressbox	99.7	99.7	99.9	99.9	99.9	99.9
347	301 S. Capital	99.5	99.6	99.8	99.8	99.9	99.9
348	University Plaza	99.5	99.6	99.8	99.8	99.9	99.9
349	Center for Visual Arts	99.5	99.6	99.8	99.8	99.9	99.9
351	1814 W Potter Drive	99.4	99.4	99.9	99.9	99.9	99.9
352	5475 W. Gage Street	99.5	99.5	99.8	99.9	99.9	99.9
354	1411 Belmont	99.4	99.4	99.9	99.9	99.9	99.9
355	1427 - 1429 Belmont	99.4	99.4	99.9	99.9	99.9	99.9
358	1112 Manitou Garage	98.9	98.9	99.8	99.8	99.9	99.9

Building Code	Building Name	Functionality (%) at Day 1	Functionality (%) at Day 3	Functionality (%) at Day 7	Functionality (%) at Day 14	Functionality (%) at Day 30	Functionality (%) at Day 90
360	1817 W Potter Drive	99.4	99.4	99.9	99.9	99.9	99.9
361	1607-1609 Martha Street	99.4	99.4	99.9	99.9	99.9	99.9
362	2500 Boise Ave	99.7	99.7	99.9	99.9	99.9	99.9
363	1225 Belmont	99.7	99.7	99.9	99.9	99.9	99.9
364	1225 Belmont Shop	99.7	99.7	99.9	99.9	99.9	99.9
365	Capitol Village #7	99.5	99.6	99.8	99.8	99.9	99.9
366	1711 Potter Drive	99.4	99.4	99.9	99.9	99.9	99.9
367	City Center Plaza	99.8	99.8	99.9	99.9	99.9	99.9
368	Alumni and Friends Center	99.7	99.7	99.9	99.9	99.9	99.9
369	1843 University Drive	99.4	99.4	99.9	99.9	99.9	99.9
370	1802/1804 Yale Court	99.4	99.4	99.9	99.9	99.9	99.9
371	1806/1808 Yale Court	99.7	99.7	99.9	99.9	99.9	99.9
374	1813 Potter Drive	99.4	99.4	99.9	99.9	99.9	99.9
375	1862 W Belmont St	99.4	99.4	99.9	99.9	99.9	99.9
377	City Center Plaza Bronco Shop	99.8	99.8	99.9	99.9	99.9	99.9
380	Honors College Live Learn Community	99.7	99.7	99.9	99.9	99.9	99.9
383	Unit 0115, Idaho Self Storage - River	99.1	99.1	99.7	99.7	99.9	99.9
384	Unit 0113, Idaho Self Storage - River	99.1	99.1	99.7	99.7	99.9	99.9
385	City Center Plaza - Bike Condo	99.8	99.8	99.9	99.9	99.9	99.9
386	City Center Plaza - 3rd floor Fenced Bike Parking	99.8	99.8	99.9	99.9	99.9	99.9
387	US BANK Building	99.8	99.8	99.9	99.9	99.9	99.9
388	1923 Yale Ct.	99.4	99.4	99.9	99.9	99.9	99.9
389	1815 Potter Dr.	99.4	99.4	99.9	99.9	99.9	99.9
390	Leatherman Peak	99.5	99.6	99.8	99.8	99.9	99.9
391	1501 Juanita St.	99.4	99.4	99.9	99.9	99.9	99.9
392	1105 Manitou	99.4	99.4	99.9	99.9	99.9	99.9
393	1435 University Dr (New Bldg.; Not Modeled)						
396	1507-1509 Juanita	99.4	99.4	99.9	99.9	99.9	99.9
400	1801 W. Yale Court	99.4	99.4	99.9	99.9	99.9	99.9

Boise State University Hazard Mitigation Plan

Appendix D. Plan Adoption Resolution and FEMA Approval

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

FEMA

March 10, 2021

The Honorable Randi McDermott
Vice President, Campus Operations
1910 University Drive
Boise, Idaho 83725

Dear Vice President McDermott:

On March 10, 2021, the United States Department of Homeland Security's Federal Emergency Management Agency (FEMA) Region 10, approved the Boise State University Hazard Mitigation Plan as a local plan as outlined in Code of Federal Regulations Title 44 Part 201. This approval provides the jurisdiction eligibility to apply for the Robert T. Stafford Disaster Relief and Emergency Assistance Act's, Hazard Mitigation Assistance grants projects through March 9, 2026 through your state.

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

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

If you have questions regarding your plan's approval or FEMA's mitigation grant programs, please contact Lorrie Pahl, Senior Mitigation Planner with Idaho Bureau of Homeland Security, at 208-258-6508, who locally coordinates and administers these efforts.

Sincerely,

Kristen Meyers, Director
Mitigation Division

cc: Susan Cleverley, Idaho Bureau of Homeland Security

Enclosure

KM:vl

BOISE STATE UNIVERSITY

DEPARTMENT OF PUBLIC SAFETY

March 4, 2021

To: Randi McDermott, Vice President, Campus Operations

From: Robert Littrell, Assistant Director, Office of Emergency Management

Reference: Formal Adoption of the 2021 Boise State University Mitigation Plan

In accordance with the recommendation of the Boise State Mitigation Plan Steering Committee, we request that you adopt the 2021 Boise State University Mitigation Plan.

After review by the campus community and the steering committee, both the Idaho Office of Emergency Management and FEMA Region X approved the attached mitigation plan for the Boise State campus. Due to work of the committee, subcommittee groups, and our contractor, this plan will be a useful planning tool for disaster mitigation planning across the campus for the next few years. As a campus community stakeholder process, this planning process involved our planning team in collaborating with our local, state and federal partners along with the campus community in drafting our final plan.

Through a FEMA grant, Boise State University contracted with Tetra Tech Inc. to create a comprehensive and FEMA compliant Mitigation Plan. This plan was prepared in accordance with the guidance in the FEMA Local Mitigation Planning Handbook to ensure we met all of the requirements of Title 44 Code of Federal Regulations(CFR) 201.6 for FEMA approval and eligibility to apply for FEMA Hazard Mitigation Assistance grant programs. The handbook also ensured our planning considered best practices on reducing our long-term risk from natural hazards and human-caused disasters.

This plan identifies a comprehensive range of specific mitigation actions and projects organized by 8 categories and a total of 37 actions to reduce the effects of hazards, with emphasis on new and existing buildings and infrastructure. Upon your approval to adopt this plan, the Office of Emergency Management will commit to integrating these actions when possible into our other campus planning mechanisms, such as comprehensive or capital improvement plans. The Office of Emergency Management will schedule quarterly review and annual updates. In accordance with FEMA regulations, this plan will be updated every 5 years with a full review and revision of the action item list. The Office of Emergency Management will provide annual updates to the VP/Campus Operations documenting progress.

BOISE STATE UNIVERSITY
DEPARTMENT OF PUBLIC SAFETY

Upon your approval to adopt this plan, A FEMA approved Mitigation Plan qualifies Boise State University's eligibility for FEMA grants, both pre-disaster and post-disaster, and contributes to comprehensive planning and mitigation to reduce losses.

Very Respectfully

Robert Littrell, Mitigation Plan Manager

APPROVED:

DocuSigned by:
Randi McDermott
2E2676B68E08444...

3/8/2021 | 11:21 AM MST

Randi McDermott, VP Campus Operations

Date

1910 University Drive Boise, Idaho 83725-1291
Phone (208) 426-6911 Fax (208) 426-4435 publicsafety.boisestate.edu

APPENDIX A:
LOCAL MITIGATION PLAN REVIEW TOOL

The *Local Mitigation Plan Review Tool* demonstrates how the Local Mitigation Plan meets the regulation in 44 CFR §201.6 and offers States and FEMA Mitigation Planners an opportunity to provide feedback to the community.

- The Regulation Checklist provides a summary of FEMA's evaluation of whether the Plan has addressed all requirements.
- The Plan Assessment identifies the plan's strengths as well as documents areas for future improvement.
- The Multi-Jurisdiction Summary Sheet is an optional worksheet that can be used to document how each jurisdiction met the requirements of the each Element of the Plan (Planning Process; Hazard Identification and Risk Assessment; Mitigation Strategy; Plan Review, Evaluation, and Implementation; and Plan Adoption).

The FEMA Mitigation Planner must reference this *Local Mitigation Plan Review Guide* when completing the *Local Mitigation Plan Review Tool*.

Jurisdiction: **Boise**	**Title of Plan:** **Boise State University Hazard Mitigation Plan**	**Date of Plan:** **January 2021**

Local Point of Contact: **Rob Littrell**	**Address:** **Department of Public Safety/Campus Operations Division** **1910 University, MS#1287** **Boise, ID 83725-1287**
Title: **Assistant Director, Emergency Management**	
Agency: **Department of Public Safety/Campus Operations Division**	
Phone Number: **208-426-3638**	**E-Mail:** roblittrell@boisestate.edu

State Reviewer:	**Title:**	**Date:**

FEMA Reviewer:	**Title:**	**Date:**
Date Received in FEMA Region ***(insert #)***		
Plan Not Approved		
Plan Approvable Pending Adoption		
Plan Approved		

SECTION 1:
REGULATION CHECKLIST

INSTRUCTIONS: The Regulation Checklist must be completed by FEMA. The purpose of the Checklist is to identify the location of relevant or applicable content in the Plan by Element/sub-element and to determine if each requirement has been 'Met' or 'Not Met.' The 'Required Revisions' summary at the bottom of each Element must be completed by FEMA to provide a clear explanation of the revisions that are required for plan approval. Required revisions must be explained for each plan sub-element that is 'Not Met.' Sub-elements should be referenced in each summary by using the appropriate numbers (A1, B3, etc.), where applicable. Requirements for each Element and sub-element are described in detail in this *Plan Review Guide* in Section 4, Regulation Checklist.

1. REGULATION CHECKLIST **Regulation** (44 CFR 201.6 Local Mitigation Plans)	**Location in Plan** (section and/or page number)	**Met**	**Not Met**
ELEMENT A. PLANNING PROCESS			
A1. Does the Plan document the planning process, including how it was prepared and who was involved in the process for each jurisdiction? (Requirement §201.6(c)(1))	**Part 1, Chapter 2, pages 2-1 to 2-8**		
A2. Does the Plan document an opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, agencies that have the authority to regulate development as well as other interests to be involved in the planning process? (Requirement §201.6(b)(2))	**Part 1, Chapter 2, section 2.3, pages 2-3 to 2-4.**		
A3. Does the Plan document how the public was involved in the planning process during the drafting stage? (Requirement §201.6(b)(1))	**Part 1, Chapter 2, section 2.5, pages 2-5 to 2-8**		
A4. Does the Plan describe the review and incorporation of existing plans, studies, reports, and technical information? (Requirement §201.6(b)(3))	**Part 1, Chapter 2, section 2.4, page 2-4**		
A5. Is there discussion of how the community(ies) will continue public participation in the plan maintenance process? (Requirement §201.6(c)(4)(iii))	**Part 3, Chapter 21, section 21.3.4, page 21-3.**		
A6. Is there a description of the method and schedule for keeping the plan current (monitoring, evaluating and updating the mitigation plan within a 5-year cycle)? (Requirement §201.6(c)(4)(i))	**Part 3, Chapter 21, section 21.3, pages 21-1 to 21-3.**		

1. REGULATION CHECKLIST **Regulation** (44 CFR 201.6 Local Mitigation Plans)	**Location in Plan** (section and/or page number)	**Met**	**Not Met**
ELEMENT A: REQUIRED REVISIONS			
ELEMENT B. HAZARD IDENTIFICATION AND RISK ASSESSMENT			
B1. Does the Plan include a description of the type, location, and extent of all natural hazards that can affect each jurisdiction(s)? (Requirement §201.6(c)(2)(i))	**The Plan profiles, assesses, and ranks for the impacts on the university, 12 Hazards of Concern. All hazards with a clearly defined extent and location have been mapped. See Part 2, Chapters 6 to 18, pages 6-1 to 18-4.**		
B2. Does the Plan include information on previous occurrences of hazard events and on the probability of future hazard events for each jurisdiction? (Requirement §201.6(c)(2)(i))	**Each hazard profile includes and overview of previous events that have impacted the campus, if applicable, See section x.2 of each hazard profile in chapter 6 to 17.**		
B3. Is there a description of each identified hazard's impact on the community as well as an overall summary of the community's vulnerability for each jurisdiction? (Requirement §201.6(c)(2)(ii))	**Each hazard profile includes discussion on the location, frequency, severity, warning time, exposure and vulnerability for each hazard of concern. See Part 2, Chapters 6 to 17.**		
B4. Does the Plan address NFIP insured structures within the jurisdiction that have been repetitively damaged by floods? (Requirement §201.6(c)(2)(ii))	***Not applicable*. Boise State University is not an eligible participant in the NFIP. However, please note that all of Ada County has no FEMA identified repetitive loss properties.**		
ELEMENT B: REQUIRED REVISIONS			
ELEMENT C. MITIGATION STRATEGY			
C1. Does the plan document each jurisdiction's existing authorities, policies, programs and resources and its ability to expand on and improve these existing policies and programs? (Requirement §201.6(c)(3))	**Part 1, Chapter 3, section 3.6, pages 3-21 to 3-23,** **Please note that BSU is an academic institution that is a service provider and lacks "permit" or "regulatory" authorities. The policies and authorities assessed are limited to those of the University.**		

1. REGULATION CHECKLIST **Regulation** (44 CFR 201.6 Local Mitigation Plans)	**Location in Plan** (section and/or page number)	**Met**	**Not Met**
C2. Does the Plan address each jurisdiction's participation in the NFIP and continued compliance with NFIP requirements, as appropriate? (Requirement §201.6(c)(3)(ii))	**Not Applicable. Boise State University is not an eligible participant in the NFIP.**		
C3. Does the Plan include goals to reduce/avoid long-term vulnerabilities to the identified hazards? (Requirement §201.6(c)(3)(i))	**Part 3, Chapter 19, pages 19-1 to 19-2.**		
C4. Does the Plan identify and analyze a comprehensive range of specific mitigation actions and projects for each jurisdiction being considered to reduce the effects of hazards, with emphasis on new and existing buildings and infrastructure? (Requirement §201.6(c)(3)(ii))	**This planning process identified 8 categories of mitigation for actions identified for BSU to be categorized. BSU identified and prioritized 37 actions that canvased all 8 categories. See part 3, Chapter 20, section 20.4 and table 20-3. Also, please not that each action in table 20-1 identifies if each action applies to new or existing buildings and infrastructure.**		
C5. Does the Plan contain an action plan that describes how the actions identified will be prioritized (including cost benefit review), implemented, and administered by each jurisdiction? (Requirement §201.6(c)(3)(iv)); (Requirement §201.6(c)(3)(iii))	**Each action has been prioritized on defined metrics that emphasize meeting multiple objectives and a qualitative benefit-cost review of each action. See part 3, Chapter 20, section 20.3, pages 20-7 to 20.8.**		
C6. Does the Plan describe a process by which local governments will integrate the requirements of the mitigation plan into other planning mechanisms, such as comprehensive or capital improvement plans, when appropriate? (Requirement §201.6(c)(4)(ii))	**As a service provider that lacks landuse and/or permit authorities, the University's capabilities for this task are limited. However, those capabilities and points of integration have been identified in Part 3, Chapter 21, section 21.3.5, page 21-3.**		
ELEMENT C: REQUIRED REVISIONS			
ELEMENT D. PLAN REVIEW, EVALUATION, AND IMPLEMENTATION (applicable to plan updates only)			
D1. Was the plan revised to reflect changes in development? (Requirement §201.6(d)(3))	**Not Applicable. First, this represents the initial planning effort for the university. Secondly, the University lacks the regulatory authorities to regulate new development on Campus. Any future growth (expansion) of the BSU campus will be addressed in the next plan update in 5-years.**		
D2. Was the plan revised to reflect progress in local mitigation efforts? (Requirement §201.6(d)(3))	**N/A. Initial Planning effort for the University**		
D3. Was the plan revised to reflect changes in priorities? (Requirement §201.6(d)(3))	**N/A. Initial Planning Effort for the University.**		

1. REGULATION CHECKLIST **Regulation** (44 CFR 201.6 Local Mitigation Plans)	**Location in Plan** (section and/or page number)	**Met**	**Not Met**
ELEMENT D: REQUIRED REVISIONS			
ELEMENT E. PLAN ADOPTION			
E1. Does the Plan include documentation that the plan has been formally adopted by the governing body of the jurisdiction requesting approval? (Requirement §201.6(c)(5))	**Pre-Adoption review request. The University will formally adopt the plan upon receipt of "Approval pending Adoption" (APA) from FEMA region X.**		
E2. For multi-jurisdictional plans, has each jurisdiction requesting approval of the plan documented formal plan adoption? (Requirement §201.6(c)(5))	**N/A. Single Jurisdictional Plan.**		
ELEMENT E: REQUIRED REVISIONS			
ELEMENT F. ADDITIONAL STATE REQUIREMENTS (OPTIONAL FOR STATE REVIEWERS ONLY; NOT TO BE COMPLETED BY FEMA)			
F1.			
F2.			
ELEMENT F: REQUIRED REVISIONS			

SECTION 2:
PLAN ASSESSMENT

INSTRUCTIONS: The purpose of the Plan Assessment is to offer the local community more comprehensive feedback to the community on the quality and utility of the plan in a narrative format. The audience for the Plan Assessment is not only the plan developer/local community planner, but also elected officials, local departments and agencies, and others involved in implementing the Local Mitigation Plan. The Plan Assessment must be completed by FEMA. The Assessment is an opportunity for FEMA to provide feedback and information to the community on: 1) suggested improvements to the Plan; 2) specific sections in the Plan where the community has gone above and beyond minimum requirements; 3) recommendations for plan implementation; and 4) ongoing partnership(s) and information on other FEMA programs, specifically RiskMAP and Hazard Mitigation Assistance programs. The Plan Assessment is divided into two sections:

1. Plan Strengths and Opportunities for Improvement
2. Resources for Implementing Your Approved Plan

Plan Strengths and Opportunities for Improvement is organized according to the plan Elements listed in the Regulation Checklist. Each Element includes a series of italicized bulleted items that are suggested topics for consideration while evaluating plans, but it is not intended to be a comprehensive list. FEMA Mitigation Planners are not required to answer each bullet item, and should use them as a guide to paraphrase their own written assessment (2-3 sentences) of each Element.

The Plan Assessment must not reiterate the required revisions from the Regulation Checklist or be regulatory in nature, and should be open-ended and to provide the community with suggestions for improvements or recommended revisions. The recommended revisions are suggestions for improvement and are not required to be made for the Plan to meet Federal regulatory requirements. The italicized text should be deleted once FEMA has added comments regarding strengths of the plan and potential improvements for future plan revisions. It is recommended that the Plan Assessment be a short synopsis of the overall strengths and weaknesses of the Plan (no longer than two pages), rather than a complete recap section by section.

Resources for Implementing Your Approved Plan provides a place for FEMA to offer information, data sources and general suggestions on the overall plan implementation and maintenance process. Information on other possible sources of assistance including, but not limited to, existing publications, grant funding or training opportunities, can be provided. States may add state and local resources, if available.

A. Plan Strengths and Opportunities for Improvement

This section provides a discussion of the strengths of the plan document and identifies areas where these could be improved beyond minimum requirements.

Element A: Planning Process

How does the Plan go above and beyond minimum requirements to document the planning process with respect to: • *Involvement of stakeholders (elected officials/decision makers, plan implementers, business owners, academic institutions, utility companies, water/sanitation districts, etc.);* • *Involvement of Planning, Emergency Management, Public Works Departments or other planning agencies (i.e., regional planning councils);* • *Diverse methods of participation (meetings, surveys, online, etc.); and* • *Reflective of an open and inclusive public involvement process.*

Element B: Hazard Identification and Risk Assessment

In addition to the requirements listed in the Regulation Checklist, 44 CFR 201.6 Local Mitigation Plans identifies additional elements that should be included as part of a plan's risk assessment. The plan should describe vulnerability in terms of: *1) A general description of land uses and future development trends within the community so that mitigation options can be considered in future land use decisions;* *2) The types and numbers of existing and future buildings, infrastructure, and critical facilities located in the identified hazard areas; and* *3) A description of potential dollar losses to vulnerable structures, and a description of the methodology used to prepare the estimate.* *How does the Plan go above and beyond minimum requirements to document the Hazard Identification and Risk Assessment with respect to:* • *Use of best available data (flood maps, HAZUS, flood studies) to describe significant hazards;* • *Communication of risk on people, property, and infrastructure to the public (through tables, charts, maps, photos, etc.);* • *Incorporation of techniques and methodologies to estimate dollar losses to vulnerable structures;* • *Incorporation of Risk MAP products (i.e., depth grids, Flood Risk Report, Changes Since Last FIRM, Areas of Mitigation Interest, etc.); and* • *Identification of any data gaps that can be filled as new data became available.*

Element C: Mitigation Strategy

How does the Plan go above and beyond minimum requirements to document the Mitigation Strategy with respect to:

- *Key problems identified in, and linkages to, the vulnerability assessment;*
- *Serving as a blueprint for reducing potential losses identified in the Hazard Identification and Risk Assessment;*
- *Plan content flow from the risk assessment (problem identification) to goal setting to mitigation action development;*
- *An understanding of mitigation principles (diversity of actions that include structural projects, preventative measures, outreach activities, property protection measures, post-disaster actions, etc);*
- *Specific mitigation actions for each participating jurisdictions that reflects their unique risks and capabilities;*
- *Integration of mitigation actions with existing local authorities, policies, programs, and resources; and*
- *Discussion of existing programs (including the NFIP), plans, and policies that could be used to implement mitigation, as well as document past projects.*

Element D: Plan Update, Evaluation, and Implementation (*Plan Updates Only*)

How does the Plan go above and beyond minimum requirements to document the 5-year Evaluation and Implementation measures with respect to:

- *Status of previously recommended mitigation actions;*
- *Identification of barriers or obstacles to successful implementation or completion of mitigation actions, along with possible solutions for overcoming risk;*
- *Documentation of annual reviews and committee involvement;*
- *Identification of a lead person to take ownership of, and champion the Plan;*
- *Reducing risks from natural hazards and serving as a guide for decisions makers as they commit resources to reducing the effects of natural hazards;*
- *An approach to evaluating future conditions (i.e. socio-economic, environmental, demographic, change in built environment etc.);*
- *Discussion of how changing conditions and opportunities could impact community resilience in the long term; and*
- *Discussion of how the mitigation goals and actions support the long-term community vision for increased resilience.*

B. Resources for Implementing Your Approved Plan

Ideas may be offered on moving the mitigation plan forward and continuing the relationship with key mitigation stakeholders such as the following:

- *What FEMA assistance (funding) programs are available (for example, Hazard Mitigation Assistance (HMA)) to the jurisdiction(s) to assist with implementing the mitigation actions?*
- *What other Federal programs (National Flood Insurance Program (NFIP), Community Rating System (CRS), Risk MAP, etc.) may provide assistance for mitigation activities?*
- *What publications, technical guidance or other resources are available to the jurisdiction(s) relevant to the identified mitigation actions?*
- *Are there upcoming trainings/workshops (Benefit-Cost Analysis (BCA), HMA, etc.) to assist the jurisdictions(s)?*
- *What mitigation actions can be funded by other Federal agencies (for example, U.S. Forest Service, National Oceanic and Atmospheric Administration (NOAA), Environmental Protection Agency (EPA) Smart Growth, Housing and Urban Development (HUD) Sustainable Communities, etc.) and/or state and local agencies?*

SECTION 3:
MULTI-JURISDICTION SUMMARY SHEET (OPTIONAL)

INSTRUCTIONS: For multi-jurisdictional plans, a Multi-jurisdiction Summary Spreadsheet may be completed by listing each participating jurisdiction, which required Elements for each jurisdiction were 'Met' or 'Not Met,' and when the adoption resolutions were received. This Summary Sheet does not imply that a mini-plan be developed for each jurisdiction; it should be used as an optional worksheet to ensure that each jurisdiction participating in the Plan has been documented and has met the requirements for those Elements (A through E).

MULTI-JURISDICTION SUMMARY SHEET

#	Jurisdiction Name	Jurisdiction Type (city/borough/ township/ village, etc.)	Plan POC	Mailing Address	Email	Phone	Requirements Met (Y/N)					
							A. Planning Process	B. Hazard Identification & Risk Assessment	C. Mitigation Strategy	D. Plan Review, Evaluation & Implementation	E. Plan Adoption	F. State Require-ments
1	Boise State University	DRU	Rob Littrell	1910 University, MS#1287 Boise, ID 83725-1287	roblittrell@boisestate.edu	208-426-3638						
2												
3												
4												
5												
6												
7												